# Natural Environment Study

*I-80/SR 65 Interchange Improvements Project*

*Placer County, Interstate 80 and State Route 65*

*03-PLA-80-PM 1.9 to 6.1*
*03-PLA-65-PM R4.8 to R7.3*

*EA 03-4E3200*

**November 2014**

CALIFORNIA DEPARTMENT OF TRANSPORTATION

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STATE OF CALIFORNIA
Department of Transportation
District 3

Prepared By: ______________________ Date: November 5, 2014


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# Summary

## S.1 Project Description

The California Department of Transportation (Caltrans), in cooperation with the Placer County Transportation Planning Agency (PCTPA), Placer County, and the Cities of Roseville, Rocklin, and Lincoln (collectively referred to as the project proponent), proposes to improve the Interstate 80/State Route 65 (I-80/SR 65) interchange in Placer County, California, to reduce future traffic congestion, improve operations and safety, and comply with current Caltrans and local agency design standards.

## S.2 Purpose and Need

The proposed project proposes to improve the I-80/SR 65 interchange in Placer County, California, in order to reduce future traffic congestion, improve operations and safety, and comply with current Caltrans and local agency design standards. Construction of the proposed improvements has independent utility. The proposed project is not dependent on other projects or improvements to meet the purpose and need.

## S.3 Summary of Results and Impacts

Survey results and potential project-related impacts on waters of the United States (which also are considered waters of the State), natural communities of special concern, and special-status species in the biological study area (BSA) (defined in Chapter 2) are summarized below.

### S.3.1 Waters of the United States/Waters of the State, Including Wetlands

Seven types of potential waters of the United States (including wetlands) were delineated in the BSA, including riparian forest/shrub wetlands, emergent wetlands, vernal pools, seasonal wetlands, perennial streams, intermittent streams, and ephemeral streams. The preliminary wetland delineation report is included in Appendix C, and the temporary and permanent impacts on potential waters of the United States (including wetlands) are summarized in Table S-1. As of the date of this report, the delineation has not been submitted to the U.S. Army Corps of Engineers (USACE) Sacramento District for a preliminary jurisdictional determination.

### S.3.2 Natural Communities of Special Concern and Native Trees

Six types of natural communities of special concern were identified and mapped in the BSA including vernal pool, seasonal wetland, emergent wetland, riparian forest/shrub wetland, non-wetland riparian forest, and oak woodland. The temporary and permanent impacts on all natural communities of special concern are summarized in Table S-1.

**Table S-1. Impacts on Waters of the United States/Waters of the State and Natural Communities of Special Concern by Alternative**

| Resource Type | Alternative 1 | | Alternative 2 | | Alternative 3 | |
|---|---|---|---|---|---|---|
| | ***Temporary (acres)*** | ***Permanent (acres)*** | ***Temporary (acres)*** | ***Permanent (acres)*** | ***Temporary (acres)*** | ***Permanent (acres)*** |
| Perennial stream | 0.056 | 0.034 | 0.000 | 0.004 | 0.000 | 0.007 |
| Intermittent stream | 0.000 | 0.003 | 0.000 | 0.003 | 0.000 | 0.003 |
| Ephemeral stream | 0 | 0 | 0 | 0 | 0 | 0 |
| Vernal pool | 0 | 0.030 | 0 | 0.030 | 0 | 0.030 |
| Seasonal wetland | 0.066 | 0.115 | 0.066 | 0.115 | 0.066 | 0.115 |
| Emergent wetland | 0.194 | 0.116 | 0.194 | 0.116 | 0.194 | 0.116 |
| Riparian forest/ shrub wetland | 0.181 | 0.004 | 0.181 | 0.004 | 0.181 | 0.004 |
| Non-wetland riparian forest | 1.152 | 0.331 | 1.039 | 0.461 | 1.059 | 0.540 |
| Oak woodland | 1.714 | 4.654 | 1.304 | 4.837 | 1.277 | 4.897 |

## S.3.3 Special-Status Species

Project-related direct (temporary and permanent) and indirect impacts on special-status species are summarized below.

### S.3.3.1 Special-Status Plants

The proposed project was determined to not have the potential to affect special-status plant species based on the negative results of appropriately timed botanical surveys, the absence of suitable microhabitat (i.e., soil types), and species' elevation range requirements that are substantially higher than the elevation of the BSA.

### S.3.3.2 Special-Status Wildlife

The following potential impacts on special-status wildlife species could result from project construction.

- Potential direct and indirect impacts on elderberry shrubs that provide habitat for valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*).
- Potential direct and indirect impacts on vernal pools that provide potential habitat for vernal pool fairy shrimp (*Branchinecta lynchi*).
- Loss of habitat and potential disturbance of western spadefoot (*Spea hammondii*) and Pacific pond turtle (*Actinemys marmorata*) during construction activities within aquatic habitats and ground disturbance in nearby uplands.
- Potential disturbance of nesting burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*),

purple martin (*Progne subis*), tricolored blackbird (*Agelaius tricolor*), and other migratory birds and raptors from construction noise and activity.

- Potential disturbance of actively roosting bats within existing structures or large trees.

The temporary and permanent impacts on special-status wildlife by each build alternative are summarized in Table S-2.

**Table S-2. Impacts on Special-Status Wildlife by Alternative**

| Resource Type | Alternative 1 | | Alternative 2 | | Alternative 3 | |
|---|---|---|---|---|---|---|
| | *Temporary* | *Permanent* | *Temporary* | *Permanent* | *Temporary* | *Permanent* |
| **Direct Impacts** | | | | | | |
| Elderberry shrubs (host plant for VELB) | N/A | 2 shrubs | N/A | 2 shrubs | N/A | 3 shrubs |
| Vernal pool fairy shrimp | N/A | 0.043 acre | N/A | 0.043 acre | N/A | 0.043 acre |
| Western spadefoot (aquatic) | 0.308 acre | 0.119 acre | 0.308 acre | 0.119 acre | 0.313 acre | 0.119 acre |
| Western spadefoot (upland) | 3.901 acres | 0.085 acre | 3.901 acres | 0.085 acre | 3.901 acres | 0.085 acre |
| Pacific pond turtle (aquatic) | 0.056 acre | 0.034 acre | 0 | 0.004 acre | 0 | 0.007 acre |
| Pacific pond turtle (upland) | 8.166 acres | 5.070 acres | 8.643 acres | 5.383 acres | 8.636 acres | 5.522 acres |
| Swainson's hawk and white-tailed kite (nesting) | 2.866 acres | 4.985 acres | 2.343 acres | 5.298 acres | 2.336 acres | 5.437 acres |
| Tricolored blackbird (nesting) | 0.375 acre | 0.120 acre | 0.375 acre | 0.120 acre | 0.375 acre | 0.120 acre |
| Northern harrier (nesting) | 2.593 acres | 0.201 acre | 2.593 acres | 0.201 acres | 2.593 acres | 0.201 acre |
| Swainson's hawk, white-tailed kite, northern harrier, and tricolored blackbird (foraging); burrowing owl (nesting and foraging) | 2.399 acres | 0.085 acre | 2.399 acres | 0.085 acre | 2.399 acres | 0.085 acre |
| Structure-nesting birds and roosting bats | Yes | Yes | Yes | Yes | Yes | Yes |
| **Indirect Impacts** | | | | | | |
| Elderberry shrubs (host plant for VELB) | N/A | 3 shrubs | N/A | 3 shrubs | N/A | 2 shrubs |
| Vernal pool fairy shrimp | N/A | 0.0351 acre | N/A | 0.351 acre | N/A | 0.351 acre |

*Note*: All direct impacts on valley elderberry longhorn beetle (VELB) and vernal pool fairy shrimp habitat are considered permanent because temporary impacts could result in incidental take.

### S.3.3.3 Special-Status Fish

The following potential impacts on special-status fish species could result from proposed project construction.

- Potential construction effects to Central Valley steelhead (*Oncorhynchus mykiss*) and Central Valley fall–run Chinook salmon (*O. tshawytscha*) from disturbance and direct injury, increased turbidity and sedimentation, and potential discharges of contaminants.
- Temporary effects to shaded riverine aquatic (SRA) cover from site clearing associated with constructing temporary platforms to support construction of falsework, constructing access roads, and installing temporary bridge crossings (e.g., Bailey bridges).

- Permanent effects to SRA cover, including instream cover (substrate and instream woody material) and overhead riparian vegetation (shade) on Antelope Creek from widening of the East Roseville Viaduct, on Miners Ravine from constructing a new bridge and widening of the existing Eureka Road off-ramp, and on Secret Ravine from constructing new on-ramps and connectors.
- Net creation of permanent over-water structure (shade) on Antelope Creek from widening of the East Roseville Viaduct, on Miners Ravine from constructing a new bridge and widening of the existing Eureka Road off-ramp, and on Secret Ravine from constructing new on-ramps and connectors.
- Permanent loss of substrate and water column from two in-water piers associated with widening of the East Roseville viaduct.
- Temporary and permanent adverse effects to designated critical habitat for Central Valley steelhead from impacts on SRA cover habitat and water quality impacts on Miners Ravine and Secret Ravine.
- Potential temporary adverse effects to essential fish habitat (EFH) for Chinook salmon from increased turbidity and sedimentation, potential discharges of contaminants, and loss of SRA cover from along Antelope Creek, Miners Ravine, and Secret Ravine.

The temporary and permanent impacts on special-status fish from loss of overhead SRA cover vegetation are summarized in Table S-3 by each build alternative.

**Table S-3. Impacts on Overhead SRA Cover Vegetation by Alternative**

| Creek/Reach | Alternative 1 | | Alternative 2 | | Alternative 3 | |
|---|---|---|---|---|---|---|
| | Temporary (ft) | Permanent (ft) | Temporary (ft) | Permanent (ft) | Temporary (ft) | Permanent (ft) |
| Antelope Creek | 46 | 409 | 46 | 409 | 46 | 409 |
| Miners Ravine | 0 | 0 | 37 | 76 | 36 | 24 |
| **Secret Ravine** | | | | | | |
| Reach 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reach 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reach 3 | 154 | 221 | 142 | 153 | 142 | 153 |
| Reach 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reach 5 | 266 | 119 | 0 | 148 | 0 | 148 |
| **Total** | **466** | **749** | **225** | **786** | **224** | **734** |

#### S.3.3.4 Protected Trees

Native oak trees eligible for protection under the tree ordinances of either the City of Roseville or the City of Rocklin occur throughout the BSA. Native oak species known to occur in the BSA are valley oaks, interior live oaks, and blue oaks. Roadway improvements, bridge construction, and temporary access within riparian forest and oak woodland habitats would result in removal or disturbance of protected trees. Implementation of the proposed avoidance and minimization efforts and compensatory mitigation identified in Chapter 4 will reduce short-term and long-term impacts on protected trees.

#### S.3.3.5 Invasive Plants

Invasive plant species were identified in the BSA. The proposed construction activities have the potential to further spread invasive species within and beyond the BSA. The spread of invasive plant species would result in potential long-term degradation of natural communities and would conflict with Executive Order 13112 (*Prevention and Control of Invasive Species*). Implementation of the proposed avoidance and minimization efforts identified in Chapter 4 will minimize the spread of invasive plant species resulting from project construction.

## S.4 Permit Requirements

The project proponent will obtain and implement the conditions of the permits, and will comply with the requirements of the executive orders listed in Table S-4. For more detail, see Chapter 5.

**Table S-4. Permits and Approvals Potentially Required for the Proposed Project**

| Permit/Approval | Approving Agency |
|---|---|
| Endangered Species Act Section 7: inter-agency consultation | USFWS and NMFS |
| Magnuson-Stevens Fishery Conservation and Management Act | NMFS |
| Clean Water Act Section 404: placement of fill | USACE Sacramento District |
| Clean Water Act Section 401: Water Quality Certification | Central Valley RWQCB |
| Executive Order 11990: Protection of Wetlands | FHWA |
| Executive Order 12962: Recreational Fisheries | FHWA |
| Executive Order 13112: Prevention and Control of Invasive Species | FHWA |
| Executive Order 13186: Migratory Bird Treaty Act | FHWA |
| Senate Bill 857: Fish Passage Assessment | NMFS |
| California Fish and Game Code Section 1602 | CDFW |
| California Fish and Game Code Sections 3503 and 3503.5: protection of birds and raptors | CDFW |
| California Fish and Game Code Sections 3511, 3513, 4700, and 5050: fully protected species | CDFW |
| City of Roseville Open Space Preserve Overarching Management Plan | City of Roseville/USACE Sacramento District/USFWS |
| Tree permits | City of Roseville and City of Rocklin |

## S.5 Mitigation Agreements

As part of the proposed project, the project proponent will implement avoidance and minimization measures and will provide mitigation compensation, as shown in Table S-5 and described in more detail in Chapter 4. These measures have been identified on the basis of natural resources determined to be present in or having the potential to occur in the BSA, and the potential project-related impacts. All of the measures listed below are applicable to all three build alternatives.

## Table S-5. Avoidance and Minimization Efforts and Compensatory Mitigation

| Description of Measure |
|---|
| **Avoidance and Minimization Efforts** |
| Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources |
| Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel |
| Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats |
| Measure 6: Protect Water Quality and Minimize Sedimentation Runoff in Wetlands and Other Waters |
| Measure 9: Establish a Minimum 20-Foot-Wide Buffer around the Elderberry Shrub |
| Measure 10: Transplant Elderberry Shrubs That Cannot Be Avoided or Implement Dust Control Measures during Construction |
| Measure 12: Avoid and Minimize Potential Indirect Impacts on Vernal Pool Fairy Shrimp Habitat |
| Measure 14: Provide Escape Ramps for Wildlife and Inspect Pits and Trenches Daily |
| Measure 15: Conduct a Pre-Construction Survey for Pacific Pond Turtle and Exclude Turtles from Work Area |
| Measure 16: Conduct Pre-Construction Surveys for Burrowing Owl and Establish Exclusion Zones, if Necessary |
| Measure 17: Conduct Vegetation Removal during the Non-Breeding Season and Conduct Pre-Construction Surveys for Swainson's Hawk |
| Measure 18: Conduct Vegetation Removal during the Non-Breeding Season and Conduct Pre-Construction Surveys for Nesting Migratory Birds and Raptors |
| Measure 19: Remove or Modify Existing Structures during the Non-Breeding Season for Purple Martin and Other Structure-Nesting Migratory Birds or Implement Exclusion Measures to Deter Nesting |
| Measure 20: Conduct Pre-Construction Surveys for Roosting Bats and Implement Protection Measures |
| Measure 21: Limit All In-Channel Construction Activities to the June 15 to October 15 Period |
| Measure 22: Prevent Temporary Lighting from Directly Radiating on Water Surfaces of Antelope Creek, Miners Ravine, and Secret Ravine during Nighttime Construction |
| Measure 23: Avoid and Minimize the Spread of Invasive Plant Species during Project Construction |
| **Compensatory Mitigation** |
| Measure 4: Compensate for the Temporary and Permanent Loss of Non-Wetland Riparian Forest (including SRA Cover) |
| Measure 5: Compensate for the Permanent Loss of Oak Woodland |
| Measure 7: Compensate for the Temporary and Permanent Impacts on Wetlands |
| Measure 8: Compensate for the Placement of Permanent Fill into Waters of the United States/Waters of the State |
| Measure 11: Compensate for Direct Effects on Valley Elderberry Longhorn Beetle Habitat |
| Measure 13: Compensate for Direct and Indirect Impacts on Vernal Pool Fairy Shrimp Habitat |

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# List of Tables

# List of Abbreviated Terms

| | |
|---|---|
| ° | degrees |
| AMSL | above mean sea level |
| BA | Biological Assessment |
| Basin Plans | Water Quality Control Basin Plans |
| BMP | best management practice |
| BO | biological opinion |
| BSA | biological study area |
| C | Celsius |
| Cal-IPC | California Invasive Plant Council |
| Caltrans | California Department of Transportation |
| CCR | California Code of Regulations |
| C-D | Collector–Distributor |
| CDFA | California Department of Food and Agriculture |
| CDFG | California Department of Fish and Game |
| CDFW | California Department of Fish and Wildlife |
| Central Valley Subprovince | Sacramento-San Joaquin Province |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| CFGC | California Fish and Game Code |
| CFR | Code of Federal Regulations |
| CNDDB | California Natural Diversity Database |
| CNPPA | California Native Plant Protection Act |
| CNPS | California Native Plant Society |
| CWA | Clean Water Act |
| dbh | diameter at breast height |
| DPS | distinct population segment |
| EFH | essential fish habitat |
| EIR | Environmental Impact Report |
| EO | Executive Order |
| EPA | U.S. Environmental Protection Agency |
| ESA | federal Endangered Species Act |
| ESA | Environmentally Sensitive Areas |
| ESU | Evolutionarily Significant Unit |
| FHWA | Federal Highway Administration |
| FR | Federal Register |
| HOV | high-occupancy vehicle |

| | |
|---|---|
| HUC | hydrologic unit code |
| I 80/I 680/SR 12 | Interstate 80/Interstate 680/State Route 12 |
| I-80/SR 65 | Interstate 80/State Route 65 |
| ICF | ICF International |
| ISAC | Invasive Species Advisory Committee |
| kV | kilovolt |
| LSAA | Lake or Streambed Alteration Agreement |
| MBTA | Migratory Bird Treaty Act |
| mm | millimeters |
| MOU | memorandum of understanding |
| MSA | Magnuson-Stevens Fishery Management and Conservation Act |
| MSE | mechanically stabilized earth |
| NCCP | Natural Community Conservation Plan |
| NEPA | National Environmental Policy Act |
| NES | natural environment study |
| NISC | National Invasive Species Council |
| NMFS | National Marine Fisheries Service |
| NPDES | Pollutant Discharge Elimination System |
| NTUs | nephelometric turbidity units |
| OSPOMP | Open Space Preserve Overarching Management Plan |
| PAHs | polycyclic aromatic hydrocarbons |
| PCTPA | Placer County Transportation Planning Agency |
| PG&E | Pacific Gas and Electric |
| PSR | project study report |
| SAA | streambed alteration agreement |
| SMUD | Sacramento Municipal Utility District |
| SRA | shaded riverine habitat |
| State Water Board | State Water Resources Control Board |
| SWPPP | stormwater pollution prevention plan |
| TSM | Transportation system management |
| UPRR | Union Pacific Railroad |
| USACE | U.S. Army Corps of Engineers |
| USC | United States Code |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| VELB | Valley elderberry longhorn beetle |
| WDR | waste discharge requirement |

# Chapter 1 Introduction

This Natural Environment Study (NES) report was prepared for the Interstate 80/State Route 65 (I-80/SR 65) Interchange Improvements Project (proposed project). The California Department of Transportation (Caltrans), in cooperation with the Placer County Transportation Planning Agency (PCTPA), Placer County, and the Cities of Roseville, Rocklin, and Lincoln (collectively referred to as the project proponent), proposes to improve the I-80/SR 65 interchange in Placer County, California, to reduce future traffic congestion, improve operations and safety, and comply with current Caltrans and local agency design standards.

The project is subject to state and federal environmental review requirements because the use of federal funds from the Federal Highway Administration (FHWA) is proposed. Accordingly, project documentation is being prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Caltrans is the state lead agency for CEQA and the federal lead agency under FHWA assignment of NEPA responsibilities to Caltrans pursuant to 23 U.S. Code (USC) 327. This report also supports efforts to obtain agreements, permits, and concurrence needed to construct the proposed project.

## 1.1 Project Location

The proposed project is located in Placer County in the cities of Roseville and Rocklin at the interchange (Figure 1: all figures are contained in Appendix A). The project limits consist of I-80 from the Douglas Boulevard interchange to the Rocklin Road interchange (post miles 1.9–6.1) and SR 65 from the I-80 separation to the Pleasant Grove Boulevard interchange (post miles R4.8–R7.3). The total length of the project is 2.5 miles along SR 65 and 4.2 miles along I-80. The proposed project also includes various local roads—specifically, portions of Galleria Boulevard/Stanford Ranch Road, Pleasant Grove Boulevard, Eureka Road/Atlantic Street, East Roseville Parkway, and Taylor Road.

## 1.2 Project History

Constructed in 1985, the existing I-80/SR 65 interchange is a type F-6 freeway-to-freeway interchange. In 2009, Caltrans completed a project study report (PSR) for upgrading the I-80/SR 65 interchange to remedy operational problems caused by high peak-period traffic volumes and inefficient geometry. The PSR identified three build alternatives that would add a bi-directional high-occupancy vehicle (HOV) direct connector ramp, replace the existing loop connector, widen the East Roseville Viaduct, replace the Taylor Road overcrossing, and increase capacity on the connector ramps. Other interchanges and local roads within the project area also would be affected to accommodate the proposed upgrades identified in the PSR.

## 1.3 Purpose and Need

The proposed project proposes to improve the I-80/SR 65 interchange in Placer County, California, in order to reduce future traffic congestion, improve operations and safety, and comply with current Caltrans and local agency design standards. Construction of the proposed improvements has independent utility. The proposed project is not dependent on other projects or improvements to meet the purpose and need.

Termini (i.e., limits) for the proposed project were developed through an iterative process involving engineering design and traffic operations analysis. Preliminary design concepts were tested with the traffic operations analysis model to evaluate how lane transitions and vehicle weaving influenced peak-hour conditions. Refinements were made to ensure that mainline lane balance was logical and that transitions did not cause unacceptable traffic operations such as extensive queuing or reduced speeds.

### 1.3.1 Purpose

The purpose and objectives of the proposed project are listed below.

- Upgrade the I-80/SR 65 interchange and adjacent transportation facilities to reduce no-build traffic congestion.
- Upgrade the I-80/SR 65 interchange and adjacent transportation facilities to comply with current Caltrans and local agency design standards for safer and more efficient traffic operations while maintaining and, where feasible, improving the current level of community access, at a minimum.
- Consider all travel modes and users in developing project alternatives.

### 1.3.2 Need

The proposed project is needed for the following reasons.

- Recurring morning and evening peak-period demand exceeds the current design capacity of the I-80/SR 65 interchange and adjacent transportation facilities, creating traffic operations and safety issues. These issues result in high delays and wasted fuel, both of which will be exacerbated by traffic from future population and employment growth.
- Interchange design features do not comply with current Caltrans design standards for safe and efficient traffic operations, and limit the existing community access to nearby land uses.

- Travel choices are limited in the project area because the transportation network does not include facilities for all modes and users consistent with the complete streets policies of Caltrans and local agencies.

## 1.4 Project Description

This section describes the proposed project and the design alternatives. The following build alternatives are under consideration and were designed to satisfy the purpose and need identified in Section 1.2, "Purpose and Need," while avoiding or minimizing environmental impacts.

- Alternative 1—Taylor Road Full Access Interchange
- Alternative 2—Collector–Distributor (C-D) System Ramps
- Alternative 3—Taylor Road Interchange Eliminated

The proposed project is located in Placer County in the cities of Roseville and Rocklin at the I-80/SR 65 interchange. The project limits consist of I-80 from the Douglas Boulevard interchange to the Rocklin Road interchange (post miles 1.9–6.1) and SR 65 from the I-80 separation to the Pleasant Grove Boulevard interchange (post miles R4.8–R7.3). The existing I-80/SR 65 interchange is a type F-6 freeway-to-freeway interchange. The proposed build and no-build (no-project) alternatives are described below.

### 1.4.1 Build Alternatives

Three build alternatives are proposed. Alternatives 1–3 propose to add capacity, a bi-directional HOV system, and high-speed connector ramps. Local and regional circulation and access would be improved, as would vehicle lane-weaving conditions along I-80 between Eureka Road/ Atlantic Street and Taylor Road, and along SR 65 between the I-80/SR 65 interchange and Galleria Boulevard/Stanford Ranch Road. Other improvements would include widening the East Roseville Viaduct, replacing the Taylor Road overcrossing, and realigning the existing eastbound I-80 to northbound SR 65 loop connector.

Each of the three build alternatives are depicted in Figures 2, 3, and 4, respectively.

#### 1.4.1.1 Common Design Features of the Build Alternatives

The build alternatives—Alternatives 1, 2, and 3—include common design features and have similar phasing approaches, staging, storage, and site access. Common design features of the build alternatives are listed below. For alignment and other improvement features that differ between alternative, see the individual alternative descriptions in Section 1.4.1.2, "Unique Features of the Build Alternatives."

- I-80 would be widened to add one or two mixed-flow lanes and one or two auxiliary lanes in each direction of travel, depending on the location within the project limits. A retaining wall would be constructed in the eastbound direction between the Eureka Road interchange and the Roseville Parkway overcrossing. A tie-back wall would be constructed in the eastbound direction under the Roseville Parkway overcrossing.
- SR 65 would be widened to include one HOV lane, one additional mixed-flow lane, and one or two auxiliary lanes in each direction of travel, depending on the location within the project limits. Widening along SR 65 would occur on both the inside and outside of the existing pavement in both the northbound and southbound directions. The median would be fully paved and would include a concrete barrier. An additional concrete barrier would be added in the northbound direction between the HOV and general purpose lanes to prevent vehicle lane weaving between I-80 and the Galleria Boulevard/Stanford Ranch Road interchange. In the southbound direction, a 4-foot-wide pavement delineation soft barrier would separate the HOV and general purpose lanes to prohibit vehicle lane weaving between the Galleria Boulevard/Stanford Ranch Road on-ramp and the HOV direct connector ramp.
- The SR 65 mainline widening would require reconstruction of the ramp connections for all of the Galleria Boulevard/Stanford Ranch Road interchange ramps. The northbound Stanford Ranch Road slip off-ramp would be widened to two lanes to accommodate a future project at the ramp terminus. A retaining wall would be required along northbound SR 65 under the Galleria Boulevard/Stanford Ranch Road overcrossing to accommodate the northbound Galleria Boulevard loop off-ramp improvements. The southbound Galleria Boulevard/Stanford Ranch Road on-ramp would be reconstructed to a two-lane ramp plus HOV preferential lane. The southbound Pleasant Grove Boulevard on-ramp also would be adjusted to accommodate the mainline widening. The existing wetland near the Pleasant Grove Boulevard on-ramp would not be affected and would be protected as an environmentally sensitive area during construction. The widening along SR 65 would occur within the existing right-of-way.
- The East Roseville Viaduct would be widened in the northbound and southbound directions, spanning Antelope Creek, Union Pacific Railroad (UPRR) tracks, and Taylor Road. The existing parallel structures would be widened on both sides and would require additional columns to support the widened structures. Bridge design requires that the widened portion of structures be configured similarly to the existing structure in order to provide consistent performance in regard to structure stiffness, deflection control, and seismic performance. Therefore, the additional columns would be placed parallel to the existing columns along the entire length of the viaduct. The viaduct widening in the northbound direction would shift the edge of deck approximately 33 feet closer to the Hearthstone apartment complex, and the

widening in the southbound direction would shift the edge of deck approximately 10 feet closer to the Preserve at Creekside apartment complex.

- All proposed permanent columns, footings, and foundations for the East Roseville Viaduct would be located above the ordinary high water mark of Antelope Creek, except at two locations. The two locations in Antelope Creek are on the upstream side of the northbound SR 65 widening. Structural stability of the bridge does not allow relocation of the columns.
- Although the viaduct structure is conventional, it is a large structure that will require a full construction season to construct. The proposed design of the structure is configured into smaller frames to allow it to be constructed in segments. Building the viaduct in segments allows the contractor to break up the work such that operations can be focused in smaller areas. For instance, the two columns in Antelope Creek can be constructed separately from other elements of the bridge to meet seasonal in-water restrictions. With appropriate construction staging, the portion of the viaduct over Antelope Creek would be constructed in approximately 4 months.
- Construction of the column foundations of the East Roseville Viaduct would use large-diameter (8- to 10-foot) steel-cased drilled shafts. The drilled shafts would minimize acoustic disturbance compared to a driven pile foundation. For the two columns affecting Antelope Creek, the steel casing would provide a construction zone similar to a cofferdam, but with less impact on the streambed because all construction activities can be confined inside of the 8- to 10-foot steel casing. The proposed column construction includes the following order of work.
    - Drill the shaft to the desired depth.
    - Auger out the material inside the steel casing and dispose of the materials per best management practices (BMPs).
    - Install reinforcing bar cage inside the casing, and pour the foundation and column. The foundation elevation would remain below the bottom elevation of the creek channel. Therefore, permanent impacts on the creek would consist of the viaduct column, which is smaller (approximately 5 by 8 feet) than the foundation diameter.
    - Remove the steel casing after foundation construction is complete, or leave it in place and cut-off below the mud line of Antelope Creek.
- The existing eastbound I-80 to northbound SR 65 loop connector would be removed and replaced with a high-speed three-lane flyover. The existing eastbound to northbound and southbound to eastbound connector structures over I-80 would be removed and replaced, including removal of the existing piers and abutments. Approach roadways would be removed, and the areas would be regraded.
- One lane of capacity would be added to each connector ramp by realigning the existing ramps. The westbound to northbound connector ramp (WN Line) would be constructed on

fill, with a retaining wall along a portion of the outside shoulder; the southbound to eastbound (SE Line) and eastbound to northbound (EN Line) connector ramps would consist of a combination of fill, retaining walls, and structures.

- A direct connecting HOV ramp would be added to serve eastbound I-80 to northbound SR 65 and southbound SR 65 to westbound I-80. The HOV connector would be located in the I-80 median and would be retained by mechanically stabilized earth (MSE) walls before transitioning to a structure over westbound I-80 and other local or connector ramps. The HOV connector would transition back to fill with a cast-in-place retaining wall along the shoulder before conforming to the East Roseville Viaduct.
- The existing I-80/Taylor Road ramp connections (eastbound off-ramp and westbound on-ramp) would be modified. The existing access from I-80 to the eastbound Taylor Road off-ramp would be removed and either relocated or reconfigured, depending on the alternative.
- Taylor Road within the project limits would be improved, including replacement of the Taylor Road overcrossing. The structure would be replaced to accommodate the I-80 widening, with a profile correction until conforming to the existing road grade. The facility would be widened to accommodate anticipated traffic volumes, but the number of lanes would vary by alternative. Curb, gutter, and sidewalk would be constructed along the south side of Taylor Road. Driveways also would be modified to conform to the roadway widening.
- Other ramps and intersections of the I-80/Eureka Road/Atlantic Street interchange, the SR 65/Galleria Boulevard/Stanford Ranch Road interchange, and the SR 65/Pleasant Grove Boulevard interchange would be improved.
- The southbound SR 65 to eastbound I-80 connector would be realigned and widened to two lanes; it would begin on fill before transitioning to structure in order to span various roadways and a portion of Secret Ravine. An approximately 400-foot-long retaining wall would be required along the outside shoulder, prior to the structure, to separate the roadway from the southbound SR 65 to westbound I-80 connector. This connector would be the top (fourth) level of the interchange structures, reaching a maximum elevation of approximately 80 feet above the I-80 mainline, decreasing in elevation as it transitions to eastbound I-80. Structure columns would be placed such that they avoid the Secret Ravine floodway, but they may be located within the designated 100-year floodplain. Once back within the existing right-of-way (approximate station 139+00), the SE connector would be constructed in a combination of cut and fill, requiring a retaining wall along the outside shoulder before merging with eastbound I-80.
- The SE connector is proposed to be constructed with cast-in-place concrete; this will require the use of temporary falsework and supports approximately every 60 feet, which would

create both permanent and temporary disturbance areas in the Olympus Pointe Open Space Preserve.

- To avoid potential impacts on fish, pile driving would not be used as a construction method in or immediately adjacent to Secret Ravine, Miners Ravine, or Antelope Creek. No columns or other project elements would be permanently constructed in Secret Ravine or Miners Ravine. Up to two temporary crossings (e.g., Bailey bridges) of Secret Ravine, above the ordinary high water mark, and one temporary crossing of Antelope Creek may be necessary during construction.
- Temporary falsework platforms are required to construct the cast-in-place structures at Miners Ravine, Secret Ravine, and Antelope Creek. The platforms would be constructed above the ordinary high water mark.
- Transportation system management (TSM) features identified in Alternative 4 would be incorporated into the build alternatives. (See Section 1.3.4.1, "Alternative 4—Transportation System Management.") The following TSM features are common to each build alternative.
    - Freeway auxiliary lanes in both direction on SR 65 between I-80 and the Galleria Boulevard/Stanford Ranch Road interchange.
    - Ramp widening for storage and HOV bypass lane on the southbound Galleria Boulevard on-ramp.

#### 1.4.1.2 Unique Features of the Build Alternatives

***Alternative 1—Taylor Road Full Access Interchange***

Alternative 1 would improve spacing and vehicle lane-weaving movements between interchanges on I-80. The two existing Taylor Road interchange ramps would be relocated to the east and reconstructed in a Type L-1/L-12 interchange configuration, providing two additional ramp connections and improving access between the local streets and freeway system. The interchange would be positioned within the I-80/SR 65 interchange footprint and would use portions of the existing eastbound I-80 to northbound SR 65 loop connector as well as the existing southbound SR 65 to eastbound I-80 connector. The existing Taylor Road interchange ramps would be removed, and the area would be regraded.

<u>*Roadway Improvements*</u>

*I-80 Mainline Improvements*

Alternative 1 proposes a 2-foot-wide pavement delineation soft barrier between the HOV lanes and general purpose lanes to prohibit vehicles from weaving between the HOV lanes and Eureka Road/Atlantic Street interchange. This soft barrier is proposed in both the eastbound and westbound directions for Alternative 1.

### *Eastbound I-80 to Northbound SR 65 (EN) Connector*

The EN connector would be realigned into a flyover and widened to three lanes for each alternative. Alternative 1 would consist of a three-lane diverge from eastbound I-80, and retaining walls would be constructed on each side of the connector to minimize right-of-way impacts and impacts on Secret Ravine. The EN connector would transition from fill to a structure that would span a parallel portion of Secret Ravine and various roadways before transitioning back to fill and conforming to the westbound I-80 to northbound SR 65 connector and East Roseville Viaduct. The proposed structures along Secret Ravine are configured and designed (e.g., the use of outrigger options) so that all permanent features (columns, footings, and foundations) would be located above the ordinary high water mark. Some of the proposed foundations are large-diameter drilled shaft foundations; these foundations would be located such that the spoils from the drilling operations would not affect the streambed. The use of drilled shafts would minimize acoustic disturbance compared to a driven pile foundation.

### *Westbound I-80 to Northbound SR 65 (WN) Connector*

With the exception of the location of the ramp diverge, the WN connector is the same across the three build alternatives. Alternative 1 exits westbound I-80 earlier due to its proximity to the westbound Taylor Road off-ramp.

### *Southbound SR 65 to Eastbound I-80 (SE) Connector*

In all three build alternatives, the SE connector would be realigned and widened to two lanes and would begin on fill before transitioning to a structure that would span various roadways and Secret Ravine. An approximately 400-foot-long retaining wall would be required along the outside shoulder, prior to the structure, to separate the roadway from the SW connector. This connector would be the top (fourth) level of the interchange structures, reaching an elevation of approximately 80 feet above the I-80 mainline. Structure columns would be placed such that they avoid the Secret Ravine floodway but may be located within the designated 100-year floodplain. Once back within the existing right-of-way (approximate station 139+00), the SE connector would be constructed in a combination of cut and fill, requiring a retaining wall along the outside shoulder. Roadway geometrics for Alternative 1 require several hundred feet of the SE I-80 merge ramp to fall permanently below the ordinary high water mark of Secret Ravine.

### *Southbound SR 65 to Westbound I-80 (SW) Connector*

In all three build alternatives, the SW connector would be realigned and widened to three lanes. For Alternative 1, the SW connector would have the largest footprint compared to the other two build alternatives due to the location of the westbound Taylor Road on-ramp. A bridge along the SW connector would be required to span the proposed ramp roadway below that connects the relocated Taylor Road interchange ramps to the existing Taylor Road. The rest of the

SW connector would be constructed on fill, with retaining walls along portions of the outside shoulder.

### *Taylor Road*

The ramp connections to the relocated Taylor Road interchange would descend from the I-80 mainline and would be constructed in cut. Retaining walls would be required on portions of the westbound Taylor Road off-ramp (T3) due to its proximity to the WN connector ramp. A new ramp roadway ("T" Line) would be constructed to connect the Taylor Road interchange ramps to the existing Taylor Road on the west side of the East Roseville Viaduct. This connection would cross under I-80, requiring two bridges along I-80—one in each direction.

The proposed eastbound Taylor Road on-ramp and off-ramp would use portions of the existing eastbound I-80 to northbound SR 65 and southbound SR 65 to eastbound I-80 connector ramps. Portions of the existing ramps not used by the proposed Taylor Road ramps would be removed, and the area would be regraded.

The four Taylor Road ramps would intersect at a new stop-controlled intersection on the north side of I-80. The ramp roadway would intersect with the existing Taylor Road at a new signalized intersection. Due to the location of this proposed signalized intersection, the adjacent existing driveway at Stonehouse Court would need to be reconfigured and shifted west only in Alternative 1. Taylor Road would be widened to include two turn pockets required at the signalized intersection.

The Taylor Road overcrossing would consist of four lanes and have a longer span due to the proposed location of the SW connector along westbound I-80. Because the Taylor Road ramps would be relocated in Alternative 1, ramps would no longer connect to the Taylor Road overcrossing. The existing ramps would be removed, and the area would be regraded.

### *Eureka Road/Atlantic Street Interchange Ramps*

The Eureka Road/Atlantic Street ramps would remain in the same location and would be adjusted to accommodate widening of the I-80 mainline. The eastbound Eureka Road loop ramp would be shifted closer to Miners Ravine. A retaining wall would be added to the outside shoulder to minimize additional impacts on the floodplain. Existing pavement not used by the reconfiguration would be removed, and the area would be regraded.

Because the Taylor Road full access interchange is proposed in Alternative 1, the traffic volumes along the eastbound Eureka Road off-ramp do not warrant improvements or an auxiliary lane between the eastbound Douglas Boulevard on-ramp and eastbound Eureka Road off-ramp, allowing Alternative 1 improvements to begin just after the Miners Ravine bridge on I-80.

*Local Roads*

Alternative 1 does not warrant improvements to the Eureka Road/Atlantic Street/Taylor Road intersection or the Taylor Road/East Roseville Parkway intersection.

*TSM Features*

The following TSM features are unique to Alternative 1.

- Ramp widening for storage and HOV bypass lane on the westbound Taylor Road on-ramp.
- Ramp widening for storage and HOV bypass lane on the eastbound Taylor Road on-ramp.

*Construction Access and Schedule*

The EN connector structures are proposed to be constructed with cast-in-place concrete; this will require the use of temporary falsework. To minimize impacts on Secret Ravine, temporary falsework construction platforms will be necessary. These platforms would be constructed to span across the ravine, above the ordinary high water mark. In addition, temporary construction access has been planned to allow construction equipment access to the site. This access is proposed to occur along the existing right-of-way, parallel to the I-80 mainline, as well as along a temporary route across Secret Ravine to access the EN connector from the south. Where access is required across Secret Ravine, temporary bridges are proposed. These temporary bridges have been sited to occur outside of the sensitive areas of the streambed. Construction debris would be contained within the limits of the falsework configuration to prevent impacts on the stream.

Although the proposed structures along Secret Ravine are conventional, they are large structures that will require more than a single construction season to construct. The bridges have been configured into smaller frames to allow the bridge to be constructed in segments. Building the bridge in segments allows the contractor to break up the work so that operations can be focused in smaller areas. For instance, one frame is over Secret Ravine and another frame is over I-80 mainline traffic. The frame over Secret Ravine would be constructed in approximately 4 months.

*Utility Relocations*

Pacific Gas and Electric Company (PG&E) owns two parallel overhead electric transmission lines that run perpendicular across I-80 just south of the Roseville Parkway overcrossing. Two steel towers carry the 60 and 220 kilovolt (kV) electric lines over I-80 at the north corner of the Roseville Golfland-Sunsplash parking lot. Alternative 1 avoids the steel transmission towers as the eastbound improvements would occur within the existing Caltrans right-of-way in this location.

### *Alternative 2—Collector-Distributor (C-D) System Ramps*

Alternative 2 would improve spacing and vehicle lane-weaving movements between interchanges on I-80 by collecting and redirecting eastbound ramp traffic onto a C-D ramp system. The C-D ramp system would provide eastbound access to Taylor Road from Eureka Road at the Atlantic Street/Eureka Road interchange and would restrict local traffic from leaving or entering I-80 mainline until after the critical weave area between Eureka Road and the I-80/SR 65 interchange. The two existing Taylor Road interchange ramps would remain in their current location but would be reconfigured to accommodate the surrounding improvements.

#### Roadway Improvements

##### *I-80 Mainline Improvements*

Alternative 2 would not include the 2-foot-wide pavement delineation soft barrier between the HOV and general purpose lanes in the eastbound direction due to the proposed barrier between the I-80 mainline and the C-D ramp system. A 2-foot-wide pavement delineation soft barrier is proposed in the westbound direction, similar to Alternative 1.

##### *Eastbound I-80 to Northbound SR 65 (EN) Connector*

The EN connector would be realigned into a flyover and would diverge from I-80 as a two-lane connector ramp. A third lane would be added by the C-D ramp system discussed below. At the diverge from eastbound I-80, retaining walls on each side of the ramp would minimize fill impacts on Secret Ravine. The EN connector would transition to a structure that would span a parallel portion of Secret Ravine and other roadways before transitioning back to fill and conforming to the WN connector and East Roseville Viaduct. Compared to Alternative 1, the EN connector is spaced closer to I-80 to accommodate the C-D ramp located immediately south and parallel to the EN connector. The proposed structures along Secret Ravine are configured and designed (i.e., the use of outrigger options) so that all permanent features (columns, footings, and foundations) would be located above the ordinary high water mark. Some of the proposed foundations are large-diameter drilled shaft foundations; these foundations would be located such that the spoils from the drilling operations would not affect the streambed. The use of drilled shafts would minimize acoustic disturbance compared to a driven pile foundation.

##### *Westbound I-80 to Northbound SR 65 (WN) Connector*

With the exception of the location of the ramp diverge, the WN connector is the same across the three build alternatives. Alternative 2 exits westbound I-80 farther west and is located in the same general location as the existing westbound I-80 to northbound SR 65 connector ramp.

*Southbound SR 65 to Eastbound I-80 (SE) Connector*

In all three build alternatives, the SE connector would be realigned and widened to two lanes. The connector would begin on fill before transitioning to a structure that would span various roadways and the Secret Ravine. An approximately 400-foot-long retaining wall would be required along the outside shoulder, prior to the structure, to separate the roadway from the SW connector. This connector would be the top level of the interchange structures, reaching an elevation of approximately 80-feet above mainline I-80. Structure columns would be placed such that they avoid the Secret Ravine floodway but may be located within the designated 100-year floodplain. Once back within the existing right-of-way (approximate station 139+00), the SE connector would be constructed in a combination of cut and fill, requiring a retaining wall along the outside shoulder to avoid impacts on Secret Ravine before merging with eastbound I-80.

*Southbound SR 65 to Westbound I-80 (SW) Connector*

In all three build alternatives, the SW connector would be realigned and widened to three lanes. The SW connector for Alternative 2 has a smaller footprint compared to Alternative 1 because surrounding geometrics allow the ramp to merge with westbound I-80 farther east than Alternative 1. Retaining walls are proposed along portions of the SW connector outside shoulder to minimize impacts on adjacent parcels. The SW connector would be constructed on fill and would not require a bridge because Alternative 2 does not propose a local road below the connector ramp.

*Taylor Road*

Alternative 2 does not require a new signalized intersection or turn pockets along Taylor Road. It also does not require the driveway relocation included in Alternative 1. The Taylor Road overcrossing span length would be shorter due to the proposed location of the SW connector ramp conform on westbound I-80. The Taylor Road overcrossing would consist of five lanes, two in the southbound direction and three in the northbound direction. The third northbound lane on the bridge would be added by the eastbound Taylor loop off-ramp and would become a local roadway auxiliary lane that would serve as the turn pocket for the Cattlemens restaurant parking lot.

The eastbound Taylor loop off-ramp would be constructed with a reduced radius at the terminus to provide an improved pedestrian crossing. A retaining wall would be required along a portion of the outside shoulder to maintain standard horizontal clearance from the existing right-of-way. The existing loop ramp would be removed, and the area would be regraded to accommodate the new geometry.

The westbound Taylor on-ramp would be reconfigured to accommodate the westbound I-80 mainline widening but would remain in the same location.

*Eureka Road/Atlantic Street Ramps*

The westbound Eureka Road/Atlantic Street ramps would remain in the same location and would be adjusted to accommodate the westbound I-80 mainline widening. The eastbound Eureka Road ramps would be reconfigured to tie-in to the C-D ramp system instead of the I-80 mainline. The existing eastbound Eureka Road off-ramp (E5) structure over Miners Ravine would be widened by approximately 6 feet to accommodate the interchange reconfiguration but would remain a single-lane off-ramp. Columns would be placed in line with existing columns, avoiding the Miners Ravine floodway but potentially located within the designated 100-year floodplain. No structures would be placed below the ordinary high water mark of Miners Ravine. The structure widening would require lowering the profile of the existing bike path below the ramp to maintain the minimum vertical clearance requirements. Existing pavement not used by the ramp reconfigurations would be removed, and the area would be regraded.

*Collector-Distributor (C-D) System Ramps*

The new ramp (CD1) would diverge from the existing eastbound Eureka Road off-ramp and would require new structures over Miners Ravine and Secret Ravine.

The proposed C-D ramp system is formed by combining the eastbound Eureka Road and eastbound Taylor Road off-ramps at the existing Eureka Road off-ramp location. After the ramp separates from I-80, the Eureka Road off-ramp continues on its existing alignment. The Taylor Road off-ramp traffic diverges, proceeding east across Miners Ravine, requiring a new bridge over Miners Ravine, then combines with the eastbound Eureka Road loop on-ramp. The combined ramps then pass under Eureka Road and the Eureka Road slip on-ramp. The three ramps merge into two lanes and run parallel and adjacent to eastbound I-80, separated from mainline traffic by a combination of concrete barriers and retaining walls. An additional retaining wall would be required along the outside shoulder of the C-D ramp system to minimize impacts on the adjacent parcels.

The proposed C-D ramp structures along Miners Ravine and Secret Ravine have been configured such that all permanent features (columns, footings, and foundations) have been located above the ordinary high water mark in the vicinity of the ravines.

The C-D ramp system continues east, where it combines with the Eureka Road slip on-ramp and then passes under Taylor Road. Access to Taylor Road would be provided by the connection to the reconstructed Taylor Road loop ramp located along the C-D system. At this point, the Taylor Road off-ramp traffic diverges to the reconstructed Taylor Road loop off-ramp, and the Eureka Road on-ramp traffic continues east. The C-D system then splits into two on-ramps, one to the EN connector and the other to eastbound I-80. These roadways would be on a structure spanning Secret Ravine. Column placement would affect both the floodway and the floodplain due to roadway geometrics and bridge span requirements. No pile driving would be used, and no structures would be placed below the ordinary high water mark of Secret Ravine or Miners Ravine.

The new C-D ramp crossing under Eureka Road and the Eureka Road slip on-ramp would require two new bridge crossings. The bridge on Eureka Road would be constructed for the CD1 and eastbound Eureka Road loop ramp (E1). The eastbound Eureka Road slip on-ramp (E2) would be shifted west and braided over the CD1 and E1 ramps on the other structure. The existing slip ramp pavement would be removed, and the area would be regraded.

*Local Roads*

Alternative 2 does not warrant improvements to the Eureka Road/Atlantic Street/Taylor Road intersection or the Taylor Road/East Roseville Parkway intersection.

*TSM Features*

The following TSM feature is unique to Alternative 2.

- Eastbound auxiliary lane between Douglas Boulevard interchange and Eureka Road interchange.

*<u>Construction Access and Schedule</u>*

The C-D ramp structures are proposed to be constructed with cast-in-place concrete; this will require the use of temporary falsework. To minimize impacts on Miners Ravine and Secret Ravine, temporary falsework construction platforms will be necessary. These platforms would be constructed to span across the streambed (above the ordinary high water mark), such that construction can take place above the streambed without any temporary features encroaching within the streambed. Construction debris would be contained within the falsework configuration to prevent impacts on the stream. Temporary construction access has been planned to allow construction equipment access to the site. This access is proposed to occur along the existing right-of-way, parallel to the I-80 mainline, as well as along a temporary route across Secret Ravine to access the EN connector and C-D ramp from the south. Where access is required across Secret Ravine, temporary bridges (e.g., Bailey bridges) are proposed. These temporary bridges have been sited to occur outside the sensitive areas of the streambed.

The proposed structures along Miners Ravine and Secret Ravine are conventional structures; it is assumed that the structures would be constructed within a single construction season. With appropriate construction staging, the falsework over the streambed would be in place for approximately 4 months.

*Utility Relocations*

In addition to the facility impacts that are consistent with Alternative 1, Alternative 2 requires avoiding or relocating the existing Comcast line across I-80 near the eastbound auxiliary lane between Douglas Boulevard and Eureka Road.

The proposed eastbound widening and retaining wall between the Eureka Road interchange and the Roseville Parkway overcrossing would require relocation of the 220 kV Sacramento Municipal Utility District (SMUD) and PG&E overhead transmission towers. Alternative 3 also would affect the existing billboard located in the Golfland-Sunsplash parking lot.

### *Alternative 3—Taylor Road Interchange Eliminated*

Similar to Alternative 2, Alternative 3 would improve spacing and vehicle lane-weaving movements between interchanges on I-80 by collecting eastbound Eureka Road on-ramp traffic. Vehicle lane weaving on I-80 would be significantly improved because ramp traffic would be redirected to a C-D ramp system and restricted from entering and exiting the I-80 mainline until after the critical weave area between Eureka Road and the I-80/SR 65 interchange. Unique to Alternative 3, the two existing Taylor Road interchange ramps would be eliminated, and access to the Taylor Road area would be accommodated by the adjacent local interchanges at the Atlantic Street/Eureka Road, Rocklin Road, and Galleria Boulevard/Stanford Ranch Road interchanges. The connector ramps serving I-80 and SR 65 (SW, EN, SE, WN, and HOV) and their proposed staging and construction access are the same for Alternatives 2 and 3.

*Roadway Improvements*

*I-80 Mainline Improvements*

Alternative 3 does not include the 2-foot-wide pavement delineation soft barrier between the HOV and general purpose lanes in the eastbound direction due to the proposed barrier between the I-80 mainline and the ramp system. A 2-foot-wide soft barrier is proposed in the westbound direction, similar to Alternatives 1 and 2.

*Taylor Road*

Alternative 3 does not require a new intersection or turn pockets along Taylor Road. It also does not require the driveway relocation required in Alternative 1. The Taylor Road overcrossing is shorter compared to Alternative 1 because of the proposed location of the SW connector ramp conform on westbound I-80. The Taylor Road overcrossing would consist of four lanes because the eastbound Taylor loop ramp would be eliminated in this alternative.

*Eureka Road/Atlantic Street Ramps*

The westbound Eureka Road/Atlantic Street ramps would remain in the same location and would be adjusted to accommodate the mainline I-80 widening. The existing eastbound Eureka Road ramps would remain in the same location but would tie-in to a ramp braid system instead of merging with the I-80 mainline.

The proposed ramp system is formed by combining the eastbound Eureka Road loop on-ramp and the eastbound Eureka Road slip on-ramp after the Eureka Road loop on-ramp passes under the existing Eureka Road/Atlantic Street overcrossing. The two ramps merge into two lanes and run parallel and adjacent to eastbound I-80, separated from mainline traffic by a combination of concrete barriers and retaining walls.

Similar to Alternative 2, the eastbound Eureka Road/Atlantic Street ramps would be located adjacent and parallel to eastbound I-80. The ramp system would be separated from eastbound I-80 traffic by a combination of concrete barriers and retaining walls.

Access to Taylor Road would not be provided in Alternative 3; the existing ramps would be removed, and the area would be regraded. The ramp system then splits into two on-ramps: one to the EN connector and the other to eastbound I-80. Similar to Alternative 2, these roadways would be on a structure spanning Secret Ravine. Column placement would affect both the floodway and floodplain due to roadway geometrics and bridge span requirements. No pile driving would be used, and no structures would be placed below the ordinary high water mark of Secret Ravine.

Eliminating the existing Taylor Road ramps would require widening the eastbound Eureka Road off-ramp to a two-lane ramp as well as adding an auxiliary lane along eastbound I-80 between the Douglas Boulevard and Eureka Road interchanges. Widening the eastbound Eureka Road off-ramp to the outside requires widening the existing structure over Miners Ravine. New columns would be constructed in line with existing columns, avoiding the Miners Ravine floodway but potentially located within the designated 100-year floodplain. The structure widening would require lowering the profile of the existing bike path below the ramp to maintain the minimum vertical clearance requirements.

*Local Roads*

Alternative 3 warrants improvements to the Eureka Road/Atlantic Street/Taylor Road intersection and the Taylor Road/East Roseville Parkway intersection. Additional turn lanes are required to meet intersection level of service requirements.

*TSM Features*

The following TSM features are unique to Alternative 3.

- Eastbound auxiliary lane between Douglas Boulevard interchange and Eureka Road interchange.
- Ramp widening for storage at Eureka Road/Taylor Road intersection.

*Construction Access and Schedule*

Proposed construction access and schedule for Alternative 3 would be the same as described under Alternative 2. Additional traffic handling would be required at the Eureka Road/Atlantic Street/Taylor Road intersection as well as the Taylor Road/East Roseville Parkway intersection due to the added turn pockets under Alternative 3.

*Utility Relocations*

In addition to the facility impacts that are consistent with Alternative 1, Alternative 3 would require avoiding or relocating the existing Comcast line across I-80 near the eastbound auxiliary lane between Douglas Boulevard and Eureka Road.

The proposed eastbound widening and retaining wall between the Eureka Road interchange and the Roseville Parkway overcrossing would require relocation of the 220 kV SMUD and PG&E overhead transmission towers. Alternative 3 also would affect the existing billboard located in the Golfland-Sunsplash parking lot.

### 1.1.1. Project Phasing Common to all Build Alternatives

For constructability purposes and to ease maintenance of traffic during construction, the following phasing approach is proposed for the project and would be similar for all three build alternatives. Under current funding assumptions, project construction would begin in 2018 and would be divided into four major phases with nine subphases, ending in the year 2036. Phases are assumed to occur consecutively, with 2 years designated for each phase. Individual phases would consist of new road construction, road widening, and/or bridge/overpass construction.

#### 1.4.1.3 Phase 1—SR 65

- Construct the inside widening of the East Roseville Viaduct and shift northbound traffic to the inside.
- Realign and widen the westbound I-80 to northbound SR 65 connector and widen westbound I-80 near the connector approach. Widen the outside northbound East Roseville Viaduct and perform northbound SR 65 widening. Modify the northbound Galleria Boulevard/Stanford Ranch Road ramps to accommodate the mainline widening, and

construct the retaining wall under the Galleria Boulevard/Stanford Ranch Road overcrossing. Shift northbound traffic to the outside portion of the East Roseville Viaduct.

- Shift southbound traffic to the inside of the East Roseville Viaduct. Widen the outside southbound East Roseville Viaduct and perform southbound SR 65 mainline widening. Modify the southbound Galleria Boulevard/Stanford Ranch Road interchange ramps and southbound Pleasant Grove Boulevard on-ramp to accommodate the mainline widening.

#### 1.4.1.4 Phase 2—Southbound to Eastbound and Eastbound to Northbound Connector Ramps

- Construct the southbound SR 65 to eastbound I-80 connector ramp. Shift traffic onto the new connector to allow removal of the existing southbound SR 65 to eastbound I-80 connector, including existing abutments, piers, and roadway approaches.
- Construct the eastbound I-80 to northbound SR 65 connector ramp with temporary conforms to eastbound I-80. Shift traffic onto the new flyover structure to allow removal or reconfiguration of the existing eastbound I-80 to northbound SR 65 loop connector. Remove the existing eastbound I-80 to northbound SR 65 structure, including existing abutments, columns, and roadway approaches.

#### 1.4.1.5 Phase 3—I-80 Mainline

- Construct the western portion of the new Taylor Road overcrossing and temporary conforms along Taylor Road at each approach roadway as well as ramps to maintain traffic at all times on Taylor Road. Shift traffic onto the new portion of the bridge and remove the existing overcrossing. Construct the remaining portion of the Taylor Road overcrossing and open the entire bridge to traffic.
- Perform I-80 mainline widening and associated retaining walls. Realign and widen the southbound SR 65 to westbound I-80 connector ramp and modify the Eureka Road/Atlantic Street interchange ramps to accommodate mainline widening. Perform Taylor Road roadway improvements and modify Taylor Road ramps according to each particular alternative. Remove any existing pavement not used for the realignment and regrade the area.

#### 1.4.1.6 Phase 4—HOV Connector

- Construct the HOV direct connector ramp and conform to future SR 65 Capacity and Operational Improvements Project.

### 1.1.2. No Build Alternative (No-Project)

The No-Build Alternative would not make any improvements to the I-80/SR 65 interchange or adjacent transportation facilities to satisfy the purpose and need identified in Section 1.2, "Purpose and Need." HOV and auxiliary lanes proposed on SR 65 north of Galleria Boulevard/Stanford Ranch Road, and other local improvements separately proposed and identified in the Sacramento Area Council of Governments *2035 Metropolitan Transportation Plan/Sustainable Communities Strategy*, would be implemented according to their proposed schedules.

## 1.5 Construction

Construction is expected to require the use of earthmovers, bulldozers, paving machines, water trucks, dump trucks, concrete trucks, rollers, and pickup trucks.

All temporary work and staging areas would be located within the limits of construction depicted as the permanent and temporary impact areas on Figures 5a–f, 6a–f, and 7a–f.

# Chapter 2 Study Methods

This chapter describes the regulatory requirements that are relevant to biological resources and the methods used to identify special-status species and their habitats, sensitive natural communities, and waters of the United States and State (including wetlands) in the biological study area (BSA) (described below).

## 2.1 Regulatory Requirements

This section summarizes the federal and state regulations that protect special-status species; waters of the United States (which also are considered waters of the State), including wetlands; and sensitive habitats. This section also discusses pertinent local general plan policies and ordinances related to the protection and preservation of biological resources.

### 2.1.1 Federal Endangered Species Act

The federal Endangered Species Act (ESA) of 1973, and subsequent amendments, provides regulations for the conservation of endangered and threatened species and the ecosystems on which they depend. The U.S. Fish and Wildlife Service (USFWS) (with jurisdiction over plants, wildlife, and resident fish) and the National Marine Fisheries Service (NMFS) (with jurisdiction over anadromous fish and marine fish and mammals) oversee the ESA. Section 7 of the ESA mandates all federal agencies to consult with USFWS and NMFS if they determine that a proposed project may affect a listed species or its habitat. Section 7 requirements do not apply to nonfederal actions. At present, a federal action is expected for the proposed project because the use of federal funds from FHWA is proposed. Consequently, consultation under Section 7 for effects to federally listed species will be required. Under Section 7, the federal lead agency must obtain incidental take authorization or a letter of concurrence stating that the proposed project is not likely to adversely affect federally listed species.

Section 9 of the ESA prohibits the take of any fish or wildlife species listed as endangered, including the destruction of habitat that prevents the species' recovery. *Take* is defined as any action or attempt to hunt, harm, harass, pursue, shoot, wound, capture, kill, trap, or collect a species. Section 9 prohibitions also apply to threatened species unless a special rule has been defined with regard to take at the time of listing. Under Section 9 of the ESA, the take prohibition applies only to wildlife and fish species. However, Section 9 does prohibit the unlawful removal and possession, or malicious damage or destruction, of any endangered plant from federal land. Section 9 prohibits acts to remove, cut, dig up, damage, or destroy an endangered plant species in nonfederal areas in knowing violation of any state law or in the course of criminal trespass. Candidate species and species that are proposed for or under petition for listing receive no protection under Section 9.

Federally listed species identified as having the potential to occur in the BSA for the proposed project include vernal pool fairy shrimp (*Branchinecta lynchi*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), and Central Valley steelhead (*Oncorhynchus mykiss*), all federally listed as threatened species. These species are discussed in Chapter 4.

### 2.1.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Management and Conservation Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires federal agencies to consult with NMFS on activities that may adversely affect essential fish habitat (EFH). The purpose of the MSA is to conserve and manage the fishery resources of the United States and to promote protection of EFH. *EFH* is the aquatic habitat necessary for fish to spawn, breed, feed, or grow to maturity that will allow a level of production needed to support a long-term, sustainable commercial fishery and contribute to a healthy ecosystem (Pacific Fishery Management Council 2003). Important components of EFH include substrate, water quality, water quantity, depth, velocity, channel gradient and stability, food, cover, habitat complexity, space, access and passage, and habitat connectivity. EFH is described for Pacific salmon fisheries (specifically Chinook salmon). The MSA requires the following.

- Federal agencies undertaking, permitting, or funding an activity that may adversely affect EFH are required to consult with NMFS.
- NMFS is required to provide conservation recommendations for any federal or state activity that may adversely affect EFH.
- Within 30 days of receiving conservation recommendations from NMFS, federal agencies must provide a detailed response in writing to NMFS regarding the conservation recommendations (the response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH, or reasons for not following the recommendations).

An EFH assessment will be prepared for NMFS jointly with a Biological Assessment (BA) to address potential effects on Pacific salmon fisheries (specifically, Chinook salmon).

### 2.1.3 Executive Order 11990: Protection of Wetlands

Executive Order (EO) 11990, signed May 24, 1977, directs all federal agencies to refrain from assisting in or giving financial support to projects that encroach on publicly or privately owned wetlands. It further requires that federal agencies support a policy to minimize the destruction, loss, or degradation of wetlands. A project that encroaches on wetlands may not be undertaken unless the agency has determined that (1) there are no practicable alternatives to such construction; (2) the project includes all practicable measures to minimize harm to wetlands that would be affected by the project; and (3) the impact will be minor.

The proposed project would affect wetlands; therefore, federal agencies are required to consider this EO prior to issuing permits. Measures identified in Chapter 4 will avoid, minimize, or compensate for potential direct and indirect impacts on waters of the United States and waters of the State associated with project activities.

### 2.1.4 Executive Order 12962: Recreational Fisheries

EO 12962, signed June 7, 1995, and amended by EO 13474 on September 26, 2008, directs all federal agencies to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities—to the extent permitted by law and where practicable. This EO requires evaluation and documentation of the effects caused by federally funded, permitted, or authorized actions on aquatic systems, fishing access, and recreational fisheries in NEPA analyses.

The proposed project may reduce the abundance of fish in the BSA; therefore, federal agencies are required to consider this EO prior to issuing permits. Measures identified in Chapter 4 will avoid, minimize, or compensate for project effects on fish and fish habitat.

### 2.1.5 Executive Order 13112: Prevention and Control of Invasive Species

EO 13112, signed February 3, 1999, directs all federal agencies to prevent and control the introduction of invasive species in a cost-effective and environmentally sound manner. The EO established the National Invasive Species Council (NISC), which is composed of federal agencies and departments and a supporting Invasive Species Advisory Committee (ISAC) composed of state, local, and private entities. In 2008, NISC released an updated national invasive species management plan (National Invasive Species Council 2008) that recommends objectives and measures to implement the EO and to prevent the introduction and spread of invasive species. The EO requires consideration of invasive species in NEPA analyses, including their identification and distribution, their potential impacts, and measures to prevent or eradicate them.

The proposed project may introduce or spread invasive species into the BSA; therefore, federal agencies are required to consider this EO prior to issuing permits. Measures identified in Chapter 4 will avoid or minimize the introduction and spread of invasive species as a result of project activities.

### 2.1.6 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) protects migratory bird species from take. Under the MBTA, *take* is defined as to (or attempt to) pursue, hunt, shoot, capture, collect, or kill (50 Code of Federal Regulations [CFR] 10.12). The definition differentiates between intentional take (take that is the purpose of the activity in question) and unintentional take (take that results from, but is not the purpose of, the activity in question). EO 13186, signed January 10, 2001, directs each federal agency taking actions that would, or likely would, negatively affect migratory bird populations to work with USFWS to develop a memorandum of understanding (MOU) to promote the conservation of migratory bird populations. Protocols developed under the MOU must include the following agency responsibilities.

- Avoid and minimize, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions.
- Restore and enhance habitat of migratory birds, as practicable.
- Prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

The EO is designed to assist federal agencies in their efforts to comply with the MBTA; it does not constitute any legal authorization to take migratory birds. Migratory birds could nest in the BSA. The discussion of nesting migratory birds in Chapter 4 describes potential project impacts on migratory birds and measures to avoid or minimize impacts on those species.

### 2.1.7 Clean Water Act

The Clean Water Act (CWA) was passed by Congress in 1972 with a broad mandate “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” The chief purpose of the CWA is to establish the basic structure for regulating discharges of pollutants into waters of the United States. The CWA authorizes the U.S. Environmental Protection Agency (EPA) to set national water quality standards and effluent limitations, and includes programs addressing both point-source and nonpoint-source pollution. *Point-source pollution* is pollution that originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or construction site. *Nonpoint-source pollution* originates over a broader area and includes urban contaminants in storm water runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation’s waters are unlawful unless specifically authorized by a permit; permit review is the CWA’s primary regulatory tool. Aquatic resources (i.e., channelized features, wetlands) are present in the BSA and may be regulated under CWA Section 404 (described below in Section 2.1.7.3).

#### 2.1.7.1 Section 401: Water Quality Certification

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must apply for water quality certification from the state. Therefore, all projects with a federal component that may affect state water quality (including projects that require federal agency approval, such as a Section 404 permit) must comply with CWA Section 401. Aquatic resources that appear to qualify as waters of the United States are present in the BSA.

As currently designed, roadway and bridge construction associated with the proposed project is expected to result in a discharge of pollutants into waters of the United States; therefore, a Section 401 water quality certification from the Central Valley Regional Water Control Board (RWQCB) would likely be required for the proposed project.

#### 2.1.7.2 Section 402: Permits for Stormwater Discharge

CWA Section 402 regulates construction-related storm water discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program, administered by EPA. In California, the State Water Resources Control Board (State Water Board) is authorized by EPA to oversee the NPDES program through the RWQCB.

NPDES permits are required for projects that disturb more than 1 acre of land. The NPDES permitting process requires the applicant to file a public notice of intent to discharge storm water and to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must include a site map, a description of proposed construction activities, and the BMPs that will be implemented to prevent soil erosion and discharge of other construction-related pollutants (e.g., petroleum products, solvents, paints, and cement) that could contaminate nearby water resources. Permittees are required to conduct annual monitoring and reporting to ensure that BMPs are correctly implemented and effective in controlling the discharge of storm water-related pollutants. Because the proposed project would disturb more than 1 acre of land, the project proponent will prepare a SWPPP and apply for an NPDES permit.

#### 2.1.7.3 Section 404: Permits for Fill Placement in Waters of the United States (Including Wetlands)

Waters of the United States (including wetlands) are protected under Section 404 of the CWA. Any activity that involves a discharge of dredged or fill material into waters of the United States, including wetlands, is subject to regulation by the U.S. Army Corps of Engineers (USACE). *Waters of the United States* is defined to encompass navigable waters of the United States; interstate waters; all other waters where their use, degradation, or destruction could affect interstate or foreign commerce; tributaries of any of these waters; and wetlands that meet any of these criteria or are adjacent to any of these waters or their tributaries. *Wetlands* are defined under Section 404 as those areas that are inundated or saturated by surface water or groundwater 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. Jurisdictional wetlands must meet three wetland delineation criteria.

- They support hydrophytic vegetation (i.e., plants that grow in saturated soil).
- They have hydric soil types (i.e., soils that are wet or moist enough to develop anaerobic conditions).
- They have wetland hydrology.

As currently designed, roadway and bridge construction associated with the proposed project is expected to result in a discharge of fill material into potential waters of the United States; therefore, a Section 404 CWA permit likely will be required for the proposed project. A wetland delineation has been completed for the project and is contained in Appendix C of this NES. The wetland delineation report will be submitted to the USACE to support a preliminary jurisdictional determination for the project.

### 2.1.8 California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code [CFGC] Section 2050 et seq.) establishes state policy to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates that state agencies should not approve projects that jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. For projects that would affect a species on the federal and state lists, compliance with ESA satisfies CESA if the California Department of Fish and Wildlife (CDFW) determines that the federal incidental take authorization is consistent with CESA under CFGC Section 2080.1. For projects that would result in take of a species that is only state listed, the project proponent must apply for a take permit under Section 2081(b). One state-listed species, Swainson's hawk (*Buteo swainsoni*), has the potential to occur in the BSA. Chapter 4 describes potential project-related impacts and identifies avoidance and minimization measures that will avoid direct impacts and minimize indirect impacts on this species.

### 2.1.9 California Environmental Quality Act

CEQA is the regulatory framework by which California public agencies identify and mitigate significant environmental impacts. A project normally is considered to cause a significant environmental impact on biological resources if it would substantially affect a rare or endangered species or the habitat of that species; substantially interfere with the movement of resident or migratory fish or wildlife; or substantially diminish habitat for fish, wildlife, or plants. The State

CEQA Guidelines define *rare, threatened, and endangered species* as those listed under the ESA and CESA and any other species that meets the criteria of the resource agencies or local agencies (e.g., CDFW-designated species of special concern). The State CEQA Guidelines state that the lead agency preparing an Environmental Impact Report (EIR) must consult with and receive written findings from CDFW concerning project impacts on species listed as endangered or threatened. The impacts of a proposed project on these resources are important in determining whether the project would result in significant environmental impacts under CEQA. The project proponent will be preparing an EIR to comply with the State CEQA Guidelines.

### 2.1.10 California Native Plant Protection Act

The California Native Plant Protection Act (CNPPA) of 1977 prohibits importation of rare and endangered plants into California, take of rare and endangered plants, and sale of rare and endangered plants. CESA defers to the CNPPA, which ensures that state-listed plant species are protected when state agencies are involved in projects subject to CEQA. In this case, plants listed as rare under the CNPPA are not protected under CESA but rather under CEQA. Three special-status plant species known to occur in the project region are listed as rare under the CNPPA. None of these species were observed in the BSA during the field surveys. Chapters 3 and 4 discuss the potential for special-status plants to occur in the BSA.

### 2.1.11 California Fish and Game Code

Several sections of the CFGC apply to the proposed project, as described below.

#### 2.1.11.1 Lake or Streambed Alteration (Section 1602)

CDFW regulates activities that would interfere with the natural flow of—or substantially alter the channel, bed, or bank of—a lake, river, or stream, including disturbance of riparian vegetation under CFGC Sections 1600–1616. CDFW requires a Lake or Streambed Alteration Agreement (LSAA) permit for these activities. Requirements to protect the integrity of biological resources and water quality often are conditions of LSAAs. CDFW may establish conditions that include avoiding or minimizing vegetation removal, using standard erosion control measures, limiting the use of heavy equipment, limiting work periods to avoid impacts on fisheries and wildlife resources, and restoring degraded sites or compensating for permanent habitat losses. Waters of the State (i.e., perennial, ephemeral, and intermittent streams) that would be regulated by CDFW are present in the BSA.

The proposed project is expected to result in modification of the bed, bank, or channel of a stream and removal of riparian vegetation adjacent to a stream; therefore, a LSAA will be required.

#### 2.1.11.2 Protection of Birds and Raptors (Sections 3503 and 3503.5)

Section 3503 of the CFGC prohibits killing of birds and destruction of bird nests. Section 3503.5 prohibits killing of raptor species and destruction of raptor nests. Typical violations include destruction of active bird and raptor nests as a result of tree removal, and failure of nesting attempts (loss of eggs or young) as a result of disturbance of nesting pairs caused by nearby human activity.

The proposed project has the potential to adversely affect birds and raptors protected under Sections 3503 and 3503.5 of the CFGC. The project proponent will avoid violation of CFGC Sections 3503 and 3503.5 by implementing measures identified for nesting birds in Chapter 4.

#### 2.1.11.3 Fully Protected Species (Sections 3511, 3513, 4700, and 5050)

CFGC Sections 3511, 3513, 4700, and 5050 pertain to fully protected wildlife species (birds in Sections 3511 and 3513, mammals in Section 4700, and reptiles and amphibians in Section 5050) and strictly prohibit take of these species. CDFW cannot issue a take permit for fully protected species, except under narrow conditions for scientific research or the protection of livestock, or if a Natural Community Conservation Plan (NCCP) has been adopted. Specifically, Section 3513 prohibits any take or possession of birds designated by the MBTA as migratory nongame birds except as allowed by federal rules and regulations pursuant to the MBTA.

One fully protected bird species, white-tailed kite (*Elanus leucurus*), has the potential to nest in the BSA and be affected by the proposed project. The project proponent would avoid take of white-tailed kite by implementing measures identified for nesting birds in Chapter 4.

### 2.1.12 Porter-Cologne Water Quality Control Act

The California Water Code addresses the full range of water issues in the state and includes Division 7, known as the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (California Water Code Sections 13000–16104). Section 13260 requires “any person discharging waste, or proposing to discharge waste, in any region that could affect the waters of the State to file a report of discharge (an application for waste discharge requirements [WDRs])” with the appropriate RWQCB. Under this act, each of the nine RWQCBs must prepare and periodically update Water Quality Control Basin Plans (Basin Plans). Each Basin Plan sets forth water quality standards for surface water and groundwater, as well as actions to control non-point and point sources of pollution. Projects that affect waters of the State must meet the WDRs of the RWQCB. Pursuant to CWA Section 401, an applicant for a Section 404 permit to conduct any activity that may result in discharge into navigable waters must provide a certification from the RWQCB that such discharge will comply with state water quality standards. As part of the wetlands permitting process under Section 404, the project proponent will be required to apply for water quality certification from the Central Valley RWQCB.

Section 13050 of the Porter-Cologne Act authorizes the State Water Board and the relevant RWQCB to regulate biological pollutants. The California Water Code generally regulates more substances contained in discharges and defines discharges to receiving waters more broadly than does the CWA.

As currently designed, roadway and bridge construction associated with the proposed project is expected to result in a discharge of fill material into waters of the State; therefore, the RWQCB is likely to issue WDRs for the proposed project.

### 2.1.13 California Public Resource Code

According to Section 21083.4 of the California Public Resource Code, a county is required "in determining whether CEQA requires an environmental impact report, negative declaration, or mitigated negative declaration, to determine whether a project in its jurisdiction may result in a conversion of oak woodlands that will have a significant effect on the environment, and would require the county, if it determines there may be a significant effect to oak woodlands, to require one or more of specified mitigation alternatives to mitigate the significant effect of the conversion of oak woodlands." If a county [Placer County for the proposed project] determines that a project may cause a significant effect on oak woodlands, the county will require one or more of the following oak woodlands mitigation alternatives to mitigate the significant effect of the conversion of oak woodlands.

- Conserve oak woodlands, through the use of conservation easements.
- Plant an appropriate number of trees, including maintaining plantings and replacing dead or diseased trees.
- The requirement to maintain trees terminates 7 years after the trees are planted.
- Mitigation shall not fulfill more than one-half of the mitigation requirement for the project.
- The requirements imposed also may be used to restore former oak woodlands.
- Contribute funds to the Oak Woodlands Conservation Fund.
- Implement other mitigation measures developed by the county.

As part of its environmental review of the CEQA document, Placer County will determine whether the proposed project will significantly affect oak woodlands, which are present in the BSA.

### 2.1.14 City of Roseville General Plan

The following policies from the three components of the Open Space and Conservation Element of the City of Roseville's General Plan 2025 (adopted May 5, 2010; available:

http://www.roseville.ca.us/planning/general_plan_n_development_guidelines.asp) are the most pertinent to the proposed project.

Open Space System

- Policy #9–Where feasible, entryways into Roseville shall incorporate the preservation of natural resource areas, such as oak woodland, riparian and grassland areas as a way of defining the City's boundaries and identity.

Vegetation and Wildlife

- Policy #1 – Incorporate existing trees into development projects, and where preservation is not feasible, continue to require mitigation for the loss of removed trees. Particular emphasis shall be placed on avoiding the removal of groupings or groves of trees.
- Policy #2 – Preserve and rehabilitate continuous riparian corridors and adjacent habitat along the City's creeks and waterways.
- Policy #6 – Provide for protection and enhancement of native fishery resources, including continued coordination with the California Department of Fish and Game to release water into Linda Creek.
- Policy #11 – Habitat preservation and mitigation for woodlands, creeks, riparian and seasonal wetland areas should occur within the defined boundaries of the impacting projects where long-term resource viability is feasible and desirable.
- Policy #13 – Work with adjacent jurisdictions, regulatory agencies, and community organizations to explore opportunities for regional mitigation banking.

### 2.1.15 City of Roseville Tree Preservation Ordinance

Chapter 19.66 (Tree Preservation) of the Roseville Municipal Code includes regulations controlling the removal and preservation of trees within the City of Roseville. A tree permit is required to conduct specific work or regulated activities within the protected zone of a protected tree or to remove a protected tree. A *protected tree* is defined in the Roseville Municipal Code as a native oak tree equal to or greater than 6 inches diameter at breast height (dbh), measured as a total of a single trunk or multiple trunks. The *protected zone* is demarcated as the largest radius of the circle formed by the protected tree's dripline plus 1 foot; the radius is measured as the distance from the base of the tree trunk to the greatest extent of the tree's dripline.

Under the ordinance, native oaks are defined as valley oaks, blue oaks, interior live oaks, and their hybrids. Tree permit conditions include compensation for work conducted within the protected zone of protected trees. Compensation may consist of a combination of planting replacement trees, relocating trees that would be removed, implementing a revegetation plan, or paying an in-lieu mitigation fee. The BSA contains native oaks that meet the City's definition of protected trees. An arborist survey will be conducted as part of the permitting process to identify oak trees that meet the City's definition of a protected tree.

### 2.1.16 City of Roseville Open Space Preserve Overarching Management Plan

The City of Roseville Open Space Preserve Overarching Management Plan (OSPOMP) was adopted in August 2011 to standardize monitoring and management of the City's vernal pool and wetland preserves (ECORP Consulting 2011). The plan provides a city-wide approach to open space management, maintenance, and monitoring. It applies to all open space managed by the City within the city limits.

The OSPOMP refers to both Open Space Preserve and General Open Space. *Open Space Preserve* is land that was required to be set aside as part of a regulatory permitting action. These lands are primarily vernal pool grassland or riparian corridors protected because of the presence of waters of the United States or endangered species. *General Open Space* areas are owned by the City and were set aside because of City policy or to meet Specific Plan restrictions. Section 10.14 of the OSPOMP states that activities prohibited in Preserve areas may occur only with USACE and USFWS approval, and that such approval may include a permit.

In the BSA, Miners Ravine and Secret Ravine are considered to be part of the Olympus Point Preserve, which is labeled as an Open Space Preserve in the OSPOMP. Highland Reserve, which contains Highland Ravine and adjacent areas that are managed as annual grassland, also is designated as an Open Space Preserve.

### 2.1.17 City of Rocklin General Plan

The Open Space, Conservation, and Recreation Element of the City of Rocklin's General Plan contains the following policies that pertain to biological resources in the BSA.

- OCR-1 – Encourage the protection of open space areas, natural resource areas, hilltops, and hillsides from encroachment or destruction through the use of conservation easements, natural resource buffers, building setbacks or other measures.
- OCR-2 – Recognize that balancing the need for economic, physical, and social development of the City may lead to some modification of existing open space and natural resource areas during the development process.
- OCR-6 – Look for opportunities to interconnect open space and natural areas to accommodate wildlife movement and sustain ecosystems and biodiversity.
- OCR-7 – Consult with other jurisdictions concerning open space planning programs, including the County's Placer Legacy program and other similar regional programs, to the extent feasible.

- OCR-8 – Encourage public utility companies and agencies to consult with the City prior to undertaking projects that may affect open space and natural resource areas to minimize impacts to these areas.

### 2.1.18 City of Rocklin Oak Tree Preservation Ordinance and Guidelines

The City of Rocklin regulates the removal of native oak trees under its Oak Tree Preservation Ordinance and Oak Tree Preservation Guidelines (Rocklin Municipal Code, Section 17.77.100). A permit is required for the removal of native oaks with a dbh of 6 inches or more; for trees with multiple trunks, this size requirement must be met by the measurement of the largest trunk. Native oaks with a dbh of 24 inches or greater are considered heritage trees. Mitigation for the removal of protected trees may consist of onsite or offsite replanting of approved replacement oak trees, or a contribution to the Rocklin Oak Tree Preservation Fund. Additionally, oak trees that will be preserved during project construction must be protected prior to grading activities by installing fencing that is at least 4 feet high at a distance of 3 feet outside the dripline. The fencing must be maintained for the duration of project construction. An arborist survey will be conducted as part of the permitting process to identify oak trees that are subject to the preservation ordinance.

## 2.2 Studies Required

Potential biological resource issues associated with the proposed project were identified through review of existing information and field surveys. It was determined that the following studies and surveys would be required to document natural resources in the BSA.

- General habitat evaluation to determine whether suitable habitat exists for special-status plant and animal species.
- Focused elderberry shrub survey and stem counts to document suitable habitat for the federally listed valley elderberry longhorn beetle.
- Botanical field surveys to map land cover types, including natural communities, and survey for special-status plant species.
- Delineation of waters of the United States and waters of the State.
- Stream habitat survey to map shaded riverine aquatic (SRA) cover, including overhead vegetation, undercut banks, and instream woody material, and to assess general habitat conditions to evaluate whether suitable habitat exists for special-status fish species.

An arborist survey will be conducted as part of the permitting phase to identify the species, location, and health of native trees in the riparian and oak woodland communities. This information will be used to (1) support preparation of the permit applications (i.e., LSAA); (2)

identify the appropriate species for the onsite mitigation plan for riparian/SRA cover impacts; and (3) determine the compensation requirement for the loss of protected trees that are subject to the City of Roseville and City of Rocklin native tree ordinances. The arborist survey and associated report will be prepared after the 90% engineering plans are available.

To prepare for the field surveys, biologists reviewed existing resource information related to the project to evaluate whether special-status species or other sensitive biological resources (e.g., waters of the United States) could occur in the BSA. As this document was prepared and revised, updated versions of the resources were obtained, reviewed, and incorporated. The sources listed below were reviewed.

- California Native Plant Society’s (CNPS’s) online Inventory of Rare and Endangered Plants of California (2014).
- California Natural Diversity Database (CNDDB) records search of the Citrus Heights, Roseville, Rocklin, Sheridan, Lincoln, Gold Hill, Pleasant Grove, Rio Linda, and Folsom U.S. Geological Survey (USGS) 7.5-minute quadrangles (California Department of Fish and Wildlife 2014a) (Appendix B).
- A list of endangered and threatened species that may occur in or be affected by projects within the Citrus Heights, Rocklin, and Roseville USGS 7.5-minute quadrangles and Placer County (U.S. Fish and Wildlife Service 2014) (Appendix B).
- Dry Creek Watershed Resource Management Plan (available from <<www.placer.ca.gov/departments/communitydevelopment/planning/placerlegacy/watershedplanning/drycreek/resourcemgtplan>>).
- Lists of plants identified as noxious weeds or invasive plants by the U.S. Department of Agriculture (USDA) (2014), California Department of Food and Agriculture (CDFA) (2014) and the California Invasive Plant Council (Cal-IPC) (2014).
- The soil map unit descriptions for the BSA (Natural Resources Conservation Service 2013).

This information was used to develop lists of special-status species and other sensitive biological resources that could be present in the project region. Species from the lists were considered if they were known to occur in the project region (i.e., within a 10-mile radius of the BSA) or if potential habitat for the species was known to be present in the BSA.

## 2.1 Biological Study Area

The project footprint encompasses approximately 2.5 miles along SR 65 and 4.2 miles along I-80 and various local roads, specifically portions of Galleria Boulevard/Stanford Ranch Road, Pleasant Grove Boulevard, Eureka Road/Atlantic Street, East Roseville Parkway, and Taylor Road. Areas of highway widening, road realignment, ramp construction, and creek crossings for all three alternatives are collectively referred to as *the limits of disturbance*. The BSA generally comprises the limits of disturbance (including areas to accommodate temporary construction activities and staging) and undeveloped habitats within 100 feet of these limits to account for potential indirect effects on nearby aquatic resources and elderberry shrubs (see Figures 5a–f, 6a–f, and 7a–f). The BSA also includes an area up to 250 feet from the limits of disturbance where vernal pools are present.

## 2.2 Personnel and Survey Dates

ICF International (ICF) biologists conducted biological surveys in the BSA in 2012, 2013, and 2014 (Table 2-1). Methods and personnel involved in documenting wetlands and other waters of the United States and conducting botanical, wildlife, and SRA cover habitat surveys are described below. Representative photographs taken during field surveys are provided in Appendix E.

**Table 2-1. Biological Survey Personnel and Dates**

| Type of Survey | Survey Date | Surveyors |
|---|---|---|
| Natural communities and habitat-based assessment for sensitive species | May 15, 2012 | Jessica Hughes and Angela Alcala (ICF International) |
| Botanical surveys | May 15 and 16, October 30, and November 13 and 15, 2012; February 28, March 7, and April 22, 2013 | Jessica Hughes, Cristian Singer, and John Holson (ICF International) |
| Delineation of waters of the United States and waters of the State | October 30 and November 13 and 15, 2012; February 28 and March 7, 2013 | Jessica Hughes and John Holson (ICF International) |
| Wildlife habitat assessment and elderberry shrub survey | July 23, 2014 | Angela Alcala (ICF International) |
| Shaded riverine aquatic cover habitat survey | July 28 and August 4, 2014 | Jeff Kozlowski, Jessica Hughes, and Rita Wilson (ICF International) |

### 2.2.1 Waters of the United States, Including Wetlands

ICF botanists/wetland specialists Jessica Hughes and John Holson conducted delineation field work in the BSA on October 30, November 13, and November 15, 2012, and on February 28 and March 7, 2013. The delineation was conducted using the routine onsite determination method described in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the supplemental procedures and wetland indicators provided in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*

(U.S. Army Corps of Engineers 2008). The wetland delineation report is included as Appendix C.

### 2.2.2 Botanical Resources

ICF botanists Jessica Hughes, John Holson, and Cristian Singer conducted botanical surveys in the BSA on May 15, May 16, October 30, November 13, November 15, 2012, and on February 28, March 7, and April 22, 2013. The early and late spring and fall surveys coincided with the identification periods of special-status plants determined to have the potential to occur in the project region. During the surveys, the botanists walked the entire BSA and compiled lists of plants species observed. A list of plant species observed in the BSA is included as Appendix D. Natural communities in the BSA also were identified and mapped during the botanical field surveys. The results of these surveys are presented in Chapters 3 and 4.

### 2.2.3 Wildlife Resources

ICF biologist Angela Alcala conducted habitat-based field assessments for wildlife in the BSA on May 15, 2012, and on July 23, 2014. During the assessments, Ms. Alcala took notes on the general topography of the BSA, the vegetation present, and the amount of human activity/disturbance at the site; she recorded wildlife (or wildlife signs) observed during the visit. During the July 23, 2014 site visit, Ms. Alcala performed an elderberry shrub survey to document the location of elderberry shrubs (the host plant for valley elderberry longhorn beetle) present in the project limits and within 100 feet of the project limits. During the elderberry shrub survey, Ms. Alcala recorded information on the number and size of stems, presence or absence of exit holes, and habitat associations. A list of wildlife species observed in the BSA is provided in Appendix D.

### 2.2.4 Fisheries Resources

ICF fish biologist Jeff Kozlowski, accompanied by Jessica Hughes on July 28, 2014, and by Rita Wilson on August 4, 2014, conducted an SRA cover habitat survey and a general reconnaissance-level field survey of the three creeks within the BSA that contain suitable fish habitat (Antelope Creek, Miners Ravine, and Secret Ravine). The reconnaissance-level field survey focused on evaluating existing habitat conditions in Antelope Creek, Miners Ravine, and Secret Ravine within the BSA relative to the needs of special-status fish species. No fish surveys were conducted for the proposed project because this NES assumes the presence of Central Valley steelhead (the only federally listed fish species in the BSA), and designation of Miners Ravine and Secret Ravine as critical habitat requires that project effects be avoided and minimized to the maximum extent practicable. Mr. Kozlowski also conducted a fish passage reconnaissance assessment of the perennial streams in the BSA, provided as Appendix F.

## 2.1 Agency Coordination and Professional Contacts

The following agency coordination has been conducted for the project.

### 2.1.1 Caltrans Office of Local Assistance

On August 12, 2014, Caltrans biologists Jason Meigs and Erik Schwab with District 3 attended a site visit with CH2M HILL (Michael Higgins) and ICF (Kozlowski, Angela Alcala, and Claire Bromund) to review project elements within a section of the BSA along Secret Ravine. They discussed impacts on special-status fish and oak trees.

### 2.1.2 U.S. Fish and Wildlife Service

On July 1, 2014, ICF obtained a list of all federally proposed and listed endangered and threatened species that could occur in the vicinity of the project from the USFWS website (U.S. Fish and Wildlife Service 2014) (Appendix B).

### 2.1.3 National Marine Fisheries Service

On September 16, 2014, Dylan Van Dyne, fish biologist and NMFS liaison for Caltrans, attended a meeting with Caltrans, PCTPA, CH2M HILL, and ICF staff at the project site. An overview of the project was given, communication protocols were established, and potential biological issues pertaining to listed fish species were discussed. Mr. Van Dyne stated that he would be reviewing the BA.

## 2.2 Limitations That May Influence Results

Federally listed vernal pool branchiopod surveys were not conducted to determine the status of vernal pool fairy shrimp within the BSA as part of the proposed project or any previous projects that overlap within the BSA. For purposes of determining impacts on vernal pool fairy shrimp, this NES assumes that the species is present in the BSA.

The assumed presence of, and the impact assessment on, special-status fish species depends largely on previously collected data; literature reviews; and general species distribution, habitat requirements, and life history accounts. As stated previously, no fish surveys were conducted and this NES assumes that anadromous fish species (Central Valley steelhead and fall-run Chinook salmon) are present in the BSA.

# Chapter 3 Results: Environmental Setting

## 3.1 Description of the Existing Biological and Physical Conditions

This chapter defines the BSA for the proposed project and provides a description of the existing physical and biological conditions within the BSA.

### 3.1.1 Biological Study Area

The extent of the BSA is shown in Figures 5a–f, 6a–f, and 7a–f. Approximately two-thirds of the BSA consists of highways, commercial development, and residential areas. The remainder consists of graded parcels, designated Open Space with bike/pedestrian trails areas (i.e., Antelope Creek Trail, Miners Ravine Trail), and natural areas (e.g., grasslands, oak woodland, and streams). The BSA has a relatively high level of historical and ongoing disturbance.

### 3.1.2 Physical Conditions

The BSA is located in the transition zone between the Sacramento Valley and northern Sierra Nevada Foothill subregions of the California Floristic Province (Baldwin et al. 2012: 42, 43). The topography in the BSA varies from relatively level to moderate slopes, and elevations range from approximately 150 to 245 feet above mean sea level (AMSL).

According to soil data from the Natural Resources Conservation Service, the BSA contains 15 mapped soil types (Natural Resource Conservation Service 2013). The soil profile has been disturbed by the construction of existing roads. Mapped information on soils is summarized in Appendix D of the wetland delineation report, which is included in this NES as Appendix C.

The BSA is within the Lower Sacramento watershed hydrologic unit (hydrologic unit code [HUC] 18020109) (U.S. Environmental Protection Agency 2014). The primary streams in the delineation area are Antelope Creek, Miners Ravine, Secret Ravine, and Highland Ravine; these streams ultimately drain into the Sacramento River, a traditional navigable water. These streams and their associated tributaries qualify as other waters of the United States (which also are considered waters of the State). The specific characteristics of waters of the United States (including wetlands) in the BSA are further described in the wetland delineation report (Appendix C).

### 3.1.3 Biological Conditions in the Study Area

The natural communities in the BSA are interspersed with roadways, railroad tracks, commercial and industrial areas, and residential development. The term *land cover types* is used in this NES to refer to natural communities and developed or disturbed areas. Land cover types mapped during field surveys are described below and shown in Figures 5a–f, 6a–f, and 7a–f. Representative photographs of land cover types within the BSA are provided in Appendix E.

The BSA supports both common natural communities and natural communities of special concern. Common natural communities are habitats with low species diversity that are widespread, reestablish naturally after disturbance, or support primarily non-native species. These communities generally are not protected by agencies unless the specific site is habitat for or supports special-status species (e.g., raptor foraging or nesting habitat, upland habitat in a wetland watershed). The only common natural community in the BSA is annual grassland.

*Natural communities of special concern* are habitats considered sensitive because of their high species diversity, high productivity, unusual nature, limited distribution, or declining status. Local, state, and federal agencies consider these habitats important. The CNDDB contains a current list of rare natural communities throughout the state. USFWS considers certain habitats, such as wetlands and riparian communities, important to wildlife; and USACE and EPA consider wetland habitats important for water quality and wildlife. The habitats in the BSA that meet the criteria for natural communities of special concern are riparian forest, oak woodland, riparian forest/shrub wetland, emergent wetland, vernal pool, and seasonal wetland.

The distribution, representative vegetation, and typical wildlife species found in land cover types within the BSA are described below. Lists of plant and wildlife species observed in the BSA are included in Appendix D.

#### 3.1.3.1 Developed Areas

Developed portions of the BSA consist of residential, commercial, and industrial areas, and roadways. The vegetation in developed areas typically is comprised of ornamental species planted for decorative or landscaping purposes, including Washington fan palms (*Washingtonia robusta*), Japanese maple (*Acer palmatum*), Callery pear (*Pyrus calleryana*), and pines (*Pinus* spp.).

#### 3.1.3.2 Disturbed/Graded Areas

Disturbed/graded portions of the BSA include areas adjacent to roadways and within cloverleaves or loops that were graded during construction of the roadways or adjacent development. This category also includes areas graded in preparation for development or construction (e.g., staging areas). The vegetative composition of these areas typically consists of non-native species, particularly annual grasses and weedy forbs, with scattered trees and shrubs. The density of vegetation is variable and ranges from relatively high in areas along roadways to more sparse in areas that recently have been graded. Some of the disturbed/graded areas have been planted with ornamental species (e.g., the I-80/SR 65 interchange loop has been landscaped with ornamental pines and oaks). Disturbed/graded areas along southbound SR 65 are depicted in Photo 17 in Appendix E).

#### 3.1.3.3 Annual Grassland

Most of the annual grassland in the BSA occurs south of I-80 and along the East Roseville Viaduct. Common grass species are Italian ryegrass (*Festuca perennis*), Medusahead (*Elymus caput-medusae*), slender wild oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), and foxtail barley (*Hordeum murinum* ssp. *leporinum*). Representative forb species are California poppy (*Eschscholzia californica*), Italian thistle (*Carduus pycnocephalus*), yellow star-thistle (*Centaurea solstitialis*), rough cat's-ear (*Hypochaeris radicata*), and broadleaf filaree (*Erodium botrys*). Annual grassland also contains scattered oaks (*Quercus* spp.) and coyote brush shrubs (*Baccharis pilularis*). A single blue elderberry shrub (*Sambucus nigra* ssp. *caerulea*) occurs in the grassland underneath the East Roseville Viaduct (Figures 5c, 6c, and 7c). Representative photographs of annual grassland in the BSA are provided as Photos 6 and 8 in Appendix E.

#### 3.1.3.4 Oak Woodland

Oak woodland occurs on slopes in Miners Ravine and Secret Ravine, as well as upslope of the west side of Antelope Creek. The overstory of this community is dominated by interior live oak (*Q. wislizeni*) and blue oak (*Q. douglasii*). Representative species present in the understory are hedge parsley (*Torilis arvensis*), hedgehog dogtail grass (*Cynosurus echinatus*), broadleaf filaree, purple clarkia (*Clarkia purpurea*), toyon (*Heteromeles arbutifolia*), and wall bedstraw (*Galium parisiense*). Representative photographs of oak woodlands in the BSA are provided as Photos 3 and 13 in Appendix E.

#### 3.1.3.5 Non-Wetland Riparian Forest

Riparian forest in the BSA occurs along the upper banks and floodplains of Antelope Creek, Miners Ravine, and Secret Ravine. The overstory of riparian forest contains valley oak (*Q. lobata*), Fremont cottonwood (*Populus fremontii*), Oregon ash (*Fraxinus latifolia*), black willow (*Salix gooddingii*), red willow (*S. laevigata*), and arroyo willow (*S. lasiolepis*). Common species in the understory are buttonwillow (*Cephalanthus occidentalis*), narrow-leaf willow (*S. exigua*), Himalayan blackberry (*Rubus armeniacus*), California blackberry (*R. ursinus*), and mugwort (*Artemisia douglasiana*). The invasive red sesbania (*Sesbania punicea*) shrub was observed in the riparian forest along Secret Ravine. The invasive giant reed (*Arundo donax*) was observed in the riparian forest along Antelope Creek. The invasive pokeweed (*Phytolacca americana*) was observed in the riparian forest along Secret Ravine. The riparian forest along Miners Ravine contains multiple blue elderberry shrubs, habitat for the federally threatened Valley elderberry longhorn beetle (VELB). The areas of riparian forest that exhibited positive indicators of all three federal wetland criteria are discussed in Section 3.1.3.9, “Riparian Forest/Shrub Wetland.” Riparian forest associated with perennial streams in the BSA is depicted in Photos 2, 4, 11, and 12 in Appendix E.

#### 3.1.3.6 Perennial Stream

Perennial streams have flows year-round. The four perennial streams in the BSA are Antelope Creek, Miners Ravine, Secret Ravine, and Highland Ravine) (see Figures 5a–f, 6a–f, and 7a–f). Segments of all four perennial streams are located within areas designated as Open Space. Additional information about the perennial streams is provided in the wetland delineation report (Appendix C). Representative photographs of perennial streams in the BSA are provided as Photos 2, 4, 11, and 12 in Appendix E.

#### 3.1.3.7 Intermittent Stream

The four intermittent streams in the BSA are characterized by a relatively well-defined channel and convey water on a somewhat consistent basis during the wetter times of the year. The sources of flows for the intermittent streams are precipitation and sheet flow from the adjacent uplands, including the abutting retail and residential areas. Two of the intermittent streams occur east of Antelope Creek (Photo 9 in Appendix E), and one is located south of Miners Ravine. Additional information about the intermittent streams is provided in the wetland delineation report (Appendix C).

#### 3.1.3.8 Ephemeral Drainage

The five ephemeral drainages in the BSA are characterized by less well-defined channels (i.e., more swale-like) and convey water only during, and for a short duration following, precipitation events. Ephemeral drainages occur in the western portion of the BSA in the vicinity of SR 65. Additional information about the ephemeral streams is provided in the wetland delineation report (Appendix C).

#### 3.1.3.9 Riparian Forest/Shrub Wetland

Riparian forest/shrub wetlands in the BSA consist of areas within riparian habitat that meet all three federal wetland criteria (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology). The riparian forest/shrub wetlands are located on the east side of Antelope Creek (Photo 10 in Appendix E), in the southern portion of the BSA, and southwest of the Galleria Boulevard/ Stanford Ranch Road interchange. The vegetative composition of riparian forest/shrub wetlands is similar to riparian forest. Additional information about the riparian forest/shrub wetlands is provided in the wetland delineation report (Appendix C).

### 3.1.3.10 Emergent Wetland

Emergent wetlands in the BSA are characterized by the presence of emergent vegetation and perennial hydrology. The emergent wetlands occur near Antelope Creek, between Taylor Road and the railroad tracks, southeast of Highland Ravine, and on the southern side of SR 65 west of the Galleria Boulevard/Stanford Ranch Road interchange (Photos 18 and 19 in Appendix E). The vegetation in emergent wetlands includes narrowleaf cattail (*Typha angustifolia*), pennyroyal (*Mentha pulegium*), false waterpepper (*Persicaria hydropiperoides*), hardstem bulrush (*Schoenoplectus acutus*), rough cocklebur (*Xanthium strumarium*), and variable flatsedge (*Cyperus difformis*). Additional information about the emergent wetlands is provided in the wetland delineation report (Appendix C).

### 3.1.3.11 Seasonal Wetland

Seasonal wetlands in the BSA lack the plant species identified below as typically occurring in vernal pools. Additionally, although some of the plant species that inhabit seasonal wetlands also occur in emergent wetlands, the seasonal wetlands lack the perennial hydrology of the emergent wetlands (i.e., the seasonal wetlands are inundated only during wetter times of year). The seasonal wetlands occur in the portion of the BSA adjacent to SR 65. Herbaceous species in seasonal wetlands include spike rush (*Eleocharis macrostachya*), tall flatsedge (*C. eragrostis*), narrowleaf cattail, Bermuda grass (*Cynodon dactylon*), pennyroyal, dallis grass (*Paspalum dilatatum*), curly dock (*Rumex crispus*), Italian ryegrass, brome fescue (*Festuca bromoides*), and hairy willowherb (*Epilobium ciliatum*).

### 3.1.3.12 Vernal Pool

Vernal pools are a type of seasonal wetland; however, not all seasonal wetlands are vernal pools. Vernal pools in the BSA were distinguished from areas designated as seasonal wetlands based on their vegetative composition and hydrology. The vegetation in areas identified as vernal pools includes one or more of the following species that are typically found only in vernal pools: coyote thistle (*Eryngium castrense*), doublehorn calicoflower (*Downingia bicornuta* var. *picta*), horned downingia (*D. ornatissima* var. *ornatissima*), annual hairgrass (*Deschampsia danthonioides*), smooth goldfields (*Lasthenia glaberrima*), vernal pool buttercup (*Ranunculus bonariensis* var. *trisepalus*), stalked popcornflower (*Plagiobothrys stipitatus* var. *micranthus*), and whitehead navarretia (*Navarretia leucocephala* ssp. *leucocephala*). In terms of hydrology, areas identified as vernal pools exhibited a greater depth of ponding compared to seasonal wetlands and remained inundated for a longer duration than seasonal wetlands. Many of the vernal pools in the BSA are located in the grassland that is south of the east terminus of Antelope Creek Drive (Photo 7 in Appendix E). The rest of the vernal pools are located inside the cloverleaf loops on SR 65 at the exit for Stanford Ranch Road/Galleria Boulevard (Photos 14 and 15 in Appendix E). Additional information about the vernal pools is provided in the wetland delineation report (Appendix C).

## 3.1.4 Common Animal Species

### 3.1.4.1 Wildlife

The BSA provides habitat for an assemblage of wildlife species typical of valley grassland, oak woodland, and riparian forest communities. Numerous mammal species or evidence of use (i.e., scat, burrows) were observed in or near the BSA during the 2103 and 2014 field surveys, including black-tailed deer (*Odocoileus hemionus columbianus*), black-tailed hare (*Lepus californicus*), coyote (*Canis latrans*), California ground squirrel (*Spermophilus beecheyi*), western gray squirrel (*Sciurus griseus*), Botta's pocket gopher (*Thomomys bottae*), and raccoon (*Procyon lotor*). Numerous western fence lizards (*Sceloporus occidentalis*) were observed throughout the BSA. Wetland and stream habitats in the BSA also provide habitat for common amphibians and reptiles such as western toad (*Anaxyrus boreas*), Pacific tree frog (*Pseudacris regilla*), and western terrestrial garter snake (*Thamnophis elegans*). Common bird species observed throughout the BSA included northern mockingbird (*Mimus polyglottos*), red-winged blackbird (*Agelaius phoeniceus*), black phoebe (*Sayornis nigricans*), cliff swallow (*Petrochelidon pyrrhonota*), brewer's blackbird (*Euphagus cyanocephalus*), house finch (*Carpodacus mexicanus*), lesser goldfinch (*Carduelis psaltria*), mourning dove (*Zenaida macroura*), western scrub jay (*Aphelocoma californica*), oak titmouse (*Baeolophus inornatus*), American robin (*Turdus migratorius*), spotted towhee (*Pipilo maculatus*), acorn woodpecker (*Melanerpes formicivorus*), downy woodpecker (*Picoides pubescens*), Pacific-slope flycatcher (*Empidonax difficilis*), wild turkey (*Meleagris gallopavo*), American kestrel (*Falco sparverius*), red-shouldered hawk (*Buteo lineatus*), and turkey vulture (*Cathartes aura*).

### 3.1.4.2 Fish

Antelope Creek, Miners Ravine, and Secret Ravine in the BSA fall within the Sacramento-San Joaquin Province (Central Valley Subprovince), one of six aquatic zoogeographic provinces in California, as defined by Moyle (2002). The Sacramento-San Joaquin Province is drained by the Sacramento and San Joaquin Rivers. Generally, four native fish assemblages can be recognized in Central Valley streams: rainbow trout assemblage, California roach assemblage, pikeminnow-hardhead-sucker assemblage, and deep-bodied fish assemblage (Moyle 2002). Based on its geographic location, the BSA lies in the zone characterized by the deep-bodied fish assemblage.

Fish species that could occur in this zone include Sacramento sucker (*Catostomus occidentalis*), California roach (*Lavinia symmetricus*), hardhead (*Mylopharodon conocephalus*), Sacramento pikeminnow (*Ptychocheilus grandis*), speckled dace (*Rhinichthys osculus*), riffle sculpin (*Cottus gulosus*), steelhead and resident rainbow trout (*Oncorhynchus mykiss*), and Chinook salmon

(*O. tshawytscha*) (Moyle 2002). Non-native sunfish (*Lepomis* spp.), blackbass (*Micropterus* spp.), and Western mosquitofish (*Gambusia affinis*) also may occur in this zone.

Historical information of fish species occurrence includes CDFW accounts documented in CDFW memoranda from the mid-1960s. According to these accounts, anglers in the mid-1960s commonly caught rainbow trout, sunfish, and brown bullhead catfish (*Ameiurus nebulosus*), while other species documented to occur in the Dry Creek drainage included lamprey, Sacramento pikeminnow, goldfish, Sacramento sucker, hitch, mosquitofish, Chinook salmon, and steelhead (Gerstung pers. comm., White pers. comm.).

Presently, about 20 fish species, including freshwater and anadromous (sea-going) species, are found in Antelope Creek, Miners Ravine, and Secret Ravine; more than half of these species are introduced (Table 3-1).

**Table 3-1. Fish Species Known or with Potential to Occur in the Biological Study Area**

| Common Name–Origin | Scientific Name |
|---|---|
| **Native** | |
| Steelhead | *Oncorhynchus mykiss* |
| Chinook salmon (fall-run) | *Oncorhynchus tshawytscha* |
| Pacific lamprey | *Lampetra tridentata* |
| Sacramento sucker | *Catostomus occidentalis* |
| Sacramento pikeminnow | *Ptychocheilus grandis* |
| Hitch | *Lavina exilicauda* |
| **Non-Native** | |
| Golden shiner | *Notemigonus crysoleucas* |
| Common carp | *Cyprinus carpio* |
| Goldfish | *Carassius auratus* |
| Fathead minnow | *Pimephales promelas* |
| Black bullhead | *Ameiurus melas* |
| Brown bullhead | *Ameiurus nebulosus* |
| Green sunfish | *Lepomis cyanellus* |
| Redear sunfish | *Lepomis microlophus* |
| Bluegill | *Lepomis macrochirus* |
| Largemouth bass | *Micropterus salmoides* |
| Smallmouth bass | *Micropterus dolomieu* |
| Spotted bass | *Micropterus punctulatus* |
| Western mosquitofish | *Gambusia affinis* |

*Sources:* Placer County (2003), Titus (pers. comm.).

### 3.1.5 Wildlife Migration Corridors

The BSA consists of predominantly disturbed and developed areas along SR 65, I-80, Taylor Road, Pacific Street, and associated on-ramps and off-ramps. These existing roadways generally do not provide wildlife migration corridors; however, resident wildlife species may traverse the BSA along streams that culvert under or parallel these roadways. Many of the stream channels in the BSA are within or border Open Space Preserves in the City of Roseville (Figures 5a–f, 6a–f, and 7a–f) that could be used as movement corridors to access larger open space areas outside the city limits. Therefore, streams and associated riparian and oak woodlands in the BSA provide significant wildlife dispersal and movement corridors through a largely built environment.

### 3.1.6 Invasive Plant Species

*Invasive plant species* include species designated as federal noxious weeds by the USDA, species listed by the CDFA, and invasive plants identified by Cal-IPC. Invasive plants displace native species, change ecosystem processes, alter plant community structure, and lower wildlife habitat quality (California Invasive Plant Council 2006:1). Road, highway, and related construction projects are some of the principal dispersal pathways for invasive plants and their propagules. Table 3-2 lists the invasive plant species identified by CDFA and Cal-IPC that are known to occur in the BSA (California Department of Food and Agriculture 2014; California Invasive Plant Council 2014). No plant species designated as federal noxious weeds have been identified in the BSA. Most of the invasive plant species occur in annual grassland, along roadways, and in disturbed/graded areas.

**Table 3-2. Invasive Plant Species Identified in the Biological Study Area**

| Species | CDFA | Cal-IPC |
|---|---|---|
| Barbed goat grass (*Aegilops triuncialis*) | B | High |
| Tree of heaven (*Ailanthus altissima*) | C | Moderate |
| Giant reed (*Arundo donax*) | B | High |
| Slender wild oat (*Avena barbata*) | – | Moderate |
| Wild oat (*Avena fatua*) | – | Moderate |
| Ripgut brome (*Bromus diandrus*) | – | Moderate |
| Soft chess (*Bromus hordeaceus*) | – | Limited |
| Red brome (*Bromus madritensis* ssp. *Rubens*) | – | High |
| Italian thistle (*Carduus pycnocephalus*) | C | Moderate |
| Yellow star-thistle (*Centaurea solstitialis*) | C | High |
| Bull thistle (*Cirsium vulgare*) | C | Moderate |
| Bermuda grass (*Cynodon dactylon*) | C | Moderate |
| Hedgehog dogtail grass (*Cynosurus echinatus*) | – | Moderate |
| Fuller's teasel (*Dipsacus fullonum*) | – | Moderate |
| Stinkwort (*Dittrichia graveolens*) | – | Moderate |
| Medusahead (*Elymus caput-medusae*) | C | High |
| Red-stemmed filaree (*Erodium cicutarium*) | – | Limited |
| Rattail fescue (*Festuca myuros*) | – | Moderate |
| Italian ryegrass (*Festuca perennis*) | – | Moderate |
| Edible fig (*Ficus carica*) | – | Moderate |
| Fennel (*Foeniculum vulgare*) | – | High |
| Cutleaf geranium (*Geranium dissectum*) | – | Limited |
| Bristly ox-tongue (*Helminthotheca echioides*) | – | Limited |
| Field mustard (*Hirschfeldia incana*) | – | Moderate |
| Mediterranean barley (*Hordeum marinum* var. *Gussoneanum*) | – | Moderate |
| Foxtail barley (*Hordeum murinum* ssp. *Leporinum*) | – | Moderate |
| Klamathweed (*Hypericum perforatum*) | C | Moderate |
| Smooth cat’s ear (*Hypochaeris glabra*) | – | Limited |
| Rough cat's-ear (*Hypochaeris radicata*) | – | Moderate |

| Species | CDFA | Cal-IPC |
|---|---|---|
| Hyssop loosestrife (*Lythrum hyssopifolia*) | – | Moderate |
| Pennyroyal (*Mentha pulegium*) | – | Moderate |
| Olive (*Olea europaea*) | – | Limited |
| Harding grass (*Phalaris aquatica*) | – | Moderate |
| Pokeweed (*Phytolacca americana*) | – | Limited |
| English plantain (*Plantago lanceolata*) | – | Limited |
| Rabbitsfoot grass (*Polypogon monspeliensis*) | – | Limited |
| Himalayan blackberry (*Rubus armeniacus*) | – | High |
| Sheep sorrel (*Rumex acetosella*) | – | Moderate |
| Curly dock (*Rumex crispus*) | – | Limited |
| Russian thistle (*Salsola tragus*) | C | Limited |
| Red sesbania (*Sesbania punicea*) | B | High |
| Johnson grass (*Sorghum halepense*) | C | – |
| Hedge parsley (*Torilis arvensis*) | – | Moderate |
| Rose clover (*Trifolium hirtum*) | – | Moderate |

*Note:* The California Department of Agriculture (CDFA) and California Invasive Plant Council (Cal-IPC) lists assign ratings that reflect the CDFA and Cal-IPC views of the statewide importance of the pest, likelihood that eradication or control efforts would be successful, and present distribution of the pest in the state. These ratings are guidelines that indicate the most appropriate action to take against a pest under general circumstances. The Cal-IPC species list is more inclusive than the CDFA list.

The **CDFA categories** indicated in the table are defined as follows:

**B:** Eradication, containment, control or other holding action at the discretion of the county agricultural commissioner.

**C:** State-endorsed holding action and eradication only when found in a nursery; action to retard spread outside nurseries at the discretion of the county agricultural commissioner.

The **Cal-IPC categories** indicated in the table are defined as follows:

**High:** Species with severe ecological impacts, high rates of dispersal and establishment, and usually widely distributed.

**Moderate:** Species with substantial and apparent ecological impacts, moderate to high rates of dispersal, establishment dependent on disturbance, and limited to widespread distribution.

**Limited:** Species with minor ecological impacts, low to moderate rates of invasion, limited distribution, and locally persistent and problematic.

## 3.2 Regional Species and Habitats of Concern

Regional species and habitats of concern were identified using the CNDDB records search (California Department of Fish and Wildlife 2014a) (Appendix B), CNPS's online *Inventory of Rare and Endangered Plants of California* (2014), the species list obtained from the USFWS (2014) website (Appendix B), and species distribution and habitat requirements data. Based on a review of this information, 6 natural communities of special concern, 17 special-status plant species, 20 special-status wildlife species, and 2 special-status fish species (Tables 3-4 and 3-5 [at the end of the chapter]) were identified as having the potential to occur or are known to occur in the geographic region (i.e., within 10 miles of the BSA).

For the purpose of this NES, *special-status species* are plants, wildlife, and fish that are legally protected under ESA, CESA, or other regulations, and species that are considered sufficiently rare by the scientific community to qualify for such listing. Special-status plants, animals, and fish are those species in any of the categories listed below.

- Species listed or proposed for listing as threatened or endangered under ESA (50 CFR 17.11 [listed animals], 50 CFR 17.12 [listed plants], and various notices in the Federal Register [FR] [proposed species]).
- Species that are candidates for possible future listing as threatened or endangered under ESA (78 FR 70104, November 22, 2013).
- Species listed or proposed for listing by the State of California as threatened or endangered under CESA (14 California Code of Regulations [CCR] 670.5).
- Species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines Section 15380).
- Plants listed as rare under CNPPA (California Fish and Game Code 1900 et seq.).
- Plants considered by CDFW and CNPS to be “rare, threatened, or endangered in California” (Rare Plant Ranks 1B and 2; California Department of Fish and Wildlife 2014b; California Native Plant Society 2014).
- Plants identified by CDFW and CNPS about which more information is needed to determine their status, and plants of limited distribution (Rare Plant Ranks 3 and 4, California Department of Fish and Wildlife 2014b, California Native Plant Society 2014), which may be included as sensitive species on the basis of local significance or recent biological information.
- Animal species of special concern to CDFW.
- Animals fully protected in California (CFGC Section 3511 [birds], 4700 [mammals], 5050 [amphibians and reptiles], and 5515 [fish]).

### 3.2.1 Natural Communities of Special Concern

As previously mentioned, natural communities of special concern are characterized by high species diversity, high productivity, unusual nature, limited distribution, or declining status. The CNDDB maintains a list of natural communities of special concern. Wetland types not identified by CNDDB are also considered natural communities of special concern because state and federal regulatory agencies consider wetlands to be special-status habitats. The non-wetland riparian forest, oak woodland, riparian forest/shrub wetland, emergent wetland, vernal pool, and seasonal wetland that are found in the BSA are considered natural communities of special concern in this NES.

### 3.2.2 Special-Status Plant Species

Based on the searches of the CNDDB, the CNPS rare plant inventory, and USFWS’s website, 17 special-status plant species were identified as occurring in the vicinity of the BSA (Table 3-3 [at the end of the chapter]). The natural communities in the BSA contain potential habitat for 12 of these 17 species. The remaining five species have microhabitat requirements (i.e., alkaline, gabbro, or serpentine soils) that are not present in the BSA or that occur at elevations substantially higher than the elevation of the BSA. Additionally, the relatively high level of historical and ongoing disturbance that is present in most of the BSA detracts from the quality of potential habitat for special-status plant species. No special-status plants were observed during 2012 and 2013 botanical surveys, and none have been previously reported in the BSA (California Natural Diversity Database 2014). As mentioned in Chapter 2, the surveys coincided with the reported identification periods of all 17 special-status plant species. Based on the field survey results and the lack of recorded occurrences in the BSA, this NES concludes that no special-status plant species occur in the BSA.

### 3.2.3 Special-Status Wildlife Species

Based on a review of the CNDDB search results; the USFWS list of endangered, threatened, and proposed species within the project region; and species' distribution and habitat data, 20 special-status wildlife species were determined to have the potential to occur in the project region (Table 3-4 [at the end of the chapter]). After completion of the field survey, the biologists determined that 7 of the 20 species would not occur in the BSA because the area lacks suitable habitat or is outside the species' known range. An explanation for the absence of each of these species from the BSA is provided in Table 3-4. Suitable habitat is present in the BSA for the remaining 13 species listed below. These species are discussed in Chapter 4.

- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)
- Vernal pool fairy shrimp (*Branchinecta lynchi*)
- Western spadefoot (*Spea hammondii*)
- Pacific pond turtle (*Actinemys marmorata*)
- Burrowing owl (*Athene cunicularia hypugaea*)
- Swainson's hawk (*Buteo swainsoni*)
- White-tailed kite (*Elanus leucurus*)
- Northern harrier (*Circus cyaneus*)
- Purple martin (*Progne subis*)
- Tricolored blackbird (*Agelaius tricolor*)
- Pallid bat (*Antrozous pallidus*)
- Silver-haired bat (*Lasionycteris noctivagans*)
- Western red bat (*Lasiurus blossevillii*)

### 3.2.4 Special-Status Fish Species

Based on a review of existing information, six special-status fish species initially were identified as having the potential to occur in the project region. Of the six special-status fish species listed in Table 3-4, four do not occur in the BSA because the area lacks suitable habitat for the species or is outside the species' known range. An explanation for the absence of each of these species from the BSA is provided in Table 3-4. The remaining special-status fish species—Central Valley steelhead and Central Valley fall-/late fall–run Chinook salmon—occur in the BSA and could be affected by construction activities. In addition, two of the streams in the BSA—Miners Ravine and Secret Ravine—are designated as critical habitat for steelhead; Antelope Creek, Miners Ravine, and Secret Ravine are considered EFH for Pacific salmon (i.e., Chinook salmon).

## 3.2.5 Other Protected Species

### 3.2.5.1 Migratory Birds and Raptors

Non-special-status migratory birds and raptors have the potential to nest in trees, shrubs, and grassland in the BSA. Swallows and other non-special-status birds have the potential to nest under bridges and overpasses in the BSA. Although these species are not considered special-status wildlife species, their occupied nests and eggs are protected by CFGC Sections 3503 and 3503.5 and the MBTA.

### 3.2.5.2 Protected Trees

The BSA contains numerous valley oaks, interior live oaks, and blue oaks in riparian areas and oak woodlands that are subject to regulation under the tree preservation ordinances of the City of Roseville and the City of Rocklin. The proposed project would result in the removal of protected oak trees. As discussed in Chapter 2, an arborist survey will be conducted as part of the permitting phase to identify the species, location, and health of native trees in the riparian and oak woodland communities. The arborist survey and associated report will be prepared after the 90% engineering plans are available.

**Table 3-3. Special-Status Plant Species Identified as Having the Potential to Occur in the Project Region**

| **Common Name** ***Scientific Name*** | **Status[a]** **Federal/State/ CRPR** | **General Habitat Description** | **Blooming Period** | **Habitat Present/ Absent** | **Rationale** |
|---|---|---|---|---|---|
| California balsamroot (*Balsamorhiza macrolepis*) | –/–/1B.2 | Sometimes on serpentine soils in chaparral, cismontane woodland, valley and foothill grassland; 295–5,101 feet | March–June | P | Potential habitat present but not observed during surveys within blooming period. No serpentine soils present. |
| Stebbin's morning-glory (*Calystegia stebbinsii*) | E/E/1B.1 | Serpentine or gabbro soils in chaparral openings, cismontane woodland; 606–3,576 feet | April–July | A | BSA substantially lower than species' elevation range and no serpentine or gabbro soils present. |
| Pine Hill ceanothus (*Ceanothus roderickii*) | E/R/1B.2 | Serpentine or gabbro soils in chaparral or cismontane woodland; 803–2,066 feet | April–June | A | BSA substantially lower than species' elevation range and no serpentine or gabbro soils present. |
| Hispid bird's-beak (*Chloropyron molle* ssp. *hispidum*) | –/–/1B.1 | Meadow and seeps, valley and foothill grassland, playa, on alkaline soils; 3–508 feet | June–September | A | Microhabitat requirements (i.e., alkaline soils) not met in BSA. |
| Brandegee's clarkia (*Clarkia biloba* ssp. *brandegeeae*) | –/–/4.2 | Chaparral, cismontane woodland, lower coniferous forest, often on roadcuts; 246–3,001 feet | May–July | P | Potential habitat present but not observed during surveys within blooming period. |
| Dwarf downingia (*Downingia pusilla*) | –/–/2.2 | Vernal pools and mesic valley and foothill grasslands; below 1,459 feet | March–May | P | Potential habitat present but not observed during surveys within blooming period. |
| Stinkbells (*Fritillaria agrestis*) | –/–/4.2 | Chaparral, cismontane woodland, pinyon-juniper woodland, valley and foothill grassland, on clay, sometimes serpentinite substrate; 33–5,101 feet | March–June | P | Potential habitat present but not observed during surveys within blooming period. |
| El Dorado bedstraw (*Galium californicum* ssp. *sierrae*) | E/R/1B.2 | On gabbro soils in chaparral, cismontane woodland, lower montane coniferous forest; 328–1,919 feet | May–June | A | BSA substantially lower than species' elevation range and no gabbro soils present. |
| Boggs Lake hedge-hyssop (*Gratiola heterosepala*) | –/E/1B.2 | Clay soils in areas of shallow water, lake margins of swamps and marshes, vernal pool margins; 33–7,791 feet | April–August | P | Potential habitat present but not observed during surveys within blooming period. |
| Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*) | –/–/1B.2 | Wet areas in valley and foothill grassland, vernal pool margins; 98–751 feet | March–May | P | Potential habitat present but not observed during surveys within blooming period. |

| **Common Name** ***Scientific Name*** | **Status[a]** **Federal/State/ CRPR** | **General Habitat Description** | **Blooming Period** | **Habitat Present/ Absent** | **Rationale** |
|---|---|---|---|---|---|
| Red Bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*) | –/–/1B.1 | Seasonally wet areas in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; 115–4,101 feet | March–May | P | Potential habitat present but not observed during surveys within blooming period. |
| Legenere (*Legenere limosa*) | –/–/1B.1 | Deep, seasonally wet habitats such as vernal pools, ditches, marsh edges, and river banks; below 2,887 feet | April–June | P | Potential habitat present but not observed during surveys within blooming period. |
| Pincushion navarretia (*Navarretia myersii* ssp. *myersii*) | –/–/1B.1 | Edges of vernal pools; 66–1,083 feet | April–May | P | Potential habitat present but not observed during surveys within blooming period. |
| Sacramento Orcutt grass (*Orcuttia viscida*) | E/E/1B.1 | Vernal pools; 98–328 feet | April–July | P | Potential habitat present but not observed during surveys within blooming period. |
| Layne's butterweed (*Packera layneae*) | T/R/1B.2 | Rocky serpentinite or gabbro soils in chaparral and foothill woodland; 656–3,281 feet | April–August | A | BSA substantially lower than species' elevation range and no serpentine or gabbro soils present. |
| Tahoe yellow cress (*Rorippa subumbellata*) | C/E/1B.1 | Lower montane coniferous forest, meadows and seeps, on decomposed granitic beaches; 6,217–6,233 feet | May–September | A | No potential habitat present and BSA substantially lower than species' elevation range. |
| Sanford's arrowhead (*Sagittaria sanfordii*) | –/–/1B.2 | Freshwater marshes, sloughs, canals, and other slow-moving water habitats; below 2,132 feet | May–October | P | Potential habitat present but not observed during surveys within blooming period. |

[a] **Status explanations:**

**Federal**

E = Listed as endangered under the federal ESA.
T = Listed as threatened under the federal ESA.
C = Species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded.
— = No listing status.

**State**

E = Listed as endangered under CESA.
R = Listed as rare under the CESA. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.
— = No listing status.

**CRPR**

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.
4 = List 4 species: limited distribution; species on a watch list
.1 = Seriously endangered in California (over 80% of occurrences threatened—high degree and immediacy of threat).
.2 = Fairly endangered in California (20-80% occurrences threatened).

* = presumed extirpated in that county.

*Note*: In March, 2010, California Department of Fish and Game (now CDFW) changed the name of “CNPS List” or “CNPS Ranks” to “California Rare Plant Ranks (CRPR).” This was done to reduce confusion over the fact that CNPS and CDFW jointly manage the Rare Plant Status Review groups (300+ botanical experts from government, academia, non-governmental organizations, and the private sector) and that the rank assignments are the product of a collaborative effort and not solely a CNPS assignment.

**Table 3-4. Special-Status Wildlife and Fish Known or with Potential to Occur in the Project Region, or That May Be Affected by the Proposed Project**

| **Common Name** ***Scientific Name*** | **Legal Status (Federal/State/Other)** | **General Habitat Description** | **Habitat Present/Absent** | **Rationale** |
|---|---|---|---|---|
| **Invertebrates** | | | | |
| Vernal pool fairy shrimp *Branchinecta lynchi* | T/– | Found in Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County; isolated populations also in Riverside County; common in vernal pools; also found in sandstone rock outcrop pools. | Present | Suitable vernal pool habitat is present within the BSA between Taylor Road and the railroad corridor west of the existing East Roseville Viaduct. Vernal pools within the north and south SR 65 off-ramp loops at Galleria Boulevard also provide suitable habitat for the species.<br>*Likely to adversely affect.* |
| Vernal pool tadpole shrimp *Lepidurus packardi* | E/– | Found from Shasta County south to Merced County; occurs in vernal pools and ephemeral stock ponds. | Absent | Suitable vernal pool habitat is present within the BSA. Based on the absence of documented populations within Placer County, vernal pool tadpole shrimp are not expected to occur in the BSA.<br>*Not likely to adversely affect*. |
| Valley elderberry longhorn beetle *Desmocerus californicus dimorphus* | T/– | Streamside habitats below 3,000 feet throughout the Central Valley; occurs in riparian and oak savanna habitats with elderberry shrubs; elderberries are the host plant. | Present | One elderberry shrub is present below the existing East Roseville Viaduct north of Taylor Road. Three shrubs are present along the south bank of Miners Ravine east of I-80 and south of Eureka Road. One additional shrub is present along China Garden Road in the east end of the BSA; however, this shrub was recently burned in a fire.<br>*Likely to adversely affect.* |

| **Common Name** ***Scientific Name*** | **Legal Status (Federal/State/Other)** | **General Habitat Description** | **Habitat Present/Absent** | **Rationale** |
|---|---|---|---|---|
| **Amphibians** | | | | |
| California red-legged frog *Rana aurora draytonii* | T/SSC | Found along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehema County to Fresno County; occurs in permanent and semipermanent aquatic habitats, such as creeks and coldwater ponds, with emergent and submergent vegetation; may estivate in rodent burrows or cracks during dry periods. | Present | Suitable perennial aquatic habitat is present within the BSA. However, the species has not been previously documented within valley habitat in western Placer County. The closest California Natural Diversity Database occurrences are more than 35 miles northeast of the BSA within the nearby foothills (California Natural Diversity Database 2014). This species is not expected to be present within the BSA.<br>*No effect.* |
| Western spadefoot *Spea hammondii* | –/SSC | Seasonal wetlands such as vernal pools and stock ponds in annual grasslands and oak woodlands within the Sierra Nevada foothills, Central Valley, and Coast Ranges. | Present | Suitable aquatic (vernal pools) and upland habitat is located between Taylor Road and the railroad corridor west of the existing East Roseville Viaduct. Vernal pools also are present in the SR 65 off-ramp loops at Galleria Boulevard; however, these pools are surrounded by developed areas that would not provide sufficient upland habitat to support western spadefoot.<br>*Likely to adversely affect.* |
| **Reptiles** | | | | |
| Giant garter snake *Thamnophis couchi gigas* | T/T/– | Sloughs, canals, low-gradient streams, and freshwater marsh habitats with a prey base of small fish and amphibians; also found in irrigation ditches and rice fields; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter. | Absent | Urban streams within the BSA do not provide suitable habitat for giant garter snake. The closest known occurrence is approximately 13 miles to the west, within an agricultural ditch in rice field habitat.<br>*No effect.* |

| Common Name<br>*Scientific Name* | Legal Status (Federal/State/Other) | General Habitat Description | Habitat Present/Absent | Rationale |
|---|---|---|---|---|
| Pacific pond turtle<br>*Actinemys marmorata* | –/SSC | Occurs throughout California west of the Sierra-Cascade crest; found from sea level to 6,000 feet; does not occur in desert regions except for along the Mojave River and its tributaries; occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests. | Present | Suitable aquatic and upland habitat is present within and along Antelope Creek, Miners Ravine, and Secret Ravine within the BSA.<br>*Likely to adversely affect.* |
| **Birds** | | | | |
| Bank swallow<br>*Riparia riparia* | –/T | Occurs along the Sacramento River from Tehama County to Sacramento County, along the Feather and lower American Rivers, in the Owens Valley; and in the plains east of the Cascade Range in Modoc, Lassen, and northern Siskiyou Counties. Small populations near the coast from San Francisco County to Monterey County. Nests in bluffs or banks, usually adjacent to water, where the soil consists of sand or sandy loam, along streams, coastal bluffs, and sand/gravel pits. | Absent | No suitable river or stream eroded bank habitat is present in BSA.<br>*No effect.* |
| Burrowing owl<br>*Athene cunicularia hypugaea* | –/SSC | Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast; level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows. | Present | Annual grassland along SR 65 in the northwest portion of the BSA provides potential breeding and wintering habitat. The closest document occurrence is 5 miles northwest of the BSA at a culvert under North Foothill Boulevard surrounded by open grassland habitat (ICF International 2014). Active nests will be avoided.<br>*Not likely to adversely affect.* |

| Common Name<br>*Scientific Name* | Legal Status (Federal/State/Other) | General Habitat Description | Habitat Present/Absent | Rationale |
|---|---|---|---|---|
| California black rail<br>*Laterallus jamaicensis coturniculus* | –/T, FP | Permanent resident in the San Francisco Bay and eastward through the Delta into Sacramento and San Joaquin Counties; small populations in Marin, Santa Cruz, San Luis Obispo, Orange, Riverside, and Imperial Counties; tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations. Recently discovered northern Sierra Nevada foothill population occupies shallow, densely vegetated freshwater wetlands. | Absent | No suitable freshwater marsh habitat is present within the BSA.<br>*No effect.* |
| Northern harrier<br>*Circus cyaneus* | –/SSC | Occurs in grasslands, meadows, marshes, and seasonal and agricultural wetlands throughout lowland California. | Present | Emergent wetland and tall annual grasslands along SR 65 roadway provide potential nesting habitat for northern harrier. Active nests will be avoided.<br>*Not likely to adversely affect.* |
| Osprey<br>*Pandion haliaetus* | –/SSC | Nests in snags, trees, or utility poles near the ocean, large lakes, or rivers with abundant fish populations. | Absent | No suitable nesting or foraging habitat is present within the BSA. Possible migrant through the BSA.<br>*No effect.* |
| Purple martin<br>*Progne subis* | –/SSC | Nests in abandoned woodpecker holes in oaks, cottonwoods, and other deciduous trees in a variety of wooded and riparian habitats; also nests in vertical drainage holes under elevated freeways and highway. | Present | Purple martins have been documented to nest in the drain holes within the SR 65 overcrossing at Taylor Road in the BSA. Only one pair have been documented in any given nest year. Project construction could indirectly disturb active nesting, but suitable nesting habitat would not be permanently affected.<br>*Not likely to adversely affect.* |

| **Common Name** ***Scientific Name*** | **Legal Status (Federal/State/Other)** | **General Habitat Description** | **Habitat Present/Absent** | **Rationale** |
|---|---|---|---|---|
| Swainson's hawk *Buteo swainsoni* | –/T | Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley; highest nesting densities occur near Davis and Woodland, Yolo County; nests in oaks or cottonwoods in or near riparian habitats; forages in grasslands, irrigated pastures, and grain fields. | Present | Oak woodland and riparian forest in the BSA provide suitable nesting habitat for the species. The closest known nest sites are approximately 4 miles to the west along Kaseberg and Pleasant Grove Creeks (CNDDB 2014). Annual grassland within open areas adjacent to SR 65 support suitable foraging areas for hawks. Active Swainson's hawk nests will be avoided.<br>*Not likely to adversely affect.* |
| Tricolored blackbird *Agelaius tricolor* | –/SSC | Permanent resident in the Central Valley from Butte County to Kern County; breeds at scattered coastal locations from Marin County south to San Diego County; and at scattered locations in Lake, Sonoma, and Solano Counties; rare nester in Siskiyou, Modoc, and Lassen Counties; nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields; habitat must be large enough to support 50 pairs; probably requires water at or near the nesting colony. | Absent | Emergent wetland and riparian shrub wetland along Antelope Creek in the BSA provide suitable nesting habitat for the species. The closest known nesting colony is on Orchard Creek approximately 5 miles northwest of the BSA (ICF International 2014). Active nests would be avoided.<br>*Not likely to adversely affect.* |
| White-tailed kite *Elanus leucurus* | –/FP | Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border; low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging. | Present | Oak woodland and riparian forest in the BSA provide suitable nesting habitat for the species. The closest known nest site is approximately 2.5 miles to the west along Pleasant Grove Creek (CNDDB 2014). Annual grassland within open areas adjacent to SR 65 support suitable foraging areas. Active nests will be avoided.<br>*Not likely to adversely affect.* |

| **Common Name** ***Scientific Name*** | **Legal Status (Federal/State/Other)** | **General Habitat Description** | **Habitat Present/Absent** | **Rationale** |
|---|---|---|---|---|
| **Mammals** | | | | |
| Pallid bat *Antrozous pallidus* | –/SSC | Occurs throughout California primarily at lower and mid-level elevations in a variety of habitats from desert to coniferous forest; most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California. Daytime roosts include rock outcrops, mines, caves, hollow trees, buildings, and bridges. | Present | Bridges and woodland habitats in the BSA provide suitable roosting areas for this species. Active roosts will be avoided.<br>*Not likely to adversely affect.* |
| Silver-haired bat *Lasionycteris noctivagans* | –/SSC | Typically roosts in tree cavities, crevices and under loose bark; may also use leaf litter, buildings, mines, and caves; breeds in coastal and montane coniferous forests, valley foothill and montane riparian habitats; may occur in any habitat during migration. | Present | Bridges and woodland habitats in the BSA provide suitable roosting areas. Active roosts will be avoided.<br>*Not likely to adversely affect.* |
| Townsend's big-eared bat *Corynorhinus* townsendii *townsendii* | –/P | Roosts in caves, tunnels, mines, and dark attics of abandoned buildings; very sensitive to disturbances and may abandon a roost after one onsite visit. | Absent | No suitable roosting habitat is present in the BSA.<br>*No effect.* |
| Western red bat *Lasiurus blossevillii* | –/SSC | Found throughout much of California at lower elevations; found primarily in riparian and wooded habitats; occurs at least seasonally in urban areas; day roosts in trees within the foliage; found in fruit orchards and sycamore riparian habitats in the Central Valley. | Present | Oak woodland and riparian forest habitat within the BSA provides suitable roost sites. Active roosts will be avoided.<br>*Not likely to adversely affect.* |

| Common Name *Scientific Name* | Legal Status (Federal/State/Other) | General Habitat Description | Habitat Present/Absent | Rationale |
|---|---|---|---|---|
| **Fish** | | | | |
| Central Valley steelhead *Oncorhynchus mykiss* | T/– | Sacramento and San Joaquin Rivers and tributary Central Valley streams and rivers below impassable barriers; occurs in well-oxygenated, cool, riverine habitat with water temperatures from 7.8 to 18 degrees (°) Celsius (C); habitat types are riffles, runs, and pools; adults spawn at head of riffles/tails of pools; young rear year-round for 1–4 years before emigrating to the ocean (Moyle 2002). | Present | Antelope Creek, Miners Ravine, and Secret Ravine provide suitable migration, spawning, and rearing habitat for Central Valley steelhead; Miners Ravine and Secret Ravine are designated critical habitat for the species. |
| Central Valley fall-/late fall–run Chinook salmon *Oncorhynchus tshawytscha* | SC/SSC | Sacramento and San Joaquin Rivers and tributary Central Valley streams and rivers below impassable barriers; occurs in well-oxygenated, cool, riverine habitat with water temperatures from 8.0 to 12.5°C; habitat types are riffles, runs, and pools; adults spawn at head of riffles/tails of pools; young rear for several months and emigrate to the ocean before summer (Moyle 2002). | Present | Antelope Creek, Miners Ravine, and Secret Ravine provide suitable migration, spawning, and rearing habitat for Central Valley fall-run Chinook salmon and are considered EFH for Chinook salmon. |
| Sacramento River winter-run Chinook salmon *Oncorhynchus tshawytscha* | E/E | Mainstem Sacramento River below Keswick Dam (Moyle 2002); occurs in well-oxygenated, cool, riverine habitat with water temperatures from 8.0 to 12.5°C; habitat types are riffles, runs, and pools (Moyle 2002); adults and juveniles migrate in the lower Sacramento River and through the Delta. | Absent | The BSA is not located within the current distribution of this run. The BSA is not included within designated critical habitat for this run. |
| Central Valley spring-run Chinook salmon *Oncorhynchus tshawytscha* | T/T | Upper Sacramento River, Feather River, and Yuba River and several perennial tributaries of the Sacramento River (Battle, Butte, Clear, Deer, and Mill Creeks); has the same general habitat requirements as winter-run Chinook salmon; coldwater pools are needed for holding adults (Moyle 2002); adults and juveniles migrate in the lower Sacramento River and through the Delta. | Absent | The BSA is not located within the current distribution of this run. The BSA is not included within designated critical habitat for this run. |

| Common Name *Scientific Name* | Legal Status (Federal/State/Other) | General Habitat Description | Habitat Present/Absent | Rationale |
|---|---|---|---|---|
| Delta smelt *Hypomesus* transpacificus | T/E | Found primarily in the Sacramento–San Joaquin Estuary but has been found as far upstream as the mouth of the American River on the Sacramento River and Mossdale on the San Joaquin River; range extends downstream to San Pablo Bay; occurs in estuary habitat in the Delta where fresh and brackish water mix in the salinity range of 2–7 parts per thousand (Moyle 2002). | Absent | The BSA is located on an inland freshwater stream at an elevation of 160 feet above mean sea level. The BSA is not included within designated critical habitat for this species. |
| Lahontan cutthroat trout *Mylopharodon conocephalus* | T/- | Tributary streams in the San Joaquin drainage; large tributary streams in the Sacramento River and the main stem; resides in low to mid-elevation streams and prefer clear, deep pools and runs with slow velocities; also occurs in reservoirs. | Absent | The species occurs only in Great Basin streams on the east side of the Sierra Nevada crest. The BSA is not included within designated critical habitat for this species. |

[a] Status explanations:

**Federal**

E = Listed as endangered under the federal Endangered Species Act.
T = Listed as threatened under the federal Endangered Species Act.
D = Delisted from the federal Endangered Species Act.
– = No listing.

**State**

E = Listed as endangered under the California Endangered Species Act.
T = Listed as threatened under the California Endangered Species Act.
P = Proposed for listing as threatened or endangered under the California Endangered Species Act.
FP = Fully protected under the California Fish and Game Code.
SSC = Species of special concern in California.
– = No listing.

# Chapter 4 Results: Biological Resources, Discussion of Impacts and Mitigation

The impact analysis for biological resources was conducted by evaluating the potential changes to existing biological communities based on the anticipated project construction and maintenance activities listed below that could cause direct and indirect impacts of varying degrees on sensitive biological resources present in the BSA.

- Vegetation removal.
- Grading and fill placement during construction.
- In-water work during construction of piers within Antelope Creek and roadway expansion into Secret Ravine.
- Temporary stockpiling and sidecasting of soil, construction materials, or other construction wastes.
- Soil compaction, dust, and water runoff from the construction site into adjacent areas.
- Introduction or spread of invasive plant species into adjacent City of Roseville Open Space Preserve areas.
- Runoff of herbicides, fertilizers, diesel fuel, gasoline, oil, raw concrete, or other toxic materials used for project construction and maintenance into sensitive biological resource areas (e.g., riparian habitat, wetlands).

The following assumptions were used in assessing the magnitude of possible impacts on biological resources.

- Impacts were assessed for the proposed project under the three build alternatives. The no-build alternative would not result in habitat modification or increases in impervious surfaces or overwater structure (shade). Therefore, the no-build alternative would not directly affect biological resources. However, the no-build alternative could result in indirect impacts on air and water quality relative to existing conditions from increased traffic congestion (WRECO 2014).
- All construction, staging (including vehicle parking), storage, and access areas will be restricted to the permanent and temporary impact areas depicted in Figures 5a–f, 6a–f, and 7a–f.
- Impacts on land cover types and associated wildlife and SRA cover were determined by overlaying preliminary footprints for permanent project features and temporary work areas

(e.g., access roads, falsework, equipment staging) onto aerial photographs of mapped habitats (Figures 5a–f, 6a–f, and 7a–f, 8a–h, 9a–h, and 10a–h). Impact acreages and linear distances presented in this chapter are intended to provide worst-case scenario; actual impacts are expected to be less based on avoidance of trees and other vegetation within temporary work areas.

- Oak woodland and riparian forest were generally mapped as polygons based on canopy cover and include both treed and treeless areas. Impacts within these habitats are approximate and do not account for canopy that extends outside the project footprint from a tree that could be removed by the project.
- Temporary construction impacts within oak woodland and riparian habitats may include some tree trimming, but removal of trees will be avoided to the extent practical.
- Temporary construction (e.g., temporary access roads) that requires tree removal within riparian forest and oak woodland habitats will be mitigated at the same ratio as permanent impacts to account for the time required for habitat regeneration.
- Upon completion of 90% design plans for each phase of the proposed project, an arborist survey will be conducted to identify the species, location, and health of native trees in the oak woodland and riparian forest communities and to provide a more accurate estimation of impacts on these communities.
- Direct effects to elderberry shrubs within the temporary impact area will be avoided.
- Loss of annual grassland vegetation in the BSA is not considered a significant impact from a botanical standpoint, because this habitat is common and is not considered a sensitive community type. Annual grassland vegetation also reestablishes more easily after disturbance than riparian or wetland communities. However, the loss of annual grassland habitat could result in impacts on special-status wildlife species, and these impacts are discussed below.
- Roadway modification south of the Pleasant Grove Boulevard interchange will avoid impacts on Highland Ravine.
- No pile driving or stream dewatering will be required as part of project construction.
- Temporary construction impacts on riparian vegetation and associated SRA cover habitat would result from temporary falsework, stream crossings (e.g., Bailey bridges[1]), and equipment access.
- Permanent structures (e.g., piers and bents) and bridges/crossings with low vertical clearance or very wide footprints would result in permanent impacts on riparian vegetation and associated SRA cover habitat through exclusion, shading, and rain shadow effects.

[1] A *Bailey bridge* is a type of portable, pre-fabricated, truss bridge that was developed by the British during World War II for military use.

- Elevated structures with high vertical clearance (e.g., greater than 30 feet) and relatively narrow footprints would not result in impacts on riparian vegetation and associated SRA cover habitat.
- Stream shade loss (and associated temperature impacts) would be temporary and limited to the period extending from vegetation clearing to construction of the overhead structure. No permanent loss of stream shade would result from implementation of the project, and permanent temperature impacts will be avoided.

## 4.1 Natural Communities of Special Concern

Natural communities of special concern within the BSA are primarily restricted to stream corridors and open space within a mostly developed and urban setting. Land cover types mapped within the BSA that would qualify as natural communities of special concern include non-wetland riparian forest, oak woodland, riparian forest/shrub wetland, emergent wetland, vernal pool, and seasonal wetland. For the purposes of this NES, a combined discussion for the four wetland types in the BSA is presented below. The other waters of the United States (i.e., non-wetlands) in the BSA consist of open water portions of perennial, intermittent, and ephemeral streams and are discussed in this section because they are subject to federal (CWA) and state (Porter-Cologne Act and CFGC Section 1602) regulation.

### 4.1.1 Non-Wetland Riparian Forest

#### 4.1.1.1 Survey Results

Non-wetland riparian forest in the BSA occurs along Antelope Creek, Miners Ravine, and Secret Ravine. Portions of this riparian forest also include SRA cover habitat that provides shade for anadromous fish (discussed in Section 4.4). Representative species found in the non-wetland riparian forest in the BSA are valley oak, Fremont cottonwood, willows, Oregon ash, Himalayan blackberry, California blackberry, and buttonwillow. Riparian communities are considered sensitive locally, regionally, and statewide because of their habitat value and declining distribution. CDFW has adopted a no-net-loss policy for riparian habitat values, and the LSAA will include mitigation requirements for loss of riparian vegetation. USFWS mitigation policy identifies California’s riparian habitats in Resource Category 2, for which no net loss of existing habitat value is recommended (46 FR 7644). Additionally, riparian forest contains native trees that are subject to the tree preservation ordinances of the City of Roseville and City of Rocklin.

#### 4.1.1.2 Project Impacts

Construction of the proposed project would result in trimming or removal of non-wetland riparian forest vegetation. For the purposes of this analysis, all riparian vegetation disturbance and tree removal are considered permanent impacts because of the time required for habitat regeneration, even if the project construction component (e.g., access roads) requiring the disturbance or removal is considered a temporary impact. As described in Section 4.4.1.2, portions of non-wetland riparian forest in the BSA also provide SRA cover habitat for fish.

State and federal agencies will require avoidance, minimization, and compensatory mitigation for the loss of riparian habitat. The loss or disturbance of riparian forest vegetation is considered adverse because this vegetation provides a variety of important ecological functions and values.

Implementation of the avoidance and minimization efforts described below would minimize the impacts on non-wetland riparian forest. Additional mitigation is proposed to compensate for the permanent loss of riparian forest.

Table 4-1 summarizes the impacts on non-wetland riparian forest by build alternative.

**Table 4-1. Impacts on Non-Wetland Riparian Forest by Alternative**

| | Alternative 1 | | Alternative 2 | | Alternative 3 | |
|---|---|---|---|---|---|---|
| | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* |
| Non-wetland riparian forest | 1.152 | 0.331 | 1.039 | 0.461 | 1.059 | 0.540 |

### 4.1.1.3 Avoidance and Minimization Efforts

Implementation of the following avoidance and minimization efforts will ensure that the proposed project minimizes effects on non-wetland riparian habitat in and adjacent to the construction area. Additional avoidance and minimization measures may be agreed upon during the project permitting process.

#### *Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources*

Prior to construction, the project proponent’s contractor will install high-visibility orange construction fencing and/or flagging, as appropriate, along the perimeter of the work area adjacent to Environmentally Sensitive Areas (ESAs) (e.g., riparian vegetation, wetlands, streams, special-status species habitat, and active bird nests). Where specific buffer distances are required for sensitive biological resources (e.g., wetlands, elderberry shrubs, special-status species habitats, active bird nests, and protected trees), they will be specified under the corresponding measures below. The project proponent will ensure that the final construction plans show the locations where fencing will be installed. The plans also will define the fencing installation procedure. The project proponent or contractor (at the discretion of the project proponent) will ensure that the fencing is maintained throughout the duration of the construction period. If the fencing is removed, damaged, or otherwise compromised during the construction period, construction activities will cease until the fencing is repaired or replaced. The project's special provisions package will provide clear language regarding acceptable fencing material and prohibited construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within ESAs.

### *Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel*

Before any work occurs in the project area, including grading and tree removal, the project proponent will retain a qualified biologist (familiar with the resources to be protected) to conduct a mandatory contractor/worker environmental awareness training for construction personnel. The awareness training will be provided to all construction personnel (contractors and subcontractors) to brief them on the need to avoid effects to sensitive biological resources (e.g., riparian vegetation, wetlands, special-status species, nesting birds, and protected trees) adjacent to construction areas and the penalties for not complying with applicable state and federal laws and permit requirements. The biologist will inform all construction personnel about the life history and habitat requirements of special-status species with potential for occurrence onsite, the importance of maintaining habitat, and the terms and conditions of the biological opinion or other authorizing document (e.g., letter of concurrence). Proof of this instruction will be submitted to the project proponent, and other overseeing agencies (i.e., CDFW, USFWS, and NMFS), as appropriate.

The environmental training also will cover general restrictions and guidelines that must be followed by all construction personnel to reduce or avoid effects on sensitive biological resources during project construction. General restrictions and guidelines that must be followed by construction personnel are listed below.

- Project-related vehicles will observe the posted speed limit on hard-surfaced roads and a 10 mile-per-hour speed limit on unpaved roads or access areas during travel within the project limits.
- Project-related vehicles and construction equipment will restrict off-road travel to the designated construction area.
- Vegetation clearing and construction operations will be limited to the minimum necessary in areas of temporary access work areas and staging.
- All food-related trash will be disposed of in closed containers and removed from the project site at least once a week during the construction period. Construction personnel will not feed or otherwise attract wildlife to the project site.
- No pets or firearms will be allowed on the project site.

- To prevent possible resource damage from hazardous materials such as motor oil or gasoline, construction personnel will not service vehicles or construction equipment outside designated staging areas.
- The training also will include identifying the BMPs written into construction specifications for avoiding and minimizing the introduction and spread of invasive plants (see *Measure 23: Avoid and Minimize the Spread of Invasive Plant Species during Project Construction*) and the rationale behind their implementation during project construction.

#### *Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats*

The project proponent will retain a qualified biologist to monitor all construction activities that involve ground disturbance (e.g., vegetation removal, grading, excavation, bridge construction) within or adjacent to Environmentally Sensitive Areas (ESAs) (e.g., riparian vegetation, wetlands, streams, special-status species habitat, and active bird nests). The purpose of the monitoring is to ensure that measures identified in this report are properly implemented to avoid and minimize effects on sensitive biological resources and to ensure that the project complies with all applicable permit requirements and agency conditions of approval. The biologist will ensure that fencing around ESAs remains in place during construction and that no construction personnel, equipment, or runoff/sediment from the construction area enters ESAs. The monitor will complete daily logs, and a final monitoring report will be prepared at the end of each construction season that will be submitted to the project proponent and other overseeing agencies (i.e., CDFW, USFWS, and NMFS), as appropriate.

### 4.1.1.4 Compensatory Mitigation

The final compensation plan for the permanent and temporary loss of non-wetland riparian forest, including areas considered SRA cover habitat, will be more fully developed as part of consultation with NMFS and additional coordination with the City of Roseville Open Space manager and environmental coordinator. Compensation for the impacts on riparian forest will depend on the amount and location of SRA and the availability and feasibility of onsite restoration along Miners Ravine, Secret Ravine, and Antelope Creek.

#### *Measure 4: Compensate for the Temporary and Permanent Loss of Non-Wetland Riparian Forest (including SRA Cover)*

The project proponent will compensate for temporary and permanent impacts on non-SRA riparian forest at a minimum ratio of 2:1 and on SRA riparian forest habitat at a minimum of 3:1 (see Table 4-19). For non-SRA riparian habitat, the project proponent may choose to purchase mitigation bank credits at a locally approved bank or compensate by restoring or enhancing riparian forest at onsite and/or offsite locations within the Dry Creek watershed. Each of these options is described below.

1. **Mitigation Bank Credit Purchase.** If this option is chosen for non-SRA riparian forest habitats, the project proponent will provide written evidence to the resource agencies that compensation has been established through the purchase of mitigation credits. The amount to be paid will be the fee that is in effect at the time the fee is paid. The mitigation will be approved by CDFW and may be modified during the permitting process.
2. **Onsite and/or Offsite Restoration in the Dry Creek Watershed.** This option may be chosen for non-SRA riparian forest and will be required for riparian forest identified as SRA cover. Onsite restoration will be required for all areas temporarily disturbed by construction. For onsite or offsite replacement plantings, the project proponent will prepare an onsite mitigation planting plan, including a species list and number of each species, planting locations, and maintenance requirements. Plantings will consist of cuttings taken from local plants or plants grown from local material. Planted species for the mitigation plantings will be similar to those removed from the project area and will include native species, such as valley oak, Fremont cottonwood, Oregon ash, black willow, red willow, and arroyo willow. The final planting plan will be developed based on results of the arborist survey for species to be removed. All plantings will be fitted with exclusion cages or other suitable protection from herbivory. Plantings will be irrigated for up to 3 years or until established.

For riparian habitat restored onsite, it should occur in the same year as construction. Plantings will be monitored annually for 3 years or as required in the project permits. If 75 percent of the plants survive at the end of the monitoring period, the revegetation will be considered successful. If the survival criterion is not met at the end of the monitoring period, planting and monitoring will be repeated after mortality causes have been identified and corrected. Riparian forest compensation will be consistent with the requirements of the City of Roseville and City of Rocklin tree ordinances to ensure compensation for losses of individual protected trees.

To provide a more accurate estimate of tree loss, an arborist survey will be conducted upon completion of 90% design plans for each phase of the project. In addition to a description of the tree, the arborist survey report will include the precise location of the trunk and size of the dripline for all trees whose trunk or canopy overlap with the project footprint.

To satisfy NMFS and compensate for the loss of SRA cover, this measure will include the following:

- Replace affected SRA cover vegetation (Table 4-19) at a 3:1 replacement ratio by planting native riparian trees in temporary impact areas and along existing unshaded banks. This linear distance will provide a 3:1 replacement ratio (i.e., 3 linear feet replaced for every 1 foot affected).

- Plant native riparian trees onsite to the maximum extent practicable, followed by planting on adjacent reaches of affected streams to minimize the need for offsite mitigation.
- Plant riparian trees that are intended to provide SRA cover along the water's edge at summer low flows and at levels sufficiently dense to provide shade along at least 85 percent of the bank's length when the plant reaches maturity.
- Ensure that riparian plantings intended for SRA cover mitigation are planted within 10 feet (horizontal distance) of the summer wetted channel. This maximum planting distance will ensure that riparian plantings will contribute to SRA cover once they approach maturity.
- Monitor and evaluate the revegetation success of riparian plantings intended for SRA cover mitigation as described above.

#### 4.1.1.5 Cumulative Impacts

Cumulative impacts on non-wetland riparian forest would result from construction of other general development projects in Placer County. With implementation of the avoidance and minimization efforts and compensatory mitigation, construction of the proposed project would not add to the cumulative loss of riparian forest and would not result in a cumulatively adverse effect on riparian forest.

### 4.1.2 Oak Woodland

#### 4.1.2.1 Survey Results

Oak woodland in the BSA occurs upslope of the west side of Antelope Creek and along Miners Ravine and Secret Ravine. The overstory of oak woodland in the BSA typically consists of blue oak and interior live oak but also contains valley oak. The understory contains species such as hedgehog dogtail grass, broadleaf filaree, toyon, wall bedstraw, coyote brush, and purple clarkia.

#### 4.1.2.2 Project Impacts

Construction of the proposed project would result in trimming or removal of oak woodland habitat. For the purposes of this analysis, all oak woodland disturbance and tree removal are considered permanent impacts because of the time required for habitat regeneration, even if the project construction component (e.g., access roads) requiring the disturbance or removal is considered a temporary impact. As described in Section 4.4.1.2, portions of oak woodlands that occur along creeks in the BSA also provide SRA cover for fish. However, all impacts on SRA cover will be compensated as part of riparian forest mitigation, based on the required proximity of new SRA cover plantings (within 10 feet of wetted channel).

Table 4-2 summarizes the impacts on oak woodland by build alternative.

**Table 4-2. Impacts on Oak Woodland by Alternative**

| | Alternative 1 | | Alternative 2 | | Alternative 3 | |
|---|---|---|---|---|---|---|
| | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* |
| Oak woodland | 0 | 6.368 | 0 | 6.141 | 0 | 6.174 |

### 4.1.2.3 Avoidance and Minimization Efforts

Impacts on oak woodland will be avoided or minimized by implementing the following measures.

#### *Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources*

Please refer to the discussion of Measure 1 in Section 4.1.1.3.

#### *Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel*

Please refer to the discussion of Measure 2 in Section 4.1.1.3.

#### *Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats*

Please refer to the discussion of Measure 3 in Section 4.1.1.3.

### 4.1.2.4 Compensatory Mitigation

#### *Measure 5: Compensate for the Permanent Loss of Oak Woodland*

The project proponent will compensate for the permanent loss of oak woodland at a minimum ratio of 1:1 (1 acre restored for every 1 acre permanently affected). Replacement plantings for oak woodland may be planted onsite and/or at offsite locations. If onsite replacement is not feasible, the project proponent will pay an in-lieu fee to the appropriate jurisdiction (i.e., the City of Roseville or the City of Rocklin).

If onsite or offsite replacement planting will occur, the project proponent will prepare a mitigation planting plan, including a species list and number of each species, planting locations, and maintenance requirements. Plantings will consist of cuttings taken from local plants or plants grown from local material. Planted species for the mitigation plantings will be similar to those removed from the project area and will include native species, such as interior live oak, blue oak, valley oak, ceanothus (*Ceanothus* sp.), toyon (*Heteromeles arbutifolia*), and other locally appropriate species. The final planting plan will be developed based on results of the arborist survey for species to be removed. All plantings will be fitted with exclusion cages or other suitable protection from herbivory. Plantings will be irrigated for up to 3 years or until established.

Plantings will be monitored annually for 3 years or as required in the project permits. If 75 percent of the plants survive at the end of the monitoring period, the revegetation will be considered successful. If the survival criterion is not met at the end of the monitoring period, planting and monitoring will be repeated after mortality causes have been identified and corrected.

Oak woodland compensation will be consistent with the requirements of the City of Roseville and City of Rocklin tree ordinances to ensure compensation for losses of individual oak trees.

To provide a more accurate estimate of tree loss, an arborist survey will be conducted upon completion of 90% design plans for each phase of the project. In addition to a description of the tree, the arborist survey report will include the precise location of the trunk and size of the dripline for all trees whose trunk or canopy overlap with the project footprint.

#### 4.1.2.5 Cumulative Impacts

Cumulative impacts on oak woodland would result from construction of other general development projects in Placer County. With implementation of the avoidance and minimization efforts and compensatory mitigation, construction of the proposed project would not add to the cumulative loss of oak woodlands and would not result in a cumulatively adverse effect on oak woodlands.

### 4.1.3 Wetlands

#### 4.1.3.1 Survey Results

Wetlands are scattered throughout the BSA. Descriptions of each wetland type are provided in Section 3.1.3 of Chapter 3. Figures 5a–f, 6a–f, and 7a–f depict the locations of each wetland type within the BSA for each alternative.

#### 4.1.3.2 Project Impacts

Construction of the proposed project would result in temporary and permanent impacts on vernal pool, seasonal wetlands, emergent wetland, and riparian forest/scrub wetland habitats. Impacts were considered to be permanent if they would result in the placement of permanent fill in vernal pool, seasonal wetland, emergent wetland, and riparian forest/scrub wetland habitats associated with SR 65 mainline widening and reconstruction of ramp connections, Taylor Road improvements, and construction of new columns to widen the East Roseville Viaduct. Impacts were considered to be temporary if fill would be removed following completion of construction and temporarily disturbed portions of wetlands would be restored. Temporary impacts on wetlands would also occur during access for project construction including placement of temporary fill (falsework) to construct the East Roseville Viaduct. Additional indirect impacts caused by sedimentation or modification of hydrology could occur in portions of wetlands that lie outside the project footprint.

Impacts on wetlands are common to all build alternatives. Table 4-3 summarizes the impacts on wetland type by build alternative.

**Table 4-3. Impacts on Wetland Type by Alternative**

| Wetland Type | Alternative 1 | | Alternative 2 | | Alternative 3 | |
|---|---|---|---|---|---|---|
| | ***Temporary (acres)*** | ***Permanent (acres)*** | ***Temporary (acres)*** | ***Permanent (acres)*** | ***Temporary (acres)*** | ***Permanent (acres)*** |
| Vernal pool* | 0 | 0.030** | 0 | 0.030** | 0 | 0.030** |
| Seasonal wetland | 0.066 | 0.115 | 0.066 | 0.115 | 0.066 | 0.115 |
| Emergent wetland | 0.194 | 0.116 | 0.194 | 0.116 | 0.194 | 0.116 |
| Riparian forest/ scrub wetland | 0.181 | 0.004 | 0.181 | 0.004 | 0.181 | 0.004 |

* = Habitat for federally listed vernal pool fairy shrimp will be mitigated as part of the compensatory mitigation for vernal pool fairy shrimp (described below in Section 4.3.2.4).

**= For purposes of calculating impacts on vernal pools and based on the sensitive nature of vernal pool hydrology, the entire pool is considered permanently affected even if temporary or permanent disturbance would occur to only a portion of the pool.

### 4.1.3.3 Avoidance and Minimization Efforts

Implementation of the following measures will ensure that the proposed project minimizes effects on wetlands within and adjacent to the construction area. Additional avoidance and minimization measures may be agreed upon during the project permitting process.

#### *Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources*

Please refer to the discussion of Measure 1 in Section 4.1.1.3.

#### *Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel*

Please refer to the discussion of Measure 2 in Section 4.1.1.3.

#### *Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats*

Please refer to the discussion of Measure 3 in Section 4.1.1.3.

#### *Measure 6: Protect Water Quality and Minimize Sedimentation Runoff in Wetlands and Other Waters*

The project proponent will comply with all construction site BMPs specified in the SWPPP and any other permit conditions to minimize the introduction of construction-related contaminants and mobilization of sediment in wetlands and other waters in and adjacent to the project area. These BMPs will address soil stabilization, sediment control, wind erosion control, vehicle tracking control, non-storm water management, and waste management practices. The BMPs will be based on the best conventional and best available technology.

The project is subject to storm water quality regulations established under the NPDES, described in Section 402 of the federal CWA. In California, the NPDES program requires that any construction activity disturbing 1 or more acres comply with the statewide General Permit, as authorized by the State Water Board. The General Permit requires elimination or minimization of non-storm water discharges from construction sites and development and implementation of a SWPPP for the site. The primary elements of the SWPPP include the following.

- Description of site characteristics–including runoff and streamflow characteristics and soil erosion hazard—and construction procedures.
- Guidelines for proper application of erosion and sediment control BMPs.
- Description of measures to prevent and control toxic materials spills.
- Description of construction site housekeeping practices.

In addition to these primary elements, the SWPPP will specify that the extent of soil and vegetative disturbance will be minimized by control fencing or other means and that the extent of soil disturbed at any given time will be minimized. The SWPPP must be retained at the construction site.

The BMPs will be selected to achieve maximum sediment removal. The BMPs will represent the best available technology that is economically achievable and are subject to review and approval by Caltrans. Caltrans and the project proponent will perform routine inspections of the construction area to verify that the BMPs are properly implemented and maintained.

The BMPs will include, but are not limited to, the following.

- Conduct all earthwork or foundation activities involving wetlands and other waters in the dry season (generally between June 15 and October 15, may vary based on weather). Conduct all in-water work within streams that provide anadromous fish habitat (Antelope Creek, Miners Ravine, and Secret Ravine) between June 15 and October 15.
- Use only equipment in good working order and free of dripping or leaking engine fluids when working in and around drainages and wetlands. Perform all vehicle maintenance at least 300 feet from all drainages and wetlands. Conduct any necessary equipment washing where the water cannot flow into drainages or wetlands.
- Develop a Hazardous Material Spill Prevention Control and Countermeasure Plan before construction begins. The plan will include strict onsite handling rules to keep construction and maintenance materials from entering the river, including procedures related to refueling,

operating, storing, and staging construction equipment, as well as preventing and responding to spills. The plan also will identify the parties responsible for monitoring the spill response. During construction, any spills will be cleaned up immediately according to the spill prevention and countermeasure plan.

- Prohibit the following types of materials from being rinsed or washed into the streets, shoulder areas, or gutters: concrete, solvents and adhesives, thinners, paints, fuels, sawdust, dirt, gasoline, asphalt and concrete saw slurry, and heavily chlorinated water.
- Measure baseline turbidity, pH, specific conductance, and temperatures in Antelope Creek, Miners Ravine, and Secret Ravine. As required by the Central Valley RWQCB, avoid exceeding water quality standards specified in the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins* over the natural background conditions.
- Prevent discharge of turbid water to Antelope Creek, Miners Ravine, Secret Ravine, and tributary drainages during any construction activities by filtering the discharge first using a filter bag, diverting the water to a settling tank or infiltration areas, and/or treating the water in a manner to ensure compliance with water quality requirements prior to discharging water to Antelope Creek, Miners Ravine, Secret Ravine or any drainage ditch, wetland, or other aquatic habitat.
- Prevent discharge of concrete to Antelope Creek, Miners Ravine, Secret Ravine or any other aquatic habitat as concrete is being poured, as required by the NPDES permit.
- Dispose of any surplus concrete rubble, asphalt, or other rubble from construction at a local landfill.
- Prepare and implement an erosion and sediment control plan for the proposed project. The plan will include the provisions and protocols listed below. The SWPPP for the project will detail the applications and type of measures and the allowable exposure of unprotected soils.

  — Make discharge from dewatering operations, if needed, and runoff from disturbed areas conform to the water quality requirements of the waste discharge permit issued by the Central Valley RWQCB.

  — Apply temporary erosion control measures, such as sandbagged silt fences, throughout construction of the proposed project that will be removed after the working area is stabilized or as directed by the engineer. Soil exposure will be minimized through use of temporary BMPs, groundcover, and stabilization measures. Exposed dust-producing surfaces will be sprinkled daily, if necessary, until wet; this measure will be controlled to avoid producing runoff. Paved roads will be swept daily following construction activities.

  — Conduct periodic maintenance of erosion and sediment control measures.

- Plant an appropriate seed mix of native or naturalized species on disturbed areas upon completion of construction.
- Cover or apply nontoxic soil stabilizers to inactive construction areas (previously graded areas inactive for 10 days or more) that could contribute sediment to waterways.
- Enclose and cover exposed stockpiles of dirt or other loose, granular construction materials that could contribute sediment to waterways. Material stockpiles will be located in non-traffic areas only. Side slopes will not be steeper than 2:1. All stockpile areas will be surrounded by a filter fabric fence and interceptor dike.
- Contain soil and filter runoff from disturbed areas by berms, vegetated filters, silt fencing, straw wattles, plastic sheeting, catch basins, or other means necessary to prevent the escape of sediment from the disturbed area.
- Use other temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) to control erosion from disturbed areas as necessary.
- Avoid earth or organic material from being deposited or placed where it may be directly carried into nearby wetlands or other waters.

The project proponent also will obtain a 401 water quality certification from the Central Valley RWQCB and LSAA from CDFW that may contain additional BMPs and water quality measures to ensure the protection of water quality.

#### 4.1.3.4 Compensatory Mitigation

***Measure 7: Compensate for the Temporary and Permanent Impacts on Wetlands***

To compensate for the temporary and permanent project impacts on seasonal wetland, freshwater emergent wetland, and riparian forest/scrub wetland, the project proponent will purchase credits at an approved mitigation bank to ensure no net loss of wetland functions and values. Vernal pool mitigation will be coordinated with compensatory mitigation for listed vernal pool fairy shrimp, such that mitigation for loss of listed species habitat does not duplicate mitigation for loss of USACE-jurisdictional vernal pool habitat. Mitigation banks with service areas for Placer County include Laguna Terrace East Conservation Bank, Reeds Creek Vernal Pool Preserve, Twin Cities Conservation Bank and Preserve, Toad Hill Ranch Mitigation Bank, and Western Placer Schools Conservation Bank. The minimum wetland compensation ratio will be 1:1 (1 acre of wetland habitat credit for every 1 acre of impact) to ensure no-net-loss of wetland habitat functions and values.

The project proponent also will implement the conditions and requirements of state and federal permits that will be obtained for the proposed project.

#### 4.1.3.5 Cumulative Impacts

Cumulative impacts on wetlands would result from construction of other general development projects in Placer County. Construction of the proposed project would add to the cumulative loss of wetlands. However, with implementation of the measures prescribed for minimizing impacts and compensating for remaining impacts, the proposed project's incremental contribution to cumulative impacts on wetlands is not cumulatively considerable.

### 4.1.4 Other Waters of the United States/Waters of the State

#### 4.1.4.1 Survey Results

Other waters of the United States (which also are considered waters of the State) are scattered throughout the BSA. Descriptions of each other water type are provided in Section 3.1.3 of Chapter 3.

#### 4.1.4.2 Project Impacts

Construction of the proposed project would result in temporary and permanent impacts on perennial and intermittent stream habitats. Impacts were considered to be permanent if they would result in the placement of permanent fill in perennial stream and intermittent stream habitats associated with construction of bridge columns within Antelope Creek to widen the East Roseville Viaduct, reconstruction of the SR 65 onramp to eastbound I-80, and widening of eastbound I-80 at Secret Ravine for Alternative 1. To minimize permanent impacts within Secret Ravine, the proposed project uses design options, including an outrigger concept for columns and/or shifting of the bent spacing, at stream crossings to avoid placement of columns below the OHWM, thereby avoiding permanent fill within the OHWM of Secret Ravine.

Impacts were considered to be temporary if fill would be removed following completion of construction and temporarily disturbed portions of wetlands would be restored. Temporary impacts on other waters may include modification of the stream bank or channel, increased turbidity, and runoff of chemical substances. Placement of temporary fill within perennial and intermittent streams will also be required to construct falsework and temporary crossings.

Indirect impacts on water quality, such as increased turbidity and chemical runoff, may also result from project construction within the downstream portions of streams and drainages that are outside the project footprint.

Table 4-4 summarizes the impacts on other water types by build alternative.

**Table 4-4. Impacts on Other Waters of the United States by Alternative**

| Other Water Type | Alternative 1 | | Alternative 2 | | Alternative 3 | |
|---|---|---|---|---|---|---|
| | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* |
| Perennial stream | 0.056 | 0.034 | 0.000 | 0.004 | 0.000 | 0.007 |
| Intermittent stream | 0.000 | 0.003 | 0.000 | 0.003 | 0.000 | 0.003 |
| Ephemeral drainage | 0 | 0 | 0 | 0 | 0 | 0 |

#### 4.1.4.3 Avoidance and Minimization Efforts

Impacts on other waters will be avoided or minimized by implementing the following measures. Additional avoidance and minimization efforts may be agreed upon during the project permitting process.

***Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources***

Please refer to the discussion of Measure 1 in Section 4.1.2.3.

***Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel***

Please refer to the discussion of Measure 2 in Section 4.1.1.3.

***Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats***

Please refer to the discussion of Measure 3 in Section 4.1.1.3.

***Measure 6: Protect Water Quality and Minimize Sedimentation Runoff in Wetlands and Other Waters***

Please refer to the discussion of Measure 6 in Section 4.1.3.3.

#### 4.1.4.4 Compensatory Mitigation

***Measure 8: Compensate for the Placement of Permanent Fill into Waters of the United States/Waters of the State***

The project proponent will compensate for the permanent fill of other waters of the United States/waters of the State (a direct impact associated with roadway construction). Temporarily disturbed waters of the United States will be returned to pre-construction condition following construction. The project proponent will purchase compensatory credits at a USACE-approved mitigation bank to ensure no net loss of functions and values. As discussed previously, mitigation banks with service areas for Placer County include Laguna Terrace East Conservation Bank, Reeds Creek Vernal Pool Preserve, Twin Cities Conservation Bank and Preserve, Toad Hill Ranch Mitigation Bank, and Western Placer Schools Conservation Bank. The minimum other waters compensation ratio will be 1:1 (1 acre of other waters habitat credit for every 1 acre of permanent impact) to ensure no net loss of habitat functions and values.

The project proponent also will implement the conditions and requirements of state and federal permits that will be obtained for the proposed project.

#### 4.1.4.5 Cumulative Impacts

Cumulative impacts on other waters would result from construction of other general development projects in Placer County. Construction of the proposed project would add to the cumulative loss of other waters. However, with implementation of the measures prescribed for minimizing impacts and compensating for remaining impacts, the proposed project’s incremental contribution to cumulative impacts on other waters is not cumulatively considerable.

## 4.2 Special-Status Plant Species

As indicated in Chapter 3, information obtained from the CNDDB, CNPS, and USFWS was used to compile a list of the 17 special-status plant species known to occur in the project region (Table 3-4). Five sensitive plant species occur at elevations substantially higher than the elevation range within the BSA or have microhabitat requirements (i.e., alkaline, gabbro, or serpentine soils) that are not met in the BSA. The BSA contains potential habitat for the remaining 12 species in annual grassland, oak woodland, vernal pools, seasonal wetlands, and freshwater emergent marsh. The amount of historical and ongoing disturbance in the BSA decreases the quality of potential habitat for special-status plant species.

### 4.2.1 Survey Results

No special-status plants were observed during the 2012 and 2013 botanical surveys conducted during the reported identification periods of the 17 special-status plant species determined to have the potential to occur in the BSA.

### 4.2.2 Project Impacts

Special-status plants were not observed within the BSA during appropriately timed botanical surveys; therefore, special-status plants would not be affected by the proposed project.

#### 4.2.2.1 Avoidance and Minimization Efforts

No avoidance or minimization efforts are required for special-status plants because no special-status plants were observed in the BSA.

### 4.2.3 Compensatory Mitigation

No compensatory mitigation is required for special-status plants because no special-status plants were observed in the BSA.

### 4.2.4 Cumulative Impacts

No cumulative impacts on special-status plants are anticipated from implementation of the proposed project.

## 4.3 Special-Status Wildlife Species

As described in Chapter 2, "Study Methods," special-status wildlife species with the potential to occur in the BSA were identified after a review of existing information, coordinating with agency personnel, and conducting biological field surveys. Table 3-5 lists all special-status wildlife species that were identified during the prefield investigation as potentially occurring in the project region. After the 2012–2014 biological field surveys were conducted, the biologist determined that, either because there was no suitable habitat or because the BSA was outside the species geographic range, seven of the species listed in Table 3-5 would not occur within the BSA. The remaining 13 special-status wildlife species were identified as potentially occurring in the BSA or may be affected by construction activities and are discussed below.

### 4.3.1 Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle (VELB) is a federally listed threatened species. The range of the beetle extends throughout the Central Valley of California and associated foothills, from the 3,000-foot-high contour in the east foothills, through the valley floor to the watershed of the Central Valley in the west foothills (U.S. Fish and Wildlife Service 1999). The beetle often is associated with various riparian plant species, such as Fremont's cottonwood, California sycamore, willow, and oak (U.S. Fish and Wildlife Service 1999).

Elderberry shrubs are the host plant for VELB and are a common component of the remaining riparian forests and grasslands of the Central Valley and adjacent foothills. Elderberry shrubs are also common in upland habitats. Field surveys have found that adult VELB feed on elderberry foliage and perhaps flowers, and are present from March through early June. During this time, the adults mate. The females lay their eggs, either singly or in small clusters, in bark crevices or at the junction of stem and trunk or leaf petriole and stem. After hatching, a larva burrows into the stem of the elderberry, where it creates a feeding gallery within the pith of the stem (Talley et al. 2006). The larvae develop for 1 to 2 years within the pith and, before pupating, they chew through the inner bark and then return inside the stem plugging the hole with chewed bark (frass plug). The larvae then metamorphose into a pupae and chew through the frass plug to emerge as adult beetles. Adult beetles live for a few days to a few weeks (Talley et al. 2006). Studies of the spatial distribution of occupied shrubs suggest that the beetle is a poor disperser (Barr 1991; Collinge et al. 2001).

#### 4.3.1.1 Survey Results

Five elderberry shrubs were identified in the BSA during the July 2014 elderberry shrub survey (Table 4-5). One shrub is located under the existing East Roseville Viaduct (Figures 5c, 6c, and 7c). Three shrubs are located between Miners Ravine and an existing bike path south of Eureka Road (Figures 5a, 6a, and 7a). The remaining shrub is located along China Garden Road at the northeast end of the proposed project (Figures 5d, 6d, and 7d). VELB has potential to occur in elderberry shrubs with stems sized 1 inch or greater in diameter at ground level.

**Table 4-5. Summary of Stem Counts for Elderberry Shrubs in the Biological Study Area**

| Shrub | Presence of Exit Holes? | Riparian Habitat? | Number of Stems (by Diameter) | | | Comments |
|---|---|---|---|---|---|---|
| | | | 1–3 Inches | 3–5 Inches | >5 Inches | |
| 1 | Yes | No | 10 | 0 | 1 | Large trunk 20 inches diameter; canopy about 20 feet; many smaller stems less than 1 inch diameter; exit holes old. |
| 2 | No | Yes | 0 | 0 | 1 | Large trunk about 18 inches diameter; canopy about 12 feet; under alder tree next to bike path at top of creek bank. |
| 3 | No | Yes | 2 | 1 | 2 | Grouping of shrubs with canopy 40 feet by 20 feet; growing with willow on creek bank. |
| 4 | No | Yes | 6 | 2 | 3 | Canopy is 30 feet by 20 feet; east of a large cottonwood within blackberry thicket. |
| 5 | No | No | 0 | 0 | 0 | Shrub was burned in summer 2014 and no stems appear to be alive; however, shrub could grow back prior to construction. |

#### 4.3.1.2 Project Impacts

Proposed project activities associated with roadway and bridge construction would result in the loss or disturbance of elderberry shrub(s) that could contain VELB larvae or adults.

Direct impacts on VELB include removal or transplantation of elderberry shrubs within 20 feet from the limits of disturbance. Indirect impacts could result from construction activities within 100 feet of elderberry shrubs and may include removal of associated riparian plants that provide protection to elderberry shrubs, dust accumulation or asphalt residue on shrubs from paving and bridge construction activities that could affect the ability of VELB to forage and deposit eggs, and application of water that attracts argentine ants that prey on VELB. Excavation and grading in the vicinity of an elderberry shrub also could damage the root system, resulting in subsequent death of the shrub.

Table 4-6 summarizes the direct and indirect impacts on VELB by build alternative.

**Table 4-6. Impacts on VELB by Alternative**

| Impact | Alternative 1 | Alternative 2 | Alternative 3 |
|---|---|---|---|
| | *# Shrubs (# Stems)* | *# Shrubs (# Stems)* | *# Shrubs (# Stems)* |
| Elderberry shrubs directly affected | 2 (10, 0, 1) | 2 (10, 0, 1) | 2 (10, 0, 1) |
| Elderberry shrubs indirectly affected | 3 (8, 3, 6) | 3 (8, 3, 6) | 3 (8, 3, 6) |

*Note:* Elderberry shrubs within the limits of disturbance (permanent and temporary impact area) and up to 20 feet from the limits of disturbance were considered directly affected. Elderberry shrubs greater than 20 feet but less than 100 feet from the limits of disturbance were considered indirectly affected. Total impacts on elderberry stems for each alternative are shown in parentheses as (1–3 inches, 3–5 inches, >5 inches).

Permanent loss of suitable and potentially occupied habitat for VELB is considered an adverse impact on the species. Therefore, the proposed project is likely to adversely affect VELB.

Following selection of a preferred alternative, a BA will be prepared as part of ESA Section 7 consultation between Caltrans and USFWS to address project impacts on VELB.

#### 4.3.1.3 Avoidance and Minimization Efforts

Implementation of the following measures will avoid and minimize indirect impacts on VELB habitat within 100 feet of proposed ground disturbance. Additional conservation measures or conditions of approval may be required by the ESA ITP.

##### *Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources*

Please refer to the discussion of Measure 1 in Section 4.1.1.3.

##### *Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel*

Please refer to the discussion of Measure 2 in Section 4.1.1.3.

##### *Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats*

Please refer to the discussion of Measure 3 in Section 4.1.1.3.

##### *Measure 9: Establish a Minimum 20-Foot-Wide Buffer around the Elderberry Shrub*

In conjunction with Measure 1 (*Install Fencing and/or Flagging to Protect Sensitive Biological Resources*), the Project proponent will ensure that a minimum 4-foot-tall, orange plastic mesh–type construction fence (Tensor Polygrid or orange sediment control fencing) is installed at least 20 feet from the dripline of the elderberry shrub. Where the existing bike path restricts placement of the exclusion fencing, the fencing will be placed at the edge of the existing pavement. This fencing is intended to prevent encroachment by construction vehicles and personnel. The exact location of the fencing will be determined by a qualified biologist, with the goal of protecting habitat for VELB. The fencing will be strung tightly on posts set at a maximum interval of 10 feet. The fencing will be installed in a manner that prevents equipment from enlarging the work area beyond what is necessary to complete the work. The fencing will be checked and maintained weekly until all construction is completed. This buffer zone will be marked by a sign stating:

> *This is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment.*

No construction activity, including grading, will be allowed until this condition is satisfied. The fencing and a note reflecting this condition will be shown on the construction plans and specifications.

#### *Measure 10: Transplant Elderberry Shrubs That Cannot Be Avoided or Implement Dust Control Measures during Construction*

Elderberry shrubs growing within 20 feet of proposed construction will require transplanting prior to any ground-disturbing activities. In the event that elderberry shrubs can be retained onsite but occur within 20 feet of proposed construction activities, dust control measures will be required to minimize direct and indirect effects on these shrubs. The project proponent will implement one of the following measures for each elderberry shrub that occurs within 20 feet of proposed construction activities.

- All elderberry shrubs that occur within areas requiring vegetation removal will be transplanted to a USFWS-approved conservation area in accordance with the *Conservation Guidelines for Valley Elderberry Longhorn Beetle* (U.S. Fish and Wildlife Service 1999). These elderberry shrubs will be transplanted when they are dormant (after they lose their leaves), in the period starting approximately in November and ending in the first 2 weeks of February. A qualified specialist familiar with elderberry shrub transplantation procedures will supervise the transplanting. The location of the conservation area transplantation site will be approved by USFWS before removal of the shrubs.

  OR

- If it is determined that elderberry shrubs can be avoided but that construction activities will occur within 20 feet of the shrubs, the applicant will ensure that dust control measures (e.g., application of water to graded and disturbed areas that are unvegetated and covering of soil piles) are implemented in the vicinity of the shrub. To further minimize effects associated with dust accumulation, the elderberry shrubs will be covered by a protective cloth (i.e., burlap) during all ground-disturbing activities occurring within 20 feet of the shrubs. The cloth will be removed daily and immediately after ground-disturbing activities are completed. In addition, temporary construction fencing will be placed around the dripline of the elderberry shrubs (consistent with *Measure 9: Establish a Minimum 20-Foot-Wide Buffer around the Elderberry Shrub*) before the start of construction activities to ensure that the shrub is not inadvertently removed.

#### 4.3.1.4 Compensatory Mitigation

***Measure 11: Compensate for Direct Effects on Valley Elderberry Longhorn Beetle Habitat***

The project proponent will compensate for direct effects (including transplanting) on all elderberry stems measuring 1 inch or more at ground level (i.e., VELB habitat) that are located within 20 feet of construction activities. Compensation will include planting replacement elderberry seedlings or cuttings and associated native plantings in a USFWS-approved conservation area, at a ratio between 1:1 and 8:1 (ratio = new plantings to affected stems), depending on the diameter of the stem at ground level, the presence or absence of exit holes, and whether the shrub is located in riparian habitat (U.S. Fish and Wildlife Service 1999).

Mitigation credits for VELB can be purchased at a USFWS-approved mitigation bank, or an onsite or offsite conservation area can be established and a management plan can be developed in accordance with the *Conservation Guidelines for Valley Elderberry Longhorn Beetle* (U.S. Fish and Wildlife Service 1999). The exact amount and location of compensatory mitigation will be based on consultation with USFWS.

#### 4.3.1.5 Cumulative Impacts

Cumulative impacts on VELB would result from construction of other general development projects in Placer County. Construction of the proposed project would add to the cumulative loss of VELB habitat. However, with implementation of the measures prescribed for minimizing impacts and compensating for remaining impacts, the proposed project’s incremental contribution to cumulative impacts on VELB would not be cumulatively considerable.

### 4.3.2 Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp is a federally listed threatened species. The species is found from Shasta County in the north throughout the Central Valley, and west to the central Coast Ranges, at elevations of 30 to 4,000 feet. Additional populations have been reported from the Agate Desert region of Oregon near Medford; and disjunct populations occur in San Luis Obispo, Santa Barbara, and Riverside Counties. However, most known locations are in the Sacramento and San

Joaquin Valleys and along the eastern margin of the central Coast Ranges (Eng et al. 1990:255–258).

Vernal pool fairy shrimp inhabit vernal pools that form in depressions, usually in grassland habitats (Eng et al. 1990:255–258). Pools must remain inundated long enough for the species to complete its life cycle. Vernal pool fairy shrimp has the shortest time to reach sexual maturity, with a minimum of 18 days (Helm 1998:132). Vernal pool fairy shrimp also occur in other wetlands that provide habitat similar to vernal pools, such as alkaline rain pools, ephemeral drainages, rock outcrop pools, ditches, stream oxbows, stock ponds, vernal swales, and some seasonal wetlands (Helm 1998:137). Occupied wetlands range in size from as small as several square feet to more than 10 acres. Vernal pool fairy shrimp and other fairy shrimp have been observed in artificial depressions and drainages where water ponds for a sufficient duration (Helm 1998:134–138). Examples of such areas include roadside ditches and ruts left behind by off-road vehicles or heavy equipment. Soil compaction from construction activity can sometimes create an artificial hardpan, or restrictive layer, which allows water to pond and form suitable habitat for vernal pool fairy shrimp.

#### 4.3.2.1 Survey Results

The proposed project is within the current range of vernal pool fairy shrimp. Based on the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (U.S. Fish and Wildlife Service 2005), the BSA lies within the Southeastern Sacramento Valley vernal pool region but is not within the Western Placer County core area or within designated critical habitat (70 FR 46924, August 11, 2005). Vernal pools within the BSA represent potential habitat for vernal pool fairy shrimp and are located within the northern and southern off-ramps from SR 65 to Galleria Boulevard/Stanford Ranch Road (Figures 5e, 6e, and 7e) and along the railroad right-of-way south of the SR 65 overpass (Figures 5c, 6c, and 7c).

Three previously documented occurrences for vernal pool fairy shrimp are within 1 mile of the BSA. These records are for natural and created vernal pools located southwest of SR 65 within the Highland Reserve South Open Space Areas (California Department of Fish and Wildlife 2014).

#### 4.3.2.2 Project Impacts

Based on the lack of survey data for the BSA and because several records for vernal pool fairy shrimp have been documented within 1 mile of the proposed project, it was determined that vernal pool fairy shrimp may occur in suitable habitat (vernal pools) within the BSA. For purposes of this impact analysis, vernal pools in the BSA that support suitable habitat characteristics are presumed to be occupied by vernal pool fairy shrimp. Interchange improvements at Galleria Boulevard/Stanford Ranch Road and construction on the East

Roseville Viaduct would result in direct and indirect impacts of potentially occupied vernal pools within the project footprint.

Direct impacts that result in direct modification (i.e., permanent or temporary fill or excavation) of vernal pools in the BSA could result in the subsequent loss of vernal pool fairy shrimp and their eggs. Additionally, vernal pools within 250 feet of project construction may be indirectly affected. Construction activities such as excavation, grading, paving, or stockpiling of soil could result in indirect effects on vernal pool fairy shrimp by altering the suitability of nearby habitat. Runoff of sediment, gasoline, oil, or other contaminants may result in degradation of water quality within suitable habitat. Changes in hydrology also may reduce the suitability of habitat by altering the hydroperiod of vernal pools and swales.

Three vernal pools are outside the limits of an existing access route (Photo 8 in Appendix E) that would be used during construction and more than 250 feet south of the East Roseville Viaduct (Figures 5c, 6c, and 7c). These pools were not considered to be directly or indirectly affected by the proposed project because no ground disturbance is proposed during use of this access route. One large vernal pool is present south of the East Roseville Viaduct and within 250 feet of proposed construction on the viaduct; this pool could be indirectly affected.

Table 4-7 summarizes the impacts on vernal pool fairy shrimp habitat by build alternative.

**Table 4-7. Impacts on Vernal Pool Fairy Shrimp by Alternative**

| Impact | Alternative 1 *(acres)* | Alternative 2 *(acres)* | Alternative 3 *(acres)* |
|---|---|---|---|
| Vernal pools directly affected | 0.043 | 0.043 | 0.043 |
| Vernal pools indirectly affected | 0.351 | 0.351 | 0.351 |

*Note:* Vernal pools partially or entirely within the limits of disturbance (permanent and temporary impact area) were considered directly affected. Vernal pools within 250 feet of the limits of disturbance were considered indirectly affected.

Permanent loss of suitable and potentially occupied habitat for vernal pool fairy shrimp is considered an adverse impact on the species. Therefore, the proposed project is likely to adversely affect vernal pool fairy shrimp.

Following selection of a preferred alternative, a BA will be prepared as part of ESA Section 7 consultation between Caltrans and USFWS to address project effects to vernal pool fairy shrimp.

### 4.3.2.3 Avoidance and Minimization Efforts

Implementation of the following measures will avoid and minimize indirect impacts on vernal pool fairy shrimp habitat within 250 feet of proposed ground disturbance. Additional conservation measures or conditions of approval may be required by the ESA ITP.

#### *Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources*

Please refer to the discussion of Measure 1 in Section 4.1.1.3.

#### *Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel*

Please refer to the discussion of Measure 2 in Section 4.1.1.3.

#### *Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats*

Please refer to the discussion of Measure 3 in Section 4.1.1.3.

#### *Measure 6: Protect Water Quality and Minimize Sedimentation Runoff in Wetlands and Other Waters*

Please refer to the discussion of Measure 6 in Section 4.1.3.3.

#### *Measure 12: Avoid and Minimize Potential Indirect Impacts on Vernal Pool Fairy Shrimp Habitat*

The following avoidance and minimization efforts will be implemented prior to and during construction to protect vernal pool fairy shrimp habitat outside the project footprint.

- Ground disturbance within 250 feet of suitable vernal pool fairy shrimp habitat (i.e., vernal pools) will be avoided from the first day of the first significant rain (1 inch or greater) until June 1, or until suitable wetlands remain dry for 72 hours and no significant rain is forecast on the day of such ground disturbance.
- Consistent with Measure 1 (*Install Fencing and/or Flagging to Protect Sensitive Biological Resources*), a qualified biologist will guide the installation of exclusion fencing prior to the start of ground-disturbing activities (including staging and grading). The exclusion fencing will be installed along the edge of the construction limits and in a manner that minimizes disturbance of adjacent wetlands. The exclusion fencing will consist of orange construction barrier and erosion control fencing or combination fencing, and will be installed by the project proponent or its construction contractor.
- No herbicide will be applied within 100 feet of aquatic habitat, except when applied to cut stumps or frilled stems, or injected into stems. No broadcast applications will be used.

### 4.3.2.4 Compensatory Mitigation

#### *Measure 13: Compensate for Direct and Indirect Impacts on Vernal Pool Fairy Shrimp Habitat*

The project proponent will compensate for direct impacts on vernal pools at a 2:1 preservation and 1:1 restoration/creation, and will compensate at a 2:1 preservation for indirect impacts on vernal pools (within 250 feet of ground disturbance). The exact acreage and location of compensatory mitigation will be based on final revisions to the project design and consultation with USFWS in compliance with the ESA. Compensatory mitigation can be accomplished through one or a combination of the following options.

1. Purchase the appropriate number and type of habitat credits at a USFWS-approved mitigation bank or conservation area.

   OR

2. Establish a conservation easement on a parcel(s) containing a sufficient amount of existing and restored vernal pool fairy shrimp habitat and adaptively manage the mitigation lands consistent with the most current information on vernal pool fairy shrimp habitat requirements.

#### 4.3.2.5 Cumulative Impacts

Cumulative impacts on vernal pool fairy shrimp would result from construction of other general development projects in Placer County. Construction of the proposed project would add to the cumulative loss of vernal pool fairy shrimp habitat. However, with implementation of the measures prescribed for minimizing impacts and compensating for remaining impacts, the proposed project's incremental contribution to cumulative impacts on vernal pool fairy shrimp and their associated habitat would not be cumulatively considerable.

### 4.3.3 Western Spadefoot

The western spadefoot is designated as a state species of special concern. Western spadefoot range in length from 1.5 to 2.5 inches. They are dusky green or gray above and often have four irregular light-colored stripes on their back. The iris of the eye is usually a pale gold. The abdomen is whitish without any markings. Spadefoot toads have a wedge-shaped, glossy black "spade" on each hind foot, used for digging. In California, western spadefoot toads historically ranged throughout the Central Valley and Coast Ranges and the coastal lowlands from San Francisco Bay southward to Mexico (Jennings and Hayes 1994:94). The species has experienced severe population declines in the Sacramento Valley and a reduced density of populations in the eastern San Joaquin Valley (U.S. Fish and Wildlife Service 2005:II-223).

Western spadefoot toads typically inhabit lowland habitats such as washes, floodplains of rivers, alluvial fans, playas, and alkali flats. This species also may be found in the foothills and mountain regions. Western spadefoot toads prefer areas of open vegetation and short grasses where the soil is sandy or gravelly (U.S. Fish and Wildlife Service 2005:II-230). They are found in the valley and foothill grasslands, open chaparral, and pine-oak woodlands. Spadefoot toads are primarily terrestrial, and require upland habitats for feeding and for burrowing during their long dry-season dormancy (U.S. Fish and Wildlife Service 2005:II-231). They require wetlands for reproduction and have been observed in a variety of permanent and temporary wetlands, including rivers, creeks, pools in intermittent streams, vernal pools, and temporary rain pools (U.S. Fish and Wildlife Service 2005:II-231). Larval development can be completed in 3 to 11 weeks but has been known to take up to 79 days from hatching to metamorphosis (U.S. Fish and Wildlife Service 2005:II-227). Vernal pools and other temporary wetlands may be optimal for breeding due to the absence or reduced abundance of predators (U.S. Fish and Wildlife Service 2005:II-231).

#### 4.3.3.1 Survey Results

Within the BSA, emergent wetlands along SR 65, an intermittent drainage under the East Roseville Viaduct, and a large vernal pool southwest of the East Roseville Viaduct (Figures 5c, 6c, and 7c) provide potential breeding habitat for western spadefoot. Annual grassland in the vicinity of these aquatic resources provides upland habitat for adult spadefoots. Spadefoots are not expected to be present in disturbed/graded areas immediately adjacent to SR 65. The closest CNDDB occurrence for western spadefoot is located within the BSA and is a 1994 record from an emergent wetland located between the railroad tracks and Taylor Road, south of the East Roseville Viaduct (California Department of Fish and Wildlife 2014).

#### 4.3.3.2 Project Impacts

Construction activities such as excavation, grading, and stockpiling of soil could fill, remove, or otherwise alter suitable habitat for western spadefoot, or could result in their injury or mortality. Western spadefoot could also become entrapped in open trenches or other project facilities. Improvements to northbound and southbound SR 65 and widening of the East Roseville Viaduct (including falsework and column construction) would result in permanent and temporary impacts on breeding habitat (emergent wetlands and intermittent streams) and temporary impacts on upland habitat (annual grassland) for spadefoots.

Table 4-8 summarizes the impacts on western spadefoot by build alternative.

**Table 4-8. Impacts on Western Spadefoot by Alternative**

| Habitat | Alternative 1 | | Alternative 2 | | Alternative 3 | |
|---|---|---|---|---|---|---|
| | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* |
| Aquatic breeding habitat | 0.308 | 0.119 | 0.308 | 0.119 | 0.313 | 0.119 |
| Upland habitat | 3.901 | 0.085 | 3.901 | 0.085 | 3.901 | 0.085 |

*Note*: For purposes of calculating aquatic and upland impacts, aquatic breeding habitat for western spadefoot includes emergent wetland and intermittent stream, and upland habitat consists of annual grassland.

#### 4.3.3.3 Avoidance and Minimization Efforts

Implementation of the following measures will avoid and minimize impacts on western spadefoot.

***Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources***

Please refer to the discussion of Measure 1 in Section 4.1.1.3.

***Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel***

Please refer to the discussion of Measure 2 in Section 4.1.1.3.

***Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats***

Please refer to the discussion of Measure 3 in Section 4.1.1.3.

***Measure 6: Protect Water Quality and Minimize Sedimentation Runoff in Wetlands and Other Waters***

Please refer to the discussion of Measure 6 in Section 4.1.3.3.

***Measure 14: Provide Escape Ramps for Wildlife and Inspect Pits and Trenches Daily***

To prevent inadvertent entrapment of western spadefoot during construction in grassland habitat under the East Roseville Viaduct, all excavated, steep-walled holes, or trenches more than 6 inches deep will be provided with one or more escape ramps constructed of earth fill or wooden planks and will be inspected prior to being filled to ensure that no wildlife are present. In the event that holes or pits cannot be ramped, they will be properly covered at night to prevent access by wildlife. Coverings may consist of wooden boards, metal plates, or tarps held down by soil or rocks, with no openings between the cover and the ground. The biological monitor or a designated construction crew member will inspect covered and open trenches and pits each morning and evening during construction to look for spadefoot or other wildlife that may have become trapped. It should be noted that spadefoot can fall into a trench or pit through the excavated wall of the trench/pit; therefore, these areas must be inspected daily, even if covered.

#### 4.3.3.4 Compensatory Mitigation

With implementation of measures described in Section 4.3.3.3, potential impacts on western spadefoot will be minimized to the extent practical. No compensatory mitigation is required.

#### 4.3.3.5 Cumulative Impacts

With implementation of measures prescribed to avoid and minimize potential impacts on western spadefoot, the proposed project would not contribute to cumulative effects on the species.

### 4.3.4 Pacific Pond Turtle

Pacific pond turtle (western pond turtle or northwestern pond turtle) is a California species of special concern. Pacific pond turtle occurs throughout much of California except for east of the Sierra-Cascade crest and desert regions (with the exception of the Mojave River and its tributaries) (Zeiner et al. 1988). Aquatic habitats used by Pacific pond turtles include ponds, lakes, marshes, rivers, streams, and irrigation ditches with a muddy or rocky bottom in grassland, woodland, and open forest areas (Stebbins 2003). Pacific pond turtles spend a considerable amount of time basking on rocks, logs, emergent vegetation, mud or sand banks, or human-generated debris (Jennings et al. 1992:11). Pacific pond turtles move to upland areas adjacent to watercourses to deposit eggs and overwinter (Jennings and Hayes 1994). Turtles have been observed overwintering several hundred meters from aquatic habitat. In the southern portion of the range and along the central coast, Pacific pond turtles are active year-round. In the remainder of their range, these turtles typically become active in March and return to overwintering sites by October or November (Jennings et al. 1992).

#### 4.3.4.1 Survey Results

Antelope Creek, Miners Ravine, and Secret Ravine within the BSA represent suitable aquatic habitat for Pacific pond turtle. Annual grassland, oak woodland, and riparian forest habitat along these streams provide suitable upland nesting and overwinter habitat for pond turtles. No Pacific pond turtles were observed within the BSA during the 2012 and 2014 wildlife surveys.

#### 4.3.4.2 Project Impacts

Roadway improvements (including construction of piers, falsework, and temporary crossings) within Antelope Creek, Miners Ravine, and Secret Ravine would result in permanent loss and temporary disturbance of perennial streams that provide potential aquatic habitat for Pacific pond turtle. In-water work within and near perennial stream habitat could cause entrapment of pond turtles, resulting in their injury or mortality. Additionally, pond turtles and nests containing hatchlings or eggs could be crushed and killed during the movement of construction equipment in upland habitats (i.e., annual grassland, oak woodland, and riparian forest)—typically within 1,300 feet of aquatic sites.

Table 4-9 summarizes the impacts on Pacific pond turtle by build alternative.

**Table 4-9. Impacts on Pacific Pond Turtle by Alternative**

| Habitat | Alternative 1 | | Alternative 2 | | Alternative 3 | |
|---|---|---|---|---|---|---|
| | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* |
| Aquatic habitat | 0.056 | 0.034 | 0.000 | 0.004 | 0.000 | 0.007 |
| Upland habitat | 8.166 | 5.070 | 8.643 | 5.383 | 8.636 | 5.522 |

*Note*: For purposes of calculating impacts on Pacific pond turtle, aquatic habitat includes perennial stream and upland habitat consists of annual grassland, oak woodland, and riparian forest within 1,300 feet of perennial streams.

### 4.3.4.3 Avoidance and Minimization Efforts

Implementation of the following measures will avoid and minimize impacts on Pacific pond turtle.

#### *Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources*

Please refer to the discussion of Measure 1 in Section 4.1.1.3.

#### *Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel*

Please refer to the discussion of Measure 2 in Section 4.1.1.3.

#### *Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats*

Please refer to the discussion of Measure 3 in Section 4.1.1.3.

#### *Measure 6: Protect Water Quality and Minimize Sedimentation Runoff in Wetlands and Other Waters*

Please refer to the discussion of Measure 6 in Section 4.1.3.3.

#### *Measure 15: Conduct a Pre-Construction Survey for Pacific Pond Turtle and Exclude Turtles from Work Area*

To avoid and minimize impacts on Pacific pond turtles, the project proponent will retain a qualified wildlife biologist to conduct two separate pre-construction surveys: 2 weeks before and within 48 hours of disturbance in aquatic and upland habitats. The survey objectives are to determine the presence or absence of pond turtles in the construction work area and, if necessary, to allow time for successful trapping and relocation.

If possible, the surveys will be timed to coincide with the time of day and year when turtles are most likely to be active (during the cooler part of the day from 8:00 a.m. to 12:00 p.m. during spring, summer, and late summer). Prior to conducting presence/absence surveys, the biologist will locate the microhabitats for turtle basking (logs, rocks, and brush thickets) and determine a location to quietly observe turtles.

Each aquatic survey will include a 15-minute wait time after arriving on site to allow startled turtles to return to open basking areas. The survey will consist of a minimum 15-minute observation time per area where turtles could be observed. A survey of adjacent upland habitat also will be conducted to look for adult turtles and active nests.

If turtles are observed during a survey and they cannot be avoided, they will be either hand-captured or trapped and relocated outside the construction area to appropriate aquatic habitat by a biologist with a valid MOU from CDFW and as determined during coordination with CDFW. If an active turtle nest is found, the biologist will coordinate with CDFW to determine the appropriate avoidance measures.

#### 4.3.4.4 Compensatory Mitigation

With implementation of measures described in Section 4.3.4.3, potential impacts on Pacific pond turtle will be avoided or minimized. No compensatory mitigation is required.

#### 4.3.4.5 Cumulative Impacts

With implementation of measures prescribed to avoid and minimize potential impacts on Pacific pond turtle, the proposed project would not contribute to cumulative effects on the species.

### 4.3.5 Burrowing Owl

Western burrowing owl is a state species of special concern and is protected during its nesting season under the MBTA and CFGC Section 3503.5. Burrowing owl is a ground-nesting raptor that typically uses the burrows of other species, such as ground squirrels, for nesting, protection, and shelter. Burrowing owls are a year-round resident in a variety of grasslands, as well as in scrublands with a low density of trees and shrubs and low-growing vegetation. Burrowing owls that nest in the Central Valley may winter elsewhere. The primary habitat requirement of the burrowing owl is burrows appropriate for nesting. Burrowing owls usually nest in abandoned burrows, although they have been known to construct their own burrows in softer soils. In urban and agricultural areas, burrowing owls often use artificial burrows, such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement, particularly pipes. This owl breeds from March through August and is most active while hunting during dawn and dusk. (California Department of Fish and Game 1995:2, 3)

#### 4.3.5.1 Survey Results

Annual grassland in the BSA along SR 65 and the East Roseville Viaduct represents marginal wintering and breeding habitat for burrowing owls; however, owls are not expected to occur directly underneath the viaduct. This habitat is located adjacent to a high-density residential area that is heavily used by people, cats, and dogs. Annual grassland mapped along I-80 in the BSA occurs in small patches and is not expected to support burrowing owls. Overall, the potential for burrowing owls to be present within the BSA is low. The closest documented occurrence of burrowing owl is approximately 5 miles northwest of the BSA at a culvert under North Foothill Boulevard that is surrounded by open grassland habitat (ICF International 2014). No burrowing owls were observed within the BSA during 2012 and 2014 wildlife surveys.

#### 4.3.5.2 Project Impacts

Construction activities within annual grassland habitat in the BSA along SR 65 and the East Roseville Viaduct that occur during the nesting season (generally February 1 to August 31) or wintering season (September 1 through January 31) of burrowing owl could directly affect this species if owls are present. Additionally, construction-generated noise has the potential to indirectly affect burrowing owls nesting near construction activities. Disturbance of burrows with active nests and indirect construction disturbance (i.e., noise, increased human presence) during the breeding season may result in nest abandonment and subsequent loss of eggs or young. Disturbance or loss of burrowing owls would violate the MBTA and the CFGC.

Table 4-10 summarizes the impacts on burrowing owl by build alternative.

**Table 4-10. Impacts on Burrowing Owl by Alternative**

| Habitat | Alternative 1 | | Alternative 2 | | Alternative 3 | |
|---|---|---|---|---|---|---|
| | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* |
| Nesting and foraging habitat | 2.399 | 0.085 | 2.399 | 0.085 | 2.399 | 0.085 |

*Note*: For purposes of calculating impacts on burrowing owl, nesting and foraging habitat consists of annual grassland along SR 65 and the East Roseville Viaduct (excluding areas beneath the existing viaduct).

#### 4.3.5.3 Avoidance and Minimization Efforts

Implementation of the following measures will avoid and minimize impacts on burrowing owl.

***Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources***

Please refer to the discussion of Measure 1 in Section 4.1.1.3.

***Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel***

Please refer to the discussion of Measure 2 in Section 4.1.1.3.

***Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats***

Please refer to the discussion of Measure 3 in Section 4.1.1.3.

### *Measure 16: Conduct Pre-Construction Surveys for Burrowing Owl and Establish Exclusion Zones, if Necessary*

A qualified biologist will conduct two separate pre-construction surveys for burrowing owl: no less than 14 days prior to, and within 48 hours of, initiating ground-disturbing activities within suitable habitat. The pre-construction survey area will encompass the designated work area (including permanent and temporary impact areas) and a 500-foot buffer around this area where access is permitted. To the maximum extent feasible (i.e., where the construction footprint can be modified), construction activities within 500 feet of active burrowing owl burrows will be avoided during the nesting season (February 1 to August 31).

If an active burrow is identified near a proposed work area and work cannot be conducted outside of the nesting season (February 1 to August 31), a qualified biologist will establish a no-activity zone that extends a minimum of 250 feet around the burrow. If burrowing owls are present at the site during the non-breeding season (September 1 through January 31), a qualified biologist will establish a no-activity zone that extends a minimum of 150 feet around the burrow.

If the designated no-activity zone for breeding or non-breeding burrowing owls cannot be established, a wildlife biologist experienced in burrowing owl behavior will evaluate site-specific conditions and, in coordination with CDFW, recommend a smaller buffer (if possible) that still minimizes the potential to disturb the owls (and is deemed to still allow reproductive success during the breeding season). The site-specific buffer will consider the type and extent of the proposed activity occurring near the occupied burrow, the duration and timing of the activity, the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity to background activities.

If burrowing owls are present within the direct disturbance area and cannot be avoided during the non-breeding season (generally September 1 through January 31), passive relocation techniques (e.g., installing one-way doors at burrow entrances) will be used instead of trapping. Passive relocation also may be used during the breeding season (February 1 through August 30) if a qualified biologist, coordinating with CDFW, determines through site surveillance that the burrow is not occupied by burrowing owl adults, young, or eggs. Passive relocation will be accomplished by installing one-way doors (e.g., modified dryer vents or other CDFW-approved method). The one-way doors will be left in place for a minimum of 1 week and will be monitored daily to ensure that the owls have left the burrow. The burrow will be excavated using hand tools, and a section of flexible plastic pipe (at least 3 inches in diameter) will be inserted into the burrow tunnel to maintain an escape route for any animals that may be inside the burrow.

#### 4.3.5.4 Compensatory Mitigation

With implementation of measures described in Section 4.3.5.3, potential impacts on burrowing owls will be avoided or minimized. No compensatory mitigation is required.

#### 4.3.5.5 Cumulative Impacts

With implementation of measures prescribed to avoid and minimize potential impacts on burrowing owl and because only a small amount of marginal habitat would be permanently affected, the proposed project is not expected to contribute to cumulative effects on the species.

### 4.3.6 Swainson's Hawk

Swainson's hawk is a state-listed threatened species. Swainson's hawks forage in grasslands, grazed pastures, alfalfa and other hay crops, and certain grain and row croplands. Vineyards, orchards, rice, and cotton crops are generally unsuitable for foraging because of the density of the vegetation (California Department of Fish and Game 1992:41). The majority of Swainson's hawks winter in South America, although some winter in the United States. Swainson's hawks arrive in California in early March to establish nesting territories and breed (California Department of Fish and Game 1994). They usually nest in large, mature trees. Most nest sites (87 percent) in the Central Valley are found in riparian habitats (Estep 1989:35), primarily because trees are more available there. Swainson's hawks also nest in mature roadside trees and in isolated trees in agricultural fields or pastures. The breeding season is from March through August (Estep 1989:12, 35).

#### 4.3.6.1 Survey Results

Within the BSA, potential nesting habitat for Swainson's hawk is associated with riparian forest and oak woodlands along Antelope Creek, Miners Ravine, and Secret Ravine. The closest documented Swainson's hawk nest sites are located approximately 4 miles west of the BSA along Pleasant Grove Creek and Kaseberg Creek, both within riparian habitat (California Department of Fish and Wildlife 2014). Annual grassland in the BSA is patchy and provides marginal foraging habitat for Swainson's hawk. Swainson's hawks would not be expected to forage under the existing East Roseville Viaduct. No Swainson's hawks were observed in the BSA during the 2012 and 2014 wildlife surveys.

#### 4.3.6.2 Project Impacts

Construction activities associated with roadway improvements within or near oak woodland and riparian forest habitats could disturb an active Swainson's hawk nest, if present in or near the construction area. These activities could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance or loss of an active Swainson's hawk nest would violate CESA, the MBTA, and CFGC Section 3503.5.

Roadway construction also could result in indirect impacts on Swainson's hawk through temporary and permanent loss of grassland that provides suitable foraging habitat. Because only a small amount of permanent foraging habitat loss would be associated with each of the build alternatives, the proposed project is not expected to substantially decrease the available foraging habitat for locally nesting Swainson's hawks and would not result in an adverse impact on foraging Swainson's hawks.

Table 4-11 summarizes the impacts on Swainson's hawk by build alternative.

**Table 4-11. Impacts on Swainson's Hawk by Alternative**

| Habitat | Alternative 1 | | Alternative 2 | | Alternative 3 | |
|---|---|---|---|---|---|---|
| | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* |
| Nesting habitat | 2.866 | 4.985 | 2.343 | 5.298 | 2.336 | 5.437 |
| Foraging habitat | 2.399 | 0.085 | 2.399 | 0.085 | 2.399 | 0.085 |

*Note*: For purposes of calculating impacts on Swainson's hawk, nesting habitat consists of oak woodland and riparian forest, and foraging habitat consists of annual grassland (excluding areas beneath the existing viaduct).

#### 4.3.6.3 Avoidance and Minimization Efforts

Implementation of the following measures will avoid direct impacts and minimize indirect impacts on Swainson's hawk and will avoid violation of CESA, the MBTA, and the CFGC.

##### *Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources*

Please refer to the discussion of Measure 1 in Section 4.1.2.1.

##### *Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel*

Please refer to the discussion of Measure 2 in Section 4.1.1.3.

##### *Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats*

Please refer to the discussion of Measure 3 in Section 4.1.1.3.

##### *Measure 17: Conduct Vegetation Removal during the Non-Breeding Season and Conduct Pre-Construction Surveys for Swainson's Hawk*

Where tree removal is required to construct project features, the project proponent will conduct this activity during the non-breeding season for Swainson's hawk (generally between September 1 and February 28), to the extent feasible.

If construction activities (including tree removal) cannot be confined to the non-breeding season, the project proponent will retain a qualified wildlife biologist with knowledge of Swainson's hawk to conduct nesting surveys before the start of construction.

Surveys will be conducted by a qualified biologist no more than 1 month prior to ground disturbance that is to occur during the nesting season (March 1 through August 31). Surveys will be conducted in accordance with the Swainson's Hawk Technical Advisory Committee's methodology (May 31, 2000) or according to updated methodologies issued by CDFW. According to current guidelines, the biologist will use binoculars during the survey to inspect all large trees and then document whether Swainson's hawk nests occur onsite. If surveys conclude that Swainson's hawk nests occur, and are occupied, the project will adopt the following minimization measures.

- During the nesting season (March 1 through August 31), project activities within 1,000 feet of occupied nests or nests under construction will be prohibited to prevent nest abandonment. If site-specific conditions or the nature of the activity indicate that a smaller buffer could be used, the biologist and the project proponent will coordinate with CDFW to determine the appropriate buffer size.
- If young fledge prior to September 1, project activities can proceed normally. A qualified biologist will survey the nest to establish whether the young have fledged prior to September 1.
- Nest trees will not be removed, if feasible. If a nest tree (any tree that has an active nest in the year the impact is to occur) must be removed, tree removal will occur only between September 1 and February 28.

#### 4.3.6.4 Compensatory Mitigation

With implementation of measures described in Section 4.3.6.3, potential impacts on Swainson's hawk will be avoided or minimized. Compensation for permanent impacts on riparian and oak woodland habitat described previously also will compensate for removal of Swainson's hawk nesting habitat. No further compensatory mitigation is required.

#### 4.3.6.5 Cumulative Impacts

With implementation of measures prescribed to avoid and minimize potential impacts on Swainson's hawk and compensation described for riparian forest and oak woodland, the proposed project is not expected to contribute to cumulative effects on the species.

### 4.3.7 White-Tailed Kite

White-tailed kite is a state species of special concern and is designated as fully protected under CFGC Section 3511. White-tailed kites occur in coastal and valley lowlands in California. They generally inhabit low-elevation grassland, savannah, oak woodland, wetlands, agricultural, and riparian habitats. Some large shrubs or trees are required for nesting and for communal roosting sites. Nest trees range from small, isolated shrubs and trees to trees in relatively large stands (Dunk 1995). White-tailed kites make nests of loosely piled sticks and twigs, lined with grass and straw, near the top of dense oaks, willows, and other tree stands. The breeding season lasts from February through October and peaks between May and August. They forage in undisturbed, open grassland, meadows, farmland, and emergent wetlands.

#### 4.3.7.1 Survey Results

Riparian forest and oak woodlands in the BSA along Antelope Creek, Miners Ravine, and Secret Ravine provide suitable nesting habitat for white-tailed kite. The closest documented white-tailed kite nest site is located approximately 2.5 miles west of the BSA along Pleasant Grove Creek (California Department of Fish and Wildlife 2014). Annual grassland in the BSA is patchy and provides marginal foraging habitat for white-tailed kites. White-tailed kites also would not be expected to forage under the existing East Roseville Viaduct. No white-tailed kites were observed in the BSA during the 2012 and 2014 wildlife surveys; however, kites have been observed north of the BSA foraging in open grassland habitat along SR 65 (ICF International 2014).

#### 4.3.7.2 Project Impacts

Construction activities associated with roadway improvements within or near oak woodland and riparian forest habitats could disturb an active white-tailed kite nest, if present in or near the construction area. These activities could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance or loss of an active white-tailed kite nest would violate the MBTA and CFGC Sections 3503.5 and 3511.

Table 4-12 summarizes the impacts on white-tailed kite by build alternative.

**Table 4-12. Impacts on White-Tailed Kite by Alternative**

| Habitat | Alternative 1 | | Alternative 2 | | Alternative 3 | |
|---|---|---|---|---|---|---|
| | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* |
| Nesting habitat | 2.866 | 4.985 | 2.343 | 5.298 | 2.336 | 5.437 |
| Foraging habitat | 2.399 | 0.085 | 2.399 | 0.085 | 2.399 | 0.085 |

*Note*: For purposes of calculating impacts on white-tailed kite, nesting habitat consists of oak woodland and riparian forest and foraging habitat consists of annual grassland (excluding areas beneath the existing viaduct).

#### 4.3.7.3 Avoidance and Minimization Efforts

Implementation of the following measures will avoid direct impacts and minimize indirect impacts on white-tailed kite and will avoid violation of the MBTA and the CFGC.

***Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources***

Please refer to the discussion of Measure 1 in Section 4.1.1.3.

***Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel***

Please refer to the discussion of Measure 2 in Section 4.1.1.3.

***Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats***

Please refer to the discussion of Measure 3 in Section 4.1.1.3.

***Measure 18: Conduct Vegetation Removal during the Non-Breeding Season and Conduct Pre-Construction Surveys for Nesting Migratory Birds and Raptors***

Where vegetation removal is required to construct project features, the project proponent will conduct this activity during the non-breeding season for migratory birds and raptors (generally between September 1 and February 28), to the extent feasible.

If construction activities (including vegetation removal) cannot be confined to the non-breeding season, the project proponent will retain a qualified wildlife biologist with knowledge of the relevant species to conduct nesting surveys before the start of construction. The migratory bird and raptor nesting surveys will be conducted in conjunction with the surveys previously identified for burrowing owl and Swainson's hawk (*Measure 16: Conduct Pre-Construction Surveys for Burrowing Owl and Establish Exclusion Zones, if Necessary* and *Measure 17: Conduct Vegetation Removal during the Non-Breeding Season and Conduct Pre-Construction Surveys for Swainson's Hawk*) and will include a minimum of two separate surveys to look for active migratory bird and raptor nests. Surveys will include a search of all trees, shrubs, wetlands, and grassland vegetation that provide suitable nesting habitat in the construction area. In addition, a 500-foot area around the construction area will be surveyed for nesting raptors and a 100-foot area around the construction area will be surveyed for song birds. Surveys should occur during the height of the breeding season (March 1 to June 1), with one survey occurring within 14 days prior to construction and the second survey occurring within 48 hours prior to the start of construction or vegetation removal. If no active nests are detected during these surveys, no additional measures are required.

If an active nest is found in the survey area, a no-disturbance buffer will be established around the nest site to avoid disturbance or destruction of the nest until the end of the breeding season

(August 31) or until after a qualified wildlife biologist determines that the young have fledged and moved out of the project area (this date varies by species). The extent of these buffers will be determined by the biologist in coordination with USFWS and CDFW, and will depend on the level of construction disturbance, line-of-sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. Suitable buffer distances may vary between species.

#### 4.3.7.4 Compensatory Mitigation

With implementation of measures described in Section 4.3.7.3, potential impacts on white-tailed kite will be avoided or minimized. Compensation for permanent impacts on riparian forest and oak woodland habitat described earlier also will compensate for removal of white-tailed kite nesting habitat. No further compensatory mitigation is required.

#### 4.3.7.5 Cumulative Impacts

With implementation of measures prescribed to avoid and minimize potential impacts on white-tailed kite and compensation described for riparian forest and oak woodland, the proposed project is not expected to contribute to cumulative effects on the species.

### 4.3.8 Northern Harrier

Northern harrier is a state species of special concern and is protected during its nesting season under the MBTA and CFGC Section 3503.5. Northern harrier is a year-round resident throughout the Central Valley and often is associated with open grassland habitats and agricultural fields. Nests are found on the ground in tall, dense herbaceous vegetation (MacWhirter and Bildstein 1996). Northern harrier nests from April to September, with peak activity in June and July. The breeding population has been reduced, particularly along the southern coast, because of the destruction of wetland habitat, native grassland, and moist meadows and from burning and plowing of nesting areas during early stages of breeding.

#### 4.3.8.1 Survey Results

Annual grassland and emergent wetland in the northwestern portion of the BSA provide potential nesting substrate for northern harriers. Northern harriers were not observed during 2012 and 2014 wildlife surveys conducted within the BSA.

#### 4.3.8.2 Project Impacts

Construction activities associated with roadway improvements in annual grassland and emergent wetland habitat could disturb an active northern harrier nest, if present in or near the construction area. These activities could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance or loss of a northern harrier nest would violate the MBTA and CFGC Section 3503.5.

Table 4-13 summarizes the impacts on northern harrier by build alternative.

**Table 4-13. Impacts on Northern Harrier by Alternative**

| Habitat | Alternative 1 | | Alternative 2 | | Alternative 3 | |
|---|---|---|---|---|---|---|
| | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* |
| Nesting and foraging habitat | 2.593 | 0.201 | 2.593 | 0.201 | 2.593 | 0.201 |

*Note*: For purposes of calculating impacts on northern harrier, nesting and foraging habitat consists of annual grassland and emergent wetland (excluding areas beneath the existing viaduct).

### 4.3.8.3 Avoidance and Minimization Efforts

Implementation of the following measures will avoid direct impacts and minimize indirect impacts on northern harrier, and will avoid violation of the MBTA and the CFGC.

#### *Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources*

Please refer to the discussion of Measure 1 in Section 4.1.1.3.

#### *Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel*

Please refer to the discussion of Measure 2 in Section 4.1.1.3.

#### *Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats*

Please refer to the discussion of Measure 3 in Section 4.1.1.3.

#### *Measure 18: Conduct Vegetation Removal during the Non-Breeding Season and Conduct Pre-Construction Surveys for Nesting Migratory Birds and Raptors*

Please refer to the discussion of Measure 18 in Section 4.3.7.3.

### 4.3.8.4 Compensatory Mitigation

With implementation of measures described in Section 4.3.8.3, potential impacts on northern harrier will be avoided or minimized. No compensatory mitigation is required.

### 4.3.8.5 Cumulative Impacts

With implementation of measures prescribed to avoid and minimize potential impacts on northern harrier, the proposed project is not expected to contribute to cumulative effects on the species.

### 4.3.9 Purple Martin and Other Bridge-Nesting Migratory Birds

Purple martin is a state species of special concern and is protected during its nesting season under the MBTA and CFGC Section 3503.5. Purple martin can be found throughout nearly the entire United States east of the Rocky Mountains. The once widespread Central Valley nesting population is now restricted to a bridge-nesting population within the Sacramento region. Since 2004, this population has declined from 173 pairs to 70 pairs in 2009, a 60-percent decrease (Airola and Knop 2009). The Sacramento area martin population includes one Placer County breeding pair first documented in 2007 (Kopp and Airola 2007). The purple martin is an early spring migrant from its wintering grounds in South America. Generally, purple martins inhabit open areas with an open water source nearby. Martins adapt well in and around people but are out-competed by starlings and sparrows in urban areas. Purple martins are colonial cavity nesters in abandoned woodpecker holes, human-made nest boxes, or cavities in other structures such as bridges and overpasses. Once established at a nest location, martins usually come back to the same site every year.

Other non-special-status migratory birds that nest on existing bridge structures and were observed within the BSA include cliff swallows and black phoebe.

#### 4.3.9.1 Survey Results

The only known nesting occurrence for purple martins in Placer County is from the East Roseville Viaduct within the BSA. Only one breeding pair has been previously documented—in a weep hole on the underside of the existing structure in 2007, in 2008, and then again in 2012. No purple martins were observed nesting in the East Roseville Viaduct during breeding surveys conducted in 2013 and 2014 (Airola pers. comm. 2014).

Based on 2014 wildlife surveys, all of the structures in the BSA support nesting swallows and black phoebe along ledges and in weep holes.

#### 4.3.9.2 Project Impacts

Construction activities associated with roadway improvements would remove or modify several existing structures, which could disturb an active purple martin or other bridge-nesting migratory bird nest. These activities could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance or loss of a purple martin nest, or other migratory bird, would violate the MBTA and CFGC Section 3503.5.

Construction of the new overpass and bridge structures would replace nesting substrate lost due to structure removal. Therefore, no net loss of artificial nesting habitat would result from the proposed project.

Table 4-14 lists the existing structures within the BSA and summarizes the impacts on purple martin and other structure-nesting migratory birds by build alternative.

**Table 4-14. Impacts on Purple Martin and Other Bridge-Nesting Birds by Alternative**

| Habitat | Alternative 1 | Alternative 2 | Alternative 3 |
|---|---|---|---|
| East Roseville Viaduct | Nesting habitat would be affected | Nesting habitat would be affected | Nesting habitat would be affected |
| Eureka Road off-ramp over Miners Ravine | Nesting habitat would be removed | Nesting habitat would be removed | Nesting habitat would be removed |
| Taylor Road overcrossing at I-80 | Nesting habitat would be removed | Nesting habitat would be removed | Nesting habitat would be removed |
| I-80 overcrossing at Miners Ravine | Nesting habitat would not be affected | Nesting habitat would not be affected | Nesting habitat would not be affected |
| Eastbound I-80 to northbound SR 65 connector | Nesting habitat would be removed | Nesting habitat would be removed | Nesting habitat would be removed |
| Southbound SR 65 to eastbound I-80 connector | Nesting habitat would be removed | Nesting habitat would be removed | Nesting habitat would be removed |

*Note*: For purposes of assessing impacts on structure-nesting birds, suitable nesting habitat (concrete structures) were assumed to be affected if the structure would be modified and complete loss of nesting habitat assumed where structures would be removed.

#### 4.3.9.3 Avoidance and Minimization Efforts

Implementation of the following measures will avoid direct impacts and minimize indirect impacts on purple martin and other bridge-nesting birds, and will avoid violation of the MBTA and the CFGC.

##### *Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources*

Please refer to the discussion of Measure 1 in Section 4.1.1.3.

##### *Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel*

Please refer to the discussion of Measure 2 in Section 4.1.1.3.

##### *Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats*

Please refer to the discussion of Measure 3 in Section 4.1.1.3.

##### *Measure 19: Remove or Modify Existing Structures during the Non-Breeding Season for Purple Martin and Other Structure-Nesting Migratory Birds or Implement Exclusion Measures to Deter Nesting*

To avoid impacts on nesting purple martins, swallows, and other structure-nesting migratory birds that are protected under the MBTA and the CFGC, the project proponent will remove or modify existing structures after the conclusion of the bird nesting period (February 15 through August 31). A qualified biologist will monitor any active nests near the end of the breeding season to determine when nesting has concluded. Removal or modification of structures after the nesting period has concluded is strongly preferred; however, if this is not possible, the project proponent will implement the following avoidance measures.

- Prior to the start of each phase of construction, the project proponent will hire a qualified wildlife biologist to inspect any aerial structure that would be removed or modified during the non-breeding season (September 1 through February 14). If nests are found and are determined to be inactive (abandoned), they may be removed.
- After inactive nests are removed and prior to construction that would occur between February 15 and August 31, the undersides of the portion of the structure to be removed or modified will be covered with a suitable exclusion material that will prevent birds from nesting (i.e., 0.5- to 0.75-inch mesh netting, plastic tarp, or other suitable material safe for wildlife). Portions of the existing structures containing weep holes that would be removed or modified also will be covered or filled with suitable material to prevent nesting (i.e., fiberglass insulation, foam padding, and PVC/ABS caps). All weep holes connected to the same girder recess area would require installation of exclusion material. A qualified wildlife management specialist experienced with installation of bird exclusion materials will be hired by the project proponent to ensure that exclusion devices are properly installed and will avoid inadvertent entrapment of migratory birds. All exclusion devices will be installed before February 15 and will be monitored by a qualified biologist throughout the breeding season (typically several times a week). The exclusion material will be anchored so that swallows cannot attach their nests to the structures through gaps in the net.
- Exclusion devices will be installed consistent with bat exclusion measures (*Measure 20: Conduct Pre-Construction Surveys for Roosting Bats and Implement Protection Measures*) and in a manner that does not entrap day-roosting bats.
- As an alternative to installing exclusion materials on a structure, the project proponent may hire a qualified biologist or qualified wildlife management specialist to remove nests as the birds construct them and before any eggs are laid. Visits to the site would need to occur daily throughout the breeding season (February 15 through August 31) as swallows can complete a nest in a 24-hour period.
- If exclusion material is not installed on structures prior to February 15 or manual removal of nests is not conducted daily and migratory birds colonize a structure, removal or modification to that portion of the structure may not occur until after August 31, or until a qualified biologist has determined that the young have fledged and all nest use has been completed.
- If appropriate steps are taken to prevent swallows from constructing new nests as described above, work can proceed at any time of the year.

#### 4.3.9.4 Compensatory Mitigation

With implementation of measures described in Section 4.3.9.3, potential impacts on purple martin and other bridge nesting birds will be avoided or minimized. No compensatory mitigation is required.

#### 4.3.9.5 Cumulative Impacts

With implementation of measures prescribed to avoid and minimize potential impacts on purple martin and other bridge-nesting birds, the proposed project is not expected to contribute to cumulative effects on these species.

### 4.3.10 Tricolored Blackbird

Tricolored blackbird is a California species of special concern and is protected during its nesting season under the MBTA and CFGC Section 3503.5. Tricolored blackbird is a highly colonial species that is largely endemic to California. Tricolored blackbird breeding colony sites require open, accessible water; a protected nesting substrate, including either flooded, thorny, or spiny vegetation; and a suitable foraging space providing adequate insect prey within a few miles of the nesting colony. Tricolored blackbird breeding colonies occur in freshwater marshes dominated by tules and cattails, in Himalayan blackberries (*Rubus armeniacus*), and in silage and grain fields (Beedy and Hamilton 1997:3–4). The breeding season is from late February to early August (Beedy and Hamilton 1999). Tricolored blackbird foraging habitats in all seasons include annual grasslands, dry seasonal pools, agricultural fields (such as large tracts of alfalfa with continuous mowing schedules, and recently tilled fields), cattle feedlots, and dairies. Tricolored blackbirds also forage occasionally in riparian scrub habitats and along marsh borders. Weed-free row crops and intensively managed vineyards and orchards do not serve as regular foraging sites. Most tricolored blackbirds forage within 3 miles of their colony sites, but commute distances of up to 8 miles have been reported (Beedy and Hamilton 1997:5).

#### 4.3.10.1 Survey Results

The emergent wetland and riparian forest/shrub wetland that occur along Antelope Creek within the BSA represents potential nesting habitat for tricolored blackbirds. The closest known nesting colony was documented in 2014 on Orchard Creek, approximately 5 miles northwest of the BSA (ICF International 2014). No tricolored blackbirds were observed in the BSA during the 2012 and 2014 wildlife surveys.

#### 4.3.10.2 Project Impacts

Construction activities associated with roadway improvements within emergent wetland and riparian shrub wetland habitat could disturb an active tricolored blackbird nest, if present in or near the construction area. These activities could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance or loss of a tricolored blackbird nest would violate the MBTA and CFGC Section 3503.5.

Table 4-15 summarizes the impacts on tricolored blackbird by build alternative.

**Table 4-15. Impacts on Tricolored Blackbird by Alternative**

| Habitat | Alternative 1 | | Alternative 2 | | Alternative 3 | |
|---|---|---|---|---|---|---|
| | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* | *Temporary (acres)* | *Permanent (acres)* |
| Nesting habitat | 0.375 | 0.120 | 0.375 | 0.120 | 0.375 | 0.120 |
| Foraging habitat | 2.399 | 0.085 | 2.399 | 0.085 | 2.399 | 0.085 |

*Note*: For purposes of calculating impacts on tricolored blackbird, nesting habitat consists of emergent wetland and riparian shrub wetland and foraging habitat consists of annual grassland (excluding areas beneath the existing viaduct).

### 4.3.10.3 Avoidance and Minimization Efforts

Implementation of the following measures will avoid direct impacts and minimize indirect impacts on tricolored blackbird, and will avoid violation of the MBTA and CFGC.

#### *Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources*

Please refer to the discussion of Measure 1 in Section 4.1.1.3.

#### *Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel*

Please refer to the discussion of Measure 2 in Section 4.1.1.3.

#### *Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats*

Please refer to the discussion of Measure 3 in Section 4.1.1.3.

#### *Measure 18: Conduct Vegetation Removal during the Non-Breeding Season and Conduct Pre-Construction Surveys for Nesting Migratory Birds and Raptors*

Please refer to the discussion of Measure 18 in Section 4.3.7.3.

### 4.3.10.4 Compensatory Mitigation

With implementation of measures described in Section 4.3.10.3, potential impacts on tricolored blackbird will be avoided or minimized. No compensatory mitigation is required.

### 4.3.10.5 Cumulative Impacts

With implementation of measures prescribed to avoid and minimize potential impacts on tricolored blackbird, the proposed project is not expected to contribute to cumulative effects on the species.

### 4.3.11 Special-Status and Non-Special-Status Roosting Bats

Several species of special-status and non-special-status bats could potentially roost in the BSA. Pallid bat, silver-haired bat, and western red bat are designated as California species of special concern and are considered moderate to high priority species in California by the Western Bat Working Group (2007).

Pallid bat is found throughout most of California at low to middle elevations (6,000 feet). Pallid bats are found in a variety of habitats, including desert, brushy terrain, coniferous forest, and non-coniferous woodlands. Daytime roosts include rock outcrops, mines, caves, hollow trees, buildings, and bridges. Night roosts are commonly under bridges but also are in caves and mines (Brown and Pierson 1996). Hibernation may occur during late November through March. Pallid bats breed from late October through February (Zeiner et al. 1990b:70), and one or two young are born in May or June (Brown and Pierson 1996).

Silver-haired bats occur primarily in the northern portion of California and at higher elevations in the southern and coastal mountain ranges (Brown and Pierson 1996) but may occur anywhere in California during their spring and fall migrations. They are associated with coastal and montane coniferous forests, valley foothill woodlands, pinyon-juniper woodlands, and valley foothill and montane riparian habitats (Zeiner et al. 1990b:54). Silver-haired bats roost in trees almost exclusively in summer, and maternity roosts typically are located in woodpecker hollows or in gaps under bark. Maternal colonies range from several to about 75 individuals (Brown and Pierson 1996).

Western red bats occur throughout much of California at lower elevations. It is found primarily in riparian and wooded habitats but also occurs seasonally in urban areas (Brown and Pierson 1996). Western red bats roost in the foliage of trees that are often on the edge of habitats adjacent to streams, fields, or urban areas. This species breeds in August and September, and young are born in May through July (Zeiner et al. 1990b:60).

#### 4.3.11.1 Survey Results

Riparian forest and oak woodland habitat along perennial streams in the BSA provide potential roosting areas for special-status and non-special-status bats. Existing structures also provide human-made roost sites, particularly where they span perennial creeks that provide abundant prey for bats. One confirmed roost was identified within the existing I-80 bridge that spans Miners Ravine. A large amount of guano was observed on the ground beneath an expansion joint in the bridge along an existing bike path during the July 2014 survey. Urine staining also is present on the structure itself (Photo 1, Appendix E). Focused bat roosting surveys have not been conducted for the entire BSA.

### 4.3.11.2 Project Impacts

The proposed project would result in the loss of mature trees, which provide potential roosting habitat for special-status bats (western red bat, silver-haired bat, and pallid bat) and other non-special-status bats. Tree removal/trimming and noise or other construction activities could result in injury, mortality, or disturbance of roosting bats if they are present in cavities, crevices, furrowed bark, or foliage of trees within or adjacent to construction areas. Removal or modifications to existing highway and bridge structures within the BSA could affect structure-roosting bats such as pallid bat and other non-special status bats(i.e., Mexican free-tailed bat [*Tadarida brasiliensis*], little brown bat [*Myotis lucifugus*], and Yuma myotis [*Myotis yumanensis*]).

Mortality of tree-roosting or structure-roosting bats during the maternity season or hibernation period that results from tree removal/trimming or other disturbances has the potential to affect a large number of bats and could substantially reduce the local populations of these species.

No impacts on the known bat colony at the I-80 bridge over Miners Ravine is expected because this structure will not be modified.

Table 4-16 summarizes the impacts on roosting bats by build alternative.

**Table 4-16. Impacts on Roosting Bats by Alternative**

| Habitat | Alternative 1 | Alternative 2 | Alternative 3 |
|---|---|---|---|
| East Roseville Viaduct | Potential roosting habitat would be affected | Potential roosting habitat would be affected | Potential roosting habitat would be affected |
| Eureka Road off-ramp over Miners Ravine | Potential roosting habitat would be removed | Potential roosting habitat would be removed | Potential roosting habitat would be removed |
| Taylor Road overcrossing at I-80 | Potential roosting habitat would be removed | Potential roosting habitat would be removed | Potential roosting habitat would be removed |
| I-80 overcrossing at Miners Ravine | Roosting habitat would not be affected | Roosting habitat would not be affected | Roosting habitat would not be affected |
| Eastbound I-80 to northbound SR 65 connector | Potential roosting habitat would be removed | Potential roosting habitat would be removed | Potential roosting habitat would be removed |
| Southbound SR 65 to eastbound I-80 connector | Potential roosting habitat would be removed | Potential roosting habitat would be removed | Potential roosting habitat would be removed |

*Note*: For purposes of assessing impacts on structure-nesting bats, suitable nesting habitat (concrete structures) were assumed to be affected if the structure would be modified and complete loss of nesting habitat assumed where structures would be removed.

### 4.3.11.3 Avoidance and Minimization Efforts

Implementation of the following measures will avoid direct impacts and minimize indirect impacts on special-status and non-special-status bats.

#### *Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources*

Please refer to the discussion of Measure 1 in Section 4.1.2.1.

#### *Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel*

Please refer to the discussion of Measure 2 in Section 4.1.1.3.

#### *Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats*

Please refer to the discussion of Measure 3 in Section 4.1.1.3.

#### *Measure 18: Conduct Vegetation Removal during the Non-Breeding Season and Conduct Pre-Construction Surveys for Nesting Migratory Birds and Raptors*

Please refer to the discussion of Measure 18 in Section 4.3.7.3.

#### *Measure 19: Remove or Modify Existing Structures during the Non-Breeding Season for Purple Martin and Other Structure-Nesting Migratory Birds or Implement Exclusion Measures to Deter Nesting*

Please refer to the discussion of Measure 19 in Section 4.3.9.3.

#### *Measure 20: Conduct Pre-Construction Surveys for Roosting Bats and Implement Protection Measures*

Baseline data are not available or are limited on how bats use the BSA, their individual numbers, and how they vary seasonally. Bat species with potential to occur in the BSA use a variety of roosting strategies, from solitary roosting in foliage of trees to colonial roosting in trees and artificial structures, such as overcrossings and bridges. Daily and seasonal variations in habitat use are also common. To obtain the highest likelihood of detection, the following pre-construction bat surveys will be conducted within and adjacent to the construction area for each phase of construction. If surveys determine that bats are roosting in the construction area, the project proponent will implement the protective measures described below.

*Conduct Pre-Construction Surveys at Bridges and Other Structures*

Before work begins on the bridge/structure, qualified biologists will conduct a daytime search for bat sign and evening emergence surveys to determine whether the bridge/structure is being used as a roost. Biologists conducting daytime surveys will listen for audible bat calls and will use the naked eye, binoculars, and a high-powered spotlight to inspect expansion joints, weep holes, and other bridge features that could house bats. Bridge surfaces and the ground around the bridge/structure will be surveyed for bat sign, such as guano, staining, and prey remains.

Qualified biologists also will conduct evening emergence surveys that will consist of at least one biologist stationed every 100 feet on each side of the bridge/structure watching for emerging bats from a half hour before sunset to 1–2 hours after sunset for a minimum of 2 nights at each survey location within the season that construction would be taking place. Surveys may take place over several nights to fully cover the extent of structure work. Night-vision goggles and/or full-spectrum acoustic detectors will be used during emergence surveys to assist in species identification. All emergence surveys will be conducted during favorable weather conditions (calm nights with temperatures conducive to bat activity and no precipitation predicted). Survey methodology may be supplemented as new research identifies advanced survey techniques and equipment that would aid in bat detections.

Because the structures proposed for removal as part of the proposed project are very high off the ground or span other roadways, prolonged monitoring with full-spectrum bat detectors will not be conducted. Acoustic detectors may be used during emergence surveys to obtain data on bat species present in the survey area at the time of detection.

If suitable roost structures would be removed, additional surveys may be required to determine how the structure is used by bats—whether it is used as a night roost, maternity roost, migration stopover, or used for hibernation.

*Conduct Pre-Construction Tree Surveys*

Prior to tree removal or trimming, qualified biologists will examine trees to be removed or trimmed for suitable bat roosting habitat. High-value habitat features (e.g., large tree cavities, basal hollows, loose or peeling bark, and larger snags,) will be identified, and the area around these features will be searched for bats and bat sign (e.g., guano, culled insect parts, and staining). Riparian forest and stands of mature broadleaf trees should be considered potential habitat for solitary foliage-roosting bat species.

If bat sign is detected, biologists will conduct evening visual emergence survey of the source habitat feature, from a half hour before sunset to 1–2 hours after sunset for a minimum of 2 nights within the season that construction would be taking place. Methods should follow that described above for the bridge emergence surveys.

Additionally, if suitable tree roosting habitat is present, acoustic monitoring with a bat detector will be used to assist in determining the species present. A minimum of 3 nights of acoustic monitoring surveys will be conducted within the season that construction would be taking place. If site security allows, detectors should be set to record bat calls for the duration of each night. To the extent possible, all monitoring will be conducted during favorable weather conditions (calm nights with temperatures conducive to bat activity and no precipitation predicted). The biologists will analyze the bat call data using appropriate software and will submit a report with the results of the surveys to CDFW.

*Identify Protective Measures for Bats Using Bridges/Structures and Trees*

If it is determined that bats are using bridge/structures or trees within or adjacent to the construction area as roost sites, the project proponent (or their designated contractor) will coordinate with CDFW to identify protective measures to avoid and minimize impacts on roosting bats based on the type of roost and timing of activities. These measures could include, but are not limited to the following.

- If feasible, tree removal/trimming and removal or modification of structures containing an active roost will be avoided between April 15 and September 15 (the maternity period) to avoid impacts on reproductively active females and dependent young.
- If a non-maternity roost is located within a structure that would be removed or modified in a manner that would expose the roost, bats will be excluded from the bridge by a qualified wildlife management specialist working with a bat biologist. An exclusion plan will be developed in coordination with CDFW that identifies the type of exclusion material/devices to be used, the location and method for installing the devices, and monitoring schedule for checking the effectiveness of the devices. Because bats are expected to tolerate temporary construction noise and vibrations, bats will not be excluded from structures if no direct impacts on the roost are anticipated.
- If a maternity roost is located, whether solitary or colonial, that roost will remain undisturbed until September 15 or until a qualified biologist has determined that the roost is no longer active.
- If avoidance of non-maternity roost trees is not possible, tree removal or trimming will be monitored by a qualified biologist. Prior to removal/trimming, the tree will be gently shaken, and several minutes should pass before felling trees or trimming limbs to allow bats time to arouse and leave the tree. The tree then will be removed in pieces, rather than felling the entire tree. The biologists will search downed vegetation for dead and injured bats. The presence of dead or injured bats that are species of special concern will be reported to CDFW.

### 4.3.11.4 Compensatory Mitigation

With implementation of measures described in Section 4.3.11.3, potential impacts on roosting bats will be avoided or minimized. Permanent and temporary impacts on riparian forest and oak woodland that provide potential roosting habitat for bats will be compensated for, as described previously. No additional compensatory mitigation is required.

#### 4.3.11.5 Cumulative Impacts

With implementation of measures prescribed to avoid and minimize potential impacts on roosting bats and compensatory mitigation for loss of oak woodland and riparian forest, the proposed project is not expected to contribute to cumulative effects on the species.

## 4.4 Special-Status Fish Species Occurrences

As described in Chapter 3, six sensitive fish species initially were identified with the potential to occur in the BSA. Of these six species, four do not occur in the BSA because the BSA is outside the species' known range. The remaining species—Central Valley steelhead and Central Valley fall-/late fall–run Chinook salmon—occur in the BSA and may be affected by construction activities. In addition, two of the streams in the BSA—Miners Ravine and Secret Ravine—are designated as critical habitat for steelhead (70 FR 52488), while Antelope Creek, Miners Ravine, and Secret Ravine are considered EFH for Pacific salmon (i.e., Chinook salmon). These species and their designated habitats are discussed below.

### 4.4.1 Central Valley Steelhead Distinct Population Segment

The Central Valley steelhead distinct population segment (DPS) was listed as threatened by the NMFS on March 19, 1998 (63 FR 13347). On January 5, 2006, NMFS issued a final listing determination reaffirming the threatened status of Central Valley steelhead (71 FR 834); at the same time, NMFS also adopted the term *DPS*, in place of Evolutionarily Significant Unit (ESU), to describe Central Valley steelhead and other population segments of this species. Central Valley steelhead include populations in the Sacramento River downstream of Keswick Reservoir and its large tributaries downstream of impassable dams, and the small, perennial tributaries of the mainstem Sacramento River; the San Joaquin River and its large tributaries downstream of the Merced River, inclusive; and the Sacramento-San Joaquin River Delta. NMFS issued the final rule designating critical habitat for Central Valley steelhead on September 2, 2005 (70 FR 52488). Central Valley steelhead are not listed under CESA but are designated as a California Species of Special Concern.

Central Valley steelhead are included in the *Public Draft Recovery Plan for the ESUs of Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon and the DPS of Central Valley Steelhead* (National Marine Fisheries Service 2009), which was finalized in 2014 following public comment (National Marine Fisheries Service 2014).

Steelhead, a sea-run rainbow trout, exhibit one of the most complex life histories of any salmonid (trout or salmon) species. Steelhead are capable of having an anadromous (sea-run) life history or a freshwater residency. Resident individuals are typically referred to as rainbow trout, and anadromous individuals are called steelhead. Currently, only winter (ocean-maturing) steelhead occur in the Central Valley drainages, although summer steelhead may have been present historically (Moyle 2002).

Presently, the Central Valley steelhead DPS consists of naturally spawning and hatchery fish. Naturally spawning steelhead occur in the upper Sacramento River and tributaries; Mill, Deer, and Butte Creeks; and the Feather, Yuba, American, Mokelumne, Calaveras, and Stanislaus Rivers (McEwan 2001). Hatchery fish are raised at four fish hatcheries in the Central Valley, with a combined production target of about 1.6 million fish: Coleman National Fish Hatchery on Battle Creek, Feather River Hatchery on the Feather River, Nimbus Hatchery on the American River, and Mokelumne River Hatchery on the Mokelumne River (National Marine Fisheries Service 2009). It is estimated that from 63 to 92 percent of current steelhead smolt production in the Central Valley is of hatchery origin (National Marine Fisheries Service 2009).

Historical records indicate that adult steelhead enter the mainstem Sacramento River in July, with peak in abundance in September and October, and continue migrating through February or March (McEwan 2001). Spawning occurs from December through April, with most spawning occurring from January through March. Unlike Pacific salmon, some adult steelhead may survive to spawn more than one time, returning to the ocean between spawning migrations. Adult steelhead spawn in relatively high-gradient reaches of tributary rivers and require streams with cool, clean, well oxygenated water and suitably sized spawning gravel that is generally free of fine sediments.

In the Central Valley, juvenile steelhead typically spend 1 to 3 years in fresh water before emigrating to the ocean as smolts. *Smolts* are juvenile salmonids that have undergone a physiological transformation that allows them to switch to a marine environment. Smolt emigration generally occurs from November through May. After spending 2–3 years in the ocean, steelhead return to their natal stream to spawn as 4- or 5-year-olds.

Because steelhead have a mandatory freshwater residency period, it is critical that suitable conditions for juvenile rearing exist year-round. Juveniles require year-round flows, suitable water temperatures, adequate cover, and abundant food to support growth and survival to the smolt stage. Summer rearing habitat consisting of pools, cool, well oxygenated water, and sufficient cover often is cited as a major limiting factor for juvenile steelhead in California streams when one or more of these habitat conditions is absent (Moyle 2002). Juvenile Central Valley steelhead feed primarily on drifting aquatic organisms and terrestrial insects, and occasionally on active benthic invertebrates (Moyle 2002).

Conditions adequate to sustain steelhead populations are especially important during summer, when declining streamflows and higher water temperatures reduce habitat availability and rearing juveniles are subjected to increased competition for living space and food. Excessive summer water temperatures can limit steelhead production by influencing growth rate, swimming ability, and the ability of steelhead to withstand disease—leading to increased mortality among juveniles. Water temperatures below 64.4°F provide optimal conditions for juvenile steelhead rearing, while suboptimal temperatures for juvenile steelhead range between 64.4°F and 77.0°F, and temperatures above 77°F are considered lethal (Raleigh et al. 1984).

Historically, Central Valley steelhead were widely distributed in the Sacramento and San Joaquin River drainages (Moyle 2002). Historical runs may have been up to 1 to 2 million adult fish annually (McEwan 2001). An average of 20,540 adults were estimated in the Sacramento River above the Feather River through the 1950s (Hallock et al. 1961). In the early 1960s, the population of steelhead in the Central Valley was estimated to be 40,000 adults (McEwan 2001). The magnitude of the decline in Central Valley steelhead is best illustrated by the observed decline in annual counts of steelhead at the Red Bluff Diversion Dam—from the 10-year (1967–1976) average of 11,187 adults to 2,202 adults annually in the 1990s (McEwan 2001). Presently, there is no accurate estimate of the current abundance of Central Valley steelhead. Recent estimates from trawling data in the Delta calculate that approximately 100,000 to 300,000 smolts migrate out to the ocean each year. This number of smolts equals approximately 3,600 female spawners (Good et al. 2005).

Major factors that have contributed to their present status include dams and other barriers, degradation of stream and estuarine habitat, diversions, entrainment, gravel extraction, dredging, invasive aquatic species, loss of genetic integrity from hatchery steelhead production, and natural factors (McEwan 2001; Moyle et al. 2008; National Marine Fisheries Service 2009). The loss of historical spawning and rearing habitat as a result of construction of impassable dams is believed to be the principal factor affecting the Central Valley steelhead DPS (McEwan 2001; National Marine Fisheries Service 2009). Qualitative information suggests that the Central Valley steelhead DPS is at a moderate to high risk of extinction (National Marine Fisheries Service 2009).

#### 4.4.1.1 Survey Results

Focused surveys for Central Valley steelhead were not conducted because the protected status of steelhead precluded the use of fish sampling as part of the habitat assessment. Therefore, fish presence information and impact assessments on sensitive fish species depend largely on previously collected data, general species life history accounts, and literature reviews. During the field surveys on July 28 and August 4, 2014, flow depths were relatively shallow and water clarity was high, which allowed for visual observations of fish, when present.

Various fisheries surveys conducted by CDFW suggest that steelhead are currently present in the Dry Creek watershed, but that spawning and rearing primarily occur upstream of the BSA. From November 1998 through June 1999, 75 steelhead ranging in size from 21 millimeters (mm) to 400 mm fork length were collected by CDFW at electrofishing sampling sites on Miners Ravine and Secret Ravine upstream of the BSA, indicating that natural production of steelhead is supported in the watershed (Titus pers. comm.). In contrast, no steelhead were collected at sampling sites on lower Miners Ravine between its confluence with Secret Ravine and upstream of the Dick Cook Road crossing, or on Secret Ravine between its confluence with Miners Ravine and Sierra College, which is located approximately 2 miles upstream from the BSA. Instead, warmwater fish species, including predatory non-native black bass, were the dominant fish species found at these lower sampling sites. ICF biologists noted the presence of numerous Sacramento pikeminnow and juvenile and l adult blackbass (*Micropterus* spp.) in Miners Ravine and Secret Ravine within the BSA. A similar distribution of steelhead along Secret Ravine was observed in November 2004 and May 2005 by CDFW as part of electrofishing surveys conducted to determine the presence or absence of steelhead and Chinook salmon in Secret Ravine (ECORP Consulting n.d.).

The CDFW catch results discussed above are consistent with species' thermal tolerances and measured water temperatures for lower Miners Ravine and Secret Ravine. CDFW recorded mean daily summer water temperatures in excess of the 77°F thermal maximum limit for steelhead in the lower reaches of Miners Ravine and Secret Ravine (Titus pers. comm.). Similarly warm water temperatures also were measured by ICF biologists conducting SRA cover habitat mapping surveys in the BSA along Miners Ravine and Secret Ravine (Table 4-17).

**Table 4-17. Instantaneous Water Temperature Measurements on Antelope Creek, Miners Ravine, and Secret Ravine on Select Dates in July and August 2014**

| Creek | Location | Date/Time | Temperature (°F) |
|---|---|---|---|
| Antelope Creek | Immediately downstream of SR 65 viaduct | August 4, 2014/15:30 | 72.5 |
| Miners Ravine | Eureka Road off-ramp | July 28, 2014/09:38 | 72 |
| Secret Ravine | Behind Sutter Hospital | July 28, 2014/14:53 | 80 |
| | Adjacent to I-80/Taylor Road off-ramp | August 4, 2014/10:00 | 71 |
| | Adjacent to SR 65 interchange | August 12, 2014/13:20 | 76.5 |
| | | September 16, 2014/12:10 | 70.5 |

CDFW migrant trapping results also confirm that steelhead are successfully produced in the upper watershed and that juveniles (including smolts) use lower Miners Ravine and Secret Ravine in the cooler months for seasonal rearing and emigration. A total of 13 steelhead smolts were captured in a downstream migrant trap that was operated by CDFW on Miners Ravine from early November 1998 through early June 1999, and from early January through early June 2000. The trap was located about 100 yards downstream of the Miners Ravine and Secret Ravine confluence and may have captured fish produced in both tributaries. (Titus pers. comm.)

Based on their steelhead catch and water temperature data, CDFW concluded that lower Miners Ravine and Secret Ravine, including mainstem Dry Creek, need to be protected and improved for seasonal rearing and migration of steelhead. Based on the data presented above, it is unlikely that summer rearing of juvenile steelhead is supported in lower Miners Ravine and Secret Ravine within the BSA. The paucity of data for Antelope Creek makes it difficult to determine whether steelhead use this watershed (Bailey Environmental 2003). However, given the known occurrence of steelhead in the upper reaches of Miners Ravine and Secret Ravine, it is possible that steelhead also use the upper reaches of this watershed. Based on the generally poor habitat conditions observed in lower Antelope Creek, it is also unlikely that summer rearing of juvenile steelhead is supported within the BSA.

SRA cover habitat mapping surveys of Antelope Creek, Miners Ravine, and Secret Ravine were conducted on July 28 and August 4, 2014, by ICF biologists. *SRA cover* is the unique, near-shore aquatic cover that occurs at the interface between a stream or river and adjacent riparian habitat and is an essential component of salmonid habitat. Key features of this aquatic cover include the following.

- An adjacent bank composed of natural, often eroding substrate that supports overhanging riparian vegetation and vegetation that may protrude into the water.
- A stream channel with variable amounts of woody material and detritus and variable water velocity and depth.

SRA cover is composed of two components: overhead cover and instream cover. Overhead cover consists of overhanging riparian vegetation that provides important stream shading and contributes leaf litter and insects to the stream. Instream cover consists of submerged woody material (exposed roots, branches, and trunks), aquatic plants, substrate (gravel, cobble, and boulders), and undercut banks.

Figures 8a–h show the location of SRA cover habitat (overhead and instream cover) that occurs within the BSA on Antelope Creek, Miners Ravine, and Secret Ravine. A total of 899 linear feet (lf) of pre-project SRA cover vegetation (overhead cover) is located in the BSA on Antelope Creek, a total of 1,517 lf is located in the BSA on Miners Ravine, and a total of 3,694 lf is located in the BSA on Secret Ravine (Table 4-18). The existing overhead cover provides from 22 to 73 percent stream shade for the individual creek reaches in the BSA (Table 4-18). With respect to undercut banks (instream cover), a total of 168 lf of pre-project undercut banks is located in the BSA on Miners Ravine, while a total of 16 lf is located in the BSA on Secret Ravine; no undercut banks occur in the BSA on Antelope Creek (Table 4-18). A total of 815 lf of stream bank in the BSA is covered in riprap, although a majority of it is vegetated (Figures 8a–h). Whether vegetated or unvegetated, the riprap in the BSA precludes undercut banks from forming where it occurs.

**Table 4-18. Existing SRA Cover (Overhead Vegetation and Undercut Banks) in the Biological Study Area**

| Creek/Reach | Existing Stream Features | | Existing Overhead Vegetation | | Existing Undercut Bank (lf) |
|---|---|---|---|---|---|
| | Bank Length[1] (lf) | Stream Area (sf) | Bank Length[a] (lf) | Area (sf) (% Shade)[b] | |
| Antelope Creek (Figure 8h) | 1,767 | 17,018 | 899 | 5,404 (32%) | 0 |
| Miners Ravine (Figure 8a) | 2,554 | 32,939 | 1,517 | 14,316 (43%) | 168 |
| **Secret Ravine** | | | | | |
| Reach 1 (Figure 8b) | 194 | 767 | 58 | 169 (22%) | 0 |
| Reach 2 (Figure 8c) | 147 | 182 | 80 | 97 (53%) | 0 |
| Reach 3 (Figure 8d) | 1,709 | 13,846 | 1,286 | 10,097 (73%) | 16 |
| Reach 4 (Figure 8e) | 1,602 | 15,221 | 834 | 7,136 (47%) | 0 |
| Reach 5 (Figures 8f and 8g) | 2,328 | 17,964 | 1,436 | 9,819 (55%) | 0 |
| *Secret Ravine subtotal* | *5,980* | *47,980* | *3,694* | *27,318 (57%)* | *16* |
| **Total[c]** | **10,301** | **97,938** | **6,110** | **47,039 (48%)** | **184** |

*Note*: Figures are in Appendix A.
[a] Includes left and right banks.
[b] % shade calculated as area (sf) of existing overhead vegetation/stream area (sf) x 100.
[c] Overall project total.

#### 4.4.1.2 Project Impacts

Implementation of the proposed project could cause temporary and permanent impacts. Temporary impacts primarily are associated with construction activities, including impairment of water quality, disturbance or direct injury and mortality of fish, and temporary loss of habitat. Permanent impacts likely would continue to affect species over several generations, well after completion of the proposed project, and primarily are associated with permanent loss of vegetative cover and potentially undercut banks, reducing habitat complexity.

Temporary impacts include construction activities that could temporarily increase turbidity and suspended sediment in stream segments adjacent to and downstream of construction; temporarily increase water temperature; result in accidental spills of toxic substances used at construction sites, including gasoline, lubricants, and other petroleum-based products; and result in noise, vibrations, artificial light and other physical disturbances caused by heavy equipment operation that can harass fish, disrupt or delay normal activities, and cause direct injury or mortality. The potential magnitude of effects depends on a number of factors, including the type and intensity of the disturbance, proximity of the action to the waterbody, timing of actions relative to the occurrence of sensitive life stages, and frequency and duration of activities. For most activities, the effects on fish would be limited to avoidance behavior in response to movements, noises, and shadows caused by construction equipment operating over or adjacent to the waterbody.

Permanent impacts could include loss of vegetative cover and undercut banks as a result of direct removal or loss associated with long-term reductions in plant health and vigor from permanent shading caused by new highway structures (e.g., bridges, viaducts, and other elevated roadways) and potential changes in hydrology and water quality in affected waterbodies associated with increases in impervious surfaces.

As discussed above in the impact assumptions, no impact pile driving or stream dewatering would be required as part of project construction; therefore, related impacts on fish and the need for rescuing and relocating fish from affected habitats will be avoided. In addition, the project uses design options, including an outrigger concept for columns and/or shifting of the bent spacing, at stream crossings to avoid placement of columns below the ordinary high water mark of Secret Ravine, thereby avoiding direct impacts on the channel portion of Secret Ravine. Construction impacts on the wetted channels also will be avoided by using temporary platforms that span the channels above the ordinary high water mark to support temporary falsework while the elevated structures are being constructed adjacent to or over the channels. In-water work would be limited to constructing the two bridge columns in Antelope Creek associated with widening of the East Roseville Viaduct; however, the excessively warm water temperatures, low flows, and generally degraded habitat conditions in this segment of Antelope Creek make it extremely unlikely that juvenile steelhead would be present in affected habitats during summer, when in-water construction activities would occur.

### *Impacts Common to All Build Alternatives*

The project is not likely to adversely affect Central Valley steelhead. Project impacts on Central Valley steelhead and their habitat include potential adverse effects related to disturbance and direct injury, increased turbidity and sedimentation, potential discharges of contaminants, temporary and permanent loss of SRA cover, and changes to channel morphology and hydraulics. These potential impacts are discussed below.

### *Disturbance and Direct Injury*

Noise, vibrations, artificial light, and other physical disturbances can harass fish, disrupt or delay normal activities, or cause injury or mortality. The potential magnitude of effects depends on a number of factors, including the type and intensity of the disturbance, proximity of the action to the waterbody, timing of actions relative to the occurrence of sensitive life stages, and frequency and duration of activities. For most activities, the effects on fish would be limited to avoidance behavior in response to movements, noises, and shadows caused by construction personnel and equipment operating in or adjacent to the waterbody. However, survival may be altered if disturbance causes fish to leave protective habitat (e.g., causing increased exposure to predators) or is of sufficient duration and magnitude to affect growth and spawning success. In the absence of mitigation, injury or mortality may result from direct and indirect contact with humans and machinery, materials being placed in the stream, and physiological stress.

Impacts on migrating adults, spawning, and egg incubation will be avoided by limiting any in-channel construction to the dry season when these sensitive life stages are absent (Measure 21: *Conduct All In-Channel Construction Activities between June 15 and October 15*). However, because of their potential year-round presence in Miners Ravine and Secret Ravine, juvenile steelhead would be subject to potential harassment, injury, or mortality during work activities occurring in or near stream channels. Most juveniles would be expected to move upstream or downstream of the immediate project area in response to disturbance. Displacement could affect survival by increasing the exposure of juveniles to predators and possibly increasing competition with other juveniles, especially if suitable rearing habitat is limited or not readily available. Although juveniles are capable of actively moving away from disturbances, some juveniles may seek cover in active work areas, where they may be injured or killed by exposure to harmful levels of suspended sediment or other factors. Fry and small juveniles are at highest risk because of their tendency to hide in the substrate and reluctance to move away from protective nearshore habitat.

Short-term noise disturbance caused by construction vehicles and equipment, including drilling rigs and vibratory pile drivers, could occur during construction. The likely effects on fry and juveniles would be avoidance of habitat adjacent to the construction area. Effects, however, are not expected to rise to a level that result in injury to or direct mortality of fry or juveniles.

Temporary lighting of work areas to facilitate nighttime construction, especially at construction sites adjacent to or over waterways, may alter behavior of animals that prey on fish (e.g., piscivorous birds, mammals, and fish) in adjacent and affected habitats or may make fish more visible to predators, thereby leading to increased mortality of fish through increased predation. Implementation of Measure 22 (*Prevent Temporary Lighting from Directly Radiating on Water Surfaces of Antelope Creek, Miners Ravine, and Secret Ravine during Nighttime Construction*) would minimize the potential for effects of lighting on fish by requiring shielding and focusing of lights on work areas to avoid and minimize the amount of nighttime lighting that directly radiates on streams.

Physical disturbance and injury are most likely to occur during in-water work. Project actions that involve in-water work include placing steel casings in the wetted channel of Antelope Creek to support construction activities associated with widening of the East Roseville Viaduct and installing rock slope protection to protect the foundations, piers, and adjacent banks from erosion. Placement of these materials could result in temporary disturbance of, injury to, or mortality of fish that come in contact with equipment or construction materials during their installation. Injury to or mortality of fry and juveniles from direct contact with humans or machinery would not be expected to occur from these activities on Antelope Creek because in-water construction would be limited to the dry season (*Measure 21: Conduct All In-Channel Construction Activities between June 15 and October 15*) when juvenile steelhead are unlikely to be present in this segment of Antelope Creek as a result of warm water temperatures, low water flows, and generally degraded habitat conditions that occur there. No in-water construction or related activities would occur on Miners Ravine and Secret Ravine; therefore, direct physical disturbance and injury of fish in these streams will be avoided.

### *Erosion and Mobilization of Sediment*

Vegetation clearing, earthwork, equipment operation, and highway and bridge construction activities would result in disturbance of soil and streambanks, potentially resulting in temporary increases in suspended sediments (turbidity) and sedimentation in Antelope Creek, Miners Ravine, and Secret Ravine. Additional potential sources of sediment that could cause increases in turbidity and sedimentation include unstabilized slopes, construction staging areas, and access roads; uncovered stockpiles; and improperly maintained (cleaned) construction equipment and surface roads used by equipment and vehicles exiting construction areas.

Elevated levels of suspended sediments have the potential to result in physiological, behavioral, and habitat effects. The severity of these effects depends on the sediment concentration, duration of exposure, and sensitivity of the affected life stage. Short-term increases in turbidity and suspended sediment may disrupt normal behavior patterns of fish, potentially affecting foraging, rearing, and migration. The level of disturbance also may cause juveniles to abandon protective habitat or reduce their ability to detect predators, potentially increasing their vulnerability to predators (e.g., piscivorous birds and fish). Previous studies have documented these effects. For example, juvenile salmonids have been observed to avoid streams that are chronically turbid (Lloyd et al. 1987) or move laterally or downstream to avoid turbidity plumes (Sigler et al. 1984). Bisson and Bilby (1982) reported that juvenile coho salmon avoid turbidities exceeding 70 nephelometric turbidity units (NTUs). Chronic exposure to high turbidity and suspended sediment may affect growth and survival by impairing respiratory function, reducing tolerance to disease and contaminants, and causing physiological stress (Waters 1995). Sigler et al. (1984) found that prolonged exposure to turbidities between 25 and 50 NTUs resulted in reduced growth and increased emigration rates of juvenile coho salmon and steelhead compared to controls. Increased sediment delivery also can smother aquatic invertebrates (a fish food item), degrade forage and spawning habitat by covering or degrading the quality of gravel riffles, and reduce cover for juvenile fish by filling-in pools and the interstitial spaces of gravel, cobble, and boulder substrates.

Measure 6 (*Protect Water Quality and Minimize Sedimentation Runoff in Wetlands and Other Waters*) would minimize the potential for mobilization of sediment and increased turbidity and sedimentation in Antelope Creek, Miners Ravine, and Secret Ravine. Some adverse effects on fish may occur as a result of temporary, localized plumes of sediment occurring during construction, particularly in-water construction occurring on Antelope Creek. In addition, limiting construction activities below the ordinary high water mark, including in-water activities, to the summer construction season (*Measure 21: Limit All In-Channel Construction Activities to the June 15 to October 15 Period*) will further reduce the potential for temporary, localized plumes of sediment, if they were to occur, to affect sensitive life stages (spawning, egg incubation, and fry emergence) for Central Valley steelhead in Antelope Creek, Miners Ravine, and Secret Ravine within and downstream of construction sites.

### *Hazardous Materials and Contaminants*

The proposed project could involve the storage, use, or discharge of toxic and other harmful substances near streams and other waterbodies (or in areas that drain to these waterbodies) that could result in contamination of these waterbodies and potentially affect fish and other aquatic organisms. Potential impacts range from avoidance of the project site to mortality, which could occur through exposure to lethal concentrations of contaminants or exposure to non-lethal levels that cause physiological stress and increased susceptibility to other sources of mortality (e.g., predation and disease). Project activities that could result in the accidental or unintentional runoff or discharge of toxic materials and other harmful substances to streams include the following.

- Potential accidental spill of petroleum products
- Operation of vehicles and equipment in or adjacent to stream channels or drainages
- Storage of pavement, petroleum products, concrete, and other construction materials
- Discharge of water from construction areas
- Potential accidental spill of drilling lubricants
- Disturbance and mobilization of contaminants with adsorbed[2] metals

[2] *Adsorption* is the adhesion of atoms, ions, or molecules from a gas, liquid, or dissolved solid to a surface, in this case a sediment particle.

The operation of heavy equipment, drilling rigs, cranes, and other construction equipment in or near the stream can result in accidental spills and leakage of fuel, lubricants, hydraulic fluids, and coolants. Asphalt, wet concrete, and other construction materials used on roads, bridges, and culverts may fall directly into streams or enter streams in surface water runoff. Other sources of contaminants include the discharges from vehicle and concrete washout facilities. In addition, resuspension of sediments with adsorbed metals during in-water construction potentially could lead to localized degradation of water quality and food resources. Resuspended particulate material also could be transported to downstream locations as a result of transport by flow, thus leading to potential degradation of water quality and food resources beyond the immediate construction area.

The potential magnitude of biological effects resulting from these accidental, unintentional, or intentional actions depends on a number of factors, including the proximity to the stream; the type, amount, concentration, and solubility of the contaminant; and the timing and duration of the discharge or channel disturbance. Contaminants can affect survival and growth rates, as well as the reproductive success of fish and other aquatic organisms. The level of effect depends on species and life stage sensitivity, duration and frequency of exposure, condition or health of individuals (e.g., nutritional status), and physical or chemical properties of the water (e.g., flow volume, temperature, and dissolved oxygen).

Implementation of *Measure 6: Protect Water Quality and Minimize Sedimentation Runoff in Wetlands and Other Waters* will avoid or minimize the risk of contaminant spills and the potential effects of any spills on fish and other aquatic organisms. In addition, limiting construction activities below the ordinary high water mark, including in-water construction activities, to the summer construction season (*Measure 21: Limit All In-Channel Construction Activities to the June 15 to October 15 Period*) will further reduce the potential for contaminant spills, if they were to occur, to affect sensitive life stages (spawning, egg incubation, and fry emergence) of Central Valley steelhead in Antelope Creek, Miners Ravine, and Secret Ravine within and downstream of the project site.

### *Loss of Aquatic Habitat*

As described in Section 4.1.5.2, “Project Impacts – Other Waters of the United States” (see Table 4-2), the proposed project would result in the temporary and permanent loss of aquatic habitat area and volume in Antelope Creek, including potential foraging and rearing habitat for fry and juvenile fish. Installation of the two columns in Antelope Creek for the widened East Roseville Viaduct would result in the temporary and permanent loss of aquatic habitat (substrate and water column) equal to the cumulative area (substrate) and volume (water column) of the temporary casings and the permanent in-water columns. However, no temporary or permanent loss of spawning habitat area is anticipated because this segment of lower Antelope Creek is not likely to support suitable spawning habitat for steelhead based on the sandy substrate conditions that occur there. In addition, no disturbance to or loss of aquatic habitat (temporary or permanent) in Miners Ravine and Secret Ravine is anticipated because no in-water construction activities would occur in these streams.

Installation of steel casings to isolate the work area from the water column during center drilling and column construction would result in the temporary loss of aquatic habitat (substrate and water column) equal to the enclosed area and volume of the in-water casings. Assuming that a total of two steel casings with a maximum diameter of 10 feet each are used, the steel casings would result in a maximum temporary loss of approximately 160 square feet (0.0036 acre) of substrate habitat and approximately 315 cubic feet of water column habitat.

Construction of the new columns for the viaduct would result in a net permanent loss of approximately 80 square feet (0.0018 acre) of substrate habitat and approximately 158 cubic feet of water column habitat. Affected substrate habitat consists primarily of sands and fines; no spawning gravels would be affected.

The temporary and permanent impact on the substrate and water column from constructing the new bridge piers in Antelope Creek would cause negligible long-term effects on rearing and foraging habitat for fry and juvenile fish because the amount of the habitat that would be permanently affected by the columns is small relative to the total available habitat.

#### *Loss of SRA Cover*

Undercut banks and overhead cover provide fish with protection from predators. In addition, canopy cover (overhanging vegetation) maintains shade that is necessary to reduce thermal input and provides an energy input to the stream in the form of fallen leaves and insects (a food source for fish). Riparian vegetation is also important in controlling stream bank erosion, contributing to instream structural diversity, and maintaining undercut banks. Construction activities associated with vegetation removal, site preparation including grading and excavation for constructing columns (piers) for bridges and overpasses, and installation of platforms to support temporary falsework for constructing elevated structures would result in the removal of or damage to existing streamside woody riparian vegetation, including vegetation that contributes to overhead and instream SRA cover. Without appropriate mitigation, removal of streamside vegetation is likely to adversely affect steelhead because SRA cover is an essential component of salmonid rearing habitat that may limit production and abundance of steelhead in Antelope Creek, Miners Ravine, and Secret Ravine. Salmonid populations are highly influenced by the amount of available cover (Raleigh et al. 1984), and the amount of existing SRA cover in the BSA is variable. Table 4-19 summarizes the impacts on overhead SRA cover vegetation by alternative.

**Table 4-19. Impacts on Overhead SRA Cover Vegetation in the Biological Study Area by Alternative**

| Creek/Reach | Alternative 1 | | Alternative 2 | | Alternative 3 | |
|---|---|---|---|---|---|---|
| | Temporary (ft) | Permanent (ft) | Temporary (ft) | Permanent (ft) | Temporary (ft) | Permanent (ft) |
| Antelope Creek (Figures 8h, 9h, and 10h) | 46 | 409 | 46 | 409 | 46 | 409 |
| Miners Ravine (Figures 8a, 9a, and 10a) | 0 | 0 | 37 | 76 | 36 | 24 |
| **Secret Ravine** | | | | | | |
| Reach 1 (Figures 8b, 9b, and 10b) | 0 | 0 | 0 | 0 | 0 | 0 |
| Reach 2 (Figures 8c, 9c, and 10c) | 0 | 0 | 0 | 0 | 0 | 0 |
| Reach 3 (Figures 8d, 9d, and 10d) | 154 | 221 | 142 | 153 | 142 | 153 |
| Reach 4 (Figures 8e, 9e, and 10e) | 0 | 0 | 0 | 0 | 0 | 0 |
| Reach 5 (Figures 8f, 8g, 9f, 9g, 10f and 10g) | 266 | 119 | 0 | 148 | 0 | 148 |
| *Secret Ravine subtotal* | *420* | *340* | *142* | *301* | *142* | *301* |
| **Total** | **466** | **749** | **225** | **786** | **224** | **734** |

*Note*: Figures are in Appendix A.

Riparian vegetation also may be adversely affected indirectly through shading and rain shadow effects created by constructed bridges and overpasses. Because riparian vegetation requires both sunlight and moisture for growth and survival, significant interception of sunlight and precipitation may affect vegetation survival. The extent to which new structures may result in light and rain shadow effects depends on the width and height of the new structure above the existing vegetation and the orientation of the structure relative to the sun's path. Structures that are relatively narrow or sufficiently elevated are likely to have minimal, if any, adverse effect on plant growth and survival. Conversely, structures that are wide and low are more likely to intercept light and precipitation and adversely affect plant growth and survival, including to the point of excluding vegetation completely. In addition, vegetation occurring directly underneath but near the south side of elevated structures are likely to receive direct sunlight as a result of the low angle of the sun for at least part of the day, while vegetation north of elevated structures are likely to be shaded topographically for part or all of the day. Two locations within the BSA illustrate these conditions. The first example occurs on Miners Ravine where the I-80 bridge, which is low and wide, heavily shades the creek and creates a substantial rain shadow to the point of excluding all riparian vegetation. The other example occurs at the East Roseville Viaduct crossing of Antelope Creek, where the two moderately narrow, elevated structures allow sufficient light and precipitation to support various amounts of woody riparian vegetation directly under the spans and within the topographic shade created by these spans (see Figures F-1 and F-2 in Appendix F).

Measures described previously for riparian forest and oak woodland habitats will ensure that only the minimum amount of existing SRA cover, including overhead vegetation and instream cover, disturbed or removed will be limited to the minimum necessary to support construction activities and will be replaced onsite to the maximum extent practicable following project completion. The compensatory mitigation described for riparian forest (*Measure 4: Compensate for the Temporary and Permanent Loss of Non-Wetland Riparian Forest [including SRA Cover]*) also will offset potential impacts on SRA cover habitat.

### *Increase in Overwater Structure*

The proposed project would result in additional shading of the creek because the new and widened structures would completely shade the stream, including stream segments where existing gaps in the over-water riparian canopy allow sunlight to reach the water surface. Although stream productivity can be negatively affected by too much shade, the small amount of additional shade that would be created by the new and widened structures is expected to negligibly affect the overall stream productivity and may provide some small benefit to stream temperatures because overall shade levels would increase slightly. Structure shading also would offset the temporal loss of stream shading that would occur as a result of removing over-water vegetation during construction. Revegetation of the affected banks and other onsite areas following construction will replace affected shade, and likely will increase overall stream shade above current levels. The increase in stream shading associated with the new and widened over-water structures on Antelope Creek, Miners Ravine, and Secret Ravine would result in negligible long-term effects on stream productivity because the amount of the habitat that would be permanently shaded by these structures is small relative to the total stream area.

In addition, increased shading created by new and widened structures may affect the migration of salmonids. Within the Sammamish River, in Washington State, migrating adult salmon hold in shaded areas beneath bridges (Carrasquero 2001). Juvenile salmonids also prefer shaded areas created by bridges. The proposed elevated structures would generally allow ambient light levels to penetrate into the water and therefore would not negatively affect fish or fish habitat through significant increased shading of the stream.

### *Increase in Impervious Surfaces*

The proposed project would result in added impervious surfaces in the Antelope Creek, Miners Ravine, and Secret Ravine watersheds, and ultimately in the Dry Creek watershed. The added impervious area has the potential to increase peak flow and runoff volume in receiving waters from the loss of natural ground cover and reduced infiltration of water into soil. This change could subsequently lead to accelerated stream bed and bank erosion, loss of stream structure, increased sediment transport and deposition (turbidity and sedimentation effects), and increased flooding. In response to the increases in flow magnitude and frequency, stream channels could incise or widen, which could result in adding additional fine sediments to the stream from the resultant increases in channel bed and stream bank erosion. These changes could lead to long-term alterations to stream flow, temperature, and geomorphology, with long-term or permanent consequences for fish and their habitat.

The increase in impervious surfaces also could result in increased water pollutants in local streams. Increased traffic loads in the corridor could result in increased deposition of particulates onto roadway surfaces that are then transported to receiving waters with road runoff. Heavy metals, oil, grease, and polycyclic aromatic hydrocarbons (PAHs) are common pollutants in road runoff and some of these pollutants can accumulate in stream sediments with lethal and sublethal consequences for fish and other aquatic species, particularly during “first flush” rain events. PAHs are organic compounds—containing only carbon and hydrogen—that occur in motor vehicle exhaust, petroleum products, materials associated with asphalt, and various other municipal and industrial sources. PAHs are widely distributed in the environment and are important environmental pollutants because of their carcinogenicity and tendency to bioaccumulate. PAHs are readily absorbed by fish and other aquatic organisms and, depending on concentration, can lead to lethal and deleterious sublethal effects in these organisms (Tuvikene 1995). PAHs tend to adsorb to any particulate matter, including fine sediment; therefore, relative concentrations of PAHs in aquatic ecosystems are generally highest in sediments, followed by aquatic biota and the water column (Tuvikene 1995). There is evidence that urban runoff containing roadway sediment may be an important PAH input to aquatic habitats and that a significant contribution to the PAH content of roadway sediment comes from materials associated with asphalt (Wakeham et al. 1980).

The project proponent will substantially reduce or eliminate the potential for hydromodification impacts by incorporating into the project design temporary construction site BMPs, design pollution prevention and erosion control BMPs, and treatment BMPs to promote infiltration of storm water runoff, maximize treatment of storm water runoff, and reduce erosion by metering or detaining post-project runoff from the roadway.

#### *Impacts on Central Valley Steelhead Critical Habitat*

Miners Ravine and Secret Ravine within the BSA are included in the designated critical habitat for Central Valley steelhead (70 FR 52627, September 2, 2005). The primary constituent elements of critical habitat in the BSA include freshwater spawning habitat and freshwater rearing habitat with water quantity and quality, natural cover, forage, and passage conditions supporting migration and rearing of steelhead. Critical habitat for Central Valley steelhead in the BSA includes the lateral extent of the channel up to the ordinary or mean high water elevation.

The project may affect, but is not likely to adversely affect Central Valley steelhead designated critical habitat. Impacts on critical habitat of Central Valley steelhead include temporary effects on the water column (water quality and shade impacts) and temporary and permanent loss of overhead SRA cover vegetation. These impacts would be the same as those discussed above for steelhead.

#### 4.4.1.3 Avoidance and Minimization Measures

Implementation of the following measures will avoid direct impacts and minimize indirect impacts on Central Valley steelhead.

##### *Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources*

Please refer to the discussion of Measure 1 in Section 4.1.2.1.

##### *Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel*

Please refer to the discussion of Measure 2 in Section 4.1.1.3.

##### *Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats*

Please refer to the discussion of Measure 3 in Section 4.1.1.3.

##### *Measure 6: Protect Water Quality and Minimize Sedimentation Runoff in Wetlands and Other Waters*

Please refer to the discussion of Measure 6 in Section 4.1.3.3.

##### *Measure 21: Limit All In-Channel Construction Activities to the June 15 to October 15 Period*

The project proponent will require the contractor to conduct all in-channel construction between June 15 and October 15, unless earlier or later dates for in-channel construction activities are approved by CDFW and NMFS. *In-channel construction* is defined as creek bank and channel bed construction below the ordinary high water mark, including excavation and grading activities. By requiring contractors to adhere to these dates for in-channel construction, the project proponent will avoid and minimize project effects on sensitive life stages of Central Valley steelhead.

#### *Measure 22: Prevent Temporary Lighting from Directly Radiating on Water Surfaces of Antelope Creek, Miners Ravine, and Secret Ravine during Nighttime Construction*

The project proponent will minimize the effects of lighting on steelhead by the following actions.

- Avoiding construction activities at night, to the extent practicable.
- Using the minimal amount of lighting necessary to safely and effectively illuminate the work areas.
- Shielding and focusing lights on work areas and away from water surfaces.

### 4.4.1.4 Compensatory Mitigation

NMFS recommends that any disturbance or removal of riparian vegetation be replaced with native riparian species at a 3:1 ratio and preparation of a revegetation plan to ensure the success of growth of native riparian vegetation. The plan should include a list of species and designs to show the location of the plantings and their density. Implementation of Measure 4 will satisfy this requirement. No additional compensatory mitigation is required.

#### *Measure 4: Compensate for the Temporary and Permanent Loss of Riparian Forest (including SRA Cover)*

Please refer to the discussion of Measure 4 in Section 4.1.1.4.

### 4.4.1.5 Cumulative Impacts

Cumulative impacts on drainages would result from construction of other general development projects in Placer County. Construction of the proposed project would add to the cumulative loss of drainage habitats. However, with implementation of the measures described to avoid and minimize potential impacts, the proposed project would not likely result in a cumulatively adverse impact on drainages or on Central Valley steelhead or designated critical habitat.

## 4.4.2 Central Valley Fall- and Late Fall–Run Chinook Salmon

The Central Valley fall- and late fall–run Chinook ESU includes all naturally spawned populations of fall- and late fall–run Chinook salmon in the Sacramento and San Joaquin River basins and their tributaries east of Carquinez Strait (64 FR 50394). On September 16, 1999, after reviewing the best available scientific and commercial information, NMFS determined that listing Central Valley fall- and late fall–run Chinook salmon was not warranted. On April 15, 2004, the Central Valley fall- and late fall–run Chinook salmon ESU was identified by NMFS as a Species of Concern (69 FR 19975).

The Central Valley fall- and late fall–run Chinook salmon ESU is not listed under CESA. However, Central Valley late fall–run Chinook salmon were classified as a Class 2 Species of

Special Concern by the California Department of Fish and Game (CDFG) (now CDFW) in 1995 (Moyle et al. 1995). *Class 2 Species of Special Concern* are species with low, scattered, or highly localized populations that require active management to prevent them from becoming Class 1 species (i.e., species that conform to the state definitions of threatened or endangered species) (Moyle et al. 1995.)

The following discussion focuses on fall-run Chinook salmon only because late fall–run Chinook salmon do not occur in Antelope Creek, Miners Ravine, or Secret Ravine (they spawn in the upper Sacramento River where the water remains sufficiently cold and deep in summer to support rearing of juveniles [Moyle 2002]).

Adult fall-run Chinook salmon enter the Sacramento River from June through December, with a peak in September and October; and spawn from late September through December, with a peak in October and November (Moyle 2002). Adults spawn within a few days or weeks of reaching their spawning grounds (Moyle 2002). Newly emerged fry remain in shallow, lower velocity edgewaters (California Department of Fish and Game 1998). Shortly after emergence from the redds, most fry disperse downstream toward the Delta and into the San Francisco Bay estuary. Juveniles migrate to the ocean generally from December to June, before water temperatures become too warm in summer. Natural spawning populations of fall-run Chinook salmon occur in the Sacramento River and most of its tributaries; the Tuolumne River (San Joaquin River tributary); and tributaries of the eastern Delta, including the Cosumnes and Mokelumne Rivers (Moyle 2002).

Central Valley fall-run Chinook salmon historically spawned in all major Central Valley tributaries, as well as in the mainstems of the Sacramento and San Joaquin Rivers. A large percentage of fall-run Chinook spawning areas in the Sacramento and San Joaquin Rivers historically occurred in the lower gradient reaches of the rivers downstream of sites now occupied by major dams, such as Shasta and Friant Dams. As a result of the geographic distribution of fall-run spawning and juvenile rearing areas, fall-run Chinook salmon populations in the Central Valley were not as severely affected by early water resource development projects that blocked access to upstream areas as were spring- and winter-run Chinook salmon and steelhead that historically used higher elevation habitat for spawning and rearing (Reynolds et al. 1993; McEwan 2001).

The number of returning adult fall-run Chinook salmon to the Sacramento River has been characterized by relatively high inter-annual variability, ranging from approximately 50,000 to over 800,000 adults (Azat 2013). Between 1990 and 2002, the number of adult fall-run Chinook salmon returning to the Sacramento River increased relative to previous years; however, their numbers declined between 2004 and 2009 and are now increasing once again (Azat 2013). Natural spawning runs of fall-run Chinook salmon in the Central Valley are heavily supplemented with fish of hatchery origin (estimated to be up to 65 percent of the run) from hatcheries on Battle Creek and on the American, Feather, Merced, and Mokelumne Rivers (Moyle 2002). Many of the same factors affecting Central Valley steelhead (discussed in Section 4.4.1) also affect Central Valley fall-run Chinook salmon.

#### 4.4.2.1 Survey Results

Focused surveys for Central Valley fall-run Chinook salmon were not conducted for the same reasons discussed above for Central Valley steelhead. Therefore, the assumption regarding the occurrence of Chinook salmon in the BSA depended largely on previously collected data, general species life history accounts, and literature reviews. No Chinook salmon were observed in the BSA during the field studies; however, the timing of the field surveys (July 28 and August 4, 2014) did not overlap with the expected occurrence of adult or juvenile Chinook salmon in these streams. Therefore, absence of Chinook salmon in these streams was expected.

The occurrence of Central Valley fall-run Chinook salmon in the Dry Creek drainage, including Antelope Creek, Miners Ravine, and Secret Ravine, is well documented. In fall 1964, CDFG (now CDFW) estimated the run size of fall-run Chinook salmon to be 10 adults in Antelope Creek, 100 adults in Miners Ravine, and over 600 adults in Secret Ravine (Gerstung pers. comm.). In spring 1965, CDFG installed downstream migrant traps in these streams from mid-February to mid-March and captured 28 Chinook salmon fry in Miners Ravine and 1,535 fry in Secret Ravine; no fry were collected in the Antelope Creek trap (Gerstung pers. comm.). The observation of “thousands of salmon fry” in Secret Ravine during April 1965 led CDFG to conclude that most of the salmon fry were still present in the creeks above the trap locations during the trapping period, which was terminated prematurely because of the lack of staff to operate the traps. It was also estimated at this time, based on spawning gravel surveys, that Secret Ravine supported sufficient gravel to accommodate at least 1,000 adult Chinook salmon; however, it is not known how these estimates were derived. In 2004, Placer County surveyed potential spawning habitat in Antelope Creek, Miners Ravine, and Secret Ravine and estimated that the observed gravel area was sufficient to support approximately 2 Chinook salmon redds in Antelope Creek, 6 Chinook salmon redds in Miners Ravine, and 12 Chinook salmon redds in Secret Ravine (Jones & Stokes Associates 2005). It should be noted that substantially more spawning habitat may have been available in these creeks at the time of the survey, based on the limited ability to survey all potential habitat in these creeks—although the measured amount of fine sediments at gravel areas (between 50 and 82 percent) suggests that the quality of the gravels was low (i.e., eggs and larvae would be expected to have low survival) (Jones & Stokes Associates 2005).

Chinook salmon continue to use Antelope Creek, Miners Ravine, and Secret Ravine for spawning and rearing. Since 1997, the Dry Creek Conservancy has been documenting the occurrence of adult Chinook salmon in western Placer County streams, including Antelope Creek, Miners Ravine, and Secret Ravine, through limited spawning surveys. In fall 2013, 2 adult Chinook salmon carcasses were observed in lower Antelope Creek, and 15 live adults, 8 carcasses, and 5 redds were observed in Secret Ravine in stream segments extending from the confluence with Miners Ravine to Rocklin Road; no adult Chinook salmon or redds were observed in Miners Ravine (Bates pers. comm.).

Historically, CDFG (now CDFW) planted approximately 100,000 juvenile fall-run Chinook salmon from the Feather River hatchery each spring in lower Miners Ravine during years of excess hatchery production; this practice has since been discontinued as part of changes to the state's hatchery practices.

#### 4.4.2.2 Project Impacts

Project impacts on Central Valley fall-run Chinook salmon would be similar to those described for Central Valley steelhead (in Section 4.4.1.2).

#### *Impacts on Essential Fish Habitat*

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires federal agencies to consult with NMFS on activities that may adversely affect EFH. Important components of EFH are substrate; water quality; water quantity, depth, and velocity; channel gradient and stability; food; cover and habitat complexity; space; access and passage; and habitat connectivity.

EFH for fall-run Chinook salmon could be affected by the project. Impacts on Chinook salmon EFH would be similar to the impacts on species and critical habitat discussed above for Central Valley steelhead.

The following environmental conditions could affect Chinook salmon EFH.

- Sedimentation and turbidity
- Hazardous materials and contaminants
- Temporary and permanent loss of SRA cover

Effects associated with sedimentation and turbidity, hazardous materials and contaminants, and SRA cover loss on Chinook salmon EFH would be temporary. Potential adverse effects of increased fine sediment and turbidity on EFH will be avoided or minimized through implementation of all applicable BMPs. The potential environmental effects of the project to EFH would be limited to temporary, localized, and minor increases in turbidity and suspended sediment. Implementation of the SWWPP along with applicable BMPs will substantially reduce or eliminate the potential for accidental spill and unintentional discharge of contaminants and potential associated effects on EFH. Limiting in-channel construction to the June 15–October 15 period will further avoid and minimize the potential for adverse effects on downstream habitats (*Measure 21: Limit All In-Channel Construction Activities to the June 15 to October 15 Period*). All affected SRA cover vegetation would be replaced at a 3:1 ratio (i.e., 3 linear feet replaced for every 1 foot affected) (*Measure 4: Compensate for the Temporary and Permanent Loss of Non-Wetland Riparian Forest [including SRA Cover]*); therefore, no permanent impacts on Chinook salmon EFH are anticipated.

#### 4.4.2.3 Avoidance and Minimization Measures

To avoid and minimize potential impacts on Central Valley fall-run Chinook salmon, the following measures will be implemented:

##### *Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources*

Please refer to the discussion of Measure 1 in Section 4.1.1.3.

##### *Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel*

Please refer to the discussion of Measure 2 in Section 4.1.1.3.

##### *Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats*

Please refer to the discussion of *Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats* in Section 4.1.2.1.

##### *Measure 6: Protect Water Quality and Minimize Sedimentation Runoff in Wetlands and Other Waters*

Please refer to the discussion of Measure 6 in Section 4.1.3.3.

##### *Measure 21: Limit All In-Channel Construction Activities to the June 15 to October 15 Period*

Please refer to the discussion of *Measure 21: Limit All In-Channel Construction Activities to the June 15 to October 15 Period* in Section 4.4.1.3.

##### *Measure 22: Prevent Temporary Lighting from Directly Radiating on Water Surfaces of Antelope Creek, Miners Ravine, and Secret Ravine during Nighttime Construction*

Please refer to the discussion of Measure 22 in Section 4.4.1.3.

#### 4.4.2.4 Compensatory Mitigation

With implementation of *Measure 4: Compensate for the Temporary and Permanent Loss of Non-Wetland Riparian Forest (including SRA Cover)*, no additional compensation measures are required for fall-run Chinook salmon.

***Measure 4: Compensate for the Temporary and Permanent Loss of Riparian Forest (including SRA Cover)***

Please refer to the discussion of Measure 4 in Section 4.1.1.4.

#### 4.4.2.5 Cumulative Impacts

Cumulative impacts on drainages would result from construction of other general development projects in Placer County. Construction of the proposed project would add to the cumulative loss of drainage habitats. However, with implementation of the measures prescribed to avoid or minimize potential impacts and compensatory mitigation, the proposed project would not likely result in a cumulatively adverse impact on drainages and fall-run Chinook salmon or EFH.

### 4.4.3 Protected Trees

#### 4.4.3.1 Survey Results

The BSA contains numerous native oak trees that would qualify for protection under the tree preservation ordinances of the City of Roseville or the City of Rocklin. Native oak species known to occur in the BSA are valley oaks, interior live oaks, and blue oaks.

#### 4.4.3.2 Project Impacts

Most of the protected trees that would be affected by implementation of the proposed project occur within the non-wetland riparian forest and oak woodland. The acreages of non-wetland riparian forest and oak woodland that would be affected by each alternative are listed in Tables 4-1 (in Section 4.1.2.2) and 4-2 (in Section 4.1.3.3), respectively. The project proponent will retain a certified arborist to conduct a tree survey in order to quantify the number of protected trees that would be affected by implementation of each project alternative.

#### 4.4.3.3 Avoidance and Minimization Measures

Implementation of the following measures will avoid direct impacts and minimize indirect impacts on protected trees. Additional avoidance and minimization measures may be agreed upon during the project permitting process.

***Measure 1: Install Fencing and/or Flagging to Protect Sensitive Biological Resources***

Please refer to the discussion of Measure 1 in Section 4.1.1.3.

#### *Measure 2: Conduct Mandatory Environmental Awareness Training for Construction Personnel*

Please refer to the discussion of Measure 2 in Section 4.1.1.3.

#### *Measure 3: Retain a Qualified Biologist to Conduct Monitoring during Construction in Sensitive Habitats*

Please refer to the discussion of Measure 3 in Section 4.1.1.3.

### 4.4.3.4 Compensatory Mitigation

The project proponent will compensate for impacts on protected trees in accordance with the requirements of the applicable jurisdiction’s tree preservation ordinance. The compensation will consist of planting replacement trees or paying an in-lieu fee.

### 4.4.3.5 Cumulative Impacts

Cumulative impacts on protected trees would result from construction of other general development projects in Placer County. With implementation of the prescribed avoidance and minimization efforts and compensatory mitigation, construction of the proposed project would not add to the cumulative loss of protected trees and would not result in a cumulatively adverse impact on protected trees.

## 4.4.4 Invasive Plants

### 4.4.4.1 Survey Results

Table 3-2 lists the invasive plant species identified by CDFA and Cal-IPC that are known to occur in the BSA. No plant species designated as federal noxious weeds have been identified in the BSA. Most of the invasive plant species occur in annual grassland, along roadways, and in disturbed/graded areas.

### 4.4.4.2 Project Impacts

The proposed project would create additional disturbed areas for a temporary period. Areas where temporary disturbance occurs would be more susceptible to colonization or spread by invasive plants. Implementation of the measure described above will help to avoid and minimize the introduction and spread of invasive plants.

### 4.4.4.3 Avoidance and Minimization Measures

#### *Measure 23: Avoid and Minimize the Spread of Invasive Plant Species during Project Construction*

The project proponent or its contractor will be responsible for avoiding and minimizing the introduction of new invasive plants and the spread of invasive plants previously documented in the BSA. Two or more of the BMPs listed below will be written into the construction specifications and implemented during project construction.

- Retain all fill material onsite to prevent the spread of invasive plants to uninfested areas.
- Use a weed-free source for project materials (e.g., straw wattles for erosion control that are weed-free or contain less than 1 percent weed seed).
- Prevent invasive plant contamination of project materials during transport and when stockpiling (e.g., by covering soil stockpiles with a heavy-duty, contractor-grade tarpaulin).
- Use sterile wheatgrass seed and native plant stock during revegetation.
- Revegetate and/or mulch disturbed soils within 30 days of completion of ground-disturbing activities to reduce the likelihood of invasive plant establishment.

The goal for implementation of two or more of these BMPs is to minimize the disturbance and transport of soil and vegetation to the greatest extent feasible to complete the work. Detailed information about implementing these BMPs can be found in Cal-IPC's *Preventing the Spread of Invasive Plants: Best Management Practices for Transportation and Utility Corridors* (California Invasive Plant Council 2012).

#### 4.4.4.4 Compensatory Mitigation

No compensatory mitigation pertaining to invasive plants is required.

#### 4.4.4.5 Cumulative Impacts

Ground disturbance and construction vehicle traffic associated with the proposed project have the potential to cumulatively contribute to the introduction and spread of invasive plant species. With implementation of the prescribed avoidance and minimization measure, the proposed project would not substantially contribute to cumulative impacts related to the spread of invasive plants.

# Chapter 5 Results: Permits and Technical Studies for Special Laws or Conditions

Applicable federal, state, and local permits and approvals that could be required prior to construction of the proposed project are listed in Table 5-1.

**Table 5-1. Permits and Approvals Potentially Required for the Proposed Project**

| Permit/Approval | Approving Agency |
|---|---|
| Endangered Species Act Section 7: inter-agency consultation | USFWS and NMFS |
| Magnuson-Stevens Fishery Conservation and Management Act | NMFS |
| Clean Water Act Section 404: placement of fill | USACE Sacramento District |
| Clean Water Act Section 401: Water Quality Certification | Central Valley RWQCB |
| Executive Order 11990: Protection of Wetlands | FHWA |
| Executive Order 12962: Recreational Fisheries | FHWA |
| Executive Order 13112: Prevention and Control of Invasive Species | FHWA |
| Executive Order 13186: Migratory Bird Treaty Act | FHWA |
| Senate Bill 857: Fish Passage Assessment | NMFS |
| California Fish and Game Code Section 1602 | CDFW |
| California Fish and Game Code Sections 3503 and 3503.5: protection of birds and raptors | CDFW |
| California Fish and Game Code Sections 3511, 3513, 4700, and 5050: fully protected species | CDFW |
| City of Roseville Open Space Preserve Overarching Management Plan | City of Roseville/USACE Sacramento District/USFWS |
| Tree permits | City of Roseville and City of Rocklin |

A summary of consultation and coordination efforts related to the listed permits and approvals is provided below.

## 5.1 Federal Endangered Species Act Consultation Summary

Inter-agency consultation with NMFS and USFWS under Section 7 of the ESA is required for potential effects of the proposed project on Central Valley steelhead (including designated critical habitat) (NMFS), valley elderberry longhorn beetle (USFWS), and vernal pool fairy shrimp (USFWS).

Caltrans has begun informal consultation with NMFS, and a BA addressing impacts on Central Valley steelhead will be prepared and submitted to NMFS.

To date, there has been no ESA consultation with USFWS for the proposed project. A BA will be prepared and submitted to USFWS.

## 5.2 Federal Fisheries and Essential Fish Habitat Consultation Summary

Consultation (informal or formal) with NMFS is required for potential effects of the project on Central Valley steelhead. An EFH assessment addressing Pacific salmon will be included in the BA that is being prepared for submittal to NMFS.

## 5.3 California Endangered Species Act Consultation Summary

One state-listed species, Swainson's hawk, has the potential to occur in the BSA. Coordination with CDFW for potential impacts on this species will be conducted, as necessary, to ensure that project impacts are minimized. A CFGC Section 2081 Incidental Take Permit will not be required because no take is anticipated. No discussions with CDFW have occurred to date.

## 5.4 Wetlands and Other Waters Coordination Summary

The BSA contains numerous types of wetlands and other waters that are considered waters of the United States and waters of the State. As indicated in Chapter 4, the proposed project would result in placement of fill in these waterbodies. Therefore, the project proponent will comply with the CWA by obtaining permits from the Sacramento District of the USACE, and with the Porter-Cologne Act by obtaining a permit from the Central Valley RWQCB before discharging fill into, or excavating within, federally and state-regulated waters and wetlands.

## 5.5 Invasive Species (Executive Order 13112)

With implementation of the avoidance and minimization measures described in Chapter 4, the proposed project will not result in new, severe infestations of invasive plant species.

## 5.6 Other

### 5.6.1 Federal Migratory Bird Treaty Act

Caltrans will avoid violation of the MBTA by implementing measures identified in Chapter 4 for migratory birds.

### 5.6.2 Fish Passage Assessment (Senate Bill 857)

By order of Senate Bill 857, Caltrans is required to conduct a fish passage assessment for projects receiving state or federal transportation funds that affect stream crossings where anadromous salmonids are, or historically were, present. A fish passage reconnaissance assessment for the BSA was conducted on July 28, 2014, by an ICF fish biologist. The results of the fish passage reconnaissance assessment are presented in Appendix F.

The reconnaissance assessment concluded that the existing stream crossings on Antelope Creek (East Roseville Viaduct) and Miners Ravine (Eureka Road off-ramp) do not adversely affect fish passage because the existing structures span their respective creeks and do not have columns (piers) in the wetted channel or include any culverts or concrete aprons beneath the spans. Similarly, the new structures proposed on Miners Ravine and Secret Ravine would not require placement of the bridge foundations in the wetted portions of the channels. Consequently, no changes to channel hydraulics or channel geometry at these stream crossings would occur, and the existing fish passage conditions would not be affected. Although two bridge piers would need to be placed in the wetted portion of the channel to facilitate widening of the East Roseville Viaduct (SR 65) over Antelope Creek, the results of a hydraulic study (WRECO 2014) indicate that water surface elevations would be minimally affected. Because the piers represent only a fraction of the entire channel cross-section, no significant changes to channel hydraulics or channel geometry are anticipated. Therefore, no changes to existing fish passage conditions at this stream crossing on Antelope Creek would occur as a result of the proposed project. No additional work pertaining to fish passage at the existing stream crossings on Antelope Creek and Miners Ravine within the BSA is required.

### 5.6.3 California Fish and Game Code

Sections 1602, 3503, 3503.5, 3511, 3513, 4700, and 5050 of the CFGC apply to the proposed project and are described below.

#### 5.6.3.1 Section 1602: Lake or Streambed Alteration Agreements

The project proponent will enter into an LSAA with CDFW for the proposed stream crossings.

#### 5.6.3.2 Sections 3503 and 3503.5: Protection of Birds and Raptors

The project proponent will avoid violation of CFGC Sections 3503 and 3503.5 by implementing measures identified in Chapter 4 for birds and raptors.

#### 5.6.3.3 Sections 3511, 3513, 4700, and 5050: Fully Protected Species

The project proponent will avoid violation of CFGC Section 3511 (fully protected birds) by implementing measures identified in Chapter 4 for white-tailed kite.

### 5.6.4 City of Roseville Open Space Preserve Overarching Management Plan

The proposed project would encroach on areas designated as Open Space Preserves and General Open Space in the City's OSPOMP (ECORP Consulting 2011). Open Space Preserve areas were set aside as part of the regulatory permitting process per approvals from USFWS and USACE. Chapter 10 of the OSPOMP identifies activities that are prohibited within Open Space Preserve areas. Implementation of the proposed project would result in prohibited activities, including construction or placement of new structures within Open Space Preserve areas (Section 10.11); therefore, the City of Roseville (as preserve owner/manager) will be required to obtain approval from USFWS and USACE to encroach on these areas.

Based on discussions with Mark Morse, the City of Roseville's Environmental Coordinator, issuance of a CWA 404 permit from USACE and authorization from USFWS under ESA Section 7 for a project that would encroach on a preserve managed under the OSPOMP will constitute approval from those agencies per the OSPOMP (Morse pers. comm. 2014).

A discussion of the proposed project's encroachment on Open Space Preserve areas will be included in the CWA 404 permit application and BA to ensure that the proposed project is consistent with the OSPOMP.

### 5.6.5 City of Roseville Tree Permit

The project proponent will comply with the City of Roseville's Tree Preservation Ordinance by obtaining a tree permit from the City of Roseville prior to the removal or disturbance of any protected tree that would be affected within the City's jurisdiction. The project proponent will implement all applicable permit conditions.

### 5.6.6 City of Rocklin Tree Permit

The project proponent will comply with the City of Rocklin's Oak Tree Preservation Ordinance and Oak Tree Preservation Guidelines by obtaining a permit from the City of Rocklin prior to the removal or disturbance of any protected oak tree that would be affected within the City's jurisdiction. The project proponent will implement all applicable permit conditions. Additionally, oak trees that will be preserved during project construction will be protected prior to grading activities by installing fencing that is at least 4 feet high at a distance of 3 feet outside each tree's dripline and by maintaining the fencing for the duration of project construction.

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Titus, Robert G., Ph.D. Fishery Biologist. California Department of Fish and Wildlife, Native Anadromous Fish and Watershed Branch, Stream Evaluation Program. Sacramento, CA. November 5, 2001—Memorandum to files regarding the perennial rearing habitat for juvenile steelhead in the Dry Creek drainage (Placer County).

# Appendix A Project Maps

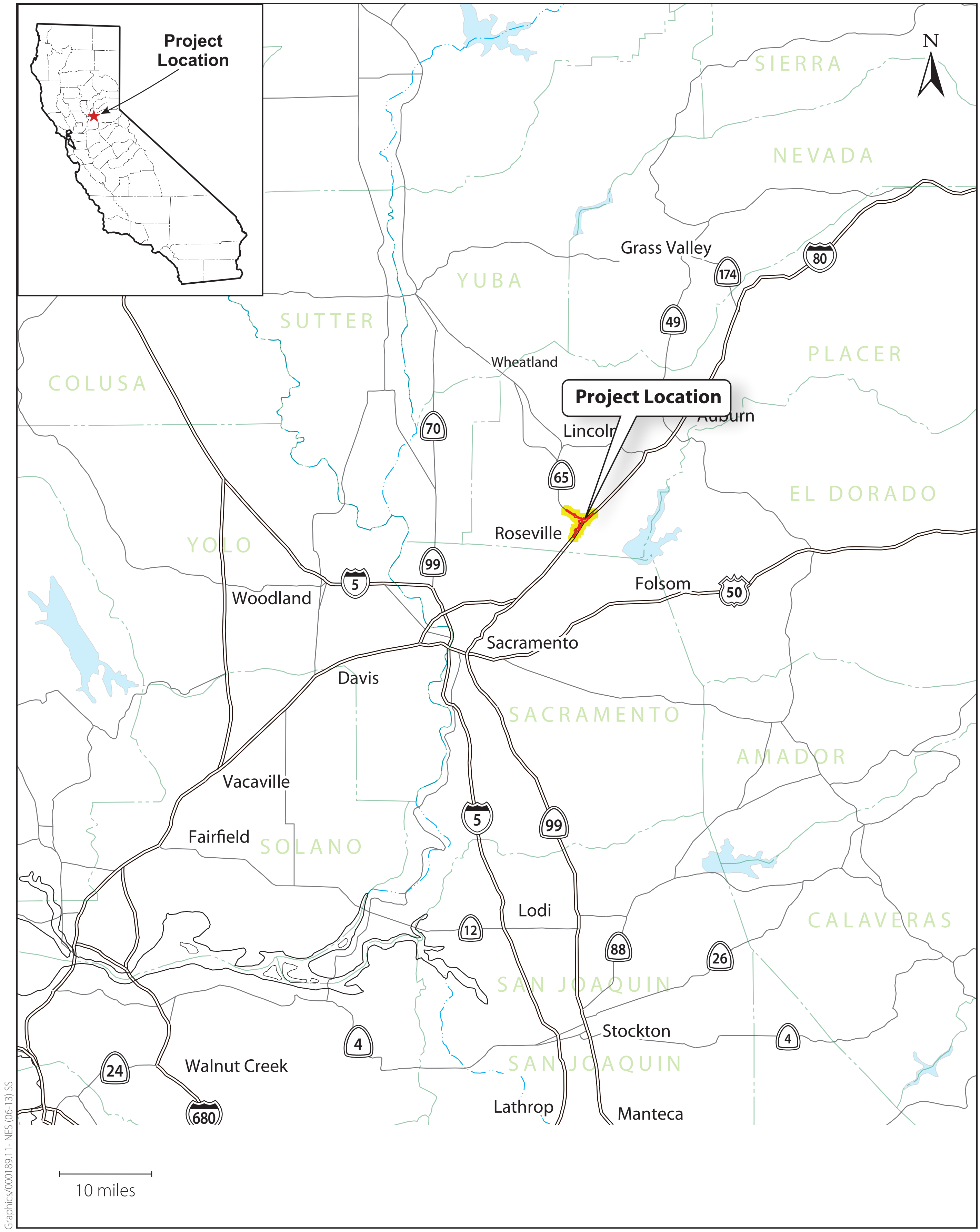
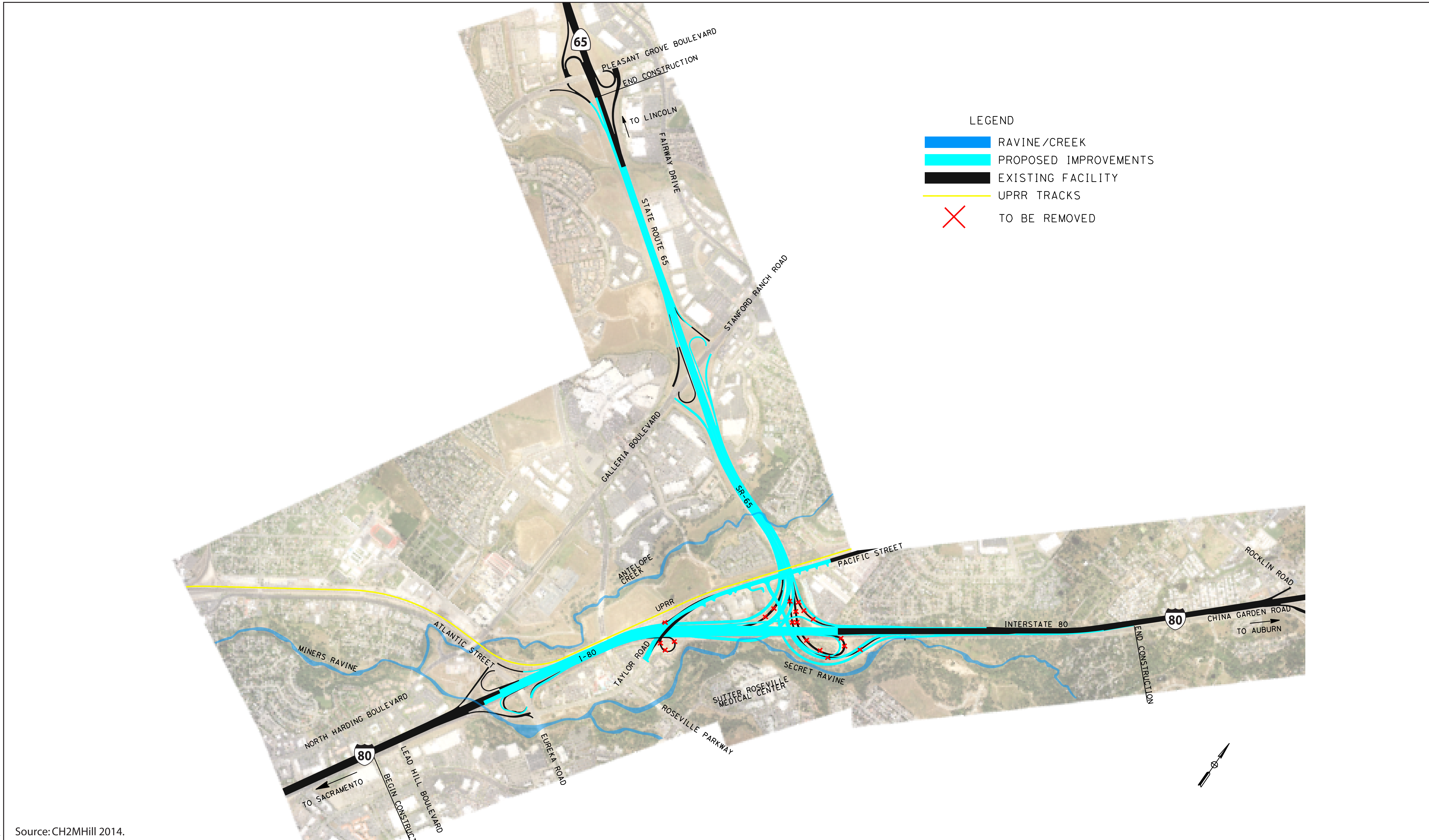



**Figure 1**
**Project Location**




Source: CH2MHill 2014.

Graphics ... 00189.11 (7/23/14) AB

**Figure 2**
**Alternative 1—Taylor Road Full Access Interchange**

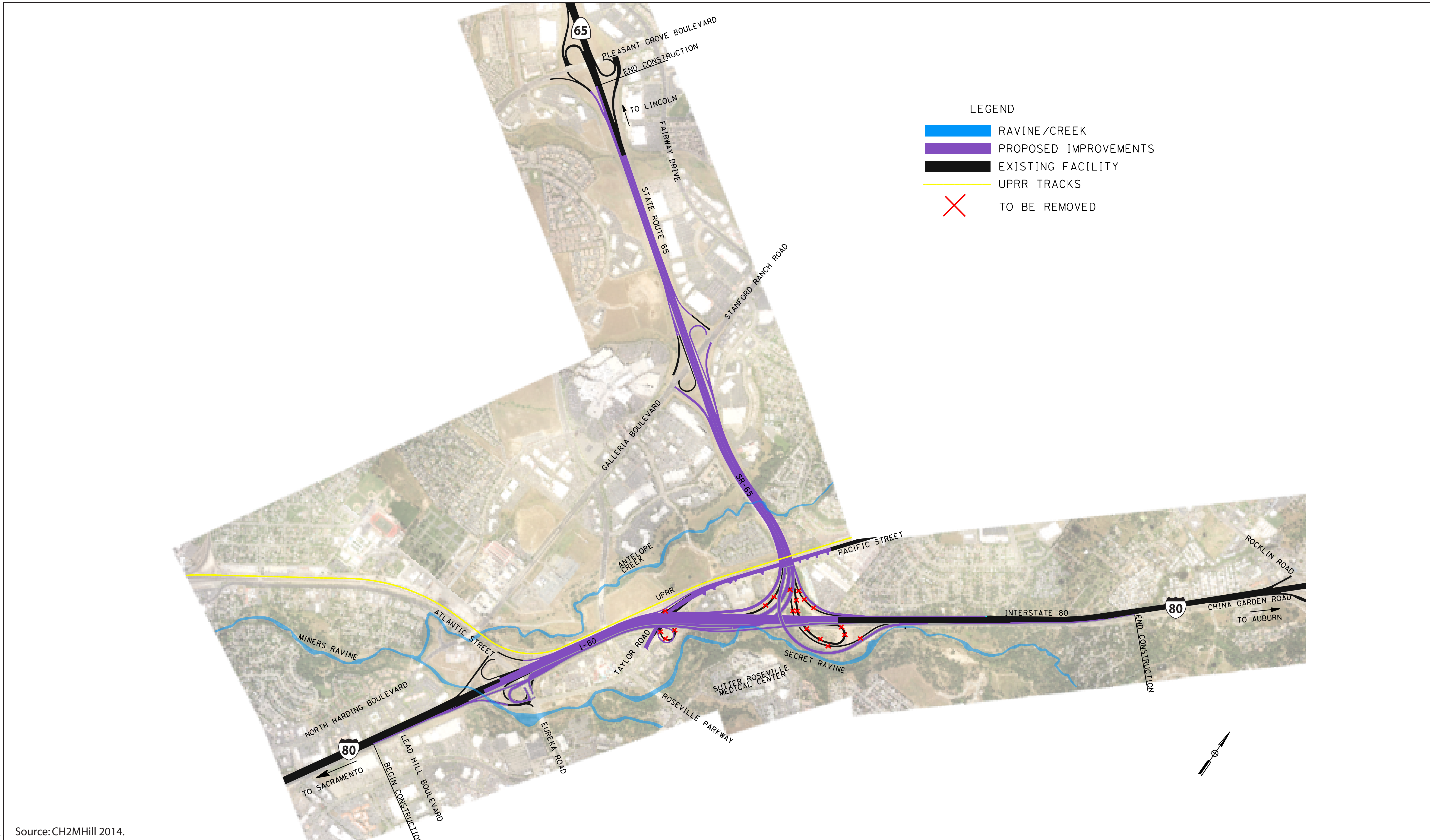



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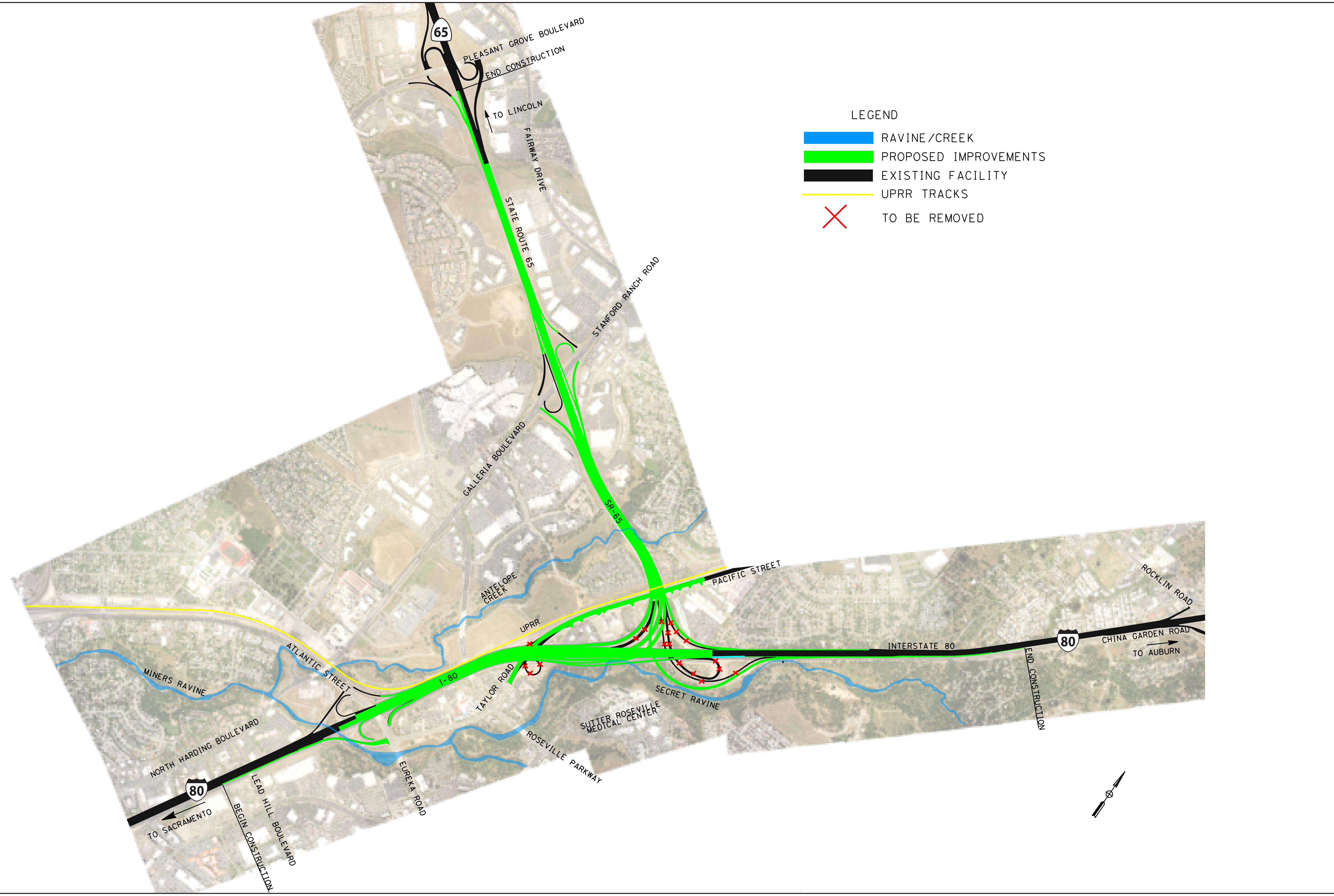
**Figure 3**
**Alternative 2—Collector-Distributor System Ramps**




Source: CH2MHill 2014.



**Figure 4**
**Alternative 3—Taylor Road Interchange Eliminated**

Figure 5a
Biological Resource and Project Impacts
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 1**

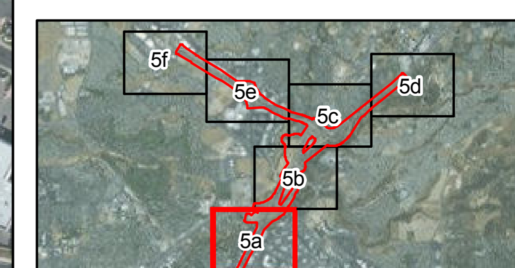

- Biological Study Area
- Permanent Impact Area
- Temporary Impact Area
- Photo Points

**Land Cover Types**

- Developed
- Disturbed/Graded
- Annual Grassland
- Oak Woodland
- Riparian Forest
- Perennial Stream
- Intermittent Stream
- Ephemeral Drainage
- Riparian Forest/Shrub Wetland
- Emergent Wetland
- Seasonal Wetland
- Vernal Pool

**Other Sensitive Resources**

- Open Space Preserve - City Owned
- Elderberry Shrub Location
- Active Bat Roosts
- Historical Nesting Site of Purple Martin

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**Notes:**

Data Source: ICF Surveys 2013 & 2014
Imagery Source: ESRI 2014

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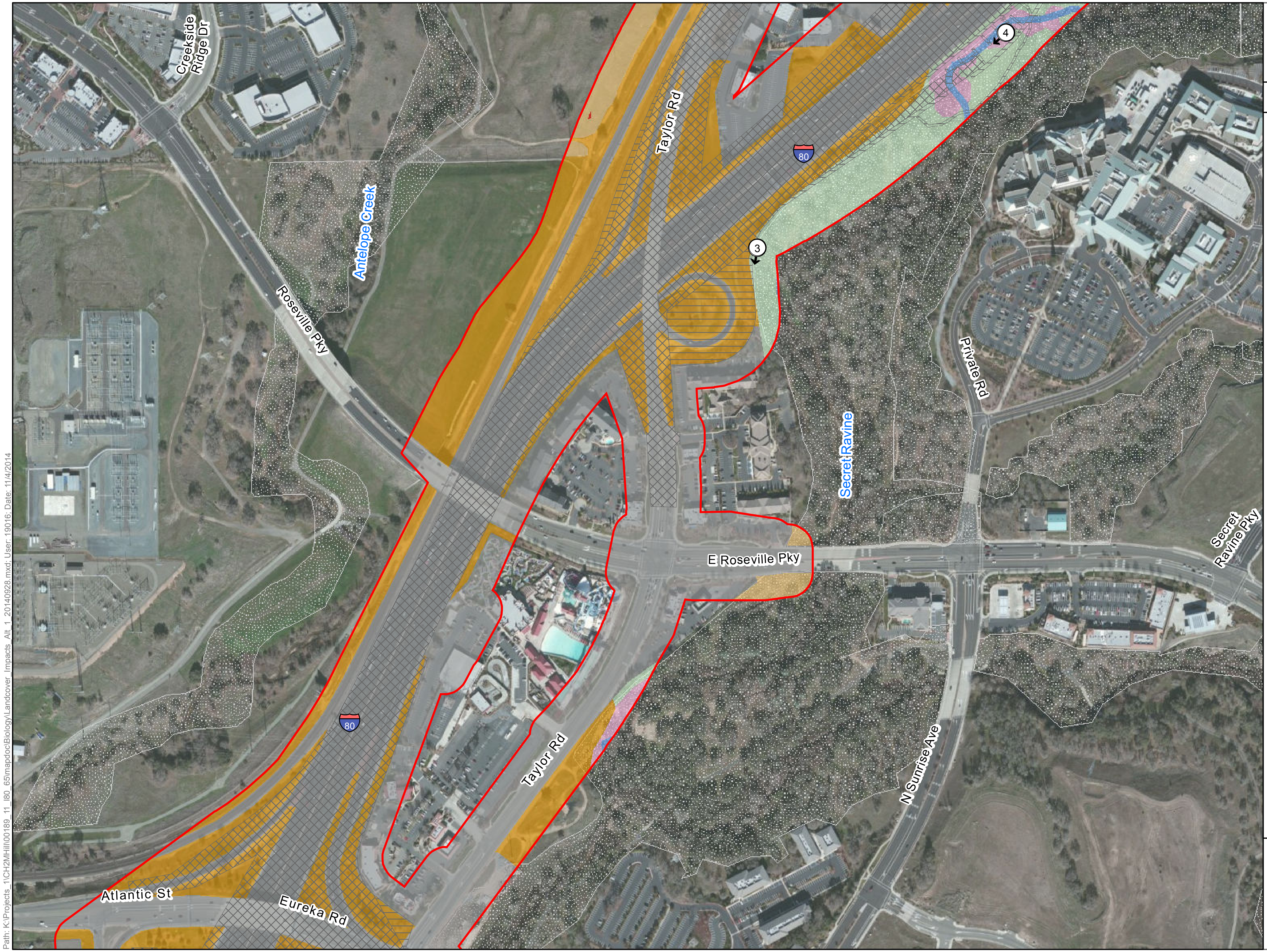


Figure 5b
Biological Resource and Project Impacts
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 1**

Biological Study Area
Permanent Impact Area
Temporary Impact Area
Photo Points

**Land Cover Types**

Developed
Disturbed/Graded
Annual Grassland
Oak Woodland
Riparian Forest
Perennial Stream
Intermittent Stream
Ephemeral Drainage
Riparian Forest/Shrub Wetland
Emergent Wetland
Seasonal Wetland
Vernal Pool

**Other Sensitive Resources**

Open Space Preserve - City Owned
Elderberry Shrub Location
Active Bat Roosts
Historical Nesting Site of Purple Martin

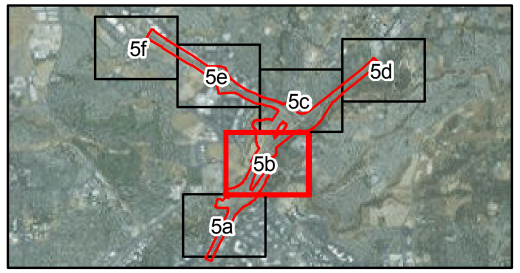


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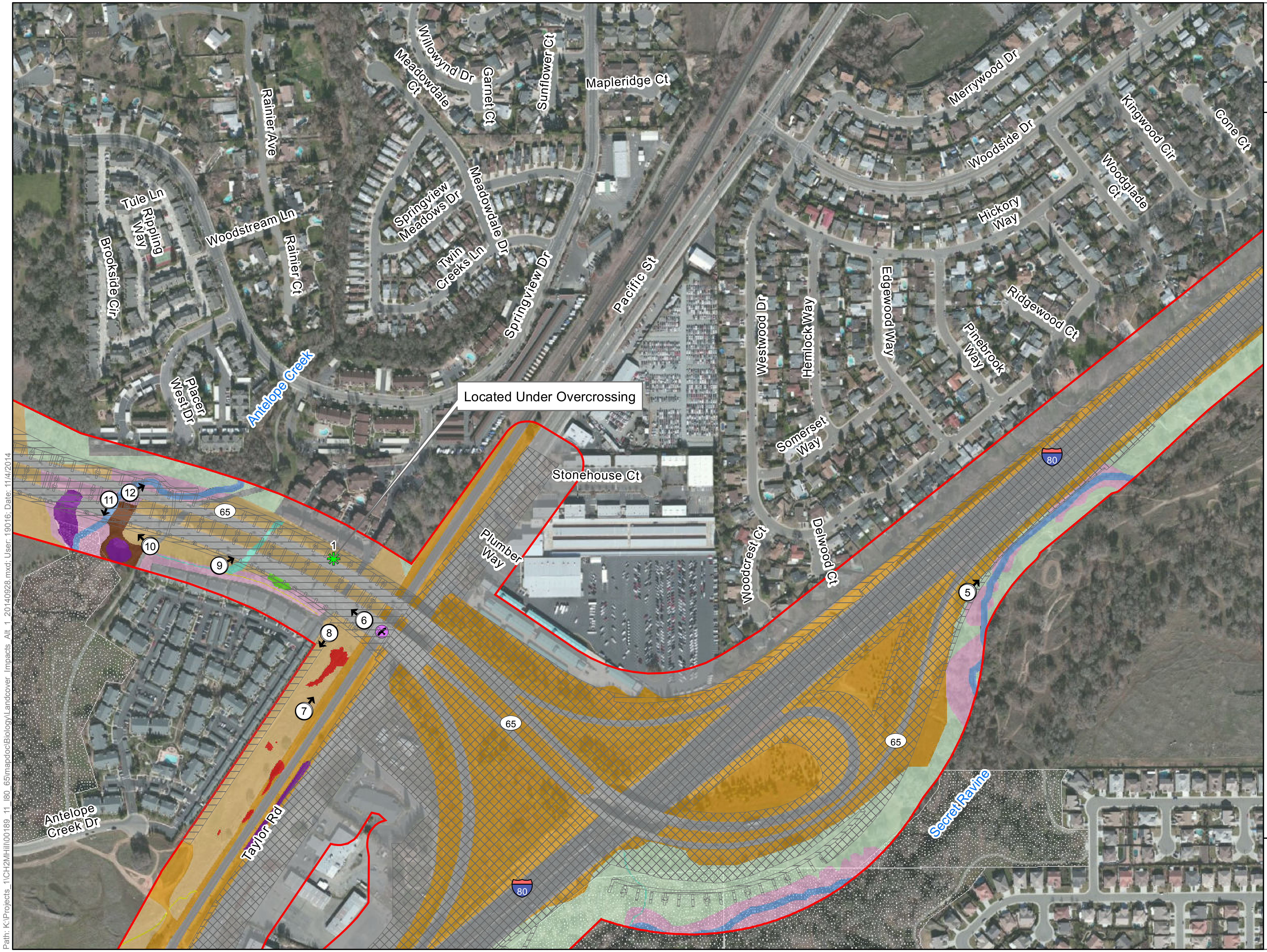
Figure 5c
Biological Resource and Project Impacts
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 1**




- Biological Study Area
- Permanent Impact Area
- Temporary Impact Area
- Photo Points

**Land Cover Types**

- Developed
- Disturbed/Graded
- Annual Grassland
- Oak Woodland
- Riparian Forest
- Perennial Stream
- Intermittent Stream
- Ephemeral Drainage
- Riparian Forest/Shrub Wetland
- Emergent Wetland
- Seasonal Wetland
- Vernal Pool

**Other Sensitive Resources**

- Open Space Preserve - City Owned
- Elderberry Shrub Location
- Active Bat Roosts
- Historical Nesting Site of Purple Martin

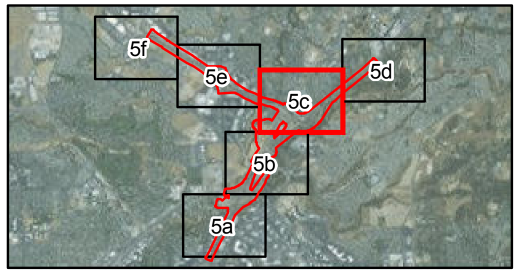



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Figure 5d
Biological Resource and Project Impacts
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 1**

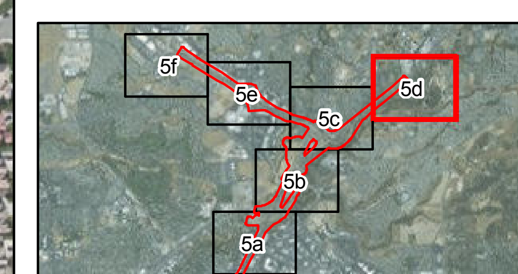

Biological Study Area
Permanent Impact Area
Temporary Impact Area
Photo Points

**Land Cover Types**

Developed
Disturbed/Graded
Annual Grassland
Oak Woodland
Riparian Forest
Perennial Stream
Intermittent Stream
Ephemeral Drainage
Riparian Forest/Shrub Wetland
Emergent Wetland
Seasonal Wetland
Vernal Pool

**Other Sensitive Resources**

Open Space Preserve - City Owned
Elderberry Shrub Location
Active Bat Roosts
Historical Nesting Site of Purple Martin

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**Notes:**
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Figure 5e
Biological Resource and Project Impacts
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 1**

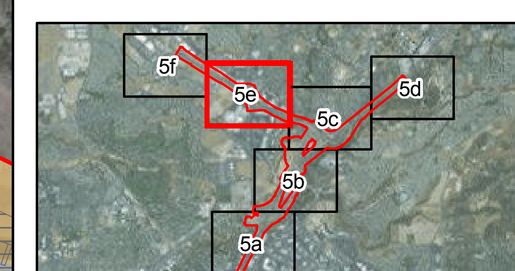

- Biological Study Area
- Permanent Impact Area
- Temporary Impact Area
- Photo Points

**Land Cover Types**

- Developed
- Disturbed/Graded
- Annual Grassland
- Oak Woodland
- Riparian Forest
- Perennial Stream
- Intermittent Stream
- Ephemeral Drainage
- Riparian Forest/Shrub Wetland
- Emergent Wetland
- Seasonal Wetland
- Vernal Pool

**Other Sensitive Resources**

- Open Space Preserve - City Owned
- Elderberry Shrub Location
- Active Bat Roosts
- Historical Nesting Site of Purple Martin

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**Notes:**
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Figure 5f
Biological Resource and Project Impacts
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 1**

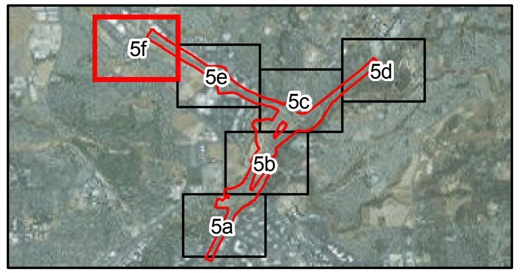

Biological Study Area
Permanent Impact Area
Temporary Impact Area
Photo Points

**Land Cover Types**

Developed
Disturbed/Graded
Annual Grassland
Oak Woodland
Riparian Forest
Perennial Stream
Intermittent Stream
Ephemeral Drainage
Riparian Forest/Shrub Wetland
Emergent Wetland
Seasonal Wetland
Vernal Pool

**Other Sensitive Resources**

Open Space Preserve - City Owned
Elderberry Shrub Location
Active Bat Roosts
Historical Nesting Site of Purple Martin

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**Notes:**
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Figure 6a
Biological Resource and Project Impacts
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 2**

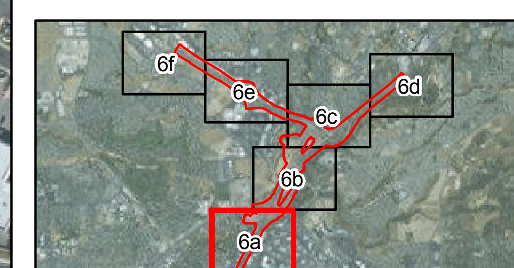

Biological Study Area
Permanent Impact Area
Temporary Impact Area
Photo Points

**Land Cover Types**

Developed
Disturbed/Graded
Annual Grassland
Oak Woodland
Riparian Forest
Perennial Stream
Intermittent Stream
Ephemeral Drainage
Riparian Forest/Shrub Wetland
Emergent Wetland
Seasonal Wetland
Vernal Pool

**Other Sensitive Resources**

Open Space Preserve - City Owned
Elderberry Shrub Location
Active Bat Roosts
Historical Nesting Site of Purple Martin

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**Notes:**
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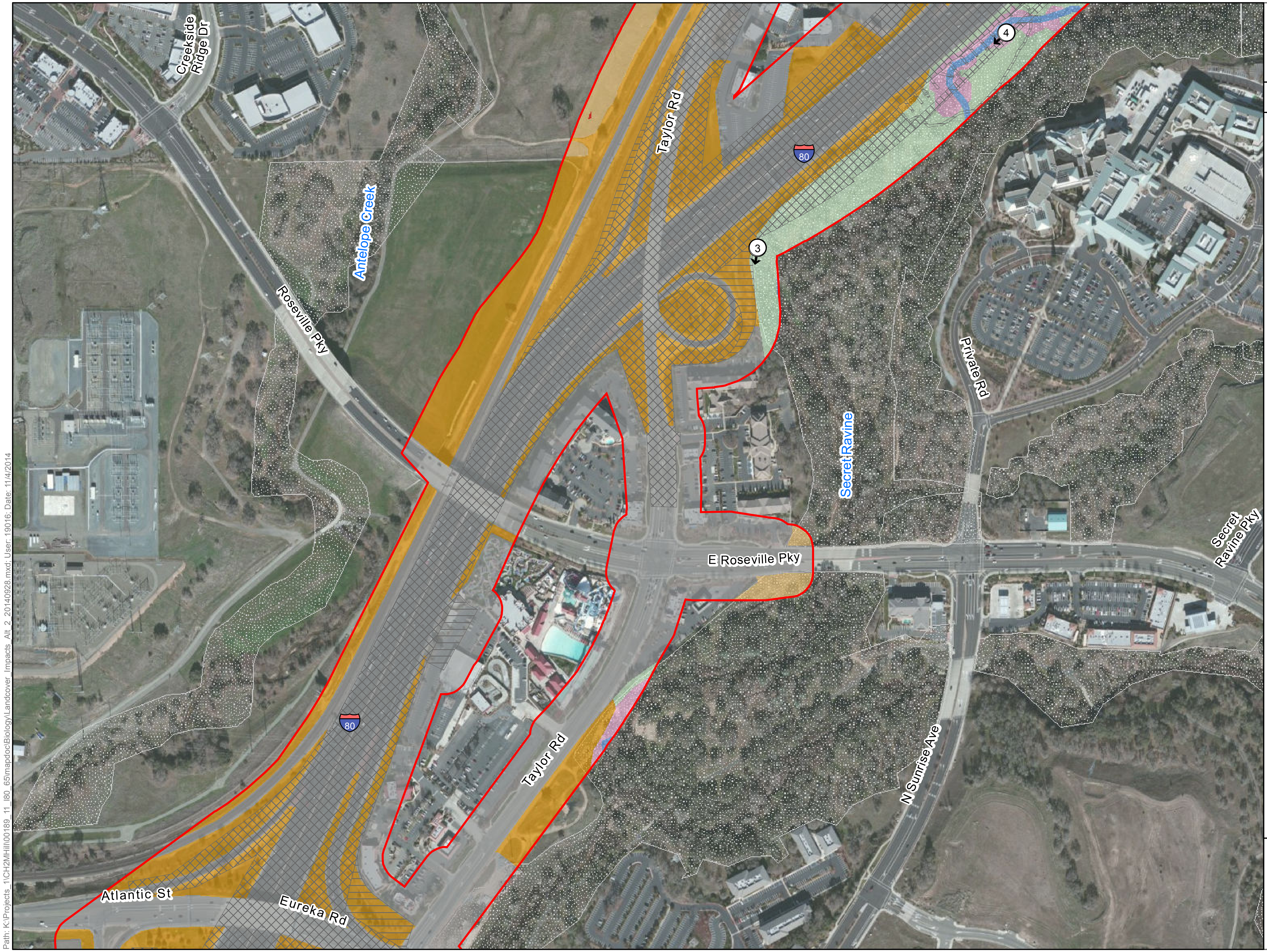
Figure 6b
Biological Resource and Project Impacts
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 2**




- Biological Study Area
- Permanent Impact Area
- Temporary Impact Area
- Photo Points

**Land Cover Types**

- Developed
- Disturbed/Graded
- Annual Grassland
- Oak Woodland
- Riparian Forest
- Perennial Stream
- Intermittent Stream
- Ephemeral Drainage
- Riparian Forest/Shrub Wetland
- Emergent Wetland
- Seasonal Wetland
- Vernal Pool

**Other Sensitive Resources**

- Open Space Preserve - City Owned
- Elderberry Shrub Location
- Active Bat Roosts
- Historical Nesting Site of Purple Martin

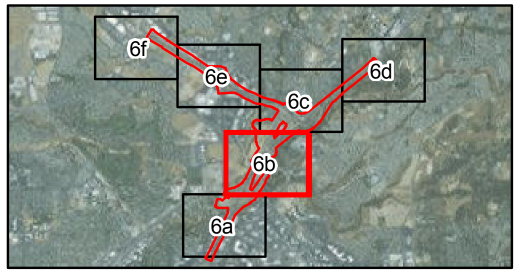



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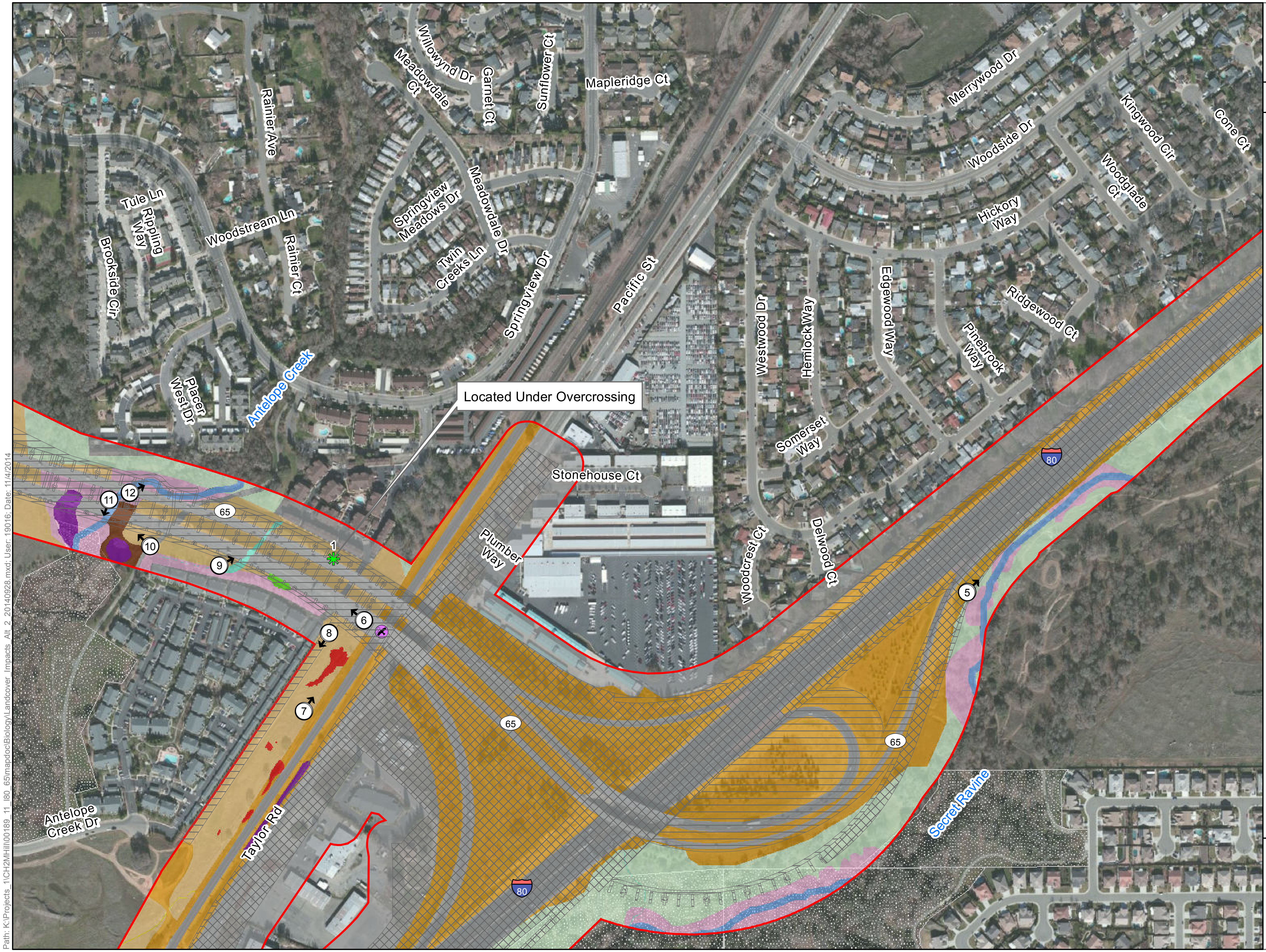
Figure 6c
Biological Resource and Project Impacts
Interstate 80/State Route 65
Interchange Improvements Project

## Alternative 2




- Biological Study Area
- Permanent Impact Area
- Temporary Impact Area
- Photo Points

**Land Cover Types**

- Developed
- Disturbed/Graded
- Annual Grassland
- Oak Woodland
- Riparian Forest
- Perennial Stream
- Intermittent Stream
- Ephemeral Drainage
- Riparian Forest/Shrub Wetland
- Emergent Wetland
- Seasonal Wetland
- Vernal Pool

**Other Sensitive Resources**

- Open Space Preserve - City Owned
- Elderberry Shrub Location
- Active Bat Roosts
- Historical Nesting Site of Purple Martin

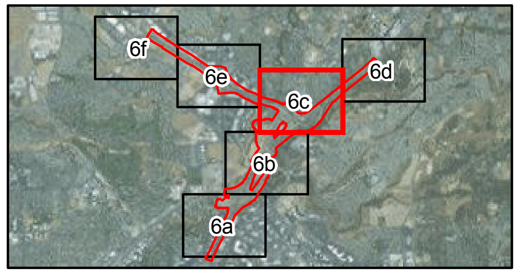



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Figure 6d
Biological Resource and Project Impacts
Interstate 80/State Route 65
Interchange Improvements Project

## Alternative 2

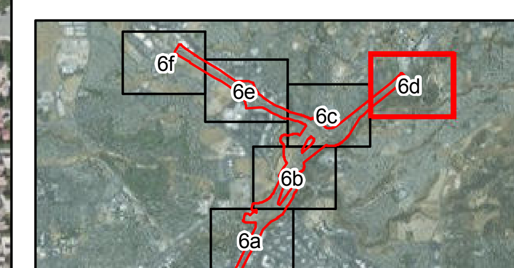

Biological Study Area
Permanent Impact Area
Temporary Impact Area
Photo Points

**Land Cover Types**

Developed
Disturbed/Graded
Annual Grassland
Oak Woodland
Riparian Forest
Perennial Stream
Intermittent Stream
Ephemeral Drainage
Riparian Forest/Shrub Wetland
Emergent Wetland
Seasonal Wetland
Vernal Pool

**Other Sensitive Resources**

Open Space Preserve - City Owned
Elderberry Shrub Location
Active Bat Roosts
Historical Nesting Site of Purple Martin

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**Notes:**
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Imagery Source: ESRI 2014


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Figure 6f
Biological Resource and Project Impacts
Interstate 80/State Route 65
Interchange Improvements Project

## Alternative 2

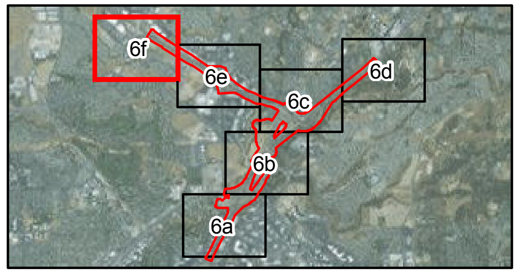

- Biological Study Area
- Permanent Impact Area
- Temporary Impact Area
- Photo Points

**Land Cover Types**

- Developed
- Disturbed/Graded
- Annual Grassland
- Oak Woodland
- Riparian Forest
- Perennial Stream
- Intermittent Stream
- Ephemeral Drainage
- Riparian Forest/Shrub Wetland
- Emergent Wetland
- Seasonal Wetland
- Vernal Pool

**Other Sensitive Resources**

- Open Space Preserve - City Owned
- Elderberry Shrub Location
- Active Bat Roosts
- Historical Nesting Site of Purple Martin

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**Notes:**
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Figure 7a
Biological Resource and Project Impacts
Interstate 80/State Route 65
Interchange Improvements Project

## Alternative 3

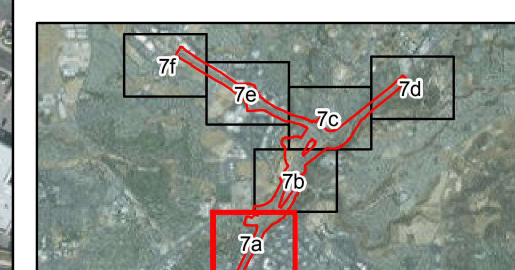

Biological Study Area
Permanent Impact Area
Temporary Impact Area
Photo Points

**Land Cover Types**

Developed
Disturbed/Graded
Annual Grassland
Oak Woodland
Riparian Forest
Perennial Stream
Intermittent Stream
Ephemeral Drainage
Riparian Forest/Shrub Wetland
Emergent Wetland
Seasonal Wetland
Vernal Pool

**Other Sensitive Resources**

Open Space Preserve - City Owned
Elderberry Shrub Location
Active Bat Roosts
Historical Nesting Site of Purple Martin

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**Notes:**

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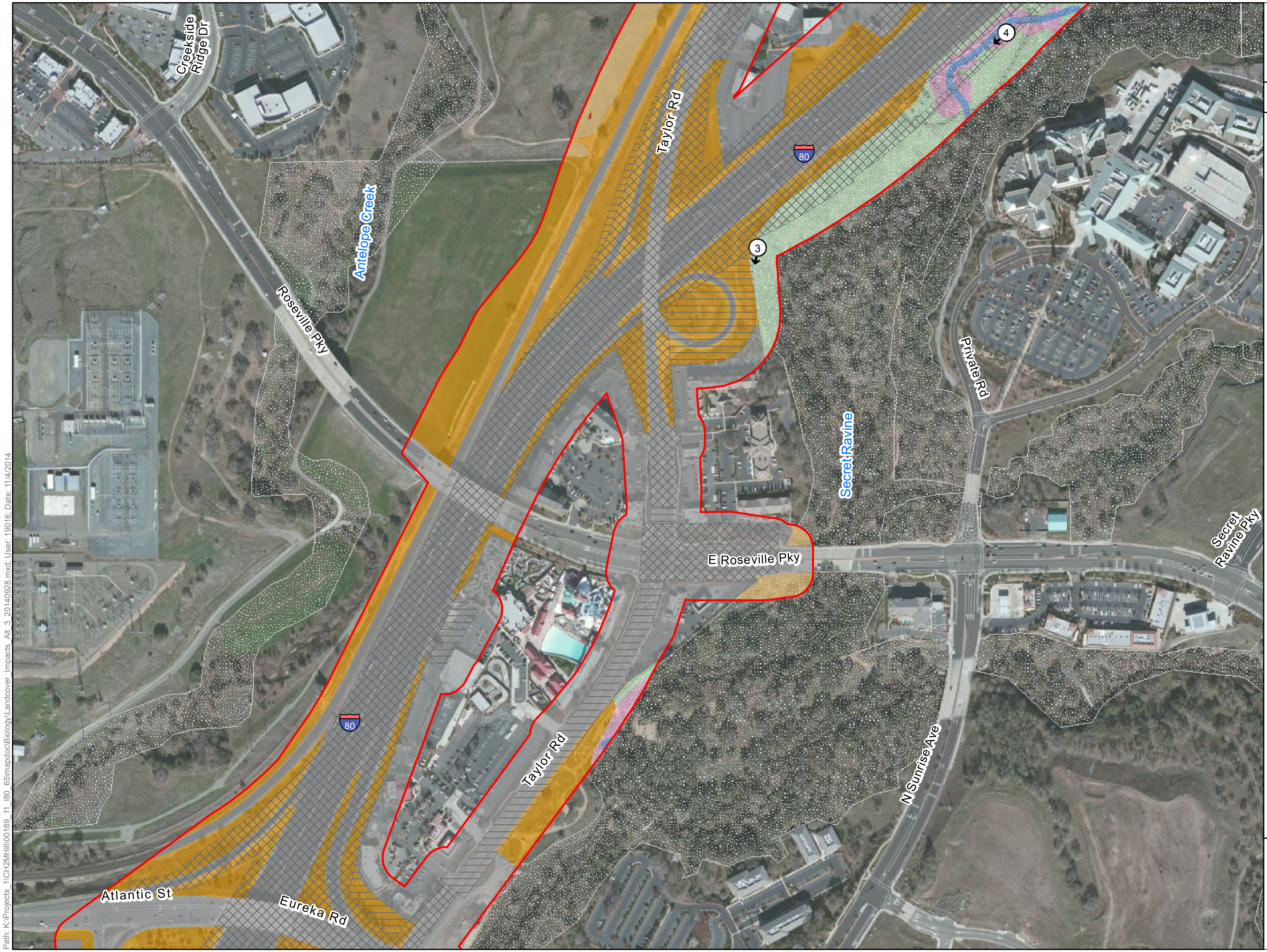
Figure 7b
Biological Resource and Project Impacts
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 3**



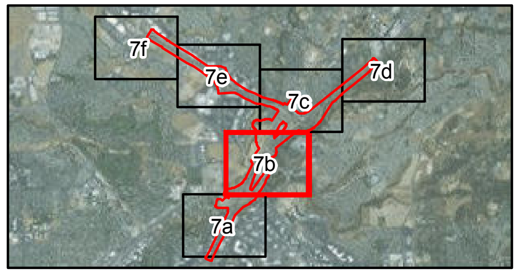

- Biological Study Area
- Permanent Impact Area
- Temporary Impact Area
- Photo Points

**Land Cover Types**

- Developed
- Disturbed/Graded
- Annual Grassland
- Oak Woodland
- Riparian Forest
- Perennial Stream
- Intermittent Stream
- Ephemeral Drainage
- Riparian Forest/Shrub Wetland
- Emergent Wetland
- Seasonal Wetland
- Vernal Pool

**Other Sensitive Resources**

- Open Space Preserve - City Owned
- Elderberry Shrub Location
- Active Bat Roosts
- Historical Nesting Site of Purple Martin

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Feet

**Notes:**

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Imagery Source: ESRI 2014

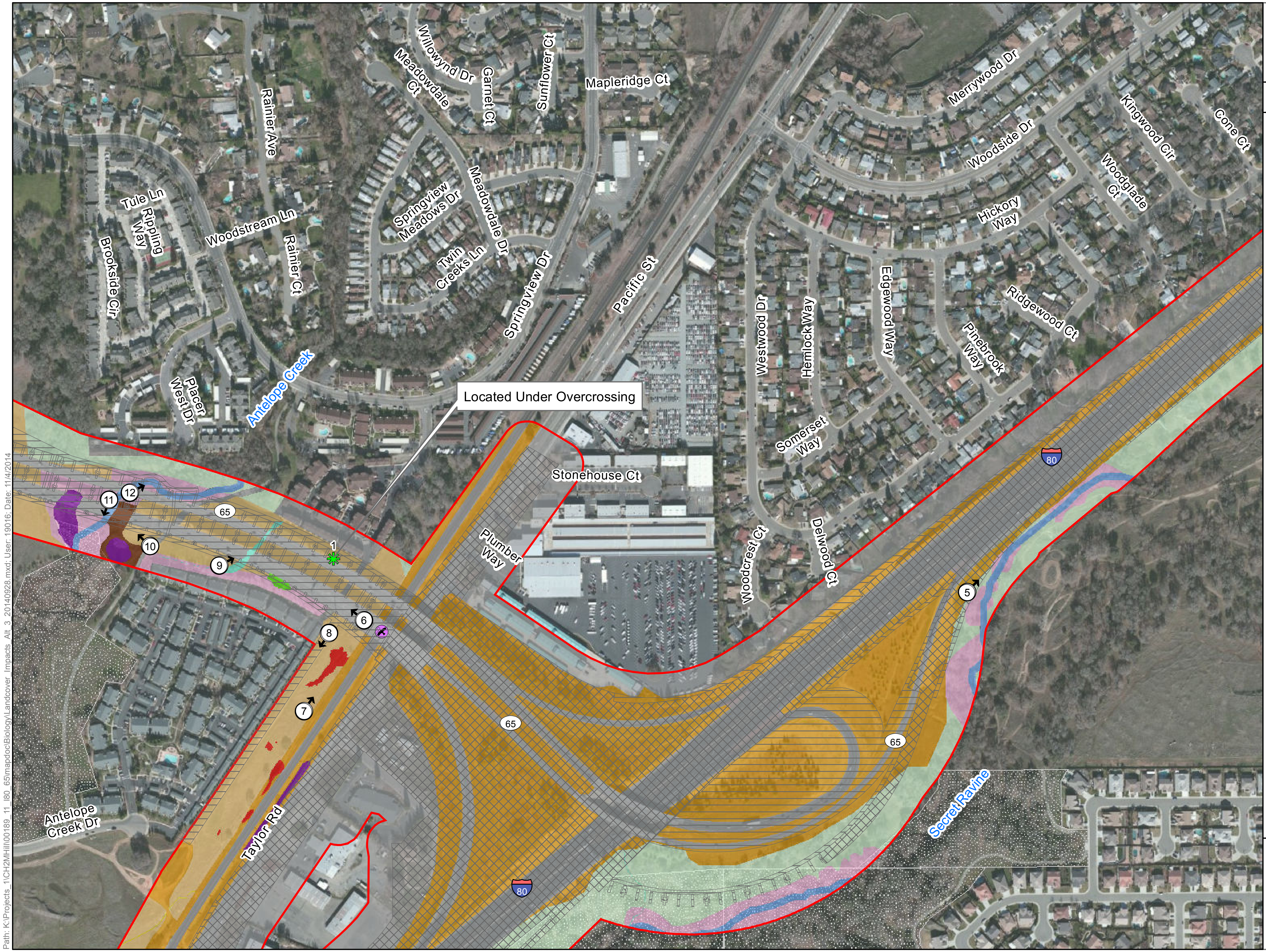



Figure 7c
Biological Resource and Project Impacts
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 3**

- Biological Study Area
- Permanent Impact Area
- Temporary Impact Area
- Photo Points

**Land Cover Types**

- Developed
- Disturbed/Graded
- Annual Grassland
- Oak Woodland
- Riparian Forest
- Perennial Stream
- Intermittent Stream
- Ephemeral Drainage
- Riparian Forest/Shrub Wetland
- Emergent Wetland
- Seasonal Wetland
- Vernal Pool

**Other Sensitive Resources**

- Open Space Preserve - City Owned
- Elderberry Shrub Location
- Active Bat Roosts
- Historical Nesting Site of Purple Martin

7f 7e 7c 7d 7b 7a

N

0 200 400
Feet

**Notes:**

Data Source: ICF Surveys 2013 & 2014
Imagery Source: ESRI 2014

Figure 7d
Biological Resource and Project Impacts
Interstate 80/State Route 65
Interchange Improvements Project

## Alternative 3

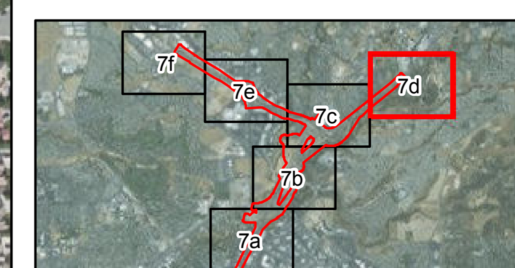

- Biological Study Area
- Permanent Impact Area
- Temporary Impact Area
- Photo Points

**Land Cover Types**

- Developed
- Disturbed/Graded
- Annual Grassland
- Oak Woodland
- Riparian Forest
- Perennial Stream
- Intermittent Stream
- Ephemeral Drainage
- Riparian Forest/Shrub Wetland
- Emergent Wetland
- Seasonal Wetland
- Vernal Pool

**Other Sensitive Resources**

- Open Space Preserve - City Owned
- Elderberry Shrub Location
- Active Bat Roosts
- Historical Nesting Site of Purple Martin

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Feet

**Notes:**

Data Source: ICF Surveys 2013 & 2014
Imagery Source: ESRI 2014

Figure 7e
Biological Resource and Project Impacts
Interstate 80/State Route 65
Interchange Improvements Project

## Alternative 3

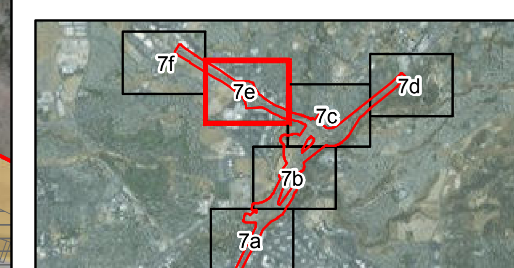

- Biological Study Area
- Permanent Impact Area
- Temporary Impact Area
- Photo Points

**Land Cover Types**

- Developed
- Disturbed/Graded
- Annual Grassland
- Oak Woodland
- Riparian Forest
- Perennial Stream
- Intermittent Stream
- Ephemeral Drainage
- Riparian Forest/Shrub Wetland
- Emergent Wetland
- Seasonal Wetland
- Vernal Pool

**Other Sensitive Resources**

- Open Space Preserve - City Owned
- Elderberry Shrub Location
- Active Bat Roosts
- Historical Nesting Site of Purple Martin

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Feet

**Notes:**

Data Source: ICF Surveys 2013 & 2014
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Figure 7f
Biological Resource and Project Impacts
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 3**

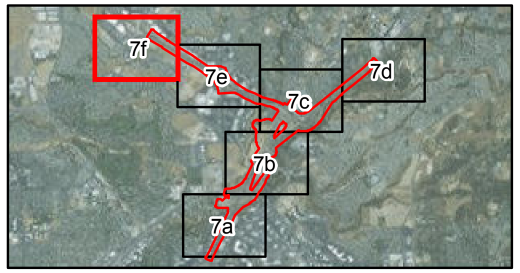

Biological Study Area
Permanent Impact Area
Temporary Impact Area
Photo Points

**Land Cover Types**

Developed
Disturbed/Graded
Annual Grassland
Oak Woodland
Riparian Forest
Perennial Stream
Intermittent Stream
Ephemeral Drainage
Riparian Forest/Shrub Wetland
Emergent Wetland
Seasonal Wetland
Vernal Pool

**Other Sensitive Resources**

Open Space Preserve - City Owned
Elderberry Shrub Location
Active Bat Roosts
Historical Nesting Site of Purple Martin

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Feet

**Notes:**
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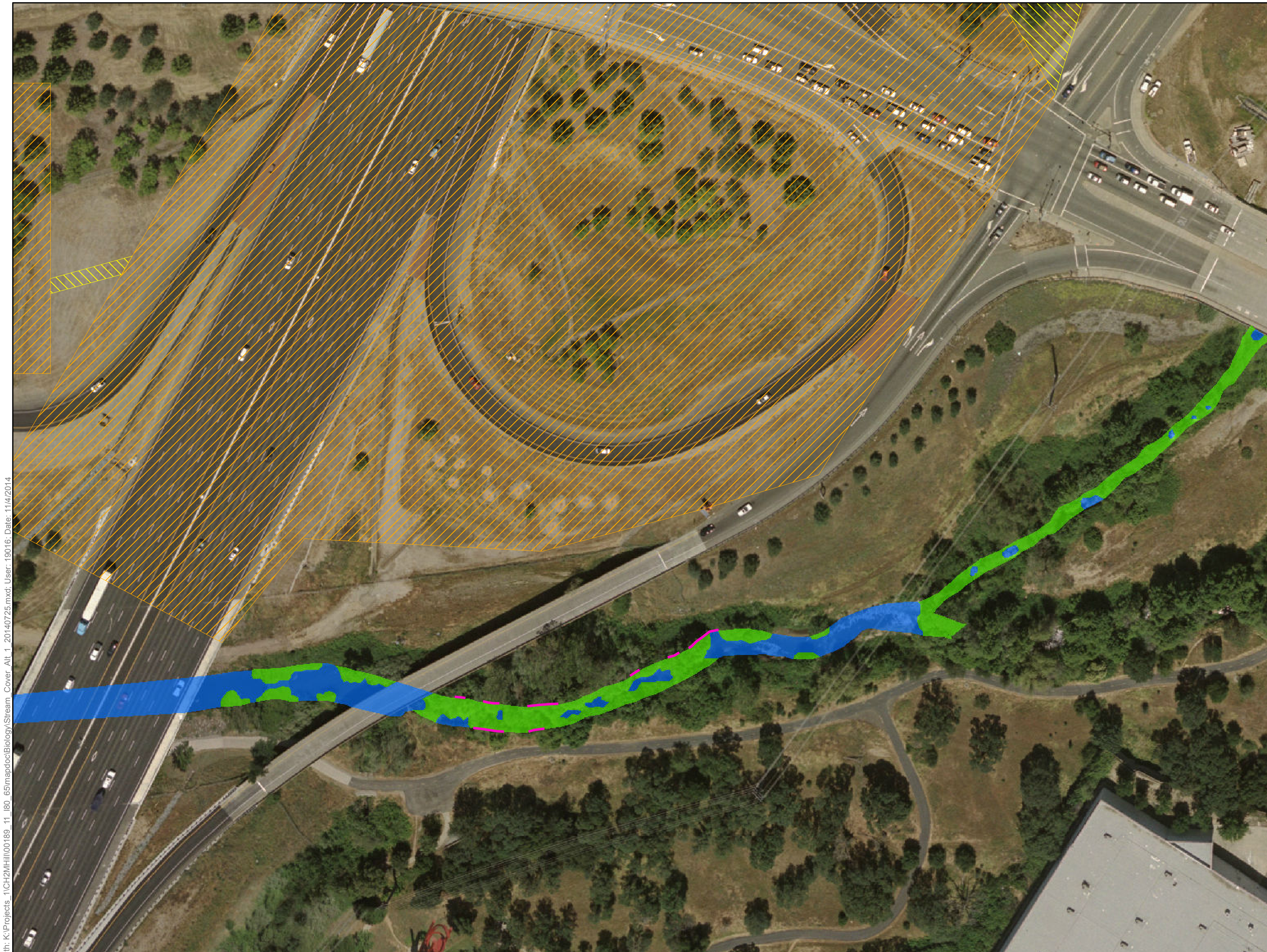
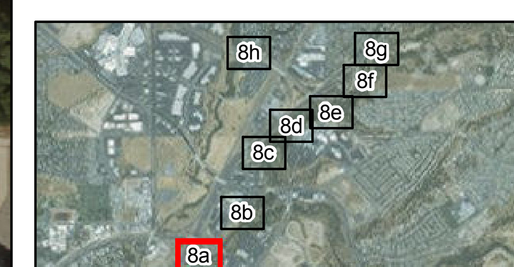
Figure 8a
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 1**



- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank



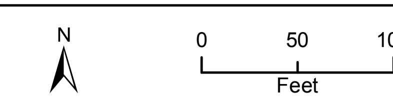




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Figure 8b
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 1**

- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank

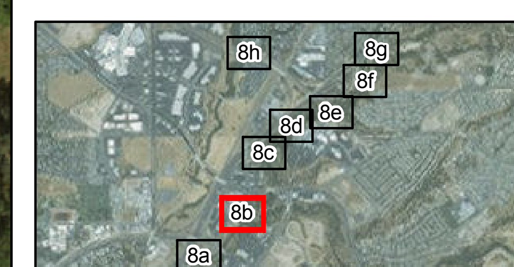


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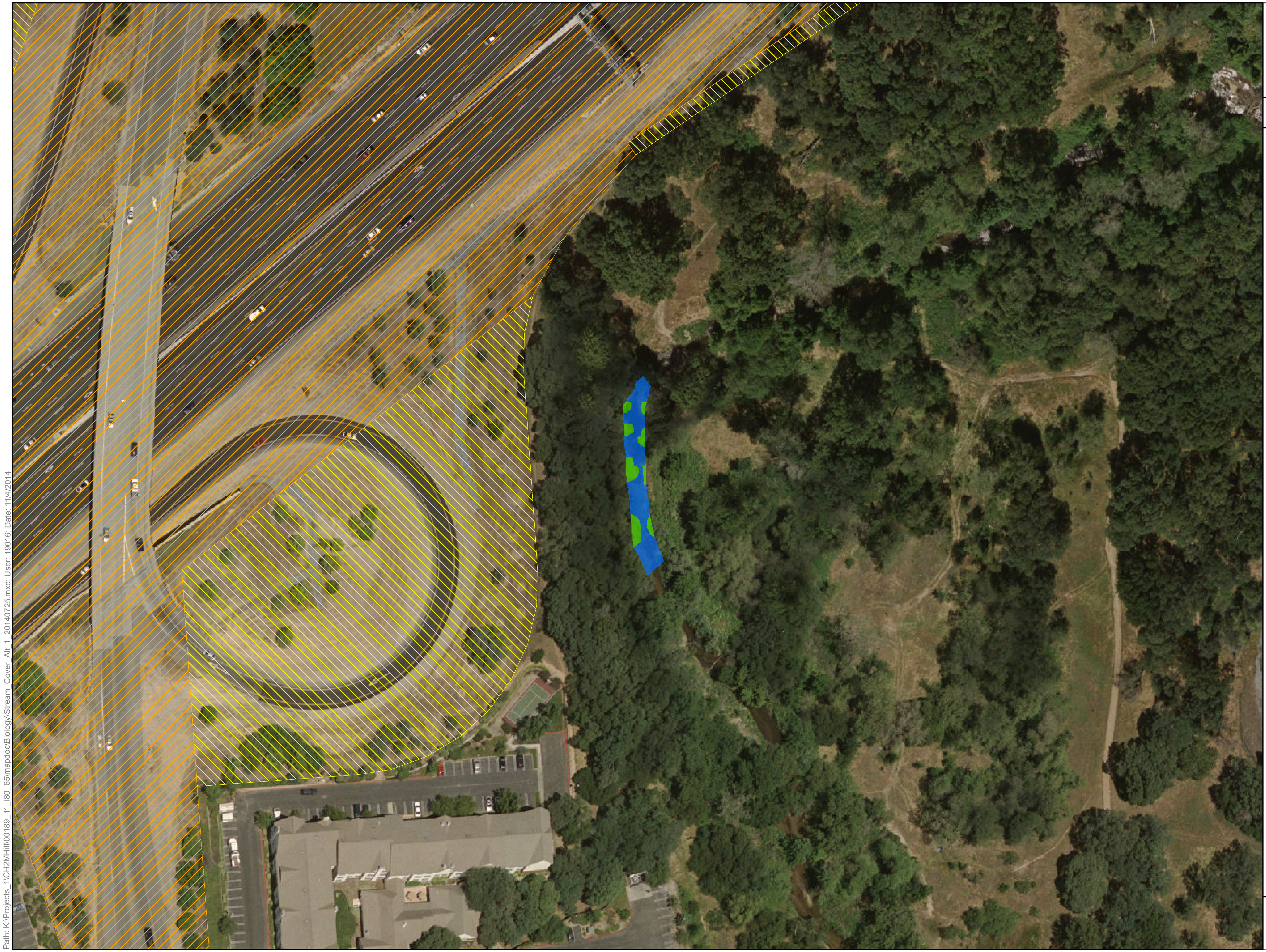
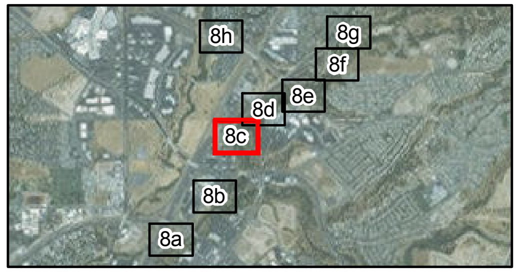
Figure 8c
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 1**

- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank



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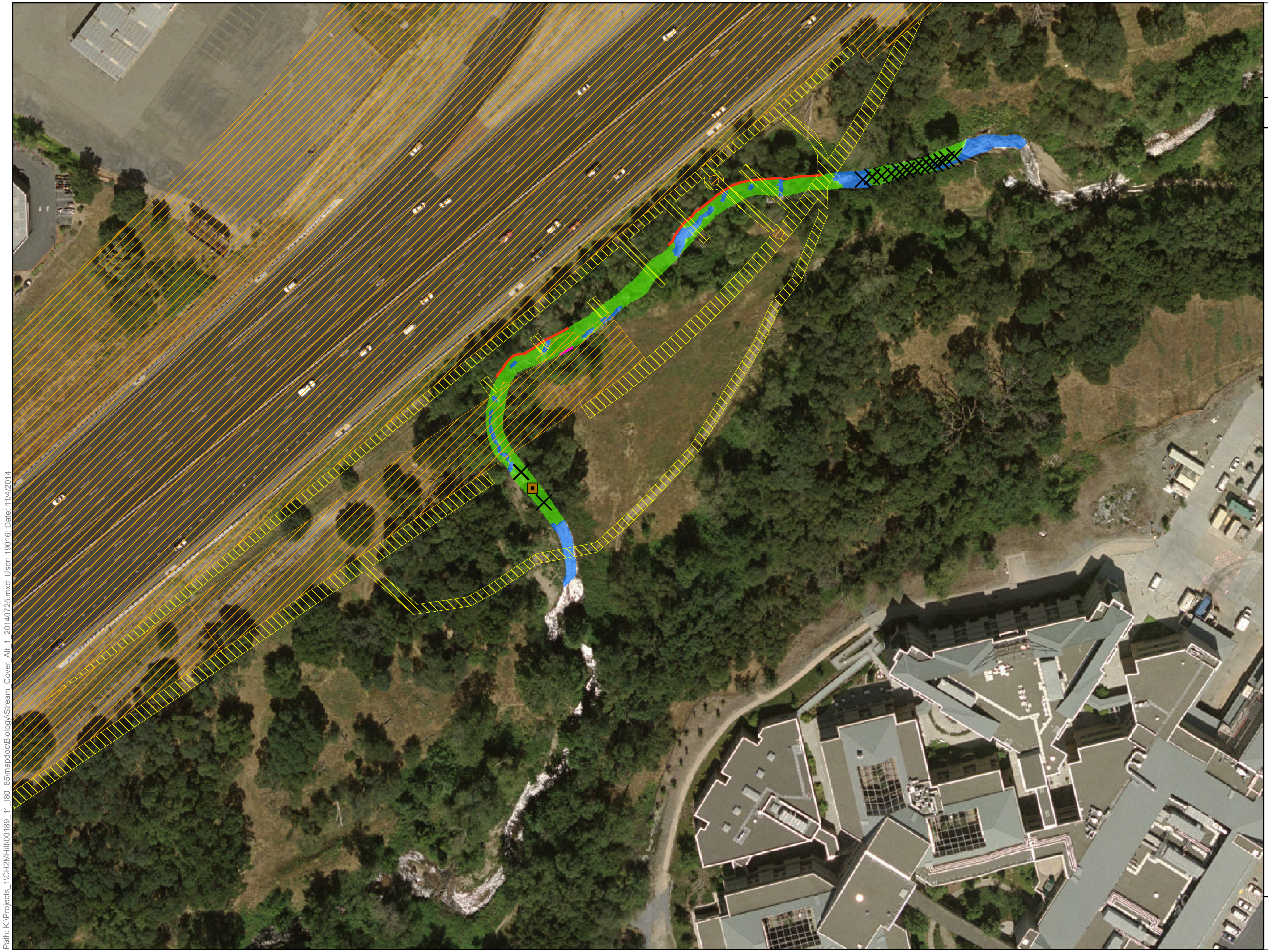
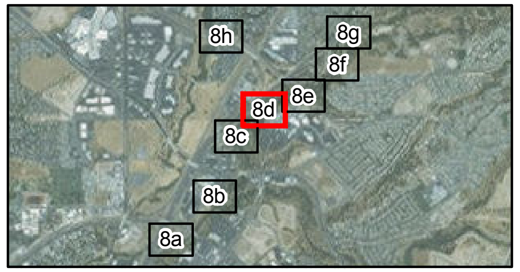


Figure 8d
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

## Alternative 1

- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank



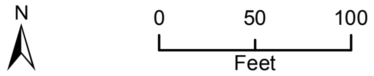




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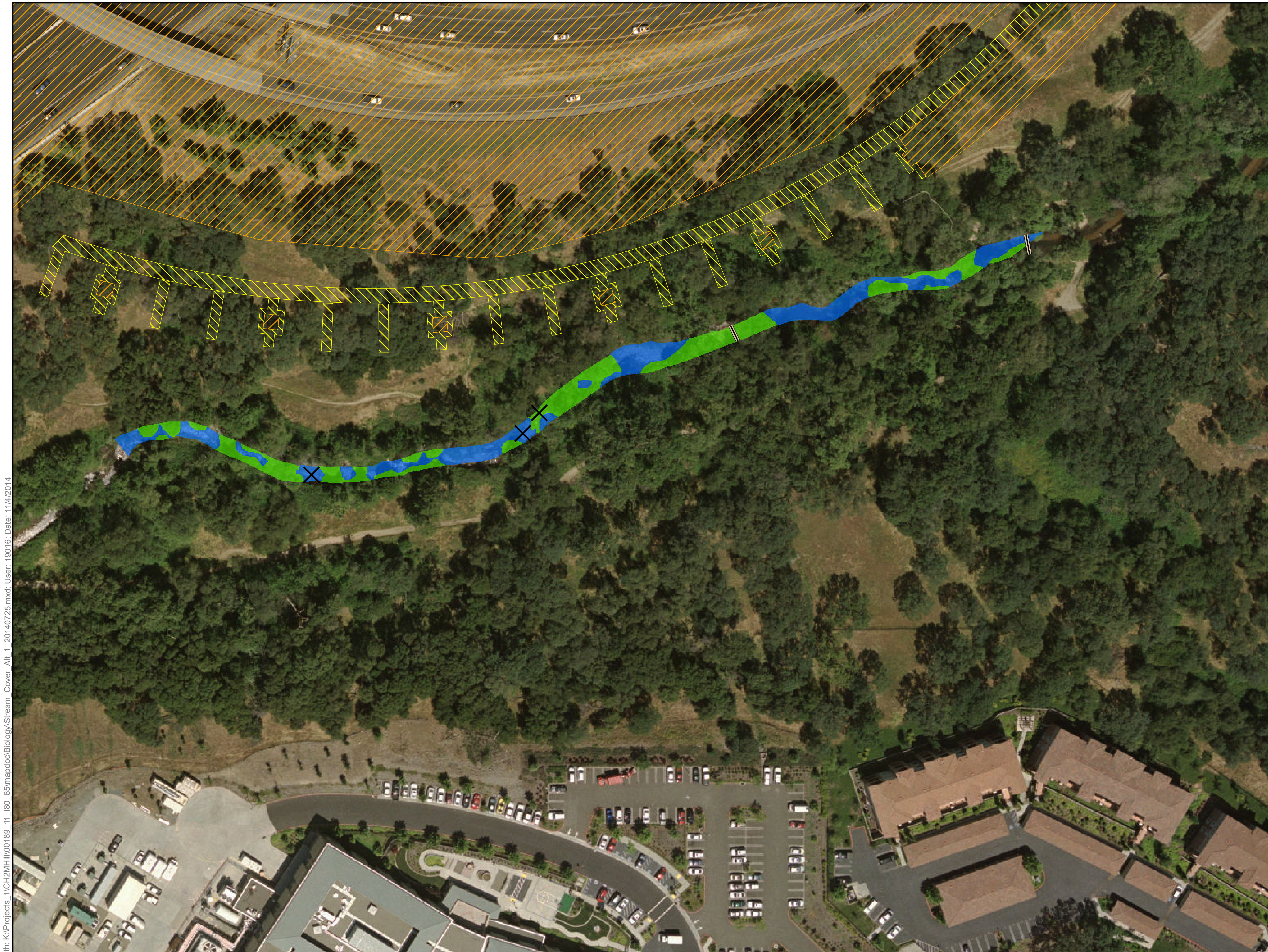
Figure 8e
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 1**



- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank

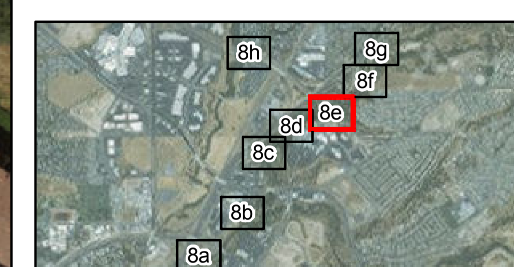



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Figure 8f
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 1**

- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank

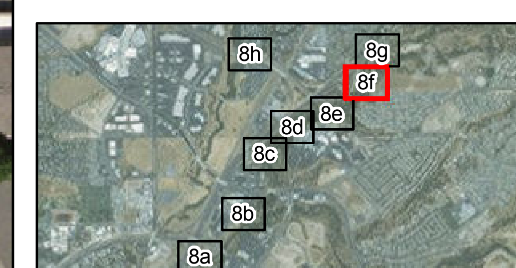


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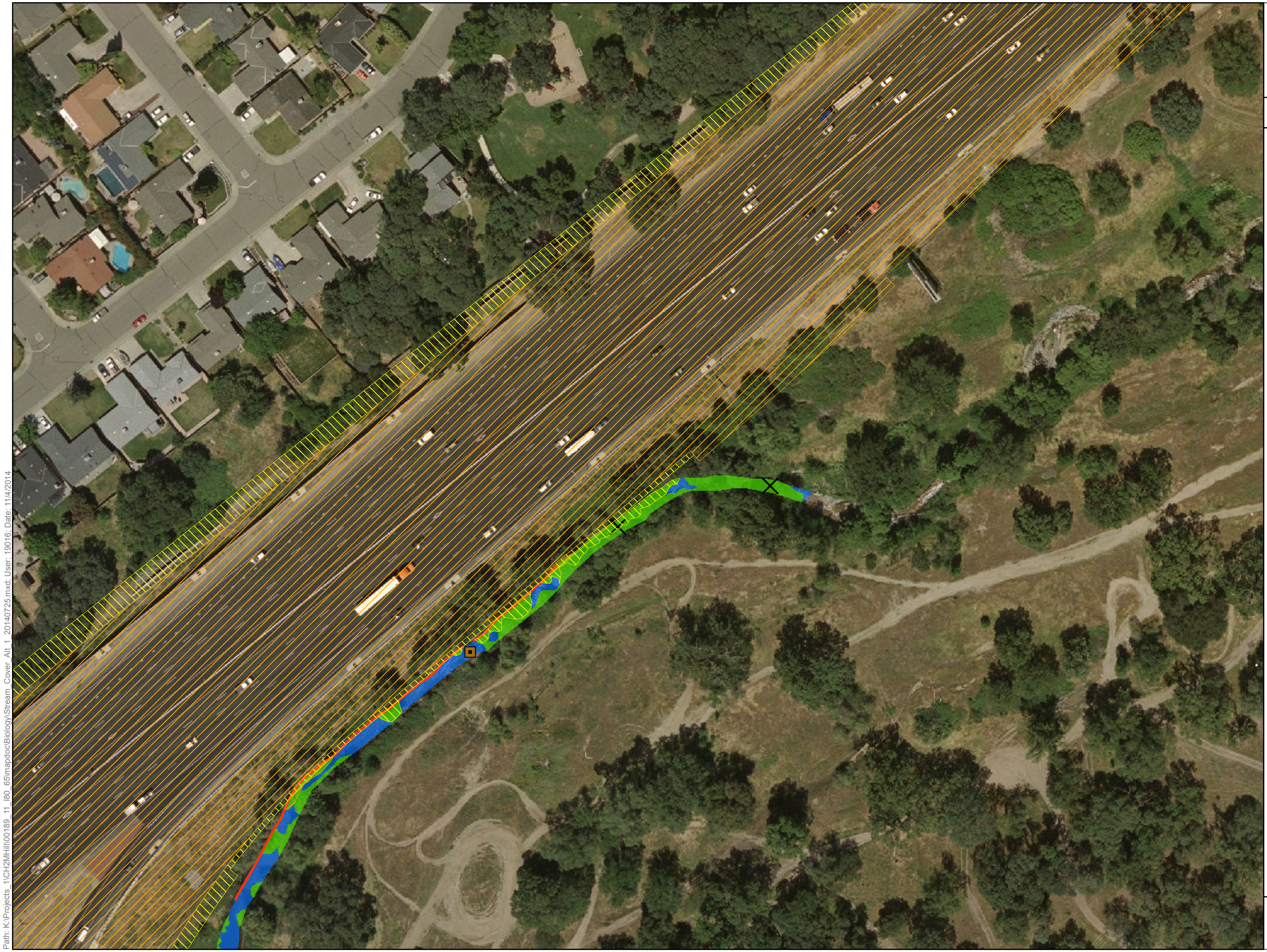
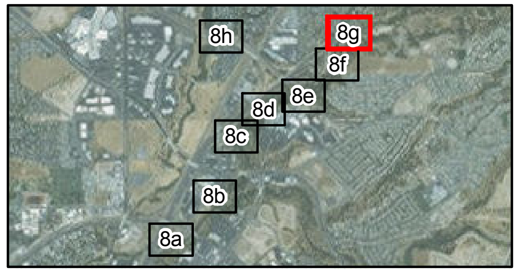
Figure 8g
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 1**



- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank



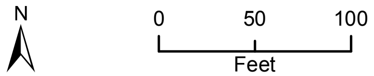




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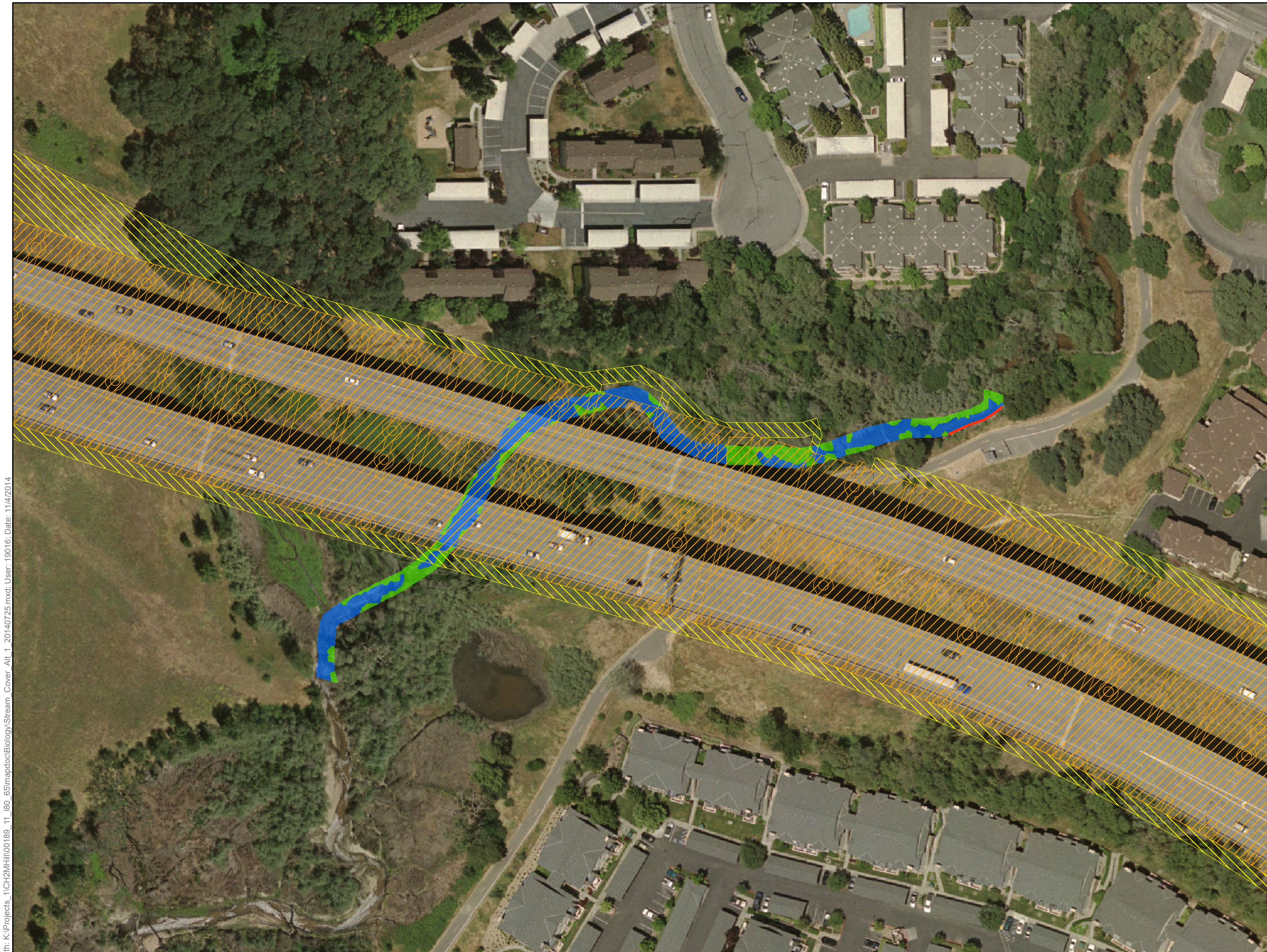
Figure 8h
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 1**

- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank



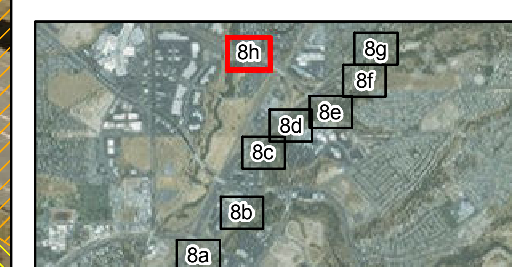



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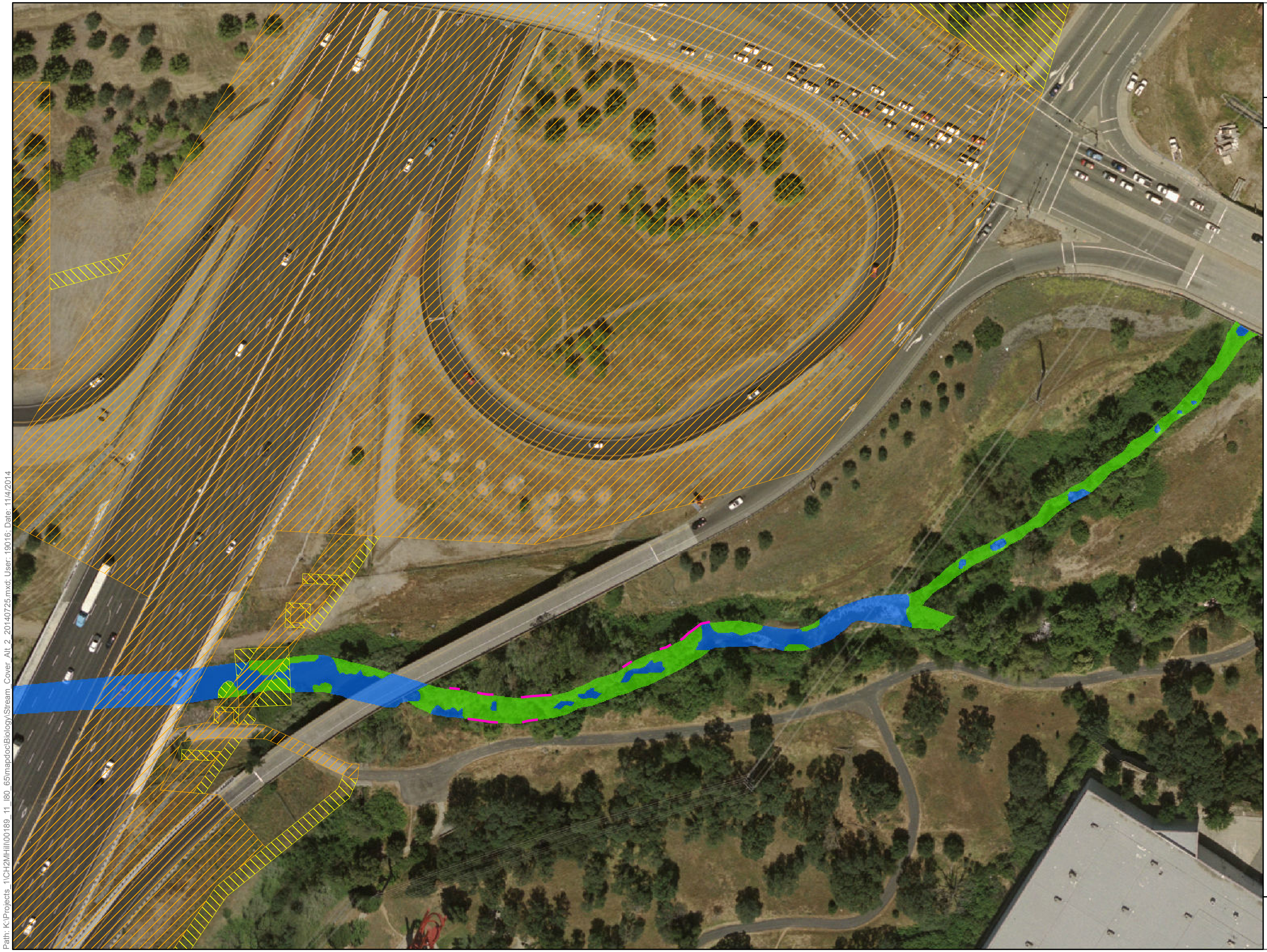
Figure 9a
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 2**

- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank



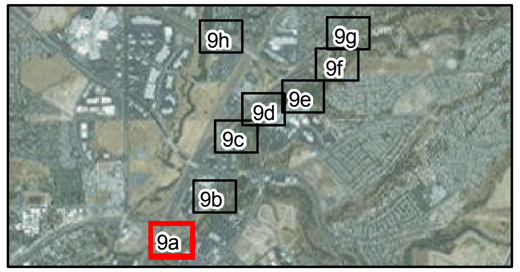



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Figure 9b
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 2**

Permanent Impact Area
Temporary Impact Area
Open Water
SRA Cover
Gravels
Instream Woody Material
Beaver Dam
Rip Rap
Undercut Bank

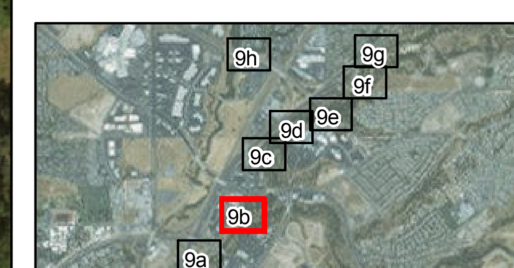


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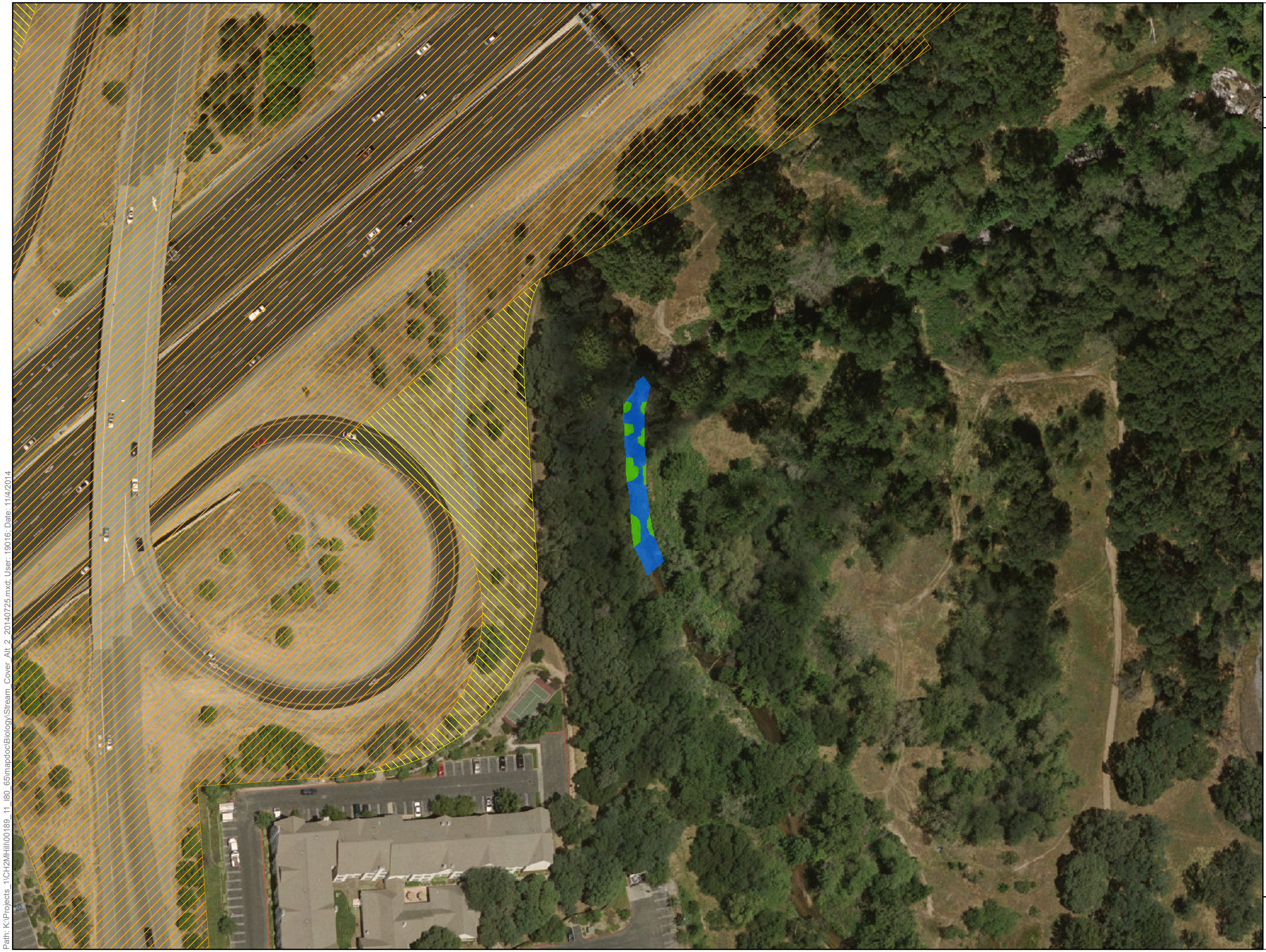
Figure 9c
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 2**



- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank

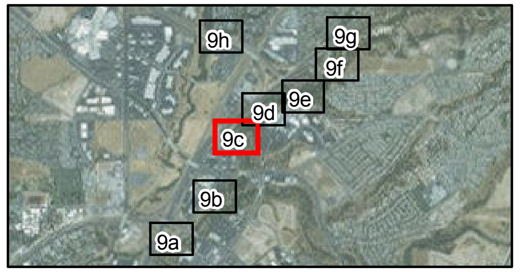



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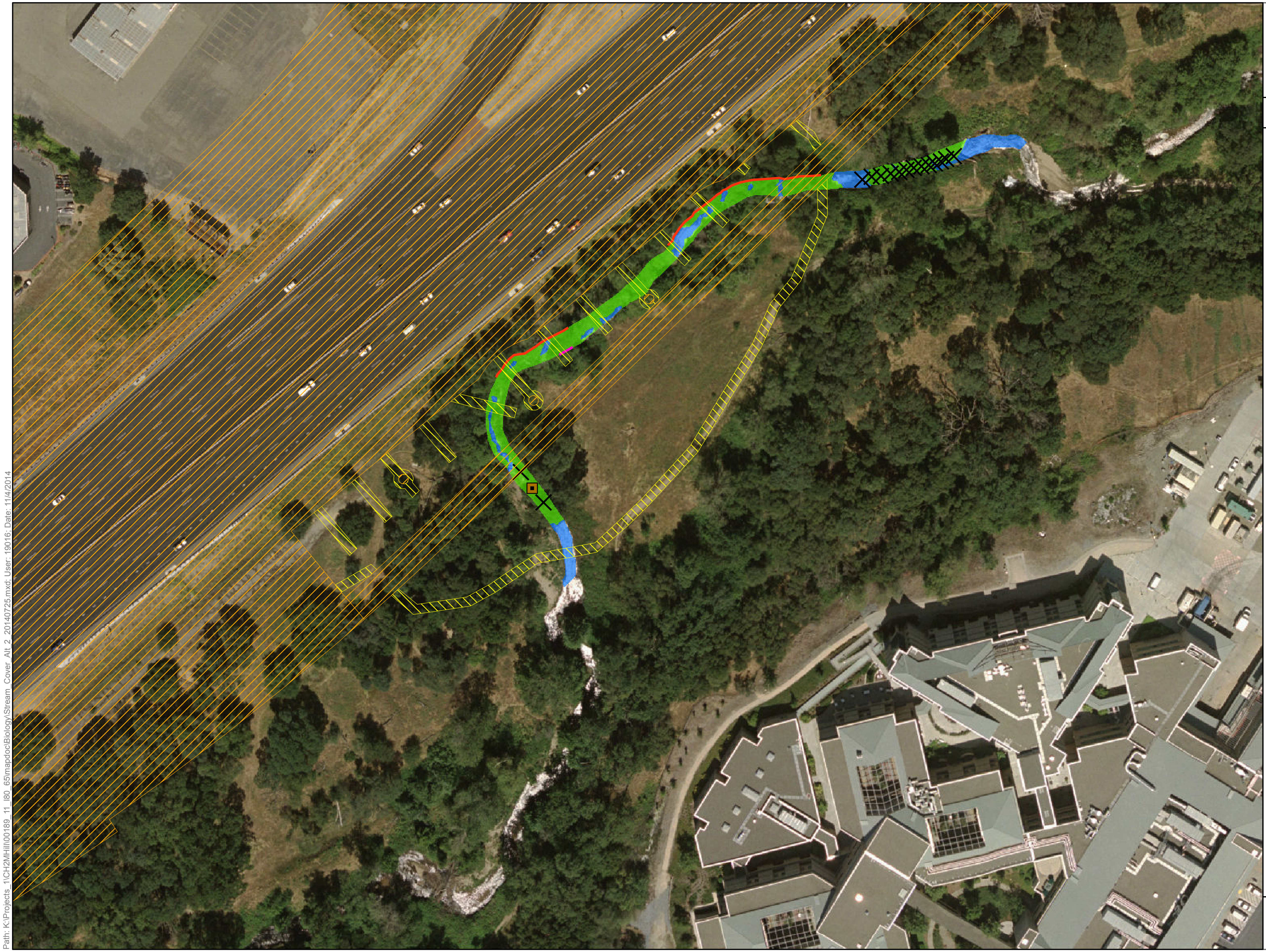
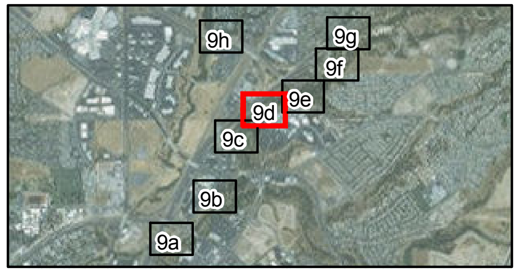
Figure 9d
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65 Interchange Improvements Project

**Alternative 2**



Permanent Impact Area
Temporary Impact Area
Open Water
SRA Cover
Gravels
Instream Woody Material
Beaver Dam
Rip Rap
Undercut Bank

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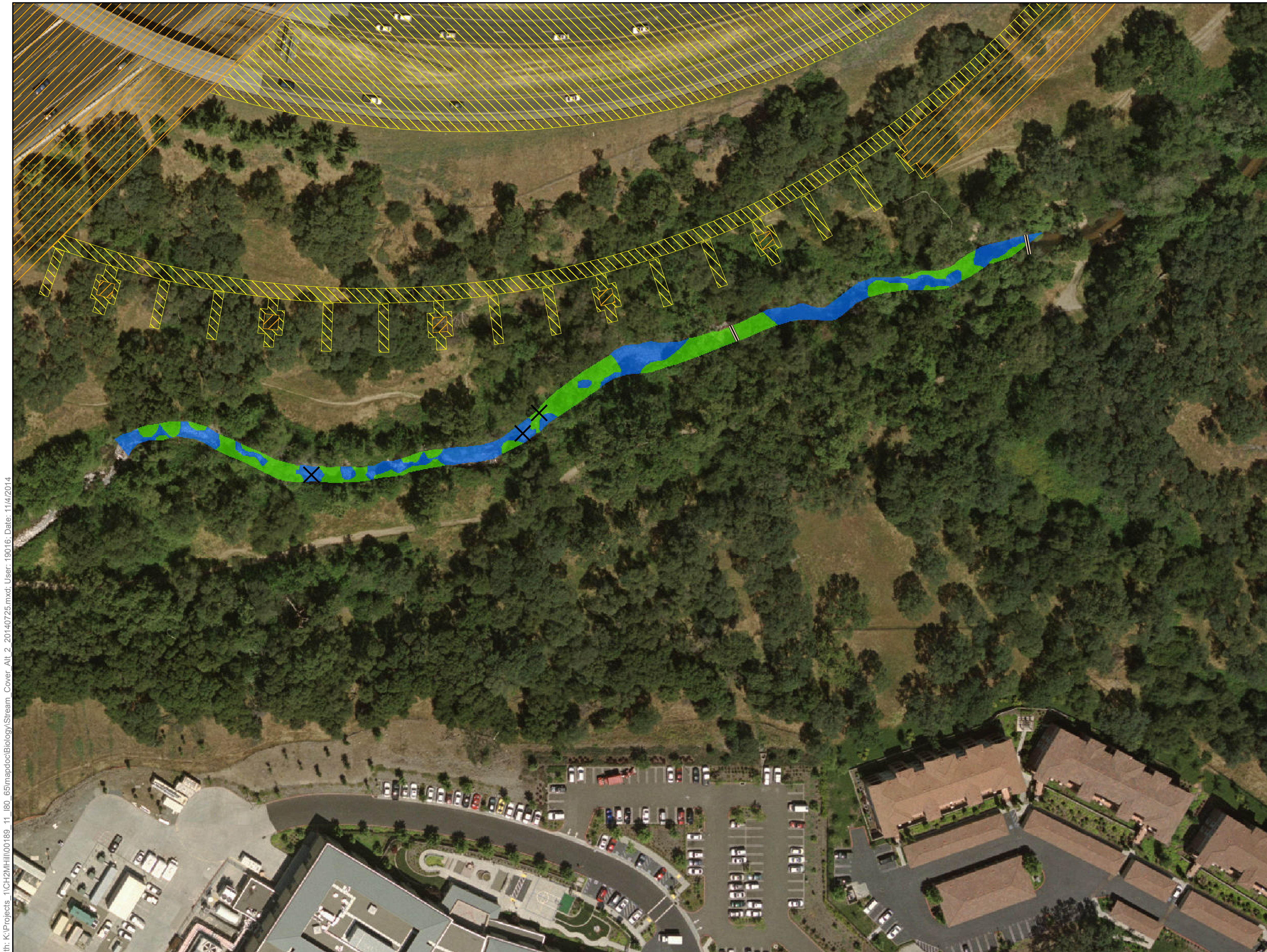
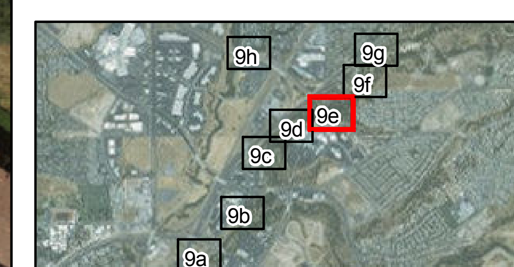


Figure 9e
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 2**

Permanent Impact Area
Temporary Impact Area
Open Water
SRA Cover
Gravels
Instream Woody Material
Beaver Dam
Rip Rap
Undercut Bank



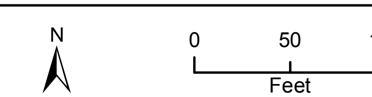




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Figure 9f
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 2**

- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank

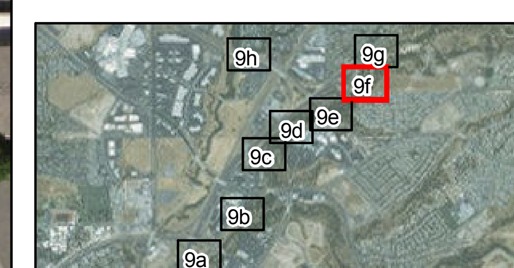


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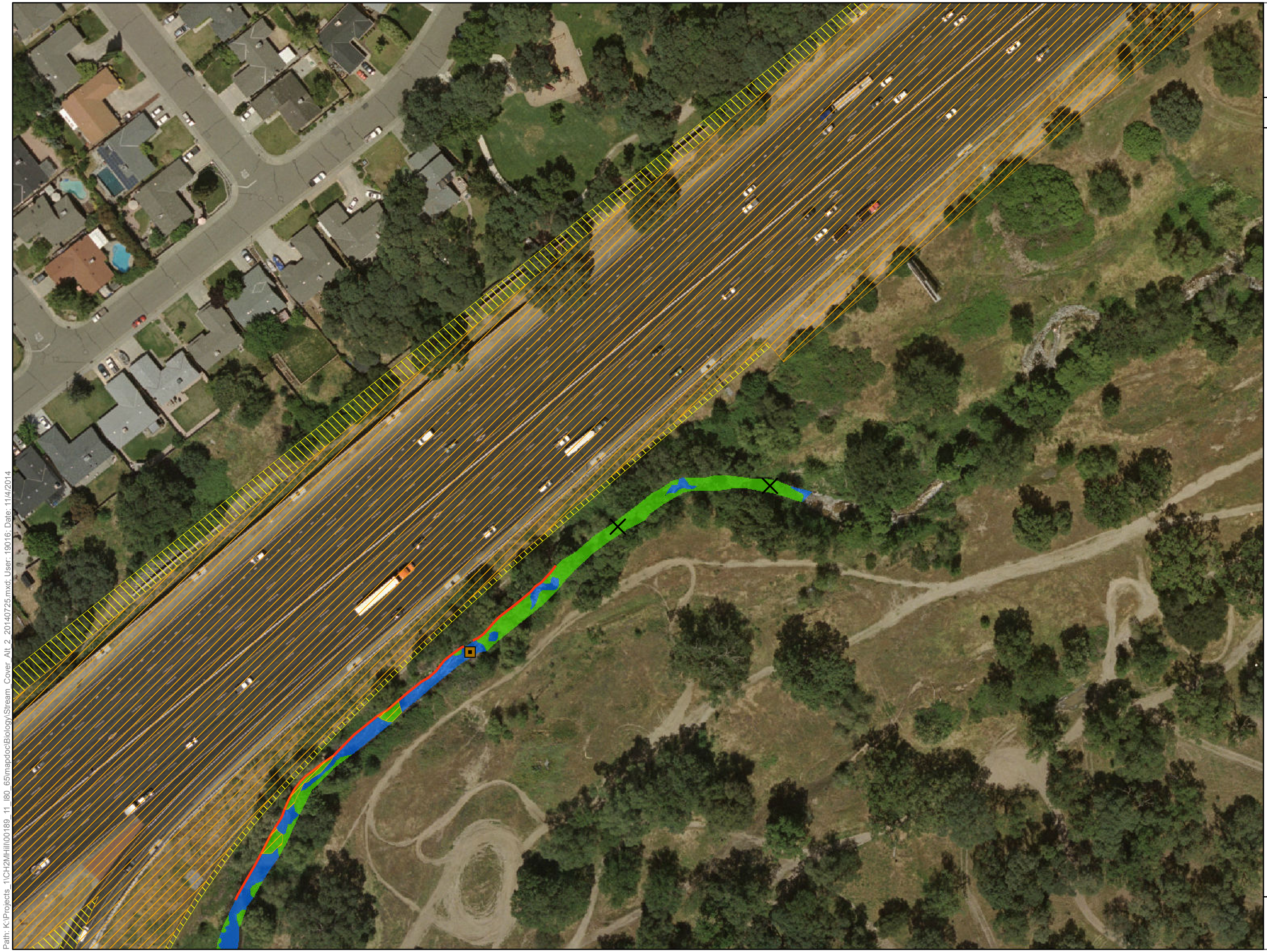
Figure 9g
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 2**



- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank

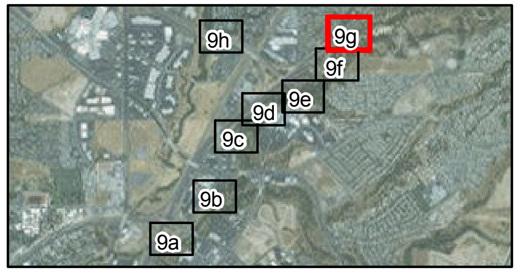



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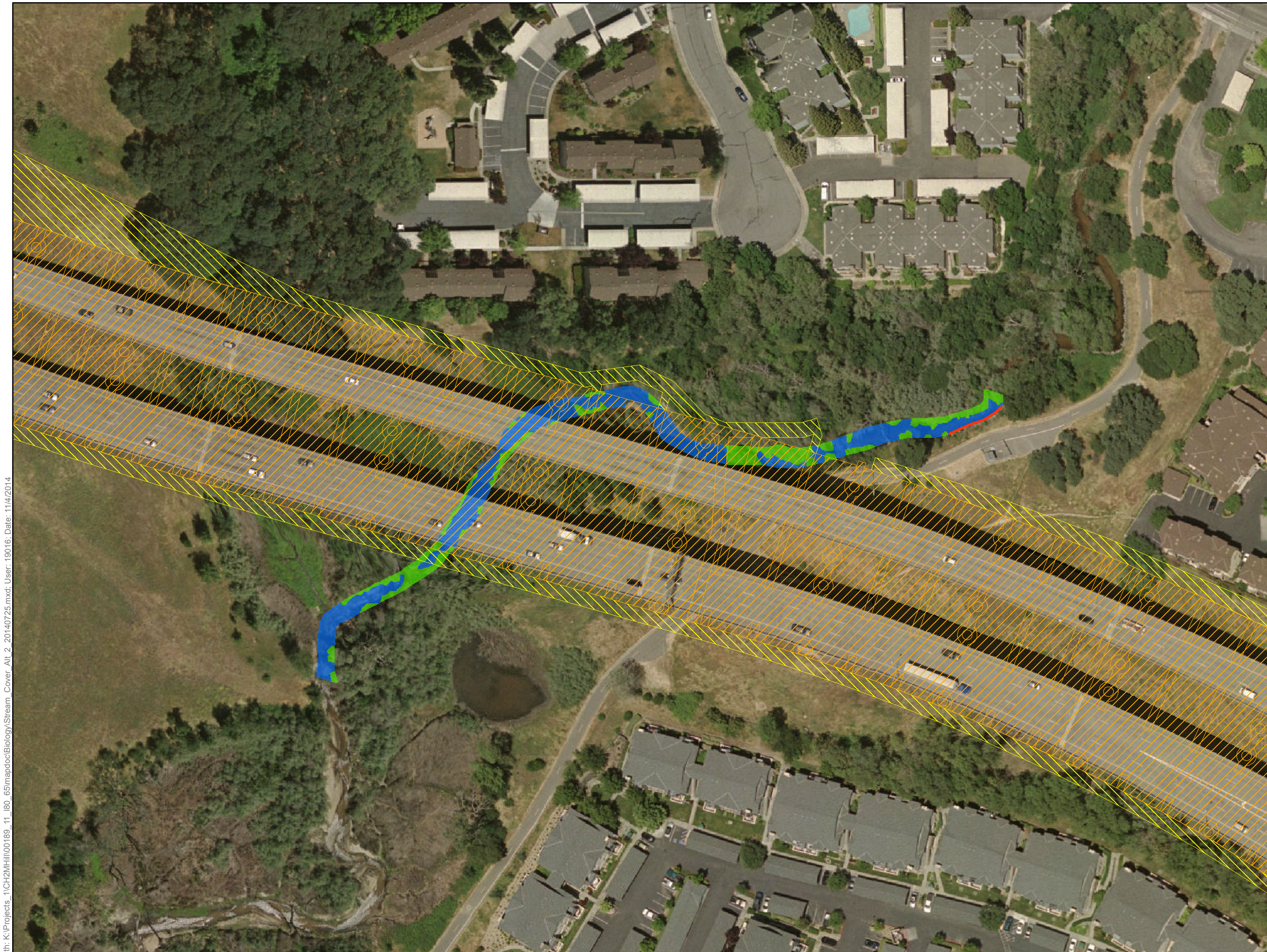
Figure 9h
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project



**Alternative 2**

- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank

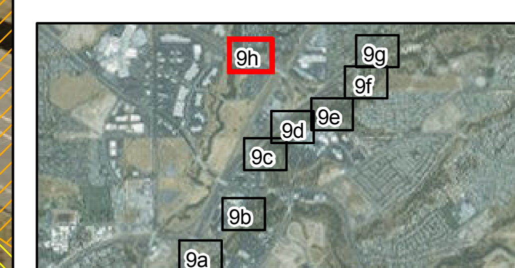



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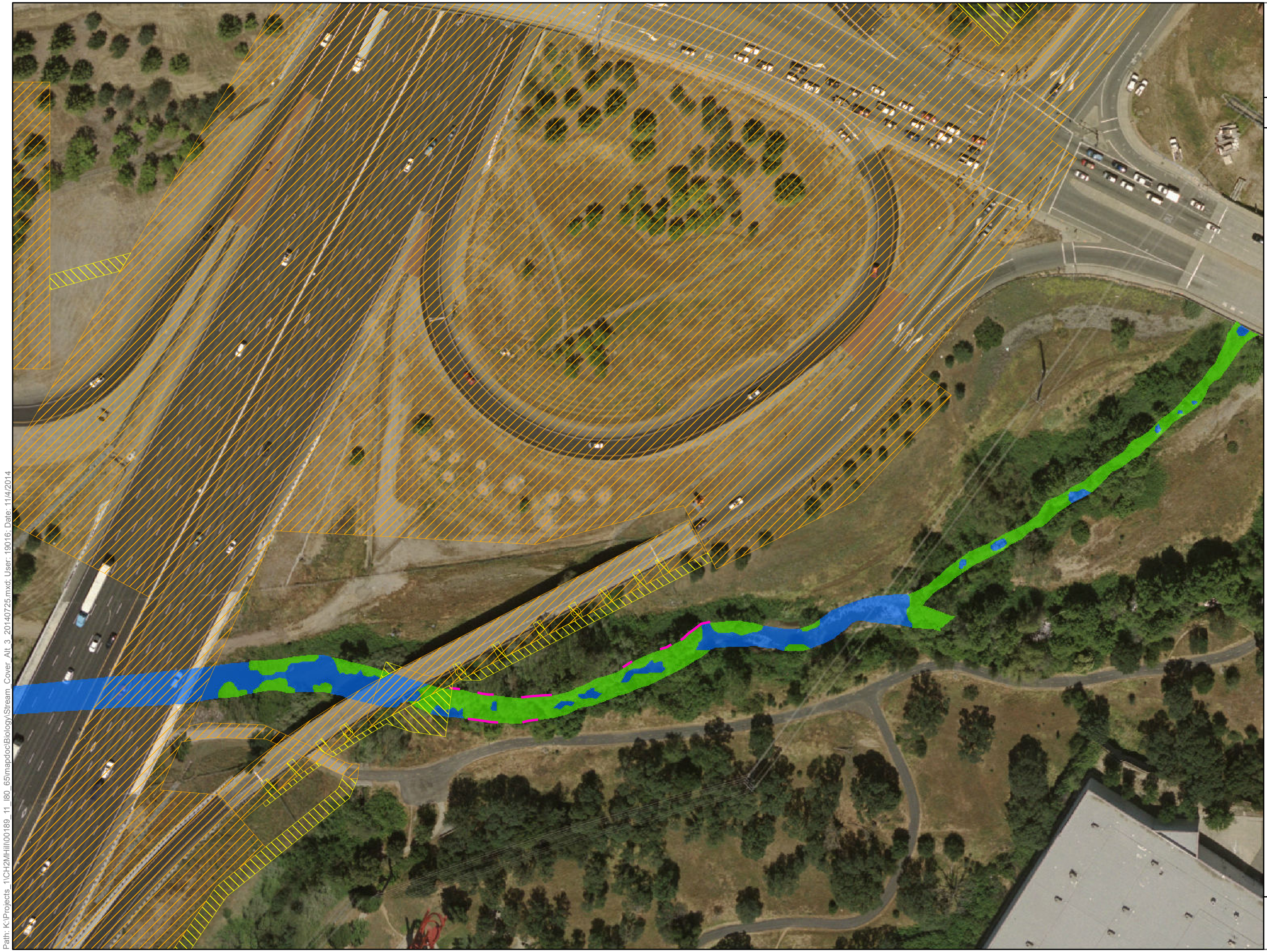
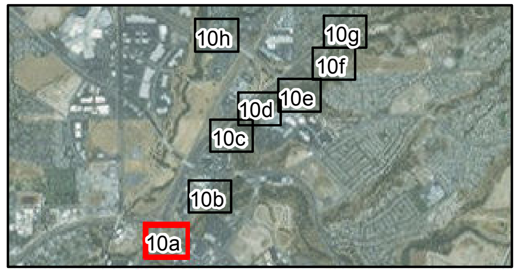
Figure 10a
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 3**



- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank



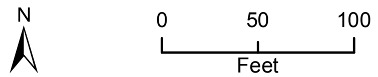




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Figure 10b
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 3**

- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank

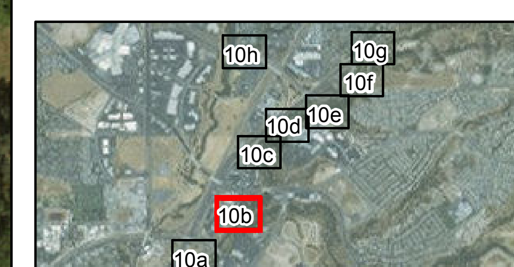


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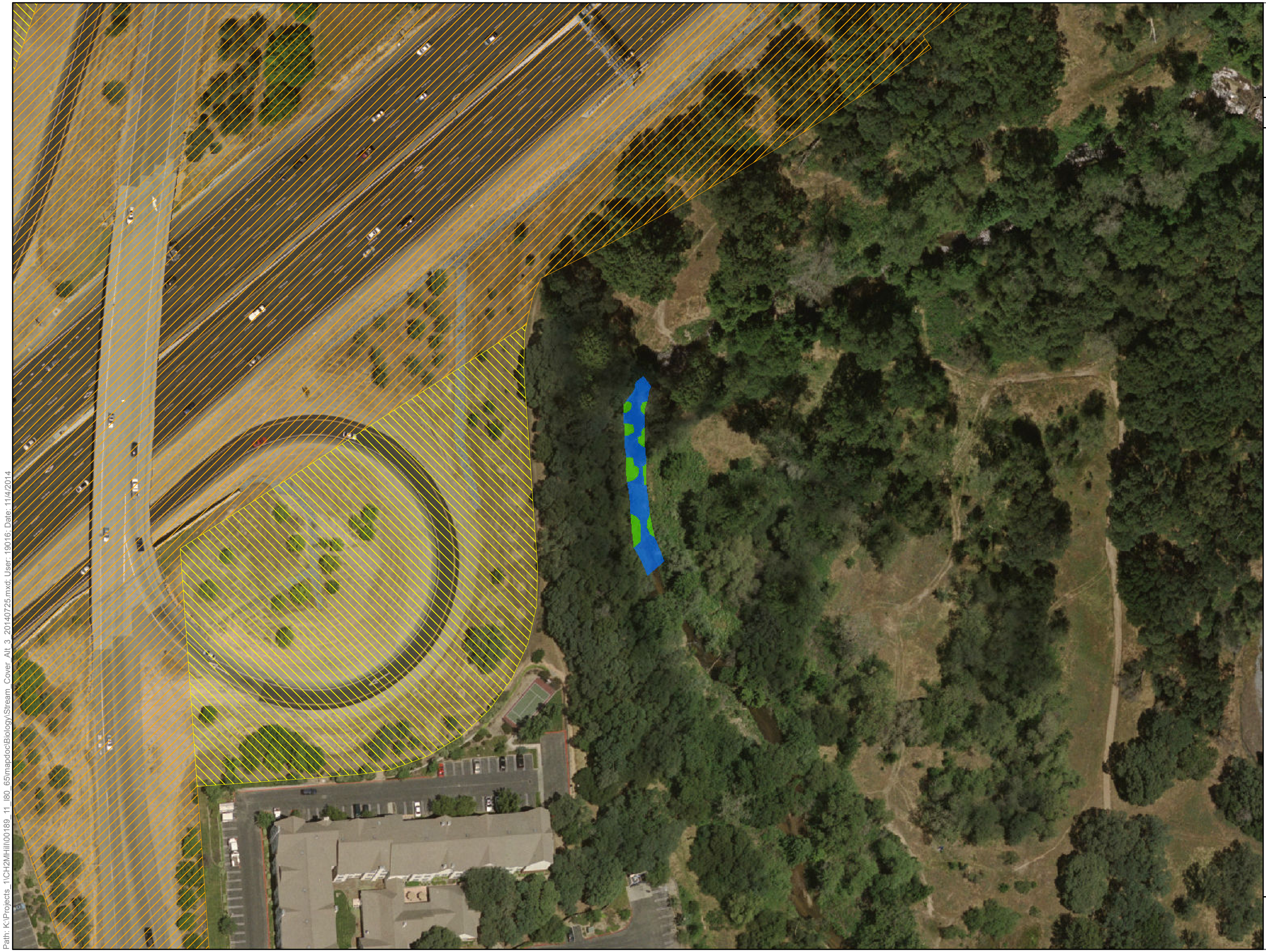
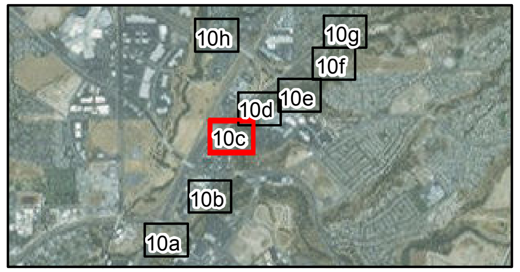
Figure 10c
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 3**



- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank

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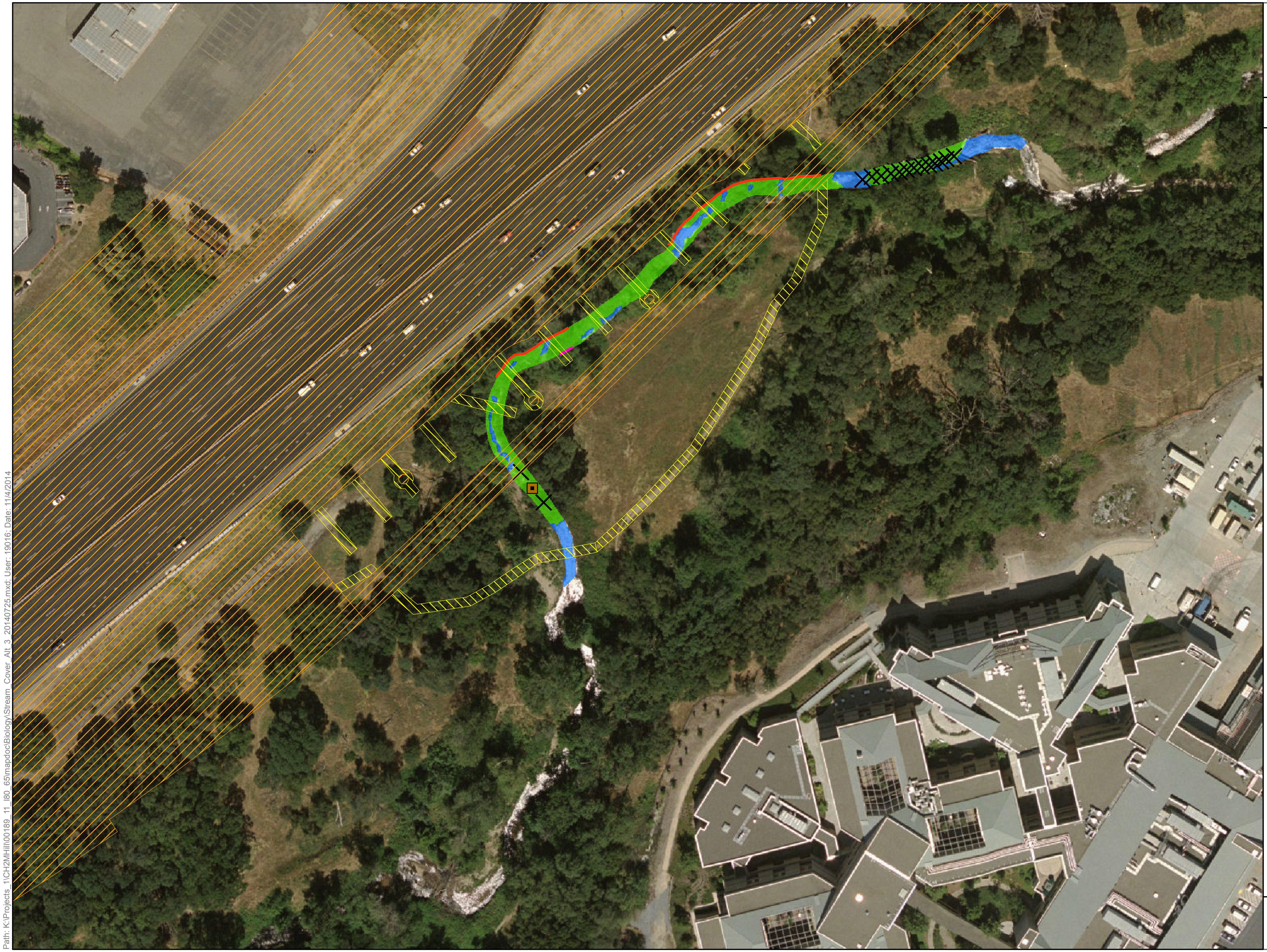

Figure 10d
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 3**

- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank

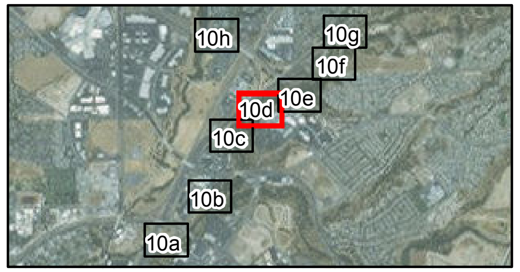


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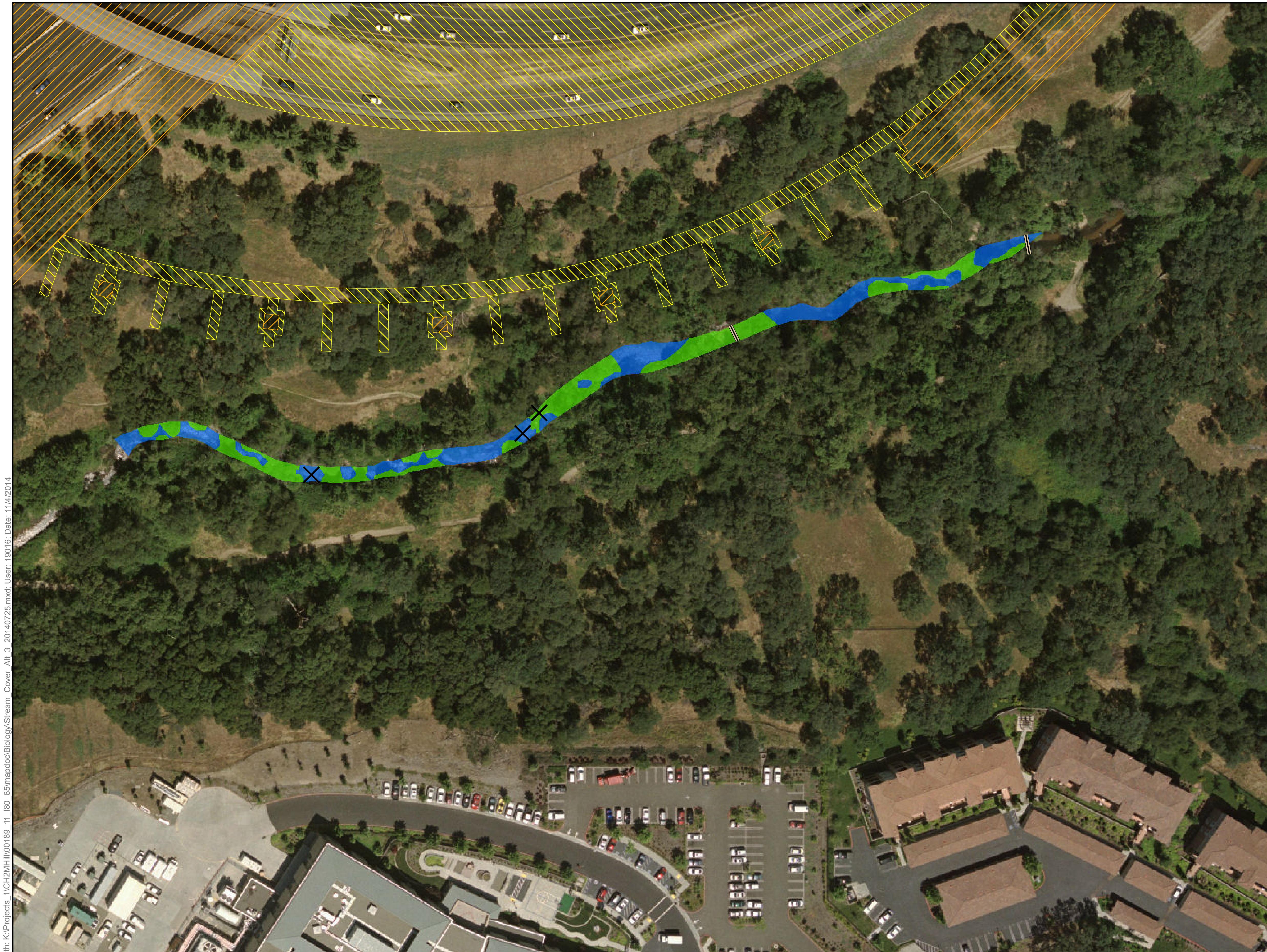
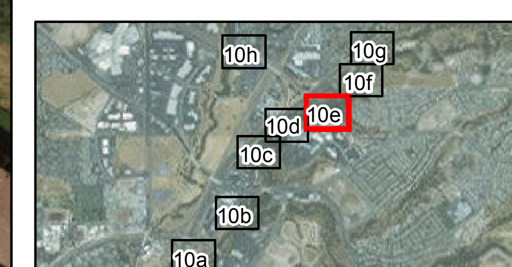
Figure 10e
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 3**

- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank



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Feet

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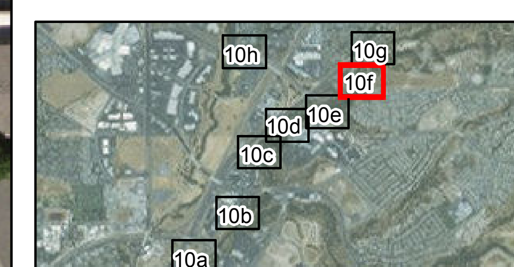
Figure 10f
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 3**

Permanent Impact Area
Temporary Impact Area
Open Water
SRA Cover
Gravels
Instream Woody Material
Beaver Dam
Rip Rap
Undercut Bank

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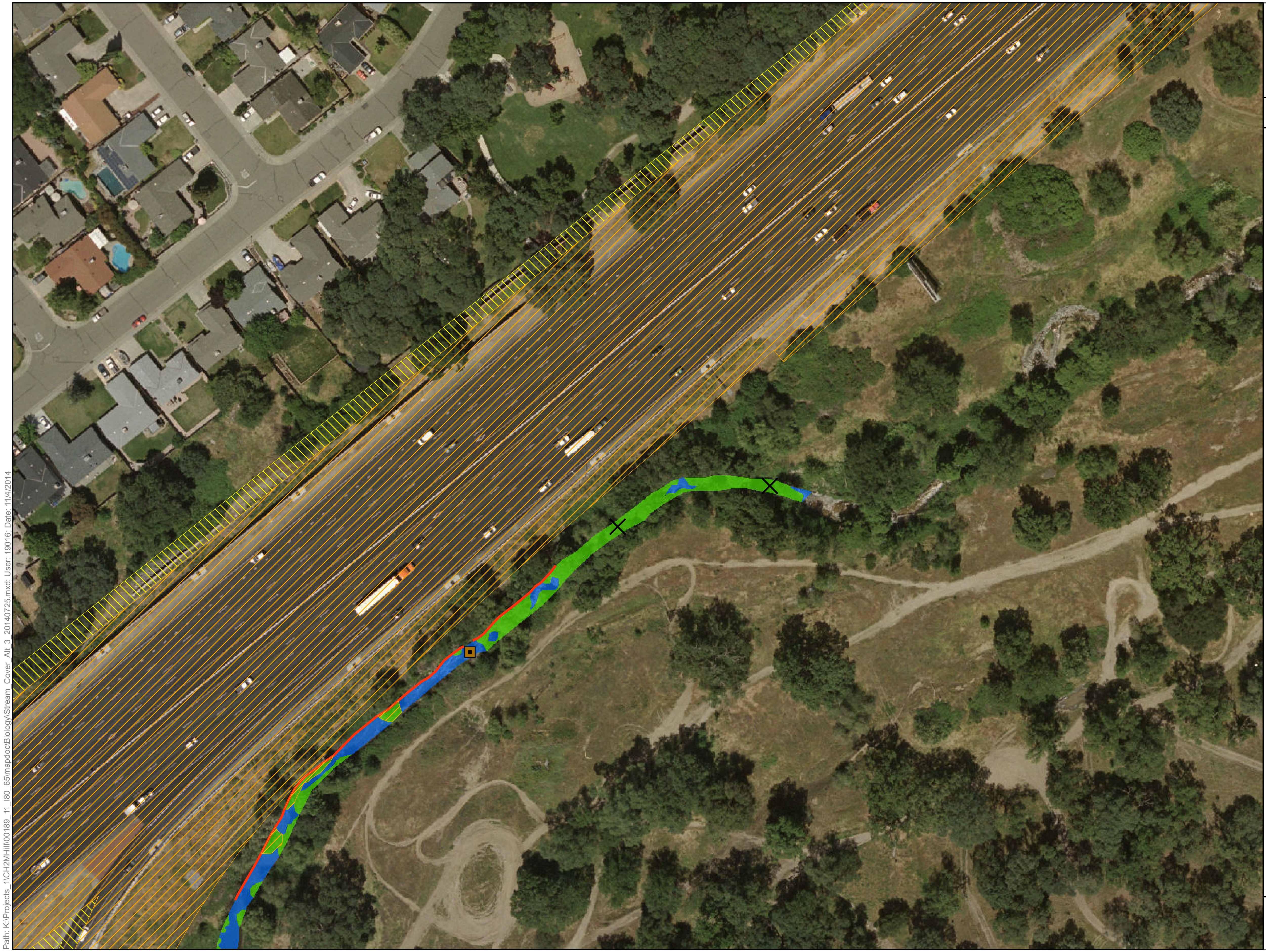
Feet

Figure 10g
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 3**



- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank

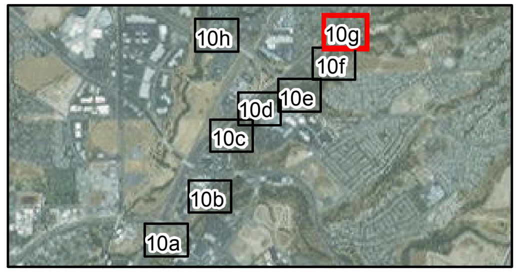



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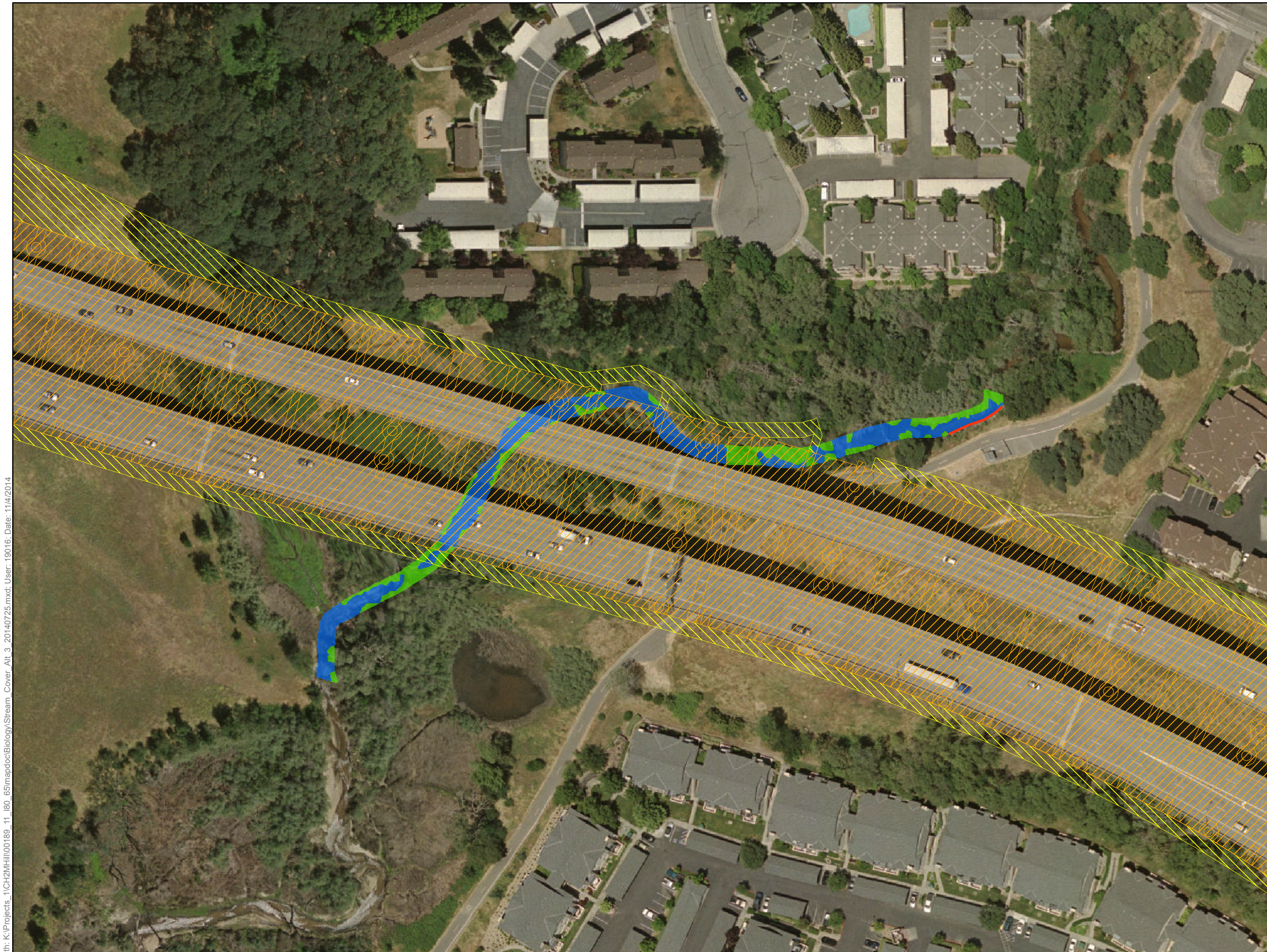
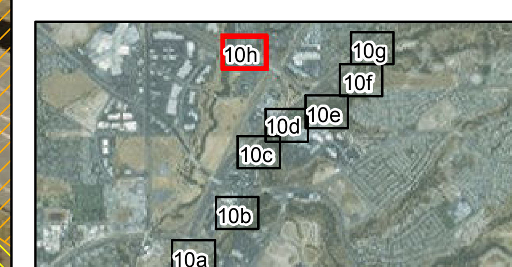
Figure 10h
Impacts to Existing Shaded Riverine Aquatic Cover In The Biological Study Area
Interstate 80/State Route 65
Interchange Improvements Project

**Alternative 3**



- Permanent Impact Area
- Temporary Impact Area
- Open Water
- SRA Cover
- Gravels
- Instream Woody Material
- Beaver Dam
- Rip Rap
- Undercut Bank

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# Appendix B Database Search and Species Lists

| | Scientific Name/Common Name | Element Code | Federal Status | State Status | GRank | SRank | CDFG or CNPS |
|---|---|---|---|---|---|---|---|
| 1 | Accipiter cooperii<br>Cooper's hawk | ABNKC12040 | | | G5 | S3 | |
| 2 | Agelaius tricolor<br>tricolored blackbird | ABPBXB0020 | | | G2G3 | S1S2 | SC |
| 3 | Alkali Meadow | CTT45310CA | | | G3 | S2.1 | |
| 4 | Alkali Seep | CTT45320CA | | | G3 | S2.1 | |
| 5 | Ammodramus savannarum<br>grasshopper sparrow | ABPBXA0020 | | | G5 | S2 | SC |
| 6 | Andrena subapasta<br>vernal pool andrenid bee | IIHYM35210 | | | G1G3 | S1S3 | |
| 7 | Antrozous pallidus<br>pallid bat | AMACC10010 | | | G5 | S3 | SC |
| 8 | Ardea alba<br>great egret | ABNGA04040 | | | G5 | S4 | |
| 9 | Ardea herodias<br>great blue heron | ABNGA04010 | | | G5 | S4 | |
| 10 | Athene cunicularia<br>burrowing owl | ABNSB10010 | | | G4 | S3 | SC |
| 11 | Balsamorhiza macrolepis<br>big-scale balsamroot | PDAST11061 | | | G2 | S2 | 1B.2 |
| 12 | Branchinecta conservatio<br>Conservancy fairy shrimp | ICBRA03010 | Endangered | | G1 | S1 | |
| 13 | Branchinecta lynchi<br>vernal pool fairy shrimp | ICBRA03030 | Threatened | | G3 | S2S3 | |
| 14 | Buteo swainsoni<br>Swainson's hawk | ABNKC19070 | | Threatened | G5 | S3 | |
| 15 | Chloropyron molle ssp. hispidum<br>hispid salty bird's-beak | PDSCR0J0D1 | | | G2T2 | S2 | 1B.1 |
| 16 | Clarkia biloba ssp. brandegeeae<br>Brandegee's clarkia | PDONA05053 | | | G4G5T4 | S4 | 4.2 |
| 17 | Corynorhinus townsendii<br>Townsend's big-eared bat | AMACC08010 | | Candidate Threatened | G3G4 | S2S3 | SC |
| 18 | Desmocerus californicus dimorphus<br>valley elderberry longhorn beetle | IICOL48011 | Threatened | | G3T2 | S2 | |
| 19 | Downingia pusilla<br>dwarf downingia | PDCAM060C0 | | | GU | S2 | 2B.2 |
| 20 | Elanus leucurus<br>white-tailed kite | ABNKC06010 | | | G5 | S3 | |
| 21 | Emys marmorata<br>western pond turtle | ARAAD02030 | | | G3G4 | S3 | SC |
| 22 | Falco columbarius<br>merlin | ABNKD06030 | | | G5 | S3 | |
| 23 | Fritillaria agrestis<br>stinkbells | PMLIL0V010 | | | G3 | S3.2 | 4.2 |

| | Scientific Name/Common Name | Element Code | Federal Status | State Status | GRank | SRank | CDFG or CNPS |
|---|---|---|---|---|---|---|---|
| 24 | Gratiola heterosepala<br>Boggs Lake hedge-hyssop | PDSCR0R060 | | Endangered | G2 | S2 | 1B.2 |
| 25 | Hydrochara rickseckeri<br>Ricksecker's water scavenger beetle | IICOL5V010 | | | G1G2 | S1S2 | |
| 26 | Juncus leiospermus var. ahartii<br>Ahart's dwarf rush | PMJUN011L1 | | | G2T1 | S1 | 1B.2 |
| 27 | Juncus leiospermus var. leiospermus<br>Red Bluff dwarf rush | PMJUN011L2 | | | G2T2 | S2 | 1B.1 |
| 28 | Lasionycteris noctivagans<br>silver-haired bat | AMACC02010 | | | G5 | S3S4 | |
| 29 | Laterallus jamaicensis coturniculus<br>California black rail | ABNME03041 | | Threatened | G4T1 | S1 | |
| 30 | Legenere limosa<br>legenere | PDCAM0C010 | | | G2 | S2 | 1B.1 |
| 31 | Lepidurus packardi<br>vernal pool tadpole shrimp | ICBRA10010 | Endangered | | G3 | S2S3 | |
| 32 | Linderiella occidentalis<br>California linderiella | ICBRA06010 | | | G3 | S2S3 | |
| 33 | Melospiza melodia<br>song sparrow ("Modesto" population) | ABPBXA3010 | | | G5 | S3? | SC |
| 34 | Navarretia myersii ssp. myersii<br>pincushion navarretia | PDPLM0C0X1 | | | G1T1 | S1 | 1B.1 |
| 35 | Northern Claypan Vernal Pool | CTT44120CA | | | G1 | S1.1 | |
| 36 | Northern Hardpan Vernal Pool | CTT44110CA | | | G3 | S3.1 | |
| 37 | Northern Volcanic Mud Flow Vernal Pool | CTT44132CA | | | G1 | S1.1 | |
| 38 | Oncorhynchus mykiss irideus<br>steelhead - Central Valley DPS | AFCHA0209K | Threatened | | G5T2 | S2 | |
| 39 | Orcuttia viscida<br>Sacramento Orcutt grass | PMPOA4G070 | Endangered | Endangered | G1 | S1 | 1B.1 |
| 40 | Pandion haliaetus<br>osprey | ABNKC01010 | | | G5 | S3 | |
| 41 | Phalacrocorax auritus<br>double-crested cormorant | ABNFD01020 | | | G5 | S3 | |
| 42 | Progne subis<br>purple martin | ABPAU01010 | | | G5 | S3 | SC |
| 43 | Riparia riparia<br>bank swallow | ABPAU08010 | | Threatened | G5 | S2S3 | |
| 44 | Sagittaria sanfordii<br>Sanford's arrowhead | PMALI040Q0 | | | G3 | S3 | 1B.2 |
| 45 | Spea hammondii<br>western spadefoot | AAABF02020 | | | G3 | S3 | SC |
| 46 | Thamnophis gigas<br>giant garter snake | ARADB36150 | Threatened | Threatened | G2 | S2 | |
| 47 | Valley Needlegrass Grassland | CTT42110CA | | | G3 | S3.1 | |

# United States Department of the Interior


**FISH AND WILDLIFE SERVICE**

**Sacramento Fish and Wildlife Office**
**2800 Cottage Way, Room W-2605**
**Sacramento, California 95825**


July 1, 2014

Document Number: 140701123523

Jessica Hughes
ICF International
630 K Street
Suite 400
Sacramento, ca 95822

Subject: Species List for I-80/SR 65 Interchange Improvements Project

Dear: Ms. Hughes

We are sending this official species list in response to your July 1, 2014 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be September 29, 2014.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found http://www.fws.gov/sacramento/es/Branch-Contacts/es_branch-contacts.htm.

Endangered Species Division

# U.S. Fish & Wildlife Service

# Sacramento Fish & Wildlife Office

**Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested**

Document Number: 140701123523

Current as of: July 1, 2014

---

## Quad Lists

### ROSEVILLE (528D)

### Listed Species

Invertebrates

*Branchinecta conservatio*

Conservancy fairy shrimp (E)

*Branchinecta lynchi*

vernal pool fairy shrimp (T)

*Desmocerus californicus dimorphus*

valley elderberry longhorn beetle (T)

*Lepidurus packardi*

vernal pool tadpole shrimp (E)

Fish

*Hypomesus transpacificus*

delta smelt (T)

*Oncorhynchus mykiss*

Central Valley steelhead (T) (NMFS)

Critical habitat, Central Valley steelhead (X) (NMFS)

*Oncorhynchus tshawytscha*

Central Valley spring-run chinook salmon (T) (NMFS)

winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

*Rana draytonii*

California red-legged frog (T)

Reptiles

*Thamnophis gigas*

giant garter snake (T)

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## County Lists

# Placer County

## Listed Species

### Invertebrates

*Branchinecta conservatio*

Conservancy fairy shrimp (E)

*Branchinecta lynchi*

Critical habitat, vernal pool fairy shrimp (X)

vernal pool fairy shrimp (T)

*Desmocerus californicus dimorphus*

Critical habitat, valley elderberry longhorn beetle (X)

valley elderberry longhorn beetle (T)

*Lepidurus packardi*

Critical habitat, vernal pool tadpole shrimp (X)

vernal pool tadpole shrimp (E)

### Fish

*Hypomesus transpacificus*

delta smelt (T)

*Oncorhynchus (=Salmo) clarki henshawi*

Lahontan cutthroat trout (T)

*Oncorhynchus mykiss*

Central Valley steelhead (T) (NMFS)

Critical habitat, Central Valley steelhead (X) (NMFS)

*Oncorhynchus tshawytscha*

Central Valley spring-run chinook salmon (T) (NMFS)

winter-run chinook salmon, Sacramento River (E) (NMFS)

### Amphibians

*Ambystoma californiense*

California tiger salamander, central population (T)

*Rana draytonii*

California red-legged frog (T)
Critical habitat, California red-legged frog (X)

*Rana sierrae*
Mountain yellow legged frog (PX)

### Reptiles

*Thamnophis gigas*
giant garter snake (T)

### Plants

*Calystegia stebbinsii*
Stebbins's morning-glory (E)

*Ceanothus roderickii*
Pine Hill ceanothus (E)

*Galium californicum ssp. sierrae*
El Dorado bedstraw (E)

*Orcuttia viscida*
Critical habitat, Sacramento Orcutt grass (X)
Sacramento Orcutt grass (E)

*Senecio layneae*
Layne's butterweed (=ragwort) (T)

## Candidate Species

### Amphibians

*Rana muscosa*
mountain yellow-legged frog (C)

### Birds

*Coccyzus americanus occidentalis*
Western yellow-billed cuckoo (C)

### Mammals

*Martes pennanti*

fisher (C)

Plants

*Rorippa subumbellata*

Tahoe yellow-cress (C)

## Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.

*Critical Habitat* - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

# Important Information About Your Species List

## How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

## Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the

California Native Plant Society's online Inventory of Rare and Endangered Plants.

## Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.
See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

## Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

## Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

## Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

## Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

## Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

## Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

## Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be September 29, 2014.

# Appendix C Preliminary Delineation of Waters of the U.S., Including Wetlands

# Delineation of Potential Waters of the United States, Including Wetlands for the Interstate 80/State Route 65 Interchange Improvements Project

**Prepared for:**

CH2M HILL
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Contact: Christopher S. Benson, P.E.
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**Prepared by:**

ICF International
630 K Street, Suite 400
Sacramento, CA 95814
Contact: Jessica Hughes
916.737.3000

**October 2014**

ICF International. 2014. Delineation of Potential Waters of the United States, Including Wetlands, for the Interstate 80/State Route 65 Interchange Improvements Project. October. (ICF 00189.11) Sacramento, CA. Prepared for CH2M Hill, Sacramento, CA.

# Contents

# Tables and Figures

**Page**



**Follows Page**

# Acronyms and Abbreviations

| | |
|---|---|
| Caltrans | California Department of Transportation |
| CFR | Code of Federal Regulations |
| CWA | federal Clean Water Act |
| EPA | U.S. Environmental Protection Agency |
| °F | degrees Fahrenheit |
| GPS | global positioning system |
| HOV | high occupancy vehicle |
| HUC | hydrologic unit code |
| I-80 | Interstate 80 |
| NWI | National Wetlands Inventory |
| OHWM | ordinary high water mark |
| PCTPA | Placer County Transportation Planning Agency |
| proposed project | Interstate 80/State Route 65 Interchange Improvements Project |
| SR 65 | State Route 65 |
| TNW | traditional navigable water |
| USACE | U.S. Army Corps of Engineers |

# Delineation of Potential Waters of the United States, Including Wetlands

## Summary

This report presents the results of a delineation of potential waters of the United States, including wetlands, conducted for the proposed Interstate 80/State Route 65 (I-80/SR 65) Interchange Improvements Project in Placer County, California. The California Department of Transportation (Caltrans), in cooperation with the Placer County Transportation Planning Agency (PCTPA), Placer County, and the Cities of Roseville, Rocklin, and Lincoln, proposes to improve the I-80/SR 65 Interchange to reduce future traffic congestion, improve operations and safety, and comply with current Caltrans and local agency design standards. Three build alternatives have been proposed for the I-80/SR 65 Interchange Improvements Project.

ICF International conducted fieldwork in October and November 2012, February and March 2013, and July 2014 using the routine onsite determination method described in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the supplemental procedures and wetland indicators provided in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2008a). The delineation area for the proposed project encompassed approximately 451 acres that consisted of the project alternatives plus a 100-foot-wide buffer zone. The delineation was conducted to assist PCTPA (project proponent) in identifying the type and extent of wetlands and other waters subject to U.S. Army Corps of Engineers (USACE) regulation under Section 404 of the federal Clean Water Act (CWA). This report was prepared to support a preliminary jurisdictional determination to the USACE Sacramento District.

A total of 7.513 acres comprising 3.059 acres of wetlands and 4.454 acres of other waters were identified in the delineation area (Table 1). Five culverts that either released water into or conveyed water from wetlands or other waters were mapped in the delineation area and encompass a total area of 0.123 acre. The culverts are typically not considered to be jurisdictional waters but are included in this report to explain the movement of water between some of the features in the delineation area. The delineation area also contains 2.963 acre of cement- and/or riprap-lined stormwater ditches that were constructed during the installation of the extensive road infrastructure and development present in the delineation area. The lined stormwater ditches were not mapped as 'other' waters because they are excavated wholly in and drain only uplands and do not carry a relatively permanent flow of water (U.S. Army Corps of Engineers and U.S. Environmental Protection Agency 2007:36-38).

**Table 1. Summary of Potential Wetlands and Other Waters Identified in the Delineation Area**

| Wetlands and Other Waters | Acreage in Delineation Area |
|---|---|
| Wetlands | |
| Riparian Forest/Shrub Wetland | 1.210 |
| Vernal Pool | 0.528 |
| Seasonal Wetland | 0.276 |
| Emergent Wetland | 1.045 |
| *Wetlands subtotal* | *3.059* |
| Other Waters | |
| Perennial Stream | 4.116 |
| Intermittent Stream | 0.258 |
| Ephemeral Drainage | 0.080 |
| *Other Waters subtotal* | *4.454* |
| Total | 7.513 |

# Introduction

This report presents the results of a delineation of potential wetlands and other waters conducted for the I-80/SR 65 Interchange Improvements Project (proposed project) in Placer County, California (Figure 1). The proposed project would modify segments of I-80, SR 65, and the interchange at their junction to reduce future traffic congestion, improve traffic operations, enhance safety, and comply with current Caltrans and local agency design standards. Proposed modifications include constructing a bi-directional high occupancy vehicle (HOV) connector between the two highways, replacing the eastbound I-80 to northbound SR 65 connector, widening the East Roseville Viaduct, replacing the Taylor Road overcrossing, and widening segments of both highways with auxiliary lanes and ramp realignments.

This report is intended to comply with USACE Sacramento District guidelines (U.S. Army Corps of Engineers 2001) and the South Pacific Division map standards (U.S. Army Corps of Engineers 2012). The delineation was prepared to support a preliminary jurisdictional determination, which means that applicants waive or set aside questions regarding the jurisdictional status of wetlands and other waters on a particular site (USACE Sacramento District public notice SPK-2008-01557).

## Contact Information

The contact information for the project proponent and the ICF International project manager is:

| Project Proponent | ICF International |
|---|---|
| Placer County Transportation Planning Agency<br>299 Nevada Street<br>Auburn, CA 95603<br>Office: 530/823-4033<br>Contact: Luke McNeel-Caird | ICF International<br>630 K Street, Suite 400<br>Sacramento, CA 95814<br>Office: 916/737-3000<br>Contact: Claire Bromund |

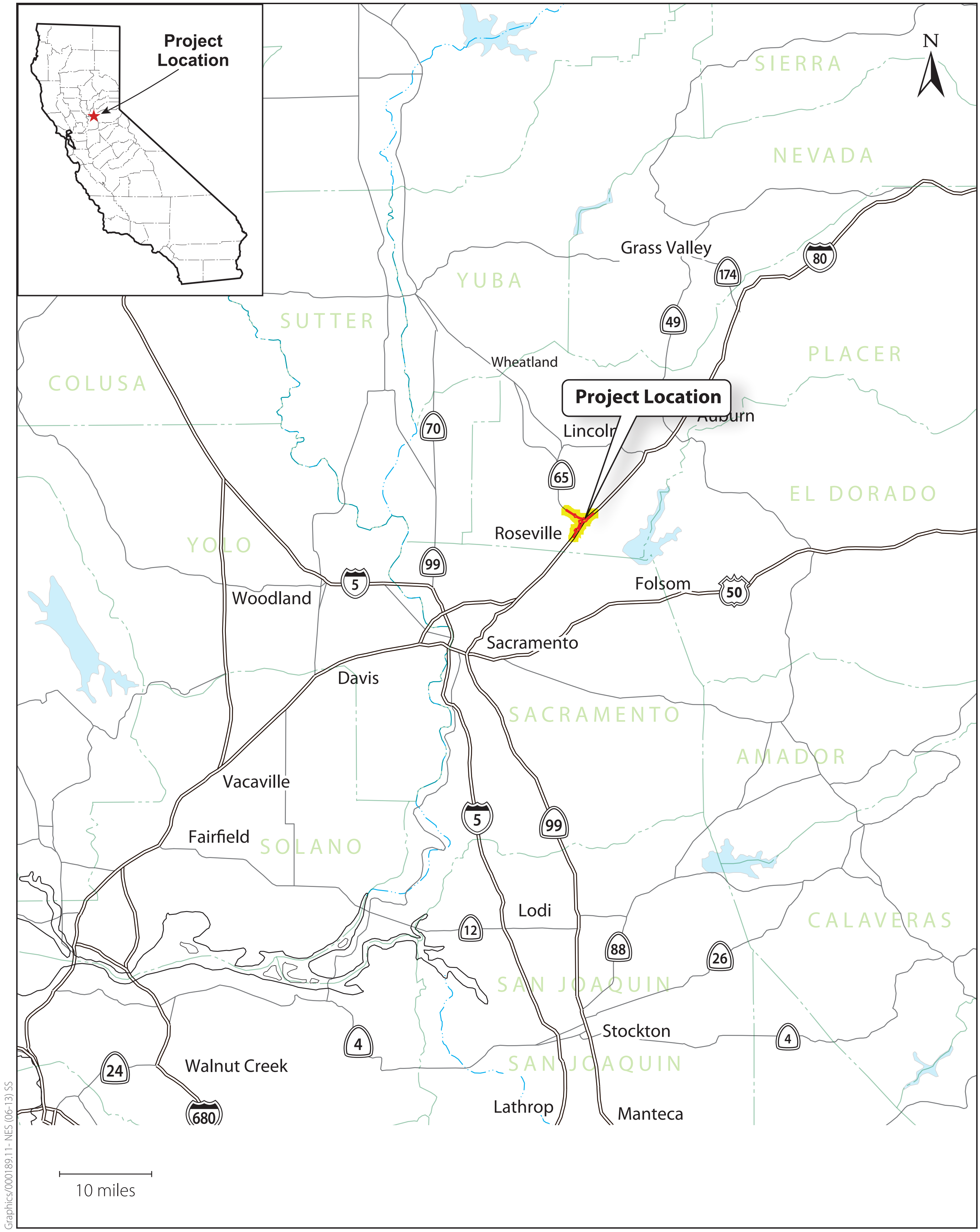


**Figure 1**
**Project Vicinity**

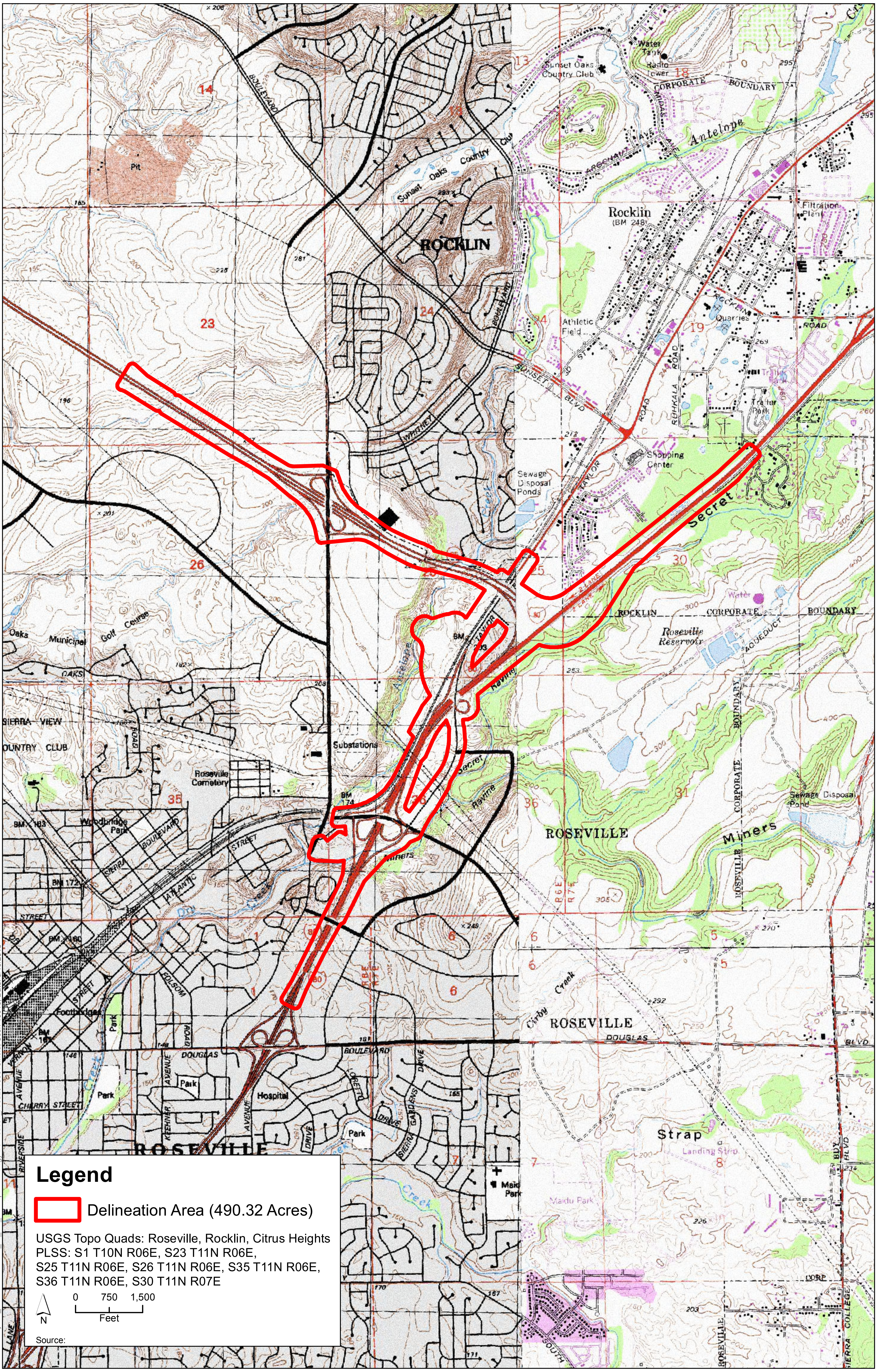


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**Figure 2**
**Delineation Area**

## Driving Directions

From downtown Sacramento, proceed north on Interstate 5 to exit 522 for I-80 east. Stay on I-80 for approximately 19.5 miles to SR 65 north (exit 106). Proceed on SR 65 for approximately 2 miles to reach Pleasant Grove Boulevard (exit 308). Take the first right on Fairway Drive and park in the south corner of the WinCo Foods parking lot for access to the eastern end of the delineation area.

# Site Location and Description

The delineation area encompasses approximately 451 acres within the cities of Roseville and Rocklin in Placer County (Figures 1 and 2). The delineation area consists of the footprint of the greatest extent of potential ground disturbance for the proposed project plus a 100-foot-wide buffer zone. The assessor's parcel numbers for the properties in the delineation area are provided in Appendix G. Detailed geographic information for the delineation area is provided in Table 2.

**Table 2. Geographic Information for the Delineation Area**

| U.S. Geological Survey 7.5-minute Quadrangles | Township(s) | Range | Section(s) | Latitude and Longitude of Approximate Center of Delineation Area (decimal degrees, NAD 83) |
|---|---|---|---|---|
| Citrus Heights | 10N | 6E | 1 | Latitude = 38.768917 Longitude = -121.257919 |
| Rocklin | 11N | 6E | 25,30,36 | |
| Roseville | 10N, 11N | 6E | 1,23,25, 26,35,36 | |

The topography in the delineation area varies from nearly level to moderate slopes, and elevations range from approximately 150 to 245 feet above mean sea level. Approximately two-thirds of the delineation area consists of highways, commercial development, and residential areas. The remainder is comprised of graded parcels, designated recreation areas (i.e., Antelope Creek Trail, Miners Ravine Trail), and natural areas (e.g., grasslands, oak woodland, streams). Land use in the surrounding areas is comparable to the delineation area.

The natural hydrology in the delineation area appears to have been altered by impervious surfaces and drainage infrastructure (e.g., culverts, concrete-lined ditches) in the developed portions and by urban landscape irrigation. The alteration is an increase in the amount and frequency of hydrologic input (i.e., runoff) in developed areas, and in some places this has led to the establishment and/or persistence of wetlands in locations that might not typically support them. However, these conditions are considered to be normal circumstances.

The delineation area does not appear to support an interstate or foreign commerce connection. No recreational or other use by interstate or foreign travelers, sale of fish or shellfish in interstate or foreign commerce, or use by industries operating in interstate or foreign commerce) was observed during the delineation fieldwork.

## Hydrology

The delineation area is located in the Lower Sacramento watershed hydrologic unit (hydrologic unit code [HUC] 18020109). HUCs correspond to the natural divisions between watershed boundaries, and are based on the U.S. Environmental Protection Agency's (EPA's) hydrologic unit maps (U.S. Environmental Protection Agency 2013). The primary streams in the delineation area are Antelope Creek, Highland Ravine (also referred to in some documents as an unnamed tributary to Pleasant Grove Creek), Miners Ravine, and Secret Ravine. Antelope Creek, Miners Ravine, and Secret Ravine drain in a generally southwesterly direction into Dry Creek, which flows into Steelhead Creek, a tributary to the Sacramento River, which is a traditional navigable water (TNW). Highland Ravine flows in the south fork of Pleasant Grove Creek, which connects to the Sacramento River via the Natomas Main Drainage Canal. The primary sources of hydrology in the delineation area are precipitation and surface runoff. As previously mentioned, the natural hydrology in developed areas has been altered as the result of runoff from impervious surfaces, drainage infrastructure, and landscape irrigation, which has facilitated the development of wetlands where they might not normally occur.

### National Wetlands Inventory

The National Wetlands Inventory (NWI) provides maps and information on the status, extent, characteristics, and functions of wetland, riparian, deepwater, and related aquatic habitats in priority areas to promote the understanding and conservation of those resources. The mapping is provided at a scale of 1:24,000 and uses the U.S. Fish and Wildlife Service wetland definition, which differs from the three-parameter USACE definition by requiring that only a single parameter be present to determine that an area is a wetland. The NWI mapping shows the extent of wetlands and deepwater habitats that can be determined by using remotely sensed data, and originates from 1977 to the present. Accordingly, the NWI mapping cannot be used to delineate wetlands and other waters of the U.S., but it can provide useful background information on the broad types of wetland and riparian vegetation communities in the delineation area. A review of the NWI mapping determined that no wetland areas have been mapped in the delineation area (U.S. Fish and Wildlife Service 2014).

## Precipitation and Growing Season

The average annual precipitation is approximately 36.49 inches; most falls from November through March. The length of the growing season in the delineation area was obtained from the Natural Resources Conservation Service. The National Weather Service cooperative weather station closest to the delineation area is the Auburn station at an elevation of 1,290 feet above mean sea level. Climate data from this weather station indicate that the length of the growing season (based on 28 degrees Fahrenheit air temperature thresholds at a frequency of 5 years in 10) is year-round. The climate in the delineation area is characterized by hot, dry summers and cool, moist winters; the mean annual air temperature is 60°F (Natural Resources Conservation Service 2013a). Data for precipitation and growing season length are provided in Appendix F.

Between July 2012 and the end of January 2013, the delineation area vicinity received 117% of the average annual precipitation (National Weather Service 2013). There were not any unusually low or high rainfall amounts in the days prior to any of the days of delineation fieldwork.

# Vegetation

The delineation area is in the transition zone between the Sacramento Valley and northern Sierra Nevada Foothill subregions of the California Floristic Province (Baldwin et al. 2012: 42,43). The vegetation communities observed in the delineation area were oak woodland, riparian forest, annual grassland, seasonal wetland, vernal pool, and emergent wetland.

A list of plants observed in the delineation area with the wetland indicator status of each is provided in Appendix E. Plant scientific names are based on the taxonomy used in the second edition of the Jepson Manual. Wetland indicator status information was obtained from USACE's *National Wetland Plant List for the Arid West Region* (U.S. Army Corps of Engineers 2014).

## Oak Woodland

Oak woodland is an upland (i.e., non-wetland) vegetation community that occurs on slopes in Miners Ravine and Secret Ravine as well as upslope of the west side of Antelope Creek. The overstory of this community is dominated by interior live oak (*Quercus wislizeni*) and blue oak (*Q. douglasii*). Representative species present in the understory are hedge parsley (*Torilis arvensis*), hedgehog dogtail grass (*Cynosurus echinatus*), broadleaf filaree (*Erodium botrys*), purple clarkia (*Clarkia purpurea*), toyon (*Heteromeles arbutifolia*), and wall bedstraw (*Galium parisiense*).

## Riparian Forest and Shrub Communities

Riparian forest and shrub communities occur along Antelope Creek, Miners Ravine, and Secret Ravine in the delineation area. The riparian communities contain varying associations of valley oak (*Q. lobata*), Fremont cottonwood (*Populus fremontii*), black willow (*Salix gooddingii*), red willow (*S. laevigata*), and arroyo willow (*S. lasiolepis*). Common species in the understory are buttonwillow (*Cephalanthus occidentalis*), narrow-leaf willow (*S. exigua*), Himalayan blackberry (*Rubus armeniacus*), California blackberry (*R. ursinus*), and mugwort (*Artemisia douglasiana*). The invasive red sesbania (*Sesbania punicea*) shrub was observed in the riparian forest along Miners Ravine.

Three areas of riparian forest in the delineation area exhibited positive indicators of all three federal wetland factors (hydrophytic vegetation, hydric soils, wetland hydrology) as defined by USACE (Environmental Laboratory 1987). One of the areas is on the east side of Antelope Creek, one is in the southern portion of the delineation area, and another occurs near the northeast corner of the Roseville Galleria Mall. The remainder of the riparian forest lacked positive indicators of one or more of the federal wetland criteria.

## Annual Grassland

Most of the annual grassland, an upland vegetation community, occurs in the delineation area northeast of I-80. Common grass species are Italian ryegrass (*Festuca perennis*), Medusahead (*Elymus caput-medusae*), slender wild oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), and foxtail barley (*Hordeum murinum* ssp. *leporinum*). Representative forb species present are California poppy (*Eschscholzia californica*), Italian thistle (*Carduus pycnocephalus*), yellow star-thistle (*Centaurea solstitialis*), rough cat's-ear (*Hypochaeris radicata*), and broadleaf filaree. Annual grassland also contains scattered oaks (*Quercus* spp.) and coyote brush (*Baccharis pilularis*). A single blue elderberry (*Sambucus nigra* ssp. *caerulea*) occurs in the grassland underneath the segment of the SR 65 span located immediately south of Hearthstone Drive.

### Vernal Pool

Vernal pool is a type of seasonal wetland; however, not all seasonal wetlands are vernal pools. Vernal pools in the delineation area were distinguished from areas designated as seasonal wetlands based on their vegetative composition and hydrology. The vegetation in areas identified as vernal pools included one or more of the following species that are typically found only in vernal pools: coyote thistle (*Eryngium castrense*), doublehorn calicoflower (*Downingia bicornuta* var. *picta*), horned downingia (*D. ornatissima* var. *ornatissima*), annual hairgrass (*Deschampsia danthonioides*), smooth goldfields (*Lasthenia glaberrima*), vernal pool buttercup (*Ranunculus bonariensis* var. *trisepalus*), stalked popcornflower (*Plagiobothrys stipitatus* var. *micranthus*), and whitehead navarretia *(Navarretia leucocephala* ssp. *leucocephala*). In terms of hydrology, areas identified as vernal pools exhibited a greater depth of ponding compared to seasonal wetlands, and also remained inundated for a longer duration than seasonal wetlands. Some of the vernal pools in the delineation area are located in the grassland that is south of the east terminus of Antelope Creek Drive. The rest of the vernal pools are located inside the cloverleaf loops of SR 65 at the exit for Stanford Ranch Road/Galleria Boulevard.

### Seasonal Wetland

Seasonal wetlands in the delineation area lacked the plant species identified above as typically occurring in vernal pools. Additionally, although some of the plant species that inhabit seasonal wetlands also occur in emergent wetlands, the seasonal wetlands lacked the perennial hydrology of the emergent wetlands; i.e., the seasonal wetlands are inundated only during wetter times of year. The seasonal wetlands occur in the portion of the delineation area adjacent to SR 65. Vegetation found in seasonal wetlands includes spike rush (*Eleocharis macrostachya*), tall flatsedge (*Cyperus eragrostis*), narrowleaf cattail (*Typha angustifolia*), Bermuda grass (*Cynodon dactylon*), pennyroyal (*Mentha pulegium*), dallis grass (*Paspalum dilatatum*), curly dock (*Rumex crispus*), Italian ryegrass, brome fescue (*Festuca bromoides*), and hairy willowherb (*Epilobium ciliatum*).

### Emergent Wetland

Emergent wetlands in the delineation area were characterized by the presence of emergent vegetation and perennial hydrology. The emergent wetlands occur near Antelope Creek, between Taylor Road and the railroad tracks, southeast of Highland Ravine, and on the southern side of SR 65 (just west of the Roseville Galleria Mall). The vegetation in emergent wetlands includes narrowleaf cattail, pennyroyal, false waterpepper (*Persicaria hydropiperoides*), hardstem bulrush (*Schoenoplectus acutus*), rough cocklebur (*Xanthium strumarium*), and variable flatsedge (*Cyperus difformis*).

## Soils

The delineation area contains 15 mapped soil map units (Natural Resources Conservation Service 2013b). Descriptions of each soil map unit and a map depicting their locations in the delineation area are provided in Appendix D. Six of the mapped units contain hydric components.

- Cometa sandy loam, 1–5% slopes
- Cometa-Ramona sandy loams, 1–5% slopes
- Exchequer very stony loam, 2–15% slopes

- Exchequer-Rock outcrop complex, 2–30%
- Fiddyment loam, 1–8% slopes
- Xerofluvents, frequently flooded

## Eureka Road Improvement Project Delineation

The delineation area encompasses the area delineated for the City of Roseville's Eureka Road Improvement Project. A preliminary jurisdictional determination was issued by the USACE Sacramento District for the project on July 13, 2009 (SPK-2009-00975). Features that were verified by the USACE for this previous project and were present at the time of the proposed project's delineation fieldwork are included on the delineation map in Appendix A.

# Delineation Methods

ICF International botanists/wetland specialists Jessica Hughes and John Holson conducted fieldwork for the delineation on October 30 and November 13 and 15, 2012, February 28 and March 7, 2013, and July 28, 2014. The delineation was conducted using the routine onsite determination method described in the 1987 *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the supplemental procedures and wetland indicators provided in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2008a).  Delineation data were collected to support a preliminary jurisdictional determination from the USACE.

Wetland boundaries were determined by establishing representative data points to evaluate the presence of positive indicators of the three federal wetland factors. The boundaries of nonwetland waters (other waters) in the delineation area were identified by locating the ordinary high water mark (OHWM), which represents the lateral limit of USACE jurisdiction over nontidal, nonwetland waters in the absence of adjacent wetlands (33 Code of Federal Regulations [CFR] 328.4[c]). The OHWM was identified using the field indicators provided in 33 CFR 328.3(e) and 329.11(a)(1) and *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States* (U.S. Army Corps of Engineers 2008b:21).

The base maps used during fieldwork consisted of the delineation area boundary overlaid on 2012 aerial imagery obtained from Environmental Systems Research Institute (ESRI) at a scale of 1″= 200'. The delineators used a resource-grade GPS (global positioning system) unit with sub-meter accuracy, supplemented with aerial photograph interpretation, to map data points, the boundaries of wetlands and other waters, culverts that either drained into or conveyed water from wetlands or other waters, and the locations of representative photos in the delineation area. All GPS data collected in the field were downloaded and differentially corrected using the nearest available base-station data in order to produce the delineation map.

# Results

A total of 7.454 acres of wetlands and other waters were identified in the delineation area. In accordance with a preliminary jurisdictional determination approach, all these features were determined to be subject to the USACE's jurisdiction under CWA Section 404.

The types and acreages of the wetlands and other waters located in the delineation area are listed in Table 3 and Table 4, respectively. Descriptions of the wetlands and other waters are provided below; a map showing their locations is provided in Appendix A. Feature boundaries that extend past the delineation area boundaries are also shown in Appendix A; however, the acreage of the portion of features located outside the delineation area was not included in the acreage totals below.

Wetland data forms are provided in Appendix B. Representative photographs of the delineation area are provided in Appendix C. The wetland indicator status of the plant species listed below for each wetland type is provided in Appendix E.

**Table 3. Wetlands Mapped in the Delineation Area**

| Appendix A Sheet Number (s) | Feature Number | Wetland Type | Area (acres) |
|---|---|---|---|
| 15 | W-3 | Seasonal Wetland | 0.008 |
| 14 | W-4 | Emergent Wetland | 0.213 |
| 13, 14 | W-5 | Seasonal Wetland | 0.011 |
| 13, 14 | W-6 | Seasonal Wetland | 0.074 |
| 13 | W-7 | Seasonal Wetland | <0.001 |
| 13 | W-8 | Seasonal Wetland | <0.001 |
| 13 | W-9 | Vernal Pool | 0.025 |
| 13 | W-10 | Vernal Pool | 0.034 |
| 13 | W-11 | Vernal Pool | 0.010 |
| 13 | W-12 | Vernal Pool | 0.002 |
| 13 | W-13 | Vernal Pool | 0.027 |
| 13 | W-14 | Vernal Pool | 0.007 |
| 13 | W-15 | Seasonal Wetland | 0.004 |
| 12 | W-16 | Riparian Forest/Shrub Wetland | 0.084 |
| 12 | W-17 | Vernal Pool | 0.037 |
| 12 | W-18 | Vernal Pool | 0.058 |
| 12 | W-19 | Vernal Pool | 0.003 |
| 12 | W-20 | Seasonal Wetland | 0.032 |
| 12 | W-21 | Vernal Pool | 0.004 |
| 12 | W-22 | Vernal Pool | <0.001 |
| 12 | W-23 | Vernal Pool | 0.002 |
| 12 | W-24 | Vernal Pool | 0.001 |
| 12 | W-25 | Vernal Pool | 0.005 |
| 12 | W-26 | Vernal Pool | 0.005 |
| 12 | W-27 | Seasonal Wetland | 0.055 |
| 12 | W-28 | Seasonal Wetland | 0.017 |
| 11 | W-29 | Emergent Wetland | 0.393 |
| 11 | W-30 | Riparian Forest/Shrub Wetland | 0.418 |
| 11 | W-31 | Emergent Wetland | 0.189 |
| 11 | W-33 | Seasonal Wetland | 0.074 |
| 11 | W-34 | Vernal Pool | 0.176 |
| 6 | W-35 | Vernal Pool | 0.001 |

| Appendix A Sheet Number (s) | Feature Number | Wetland Type | Area (acres) |
|---|---|---|---|
| 6 | W-36 | Vernal Pool | 0.017 |
| 6 | W-37 | Vernal Pool | 0.004 |
| 6 | W-60 | Vernal Pool | 0.005 |
| 4 | W-63 | Riparian Forest/Shrub Wetland | 0.039 |
| 1 | W-64 | Riparian Forest/Shrub Wetland | 0.669 |
| 6 | W-65 | Emergent Wetland | 0.206 |
| 6 | W-66 | Vernal Pool | 0.025 |
| 6 | W-67 | Vernal Pool | 0.080 |
| 14 | W-68 | Emergent Wetland | 0.003 |
| 15 | W-69 | Emergent Wetland | 0.041 |
| | | **Wetland Total** | **3.059** |

**Table 4. Other Waters Mapped in the Delineation Area**

| Appendix A Sheet Number/s | Feature # | Other Water Type | Approx. Length (feet) | Width @ OHWM (feet) | Area (acres) |
|---|---|---|---|---|---|
| 15 | OW-1 | Ephemeral Drainage | 203 | 1 | 0.005 |
| 15 | OW-2 | Highland Ravine (Perennial Stream) | 285 | 30 | 0.192 |
| 12 | OW-4 | Ephemeral Drainage | 467 | 4 | 0.043 |
| 11 | OW-5 | Antelope Creek (Perennial Stream) | 879 | 27 | 0.544 |
| 11 | OW-6 | Intermittent Stream | 303 | 1 | 0.007 |
| 11 | OW-8 | Ephemeral Drainage | 416 | 1 | 0.010 |
| 4–9 | OW-9 | Secret Ravine (Perennial Stream) | 3,197 | 28 | 1.878 |
| 6 | OW-10 | Ephemeral Drainage | 146 | 2 | 0.007 |
| 6 | OW-11 | Ephemeral Drainage | 234 | 3 | 0.016 |
| 2, 4 | OW-12 | Miners Ravine (Perennial Stream) | 1,290 | 50 | 1.501 |
| 11 | OW-13 | Intermittent Stream | 320 | 22 | 0.156 |
| 2 | OW-14 | Intermittent Stream | 490 | 7 | 0.079 |
| 7 | OW-15 | Intermittent Stream | 352 | 2 | 0.016 |
| | | | | **Other Waters Total** | **4.454** |

# Wetlands

Four types of wetlands were identified in the delineation area: riparian forest/shrub wetland, vernal pool, seasonal wetland, and emergent wetland.

## Riparian Forest/Shrub Wetland

Not all riparian areas exhibited positive indicators of all three federal wetland factors; however, the areas that displayed positive indicators of hydrophytic vegetation, hydric soil, and wetland hydrology were categorized as riparian forest/shrub wetlands (Appendix B, Data Forms DP-7 and DP-22). Areas adjacent to riparian forest/shrub wetlands lack one or more of the three wetland factors (Appendix B, Data Forms DP-8 and DP-23).

### Vegetation

The dominant vegetation found in the riparian forest/shrub wetlands is narrowleaf willow (*Salix exigua*), black willow, tall flatsedge, Klamath weed (*Hypericum perforatum*), dallis grass, narrowleaf cattail, and Bermuda grass. Dovefoot geranium (*Geranium molle*) and hardstem bulrush are associate species. Based on the dominance of facultative and facultative wetland plants, riparian wetlands were determined to meet the hydrophytic vegetation factor as defined by USACE (Environmental Laboratory 1987).

### Soil

Based on the presence of redox depressions (hydric soil indicator F8), the soils observed in riparian wetlands were determined to be hydric (U.S. Army Corps of Engineers 2008a).

### Hydrology

Based on observations of water-stained leaves, a biotic crust, and drainage patterns, wetland hydrology was determined to be present in the riparian wetlands. The primary sources of hydrologic input to the riparian wetlands are groundwater and precipitation supplemented with overbank flow from Antelope Creek. The creek connects to Dry Creek, which flows into Steelhead Creek, a tributary of the Sacramento River.

## Vernal Pool

The vernal pools contain hydrophytic vegetation and show indicators of wetland hydrology and hydric soil (Appendix B, Data Forms DP-3 and DP-20). Accordingly, they exhibit all three factors necessary to qualify as a wetland as defined by USACE (Environmental Laboratory 1987). Adjacent areas lack one or more of these diagnostic characteristics (Appendix B, Data Forms DP-4, and DP-21).

### Vegetation

The dominant vegetation in vernal pools is coyote thistle, vernal pool buttercup, stalked popcornflower, Italian ryegrass, toad rush (*Juncus bufonius*), and stinkwort (*Dittrichia graveolens*). Associate species include smooth goldfields, curly dock, and Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*). Based on the dominance of obligate, facultative wetland, and facultative plants, vernal pools were determined to meet the hydrophytic vegetation factor as defined by USACE (Environmental Laboratory 1987).

### Soil

Based on the presence of a depleted matrix (hydric soil indicator F3) and redox depressions (hydric soil indicator F8), the soils observed in vernal pools were determined to be hydric (U.S. Army Corps of Engineers 2008a).

### Hydrology

Based on observations of surface soil cracks and a biotic crust, wetland hydrology was determined to be present in the vernal pools. The primary sources of hydrologic input to the vernal pools are precipitation and sheet flow, and the vernal pools located in the SR 65 cloverleaf loops receive supplemental runoff from the surrounding roadways and via the culverts that drain the adjacent shopping centers. Overflow from the vernal pools near Antelope Creek likely enters the creek via surface flow; Antelope Creek connects to Dry Creek and Steelhead Creek before reaching the Sacramento River. The SR 65 cloverleaf loops that contain vernal pools appear to function as retention basins.

## Seasonal Wetland

The seasonal wetlands contain hydrophytic vegetation and exhibit indicators of wetland hydrology and hydric soil (Appendix B, Data Forms DP-5, DP-13, DP-15, and DP-18). Therefore, they possess all three factors necessary to qualify as a wetland as defined by USACE (Environmental Laboratory 1987). Adjacent areas lack one or more of these factors (Appendix B, Data Forms DP-6, DP-14, DP-16, and DP-19).

### Vegetation

The dominant species in seasonal wetlands are tall flatsedge, Bermuda grass, dallis grass, spike rush, red willow (*Salix laevigata*), narrowleaf cattail, hairy willowherb, Italian ryegrass, dovefoot geranium, narrowleaf willow, and brome fescue. Associate species include hyssop loosestrife (*Lythrum hyssopifolia*), rabbitsfoot grass (*Polypogon monspeliensis*), pennyroyal, dovefoot geranium, curly dock, and needle spike rush (*Eleocharis acicularis*). Based on the dominance of obligate, facultative wetland, and facultative plants, seasonal wetlands were found to contain hydrophytic vegetation as defined by USACE (Environmental Laboratory 1987).

### Soil

Based on the presence of a depleted matrix (hydric soil indicator F3), redox depressions (hydric soil indicator F8), and a hydrogen sulfide odor (hydric soil indicator A4), the soils observed in seasonal wetlands were determined to be hydric (U.S. Army Corps of Engineers 2008a).

### Hydrology

Based on observations of water-stained leaves, a biotic crust, drainage patterns, surface water, high water table, soil saturation, and a hydrogen sulfide odor, wetland hydrology was determined to be present in the seasonal wetlands. The primary sources of hydrologic input for the seasonal wetlands are precipitation and runoff from the nearby development. A potential leak from the adjacent sewer pipeline may also be a primary source of the hydrology in seasonal wetland W-3. Seasonal wetland W-33 connects indirectly to Antelope Creek, which connects to the Sacramento River via Dry Creek and Steelhead Creek. Overflow from seasonal wetland W-27 enters the southeast cloverleaf at the Stanford Ranch/Galleria Boulevard exit off SR 65 via culvert C-3. The cloverleaf appears to function as a retention basin and does not have an apparent connection to a TNW. Overflow from seasonal wetland W-3 enters Highland Ravine, which connects to Pleasant Grove Creek and ultimately the Sacramento River.

## Emergent Wetland

The emergent wetlands contain hydrophytic vegetation and display indicators of wetland hydrology and hydric soil (Appendix B, Data Form DP-10). Therefore, they possess all three factors necessary to qualify as a wetland as defined by USACE (Environmental Laboratory 1987). Adjacent areas lack one or more of these factors (Appendix B, Data Forms DP-9).

### Vegetation

The dominant vegetation in emergent wetlands is false waterpepper, hardstem bulrush, and narrowleaf cattail. Other species that occur in emergent wetlands are rough cocklebur (*Xanthium strumarium*), pennyroyal, dallis grass, and variable flatsedge. Based on the dominance of obligate plants, emergent wetlands were found to contain hydrophytic vegetation as defined by USACE (Environmental Laboratory 1987).

### Soil

Based on the presence of redox depressions (hydric soil indicator F8), the soils observed in emergent wetlands were determined to be hydric (U.S. Army Corps of Engineers 2008a).

### Hydrology

Based on observations of surface water, soil saturation, and oxidized rhizospheres along living roots, wetland hydrology was determined to be present in the emergent wetlands. The primary sources of hydrologic input for most of the emergent wetlands are the creeks with which they are associated. Emergent wetlands W-29 and W-31 are adjacent to Antelope Creek, which has a hydrologic connection to the Sacramento River. The hydrology of emergent wetlands W-4 and W-32 appears to be sustained by runoff from the adjacent development and precipitation. The emergent wetlands in the delineation were inundated at the time of the delineation fieldwork.

# Other Waters

Other water types identified in the delineation area consist of perennial stream, intermittent stream, and ephemeral drainage (Appendix A).

## Perennial Stream

Perennial streams are characterized by appearing as blue-line streams on U.S. Geological Survey topographic maps and have flow year-round. Segments of three perennial streams occur in the delineation area and encompass a total area of 4.116 acres. The perennial streams consist of Antelope Creek (OW-5), Miners Ravine (OW-12), Secret Ravine (OW-9), and Highland Ravine (OW-2) (Appendix A).

### Antelope Creek

The delineation area contains an area of 0.544 acre of Antelope Creek. The creek is approximately 27 feet wide at the OHWM that was identified based on the presence of staining on rocks and bridge supports and a change in particle size distribution. The creek is approximately 50 feet wide at the top of the bank. The depth to the bottom of the creek from the OHWM was approximately 3 feet and the water depth from the top of the bank was 6 feet. Antelope Creek flows southwest to its confluence with Dry Creek, which flows into Steelhead Creek, a tributary to the Sacramento River.

### Miners Ravine

The delineation area contains 1.501 acres of Miners Ravine. The creek is approximately 50 feet wide at the OHWM and was identified based on the presence of staining on rocks and concrete piers and a change in particle size distribution. The creek is approximately 60 feet wide at the top of the bank. The depth to the bottom of the creek from the OHWM was approximately 2 feet and the creek depth from the top of the bank was 5 feet. Miners Ravine flows southwest to its confluence with Dry Creek, which flows into Steelhead Creek, a tributary to the Sacramento River.

### Secret Ravine

The delineation area contains an area of 1.878 acres of Secret Ravine. The creek is approximately 28 feet wide at the OHWM that was identified based on the presence of exposed root hairs below the intact soil layer as well as litter and drift debris. The creek is approximately 40 feet wide at the top of the bank. The depth to the bottom of the creek at the OHWM was approximately 2.5 feet and the creek depth from the top of the bank was 12 feet. Secret Ravine flows southwest into Miners Ravine, which connects to the Sacramento River via Dry Creek and Steelhead Creek.

### Highland Ravine

The delineation area contains 0.193 acre of Highland Ravine. The stream is approximately 30 feet wide at the OHWM that was identified based on a change in the plant community and changes in the character of soil. The segment of Highland Ravine in the delineation area is relatively shallow (i.e., 3 feet deep) and contains emergent vegetation (e.g., false waterpepper, narrowleaf cattail). The segment of Highland Ravine on the north side of SR 65 has a low gradient (i.e., the widths at the OHWM and top of bank are the same). The banks of the segment of Highland Ravine that is south of SR 65 are slightly steeper, and the stream is approximately 34 feet wide at the top of the bank. Highland Ravine flows southwest through the delineation area and connects to the Sacramento River via Pleasant Grove Creek and the Natomas Main Drainage Canal.

## Intermittent Stream

The unnamed intermittent stream segments (OW-6, OW-13, OW-14, OW-15; 0.258 acre) in the delineation area are characterized by having a relatively well-defined channel and conveying water on a somewhat consistent basis during the wetter times of the year. The sources of flows for the intermittent streams are precipitation and sheet flow from the adjacent uplands, including the abutting retail and residential areas. Two of the intermittent streams occur east of Antelope Creek, and one is located south of Miners Ravine. The width of intermittent stream OW-6 is 1 foot at the OHWM that was identified based on the presence of organic litter/debris. The width of intermittent stream OW-13 is 22 feet at the OHWM that was identified based on a change in the plant community and changes in the character of soil. The width of OW-14 is 7 feet at the OHWM that was identified based on the presence of drift deposits, water staining, change in the herbaceous vegetation layer composition, and a well-defined bed and bank. The width of OW-15 is 2 feet at the OHWM that was identified based on the presence of litter and debris.

### Ephemeral Drainage

Ephemeral drainages in the delineation area are characterized by less well-defined channels that are unlined and convey water only during, and for a short time following, precipitation events. Segments of five unnamed, ephemeral drainages (OW-1, OW-4, OW-8, OW-10, OW-11) occur in the delineation area and encompass a total area of 0.081 acre (Appendix A). The primary source of flow for ephemeral drainages is precipitation. The width of each ephemeral drainage at the OHWM is provided in the delineation map (Appendix A), and the OHWM indicator observed was the presence of organic litter/debris.

## Infrastructure Water Conveyance Features

### Culverts

Five culverts that conveyed water between wetlands and/or other waters were mapped in the delineation area and encompass a total area of 0.051 acre. The locations and widths of the culverts are depicted in Appendix A to show the movement of water among some of the features in the delineation area. Culverts are typically not considered to be jurisdictional waters.

### Lined Stormwater Ditches

As a result of the extensive road infrastructure and development, the delineation area contains cement- and/or riprap-lined stormwater ditches that encompass a total area of 2.963 acres. The locations and widths of the lined stormwater ditches are depicted in Appendix A; however, they were not categorized as ‘other’ waters because they are excavated wholly in and drain only uplands and do not carry a relatively permanent flow of water (U.S. Army Corps of Engineers and U.S. Environmental Protection Agency 2007:36-38).

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Appendix A

# Delineation of Potential Waters of the U.S., Including Wetlands


I-80/SR 65 Interchange Improvements
Project, Roseville, CA
August 2014
Sheet 1 of 15

## Legend

Delineation Area (450.91 Acres)
Data Points
Photo Points
Flow Direction
Feature Boundaries Outside Delineation Area
Culvert
Lined Stormwater Ditches

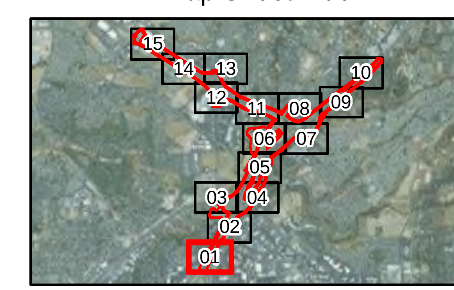
### Wetlands

Emergent Wetland (1.045 Acre)
Riparian Forest/Shrub Wetland (1.210 Acres)
Seasonal Wetland (0.276 Acre)
Vernal Pool (0.528 Acre)

### Other Waters

Perennial Stream (4.116 Acres)
Intermittent Stream (0.258 Acre)
Ephemeral Drainage (0.080 Acre)

Map Sheet Index

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Feet
1 inch = 200 feet

**Notes:**
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Imagery Source: ESRI February 2012
USGS Topo Quads: Roseville, Rocklin, Citrus Heights
PLSS: S1 T10N R06E, S23 T11N R06E,
S25 T11N R06E, S26 T11N R06E, S35 T11N R06E,
S36 T11N R06E, S30 T11N R07E

Prepared By: ICFI/916.737.3000
Delineated By: J. Hughes, J.Holson
Delineation Dates: 10/30/12, 11/13/12, 11/15/12, .
2/28/13, 3/7/13
Drawn By:A. Angier

Path: K:\Projects_1\CH2MHill\00189_11_I80_65\mapdoc\Biology\Wetland_Delineation_20140715.mxd; Author: ; Date: 8/5/2014

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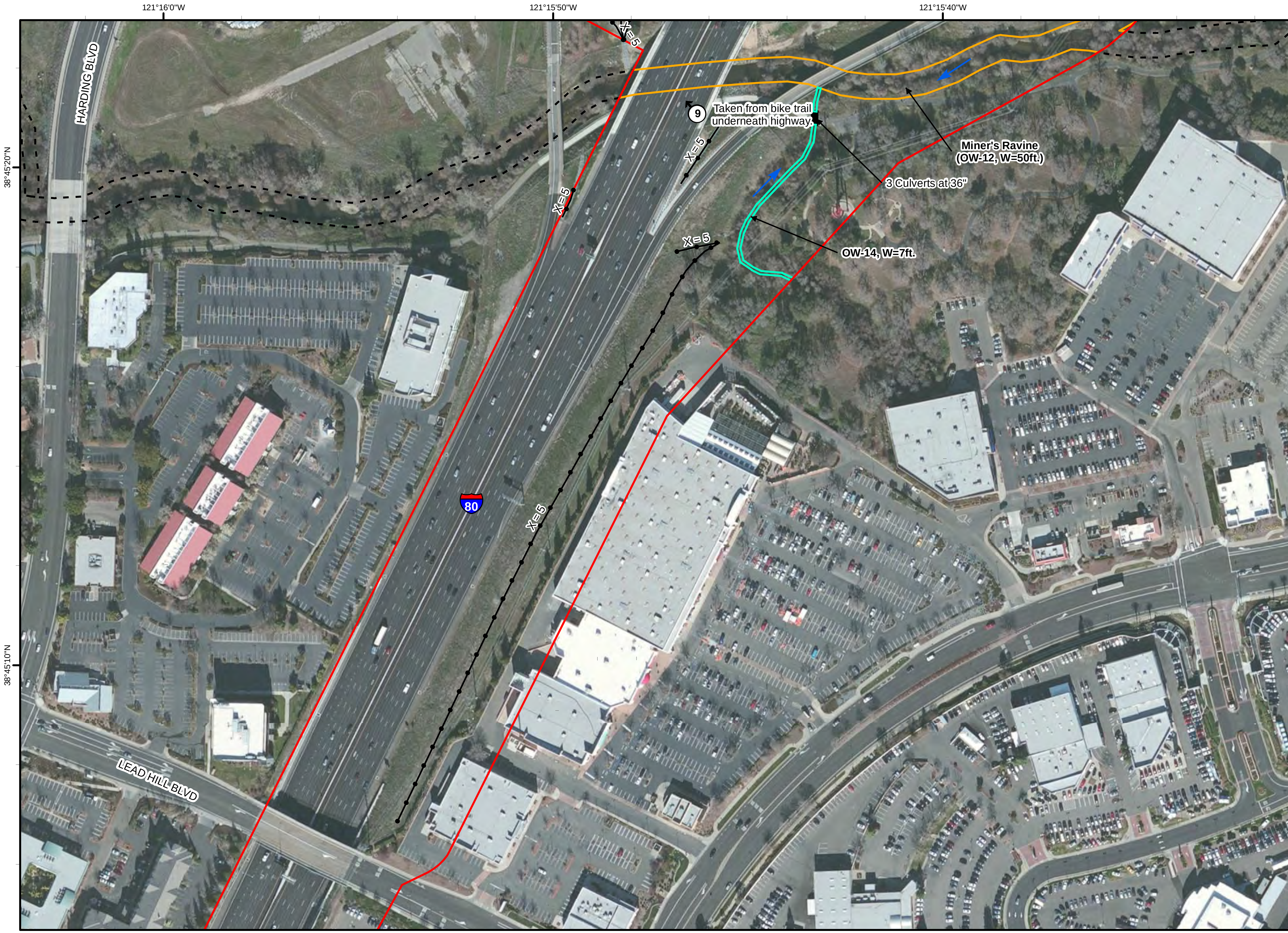
**Appendix A**
**Delineation of Potential Waters of the United States, Including Wetlands**




I-80/SR 65 Interchange Improvements Project, Roseville, CA
August 2014
Sheet 2 of 15

## Legend

- Delineation Area (450.91 Acres)
- Data Points
- Photo Points
- Flow Direction
- Feature Boundaries Outside Delineation Area
- Culvert
- Lined Stormwater Ditches

### Wetlands

- Emergent Wetland (1.045 Acre)
- Riparian Forest/Shrub Wetland (1.210 Acres)
- Seasonal Wetland (0.276 Acre)
- Vernal Pool (0.528 Acre)

### Other Waters

- Perennial Stream (4.116 Acres)
- Intermittent Stream (0.258 Acre)
- Ephemeral Drainage (0.080 Acre)

Map Sheet Index



N
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Feet
1 inch = 200 feet

**Notes:**
Base Map Source: ICF
Imagery Source: ESRI February 2012
USGS Topo Quads: Roseville, Rocklin, Citrus Heights
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S36 T11N R06E, S30 T11N R07E

Prepared By: ICFI/916.737.3000
Delineated By: J. Hughes, J.Holson
Delineation Dates: 10/30/12, 11/13/12, 11/15/12, . 2/28/13, 3/7/13
Drawn By:A. Angier

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**Appendix A**
**Delineation of Potential Waters of the United States, Including Wetlands**


I-80/SR 65 Interchange Improvements Project, Roseville, CA
August 2014
Sheet 3 of 15

## Legend

- Delineation Area (450.91 Acres)
- Data Points
- Photo Points
- Flow Direction
- Feature Boundaries Outside Delineation Area
- Culvert
- Lined Stormwater Ditches

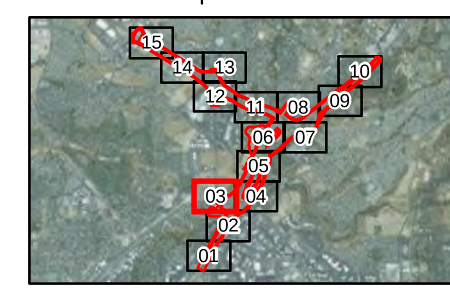
### Wetlands

- Emergent Wetland (1.045 Acre)
- Riparian Forest/Shrub Wetland (1.210 Acres)
- Seasonal Wetland (0.276 Acre)
- Vernal Pool (0.528 Acre)

### Other Waters

- Perennial Stream (4.116 Acres)
- Intermittent Stream (0.258 Acre)
- Ephemeral Drainage (0.080 Acre)

Map Sheet Index

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Feet
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S36 T11N R06E, S30 T11N R07E

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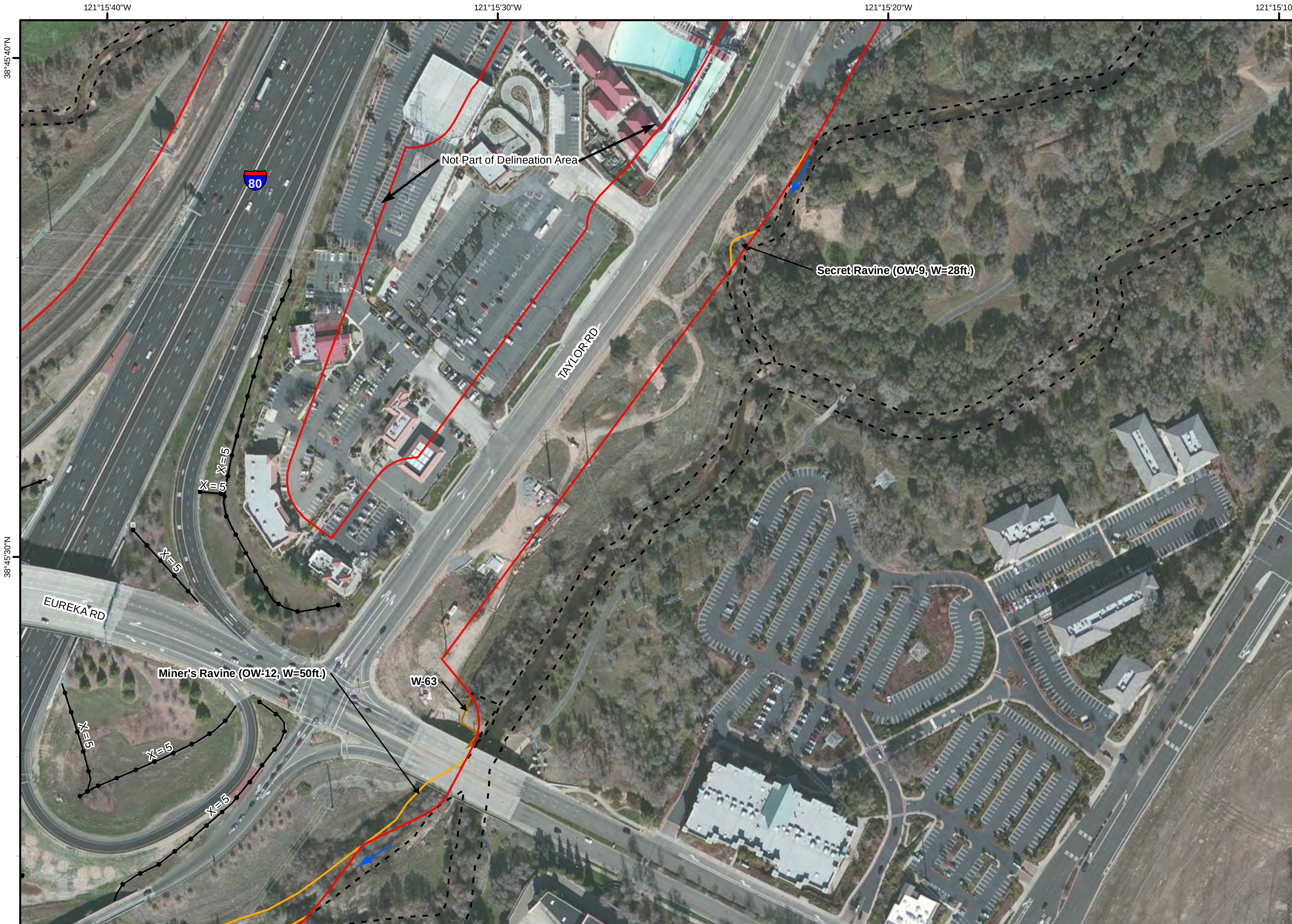
I-80/SR 65 Interchange Improvements
Project, Roseville, CA
August 2014
Sheet 4 of 15




## Legend

- Delineation Area (450.91 Acres)
- Data Points
- Photo Points
- Flow Direction
- Feature Boundaries Outside Delineation Area
- Culvert
- Lined Stormwater Ditches

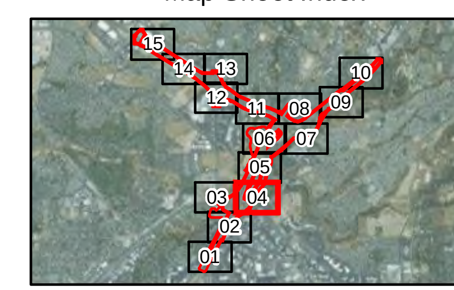
### Wetlands

- Emergent Wetland (1.045 Acre)
- Riparian Forest/Shrub Wetland (1.210 Acres)
- Seasonal Wetland (0.276 Acre)
- Vernal Pool (0.528 Acre)

### Other Waters

- Perennial Stream (4.116 Acres)
- Intermittent Stream (0.258 Acre)
- Ephemeral Drainage (0.080 Acre)

Map Sheet Index

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S36 T11N R06E, S30 T11N R07E

Prepared By: ICFI/916.737.3000
Delineated By: J. Hughes, J.Holson
Delineation Dates: 10/30/12, 11/13/12, 11/15/12, .
2/28/13, 3/7/13
Drawn By:A. Angier

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**Appendix A**
**Delineation of Potential Waters of the United States, Including Wetlands**


I-80/SR 65 Interchange Improvements Project, Roseville, CA
August 2014
Sheet 5 of 15

## Legend

- Delineation Area (450.91 Acres)
- Data Points
- Photo Points
- Flow Direction
- Feature Boundaries Outside Delineation Area
- Culvert
- Lined Stormwater Ditches

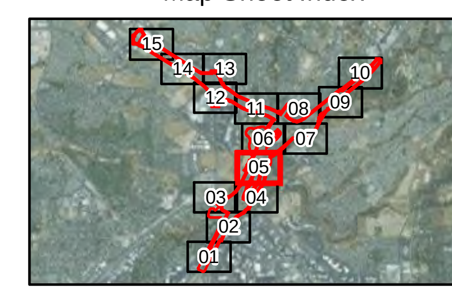
### Wetlands

- Emergent Wetland (1.045 Acre)
- Riparian Forest/Shrub Wetland (1.210 Acres)
- Seasonal Wetland (0.276 Acre)
- Vernal Pool (0.528 Acre)

### Other Waters

- Perennial Stream (4.116 Acres)
- Intermittent Stream (0.258 Acre)
- Ephemeral Drainage (0.080 Acre)

Map Sheet Index

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1 inch = 200 feet

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S36 T11N R06E, S30 T11N R07E

Prepared By: ICFI/916.737.3000
Delineated By: J. Hughes, J.Holson
Delineation Dates: 10/30/12, 11/13/12, 11/15/12, . 2/28/13, 3/7/13
Drawn By:A. Angier

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**Appendix A**
**Delineation of Potential Waters of the United States, Including Wetlands**


I-80/SR 65 Interchange Improvements
Project, Roseville, CA
August 2014
Sheet 6 of 15

## Legend

- Delineation Area (450.91 Acres)
- Data Points
- Photo Points
- Flow Direction
- Feature Boundaries Outside Delineation Area
- Culvert
- Lined Stormwater Ditches

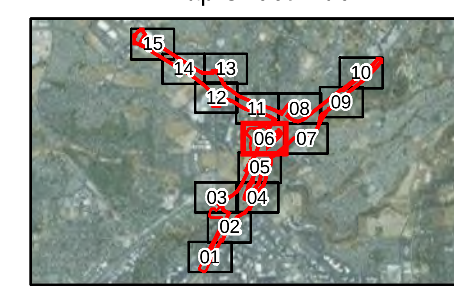
### Wetlands

- Emergent Wetland (1.045 Acre)
- Riparian Forest/Shrub Wetland (1.210 Acres)
- Seasonal Wetland (0.276 Acre)
- Vernal Pool (0.528 Acre)

### Other Waters

- Perennial Stream (4.116 Acres)
- Intermittent Stream (0.258 Acre)
- Ephemeral Drainage (0.080 Acre)

Map Sheet Index

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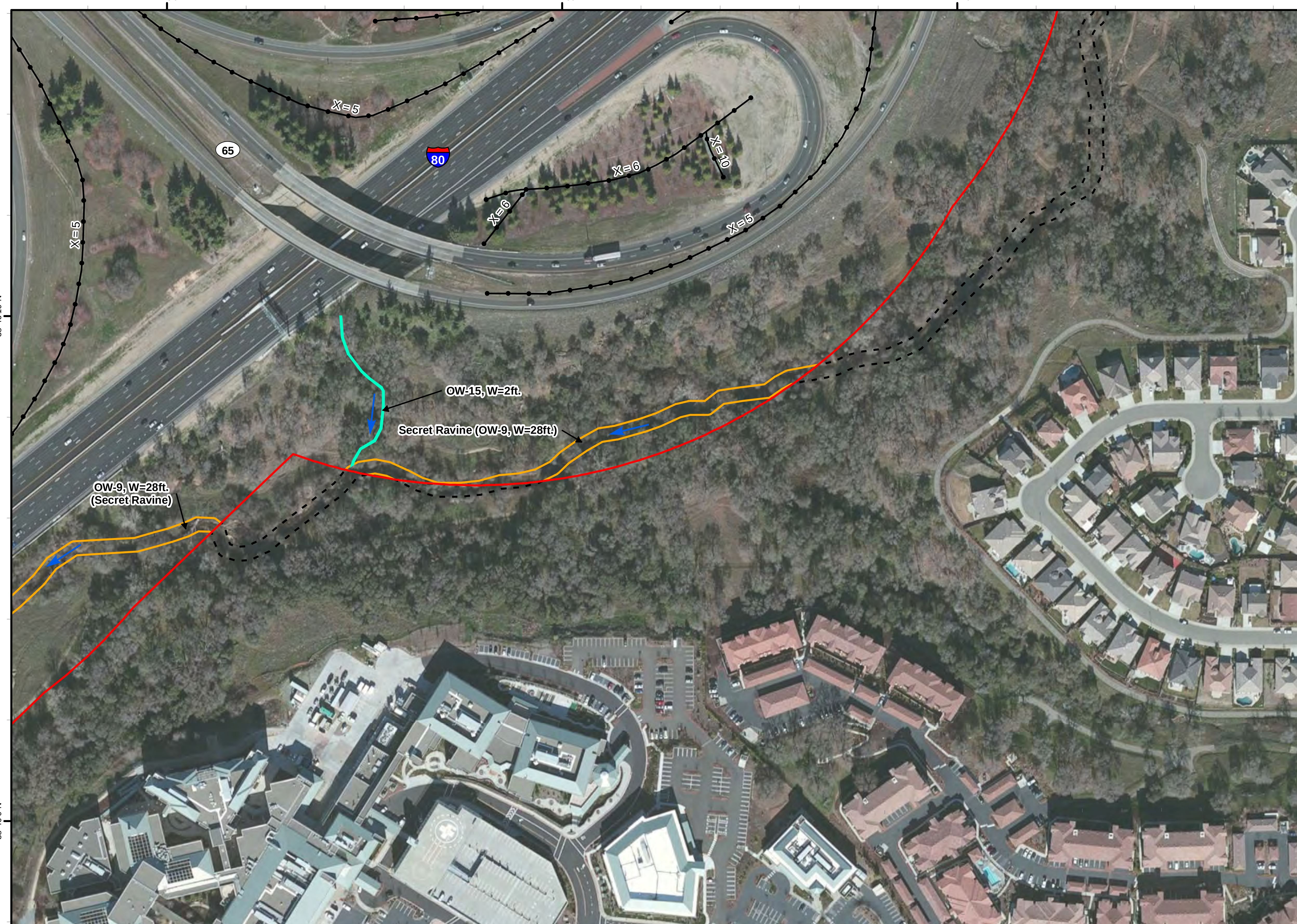
**Appendix A**
**Delineation of Potential Waters of the United States, Including Wetlands**




I-80/SR 65 Interchange Improvements
Project, Roseville, CA
August 2014
Sheet 7 of 15

## Legend

Delineation Area (450.91 Acres)
Data Points
Photo Points
Flow Direction
Feature Boundaries Outside Delineation Area
Culvert
Lined Stormwater Ditches

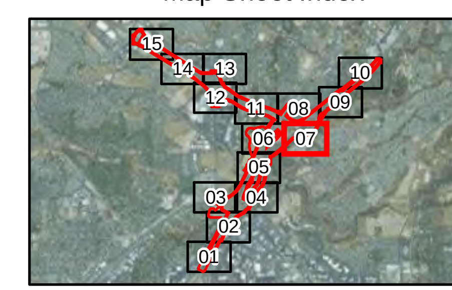
### Wetlands

Emergent Wetland (1.045 Acre)
Riparian Forest/Shrub Wetland (1.210 Acres)
Seasonal Wetland (0.276 Acre)
Vernal Pool (0.528 Acre)

### Other Waters

Perennial Stream (4.116 Acres)
Intermittent Stream (0.258 Acre)
Ephemeral Drainage (0.080 Acre)

Map Sheet Index

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S36 T11N R06E, S30 T11N R07E

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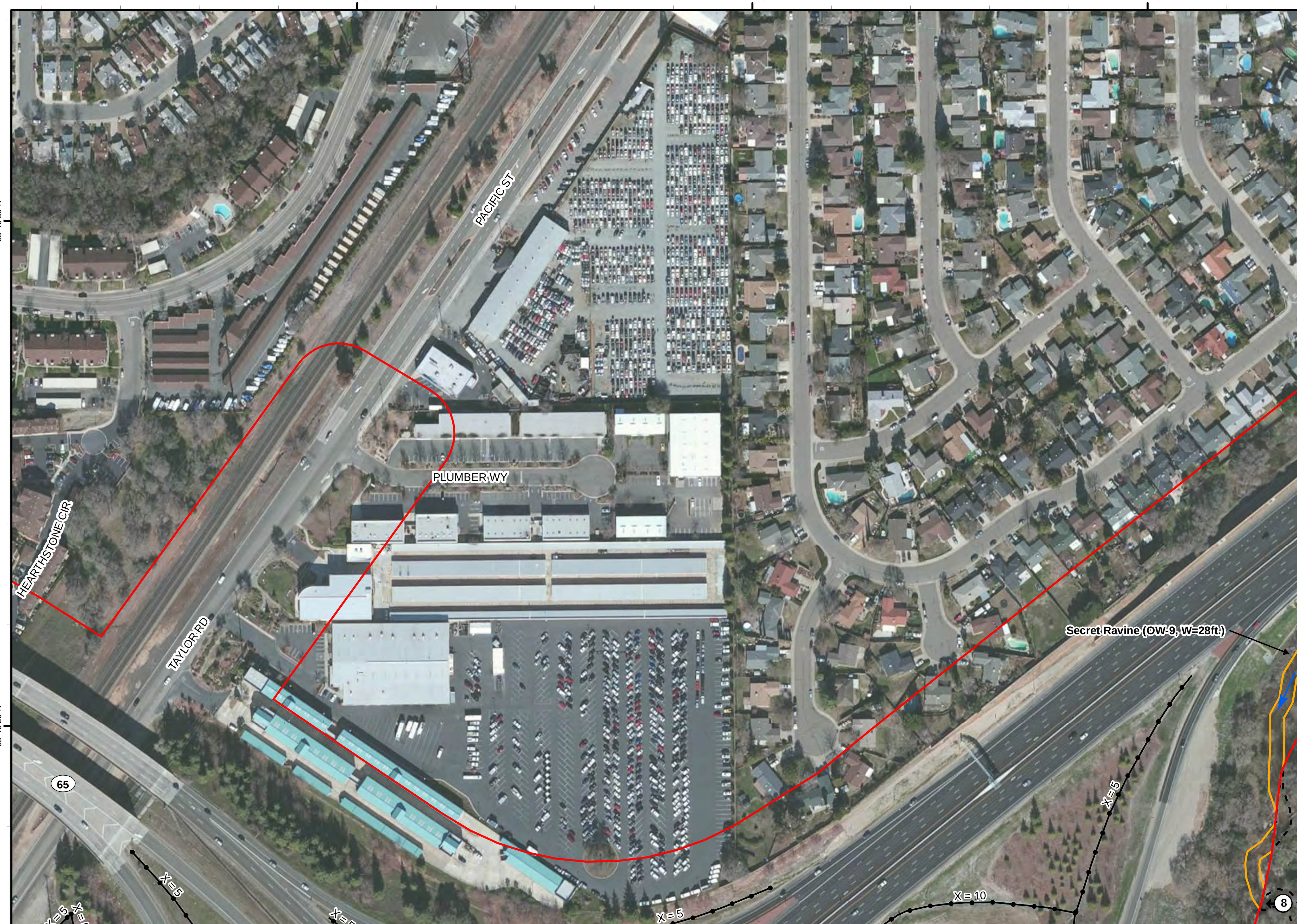



I-80/SR 65 Interchange Improvements Project, Roseville, CA
August 2014
Sheet 8 of 15

## Legend

- Delineation Area (450.91 Acres)
- Data Points
- Photo Points
- Flow Direction
- Feature Boundaries Outside Delineation Area
- Culvert
- Lined Stormwater Ditches

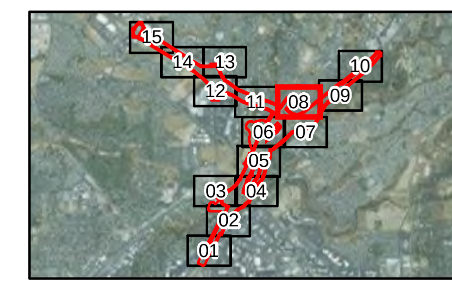
### Wetlands

- Emergent Wetland (1.045 Acre)
- Riparian Forest/Shrub Wetland (1.210 Acres)
- Seasonal Wetland (0.276 Acre)
- Vernal Pool (0.528 Acre)

### Other Waters

- Perennial Stream (4.116 Acres)
- Intermittent Stream (0.258 Acre)
- Ephemeral Drainage (0.080 Acre)

Map Sheet Index

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Feet
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Prepared By: ICFI/916.737.3000
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Delineation Dates: 10/30/12, 11/13/12, 11/15/12, . 2/28/13, 3/7/13
Drawn By:A. Angier

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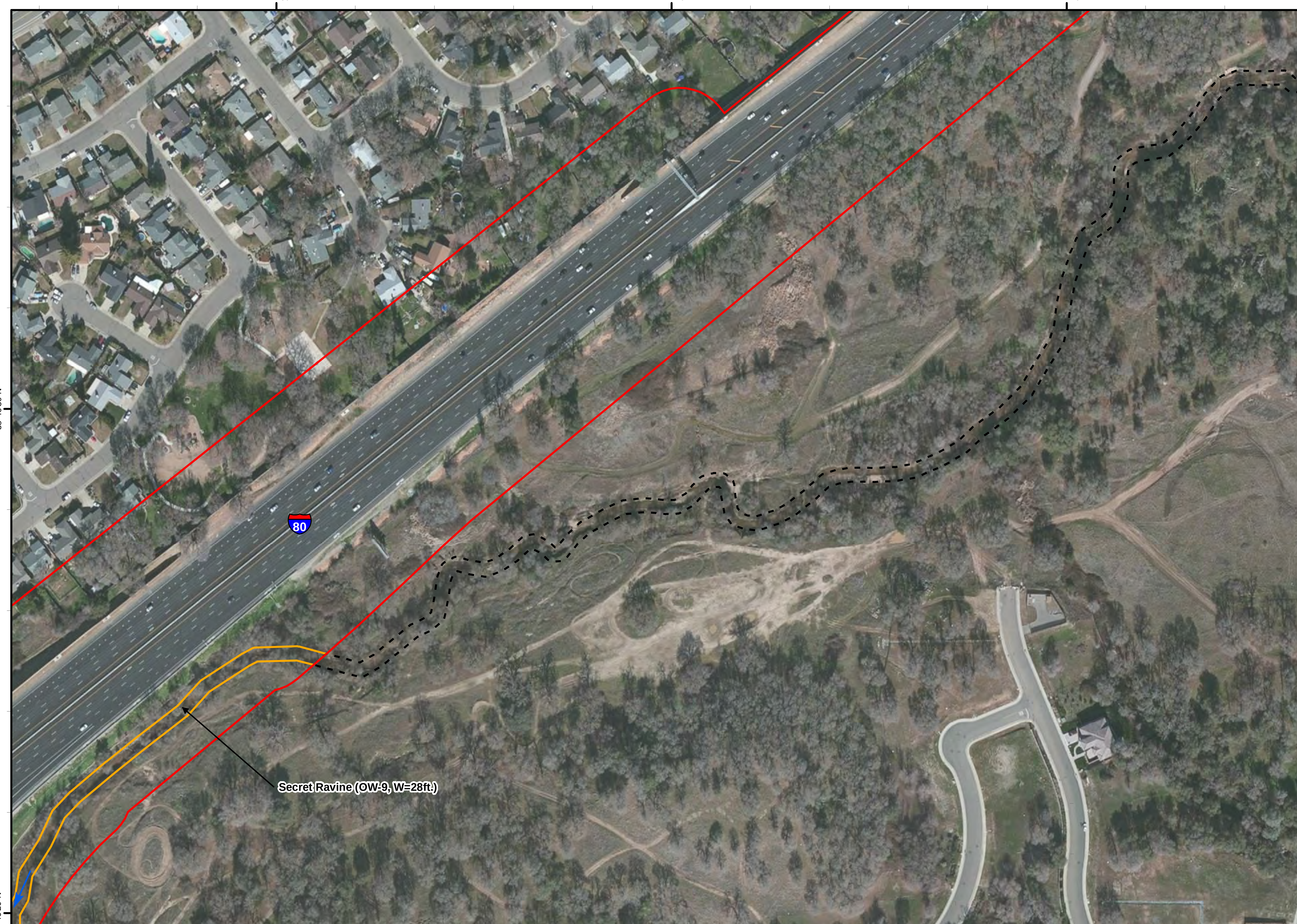
**Appendix A**
**Delineation of Potential Waters of the United States, Including Wetlands**

I-80/SR 65 Interchange Improvements Project, Roseville, CA
August 2014
Sheet 9 of 15




## Legend

Delineation Area (450.91 Acres)
Data Points
Photo Points
Flow Direction
Feature Boundaries Outside Delineation Area
Culvert
Lined Stormwater Ditches

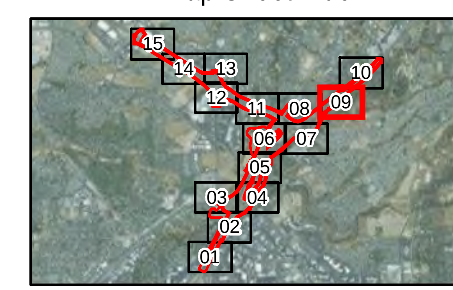
### Wetlands

Emergent Wetland (1.045 Acre)
Riparian Forest/Shrub Wetland (1.210 Acres)
Seasonal Wetland (0.276 Acre)
Vernal Pool (0.528 Acre)

### Other Waters

Perennial Stream (4.116 Acres)
Intermittent Stream (0.258 Acre)
Ephemeral Drainage (0.080 Acre)

Map Sheet Index

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**Notes:**
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**Appendix A**
**Delineation of Potential Waters of the United States, Including Wetlands**


I-80/SR 65 Interchange Improvements Project, Roseville, CA
August 2014
Sheet 10 of 15

## Legend

- Delineation Area (450.91 Acres)
- Data Points
- Photo Points
- Flow Direction
- Feature Boundaries Outside Delineation Area
- Culvert
- Lined Stormwater Ditches

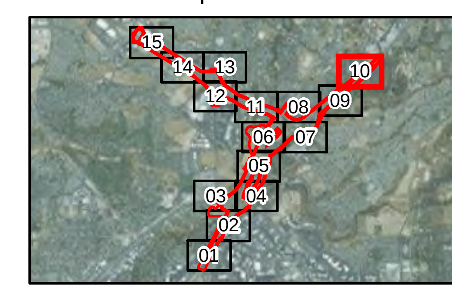
### Wetlands

- Emergent Wetland (1.045 Acre)
- Riparian Forest/Shrub Wetland (1.210 Acres)
- Seasonal Wetland (0.276 Acre)
- Vernal Pool (0.528 Acre)

### Other Waters

- Perennial Stream (4.116 Acres)
- Intermittent Stream (0.258 Acre)
- Ephemeral Drainage (0.080 Acre)

Map Sheet Index

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S36 T11N R06E, S30 T11N R07E

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**Appendix A**
**Delineation of Potential Waters of the United States, Including Wetlands**


I-80/SR 65 Interchange Improvements Project, Roseville, CA
August 2014
Sheet 11 of 15

## Legend

- Delineation Area (450.91 Acres)
- Data Points
- Photo Points
- Flow Direction
- Feature Boundaries Outside Delineation Area
- Culvert
- Lined Stormwater Ditches

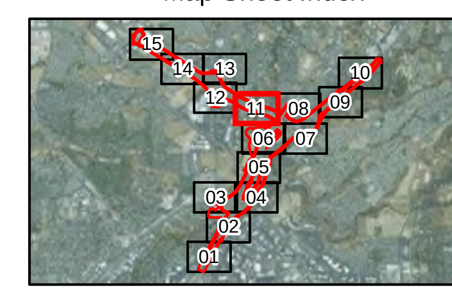
### Wetlands

- Emergent Wetland (1.045 Acre)
- Riparian Forest/Shrub Wetland (1.210 Acres)
- Seasonal Wetland (0.276 Acre)
- Vernal Pool (0.528 Acre)

### Other Waters

- Perennial Stream (4.116 Acres)
- Intermittent Stream (0.258 Acre)
- Ephemeral Drainage (0.080 Acre)

Map Sheet Index

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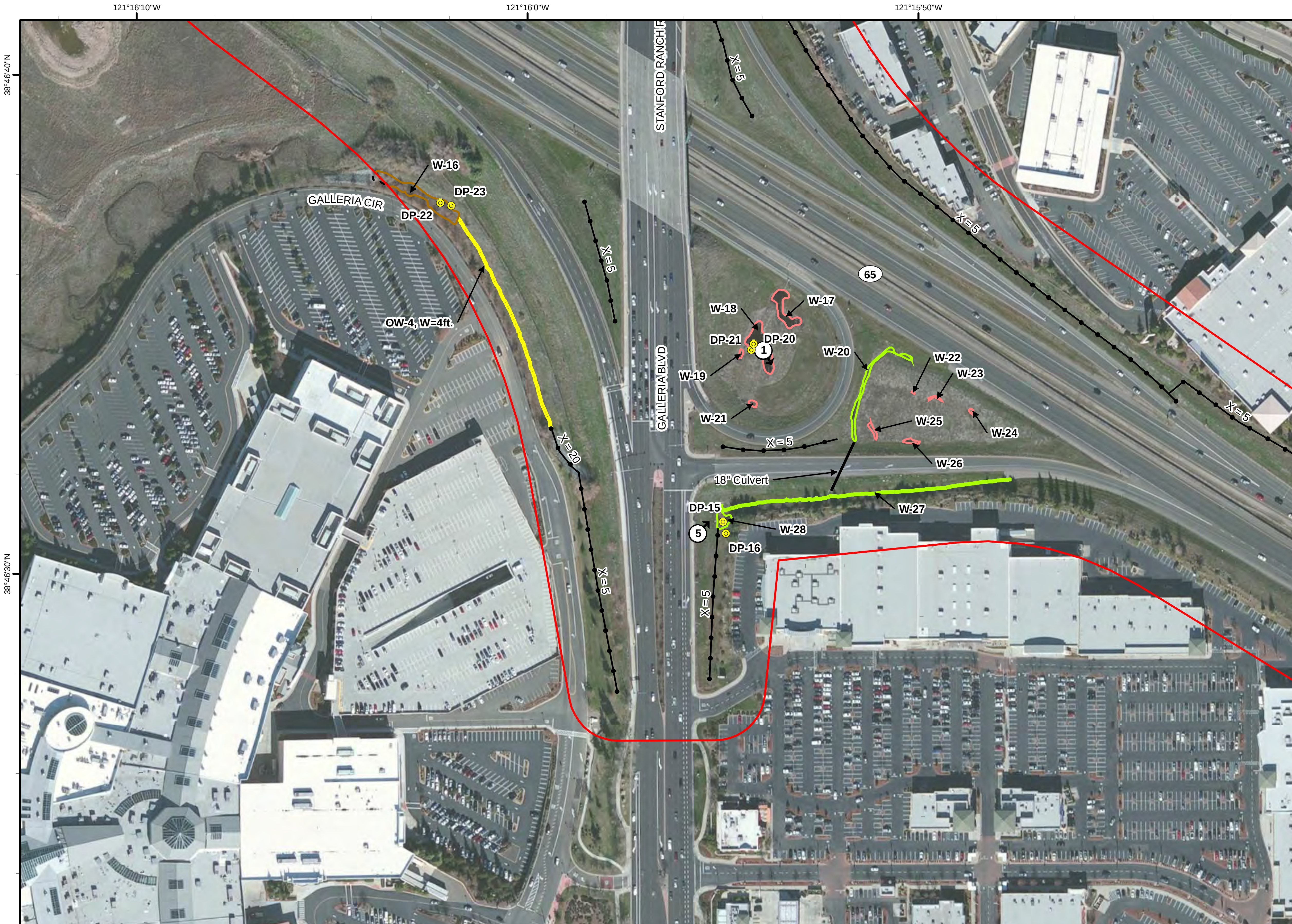
**Appendix A**
**Delineation of Potential Waters of the United States, Including Wetlands**

I-80/SR 65 Interchange Improvements
Project, Roseville, CA
August 2014
Sheet 12 of 15




## Legend

- Delineation Area (450.91 Acres)
- Data Points
- Photo Points
- Flow Direction
- Feature Boundaries Outside Delineation Area
- Culvert
- Lined Stormwater Ditches

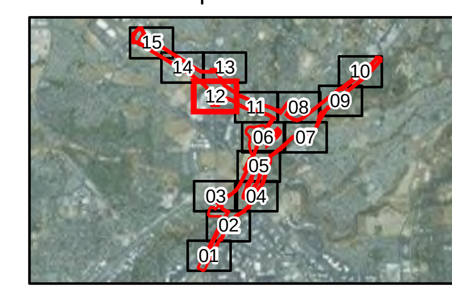
### Wetlands

- Emergent Wetland (1.045 Acre)
- Riparian Forest/Shrub Wetland (1.210 Acres)
- Seasonal Wetland (0.276 Acre)
- Vernal Pool (0.528 Acre)

### Other Waters

- Perennial Stream (4.116 Acres)
- Intermittent Stream (0.258 Acre)
- Ephemeral Drainage (0.080 Acre)

Map Sheet Index

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Imagery Source: ESRI February 2012
USGS Topo Quads: Roseville, Rocklin, Citrus Heights
PLSS: S1 T10N R06E, S23 T11N R06E,
S25 T11N R06E, S26 T11N R06E, S35 T11N R06E,
S36 T11N R06E, S30 T11N R07E

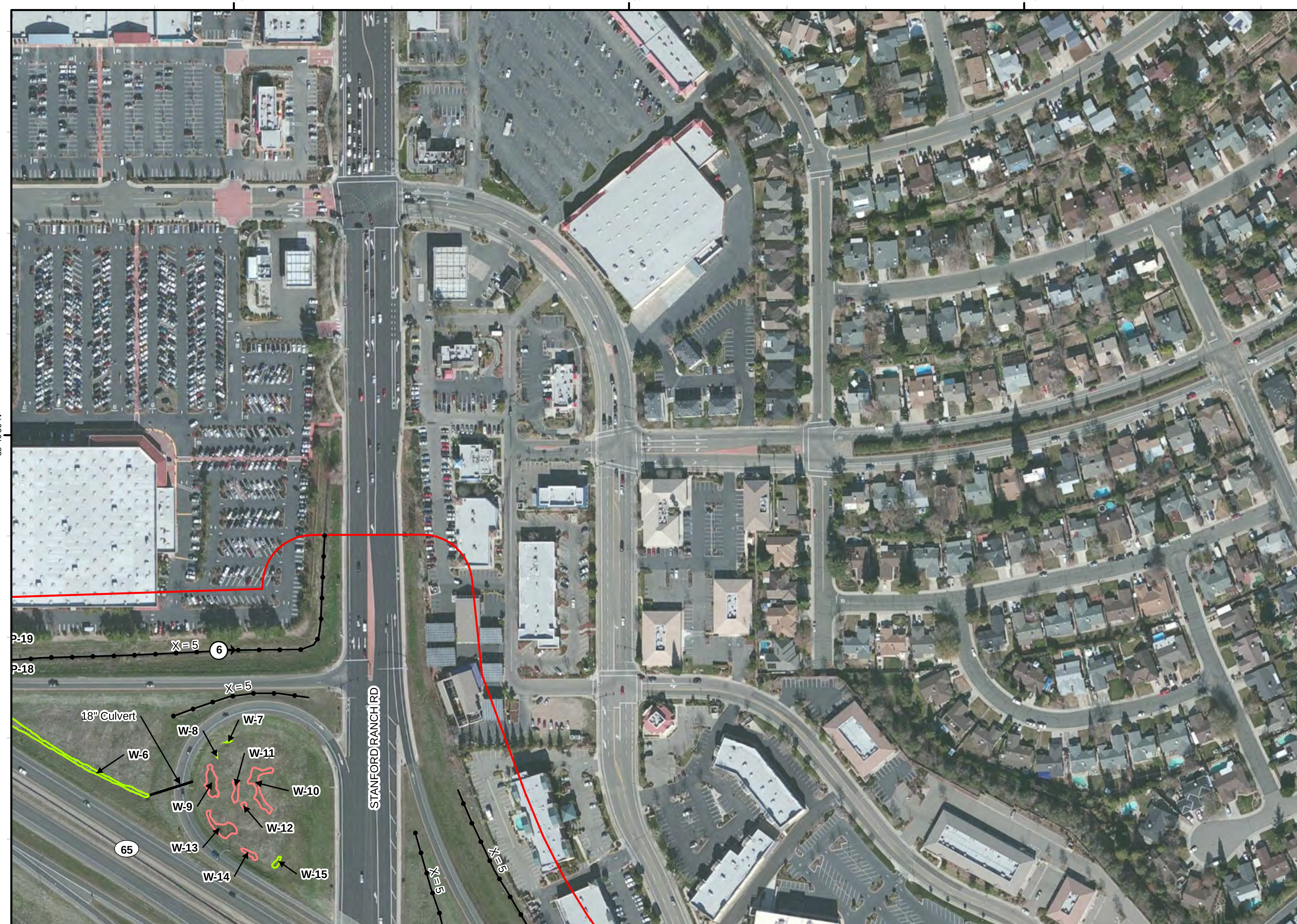
Prepared By: ICFI/916.737.3000
Delineated By: J. Hughes, J.Holson
Delineation Dates: 10/30/12, 11/13/12, 11/15/12, .
2/28/13, 3/7/13
Drawn By:A. Angier

Path: K:\Projects_1\CH2MHill\00189_11_I80_65\mapdoc\Biology\Wetland_Delineation_20140715.mxd; Author: ; Date: 8/5/2014

ICF INTERNATIONAL

**Appendix A**
**Delineation of Potential Waters of the United States, Including Wetlands**

I-80/SR 65 Interchange Improvements
Project, Roseville, CA
August 2014
Sheet 13 of 15




## Legend

- Delineation Area (450.91 Acres)
- Data Points
- Photo Points
- Flow Direction
- Feature Boundaries Outside Delineation Area
- Culvert
- Lined Stormwater Ditches

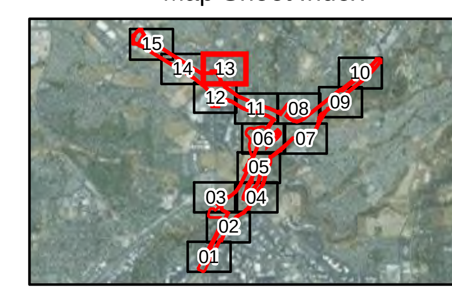
### Wetlands

- Emergent Wetland (1.045 Acre)
- Riparian Forest/Shrub Wetland (1.210 Acres)
- Seasonal Wetland (0.276 Acre)
- Vernal Pool (0.528 Acre)

### Other Waters

- Perennial Stream (4.116 Acres)
- Intermittent Stream (0.258 Acre)
- Ephemeral Drainage (0.080 Acre)

Map Sheet Index




N

0 50 100 200
Feet
1 inch = 200 feet

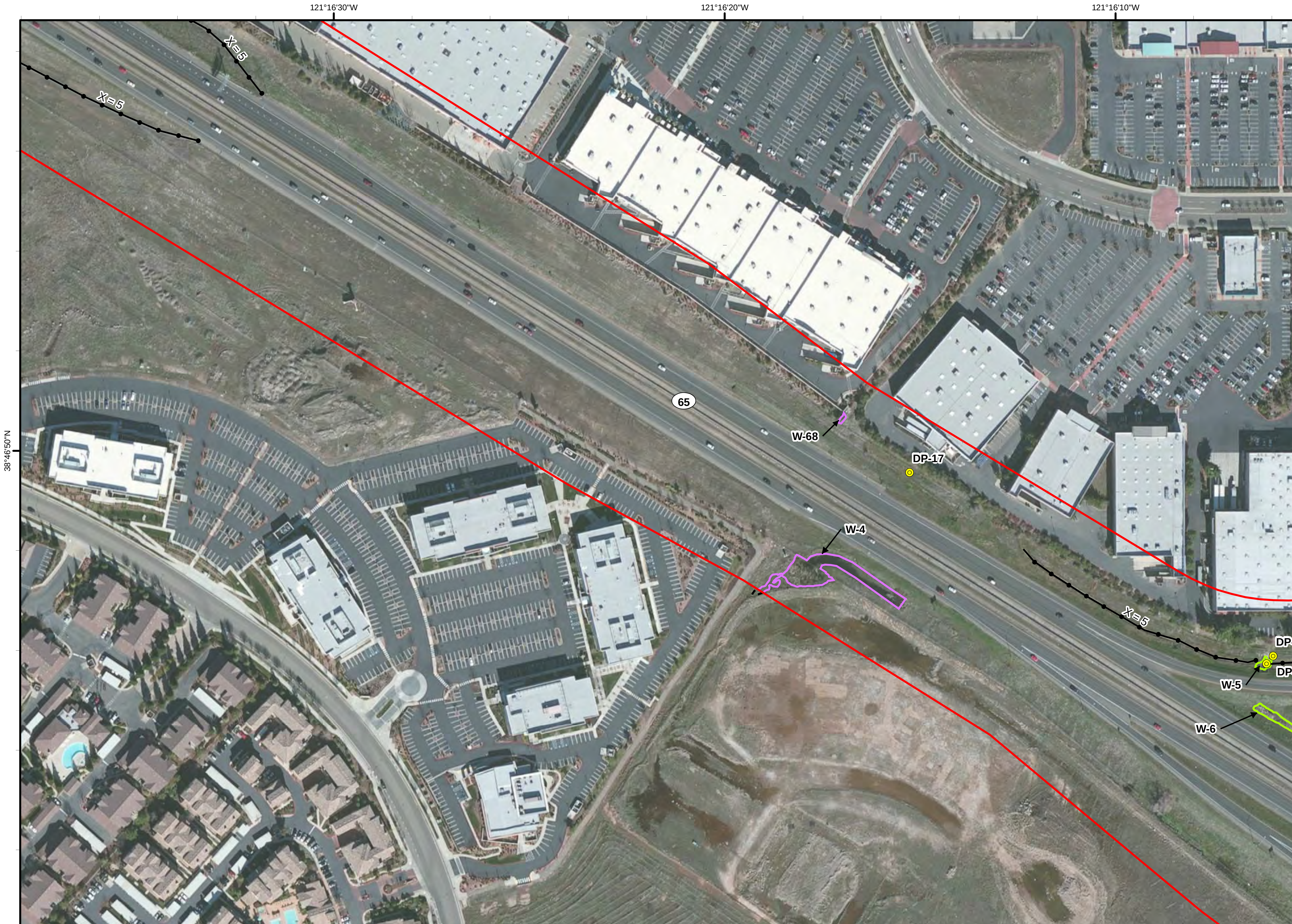
**Notes:**
Base Map Source: ICF
Imagery Source: ESRI February 2012
USGS Topo Quads: Roseville, Rocklin, Citrus Heights
PLSS: S1 T10N R06E, S23 T11N R06E,
S25 T11N R06E, S26 T11N R06E, S35 T11N R06E,
S36 T11N R06E, S30 T11N R07E

Prepared By: ICFI/916.737.3000
Delineated By: J. Hughes, J.Holson
Delineation Dates: 10/30/12, 11/13/12, 11/15/12, . 2/28/13, 3/7/13
Drawn By:A. Angier

Path: K:\Projects_1\CH2MHill\00189_11_I80_65\mapdoc\Biology\Wetland_Delineation_20140715.mxd; Author: ; Date: 8/5/2014

ICF INTERNATIONAL

**Appendix A**
**Delineation of Potential Waters of the United States, Including Wetlands**




I-80/SR 65 Interchange Improvements
Project, Roseville, CA
August 2014
Sheet 14 of 15

## Legend

- Delineation Area (450.91 Acres)
- Data Points
- Photo Points
- Flow Direction
- Feature Boundaries Outside Delineation Area
- Culvert
- Lined Stormwater Ditches

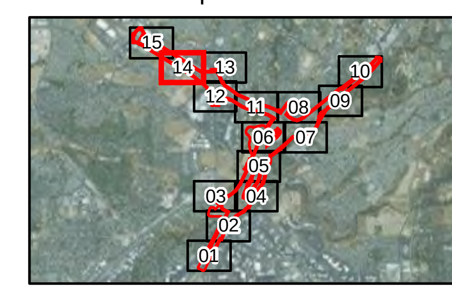
### Wetlands

- Emergent Wetland (1.045 Acre)
- Riparian Forest/Shrub Wetland (1.210 Acres)
- Seasonal Wetland (0.276 Acre)
- Vernal Pool (0.528 Acre)

### Other Waters

- Perennial Stream (4.116 Acres)
- Intermittent Stream (0.258 Acre)
- Ephemeral Drainage (0.080 Acre)

Map Sheet Index




0 50 100 200
Feet
1 inch = 200 feet

**Notes:**
Base Map Source: ICF
Imagery Source: ESRI February 2012
USGS Topo Quads: Roseville, Rocklin, Citrus Heights
PLSS: S1 T10N R06E, S23 T11N R06E,
S25 T11N R06E, S26 T11N R06E, S35 T11N R06E,
S36 T11N R06E, S30 T11N R07E

Prepared By: ICFI/916.737.3000
Delineated By: J. Hughes, J.Holson
Delineation Dates: 10/30/12, 11/13/12, 11/15/12, . 2/28/13, 3/7/13
Drawn By:A. Angier

Path: K:\Projects_1\CH2MHill\00189_11_I80_65\mapdoc\Biology\Wetland_Delineation_20140715.mxd; Author: ; Date: 8/5/2014

**Appendix A**
**Delineation of Potential Waters of the United States, Including Wetlands**


I-80/SR 65 Interchange Improvements
Project, Roseville, CA
August 2014
Sheet 15 of 15

## Legend

- Delineation Area (450.91 Acres)
- Data Points
- Photo Points
- Flow Direction
- Feature Boundaries Outside Delineation Area
- Culvert
- Lined Stormwater Ditches

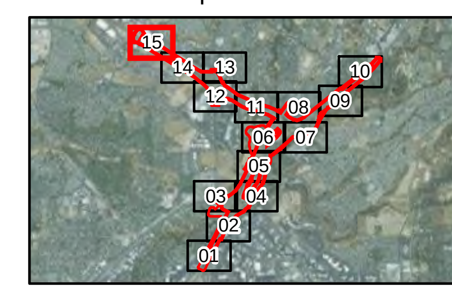
### Wetlands

- Emergent Wetland (1.045 Acre)
- Riparian Forest/Shrub Wetland (1.210 Acres)
- Seasonal Wetland (0.276 Acre)
- Vernal Pool (0.528 Acre)

### Other Waters

- Perennial Stream (4.116 Acres)
- Intermittent Stream (0.258 Acre)
- Ephemeral Drainage (0.080 Acre)

Map Sheet Index




N

0 50 100 200

Feet

1 inch = 200 feet

**Notes:**

Base Map Source: ICF
Imagery Source: ESRI February 2012
USGS Topo Quads: Roseville, Rocklin, Citrus Heights
PLSS: S1 T10N R06E, S23 T11N R06E,
S25 T11N R06E, S26 T11N R06E, S35 T11N R06E,
S36 T11N R06E, S30 T11N R07E

Prepared By: ICFI/916.737.3000
Delineated By: J. Hughes, J.Holson
Delineation Dates: 10/30/12, 11/13/12, 11/15/12, .
2/28/13, 3/7/13
Drawn By:A. Angier

Path: K:\Projects_1\CH2MHill\00189_11_I80_65\mapdoc\Biology\Wetland_Delineation_20140715.mxd; Author: ; Date: 8/5/2014

ICF INTERNATIONAL

**Appendix A**
**Delineation of Potential Waters of the United States, Including Wetlands**

Appendix B

# Routine Wetland Delineation Data Forms

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 11/13/12
Applicant/Owner: PCTPA State: CA Sampling Point: DP-3
Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 06E, S 25
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): Mediterranean California (LRR C) Lat: 38.77169284 Long: -121.2529913 Datum: NAD83
Soil Map Unit Name: Cometa-Ramona sandy loams, 1 to 5 percent slopes NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes X No ____ | Is the Sampled Area within a Wetland? | Yes X No ____ |
| Hydric Soil Present? | Yes X No ____ | | |
| Wetland Hydrology Present? | Yes X No ____ | | |

Remarks: Area sampled is a vernal pool located on a terrace between an apartment complex and the railroad tracks. Some tire tracks are present in other parts of the pool.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | =Total Cover | |
| Sapling/Shrub Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 0 | =Total Cover | |
| Herb Stratum (Plot size: 5 meter radius ) | | | |
| 1. *Eryngium castrense* | 18 | Y | OBL |
| 2. *Dittrichia graveolens* | 18 | Y | UPL |
| 3. *Juncus bufonius* | 18 | Y | FACW |
| 4. *Hordeum marinum* ssp. *gussoneanum* | 3 | N | FAC |
| 5. *Rumex crispus* | 3 | N | FAC |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 60 | =Total Cover | |
| Woody Vine Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| | 0 | =Total Cover | |
| % Bare Ground in Herb Stratum ____ | % Cover of Biotic Crust 40 | | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **67%** (A/B)

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x1 = |
| FACW species | | x2 = |
| FAC species | | x3 = |
| FACU species | | x4 = |
| UPL species | | x5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

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

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

**Hydrophytic Vegetation Present?** Yes X No ____

Remarks:

## SOIL

Sampling Point: DP-3

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 10YR 4/2 | 95 | 5YR 4/3 | 2 | c | m | scl | |
| 6-18 | 7.5YR 3/3 | 95 | 5YR 4/3 | 5 | c | m | scl | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ______

Depth (inches): ______

**Hydric Soil Present?** **Yes** X **No** ______

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

| | Yes | No | Depth (inches) |
|---|---|---|---|
| Surface Water Present? | | X | none |
| Water Table Present? | | X | none |
| Saturation Present? (includes capillary fringe) | | X | none |

**Wetland Hydrology Present?** **Yes** X **No** ______

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

Remarks:

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 11/13/12
Applicant/Owner: PCTPA State: CA Sampling Point: DP-4
Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 06E, S 25
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 2
Subregion (LRR): Mediterranean California (LRR C) Lat: 38.77171566 Long: -121.2530689 Datum: NAD83
Soil Map Unit Name: Cometa-Ramona sandy loams, 1 to 5 percent slopes NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Area sampled is the grassland located on the terrace between the apartment complex and the vernal pool sampled in DP-3.

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____ ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | =Total Cover | |
| **Sapling/Shrub Stratum** (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 0 | =Total Cover | |
| **Herb Stratum** (Plot size: 5 meter rad ) | | | |
| 1. *Bromus diandrus* | 20 | Y | UPL |
| 2. *Centaurea solstitialis* | 20 | Y | UPL |
| 3. *Elymus caput-medusae* | 35 | Y | UPL |
| 4. *Festuca perennis* | 10 | N | FAC |
| 5. *Vicia villosa* ssp. *villosa* | 2 | N | UPL |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 87 | =Total Cover | |
| **Woody Vine Stratum** (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| | 0 | =Total Cover | |
| % Bare Ground in Herb Stratum 12 | | % Cover of Biotic Crust ____ | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **0%** (A/B)

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x1 = |
| FACW species | | x2 = |
| FAC species | | x3 = |
| FACU species | | x4 = |
| UPL species | | x5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

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

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

**Hydrophytic Vegetation Present?** **Yes** ____ **No** **X**

Remarks:

## SOIL

Sampling Point: DP-4

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-18 | 10YR 4/3 | 100 | | | | | scl | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ______

Depth (inches): ______

**Hydric Soil Present?** **Yes** ___ **No** X

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes ___ No X Depth (inches): none
Water Table Present? Yes ___ No X Depth (inches): none
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): none

**Wetland Hydrology Present?** **Yes** ___ **No** X

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 11/13/12
Applicant/Owner: PCTPA State: CA Sampling Point: DP-5
Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 06E, S 25
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): Mediterranean California (LRR C) Lat: 38.77257537 Long: -121.253857 Datum: NAD83
Soil Map Unit Name: Cometa-Ramona sandy loams, 1 to 5 percent slopes NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Area sampled is seasonal wetland located on terrace adjacent to a drainage at the base of a slope below the edge of an apartment complex.

### VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | =Total Cover | |
| Sapling/Shrub Stratum (Plot size: 5 meter rad_ ) | | | |
| 1. *Salix exigua* | 10 | Y | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 10 | =Total Cover | |
| Herb Stratum (Plot size: _____5 meter rad__ ) | | | |
| 1. *Cyperus eragrostis* | 40 | Y | FACW |
| 2. *Cynodon dactylon* | 20 | Y | FACU |
| 3. *Paspalum dilatatum* | 20 | Y | FAC |
| 4. *Rumex crispus* | 3 | N | FAC |
| 5. *Geranium molle* | 2 | N | UPL |
| 6. *Eleocharis acicularis* | 10 | N | OBL |
| 7. | | | |
| 8. | | | |
| | 95 | =Total Cover | |
| Woody Vine Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| | 0 | =Total Cover | |
| % Bare Ground in Herb Stratum ____ | % Cover of Biotic Crust | 5 | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **75%** (A/B)

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x1 = | |
| FACW species | | x2 = | |
| FAC species | | x3 = | |
| FACU species | | x4 = | |
| UPL species | | x5 = | |
| Column Totals: | (A) | | (B) |
| Prevalence Index = B/A = | | | |

**Hydrophytic Vegetation Indicators:**

- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptationd[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes X No ____**

Remarks:

## SOIL

Sampling Point: DP-5

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-3 | 10YR 3/2 | 100 | | | | | cl | |
| 4-18 | 10YR 4/2 | 95 | 5YR 4/6 | 5 | c | m | cl | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ______

Depth (inches): ______

**Hydric Soil Present?** **Yes** X **No** ______

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

| | Yes | No | Depth (inches) |
|---|---|---|---|
| Surface Water Present? | | X | none |
| Water Table Present? | | X | none |
| Saturation Present? (includes capillary fringe) | | X | none |

**Wetland Hydrology Present?** **Yes** X **No** ______

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

Remarks: In addition to precipitation, wetland appears to receive hydrological input in the form of runoff from the adjacent apartment complex, particularly when the nearby drainage overflows.

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 11/13/12
Applicant/Owner: PCTPA State: CA Sampling Point: DP-6
Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 06E, S 25
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Mediterranean California (LRR C) Lat: 38.77260327 Long: -121.2539024 Datum: NAD83
Soil Map Unit Name: Cometa-Ramona sandy loams, 1 to 5 percent slopes NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | |
|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ No X | Is the Sampled Area within a Wetland? Yes ____ No X |
| Hydric Soil Present? | Yes ____ No X | |
| Wetland Hydrology Present? | Yes ____ No X | |

Remarks: Area sampled is the grassland adjacent to the seasonal wetland sampled in DP-5.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 =Total Cover | | |
| Sapling/Shrub Stratum (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 0 =Total Cover | | |
| Herb Stratum (Plot size: 5 meter rad.) | | | |
| 1. *Cynodon dactylon* | 40 | Y | FACU |
| 2. *Geranium molle* | 40 | Y | UPL |
| 3. *Bromus diandrus* | 10 | N | UPL |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 90 =Total Cover | | |
| Woody Vine Stratum (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | 0 =Total Cover | | |

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust ____

**Dominance Test worksheet:**

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

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x1 = |
| FACW species | | x2 = |
| FAC species | | x3 = |
| FACU species | | x4 = |
| UPL species | | x5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

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

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

**Hydrophytic Vegetation Present?** Yes ____ No X

Remarks:

## SOIL

Sampling Point: DP-6

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-18 | 10YR 4/2 | 98 | 5YR 4/6 | 2 | c | m | cl | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ______

Depth (inches): ______

**Hydric Soil Present?** **Yes** ______ **No** X

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

| | | | | |
|---|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): | none |
| Water Table Present? | Yes ___ | No X | Depth (inches): | none |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): | none |

**Wetland Hydrology Present?** **Yes** ______ **No** X

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

Remarks:

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 11/13/12
Applicant/Owner: PCTPA State: CA Sampling Point: DP-7
Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 06E, S 25
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Mediterranean California (LRR C) Lat: 38.77316383 Long: -121.2559878 Datum: NAD83
Soil Map Unit Name: Xerofluvents, frequently flooded NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Area sampled is the willow scrub at the edge of the riparian corridor on the north side of Antelope Creek.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | =Total Cover | |
| Sapling/Shrub Stratum (Plot size: _4 meter rad ) | | | |
| 1. *Salix exigua* | 35 | Y | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 35 | =Total Cover | |
| Herb Stratum (Plot size: __4 meter rad_____ ) | | | |
| 1. *Paspalum dilatatum* | 25 | Y | FAC |
| 2. *Cyperus eragrostis* | 10 | Y | FACW |
| 3. *Geranium molle* | 5 | N | UPL |
| 4. *Cynodon dactylon* | 10 | Y | FACU |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 50 | =Total Cover | |
| Woody Vine Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| | 0 | =Total Cover | |
| % Bare Ground in Herb Stratum 45 | % Cover of Biotic Crust 5 | | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)
Total Number of Dominant Species Across All Strata: **4** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **75%** (A/B)

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x1 = |
| FACW species | | x2 = |
| FAC species | | x3 = |
| FACU species | | x4 = |
| UPL species | | x5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

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

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

**Hydrophytic Vegetation Present?** **Yes X No ____**

Remarks:

## SOIL

Sampling Point: DP-7

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-18 | 10YR 3/2 | 95 | 5YR 4/6 | 5 | c | m | scl | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ______

Depth (inches): ______

**Hydric Soil Present?** **Yes** X **No** ______

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

| | Yes | No | Depth (inches) |
|---|---|---|---|
| Surface Water Present? | | X | none |
| Water Table Present? | | X | none |
| Saturation Present? (includes capillary fringe) | | X | none |

**Wetland Hydrology Present?** **Yes** X **No** ______

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 11/13/12

Applicant/Owner: PCTPA State: CA Sampling Point: DP-8

Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 06E, S 25

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.77314209 Long: -121.25592 Datum: NAD83

Soil Map Unit Name: Xerofluvents, frequently flooded NWI Classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | Yes | No |
|---|---|---|
| Hydrophytic Vegetation Present? | | X |
| Hydric Soil Present? | X | |
| Wetland Hydrology Present? | | X |
| **Is the Sampled Area within a Wetland?** | | X |

Remarks: Area sampled is the grassland adjacent to the riparian corridor on the north side of Antelope Creek.

### VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| =Total Cover | 0 | | |
| Sapling/Shrub Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| =Total Cover | 0 | | |
| Herb Stratum (Plot size: 4 meter rad. ) | | | |
| 1. *Bromus diandrus* | 30 | Y | UPL |
| 2. *Avena barbata* | 30 | Y | UPL |
| 3. *Festuca perennis* | 30 | Y | FAC |
| 4. *Rumex crispus* | 3 | N | FAC |
| 5. *Rumex acetosella* | 2 | N | FACU |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| =Total Cover | 95 | | |
| Woody Vine Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| =Total Cover | 0 | | |

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust ____

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **33%** (A/B)

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x1 = |
| FACW species | | x2 = |
| FAC species | | x3 = |
| FACU species | | x4 = |
| UPL species | | x5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

____ Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

____ Morphological Adaptationd[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes ____ No X

Remarks:

## SOIL

Sampling Point: DP-8

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10YR 3/3 | 95 | 5YR 4/6 | 5 | c | m | scl | |
| 8-18 | 10YR 3/3 | 100 | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ___

Depth (inches): ___

**Hydric Soil Present?** **Yes** X **No** ___

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

| | | | | |
|---|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): | none |
| Water Table Present? | Yes ___ | No X | Depth (inches): | none |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): | none |

**Wetland Hydrology Present?** **Yes** ___ **No** X

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

Remarks:

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 11/13/12
Applicant/Owner: PCTPA State: CA Sampling Point: DP-9
Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 06E, S 25
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 3
Subregion (LRR): Mediterranean California (LRR C) Lat: 38.77334016 Long: -121.2570086 Datum: NAD83
Soil Map Unit Name: Cometa sandy loam, 1 to 5 percent slopes NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | |
|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ No X | Is the Sampled Area within a Wetland? Yes ____ No X |
| Hydric Soil Present? | Yes ____ No X | |
| Wetland Hydrology Present? | Yes ____ No X | |

Remarks: Area sampled is the riparian corridor at the toe of the hillslope on the west side of Antelope Creek.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: 3 meter rad) | | | |
| 1. *Quercus lobata* | 20 | Y | FACU |
| 2. *Quercus wislizeni* | 15 | Y | UPL |
| 3. | | | |
| 4. | | | |
| | 35 | =Total Cover | |
| Sapling/Shrub Stratum (Plot size: 3 meter rad) | | | |
| 1. *Salix exigua* | 15 | Y | FACW |
| 2. *Quercus douglasii* | 4 | N | UPL |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 19 | =Total Cover | |
| Herb Stratum (Plot size: 3 meter rad) | | | |
| 1. *Torilis arvensis* | 5 | N | UPL |
| 2. *Bromus carinatus* | 25 | Y | UPL |
| 3. *Bromus diandrus* | 30 | Y | UPL |
| 4. *Geranium molle* | 5 | N | UPL |
| 5. *Aegilops triuncialis* | 10 | N | UPL |
| 6. *Vicia villosa* ssp. *villosa* | 5 | N | UPL |
| 7. | | | |
| 8. | | | |
| | 80 | =Total Cover | |
| Woody Vine Stratum (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | 0 | =Total Cover | |

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust ____

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **5** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **20%** (A/B)

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x1 = |
| FACW species | | x2 = |
| FAC species | | x3 = |
| FACU species | | x4 = |
| UPL species | | x5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

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

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

**Hydrophytic Vegetation Present?** Yes ____ No X

Remarks: The bare ground in the herb stratum consists of leaf litter.

## SOIL

Sampling Point: DP-9

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 10YR 3/1 | 100 | | | | | scl | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ______

Depth (inches): ______

**Hydric Soil Present?** Yes ___ No X

Remarks: Shovel refusal at a depth of 6 inches due to rock layer.

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

| | | | | |
|---|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): | none |
| Water Table Present? | Yes ___ | No X | Depth (inches): | none |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): | none |

**Wetland Hydrology Present?** Yes ___ No X

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

Remarks:

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 11/13/12
Applicant/Owner: PCTPA State: CA Sampling Point: DP-10
Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 06E, S 25
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): slightly concave Slope (%): <1
Subregion (LRR): Mediterranean California (LRR C) Lat: 38.77330043 Long: -121.2568918 Datum: NAD83
Soil Map Unit Name: Xerofluvents, frequently flooded NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Area sampled is emergent wetland located between the open water on the west side Antelope Creek and the riparian corridor sampled in DP-9.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | =Total Cover | |
| Sapling/Shrub Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 0 | =Total Cover | |
| Herb Stratum (Plot size: 3 meter rad. ) | | | |
| 1. *Persicaria hydropiperoides* | 60 | Y | OBL |
| 2. *Schoenoplectus acutus* | 20 | Y | OBL |
| 3. *Typha angustifolia* | 20 | Y | OBL |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 100 | =Total Cover | |
| Woody Vine Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| | 0 | =Total Cover | |
| % Bare Ground in Herb Stratum | | % Cover of Biotic Crust | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x1 = |
| FACW species | | x2 = |
| FAC species | | x3 = |
| FACU species | | x4 = |
| UPL species | | x5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

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

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

**Hydrophytic Vegetation Present?** **Yes** Y **No** ____

Remarks:

## SOIL

Sampling Point: DP-10

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-2 | | | | | | | | organic matter |
| 2-18 | 10YR 2/1 | 95 | 5YR 4/6 | 5 | c | m | cl | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ____________

Depth (inches): ____________

**Hydric Soil Present?** Yes X No ____

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

| | Yes | No | Depth (inches) |
|---|---|---|---|
| Surface Water Present? | | X | none |
| Water Table Present? | X | | 16 |
| Saturation Present? (includes capillary fringe) | X | | 6 |

**Wetland Hydrology Present?** Yes X No ____

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 11/13/12

Applicant/Owner: PCTPA State: CA Sampling Point: DP-13

Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 06E, S 23

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): slightly concave Slope (%): 1

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78432291 Long: -121.2778599 Datum: NAD83

Soil Map Unit Name: Exchequer-Rock outcrop complex, 2 to 30 percent slopes NWI Classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Area sampled is wetland located between the toe of a slope at the edge of a shopping center and signs indicating the presence of a subterranean sewer pipeline. The reason that the hydrology is considered significantly disturbed is that field observations suggest that the primary source of hydrology is a leak from the sewer pipeline and/or regular runoff from the shopping center. An oily sheen was observed atop the parts of the wetland with open water.

### VEGETATION – Use scientific names of plants.

| Stratum / Species | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: 5 meter rad.) | | | |
| 1. *Salix laevigata* | 20 | Y | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 20 | =Total Cover | |
| Sapling/Shrub Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 0 | =Total Cover | |
| Herb Stratum (Plot size: 5 meter rad.) | | | |
| 1. *Mentha pulegium* | 10 | N | OBL |
| 2. *Geranium molle* | 20 | Y | UPL |
| 3. *Eleocharis macrostachya* | 35 | Y | ≥FACW* |
| 4. *Cyperus difformis* | 2 | N | OBL |
| 5. *Vicia villosa* ssp. *villosa* | 2 | N | UPL |
| 6. *Briza minor* | 1 | N | FAC |
| 7. | | | |
| 8. | | | |
| | 70 | =Total Cover | |
| Woody Vine Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| | 0 | =Total Cover | |

% Bare Ground in Herb Stratum 25** % Cover of Biotic Crust 5

**Dominance Test worksheet:**

| | | |
|---|---|---|
| Number of Dominant Species That Are OBL, FACW, or FAC: | **2** | (A) |
| Total Number of Dominant Species Across All Strata: | **3** | (B) |
| Percent of Dominant Species That Are OBL, FACW, or FAC: | **67%** | (A/B) |

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x1 = |
| FACW species | | x2 = |
| FAC species | | x3 = |
| FACU species | | x4 = |
| UPL species | | x5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptationd[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes X No ____

Remarks: *All *Eleocharis* spp. on 2011 USACE list are FACW or OBL. **Bare ground category includes ~15% open water, ~10% bare ground.

## SOIL

Sampling Point: DP-13

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 7.5YR 3/3 | 95 | 2.5YR 4/6 | 5 | c | m | scl | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ______

Depth (inches): ______

**Hydric Soil Present?** **Yes** X **No** ___

Remarks: Shovel refusal at a depth of 8 inches due to cobble.

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

| | Yes | No | Depth (inches) |
|---|---|---|---|
| Surface Water Present? | X | | 1 |
| Water Table Present? | X | | 8 |
| Saturation Present? (includes capillary fringe) | X | | surface |

**Wetland Hydrology Present?** **Yes** X **No** ___

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

Remarks: The surface water at the area sampled consisted of puddles, and was present on ~15% of the wetland as a whole.

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 11/13/12
Applicant/Owner: PCTPA State: CA Sampling Point: DP-14
Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 06E, S 23
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78428878 Long: -121.2778138 Datum: NAD83
Soil Map Unit Name: Exchequer-Rock outcrop complex, 2 to 30 percent slopes NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | Yes | No |
|---|---|---|
| Hydrophytic Vegetation Present? | | X |
| Hydric Soil Present? | | X |
| Wetland Hydrology Present? | | X |

**Is the Sampled Area within a Wetland?** Yes ____ No X

Remarks: Area sampled is the grassland adjacent to the southeast side of the emergent wetland sampled in DP-13.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| =Total Cover | 0 | | |
| Sapling/Shrub Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| =Total Cover | 0 | | |
| Herb Stratum (Plot size: 5 meter rad. ) | | | |
| 1. *Vicia villosa* ssp. *villosa* | 20 | Y | UPL |
| 2. *Elymus caput-medusae* | 20 | Y | UPL |
| 3. *Erodium botrys* | 5 | N | FACU |
| 4. *Geranium molle* | 25 | Y | UPL |
| 5. *Carduus pycnocephalus* | 5 | N | UPL |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| =Total Cover | 75 | | |
| Woody Vine Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| =Total Cover | 0 | | |

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust ____

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **0%** (A/B)

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x1 = |
| FACW species | | x2 = |
| FAC species | | x3 = |
| FACU species | | x4 = |
| UPL species | | x5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

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

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

**Hydrophytic Vegetation Present?** Yes ____ No X

Remarks:

## SOIL

Sampling Point: DP-14

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 7.5YR 3/3 | 100 | | | | | gr scl | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ___

Depth (inches): ___

**Hydric Soil Present?** **Yes** ___ **No** X

Remarks: Shovel refusal at a depth of 6 inches due to cobble.

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

| | Yes | No | Depth (inches) |
|---|---|---|---|
| Surface Water Present? | | X | none |
| Water Table Present? | | X | none |
| Saturation Present? (includes capillary fringe) | | X | none |

**Wetland Hydrology Present?** **Yes** ___ **No** X

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 11/13/12
Applicant/Owner: PCTPA State: CA Sampling Point: DP-15
Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 06E, S 25
Landform (hillslope, terrace, etc.): slight slope w/ dip @toe Local relief (concave, convex, none): slightly convex Slope (%): 1
Subregion (LRR): Mediterranean California (LRR C) Lat: 38.77525798 Long: -121.2653071 Datum: NAD83
Soil Map Unit Name: Exchequer very stony loam, 2 to 15 percent slopes NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Area sampled is located between base of wall at edge of shopping center and large culvert that conveys flows from the shopping center north to the cloverleaf in the southwest corner of the interchange of SR-65 and Galleria Blvd/Stanford Ranch Rd. The reason that the hydrology is considered significantly disturbed is that field observations suggest that the primary source of hydrology for the wetland is regular runoff from the shopping center, and that the runoff enabled the establishment/support of the dominant wetland species: narrowleaf cattail, red willow, and narrowleaf willow.

### VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | =Total Cover | | |
| Sapling/Shrub Stratum (Plot size: _3 meter rad.) | | | |
| 1. *Salix exigua* | 1 | Y | FACW |
| 2. *Salix laevigata* | 1 | Y | FACW |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 2 =Total Cover | | |
| Herb Stratum (Plot size: __3 meter rad. ____ ) | | | |
| 1. *Typha angustifolia* | 30 | Y | OBL |
| 2. *Epilobium ciliatum* | 10 | Y | FACW |
| 3. *Cyperus eragrostis* | 5 | N | FACW |
| 4. *Festuca perennis* | 10 | Y | FAC |
| 5. *Polypogon monspeliensis* | 5 | N | FACW |
| 6. *Lythrum hyssopifolia* | 2 | N | OBL |
| 7. *Festuca bromoides* | 10 | Y | FAC |
| 8. *Mentha pulegium* | 3 | N | OBL |
| | 80* =Total Cover | | |
| Woody Vine Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| | 0 =Total Cover | | |
| % Bare Ground in Herb Stratum 20 | % Cover of Biotic Crust ____ | | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: **6** (A)
Total Number of Dominant Species Across All Strata: **6** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x1 = |
| FACW species | | x2 = |
| FAC species | | x3 = |
| FACU species | | x4 = |
| UPL species | | x5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

- X Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ Morphological Adaptationd[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes X No ____

Remarks: 5% cover of *Bromus hordeaceus* (FACU; not a dominant species) was also observed in the wetland but could not fit with rest of species listed for the herb stratum.

## SOIL

Sampling Point: DP-15

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

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

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ______

Depth (inches): ______

**Hydric Soil Present?** **Yes** X **No** ______

Remarks: Strong hydrogen sulfide odor was observed as soon as first shovelful was excavated.

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes X No ___ Depth (inches): 1
Water Table Present? Yes X No ___ Depth (inches): 6
Saturation Present? Yes X No ___ Depth (inches): 4
(includes capillary fringe)

**Wetland Hydrology Present?** **Yes** X **No** ______

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

Remarks:

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 11/13/12
Applicant/Owner: PCTPA State: CA Sampling Point: DP-16
Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 06E, S 25
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): slightly convex Slope (%): 2
Subregion (LRR): Mediterranean California (LRR C) Lat: 38.77519373 Long: -121.2652871 Datum: NAD83
Soil Map Unit Name: Exchequer very stony loam, 2 to 15 percent slopes NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Area sampled is the terrace adjacent to the wetland sampled at DP-15. The reason that the circumstances aren't considered normal is that field observations suggest that regular runoff from the shopping center is facilitating the establishment/support of narrowleaf cattail, which would not otherwise be expected to occur in this location/landscape position.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | =Total Cover | |
| Sapling/Shrub Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 0 | =Total Cover | |
| Herb Stratum (Plot size: 3 meter rad. ) | | | |
| 1. *Typha angustifolia* | 10 | Y | OBL |
| 2. *Festuca perennis* | 15 | Y | FAC |
| 3. *Helminthotheca echioides* | 10 | Y | FACU |
| 4. *Carduus pycnocephalus* | 3 | N | UPL |
| 5. *Rumex crispus* | 2 | N | FAC |
| 6. *Hypochaeris glabra* | 5 | N | UPL |
| 7. | | | |
| 8. | | | |
| | 50 | =Total Cover | |
| Woody Vine Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| | 0 | =Total Cover | |
| % Bare Ground in Herb Stratum 50* | % Cover of Biotic Crust ____ | | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **67%** (A/B)

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x1 = |
| FACW species | | x2 = |
| FAC species | | x3 = |
| FACU species | | x4 = |
| UPL species | | x5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

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

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

**Hydrophytic Vegetation Present?** Yes X No ____

Remarks: Bare ground category consists of leaf litter and thatch.

## SOIL

Sampling Point: DP-16

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 7.5YR 3/3 | 100 | | | | | scl | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ______

Depth (inches): ______

**Hydric Soil Present?** **Yes** ___ **No** X

Remarks: Shovel refusal at a depth of 8 inches due to cobble.

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

| | | | | |
|---|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): | none |
| Water Table Present? | Yes ___ | No X | Depth (inches): | none |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): | none |

**Wetland Hydrology Present?** **Yes** ___ **No** X

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

Remarks:

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 02/28/13
Applicant/Owner: PCTPA State: CA Sampling Point: DP-17
Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 6E, S 26
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Mediterranean California (LRR C) Lat: 38.78039412 Long: -121.2709337 Datum: NAD83
Soil Map Unit Name: Exchequer very stony loam, 2 to 15 percent slopes NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | |
|---|---|---|
| Hydrophytic Vegetation Present? Yes X No ___ | **Is the Sampled Area within a Wetland?** | **Yes** ___ **No** X |
| Hydric Soil Present? Yes ___ No X | | |
| Wetland Hydrology Present? Yes ___ No X | | |

Area sampled is a patch of *Juncus effusus* on slope between chain-link fence at the edge of a shopping center and the SR 65 right-of-way. The reason that the hydrology is considered significantly disturbed is that field observations suggest that the primary source of hydrology is regular runoff from the adjacent shopping center.

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ___ ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | =Total Cover | |
| **Sapling/Shrub Stratum** (Plot size: ___ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 0 | =Total Cover | |
| **Herb Stratum** (Plot size: 3 meter radius ) | | | |
| 1. *Juncus effusus* | 20 | Y | FACW |
| 2. *Avena barbata* | 10 | N | UPL |
| 3. *Geranium molle* | 10 | N | UPL |
| 4. *Sonchus asper* | 2 | N | FAC |
| 5. *Bromus madritensis* ssp. *rubens* | 10 | N | UPL |
| 6. *Lotus corniculatus* | 1 | N | FAC |
| 7. *Festuca perennis* | 20 | Y | FAC |
| 8. *Erodium botrys* | 2 | N | FACU |
| | 75 | =Total Cover | |
| **Woody Vine Stratum** (Plot size: ___ ) | | | |
| 1. | | | |
| 2. | | | |
| | 0 | =Total Cover | |
| % Bare Ground in Herb Stratum 25 | % Cover of Biotic Crust ___ | | |

**Dominance Test worksheet:**

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

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x1 = |
| FACW species | | x2 = |
| FAC species | | x3 = |
| FACU species | | x4 = |
| UPL species | | x5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = ___

**Hydrophytic Vegetation Indicators:**

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

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

**Hydrophytic Vegetation Present?** **Yes** X **No** ___

Remarks:

## SOIL

Sampling Point: DP-17

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 7.5YR 3/3 | 100 | none | | | | scl | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ______

Depth (inches): ______

**Hydric Soil Present?** Yes ___ No X

Remarks: Shovel refusal at a depth of 4 inches due to rock.

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

| | Yes | No | Depth (inches) |
|---|---|---|---|
| Surface Water Present? | | X | none |
| Water Table Present? | | X | none |
| Saturation Present? (includes capillary fringe) | | X | none |

**Wetland Hydrology Present?** Yes ___ No X

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 02/28/13

Applicant/Owner: PCTPA State: CA Sampling Point: DP-18

Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 6E, S 26

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.77934032 Long: -121.2684224 Datum: NAD83

Soil Map Unit Name: Exchequer very stony loam, 2 to 15 percent slopes NWI Classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil X, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Area sampled is seasonal wetland between base of slope and culvert that traverses underneath SR 65. The reason that the hydrology is considered significantly disturbed is that field observations suggest that the primary source of hydrology is regular runoff from the adjacent shopping center. The soil is considered significantly disturbed because the wetland occurs over a shallow asphalt/concrete trench and problematic because the substrate present consists of muck.

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____ ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | | =Total Cover | |
| **Sapling/Shrub Stratum** (Plot size: 4m radius ) | | | |
| 1. *Salix lasiolepis* | 5 | Y | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 5 | =Total Cover | |
| **Herb Stratum** (Plot size: 4m radius ) | | | |
| 1. *Typha angustifolia* | 20 | Y | OBL |
| 2. *Cyperus eragrostis* | 15 | N | FACW |
| 3. *Mimulus guttatus* | 25 | Y | OBL |
| 4. *Festuca perennis* | 10 | N | FAC |
| 5. *Rumex crispus* | 5 | N | FAC |
| 6. *Geranium dissectum* | 3 | N | UPL |
| 7. *Sonchus oleraceaus* | 2 | N | UPL |
| 8. *Epilobium ciliatum* | 2 | N | FACW |
| | 82 | =Total Cover | |
| **Woody Vine Stratum** (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| | 0 | =Total Cover | |
| % Bare Ground in Herb Stratum 18* | | % Cover of Biotic Crust ____ | |

**Dominance Test worksheet:**

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

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x1 = |
| FACW species | | x2 = |
| FAC species | | x3 = |
| FACU species | | x4 = |
| UPL species | | x5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

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

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

**Hydrophytic Vegetation Present?** **Yes X No ____**

Remarks: *The 18% in the bare ground category consists of open water with algae.

## SOIL

Sampling Point: DP-18

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

| Depth | Matrix | | Redox Features | | | | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | | |
| 0-2 | 10YR 2/1 | 100 | none | | | | muck | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: asphalt/concrete
Depth (inches): 2

**Hydric Soil Present?** Yes X No ___

Remarks: Shovel refusal at a depth of 2 inches due to the presence of a restrictive layer of asphalt/concrete.

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

| | Yes | No | Depth (inches) |
|---|---|---|---|
| Surface Water Present? | X | | 3 |
| Water Table Present? | | X | none |
| Saturation Present? (includes capillary fringe) | X | X | surface |

**Wetland Hydrology Present?** Yes X No ___

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 02/28/13
Applicant/Owner: PCTPA State: CA Sampling Point: DP-19
Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 6E, S 26
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): slightly convex Slope (%): 1
Subregion (LRR): Mediterranean California (LRR C) Lat: 38.77935564 Long: -121.268361 Datum: NAD83
Soil Map Unit Name: Exchequer very stony loam, 2 to 15 percent slopes NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Area sampled is hillslope between chain-link fence at the edge of a shopping center and the SR 65 right-of-way.

### VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 | =Total Cover | |
| Sapling/Shrub Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 0 | =Total Cover | |
| Herb Stratum (Plot size: 3m radius ) | | | |
| 1. *Bromus madritensis* ssp. *rubens* | 50 | Y | UPL |
| 2. *Festuca myuros* | 10 | N | FACU |
| 3. *Elymus caput-medusae* | 1 | N | UPL |
| 4. *Vicia villosa* ssp. *varia* | 5 | N | UPL |
| 5. *Avena barbata* | 10 | N | UPL |
| 6. *Trifolium hirtum* | 3 | N | UPL |
| 7. *Geranium dissectum* | 2 | N | UPL |
| 8. *Bromus hordeaceus* | 10 | N | FACU |
| | 91 | =Total Cover | |
| Woody Vine Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| | 0 | =Total Cover | |
| % Bare Ground in Herb Stratum 9* | % Cover of Biotic Crust ____ | | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)
Total Number of Dominant Species Across All Strata: **1** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **0%** (A/B)

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | ____ | x1 = ____ |
| FACW species | ____ | x2 = ____ |
| FAC species | ____ | x3 = ____ |
| FACU species | ____ | x4 = ____ |
| UPL species | ____ | x5 = ____ |
| Column Totals: | ____ (A) | ____ (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

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

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

**Hydrophytic Vegetation Present?** **Yes ____ No X**

Remarks: *The bare ground consists of bare rock.

## SOIL

Sampling Point: DP-19

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 7.5YR 3/4 | 100 | none | | | | sl | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ______

Depth (inches): ______

**Hydric Soil Present?** **Yes** ____ **No** X

Remarks: Shovel refusal at a depth of 4 inches due to the presence of rock.

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

| | Yes | No | Depth (inches) |
|---|---|---|---|
| Surface Water Present? | | X | none |
| Water Table Present? | | X | none |
| Saturation Present? (includes capillary fringe) | | X | none |

**Wetland Hydrology Present?** **Yes** ____ **No** X

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 02/28/13
Applicant/Owner: PCTPA State: CA Sampling Point: DP-20
Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 6E, S 25
Landform (hillslope, terrace, etc.): basin Local relief (concave, convex, none): slightly concave Slope (%): 1
Subregion (LRR): Mediterranean California (LRR C) Lat: 38.77624795 Long: -121.2650811 Datum: NAD83
Soil Map Unit Name: Exchequer very stony loam, 2 to 15 percent slopes NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Area sampled is the edge of a vernal pool in a cloverleaf loop.

### VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0 =Total Cover | | |
| Sapling/Shrub Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 0 =Total Cover | | |
| Herb Stratum (Plot size: 3m radius ) | | | |
| 1. *Ranunculus bonariensis* var. *trisepalus* | 50 | Y | OBL |
| 2. *Eleocharis macrostachya** | 10 | N | >FACW |
| 3. *Plagiobothrys stipitatus var. micranthus* | 20 | Y | FACW |
| 4. *Festuca perennis* | 10 | N | FAC |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 90 =Total Cover | | |
| Woody Vine Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| | 0 =Total Cover | | |
| % Bare Ground in Herb Stratum | % Cover of Biotic Crust 10 | | |

**Dominance Test worksheet:**

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

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x1 = |
| FACW species | | x2 = |
| FAC species | | x3 = |
| FACU species | | x4 = |
| UPL species | | x5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

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

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

**Hydrophytic Vegetation Present?** Yes X No ____

Remarks:*This species is considered FACW or wetter based on where it was observed and the fact that all other *Eleocharis* spp. on the 2012 USACE plant list are FACW or wetter.

## SOIL

Sampling Point: DP-20

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 10YR 2/2 | 95 | 2.5YR 4/8 | 5 | C | M | cl | |
| 4-14 | 5YR 4/6 | 100 | none | | | | scl | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ___

Depth (inches): ___

**Hydric Soil Present?** Yes X No ___

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes X | No ___ | Depth (inches): 1 |
| Water Table Present? | Yes X | No ___ | Depth (inches): 3 |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): none |

**Wetland Hydrology Present?** Yes X No ___

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 02/28/13
Applicant/Owner: PCTPA State: CA Sampling Point: DP-21
Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 6E, S 25
Landform (hillslope, terrace, etc.): basin Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Mediterranean California (LRR C) Lat: 38.77621553 Long: -121.2650968 Datum: NAD83
Soil Map Unit Name: Exchequer very stony loam, 2 to 15 percent slopes NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | Yes | No |
|---|---|---|
| Hydrophytic Vegetation Present? | | X |
| Hydric Soil Present? | | X |
| Wetland Hydrology Present? | | X |

**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X

Area sampled is annual grassland adjacent to vernal pool sampled in DP-20.

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____ ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| =Total Cover | 0 | | |
| **Sapling/Shrub Stratum** (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| =Total Cover | 0 | | |
| **Herb Stratum** (Plot size: 3m radius ) | | | |
| 1. *Elymus caput-medusae* | 75 | Y | UPL |
| 2. *Geranium molle* | 2 | N | UPL |
| 3. *Hypochaeris glabra* | 2 | N | UPL |
| 4. *Erodium botrys* | 15 | N | FACU |
| 5. *Eleocharis acicularis* | 1 | N | OBL |
| 6. *Dichelostemma capitatum* | 3 | N | FACU |
| 7. *Medicago polymorpha* | 2 | N | FACU |
| 8. | | | |
| =Total Cover | 100 | | |
| **Woody Vine Stratum** (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| =Total Cover | 0 | | |

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

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)
Total Number of Dominant Species Across All Strata: **1** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **0%** (A/B)

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x1 = |
| FACW species | | x2 = |
| FAC species | | x3 = |
| FACU species | | x4 = |
| UPL species | | x5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

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

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

**Hydrophytic Vegetation Present?** **Yes** ____ **No** X

Remarks:

## SOIL

Sampling Point: DP-21

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-18 | 5YR 3/4 | 100 | none | | | | scl | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ____________

Depth (inches): ____________

**Hydric Soil Present?** **Yes** ____ **No** X

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

| | | | | |
|---|---|---|---|---|
| Surface Water Present? | Yes ____ | No X | Depth (inches): | none |
| Water Table Present? | Yes ____ | No X | Depth (inches): | none |
| Saturation Present? (includes capillary fringe) | Yes ____ | No X | Depth (inches): | none |

**Wetland Hydrology Present?** **Yes** ____ **No** X

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 02/28/13
Applicant/Owner: PCTPA State: CA Sampling Point: DP-22
Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 6E, S 26
Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): slightly concave Slope (%): <1
Subregion (LRR): Mediterranean California (LRR C) Lat: 38.77704799 Long: -121.267298 Datum: NAD83
Soil Map Unit Name: Exchequer very stony loam, 2 to 15 percent slopes NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | |
|---|---|---|
| Hydrophytic Vegetation Present? | Yes X No ____ | Is the Sampled Area within a Wetland? Yes X No ____ |
| Hydric Soil Present? | Yes X No ____ | |
| Wetland Hydrology Present? | Yes X No ____ | |

Area sampled is willow thicket in swale that is located between the Galleria Mall parking lot and toe of slope below SR 65.

### VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| =Total Cover | 0 | | |
| Sapling/Shrub Stratum (Plot size: ____ ) | | | |
| 1. *Salix exigua* | 50 | Y | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| =Total Cover | 50 | | |
| Herb Stratum (Plot size: 3m radius ) | | | |
| 1. *Hypericum perforatum* | 2 | Y | UPL |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| =Total Cover | 2 | | |
| Woody Vine Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| =Total Cover | | | |
| % Bare Ground in Herb Stratum 48* | % Cover of Biotic Crust ____ | | |

**Dominance Test worksheet:**

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

**Prevalence Index Worksheet:**

| Total % Cover of: | | | Multiply by: |
|---|---|---|---|
| OBL species | | x1 = | 0 |
| FACW species | 50 | x2 = | 100 |
| FAC species | | x3 = | 0 |
| FACU species | | x4 = | 0 |
| UPL species | 2 | x5 = | 10 |
| Column Totals: | 52 | (A) | 110 (B) |

Prevalence Index = B/A = 2.1

**Hydrophytic Vegetation Indicators:**

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

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

**Hydrophytic Vegetation Present?** Yes X No ____

Remarks: *includes leaf litter

## SOIL

Sampling Point: DP-22

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 10YR 2/2 | 100 | none | | | | cl | |
| 2-6 | 7.5YR 3/4 | 95 | 2.5YR 3/6 | 5 | C | M | cl | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ______

Depth (inches): ______

**Hydric Soil Present?** **Yes** X **No** ______

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

| | Yes | No | Depth (inches) |
|---|---|---|---|
| Surface Water Present? | | X | none |
| Water Table Present? | | X | none |
| Saturation Present? (includes capillary fringe) | | X | none |

**Wetland Hydrology Present?** **Yes** X **No** ______

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

Remarks:

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-80/SR-65 Interchange Improvement Project City/County: Roseville/Placer Co. Sampling Date: 02/28/13
Applicant/Owner: PCTPA State: CA Sampling Point: DP-23
Investigator(s): J. Hughes, J. Holson Section, Township, Range: T 11N, R 6E, S 26
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 3
Subregion (LRR): Mediterranean California (LRR C) Lat: 38.77703055 Long: -121.2672215 Datum: NAD83
Soil Map Unit Name: Exchequer very stony loam, 2 to 15 percent slopes NWI Classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | Yes | No |
|---|---|---|
| Hydrophytic Vegetation Present? | | X |
| Hydric Soil Present? | | X |
| Wetland Hydrology Present? | | X |
| **Is the Sampled Area within a Wetland?** | | X |

Area sampled is the hillslope above the willow thicket sampled in DP-22.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| =Total Cover | 0 | | |
| Sapling/Shrub Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| =Total Cover | 0 | | |
| Herb Stratum (Plot size: 3m radius ) | | | |
| 1. *Geranium molle* | 20 | Y | UPL |
| 2. *Carduus pycnocephalus* | 20 | Y | UPL |
| 3. *Bromus madritensis* ssp. *rubens* | 15 | N | UPL |
| 4. *Cardamine oligosperma* | 2 | N | FAC |
| 5. *Senecio vulgaris* | 1 | N | FACU |
| 6. *Bromus diandrus* | 3 | N | UPL |
| 7. | | | |
| 8. | | | |
| =Total Cover | 60 | | |
| Woody Vine Stratum (Plot size: ____ ) | | | |
| 1. | | | |
| 2. | | | |
| =Total Cover | 0 | | |

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust ____

**Dominance Test worksheet:**

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

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x1 = |
| FACW species | | x2 = |
| FAC species | | x3 = |
| FACU species | | x4 = |
| UPL species | | x5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

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

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

**Hydrophytic Vegetation Present?** Yes ____ No X

Remarks:

## SOIL

Sampling Point: DP-23

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-5 | 10YR 4/3 | 100 | none | | | | scl | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ______

Depth (inches): ______

**Hydric Soil Present?** **Yes** ___ **No** X

Remarks: Shovel refusal at a depth of 5 inches due to the presence of rock.

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

| | | | | |
|---|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): | none |
| Water Table Present? | Yes ___ | No X | Depth (inches): | none |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): | none |

**Wetland Hydrology Present?** **Yes** ___ **No** X

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

Remarks:

Appendix C

# Representative Photographs of Delineation Area

**Photo 1:** Vernal pool W-18 (Facing Southeast).

**Photo 2:** Vernal pool W-34 (Facing West).

**Appendix C**
**Representative Photographs of Delineation Area**

**Photo 3:** Intermittent Stream (OW-13) (Facing Southeast).

**Photo 4:** Highland Ravine (OW-2) South of SR 65 (Facing Northeast).

**Appendix C**
**Representative Photographs of Delineation Area**

**Photo 5:** Seasonal Wetland W-28 (Facing Northeast).

**Photo 6:** Lined Stormwater Ditch (Facing Southeast).



**Appendix C**
**Representative Photographs of Delineation Area**

**Photo 7:** OHWM of Antelope Creek (Facing Northwest).

**Photo 8:** OHWM of Secret Ravine (OW-9) (Facing West).

**Photo 9:** OHWM of Miners Ravine (OW-12) (Facing Northwest).

Appendix D
# Soils Information

## Appendix D. Soil Map Units in the Delineation Area

| Soil Map Unit | Map Symbol | Drainage Class | Landform | Horizons | Hydric Components (C) or Inclusions (I) | Hydric Criteria[a] |
|---|---|---|---|---|---|---|
| Caperton-Andregg coarse sandy loams, 2–15% slopes | 130 | well drained to somewhat excessively drained | foothills | coarse sandy loam over weathered bedrock | None | |
| Cometa sandy loam, 1–5% slopes | 140 | well drained | terraces, depressions | sandy loam over clay over sandy loam | Alamo (I) | 2B3 |
| Cometa-Fiddyment complex, 1–5% slopes | 141 | well drained | terraces, ridges | Cometa: sandy loam over clay over sandy loam Fiddyment: loam over clay loam over hardpan | None | |
| Cometa-Ramona sandy loams, 1–5% slopes | 142 | well drained | terraces, depressions, drainageways | Cometa: sandy loam over clay over sandy loam<br>Ramona: sandy loam over loam over sandy clay loam | Alamo (I)<br>Xerofluvent (I) | 2B3<br>4 |
| Exchequer very stony loam, 2–15% slopes | 144 | somewhat excessively drained | ridges, depressions, drainageways | very stony loam over unweathered bedrock | Unnamed (I)<br>Unnamed (I) | 3<br>4 |
| Exchequer-Rock outcrop complex, 2–30% slopes | 145 | somewhat excessively drained | ridges, depressions, drainageways | very stony loam over unweathered bedrock | Unnamed (I)<br>Unnamed (I) | 3<br>4 |
| Fiddyment loam, 1–8% slopes | 146 | well drained | terraces, depressions | loam over clay loam over hardpan | Alamo (I) | 2B3 |
| Inks cobbly loam, 2–30% slopes | 152 | well drained | ridges | cobbly loam over very cobbly loam over unweathered bedrock | None | |
| Inks-Exchequer complex, 2–25% slopes | 154 | well drained to somewhat excessively well drained | ridges | Inks: cobbly loam over very cobbly loam over unweathered bedrock<br>Exchequer: very stony loam over unweathered bedrock | None | |
| Ramona sandy loam, 2–9% slopes | 175 | well drained | terraces | sandy loam over fine sandy loam over sandy clay loam | None | |

| Soil Map Unit | Map Symbol | Drainage Class | Landform | Horizons | Hydric Components (C) or Inclusions (I) | Hydric Criteria[a] |
|---|---|---|---|---|---|---|
| Rubble land | 180 | (no information available) | uplands | fragmental material | None | |
| Sierra sandy loam, 9–15% slopes | 184 | | | | | |
| Xerofluvents, frequently flooded | 194 | somewhat poorly drained | drainageways | stratified loamy sand to fine sandy loam over stratified loamy sand to fine sandy loam to silt loam over stratified loam to silty clay loam to clay | Xerofluvents, frequently flooded (C)<br>Unnamed (I) | 4 |
| Xerorthents, cut and fill areas | 196 | well drained | –– | variable profile | None | |
| Xerorthents, placer areas | 197 | well drained | –– | variable profile | None | |

[a] Source: Natural Resources Conservation Service 2013.

2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
   B. are poorly drained or very poorly drained and have either:
      iii. a water table at a depth of 1.0 foot or less during the growing season if saturated hydraulic (Ksat) is less than 6.0 in/hr in any layer within a depth of 20 inches.
3. Soils that are frequently ponded for long or very long duration during the growing season.
4. Soils that are frequently flooded for long or very long duration during the growing season.


Interstate 80/State Route 65
Interchange Improvements Project
June 2014

## Legend

Delineation Area

**Soil Map Units**

| | |
|---|---|
| 130 | Caperton-Andregg coarse sandy loams - 2 to 15 percent slopes |
| 140 | Cometa sandy loam - 1 to 5 percent slopes |
| 141 | Cometa-Fiddyment complex - 1 to 5 percent slopes |
| 142 | Cometa-Ramona sandy loams - 1 to 5 percent slopes |
| 144 | Exchequer very stony loam - 2 to 15 percent slopes |
| 145 | Exchequer-Rock outcrop complex - 2 to 30 percent slopes |
| 146 | Fiddyment loam - 1 to 8 percent slopes |
| 152 | Inks cobbly loam - 2 to 30 percent slopes |
| 154 | Inks-Exchequer complex - 2 to 25 percent slopes |
| 175 | Ramona sandy loam - 2 to 9 percent slopes |
| 180 | Rubble land |
| 184 | Sierra sandy loam - 9 to 15 percent slopes |
| 194 | Xerofluvents - frequently flooded |
| 196 | Xerorthents - cut and fill areas |
| 197 | Xerorthents - placer areas |

N

0 0.125 0.25 0.5
Miles

**Source:**
Imagery Source: Microsoft, CA-Sacramento 2012
Soils: NRCS SURGGO, 2012

ICF International Contact:
Prepared By: J. Hughes
Phone Number: 916-737-3000
Date: February 7, 2013
Drawn By: Eric Link

**Soil Map Units in the Delineation Area**

Appendix E

# List of Plant Species Observed in the Delineation Area

**Appendix E. Wetland Indicator Status for Plant Species Observed in the Delineation Area**

| Scientific Name | Common Name | Wetland Indicator Status[1] |
|---|---|---|
| *Acer palmatum* | Japanese maple | UPL |
| *Acmispon americanus* var. *americanus* | Spanish lotus | UPL |
| *Aegilops triuncialis* | barbed goat grass | UPL |
| *Ailanthus altissima* | tree of heaven | UPL |
| *Aira caryophyllea* | silver hairgrass | FACU |
| *Alisma lanceolatum* | water plantain | OBL |
| *Alopecurus saccatus* | meadow foxtail | OBL |
| *Alnus rhombifolia* | white alder | FACW |
| *Alnus rubra* | red alder | FACW |
| *Amsinckia intermedia* | common fiddleneck | UPL |
| *Anagallis arvensis* | scarlet pimpernel | UPL |
| *Artemisia douglasiana* | mugwort | FAC |
| *Arundo donax* | giant cane | FACW |
| *Asclepias fascicularis* | narrowleaf milkweed | FAC |
| *Avena barbata* | slender wild oat | UPL |
| *Avena fatua* | wild oat | UPL |
| *Baccharis pilularis* | coyote brush | UPL |
| *Briza minor* | little quaking grass | FAC |
| *Brodiaea coronaria* | crown brodiaea | FAC |
| *Brodiaea elegans* | harvest brodiaea | FACU |
| *Bromus carinatus* | California brome | UPL |
| *Bromus diandrus* | ripgut brome | UPL |
| *Bromus hordeaceus* | soft chess | FACU |
| *Bromus madritensis* ssp. *rubens* | red brome | UPL |
| *Callitriche marginata* | California water starwort | OBL |
| *Cardamine oligosperma* | toothwort | FAC |
| *Carduus pycnocephalus* | Italian thistle | UPL |
| *Centaurea solstitialis* | yellow star-thistle | UPL |
| *Cephalanthus occidentalis* | buttonwillow | OBL |
| *Cerastium glomeratum* | mouse ear chickweed | UPL |
| *Cichorium intybus* | chicory | FACU |
| *Cirsium vulgare* | bull thistle | FACU |
| *Clarkia purpurea* | purple clarkia | UPL |
| *Clarkia unguiculata* | elegant clarkia | UPL |
| *Convolvulus arvensis* | field bindweed | UPL |
| *Crassula aquatica* | water pygmy-weed | OBL |
| *Croton setigerus* | turkey mullein | UPL |
| *Cynodon dactylon* | Bermuda grass | FACU |
| *Cynosurus echinatus* | hedgehog dogtail grass | UPL |
| *Cyperus difformis* | variable flatsedge | OBL |

| Scientific Name | Common Name | Wetland Indicator Status[1] |
|---|---|---|
| *Cyperus eragrostis* | tall flatsedge | FACW |
| *Deschampsia danthonioides* | annual hairgrass | FACW |
| *Dichelostemma capitatum* | blue dicks | FACU |
| *Dichelostemma multiflorum* | manyflower brodiaea | UPL |
| *Dipsacus fullonum* | Fuller's teasel | FAC |
| *Distichlis spicata* | salt grass | FAC |
| *Dittrichia graveolens* | stinkwort | UPL |
| *Downingia bicornuta* var. *picta* | doublehorn calicoflower | OBL |
| *Downingia ornatissima* var. *ornatissima* | horned downingia | OBL |
| *Eleocharis acicularis* | needle spike rush | OBL |
| *Eleocharis macrostachya* | spike rush | ≥FACW[2] |
| *Elymus caput-medusae* | Medusahead | UPL |
| *Epilobium ciliatum* | hairy willowherb | FACW |
| *Eriogonum nudum* | naked buckwheat | UPL |
| *Erodium botrys* | broadleaf filaree | FACU |
| *Erodium cicutarium* | redstem filaree | UPL |
| *Erodium moschatum* | whitestem filaree | UPL |
| *Eryngium castrense* | coyote thistle | OBL |
| *Eschscholzia californica* | California poppy | UPL |
| *Festuca bromoides* | brome fescue | FAC |
| *Festuca myuros* | rattail fescue | FACU |
| *Festuca perennis* | Italian ryegrass | FAC |
| *Ficus carica* | edible fig | FACU |
| *Foeniculum vulgare* | fennel | UPL |
| *Fraxinus latifolia* | Oregon ash | FACW |
| *Galium parisiense* | wall bedstraw | UPL |
| *Gastridium phleoides* | nit grass | FACU |
| *Geranium dissectum* | cutleaf geranium | UPL |
| *Geranium molle* | dovefoot geranium | UPL |
| *Helianthus annuus* | common sunflower | FACU |
| *Helminthotheca echioides* | bristly ox-tongue | FACU |
| *Hemizonia fitchii* | spikeweed | UPL |
| *Heteromeles arbutifolia* | toyon | UPL |
| *Hirschfeldia incana* | field mustard | UPL |
| *Holocarpha virgata* | narrow tarplant | UPL |
| *Hordeum marinum* ssp. *gussoneanum* | Mediterranean barley | FAC |
| *Hordeum murinum* ssp. *leporinum* | foxtail barley | FACU |
| *Hypericum perforatum* | Klamath weed | FACU |
| *Hypochaeris glabra* | smooth cat's-ear | UPL |
| *Hypochaeris radicata* | rough cat's-ear | FACU |

| Scientific Name | Common Name | Wetland Indicator Status[1] |
|---|---|---|
| *Juncus bufonius* | toad rush | FACW |
| *Juncus effusus* | bog rush | FACW |
| *Juncus xiphiodes* | irisleaf rush | OBL |
| *Lactuca serriola* | prickly lettuce | FACU |
| *Lasthenia fremontii* | Fremont's goldfields | OBL |
| *Lasthenia glaberrima* | smooth goldfields | OBL |
| *Leontodon taraxacoides* | hawkbit | UPL |
| *Ligustrum* sp. | privet | UPL |
| *Logfia gallica* | narrowleaf cottonrose | UPL |
| *Lotus corniculatus* | bird's-foot trefoil | FAC |
| *Ludwigia* sp. | water primrose | OBL[3] |
| *Lupinus bicolor* | miniature lupine | UPL |
| *Lythrum hyssopifolia* | hyssop loosestrife | OBL |
| *Matricaria discoidea* | pineapple weed | FACU |
| *Melilotus indicus* | annual yellow sweetclover | FACU |
| *Mentha pulegium* | pennyroyal | OBL |
| *Mimulus guttatus* | seep monkeyflower | OBL |
| *Morus alba* | white mulberry | FACU |
| *Myosurus minimus* | little mousetail | OBL |
| *Myriophyllum aquaticum* | parrot's feather | OBL |
| *Nasturtium officinale* | watercress | OBL |
| *Navarretia intertexta* | needleleaf navarretia | FACW |
| *Navarretia leucocephala* ssp. *leucocephala* | whitehead navarretia | OBL |
| *Notholithocarpus densiflorus* | tanoak | UPL |
| *Olea europa* | olive | UPL |
| *Paspalum dilatatum* | dallis grass | FAC |
| *Persicaria hydropiperoides* | false waterpepper | OBL |
| *Petrorhagia dubia* | pink grass | UPL |
| *Phalaris aquatica* | Harding grass | FACU |
| *Physalis longifolia* | lance-leaved ground cherry | UPL |
| *Phytolacca americana* | pokeweed | FAC |
| *Pinus canariensis* | Canary Island pine | UPL |
| *Pinus* sp. | ornamental pine | N/A |
| *Plagiobothrys* sp. | popcornflower | N/A |
| *Plagiobothrys stipitatus* var. *micranthus* | stalked popcornflower | FACW |
| *Plantago coronopus* | buckhorn plantain | FACW |
| *Plantago erecta* | foothill plantain | UPL |
| *Plantago lanceolata* | English plantain | FAC |
| *Plantago major* | common plantain | FAC |
| *Platanus hybrida* | London planetree | UPL |

| Scientific Name | Common Name | Wetland Indicator Status[1] |
|---|---|---|
| *Platanus racemosa* | California sycamore | FAC |
| *Pogogyne zizyphoroides* | Sacramento mesamint | OBL |
| *Polygonum aviculare* | prostrate knotweed | FACW |
| *Polygonum* sp. | knotweed | N/A |
| *Polypogon australis* | Chilean beard grass | FACW |
| *Polypogon monspeliensis* | rabbitsfoot grass | FACW |
| *Populus fremontii* | Fremont cottonwood | UPL |
| *Psilocarphus brevissimus* var. *brevissimus* | woolly marbles | FACW |
| *Pyrus calleryana* | Callery pear | UPL |
| *Quercus agrifolia* | coast live oak | UPL |
| *Quercus douglasii* | blue oak | UPL |
| *Quercus lobata* | valley oak | FACU |
| *Quercus wislizeni* | interior live oak | UPL |
| *Ranunculus bonariensis* var. *trisepalus* | vernal pool buttercup | OBL |
| *Rhododendron* sp. | ornamental rhododendron | UPL |
| *Rubus armeniacus* | Himalayan blackberry | FACU |
| *Rubus ursinus* | California blackberry | FACU |
| *Rumex acetosella* | sheep sorrel | FAC |
| *Rumex crispus* | curly dock | FAC |
| *Salix exigua* | narrowleaf willow | FACW |
| *Salix gooddingii* | black willow | FACW |
| *Salix laevigata* | red willlow | FACW |
| *Salix lasiolepis* | arroyo willow | FACW |
| *Salsola tragus* | Russian thistle | FACU |
| *Sambucus nigra* ssp. *caerulea* | blue elderberry | FAC |
| *Schoenoplectus acutus* | hardstem bulrush | OBL |
| *Senecio vulgaris* | common groundsel | FACU |
| *Sesbania punicea* | red sesbania | FACW |
| *Silene gallica* | common catchfly | UPL |
| *Sonchus asper* | spiny sowthistle | FAC |
| *Sonchus oleraceous* | common sowthistle | UPL |
| *Sorghum halepense* | Johnson grass | FACU |
| *Stellaria media* | common chickweed | FACU |
| *Torilis arvensis* | hedge parsley | UPL |
| *Trifolium campestre* | hop clover | UPL |
| *Trifolium dubium* | suckling clover | UPL |
| *Trifolium hirtum* | rose clover | UPL |
| *Triteleia hyacinthina* | white brodiaea | FAC |
| *Typha angustifolia* | narrowleaf cattail | OBL |
| *Typha latifolia* | common cattail | OBL |

| Scientific Name | Common Name | Wetland Indicator Status[1] |
|---|---|---|
| *Urtica dioica* | stinging nettle | FAC |
| *Verbena lasiostachys* | common verbena | FAC |
| *Veronica americana* | brooklime | OBL |
| *Veronica peregrina* ssp. *xalapensis* | purslane speedwell | OBL |
| *Vicia villosa* ssp. *varia* | winter vetch | UPL |
| *Vicia villosa* ssp. *villosa* | hairy vetch | UPL |
| *Washingtonia robusta* | Washington fan palm | UPL |
| *Xanthium strumarium* | rough cocklebur | FAC |

Sources: Environmental Laboratory 1987; U.S. Army Corps of Engineers 2014; Baldwin et al. 2012.

[1] Indicator Status Definitions:

| | | |
|---|---|---|
| OBL | = | Obligate, almost always occurs in wetlands (>99% probability of occurrence) |
| FACW | = | Facultative wetland, usually occurs in wetlands (66%–99% probability) |
| FAC | = | Facultative, equally likely to occur in wetlands or nonwetlands (34%–66% probability) |
| FACU | = | Facultative upland, usually occurs in nonwetlands but occasionally in wetlands (1%–33% probability) |
| UPL | = | Obligate upland, almost never occurs in wetlands (<1% probability) |
| NI | = | No indicator (insufficient information to assign an indicator status) |

[2] Status was interpreted to be FACW or wetter because all *Eleocharis* spp. on 2014 USACE plant list are FACW or OBL.

[3] Status was interpreted to be OBL because the species is an aquatic plant and all *Ludwigia* spp. on 2014 USACE plant list are OBL.

Appendix F

# Precipitation and Growing Season Data

WETS Station : AUBURN, CA0383
Latitude: 3855 Longitude: 12105 Elevation: 01290
State FIPS/County(FIPS): 06061 County Name: Placer
Start yr. - 1971 End yr. - 2000

| Month | Temperature (Degrees F.) avg daily max | avg daily min | avg | Precipitation (Inches) avg | 30% chance will have less than | more than | avg # of days w/.1 or more | avg total snow fall |
|---|---|---|---|---|---|---|---|---|
| January | 54.2 | 37.0 | 45.6 | 6.68 | 3.21 | 8.16 | 8 | 0.4 |
| February | 58.2 | 40.0 | 49.1 | 6.28 | 3.02 | 7.67 | 8 | 0.1 |
| March | 61.6 | 42.0 | 51.8 | 6.16 | 3.20 | 7.53 | 8 | 0.2 |
| April | 67.7 | 45.2 | 56.4 | 2.50 | 1.12 | 3.05 | 4 | 0.2 |
| May | 75.9 | 50.7 | 63.3 | 1.30 | 0.31 | 1.63 | 2 | 0.0 |
| June | 84.8 | 57.3 | 71.0 | 0.36 | 0.06 | 0.45 | 0 | 0.0 |
| July | 91.3 | 62.6 | 76.9 | 0.14 | 0.00 | 0.00 | 0 | 0.0 |
| August | 90.7 | 61.7 | 76.2 | 0.14 | 0.00 | 0.08 | 0 | 0.0 |
| September | 85.2 | 58.3 | 71.7 | 0.76 | 0.01 | 0.82 | 1 | 0.0 |
| October | 75.6 | 51.6 | 63.6 | 1.93 | 0.61 | 2.36 | 2 | 0.0 |
| November | 61.4 | 42.5 | 51.9 | 4.89 | 2.16 | 5.96 | 6 | 0.2 |
| December | 54.6 | 37.0 | 45.8 | 5.35 | 2.66 | 6.63 | 7 | 0.2 |
| Annual | ----- | ----- | ----- | ------ | 29.12 | 41.82 | -- | ---- |
| Average | 71.8 | 48.8 | 60.3 | ------ | ------ | ------ | -- | ---- |
| Total | ----- | ----- | ----- | 36.49 | ------ | ------ | 46 | 1.4 |

GROWING SEASON DATES

| Probability | Temperature: 24 F or higher | 28 F or higher | 32 F or higher |
|---|---|---|---|
| | Beginning and Ending Dates Growing Season Length | | |
| 50 percent * | 12/29 to 12/29<br>> 365 days | > 365 days<br>> 365 days | 2/17 to 12/ 2<br>290 days |
| 70 percent * | 12/29 to 12/29<br>> 365 days | > 365 days<br>> 365 days | 2/ 5 to 12/13<br>312 days |

* Percent chance of the growing season occurring between the Beginning and Ending dates.

total 1948-2002 prcp

Station : CA0383, AUBURN
------- Unit = inches

| yr | jan | feb | mar | apr | may | jun | jul | aug | sep | oct | nov | dec | annl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 48 | | | | | | | 0.00 | 0.00 | 0.00 | 0.22 | 2.74 | 7.47 | 10.43 |
| 49 | 2.96 | 3.87 | 11.51 | 0.00 | 0.84 | 0.00 | 0.00 | 0.11 | 0.11 | 0.09 | 2.35 | 2.23 | 24.07 |
| 50 | 10.61 | 4.82 | 5.88 | 2.39 | 1.33 | 0.21 | 0.00 | 0.00 | 0.91 | 4.23 | 13.92 | 9.67 | 53.97 |
| 51 | 9.59 | 4.04 | 4.07 | 1.85 | 3.27 | 0.00 | 0.00 | 0.00 | 0.04 | 3.60 | 6.05 | 10.10 | 42.61 |
| 52 | 15.56 | 5.11 | 7.81 | 1.12 | 0.55 | 0.67 | 0.05 | M0.00 | M0.38 | 0.05 | 3.06 | 9.45 | 43.81 |
| 53 | 8.82 | 0.07 | 4.23 | 5.58 | 1.06 | 1.28 | 0.00 | 0.00 | 0.00 | 0.81 | 4.66 | 2.43 | 28.94 |
| 54 | 6.90 | 4.98 | 7.09 | 3.22 | 0.37 | 0.55 | 0.00 | 0.27 | 0.00 | 0.28 | 3.60 | 9.10 | 36.36 |
| 55 | 6.59 | 2.71 | 0.62 | 4.60 | 1.06 | 0.03 | 0.00 | 0.00 | M0.00 | 0.85 | 2.86 | M18.78 | 38.10 |
| 56 | 13.78 | 3.96 | 0.18 | 3.03 | 3.41 | 0.03 | 0.00 | 0.00 | 0.67 | 3.68 | 0.06 | 0.97 | 29.77 |
| 57 | 4.17 | 6.13 | 5.87 | 2.97 | 5.15 | 0.00 | 0.00 | 0.00 | 1.03 | 1.91 | 2.15 | 4.64 | 34.02 |
| 58 | 7.67 | 10.54 | 10.22 | 7.22 | 1.18 | 0.88 | 0.00 | 0.00 | M0.40 | 0.41 | 0.83 | 1.32 | 40.67 |
| 59 | 7.48 | 6.39 | 2.04 | 1.85 | 0.11 | 0.00 | 0.00 | 0.01 | 2.47 | 0.00 | 0.00 | 1.94 | 22.29 |
| 60 | M6.93 | 8.34 | 4.50 | 2.20 | 0.87 | 0.00 | 0.00 | 0.00 | 0.28 | 0.14 | 6.86 | 1.97 | 32.09 |
| 61 | 2.50 | 3.33 | 5.06 | 2.21 | 0.71 | 0.39 | 0.00 | 0.04 | 0.31 | 0.68 | 3.10 | 3.38 | 21.71 |
| 62 | 3.19 | 13.64 | 3.37 | 1.91 | 0.23 | 0.01 | 0.02 | 0.24 | 0.14 | 13.86 | 1.44 | 4.31 | 42.36 |
| 63 | 4.11 | 4.82 | 5.81 | 7.70 | 2.25 | 0.04 | 0.00 | 0.00 | 0.34 | 2.76 | 8.77 | 0.77 | 37.37 |
| 64 | 6.37 | 0.78 | 2.39 | 0.59 | 2.32 | 0.56 | 0.00 | 0.19 | 0.04 | 2.38 | 6.61 | 14.17 | 36.40 |
| 65 | 6.27 | 1.16 | 3.36 | 6.03 | 0.23 | 0.08 | 0.00 | 0.53 | 0.04 | 0.59 | 6.67 | 5.29 | 30.25 |
| 66 | 4.29 | 2.74 | 1.63 | 1.31 | 0.45 | 0.02 | 0.10 | 0.03 | 0.05 | 0.00 | 10.38 | 6.39 | 27.39 |
| 67 | 11.99 | 0.88 | 7.90 | 6.74 | 0.42 | 1.06 | 0.00 | 0.00 | 0.06 | 1.86 | 2.84 | 3.39 | 37.14 |
| 68 | 5.58 | 4.99 | 3.54 | 0.63 | 0.83 | 0.37 | 0.03 | 0.73 | 0.02 | 3.29 | 6.26 | 5.58 | 31.85 |
| 69 | 16.97 | 9.87 | 2.94 | 3.67 | 0.15 | 0.47 | 0.00 | 0.00 | 0.00 | 2.43 | 2.07 | 10.01 | 48.58 |
| 70 | 13.66 | 2.81 | 4.02 | 0.47 | 0.02 | 1.11 | 0.00 | 0.00 | 0.00 | 2.48 | 12.07 | 10.71 | 47.35 |
| 71 | 2.78 | 0.70 | 5.51 | 1.59 | 1.46 | 0.40 | 0.00 | 0.00 | 0.51 | 1.13 | 3.08 | 8.70 | 25.86 |
| 72 | 2.28 | 3.52 | 1.18 | 2.85 | 0.59 | 0.22 | 0.00 | 0.00 | 1.07 | 2.13 | 6.80 | 4.96 | 25.60 |
| 73 | 13.69 | 8.57 | 6.24 | 0.14 | 0.08 | 0.05 | 0.00 | 0.00 | 1.31 | 2.98 | 12.34 | 8.87 | 54.27 |
| 74 | 7.00 | 3.37 | 11.00 | 3.19 | 0.00 | 0.56 | 2.97 | 0.00 | 0.00 | 1.88 | 2.32 | 3.01 | 35.30 |
| 75 | 3.00 | 8.99 | 8.05 | 2.83 | 0.40 | 0.26 | 0.00 | 0.65 | 0.00 | 4.71 | 2.41 | 1.63 | 32.93 |
| 76 | 0.52 | 2.44 | 1.48 | 2.14 | 0.00 | 0.04 | 0.00 | 1.59 | 1.36 | 0.03 | 1.75 | 0.41 | 11.76 |
| 77 | 2.25 | 2.07 | 2.08 | 0.07 | 2.85 | 0.00 | 0.00 | 0.15 | 0.48 | 0.18 | 3.49 | 8.43 | 22.05 |
| 78 | 13.15 | 5.55 | 8.17 | 6.75 | 0.12 | 0.01 | 0.00 | 0.00 | 2.24 | 0.00 | 5.87 | 1.95 | 43.81 |
| 79 | 7.42 | 7.34 | 5.97 | 2.53 | 0.74 | 0.00 | 0.29 | 0.00 | 0.06 | 4.68 | 3.70 | 5.60 | 38.33 |
| 80 | 9.93 | 9.98 | 4.92 | 1.96 | 1.23 | 0.06 | 0.89 | 0.02 | 0.01 | 0.52 | 0.72 | 2.82 | 33.06 |
| 81 | 7.69 | 2.17 | M6.81 | 1.06 | 1.10 | 0.00 | 0.00 | 0.00 | 0.88 | 4.64 | 12.05 | 10.59 | 46.99 |
| 82 | 7.77 | 5.04 | 10.97 | 6.93 | 0.00 | | 0.02 | 0.00 | 2.91 | 6.42 | 9.76 | 8.20 | 58.02 |
| 83 | 7.30 | 9.22 | 14.00 | 6.35 | 1.16 | 0.28 | M0.00 | 0.07 | 1.03 | 1.02 | 13.45 | M10.99 | 64.87 |
| 84 | 0.65 | 5.27 | 2.80 | 2.40 | 0.44 | 0.52 | 0.00 | 0.22 | 0.04 | 3.18 | 9.02 | 2.35 | 26.89 |
| 85 | 0.80 | 3.14 | 5.83 | 0.13 | 0.00 | 0.29 | 0.02 | 0.19 | 1.94 | 0.82 | 8.59 | 4.08 | 25.83 |
| 86 | 5.31 | 17.61 | 7.96 | 1.27 | 0.55 | 0.00 | 0.00 | 0.00 | 3.68 | 0.30 | 0.93 | 1.42 | 39.03 |
| 87 | 4.44 | 5.20 | 7.04 | 0.31 | 0.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.61 | 3.62 | 7.22 | 28.82 |
| 88 | 4.77 | 0.26 | 1.14 | 4.37 | 1.19 | 0.64 | 0.00 | 0.00 | 0.00 | 0.03 | 7.13 | 5.22 | 24.75 |
| 89 | 1.98 | 1.99 | 15.26 | 1.20 | 0.21 | 0.47 | 0.00 | 0.36 | 3.26 | 3.64 | 2.50 | 0.00 | 30.87 |
| 90 | 6.37 | 5.04 | 2.07 | 2.08 | 5.17 | 0.00 | 0.00 | 0.00 | 0.03 | 0.42 | 1.22 | 1.75 | 24.15 |
| 91 | 0.81 | 3.43 | 16.77 | 0.98 | 1.30 | 0.68 | 0.00 | 0.28 | 0.01 | 3.25 | 0.80 | 3.59 | 31.90 |
| 92 | 3.12 | 10.51 | 3.47 | 1.84 | 0.00 | 0.94 | 0.00 | 0.00 | 0.00 | 2.40 | 0.73 | 10.89 | 33.90 |
| 93 | 12.17 | 9.39 | 5.10 | 1.56 | 1.67 | 1.52 | 0.00 | 0.00 | 0.00 | 1.21 | 3.66 | 4.74 | 41.02 |
| 94 | 2.48 | 5.91 | 0.93 | 1.75 | 1.11 | 0.04 | 0.00 | 0.00 | 0.37 | 0.85 | 7.54 | 8.00 | 28.98 |
| 95 | 18.42 | 0.83 | 16.37 | 3.97 | 4.13 | 1.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 8.18 | 53.59 |
| 96 | 7.16 | 9.17 | 3.14 | 4.33 | 4.38 | 0.15 | 0.00 | 0.00 | 0.20 | 1.85 | 5.10 | 16.78 | 52.26 |
| 97 | 16.27 | 0.96 | 1.25 | 1.49 | 0.37 | 0.64 | 0.02 | 0.47 | 0.26 | 2.92 | M5.77 | 4.53 | 34.95 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 98 | 12.35M | 14.97 | 3.57 | 5.20 | 5.58 | 0.27 | 0.02 | 0.00 | 0.57 | 0.97 | 7.52 | 3.93 | 54.95 |
| 99 | 7.26 | 10.57 | 3.02 | 1.69 | 0.64 | 0.21 | 0.00 | 0.08 | 0.00 | 0.88 | 3.96 | 0.77 | 29.08 |
| 0 | 11.18 | 15.16 | 2.77 | 2.01 | 2.19 | 0.59 | 0.00 | 0.00 | 0.72 | 4.21 | 0.79 | 0.82 | 40.44 |
| 1 | 4.46 | 6.18 | 2.86 | 3.40 | 0.00 | 0.14 | 0.00 | 0.00 | 0.45 | 0.65 | 4.97 | 9.46 | 32.57 |
| 2 | | | | | | | | | | | | | |

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WETS Station : COLFAX, CA1912
Latitude: 3906 Longitude: 12057 Elevation: 02410
State FIPS/County(FIPS): 06061 County Name: Placer
Start yr. - 1971 End yr. - 2000

| Month | Temperature (Degrees F.) avg daily max | Temperature avg daily min | Temperature avg | Precipitation (Inches) avg | 30% chance will have less than | 30% chance will have more than | avg # of days w/.1 or more | avg total snow fall |
|---|---|---|---|---|---|---|---|---|
| January | 55.4 | 35.1 | 45.2 | 8.14 | 3.90 | 9.95 | 8 | 2.9 |
| February | 57.7 | 36.8 | 47.3 | 8.46 | 3.84 | 10.32 | 8 | 2.9 |
| March | 60.3 | 38.6 | 49.5 | 7.75 | 3.92 | 9.47 | 9 | 1.8 |
| April | 66.3 | 41.8 | 54.1 | 3.21 | 1.76 | 3.92 | 5 | 0.9 |
| May | 74.0 | 47.8 | 60.9 | 1.68 | 0.47 | 2.08 | 3 | 0.0 |
| June | 83.2 | 55.2 | 69.2 | 0.62 | 0.09 | 0.76 | 1 | 0.0 |
| July | 90.1 | 60.4 | 75.2 | 0.20 | 0.00 | 0.00 | 0 | 0.0 |
| August | 89.7 | 59.1 | 74.4 | 0.24 | 0.00 | 0.17 | 0 | 0.0 |
| September | 84.6 | 54.7 | 69.7 | 1.08 | 0.11 | 1.25 | 1 | 0.0 |
| October | 74.8 | 47.1 | 60.9 | 2.58 | 0.92 | 3.15 | 3 | 0.0 |
| November | 60.3 | 38.5 | 49.4 | 6.64 | 3.33 | 8.12 | 7 | 0.5 |
| December | 55.2 | 34.3 | 44.7 | 7.03 | 3.35 | 8.72 | 7 | 1.8 |
| Annual | ----- | ----- | ----- | ------ | 35.70 | 52.40 | -- | ---- |
| Average | 71.0 | 45.8 | 58.4 | ------ | ------ | ------ | -- | ---- |
| Total | ----- | ----- | ----- | 47.64 | ------ | ------ | 52 | 10.8 |

GROWING SEASON DATES

| Probability | Temperature 24 F or higher | Temperature 28 F or higher | Temperature 32 F or higher |
|---|---|---|---|
| | Beginning and Ending Dates Growing Season Length | | |
| 50 percent * | > 365 days | 2/22 to 11/30 | 4/ 9 to 11/16 |
| | > 365 days | 282 days | 220 days |

Appendix G

# Parcel and Property Owner Information

## Appendix G. Property Owner and Parcel Information

| Property Owner(s) | Parcel Number(s) | Address |
|---|---|---|
| Franklyn P. Jr. & Ruby E. Andrews, Trustees | 015-162-005 | P.O. Box 959<br>Loomis, CA 95650-0959 |
| Apple Six Hospitality Ownership Inc. | 015-450-059 | 814 E Main St.<br>Richmond, VA 23219 |
| Curtis L. & Christy A. Bagley | 046-290-035 | 6051 Kingwood Cir.<br>Rocklin, CA 95677 |
| Bank of New York Mellon | 046-290-038 | 1800 Tapo Canyon Rd.<br>Simi Valley, CA 93063 |
| Renee & Christopher Barnett | 015-530-017 | 6551 Hearthstone Cir. #921<br>Rocklin, CA 95677 |
| Lindsey & Clarence Barrett III | 015-510-004 | 6570 Hearthstone Cir. #1414<br>Rocklin, CA 95677 |
| Gregory A. & Kristi Barsanti | 046-290-040 | 3873 Purple Finch Ln.<br>Modesto, CA 95355 |
| Ronald L. & Jackqualyn R. Bassett | 015-530-025 | 6550 Hearthstone Cir. #1011<br>Rocklin, CA 95677 |
| David B. & Dawn M. Bicking | 046-290-039 | 6039 Kingwood Cir.<br>Rocklin, CA 95677 |
| Michael J. Jr. & Rebecca P. Bocchicchio | 046-223-001 | 4020 Creekview Ct.<br>Rocklin, CA 95677 |
| Christine L. Bouma | 015-510-006 | 6570 Hearthstone Cir. #1416<br>Rocklin, CA 95677 |
| John W. Brassfield Sr. | 016-350-010 | 8740 Ridge Rd.<br>Newcastle, CA 95658 |
| Howard G. Jr. Brimhall | 046-191-024 | 3118 Westwood Dr.<br>Rocklin, CA 95677 |
| Kevin T. Buckley et al. | 046-211-002 | 300 Queen Anne Ave. N., PMB 467<br>Seattle, WA 98109 |
| Captec Net Lease Realty Inc. | 013-212-046 | 450 S. Orange Ave., Ste. 900<br>Orlando, FL 32801 |
| Adam R. & Irma C. Castaneda | 046-290-041 | 6031 Kingwood Cir.<br>Rocklin, CA 95677 |
| Katie & Shawn Cheney | 046-270-072 | 3635 Woodglade Ct.<br>Rocklin, CA 95677 |
| Charles C. & Janet L. Chiang, Trustees | 013-212-013 | 82 Brian Ln.<br>Santa Clara, CA 95051-6742 |
| Citimortgage Inc. | 046-191-013 | 1000 Technology Dr., MS 314<br>O'Fallon, MO 63368-2240 |

| Property Owner(s) | Parcel Number(s) | Address |
|---|---|---|
| William S. & Erin P. Clarkson, Trustees | 015-163-011 | 8788 Petite Creek Wy.<br>Roseville, CA 95661 |
| Cof Capital Management LLC | 015-530-030 | 4620 Bedford Ct.<br>Rocklin, CA 95677 |
| Robert J. & Marilynn S. Collier | 015-530-016 | 6551 Hearthstone Cir. #912<br>Rocklin, CA 95677 |
| Frank & Angela Coronado | 015-530-002 | 6560 Hearthstone Cir. # 1212<br>Rocklin, CA 95677 |
| Mary E. Coulter et al. | 046-191-020 | 6525 Delwood Ct.<br>Rocklin, CA 95677 |
| CP Investment Group I LLC | 015-450-030 | 3140 Gold Camp Dr., Ste. 150<br>Rancho Cordova, CA 95670 |
| Brian T. & Michelle B. Culbertson, Trustees | 046-270-001 | 3258 Westwood Dr.<br>Rocklin, CA 95677 |
| Hormoz Demooei | 015-450-057 | 3810 Paseo Primario<br>Calabasas, CA 91302 |
| Susan G. Desautels, Trustee | 046-270-005 | 10 Quail Meadow Dr.<br>Woodside, CA 94062 |
| Quinten & Lauren Dobbs | 046-270-004 | 3228 Westwood Dr.<br>Rocklin, CA 95677 |
| Margaret Fair | 046-211-004 | 10433 Abington Wy.<br>Rancho Cordova, CA 95670 |
| John S. Fiddyment, Trustee et al. | 048-451-003 | 263 Shuman Blvd.<br>Naperville, IL 60563-5502 |
| Fitzgerald LLC | 015-162-004 | 1490 Elnora Ct.<br>Los Altos, CA 94024 |
| Five Star Boulevard Holdings LLC | 016-350-098 | 7501 Wisconsin Ave., Ste. 500<br>Bethesda, MD 20814 |
| Kim R. & Debra A. Flint | 046-211-003 | 6385 Rustic Hill Dr.<br>Rocklin, CA 95677 |
| Fourteen PAC Company | 015-130-020<br>015-130-021<br>015-140-004<br>015-140-007<br>015-150-012<br>015-150-022<br>015-150-023<br>015-150-024<br>015-150-025 | P.O. Box 29046<br>Phoenix, AZ 85038 |

| Property Owner(s) | Parcel Number(s) | Address |
|---|---|---|
| G & S Future Investments | 015-163-003 | 650 Auto Mall Dr.<br>Roseville, CA 95661 |
| Therese H. Geary, Trustee et al. | 015-162-002 | 250 Dutton Ave.<br>Santa Rosa, CA 95407 |
| William E. Geary, Trustee et al. | 015-162-001 | 37 Old Courthouse Square, 4th Floor<br>Santa Rosa, CA 95404 |
| Dana E. & Rhonda C. Gravatt | 046-280-026 | 5965 Aspen Ct.<br>Rocklin, CA 95677 |
| Andrea Groszko | 015-530-020 | 6551 Hearthstone Cir. #924<br>Rocklin, CA 95677 |
| Grove Communities LLC | 015-166-009 | 2024 Opportunity Dr. #150<br>Roseville, CA 95678 |
| Robert A. & Cecilia M. Grove | 046-290-034 | 2950 Clairemont Dr. #14<br>San Diego, CA 92117-6773 |
| Kathleen M. Gruber | 046-191-031 | 414 Meadowbrook Dr.<br>Valparaiso, IN 46383 |
| Stacy Harjer | 015-530-003 | 6560 Hearthstone Cir. #1213<br>Rocklin, CA 95677 |
| John A. Sr. & Patricia D. Harris, Trustees | 046-191-032 | 6590 Woodcrest Ct.<br>Rocklin, CA 95677 |
| HD Development Of Maryland Inc. | 048-451-006<br>017-123-059 | P.O. Box 105842<br>Atlanta, GA 30348-5842 |
| Heald Real Estate LLC | 015-240-024<br>015-240-042 | 1 Greenwich Office Park Blvd.<br>Greenwich, CT 06831 |
| Kent H. Heibak | 015-162-003 | 67 Edelwood Rd.<br>Kentfield, CA 94904 |
| Virginia Hoppert | 015-530-026 | 6550 Hearthstone Cir. #1012<br>Rocklin, CA 95677 |
| John O. Jr. & Teresa D. Howell | 046-191-033 | 6600 Woodcrest Ct.<br>Rocklin, CA 95677 |
| Shelly Hughey | 046-290-036 | 6049 Kingwood Cir.<br>Rocklin, CA 95677 |
| Paul L. & Helga A. Hulme, Trustees | 015-166-014 | 12772 Saratoga Sunnyvale Rd. #100<br>Saratoga, CA 95070 |
| I Think I Can LP | 013-213-030<br>013-213-031 | 440 North First St. #200<br>San Jose, CA 95112 |
| In-N-Out Burgers | 015-450-015 | 4199 Campus Dr. 9th Fl.<br>Irvine, CA 92612 |

| Property Owner(s) | Parcel Number(s) | Address |
|---|---|---|
| Mark D. Jackson | 015-530-027 | 6550 Hearthstone Cir. #1013<br>Rocklin, CA 95677 |
| Stefan Jodar | 015-510-003 | 6570 Hearthstone Cir. #1413<br>Rocklin, CA 95677 |
| Michael A. & Amanda D. Johnson | 046-270-003 | 3238 Westwood Dr.<br>Rocklin, CA 95677 |
| Jeremy & Jamie Jones | 015-530-011 | 6571 Hearthstone Cir. #1331<br>Rocklin, CA 95677 |
| Richard S. & Katherine D. Knecht | 046-211-001 | 6121 Ebonywood Ct.<br>Citrus Heights, CA 95621-0964 |
| Simon & Sandy Man Lei Lee | 046-191-023 | 3108 Westwood Dr.<br>Rocklin, CA 95677 |
| LL Roseville LP | 015-450-058 | 125 E. St. Francis Drake Blvd., Ste. 200<br>Larkspur, CA 94939 |
| Elisa Lopez | 015-530-040 | 6530 Hearthstone Cir. #634<br>Rocklin, CA 95677 |
| Lowe's Home Improvement Warehouse, Inc. | 017-123-068 | 1000 Lowes Blvd.<br>Mooresville, NC 28117 |
| Lennart E. & Robbi A. Lunberg, Trustees | 046-290-042 | 6025 Kingwood Cir.<br>Rocklin, CA 95677 |
| MK Blake Estate Co. | 015-240-023 | 944 McCourtney Rd. Ste. F<br>Grass Valley, CA 95949 |
| Mark E. & Ronda J. Marton | 046-270-002 | 3248 Westwood Dr.<br>Rocklin, CA 95677 |
| Garrett & Alison Masey | 015-530-029 | 6550 Hearthstone Ct. #1015<br>Rocklin, CA 95677 |
| Masters Capital Roseville LLC | 015-450-063 | 38 N. Almaden Blvd., Unit 1120<br>San Jose, CA 95110-2752 |
| David & Wendy McGraw | 046-191-025 | 3128 Westwood Dr.<br>Rocklin, CA 95677 |
| MGP IX Properties LLC | 356-010-003<br>356-010-004<br>356-020-001<br>356-020-002<br>356-020-003 | 3580 Carmel Mountain Rd., Ste., 260<br>San Diego, CA 92130 |
| Micnan LLC | 015-450-014 | 1111 Exposition Blvd. #600<br>Sacramento, CA 95815 |
| Mitchel H. & Christie M. Middleton | 046-191-019 | 6540 Delwood Ct.<br>Rocklin, CA 95677 |

| Property Owner(s) | Parcel Number(s) | Address |
|---|---|---|
| Miller Family Enterprises LP | 013-212-031<br>013-212-032<br>013-212-036 | P.O. Box 1646<br>Sacramento, CA 95812 |
| Denise Montalbano | 015-530-013 | 1120 Ravine View Dr.<br>Roseville, CA 95661-4655 |
| Steven A & Betsy Montgomery | 046-280-027 | 5955 Aspen Ct.<br>Rocklin, CA 95677 |
| Thomas M. & Julie Dawn Moore | 046-191-012 | 6595 Woodcrest Ct.<br>Rocklin, CA 95677 |
| Andy L. Moua | 015-510-005 | 6570 Hearthstone Cir. #1415<br>Rocklin, CA 95677 |
| Mourier Properties LLC | 363-020-052<br>363-020-053 | 1430 Blue Oaks Blvd., Ste. 190<br>Roseville, CA 95747-7143 |
| Anne E. Murray, et al. | 046-191-028 | 3158 Westwood Dr.<br>Rocklin, CA 95677 |
| Stephen R. Narez | 046-191-029 | 3168 Westwood Dr.<br>Rocklin, CA 95677 |
| Newcastle Rocklin Gold Hill Cemetery District | 046-010-045<br>046-010-054<br>046-010-056 | 850 Taylor Rd.<br>Newcastle, CA 95658-9780 |
| Northern California Conference of the Seventh-Day Adventist Church | 015-162-006 | P.O. Box 23165<br>Pleasant Hill, CA 94523 |
| Old Republic Title Holding Company Inc. | 363-011-008 | 1001 Galaxy Wy.<br>Concord, CA 94520 |
| Concepcion Ortega | 046-270-073 | 3630 Woodglade Ct.<br>Rocklin, CA 95677 |
| PAC Company | 015-150-002 | P.O. Box 29046<br>Phoenix, AZ 85038 |
| Jill Novak Page, Trustee | 046-280-028 | 5945 Aspen Ct.<br>Rocklin, CA 95677 |
| Jim & Carol A. Parnell | 015-163-010 | 2015 Back Nine Trail<br>Reno, NV 89523-3928 |
| Nicole Paul | 015-530-028 | 6550 Hearthstone Cir. #1014<br>Rocklin, CA 95677 |
| Douglas W. Penner, Trustee | 046-212-005 | 6390 Rustic Hills Dr.<br>Rocklin, CA 95677 |
| Jerry A. Peterson | 015-163-012<br>015-163-002 | 3040 Taylor Rd.<br>Roseville, CA 95678 |

| Property Owner(s) | Parcel Number(s) | Address |
|---|---|---|
| David T. & Diane S. Petty | 046-020-069<br>046-020-070 | 10962 Ridge Rd.<br>Nevada City, CA 95959 |
| Ramesh & Kusum R. Pitamber | 013-212-014 | 220 Harding Blvd.<br>Roseville, CA 95678 |
| Placer West Housing Partners LP | 016-410-016 | 169 Saxony Rd. Ste. 103<br>Encinitas, CA 92024 |
| Price Company | 017-123-017 | 999 Lake Dr.<br>Issaquah, WA 980278990 |
| Lauren Prichard, Trustee | 013-212-048 | 3181 Cameron Park Dr. #105<br>Cameron Park, CA 95682 |
| R & A Roseville LLC | 013-213-028 | 200 N. Sunrise Ave.<br>Roseville, CA 95661 |
| Realty Associates Fund IX LP | 493-010-002 | 1301 Dove St. Ste. 660<br>Newport Beach, CA 926602440 |
| Michael Regalia et al. | 015-510-001 | 6570 Hearthstone Cir. #1411<br>Rocklin, CA 95677 |
| Glen B. Richardson | 046-191-018 | 6520 Delwood Ct.<br>Rocklin, CA 95677 |
| Rebekah N. Richey | 015-530-041 | 6540 Hearthstone Cir. #811<br>Rocklin, CA 95677 |
| Carl R. & Helen E. Rick, Trustees et al. | 015-150-016<br>015-150-021 | 1021 Colnar St.<br>Roseville, CA 95678-4040 |
| City of Rocklin | 046-270-074 | 3970 Rocklin Rd.<br>Rocklin, CA 95677-2720 |
| Robert R. Rodriguez | 046-191-026 | 219 Hickory St.<br>Roseville, CA 95678 |
| City of Roseville | 015-166-010<br>015-166-011<br>017-123-042 | 311 Vernon St., Ste. 208<br>Roseville, CA 95678 |

| Property Owner(s) | Parcel Number(s) | Address |
|---|---|---|
| City of Roseville | 015-120-019<br>015-011-016<br>015-011-022<br>015-120-014<br>015-130-022<br>015-150-017<br>015-164-003<br>015-166-006<br>015-166-007<br>015-166-013<br>015-166-016<br>015-450-002<br>015-450-022<br>015-450-074<br>046-020-064<br>048-451-008<br>048-451-009<br>048-451-010<br>048-451-017<br>363-011-012<br>363-011-015<br>363-020-009<br>455-010-032<br>456-010-028 | 311 Vernon St., Ste. 200<br>Roseville, CA 95678 |
| City of Roseville | 015-140-008 | 316 Vernon St., Ste. 105<br>Roseville, CA 95678 |
| City of Roseville | 363-011-081 | P.O. Box 130940<br>Carlsbad, CA 92013 |
| Roseville Golfland Limited Partnership | 015-450-024<br>015-450-025<br>015-450-079 | 155 W Hampton Ave.<br>Mesa, AZ 85210 |
| Roseville Land Holdings LLC | 363-011-003<br>363-011-005<br>363-011-007 | 26840 Aliso Viejo Pkwy.<br>Aliso Viejo, CA 92656 |
| Roseville Open Space LLC | 015-166-005<br>015-166-015 | 920 11th St.<br>Sacramento, CA 95814 |
| Roseville Shoppingtown LLC | 363-011-022 | P.O. Box 130940<br>Carlsbad, CA 92013-0940 |
| RPE LLC | 015-450-027 | 1300 E Roseville Pkwy.<br>Roseville, CA 95661 |
| Sac City Lodging Partners LLC | 016-350-084 | 6830 Five Star Blvd.<br>Rocklin, CA 95677-2660 |

| Property Owner(s) | Parcel Number(s) | Address |
|---|---|---|
| Sac-Sek Inc. | 015-450-031 | 11135 Folsom Blvd.<br>Rancho Cordova, CA 95670 |
| Stephen A. Sampson | 015-530-001 | 6560 Hearthstone Cir. #1211<br>Rocklin, CA 95677 |
| David H. Scott Jr. | 046-191-021 | 6515 Delwood Ct.<br>Rocklin, CA 95677 |
| Don Segna | 046-191-030 | 29398 Cottage Ct<br>Menifee, CA 92584 |
| Shea Center Roseville I LLC | 363-011-009 | 26840 Aliso Viejo Pkwy, Ste. 100,<br>Aliso Viejo, CA 92660 |
| Shea Center Roseville II LLC | 363-011-002 | 26840 Aliso Viejo Pkwy, Ste. 100,<br>Aliso Viejo, CA 92660 |
| Frank C. Sigrist, Trustee | 046-010-057 | P.O. Box 1165,<br>Ripon, CA 95366 |
| Richard W. Jr. & Bonnie G. Smith, Trustees | 015-163-009 | 3869 Haskell Wy.<br>Roseville, CA 95661 |
| Paul S. Sohal & Nikki Davis | 015-530-042 | 6540 Hearthstone Cir. #812<br>Rocklin, CA 95677 |
| James A. & Mary A. Sperlazza, Trustees | 016-350-058<br>016-350-064<br>016-350-065 | 18671 Meadowlark Ct.<br>Penn Valley, CA 95946 |
| Ronald J. Speroni | 046-270-006 | 3208 Westwood Dr.<br>Rocklin, CA 95677 |
| J. Wy.ne Strauch et al. | 015-162-007 | 15008 Winters Hill Rd.<br>Silverton, OR 97381 |
| Sunset Christian Center of the Assemblies of God | 016-350-042<br>016-350-088 | 6900 Destiny Dr.<br>Rocklin, CA 95677 |
| Tangfat Enterprises Company | 048-451-001 | 1338 Stockton St., 2nd Floor<br>San Francisco, CA 94133 |
| Jay Dee & Bridgette W. Tannehill | 046-270-007 | 3198 Westwood Dr.<br>Rocklin, CA 95677 |
| Scott E. Thomas | 015-510-002 | 2101 Shoreline Dr. #354<br>Alameda, CA 94501 |
| Jill Leeann Tremblay | 015-530-023 | 6551 Hearthstone Cir. #933<br>Rocklin, CA 95677 |
| Kurt Trieburg | 015-530-032 | 6530 Hearthstone Cir. #612<br>Rocklin, CA 95677 |
| Timothy A. Tyson | 015-530-043 | 1311 Promontory Terrace<br>San Ramon, CA 94583-1574 |

| Property Owner(s) | Parcel Number(s) | Address |
|---|---|---|
| W2005/Fargo Hotels (Pool C) Realty LP | 015-166-066<br>015-450-066<br>015-166-065 | P.O. Box 111397 MS 135<br>Carrollton, TX 75011-1397 |
| James E. Ward Jr. | 046-191-027 | 3148 Westwood Dr.<br>Rocklin, CA 95677 |
| Randolph E. & Celia A. Wedding, Trustees et al. | 046-010-007<br>046-020-003 | 222 E. 4th St.<br>Ripon, CA 95366-2761 |
| David P. & Rosa M. Wells | 015-530-004 | 8430 Bridgewater Ct.<br>Granite Bay, CA 95746 |
| Michael J. & Robin L. Wiechers, Trustees | 016-350-076<br>016-350-077 | 7895 Haley Dr.<br>Granite Bay, CA 95746 |
| Winco | 017-123-032 | P.O. Box 5756<br>Boise, ID 83705-0756 |
| Zehm | 046-290-037 | 238 Foresthill Ave.<br>Auburn, CA 95603 |
| BRE/ESA P Portfolio LLC<br>C/O Extended Stay–Property Tax | 013-212-045 | 100 Dunbar St.<br>Spartanburg, SC 29306 |

# Appendix D Species Observed in the Biological Study Area

# Appendix D Species Observed in the Biological Study Area

**Table D-1. Plant Species Observed in the Biological Study Area**

| Scientific Name | Common Name |
|---|---|
| *Acer palmatum* | Japanese maple |
| *Acmispon americanus* var. *americanus* | Spanish lotus |
| *Aegilops triuncialis* | barbed goat grass |
| *Ailanthus altissima* | tree of heaven |
| *Aira caryophyllea* | silver hairgrass |
| *Alisma lanceolatum* | water plantain |
| *Alopecurus saccatus* | meadow foxtail |
| *Alnus rhombifolia* | white alder |
| *Alnus rubra* | red alder |
| *Amsinckia intermedia* | common fiddleneck |
| *Anagallis arvensis* | scarlet pimpernel |
| *Artemisia douglasiana* | mugwort |
| *Arundo donax* | giant cane |
| *Asclepias fascicularis* | narrowleaf milkweed |
| *Avena barbata* | slender wild oat |
| *Avena fatua* | wild oat |
| *Baccharis pilularis* | coyote brush |
| *Briza minor* | little quaking grass |
| *Brodiaea coronaria* | crown brodiaea |
| *Brodiaea elegans* | harvest brodiaea |
| *Bromus carinatus* | California brome |
| *Bromus diandrus* | ripgut brome |
| *Bromus hordeaceus* | soft chess |
| *Bromus madritensis* ssp. *rubens* | red brome |
| *Callitriche marginata* | California water starwort |
| *Cardamine oligosperma* | toothwort |
| *Carduus pycnocephalus* | Italian thistle |
| *Centaurea solstitialis* | yellow star-thistle |
| *Cephalanthus occidentalis* | buttonwillow |
| *Cerastium glomeratum* | mouse ear chickweed |
| *Cichorium intybus* | chicory |
| *Cirsium vulgare* | bull thistle |
| *Clarkia purpurea* | purple clarkia |
| *Clarkia unguiculata* | elegant clarkia |
| *Convolvulus arvensis* | field bindweed |
| *Crassula aquatica* | water pygmy-weed |
| *Croton setigerus* | turkey mullein |
| *Cynodon dactylon* | Bermuda grass |
| *Cynosurus echinatus* | hedgehog dogtail grass |

| Scientific Name | Common Name |
|---|---|
| *Cyperus difformis* | variable flatsedge |
| *Cyperus eragrostis* | tall flatsedge |
| *Deschampsia danthonioides* | annual hairgrass |
| *Dichelostemma capitatum* | blue dicks |
| *Dichelostemma multiflorum* | manyflower brodiaea |
| *Dipsacus fullonum* | Fuller's teasel |
| *Distichlis spicata* | salt grass |
| *Dittrichia graveolens* | stinkwort |
| *Downingia bicornuta* var. *picta* | doublehorn calicoflower |
| *Downingia ornatissima* var. *ornatissima* | horned downingia |
| *Eleocharis acicularis* | needle spike rush |
| *Eleocharis macrostachya* | spike rush |
| *Elymus caput-medusae* | Medusahead |
| *Epilobium ciliatum* | hairy willowherb |
| *Eriogonum nudum* | naked buckwheat |
| *Erodium botrys* | broadleaf filaree |
| *Erodium cicutarium* | redstem filaree |
| *Erodium moschatum* | whitestem filaree |
| *Eryngium castrense* | coyote thistle |
| *Eschscholzia californica* | California poppy |
| *Festuca bromoides* | brome fescue |
| *Festuca myuros* | rattail fescue |
| *Festuca perennis* | Italian ryegrass |
| *Ficus carica* | edible fig |
| *Foeniculum vulgare* | fennel |
| *Fraxinus latifolia* | Oregon ash |
| *Galium parisiense* | wall bedstraw |
| *Gastridium phleoides* | nit grass |
| *Geranium dissectum* | cutleaf geranium |
| *Geranium molle* | dovefoot geranium |
| *Helianthus annuus* | common sunflower |
| *Helminthotheca echioides* | bristly ox-tongue |
| *Hemizonia fitchii* | spikeweed |
| *Heteromeles arbutifolia* | toyon |
| *Hirschfeldia incana* | field mustard |
| *Holocarpha virgata* | narrow tarplant |
| *Hordeum marinum* ssp. *gussoneanum* | Mediterranean barley |
| *Hordeum murinum* ssp. *leporinum* | foxtail barley |
| *Hypericum perforatum* | Klamath weed |
| *Hypochaeris glabra* | smooth cat's-ear |
| *Hypochaeris radicata* | rough cat's-ear |
| *Juncus bufonius* | toad rush |
| *Juncus effusus* | bog rush |
| *Juncus xiphiodes* | irisleaf rush |
| *Lactuca serriola* | prickly lettuce |

| Scientific Name | Common Name |
|---|---|
| *Lasthenia fremontii* | Fremont's goldfields |
| *Lasthenia glaberrima* | smooth goldfields |
| *Leontodon taraxacoides* | hawkbit |
| *Ligustrum* sp. | privet |
| *Logfia gallica* | narrowleaf cottonrose |
| *Lotus corniculatus* | bird's-foot trefoil |
| *Ludwigia* sp. | water primrose |
| *Lupinus bicolor* | miniature lupine |
| *Lythrum hyssopifolia* | hyssop loosestrife |
| *Matricaria discoidea* | pineapple weed |
| *Melilotus indicus* | annual yellow sweetclover |
| *Mentha pulegium* | pennyroyal |
| *Mimulus guttatus* | seep monkeyflower |
| *Morus alba* | white mulberry |
| *Myosurus minimus* | little mousetail |
| *Myriophyllum aquaticum* | parrot's feather |
| *Nasturtium officinale* | watercress |
| *Navarretia intertexta* | needleleaf navarretia |
| *Navarretia leucocephala* ssp. *leucocephala* | whitehead navarretia |
| *Notholithocarpus densiflorus* | tanoak |
| *Olea europa* | olive |
| *Paspalum dilatatum* | dallis grass |
| *Persicaria hydropiperoides* | false waterpepper |
| *Petrorhagia dubia* | pink grass |
| *Phalaris aquatica* | Harding grass |
| *Physalis longifolia* | lance-leaved ground cherry |
| *Phytolacca americana* | pokeweed |
| *Pinus canariensis* | Canary Island pine |
| *Pinus* sp. | ornamental pine |
| *Plagiobothrys* sp. | popcornflower |
| *Plagiobothrys stipitatus* var. *micranthus* | stalked popcornflower |
| *Plantago coronopus* | buckhorn plantain |
| *Plantago erecta* | foothill plantain |
| *Plantago lanceolata* | English plantain |
| *Plantago major* | common plantain |
| *Platanus hybrida* | London planetree |
| *Platanus racemosa* | California sycamore |
| *Pogogyne zizyphoroides* | Sacramento mesamint |
| *Polygonum aviculare* | prostrate knotweed |
| *Polygonum* sp. | knotweed |
| *Polypogon australis* | Chilean beard grass |
| *Polypogon monspeliensis* | rabbitsfoot grass |
| *Populus fremontii* | Fremont cottonwood |
| *Psilocarphus brevissimus* var. *brevissimus* | woolly marbles |
| *Pyrus calleryana* | Callery pear |

| Scientific Name | Common Name |
|---|---|
| *Quercus agrifolia* | coast live oak |
| *Quercus douglasii* | blue oak |
| *Quercus lobata* | valley oak |
| *Quercus wislizeni* | interior live oak |
| *Ranunculus bonariensis* var. *trisepalus* | vernal pool buttercup |
| *Rhododendron* sp. | ornamental rhododendron |
| *Rubus armeniacus* | Himalayan blackberry |
| *Rubus ursinus* | California blackberry |
| *Rumex acetosella* | sheep sorrel |
| *Rumex crispus* | curly dock |
| *Salix exigua* | narrowleaf willow |
| *Salix gooddingii* | black willow |
| *Salix laevigata* | red willlow |
| *Salix lasiolepis* | arroyo willow |
| *Salsola tragus* | Russian thistle |
| *Sambucus nigra* ssp. *caerulea* | blue elderberry |
| *Schoenoplectus acutus* | hardstem bulrush |
| *Senecio vulgaris* | common groundsel |
| *Sesbania punicea* | red sesbania |
| *Silene gallica* | common catchfly |
| *Sonchus asper* | spiny sowthistle |
| *Sonchus oleraceous* | common sowthistle |
| *Sorghum halepense* | Johnson grass |
| *Stellaria media* | common chickweed |
| *Torilis arvensis* | hedge parsley |
| *Trifolium campestre* | hop clover |
| *Trifolium dubium* | suckling clover |
| *Trifolium hirtum* | rose clover |
| *Triteleia hyacinthina* | white brodiaea |
| *Typha angustifolia* | narrowleaf cattail |
| *Typha latifolia* | common cattail |
| *Urtica dioica* | stinging nettle |
| *Verbena lasiostachys* | common verbena |
| *Veronica americana* | brooklime |
| *Veronica peregrina* ssp. *xalapensis* | purslane speedwell |
| *Vicia villosa* ssp. *varia* | winter vetch |
| *Vicia villosa* ssp. *villosa* | hairy vetch |
| *Washingtonia robusta* | Washington fan palm |
| *Xanthium strumarium* | rough cocklebur |

**Table D-2. Wildlife Species Observed or Detected in the Biological Study Area**

| Scientific Name | Common Name |
|---|---|
| *Melanerpes formicivorus* | Acorn woodpecker |
| *Corvus brachyrhynchos* | American crow |
| *Falco sparverius* | American kestrel |
| *Turdus migratorius* | American robin |
| *Calypte anna* | Anna's hummingbird |
| *Thryomanes bewickii* | Bewick's wren |
| *Sayornis nigricans* | Black phoebe |
| *Euphagus cyanocephalus* | Brewer's blackbird |
| *Psaltriparus minimus* | Bushtit |
| *Petrochelidon pyrrhonota* | Cliff swallow |
| *Junco hyernalis* | Dark-eyed junco |
| *Picoides pubescens* | Downey woodpecker |
| *Carpodacus mexicanus* | House finch |
| *Carduelis psaltria* | Lesser goldfinch |
| *Zenaida macroura* | Mourning dove |
| *Colaptes auratus* | Northern flicker |
| *Mimus polyglottos* | Northern mockingbird |
| *Baeolophus inornatus* | Oak titmouse |
| *Contopus cooperi* | Olive-sided flycatcher |
| *Buteo lineatus* | Red-shouldered hawk |
| *Buteo jamaicensis* | Red-tailed hawk |
| *Agelaius phoeniceus* | Red-winged blackbird |
| *Columba livia* | Rock pigeon |
| *Pipilo maculatus* | Spotted towhee |
| *Cathartes aura* | Turkey vulture |
| *Aphelocoma californica* | Western scrub-jay |
| *Meleagris gallopavo* | Wild turkey |
| *Sceloporus occidentalis* | Western fence lizard |
| *Lepus californicus* | Black-tailed hare |
| *Odocoileus hemionus columbianus* | Black-tailed deer |
| *Procyon lotor* | Raccoon |
| *Spermophilus beecheyi* | California ground squirrel |
| *Sciurus griseus* | Western gray squirrel |

# Appendix E Representative Photographs

**Photo 1:** Bat urine staining underneath the existing I-80 deck structure over Miners Ravine (7/23/14)

**Photo 2:** Segment of Miners Ravine downstream of the Eureka Road bridge (facing southwest; 3/7/13)



**Representative Photographs of Biological Study Area**
**I-80/SR 65 Interchange Improvements Project**

**Photo 3:** Existing disturbed/graded area between oak woodland and eastbound I-80 near the Taylor Road off-ramp (facing south; 7/23/14)

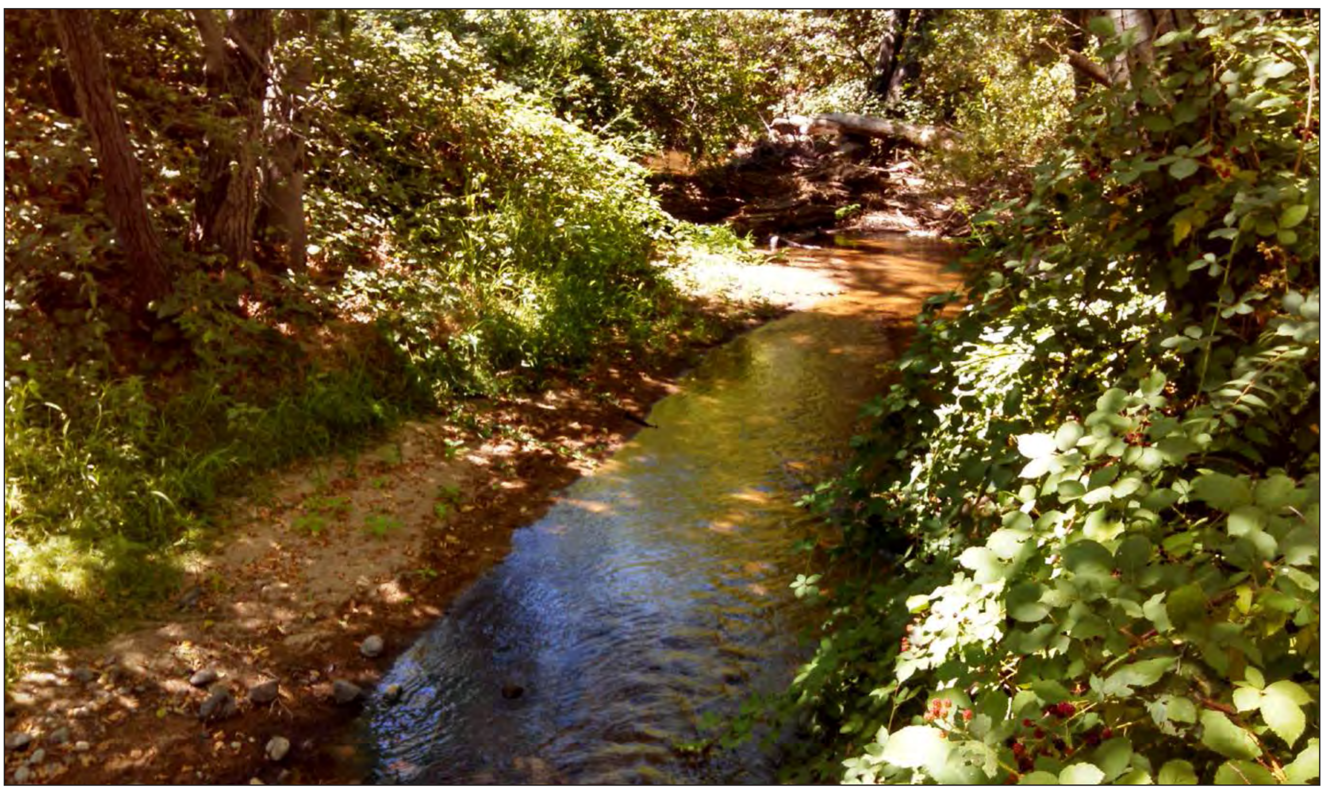

**Photo 4:** Segment of Secret Ravine underneath proposed overcrossing (facing southwest; 7/23/14)



**Representative Photographs of Biological Study Area I-80/SR 65 Interchange Improvements Project**

**Photo 5:** Proposed encroachment area for Secret Ravine northeast of the I-80/SR 65 connector ramp (facing northeast; 7/23/14)

**Photo 6:** Existing disturbed/graded area under East Roseville Viaduct west of Taylor Road (facing west; 7/23/14)

**Photo 7:** Vernal pool located between the dirt access road and railroad grade in the annual grassland southwest of the East Roseville Viaduct at Taylor Road (facing northeast; 11/13/12)

**Photo 8:** Existing dirt access road between annual grassland and the apartment complex located south of the East Roseville Viaduct (facing southwest; 7/23/14)



**Representative Photographs of Biological Study Area**
**I-80/SR 65 Interchange Improvements Project**

**Photo 9:** Unnamed intermittent stream under East Roseville Viaduct span west of Taylor Road (facing northeast; 11/13/12)

**Photo 10:** Annual grassland and riparian forest/shrub wetland south of Antelope Creek below the East Rosevill Viaduct (facing west; 7/23/14)

**Representative Photographs of Biological Study Area I-80/SR 65 Interchange Improvements Project**

**Photo 11:** Antelope Creek downstream of East Roseville Viaduct (facing south; 7/23/14)

**Photo 12:** Antelope Creek upstream of the East Roseville Viaduct (facing east; 07/23/14)

**Representative Photographs**
**of Biological Study Area**
**I-80/SR 65 Interchange Improvements Project**

**Photo 13:** Oak woodland habitat along I-80 south of China Garden Road (facing southwest; 7/23/14)

**Photo 14:** Vernal pool in the center of the southbound SR 65 off-ramp to Stanford Ranch Road (facing north; 2/28/13)

**Representative Photographs**
**of Biological Study Area**
**I-80/SR 65 Interchange Improvements Project**

**Photo 15:** Vernal pool in the center of the northbound SR 65 off-ramp to Galleria Boulevard (facing north; 2/28/13)

**Photo 16:** Seasonal wetland adjacent to the northbound lanes of SR 65 north of the Stanford Ranch Road/Galleria Boulevard Interchange (facing northwest; 2/28/13)

**Representative Photographs**
**of Biological Study Area**
**I-80/SR 65 Interchange Improvements Project**

**Photo 17:** Disturbed/graded area adjacent to the southbound lanes of SR 65 south of Pleasant Grove Boulevard (facing northwest; 11/15/12)

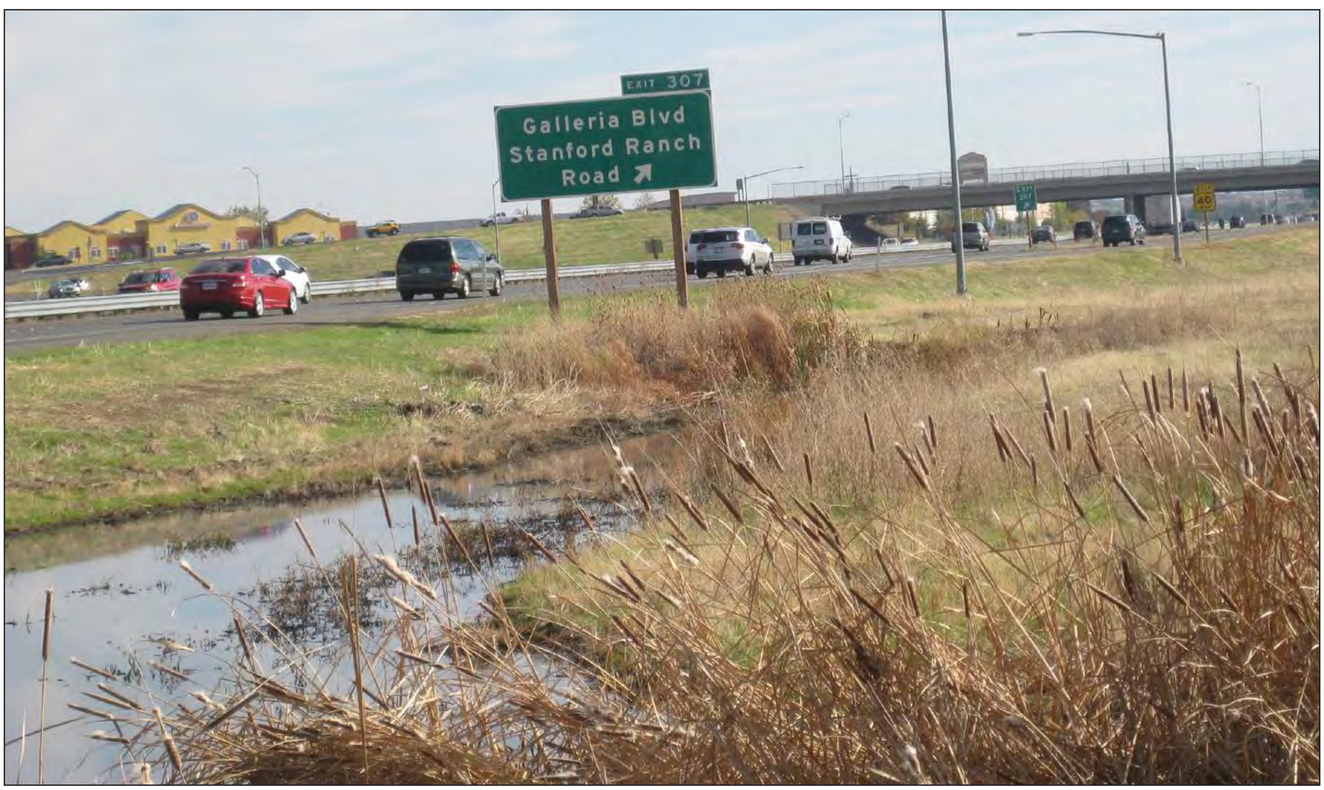


**Photo 18:** Emergent wetland habitat adjacent to the southbound lanes of SR 65 north of the Stanford Ranch Road/Galleria Boulevard Interchange (facing southeast; 11/15/12)

**Representative Photographs of Biological Study Area I-80/SR 65 Interchange Improvements Project**

**Photo 19:** Highland Ravine and annual grassland located southwest of SR 65 within Highland Reserve (facing southwest; 11/15/12)

**Photo 20:** Highland Ravine Culvert on south side of SR 65 (facing southeast; 11/15/12)

# Appendix F Fish Passage Reconnaissance Assessment

# Appendix F Fish Passage Reconnaissance Assessment

Senate Bill 857 requires that the California Department of Transportation (Caltrans) complete assessments of potential barriers to anadromous fish prior to commencing any project at stream crossings using state or federal transportation funds. As part of the Interstate 80/State Route 65 Interchange Improvements Project (proposed project), Caltrans is proposing to widen the existing Eureka Road off-ramp (Alternative 3) and the existing East Roseville Viaduct (Alternatives 1–3), construct a new bridge over Miners Ravine (Alternative 2), and construct one or more new bridges/flyovers over Secret Ravine (Alternatives 1–3). All three creeks currently support Central Valley steelhead (*Oncorhynchus mykiss*) and fall-run Chinook salmon (*O. tshawytscha*), and are designated as essential fish habitat (EFH) for Pacific salmon. In addition, Miners Ravine and Secret Ravine are designated as critical habitat for Central Valley steelhead,) and all three creeks are considered EFH for Chinook salmon. This fish passage reconnaissance assessment was conducted by Jeff Kozlowski, ICF International fish biologist, on July 28, 2014.

Currently, the structures proposed for widening on Antelope Creek (East Roseville Viaduct) and Miners Ravine (Eureka Road off-ramp) completely span their respective drainages (i.e., no piers are located in the water) and do not use culverts (e.g., corrugated metal pipe or reinforced concrete box) to convey streamflow under the bridges (Figures F-1 and F-2). Consequently, these existing stream crossings resemble natural channels, and the structures do not affect existing channel geometry or hydraulic conditions in the channel that adversely affect fish passage. This conclusion is supported by the following.:

- The streambed substrate is continuous throughout the crossing, and the particle size and arrangement of substrates are similar to the adjacent channel segments (i.e., upstream and downstream of the crossing).
- The streambed slope under the bridges are similar to adjacent channel segments.
- The crossing does not constrict the bankfull channel width.

Because the stream crossings at these bridges resembles a natural channel, existing fish passage conditions (e.g., water velocity, water depth, and channel slope) at the crossings are similar to those that would exist if the bridges were not present.

The proposed widening of the Eureka Road off-ramp over Miners Ravine will not affect the channel bed or banks of the creek. The widened roadway will be built on new columns that will be in-line with the existing columns. The resulting bridge will not require installation of any culverts or rock slope protection below the ordinary high water mark; therefore, existing hydraulic conditions and channel geometry at this stream crossing will be unaffected by the proposed project.

The proposed widening of the East Roseville Viaduct over Antelope Creek will require placing two columns in the channel bed. Because the piers represent only a fraction of the entire channel cross-section, no significant changes to channel hydraulics or channel geometry are anticipated. The results of a hydraulic study indicate that the new columns would not significantly affect scour or water surface elevations in Antelope Creek (WRECO 2014). Therefore, it is expected that widening of the viaduct will not affect existing fish passage conditions in Antelope Creek.

The proposed new bridge/flyovers over Miners Ravine and Secret Ravine will completely span the existing channels (i.e., no columns will be located in the low-flow channel); therefore, the new structures will not affect channel geometry or hydraulic conditions at these proposed crossings. Consequently, no changes to fish passage conditions at the proposed stream crossings will occur as a result of the project.

No additional work pertaining to fish passage at existing stream crossings on Antelope Creek and Miners Ravine in the BSA is required. In addition, the proposed widening of existing stream crossings on Antelope Creek and Miners Ravine, and the new crossings proposed on Miners Ravine and Secret Ravine will not result in any changes to hydraulic conditions or channel geometry. Therefore, no effects on existing fish passage conditions at these stream crossing locations are anticipated from implementing the proposed project.

## F.1 References Cited

WRECO. 2014. *Draft Bridge Design and* Location *Hydraulic Study Report: I-80/SR 65 Interchange Project, Placer County, CA.* Prepared for: Placer County Transportation Planning Agency and CH2M Hill. September. Sacramento, CA.

**Figure F-1. Antelope Creek at the SR-65 (East Roseville Viaduct) Stream Crossing**

**Figure F-2. Miners Ravine at the Eureka Road Off-ramp Stream Crossing**