

State Route 1 HOV Lanes – Tier II Project BA



Biological Assessment

State Route 1 HOV Lanes -Tier II Project
41st Avenue to Soquel Avenue Auxiliary Lanes and Chanticleer Avenue
Pedestrian-Bicycle Overcrossing
City of Capitola, Santa Cruz County, California
District 5
05-SCR-1- PM R13.5/14.9
EA 05-0C730

February 2018


For individuals with sensory disabilities, this document is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Matt Fowler, California Department of Transportation – District 5, 50 Higuera Street, San Luis Obispo, CA 93401; 805-542-4603 Voice, or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice), or 711.

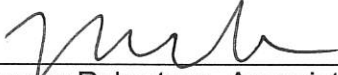
Biological Assessment

State Route 1 HOV Lanes- Tier II Project
41st Avenue to Soquel Avenue Auxiliary Lanes and Chanticleer Avenue
Pedestrian-Bicycle Overcrossing
City of Capitola, Santa Cruz County, California
District 5
05-SCR-1- PM R7.24/16.13 (KP R11.64/25.96)
EA 05-0C730

February 2018

STATE OF CALIFORNIA
Department of Transportation
District 5

Prepared By:  Date: 2/21/18
Jon Claxton
Natural Resources Team Leader
SWCA Environmental Consultants
1422 Monterey Street, San Luis Obispo, CA 93401
(805) 543-7095 x6813

Recommended
for Approval By:  Date: 2-28-18
Morgan Robertson, Associate Environmental Planner
(805) 542-4684
District 5
California Department of Transportation

Approved By:  Date: 2-28-18
Larry Bonner, Senior Environmental Planner
(805) 549-3337
District 5
California Department of Transportation

This page intentionally left blank.

Summary of Findings, Conclusions, and Determinations

Project Description

This Biological Assessment (BA) has been prepared for the United States Fish and Wildlife Service (USFWS) to provide biological information for the State Route (SR) 1 Tier II Project – 41st Avenue to Soquel Avenue Auxiliary Lanes and Chanticleer Avenue Pedestrian-Bicycle Overcrossing (project). The project is the first phase of implementation of improvements proposed for SR 1 in Santa Cruz County under the Corridor Analysis of High Occupancy Vehicle (HOV) Lanes and Transportation System Management (TSM) Alternatives being evaluated at a programmatic level.

The project proposes to add an auxiliary lane to both the northbound and southbound sides of SR 1 between the 41st Avenue and Soquel Drive/Soquel Avenue interchanges (postmile [PM] 13.5 to PM 14.9). Improvements would also include a pedestrian and bicycle overcrossing of SR 1 at Chanticleer Avenue. The total project would be approximately 1.4 miles in length, and is located outside coastal zone jurisdiction.

Habitats

Habitat types present within the Tier II project area include riverine/freshwater marsh, riparian forest, coast live oak woodland, ruderal vegetation, and developed/landscaped areas. The vast majority of the project area has developed/landscaped habitat, while the more natural habitats (riverine/freshwater marsh, riparian forest, and coast live oak woodland) are found primarily along Rodeo Gulch, a perennial stream that crosses the project area.

Federally Protected Species

Based on the official USFWS species list and the site conditions in the project area, this BA evaluated four federally protected plant species and 13 federally protected wildlife species. No federally designated critical habitat is present within the project area or identified by the USFWS as potentially occurring in the project area.

Federal Endangered Species Act Effects Determination – USFWS

Common Name	Scientific Name	Legal Status	Effects Determination
Flowering Plants			
marsh sandwort	<i>Arenaria paludicola</i>	Endangered	No effect
Santa Cruz tarplant	<i>Halocarpa macradenia</i>	Threatened	No effect
Scotts Valley polygonum	<i>Polygonum hickmanii</i>	Endangered	No effect
Scotts Valley spineflower	<i>Chorizanthe robusta</i> var. <i>hartwegii</i>	Endangered	No effect
Insects			
Ohlone tiger beetle	<i>Cicindela ohlone</i>	Endangered	No effect
Zayante band-winged grasshopper	<i>Trimerotropis infantilis</i>	Endangered	No effect
Fish			
tidewater goby	<i>Eucyclogobius newberryi</i>	Endangered	May affect, likely to adversely affect
Amphibians			
California red-legged frog	<i>Rana draytonii</i>	Threatened	May affect, likely to adversely affect
California tiger salamander	<i>Ambystoma californiense</i>	Threatened	No effect
Santa Cruz long-toed salamander	<i>Ambystoma macrodactylum</i>	Endangered	No effect
Birds			
California least tern	<i>Sterna antillarum browni</i>	Endangered	No effect
least Bell's vireo	<i>Vireo bellii pusillus</i>	Endangered	May affect, not likely to adversely affect
marbled murrelet	<i>Brachyramphus marmoratus</i>	Threatened	No effect
southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Endangered	May affect, not likely to adversely affect
western snowy plover	<i>Charadrius nivosus</i> ssp. <i>nivosus</i>	Threatened	No effect
Mammals			
southern sea otter	<i>Enhydra lutris nereis</i>	Threatened	No effect

Common Name	Scientific Name	Legal Status	Effects Determination
Reptiles			
San Francisco garter snake	<i>Thamnophis sirtalis tetrataenia</i>	Endangered	No effect

Based on habitat assessments, reconnaissance surveys, and botanical surveys of the project area, it was determined that four federally listed species have potential to occur in the project area: tidewater goby (*Eucyclogobius newberryi*), California red-legged frog (*Rana draytonii*), least Bell’s vireo (*Vireo bellii pusillus*), and southwestern willow flycatcher (*Empidonax traillii extimus*). The proposed project may result in temporary and permanent impacts to suitable habitat for each of these species, and potential direct take of tidewater goby and California red-legged frog during work within Rodeo Gulch. Proposed avoidance and minimization will reduce the chances of indirect impacts and magnitude of direct effects, and mitigation measures will offset permanent habitat impacts. The project area does not support federally listed or proposed plant species, or other federally listed or proposed animals. No designated critical habitat is found in or adjacent to the project area.

This page intentionally left blank.

Table of Contents

Chapter 1. Introduction 1

1.1. Project Description 4

 1.1.1. Tier I and Tier II Project Structure 4

 1.1.2. Purpose and Need 4

 1.1.3. Project Description 5

1.2. Summary of Consultation to Date 8

1.3. Document Preparation History 9

Chapter 2. Study Methods..... 11

2.1. Listed and Proposed Species Potentially in the Biological Study Area 11

2.2. Studies Required..... 11

2.3. Personnel and Survey Dates 13

 2.3.1. Field Surveys 13

2.4. Agency Coordination and Professional Contacts 14

2.5. Limitations That May Influence Results 14

Chapter 3. Results: Environmental Setting 17

3.1. Description of Existing Biological and Physical Conditions..... 17

 3.1.1. Biological Study Area and Action Area 17

 3.1.2. Physical Conditions 17

 3.1.2.1. Soils Present 18

 3.1.2.2. Hydrologic Resources 18

 3.1.3. Biological Conditions in the Project Area 21

 3.1.3.1. Natural Communities 21

Chapter 4. Results: Biological Resources, Discussion of Impacts and Mitigation 27

4.1. Federally-Listed/Proposed Plant Species 36

4.2. Federally-Listed/Proposed Animal Species Occurrences..... 36

 4.2.1. Discussion of Tidewater Goby 36

 4.2.1.1. Survey Results..... 36

 4.2.1.2. Critical Habitat 37

 4.2.1.3. Avoidance and Minimization Efforts 37

 4.2.1.4. Project Effects 38

 4.2.1.5. Modifications to the Project to Mitigate Effects 39

 4.2.1.6. Cumulative Effects..... 39

 4.2.2. Discussion of California Red-Legged Frog 40

 4.2.2.1. Survey Results..... 40

 4.2.2.2. Critical Habitat 41

 4.2.2.3. Avoidance and Minimization Efforts 41

 4.2.2.4. Project Effects 47

 4.2.2.5. Modifications to the Project to Mitigate Effects 47

 4.2.2.6. Cumulative Effects..... 48

 4.2.3. Discussion of Least Bell’s Vireo and Southwestern Willow Flycatcher 48

 4.2.3.1. Survey Results..... 49

 4.2.3.2. Critical Habitat 50

 4.2.3.3. Avoidance and Minimization Efforts 50

 4.2.3.4. Project Effects 52

 4.2.3.5. Modifications to the Project to Mitigate Effects 52

 4.2.3.6. Cumulative Effects..... 53

Chapter 5.	Conclusions and Determination.....	54
5.1.	Conclusions.....	54
5.2.	Determinations.....	55
Chapter 6.	References.....	58
Appendix A	Project Plans	64
Appendix B	USFWS IPaC and CNDDDB Results.....	72
Appendix C	Habitat Impact Maps.....	85
Appendix D	Photo Documentation	89
Appendix E	CTS and SCLTS Habitat Assessment.....	93

List of Figures

Figure 1: Project Vicinity Map.....	2
Figure 2: Project Location Map	3
Figure 3: Soils Map.....	19
Figure 4: Hydrology Map.....	20
Figure 5: Habitat Map – Sheet 1	22
Figure 6: Habitat Map – Sheet 2	23

List of Tables

Table 1: Survey Tasks, Dates, and Personnel.....	13
Table 2: Agency Coordination and Professional Contacts.....	14
Table 3: Tier II Plant Communities / Habitat Areas in the BSA.....	21
Table 4: Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.....	28
Table 5: Federal Endangered Species Act Effects Determination – USFWS	55

List of Abbreviated Terms

Abbreviation	Term
°F	degrees Fahrenheit
A	Absent
BA	Biological Assessment
BGEPA	Bald and Golden Eagle Protection Act
BSA	Biological Study Area
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH	Critical Habitat
CNDDDB	California Natural Diversity Database
County	County of Santa Cruz
CRLF	California red-legged frog
CTS	California tiger salamander
ESA	Federal Endangered Species Act
FCH	Federal Critical Habitat
FE	Federal Endangered
FHWA	Federal Highway Administration
FP	Fully Protected
FPE	Federal Proposed Endangered
FPT	Federal Proposed Threatened
FT	Federal Threatened
GIS	geographic information system
GPS	Global Positioning System
HOV	High Occupancy Vehicle
HP	Habitat Present
IPaC	Information for Planning and Conservation
KP	kilometer post
LBV	least Bell's vireo
MBTA	Migratory Bird Treaty Act
MMPA	Marine Mammal Protection Act

Abbreviation	Term
NEPA	National Environmental Policy Act
NES	Natural Environment Study
P	Present
PCH	Proposed Federal Critical Habitat
PIA	Project Impact Area
PM	postmile
ROW	right-of-way
RSA	Resource Study Area
SCCRTC	Santa Cruz County Regional Transportation Commission
SCLTS	Santa Cruz long-toed salamander
SR	State Route
SSC	California Species of Special Concern
SWCA	SWCA Environmental Consultants
SWWF	southwestern willow flycatcher
TSM	Transportation System Management
USC	United States Code
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

Chapter 1. Introduction

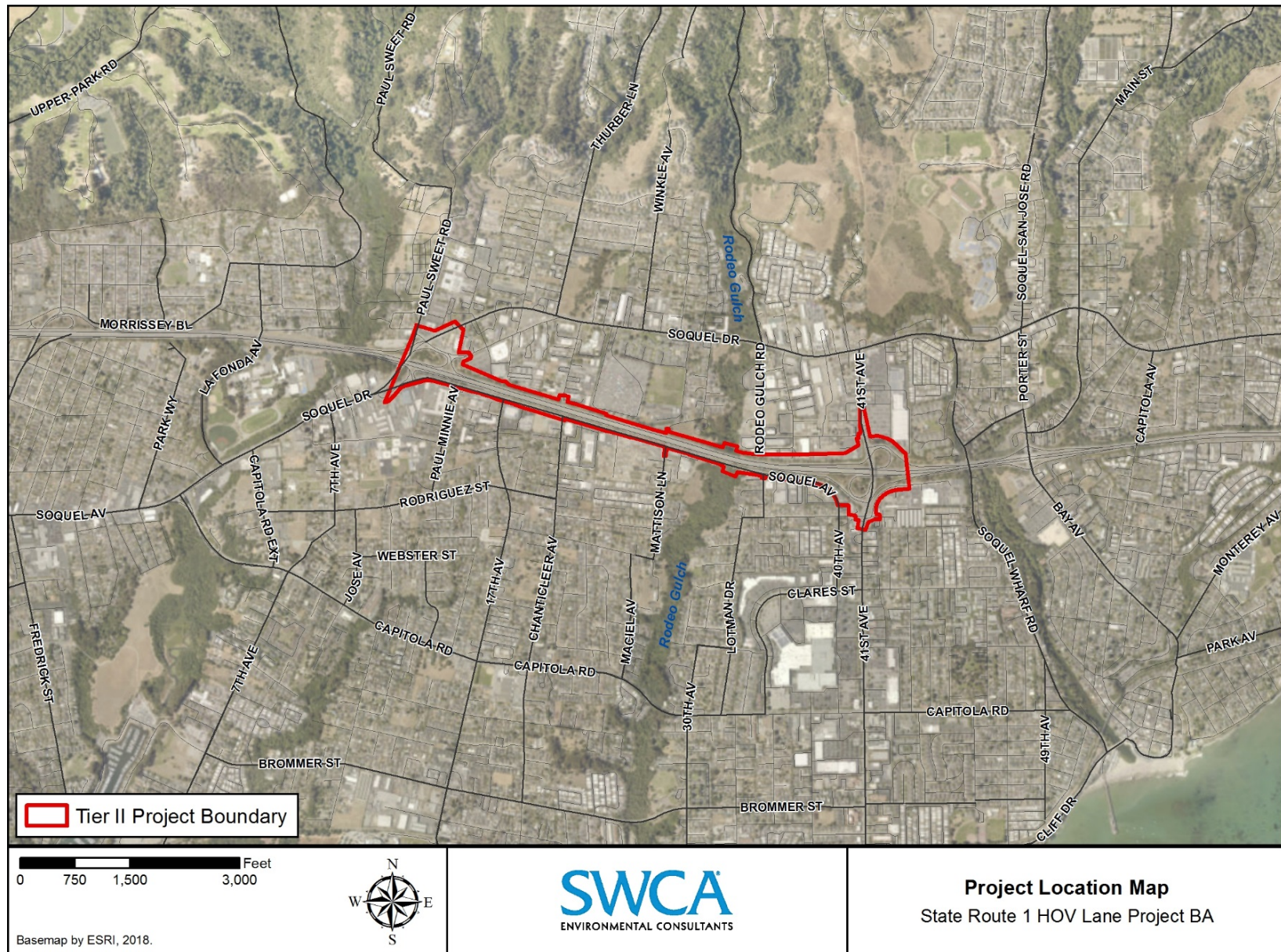
The purpose of this Biological Assessment (BA) is to provide technical information and to review the State Route (SR) 1 High Occupancy Vehicle (HOV) Lanes -Tier II Project (project), which proposes auxiliary lanes from 41st Avenue to Soquel Avenue and a pedestrian-bicycle overcrossing at Chanticleer Avenue. The BA provides information in sufficient detail to determine to what extent the proposed project may affect threatened, endangered, or proposed species. The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), has prepared this BA under its assumption of responsibility at 23 United States Code (USC) 327(a)(2)(A). The BA is also prepared in accordance with 50 Code of Federal Regulations (CFR) 402, legal requirements found in Section 7(a)(2) of the Federal Endangered Species Act (ESA; 16 USC 1536(c)), and with FHWA and Caltrans regulation, policy, and guidance. The document presents technical information upon which later decisions regarding project effects are developed.

The proposed project is located in the community of Soquel, governed by the City of Capitola, in Santa Cruz County, California (see Figures 1 and 2). The project area extends from 41st Avenue to Soquel Avenue along SR 1 and includes both interchanges, the auxiliary lanes, and the Chanticleer Avenue pedestrian bicycle overcrossing. The project corridor has several bottlenecks that cause congestion and travel delays, increasing traffic on adjacent side streets and causing safety problems for pedestrians and cyclists attempting to cross SR 1. The project has been proposed to reduce congestion, improve safety, and promote alternative transportation modes.

Figure 1: Project Vicinity Map



Figure 2: Project Location Map



1.1. Project Description

1.1.1. Tier I and Tier II Project Structure

Caltrans, in cooperation with the FHWA and the Santa Cruz County Regional Transportation Commission (SCCRTC), is evaluating at the Tier I programmatic level proposed improvements to SR 1 in Santa Cruz County along a distance of approximately 8.9 miles, from approximately 0.4 mile south of the San Andreas/Larkin Valley Road Interchange through the Morrissey Boulevard Interchange. A “tiered” approach is being applied to the environmental documentation for the proposed improvements.

The Tier I portion of the project documentation supports informed decision-making and discloses issues associated with the selection of a Tier I Corridor Alternative. As specific projects within the corridor are ready for implementation, impacts of that action will be evaluated in subsequent Tier II environmental documents.

The analysis in this BA addresses the Tier II Project, which involves a project-level Auxiliary Lane Alternative between postmile (PM) 13.5 and PM 14.9. The Tier II segment is within the project limits of the Tier I corridor and would represent the first implementation phase of transportation improvements for the 8.9-mile corridor. As mentioned above, all future Tier II corridor projects will be subject to separate environmental review.

1.1.2. Purpose and Need

The purpose of the Tier II Project is to achieve the following:

- Reduce congestion;
- Improve safety; and,
- Promote the use of alternative transportation modes as means to increase transportation system capacity.

The need for the Tier II Project is summarized by these deficiencies on SR 1:

- Several bottlenecks along SR 1 in the northbound and southbound directions cause recurrent congestion during peak hours;
- Travel time delays due to congestion are experienced by commuters, commerce, and emergency vehicles;

- “Cut-through” traffic, or traffic on local streets, occurs and is increasing because drivers seek to avoid congestion on the highway; and,
- Limited opportunities for pedestrians and bicyclists to safely get across SR 1 within the project limits.

1.1.3. Project Description

SCCRTC is proposing to widen SR 1 by adding an auxiliary lane to both the northbound and southbound sides between the 41st Avenue and Soquel Drive interchanges (PM 13.5 to PM 14.9). Project plans are included in Appendix A.

The total roadway widening of the Tier II Project would be approximately 1.4 miles in length. Northbound, the auxiliary lane would begin just south of the 41st Avenue overcrossing, at the existing loop on-ramp to northbound 41st Avenue. North of the overcrossing, the on-ramp from southbound 41st Avenue to northbound SR 1 would merge with the new auxiliary lane, approximately 1,000 feet downstream from its beginning at the bottom of the loop ramp. Southbound, the auxiliary lane would begin at the existing Soquel Drive on-ramp, and end at the existing off-ramp at 41st Avenue.

The new auxiliary lanes would be 12 feet wide. In the northbound direction, the Tier II project proposes to pave a 10-foot-wide median shoulder and widen to the outside to add the 12-foot-wide auxiliary lane and a new 10-foot-wide shoulder. In the southbound direction, the width needed for the new lane would be added in the median, and the median barrier would be shifted approximately five feet toward the northbound side of the freeway to make room for the new lane and a standard 10-foot-wide shoulder. Where the new southbound lane meets the existing ramps, outside shoulder widening would occur to achieve standard 10-foot-wide shoulders.

As part of the widening in the northbound direction, the project proposes to repair the pavement failure in the outside lane and shoulder by improving the pavement section, installing a retaining wall and, if necessary, replacing the underlying County of Santa Cruz (County)-owned sanitary sewer. A new concrete median would also be constructed.

A new horseshoe-shaped pedestrian overcrossing at Chanticleer Avenue is proposed, and approximately 360 feet of sidewalk would be constructed along the south side of Soquel Avenue, starting at Chanticleer Avenue.

Retaining walls would be constructed as part of the roadway widening, with a total of four separate walls: three on the northbound side of the highway and one on the

southbound side. Three of the walls would be located to allow widening for a future lane on the highway, in both directions. The wall proposed along the northbound on-ramp at 41st Avenue would require demolition in the event that the highway was widened in the future. Two of the walls would span Rodeo Gulch, where there is an existing 9-foot arch concrete culvert, and one would be constructed within a narrow jurisdictional area on the northbound side of SR 1, adjacent to a 39-inch culvert crossing.

Right-of-way (ROW) would be acquired along Soquel Avenue west of Chanticleer Avenue and at the Chanticleer Avenue cul-de-sac north of the roadway, along with temporary construction easements on both sides of SR 1 near the proposed overcrossing

Noise abatement in the form of a short soundwall or building acoustical treatment will be considered for one severely affected residence.

Construction of the project is anticipated to begin in 2019 and is anticipated to take two years to complete. Construction activities will include clearing of vegetation within the area of impact. The removal of vegetation is anticipated to be accomplished using mechanized removal equipment or by hand using chain saws. Following initial clearing, as feasible, topsoil is anticipated to be salvaged in the areas to be restored and stored on-site or at a nearby approved work area for use in site restoration.

Following site clearing/vegetation removal, grading and excavation would be conducted. Grading would include both removal of excess material and importation of fill material. In general, earthwork activities (e.g., grading and excavation) would be completed such that the site meets project design specifications and matches proposed grades. As described in the project's Preliminary Geotechnical Report (Caltrans 2015b), cuts are expected to be generally nominal (primarily in the northbound direction of traffic) for the proposed widening work since most of the alignment is already established; however, embankments/cuts are generally required for the proposed northbound auxiliary lane and the bridge approaches (along northbound SR 1) at or near creeks and gulches. Conventional construction methods are expected to be used for excavations and cuts. Blasting is not expected.

Following earthwork, all necessary below-grade construction, such as foundations and utility work, would begin. Pile driving may be used during the construction of the foundation for the pedestrian/ bicycle overcrossing at Chanticleer Avenue. As

described in the project's Draft Environmental Impact Report/Environmental Assessment (Caltrans 2015a), 15 utility lines would likely require relocation to avoid conflicts with the proposed improvements. The affected utilities include:

- Five storm drain facilities, including 600 feet of reinforced concrete pipe (ranging from nine to 18 inches in diameter) to be protected in place, and one storm drain manhole to be modified or extended.
- Three sewer facilities, comprising 500 linear feet of sanitary sewer lines to be protected in place.
- Nine electrical facilities, including eight Pacific Gas and Electric Company poles to be relocated and 210 linear feet of 21-kilovolt electrical line.
- One gas facility with 90 linear feet of gas line to be protected in place.
- One cable facility with 80 linear feet of cable to be relocated.

Precise field locations may vary for utilities, such as the 21-kilovolt electrical lines, and relocation details would be worked out with the utility providers during the final design phase of the project in accordance with Caltrans procedures. After below-grade work is completed, structures would be installed on the respective foundations.

Equipment to be used during project construction would be anticipated to include, but not be limited to, bulldozers, excavators, backhoes, loaders, graders, scrapers, dump trucks, tractor-trailers, water trucks, concrete mixer trucks, drill rig, crane, and pavers.

Highway widening and retaining wall construction in the vicinity of Rodeo Gulch, which crosses SR 1 via a nine-foot-diameter concrete arch culvert, may require temporary dewatering/diversion within Rodeo Gulch. If dewatering/diversion is necessary, the area of work would be isolated and best management practices employed to prevent sediment and other pollutants from entering the stream.

Equipment staging and storage activities would occur at a designated staging area at least 66 feet from wetlands, other waters, or other aquatic areas (Caltrans 2015a). Traffic detours will be established in accordance with a Traffic Management Plan developed in compliance with Caltrans and local policies. The Traffic Management Plan would include measures to minimize, avoid, and/or mitigate impacts to alternate routes, such as agreements with local agencies to provide enhanced infrastructure on arterial roads or intersections to deal with detoured traffic (Caltrans 2015a).

Following completion of construction and demobilization, the temporarily disturbed work areas will be restored to their pre-construction conditions. Areas that were disturbed by grading, augering, or equipment movement would be recontoured to their original contours, as feasible. Work areas would be decompacted, and, as feasible, salvaged topsoil materials would be respread following recontouring to aid in restoration of disturbed areas.

Mitigation will be implemented on-site immediately following project completion. Required mitigation site maintenance activities will include weeding, debris removal, replanting (if necessary), repair of any vandalism, fertilizing, and/or pest control.

1.2. Summary of Consultation to Date

The following is a chronological summary of regulatory agency coordination and correspondence:

- **July 14, 2003:** SWCA Environmental Consultants (SWCA) contacted Christopher Kofron of the United States Fish and Wildlife Service (USFWS) to request an official USFWS species list.
- **March 5, 2009:** SWCA contacted Jacob Martin regarding Santa Cruz long-toed salamander (SCLTS; *Ambystoma macrodactylum*) at Valencia Lagoon, potential mitigation, and list of federal listed species considered.
- **May 3, 2016:** SWCA submitted a request, via the USFWS online Information for Planning and Conservation (IPaC) species list system, for an official USFWS species list for the project area. The official list was delivered via email the same day.
- **October 12, 2016:** Morgan Robertson at Caltrans spoke with USFWS biologist Jacob Martin by phone regarding the proposed project and potential strategies to avoid impacts to least Bell's vireo (LBV; *Vireo bellii pusillus*).
- **March 20, 2017:** The official USFWS species list was updated via the IPaC.
- **June 20, 2017:** SWCA updated the USFWS species list by a query of the IPaC website. Note, SWCA did not obtain an official species list. An official species list will be acquired by Caltrans, acting on behalf of FHWA as the lead federal agency, once the BA is finalized and Caltrans is ready to initiate formal Section 7 consultation. The official species list will be included in Appendix B.
- **November 15, 2017:** Caltrans submitted a formal USFWS list via IPaC (see Appendix B).

1.3. Document Preparation History

This BA was prepared for Caltrans District 5, in cooperation with the FHWA and SCCRTC. Based on observations from the reconnaissance surveys conducted for the project, the project team concluded that the proposed project has the potential to affect species protected by the ESA and preparation of this BA was necessary for consultation with the USFWS.

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated December 23, 2016, and executed by FHWA and Caltrans.

Project Manager: SWCA Natural Resources Team Leader Jon Claxton, (805) 543-7095 x6813, jclaxton@swca.com, reviewed the BA and provided quality assurance/quality control support.

BA Preparation: SWCA Environmental Planner Jacqueline McCrory, (805) 543-7095 x6822, jamccrory@swca.com, authored the BA.

BA Graphics: SWCA Geographic Information Systems (GIS) Specialist Takashi Abiko, (805) 543-7095 x6830, tabiko@swca.com, originally prepared project maps and graphics using global positioning system (GPS) field data and GIS software. Graphics later revised by SWCA GIS Specialist, Kevin Howen, khowen@swca.com.

This page intentionally left blank.

Chapter 2. Study Methods

2.1. Listed and Proposed Species Potentially in the Biological Study Area

This BA will be used to determine to what extent the proposed project may affect threatened and endangered species managed by the USFWS, and their habitats, as summarized in Table 1. The evaluation in this BA is based on biological studies conducted from 2003 through 2016, and project plans as of November 2012. The evaluation provides quantified estimates of habitat impacts within the Tier II project's Biological Study Area (BSA) (described in Section 3.1.1) based on those studies and plans.

2.2. Studies Required

SWCA biologists initiated a review of potentially occurring federally listed and proposed species by generating a species list with the USFWS IPaC. SWCA also utilize a query of the California Natural Diversity Database (CNDDDB) in a five-mile radius search of the project area for additional species occurrence information. The latest USFWS species list and CNDDDB search are included in Appendix B.

Botanical surveys were conducted in accordance with California Department of Fish and Wildlife (CDFW) Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFW 2009) and the USFWS Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants (USFWS 2000a). Focused surveys for rare plants known within the region were conducted on May 30 and 31, 2003, and during September and October 2003 based on the study area at that time.

Supplementary plant surveys were conducted in areas added to the study area from February 21 to 23, 2007. An additional plant survey was also conducted on July 9, 2015. A tree inventory was conducted within the BSA in spring 2007 to estimate the numbers and size classes of agency-protected trees within the BSA.

Focused California red-legged frog (CRLF; *Rana draytonii*) surveys were conducted from September 30 to October 2, 2003, under the 1997 USFWS guidance/protocol (USFWS 1997). The results of these surveys are for background information purposes within this report, as it is recognized that the results are outdated as of 2018.

A habitat assessment for LBV was conducted in May 2016. The habitat assessment evaluated the stratified canopy of Rodeo Gulch to determine if there is potential

suitable nesting and foraging habitat. No focused protocol surveys for this species were conducted as the species is migratory and may utilize the BSA for foraging and nesting purposes in the future. The results of that habitat assessment are incorporated into this BA.

A habitat assessment was also conducted for potential habitat for California tiger salamander (CTS; *Ambystoma californiense*) and SCLTS in May 2016. The habitat assessment was performed using the protocol Interim Guidance on Site Assessment for Determining the Presence or a Negative Finding of the California Tiger Salamander, October 2013 (USFWS and CDFW 2003) and Guidance on Site Assessment and Field Surveys to Detect Presence or Report a Negative Finding of the Santa Cruz Long-toed Salamander, December 2012 (USFWS and CDFW 2012). The habitat assessment has been include as Appendix C. No protocol-level surveys were conducted for CTS or SCLTS, since these species are well documented in the area and the BSA does not contain suitable habitat based on the habitat assessment conducted by species expert, Bryan Mori.

A Jurisdictional Wetland Assessment was conducted within the BSA from September 30 through October 3, 2003, with supplemental visits conducted on February 21 and 22, 2007. The routine wetland determination methodology was followed, as described in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987). The Wetland Assessment was revised in 2010, following publication of the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (United States Army Corps of Engineers [USACE] 2008).

Based on coordination with Caltrans staff, another supplemental site visit was conducted on November 6, 2013, to determine if the jurisdictional boundaries have increased or decreased since 2007. Field observations concluded that the jurisdictional features within the Tier II project boundary have not changed.

2.3. Personnel and Survey Dates

2.3.1. Field Surveys

Table 1 summarizes survey efforts conducted for the proposed project.

Table 1: Survey Tasks, Dates, and Personnel

Study or Survey	Dates	Personnel
Rare Plant Botanical Surveys	May 30–31, 2003; September 30–October 2, 2003	Bob Sloan
Additional Botanical Surveys	February 21–23, 2007 April 30–31 and June 18, 2015	Bob Sloan, Geoff Hoetker, Travis Belt, Vanessa Amerson Barrett Holland, Michaela Koenig, Kristen Outten
Tree Inventory	February 21–23, 2007	Travis Belt, Vanessa Amerson
California Red-Legged Frog Survey	September 30–October 2, 2003	Jeremy Wiggins, Crystahl Handel, Bob Sloan, Dwayne Oberhoff
Habitat Mapping	September 30–October 2, 2003; September 8, 2004	Jeremy Wiggins, Crystahl Handel, Bob Sloan, Dwayne Oberhoff
Wetland Assessment	September 30–October 3, 2003; September 8, 2004	Bob Sloan, Jeremy Wiggins
Supplemental Wetland Assessment	February 21–23, 2007	Bob Sloan, Geoff Hoetker
Supplemental Wetland Visit	November 6, 2013	Barrett Holland
Reconnaissance Survey	March 16, 2016	Jon Claxton, Jacqueline McCrory
Least Bell's Vireo Habitat Assessment Survey	March 18, 2016	Jackie Hancock
California Tiger Salamander and Santa Cruz Long-Toed Salamander Habitat Assessment	May 31, 2016	Bryan Mori

2.4. Agency Coordination and Professional Contacts

Table 2 summarizes agency coordination and professional contacts at this point in the project.

Table 2: Agency Coordination and Professional Contacts

Name	Agency	Type of Coordination	Date
Christopher Kofron	USFWS	Letter Re: list of federal listed species request	July 14, 2003
Jacob Martin	USFWS	Phone conversation Re: SCLTS at Valencia Lagoon, potential mitigation, and list of federal listed species considered	March 5, 2009
USFWS IPaC Website	USFWS	SWCA submitted a request, via the USFWS online IPaC species list system, for an official USFWS species list for the project area. The official list was delivered via email the same day	May 3, 2016
Jacob Martin	USFWS	Phone conversation Re: potential strategies to avoid impacts to LBV.	October 12, 2016
USFWS IPaC Website	USFWS	Request for updated official species list	March 20, 2017
USFWS IPaC Website	USFWS	Request for updated official species list	June 20, 2017
USFWS IPaC Website	USFWS	Request for updated official species list	November 15, 2017

2.5. Limitations That May Influence Results

Original botanical efforts for the proposed project are over 10 years old; additional botanical surveys were conducted in 2007 and 2015. Although the botanical surveys conducted in support of this BA were timed to accommodate the flowering periods of the species considered in this document, sensitive plant species with the potential to occur in the BSA may be annual species that may be difficult to detect following seasons of abnormal rainfall, or during those times of the year when particular species do not typically flower.

Sensitive wildlife species with the potential to occur in the BSA may be cryptic (difficult to detect) or transient, migratory species. The population size and locations of sensitive species may fluctuate through time. Because of this, the data collected for this BA represents a “snap shot” in time and may not reflect actual future conditions.

The BSA was inspected for nesting birds. However, even though no nesting birds were observed, birds may establish nests within the project limits prior to the onset of construction. Nesting bird surveys are time sensitive and are often repeated several times before the onset of construction activities, especially if construction will occur during the typical nesting bird season (February 15 to September 15).

Even though field surveys were performed, no formal protocol surveys were conducted for those sensitive wildlife species that have established survey protocols and are considered to have the potential to occur within the BSA. The presence of CRLF is inferred due to documented occurrences of the species and presence of suitable habitat.

This page intentionally left blank.

Chapter 3. Results: Environmental Setting

3.1. Description of Existing Biological and Physical Conditions

3.1.1. Biological Study Area and Action Area

The BSA for the Tier II segment of the SR 1 HOV Lane Project consists of a 1.4-mile, generally linear area within and adjacent to the SR 1 ROW between the 41st Avenue and Soquel Drive interchanges, as shown in Figure 2. The BSA is typically defined as the area (land and water) that may be directly, indirectly, temporarily, or permanently impacted by construction and construction-related activities. For the purposes of this report, the BSA is defined as the limits of Caltrans ROW and access easement, plus all contiguous riparian habitat and blue-line drainages that intersect the project footprint.

The action area for a project is defined as all areas that may be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR 402.02). The action area for this project is considered to be the entire BSA as described above.

The Project Impact Area (PIA) is defined as the area that is directly impacted by construction and construction-related activities either temporarily or permanently.

3.1.2. Physical Conditions

The approximately 1.4-mile-long project BSA is located within the United States Geological Survey (USGS) 7.5-minute Soquel quadrangle, with a generally flat topography and an elevational range from approximately 115 feet at the eastern section of the BSA to approximately 85 feet toward the western section of the BSA. The BSA is located within the Monterey Bay Plains and Terraces ecoregion; however, the project is dominated by typical freeway landscaping and ruderal habitats, with residential and commercial buildings and associated landscaping within or immediately adjacent to the BSA in many locations. The BSA is located within the Monterey Bay hydrologic unit (Hydrologic Unit 18060001) and includes Rodeo Gulch, which has a drainage area of 1.98 square miles and bisects the BSA. Construction of the Chanticleer Avenue bicycle/pedestrian overcrossing portion of the project would require permanent partial acquisitions on six parcels. These partial acquisitions affect properties on both sides of SR 1 in the vicinity of Chanticleer Avenue. Four of the parcels with permanent partial acquisitions are commercial, one is residential, and one is governmental (Caltrans 2015c).

In Santa Cruz, the average annual high temperature is approximately 69 degrees Fahrenheit (°F), and average annual low temperature is 45°F. Average annual precipitation for the region is approximately 29 inches.

3.1.2.1. SOILS PRESENT

The BSA crosses several soil map units and numerous mapped soil types. The Soil Conservation Service (1976a) mapped seven soil map units within the BSA. These soils are mapped on Figure 3.

3.1.2.2. HYDROLOGIC RESOURCES

Hydrology along the Tier II segment of SR 1 is controlled by the Rodeo Gulch and existing drainages, with extensive runoff occurring from urban and residential development, roadways, and parking areas. The project corridor drains towards Rodeo Gulch and Arana Gulch (see Figure 4). The route is located within the Monterey Bay Watershed, within which most of the creeks and drainages enter the Pacific Ocean downstream of the BSA. No tidally influenced or brackish areas are present within the BSA.

The portion of Rodeo Gulch in the BSA consists of a broad, slightly incised channel, bordered by riparian forest habitat, described below. This creek is a blue-line stream that receives runoff from a medium-sized urban watershed area. The creek flows under SR 1 and Soquel Avenue through a 72-inch concrete culvert. Channel areas up- and downstream of the culvert were dry during the assessment, with the exception of a small stagnant pool at the southern end of the culvert. The broad, flat natural channel area south of SR 1 exhibited a central flat, sandy, low-flow channel surrounded by low-lying, regularly inundated flood plain areas consisting of sand or loamy soils that were densely covered with riparian vegetation. A detailed examination of this area found wetland boundaries extending across the floodplain to a width ranging between 100 and 200 feet within the creek corridor.

Figure 3: Soils Map

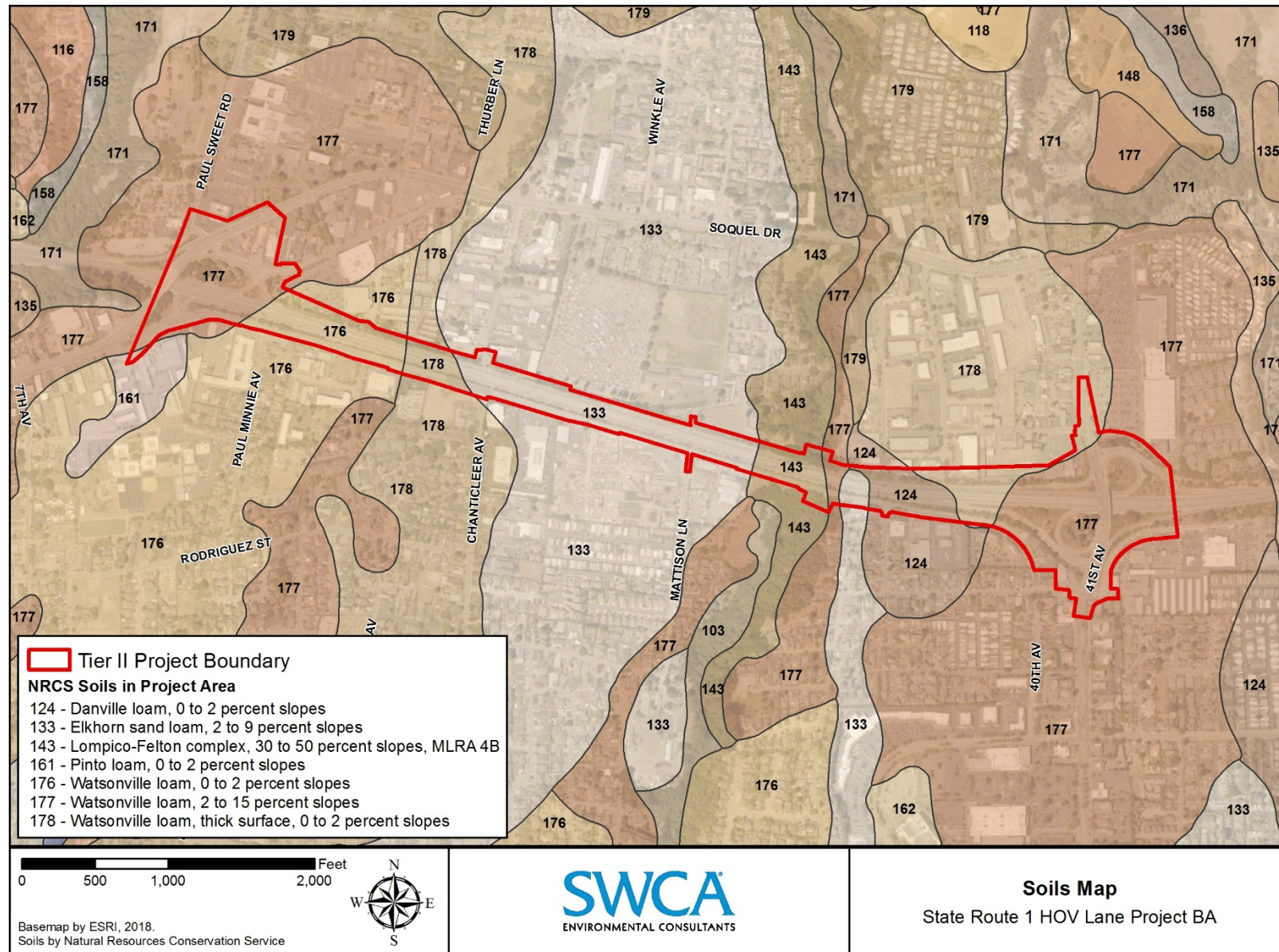


Figure 4: Hydrology Map



The roadside ditch near the Soquel Drive-In is located on the north side of the ROW immediately adjacent to the drive-in (see Figure 4). The ditch consists of a linear depression approximately 308 feet long, five to 25 feet wide, and approximately three feet deep. The ditch receives intermittent runoff from the paved drive-in and from SR 1, and directs flows into two culverts leading south under the roadway. Water from this area likely reaches Rodeo Gulch by way of the storm drain system.

Manmade and maintained roadside drainage ditches consisting of dirt or concrete v-ditches, and associated culvert structures, were mapped in the BSA. These ditches were typically less than two feet deep and four feet wide, and showed evidence of regular maintenance. In some cases, storm flow from the ditches could be traced to nearby natural creek channels through culvert inlet and outlet structures. Other roadside ditches had no evidence of direct connection to identified jurisdictional areas, but did connect with the municipal storm drain system. Water entering the storm drain system is assumed to eventually reach jurisdictional waters.

3.1.3. Biological Conditions in the Project Area

3.1.3.1. NATURAL COMMUNITIES

Habitat types present within the BSA include riverine/freshwater marsh, riparian forest, oak woodland, developed/landscaped areas, and ruderal vegetation. Riverine, freshwater marsh, and riparian forest habitats are associated with the riparian corridor of Rodeo Gulch within and adjacent to the BSA. Coast live oak woodland, developed/landscaped areas, and ruderal vegetation present in upland areas of the BSA. These habitats are mapped on Figures 5 and 6, quantified in Table 3, and described in the following sections. Photo documentation is included in Appendix D.

Table 3: Tier II Plant Communities / Habitat Areas in the BSA

Plant Community/Habitat	Square Feet	Acres
Riverine/Freshwater Marsh	15,005	0.36
Riparian Forest	46,887	1.07
Coast Live Oak Woodland	6,555	0.15
Ruderal Vegetation	16,414	0.37
Developed/Landscaped	1,186,258	27.2
Total	1,271,146	29.2

Figure 5: Habitat Map – Sheet 1

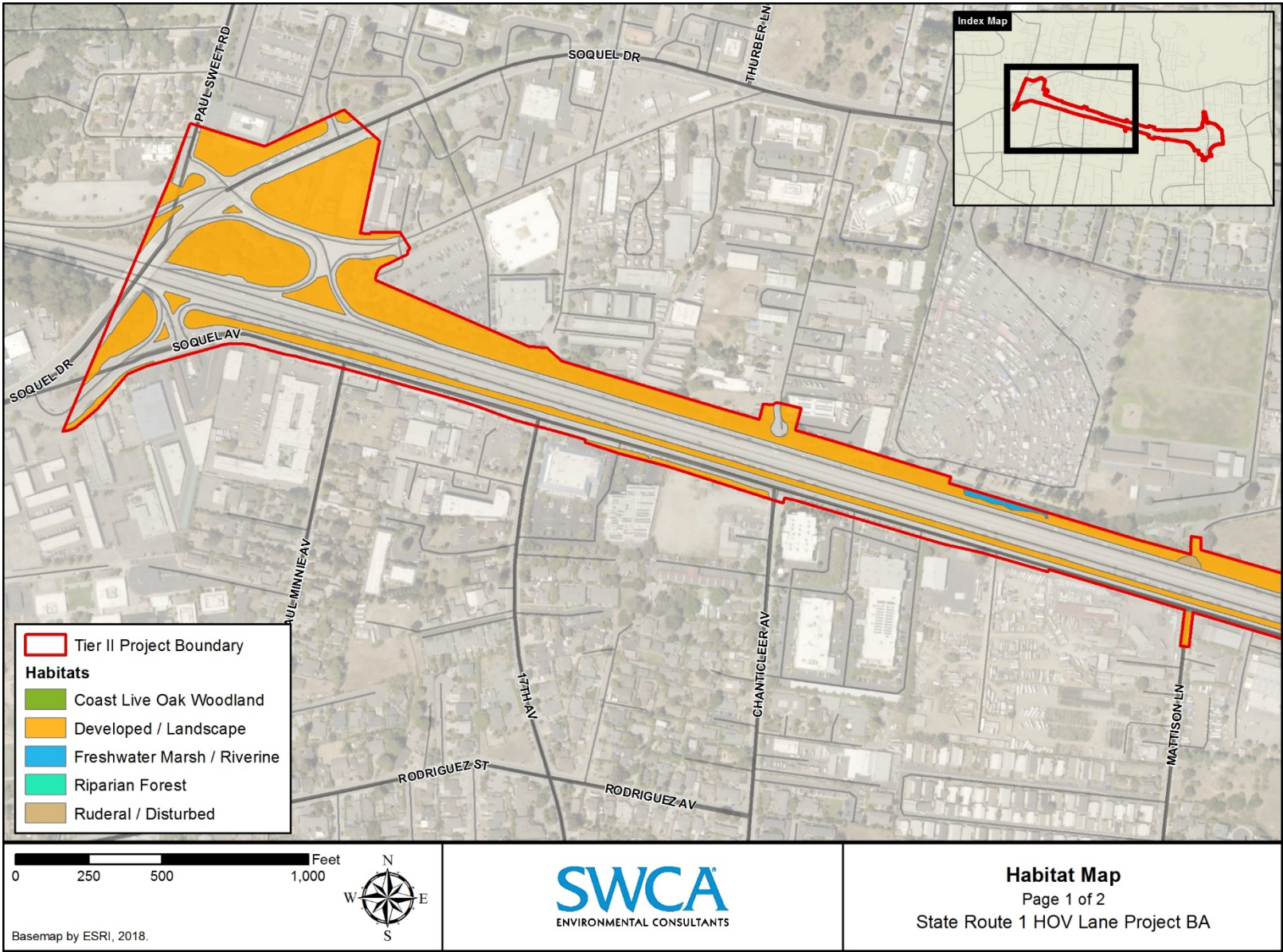
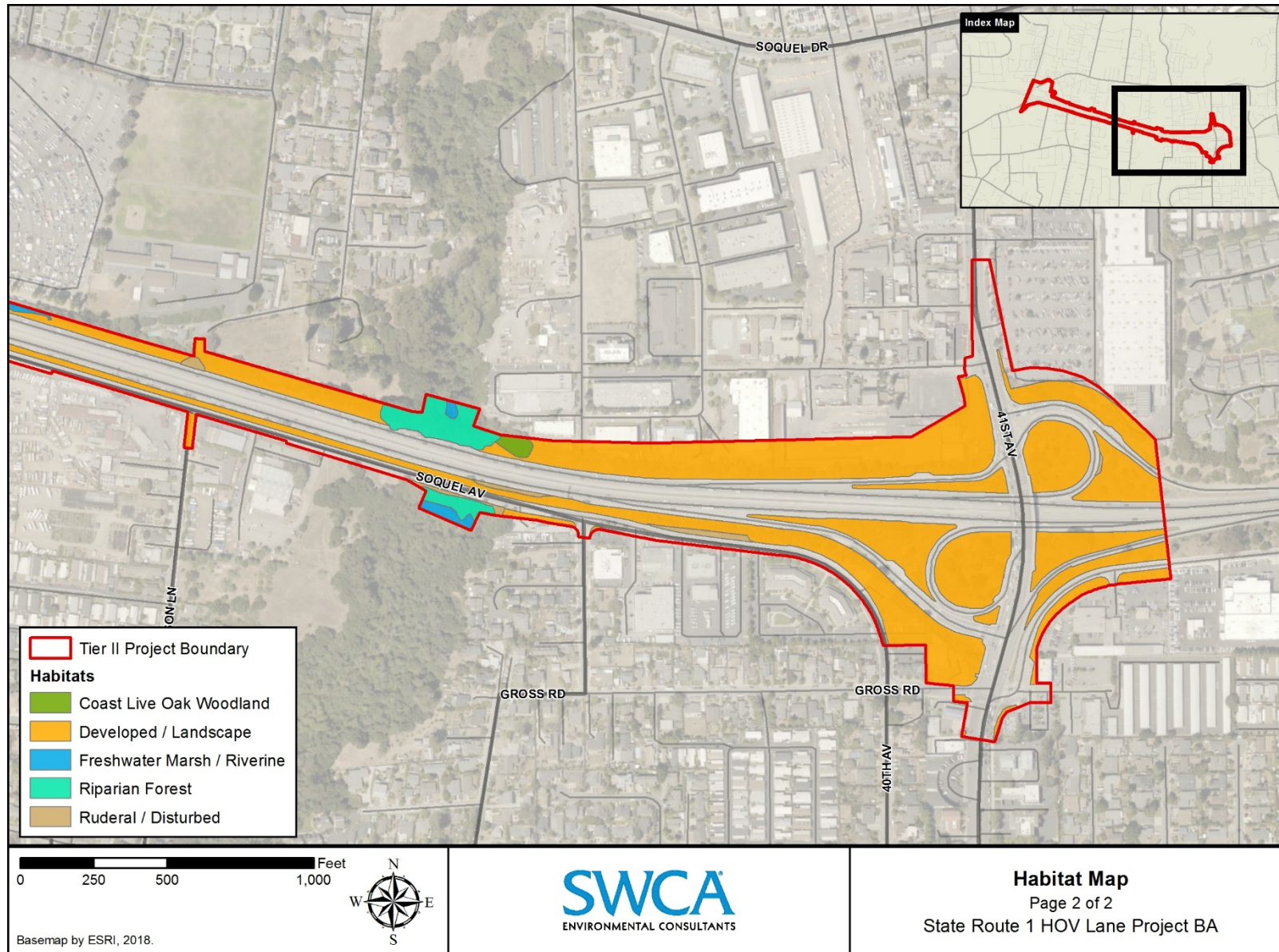


Figure 6: Habitat Map – Sheet 2



Riverine/Freshwater Marsh

Riverine habitat and freshwater marsh habitat are two habitat types that were mapped together for the purposes of the BA because they are so closely associated and small in area. Riverine habitat is present in the streambed of Rodeo Gulch that traverses the BSA. Freshwater marsh habitat was present in the streambed of Rodeo Gulch and in a ditch near the Soquel Drive-In. Freshwater marsh habitat found along the roadside ditch near the Soquel Drive-In is dominated by curly dock (*Rumex crispus*), alders (*Alnus* sp.), acacia, English ivy (*Hedera helix*), Himalayan blackberry (*Rubus armeniacus*), annual grasses, and ice plant. It is bordered by a two-foot-wide earthen channel that extends to the east just north of the BSA boundary, and is vegetated with annual grasses and English ivy.

Federally listed species that have the potential to occur within the riverine/freshwater marsh habitats along Rodeo Gulch include CRLF, tidewater goby, LBV, and southwestern willow flycatcher (SWWF; *Empidonax traillii extimus*), although none were observed during project field surveys.

Riparian Forest

Riparian forest habitat was present along Rodeo Gulch within the BSA. Riparian forest habitat typically occurs adjacent to stream channels with seasonally variable depths to the water table. Riparian forest is typically dense and provides a contiguous upper canopy of larger tree species, with an herbaceous understory layer, as is the case in the BSA. This habitat type typically occurs as a transitional habitat between riverine/freshwater marsh and upland habitats.

Dominant tree species of riparian forest habitats within Rodeo Gulch include arroyo willow (*Salix lasiolepis*), California bay laurel (*Umbellularia californica*), big leaf maple (*Acer macrophyllum*), western sycamore (*Platanus racemosa*), coast live oak (*Quercus agrifolia*), red willow (*Salix laevigata*), alder, black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), and blue gum eucalyptus (*Eucalyptus globulus*). Common understory species observed include mugwort (*Artemisia douglasiana*), brass buttons (*Cotula coronopifolia*), California blackberry (*Rubus ursinus*), poison oak (*Toxicodendron diversilobum*), and hedge-nettle (*Stachys bullata*).

Federally listed species that have the potential to occur within the riparian forest habitat along Rodeo Gulch include CRLF, LBV, and SWWF, although none were observed during project field surveys. Riparian forest areas are expected to provide important nesting, roosting, and foraging habitat for a variety of migratory songbirds and various raptor species.

Coast Live Oak Woodland

Coast live oak woodland communities are upland habitats dominated by the evergreen coast live oak. Coast live oak woodlands varies substantially in structure and composition and are dependent on local environmental conditions such as slope, aspect, soils, moisture conditions, microclimatic features, and level of disturbance (Holland 1986).

A very small area of coast live oak woodland exists adjacent to Rodeo Gulch on the northeast side of the drainage as it bisects the BSA and more is found bordering the riparian forests along Rodeo Gulch outside of the BSA. Understory of the coast live oak woodland consists of grassy areas and woody shrubs, including milk thistle (*Silybum marianum*), poison oak, sticky monkeyflower (*Mimulus aurantiacus*), coyote brush (*Baccharis pilularis*), coffeeberry (*Rhamnus californicus*), hedge-nettle, hummingbird sage (*Salvia spathacea*), black nightshade (*Solanum douglasii*), and annual grasses.

Federally listed species that may occur within the coast live oak woodland adjacent to Rodeo Gulch are consistent with those that would occur within the riparian forest as described above. Coast live oak woodland also typically supports a wide diversity of common wildlife due to the availability of important habitat features such as nesting sites, escape and thermal cover, food, and dispersal corridors. Common mammal species expected to occur within coast live oak woodland habitats of the BSA include western gray squirrel (*Sciurus griseus*), blacktail deer (*Odocoileus hemionus columbianus*), raccoon, striped skunk (*Mephitis mephitis*), duskyfooted wood rat (*Neotoma fuscipes*), gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), Virginia opossum (*Didelphis virginiana*), and California ground squirrel (*Otospermophilus beecheyi*). Various birds that occur within these habitats include plain titmouse (*Parus inornatus*), mourning dove (*Zenaida macroura*), northern flicker (*Colaptes auratus*), acorn woodpecker (*Melanerpes formicivorus*), California towhee (*Pipilo crissalis*), Stellar's jay (*Cyanocitta stelleri*), western bluebird (*Sialia mexicana*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), Cooper's hawk (*Accipiter cooperi*), golden eagle (*Aquila chrysaetos*), great-horned owl (*Bubo virginianus*), and common barn-owl (*Tyto alba*). Reptiles that may occur within this habitat type include gopher snake (*Pituophis catenifer catenifer*), western fence lizard (*Sceloporus occidentalis*), and common kingsnake (*Lampropeltis sirtalis*).

Ruderal

Ruderal (disturbed) vegetation occurs in areas that have been altered by construction, landscaping, or other land-clearing types of activities (Holland and Keil 1995), and is dominated by non-native plant species. Areas of ruderal vegetation within the BSA occur primarily in association with median strips, road shoulders, and the 41st Avenue southbound off-ramp, mostly in areas too small to map. No federally listed species are anticipated to occur within this habitat area.

Developed/Landscaped

Developed/Landscaped habitat is the dominant vegetation throughout the BSA (see Figures 5 and 6). This habitat type consists of ornamental plantings in association with residential and commercial developments, and roadside landscape efforts.

Developed/Landscaped areas are present throughout the entire BSA.

Developed/Landscaped areas have been altered from their natural condition and do not typically provide suitable habitat values for wildlife or native plants; however, various species of nesting migratory birds may potentially forage and/or nest in landscaped trees. Three exotic, invasive plant species as identified by the California Invasive Plant Council were observed in the BSA: sweet fennel (*Foeniculum vulgare*), blue gum eucalyptus, and Italian thistle (*Carduus pycnocephalus*). No federally listed species are anticipated to occur within this habitat area. However, there is a low potential that CRLF may use this habitat temporarily during dispersal.

Anthropogenic Habitats

Anthropogenic habitats include the several bridges and overpasses that could be impacted by the project. These are otherwise unvegetated areas that may be utilized by nesting birds such as swallows (mainly *Petrochelidon* spp.) and roosting bats.

Anthropogenic habitats have not been mapped but are mentioned because of the potential for impacts to special-status species inhabiting these areas if bridges and other man-made structures will need to be demolished during proposed construction. No federally listed species are anticipated to occur within this habitat area. However, there is a low potential that CRLF may use this habitat temporarily during dispersal.

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

Table 4 summarizes the federally listed species identified by the USFWS as potentially occurring in the project area (see Appendix B) and the evaluation of presence in the BSA. Because this list is regional in nature, an analysis of the range and habitat preferences of the listed species was conducted to identify which species have the potential to occur in or near the BSA, taking into consideration elevation range, soil types, and hydrological conditions the BSA prior to conducting field surveys.

Based on a desktop analysis, the BSA was determined to provide habitat for the following four federally listed animal species, which warranted consideration: tidewater goby, CRLF, LBV, and SWWF. For those species that have no potential to occur due to a lack of habitat, no further discussion is provided because it is expected there would be *no effect* to these species.

No federally designated critical habitat occurs within the BSA for any of the species evaluated.

Table 4: Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Common Name	Scientific Name	Federal Status	General Habitat Description	Habitat Present/Absent	Rationale
Plants					
marsh sandwort	<i>Arenaria paludicola</i>	FE	Annual herb that occurs in freshwater marshes and wetlands. Growing up through dense mats of cattails, rushes and Tule rushes in freshwater marsh 10–170 meters. Typical blooming period is March–April.	HP	<p>No Potential to Occur: The freshwater marsh habitat in the project area does support the characteristic conditions known for this species. The nearest known occurrence is from 1947 and located approximately 3.1 miles northwest of the Morrissey Boulevard/SR 1 intersection in an area that is now developed. This species was not observed during appropriately timed botanical surveys of the BSA.</p> <p>The project will have no effect to this species.</p>
Santa Cruz tarplant	<i>Holocarpha macradenia</i>	FT	Annual herb that occurs in clay and sandy soils in coastal prairie, coastal scrub, and valley and foothill grassland habitats. Elevation range is 10–220 meters. Typical blooming period is June–October.	HP	<p>No Potential to Occur: The BSA does not have suitable prairie or coastal scrub habitat for this species. There are several documented occurrences within 1.5 miles of the BSA and the BSA is located approximately 0.25 mile south of designated critical habitat for this species. This species was not observed during appropriately timed botanical surveys of the BSA.</p> <p>The project will have no effect to this species.</p>

Table 4: Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Common Name	Scientific Name	Federal Status	General Habitat Description	Habitat Present/Absent	Rationale
Scotts Valley polygonum	<i>Polygonum hickmanii</i>	FE	Annual herb that occurs in valley and foothill grassland (mudstone and sandstone) habitat. Elevation range is 210–250 meters. Typical blooming period is May–August.	A	No Potential to Occur: The BSA is not located within the appropriate elevation range and does not support suitable habitat for this species. There are no known occurrences within a five-mile radius of the BSA. The project will have no effect to this species.
Scotts Valley spineflower	<i>Chorizanthe robusta</i> var. <i>hartwegii</i>	FE	Annual herb that occurs in meadows and seeps (sandy) and valley and foothill grassland (mudstone and Purisima outcrops). Elevation range is 230–245 meters. Typical blooming period is April–July.	A	No Potential to Occur: The BSA does not support suitable habitat or soils for this species. This species is not known to occur within the BSA and is not expected to. There are no known occurrences within a five-mile radius of the BSA. The project will have no effect to this species.
Invertebrates					
Ohlone tiger beetle	<i>Cicindela ohlone</i>	FE	Endemic to Santa Cruz County, California; known only from coastal terraces supporting remnant patches of native grassland habitat (USFWS 2009).	A	No Potential to Occur: The BSA is outside the documented range of this species and does not support suitable habitat for this species. The nearest known occurrence is approximately 2.1 miles west of the Morrissey Boulevard/SR 1 intersection. The project will have no effect to this species.

Table 4: Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Common Name	Scientific Name	Federal Status	General Habitat Description	Habitat Present/Absent	Rationale
Zayante band-winged grasshopper	<i>Trimerotropis infantilis</i>	FE	Endemic to a maritime coast range ponderosa pine forest within Zayante sandhills, Santa Cruz County; has little vegetation and is primarily made up of sand and soil sediments.	A	<p>No Potential to Occur: Areas west of the BSA from roughly Soquel Creek to areas west are mapped as potentially occupied by the species. However, no Zayante sands or Zayante sand hills ecosystems occur within the BSA.</p> <p>The project will have no effect to this species.</p>
Fish					
tidewater goby	<i>Eucyclogobius newberryi</i>	FE	Occur in brackish shallow lagoons and lower stream reaches where water is fairly still, but not stagnant. Found in lagoons throughout the coast of California.	HP	<p>Potential to Occur: The BSA supports suitable habitat for this species within Rodeo Gulch. The nearest documented occurrence is located in Rodeo Gulch approximately 0.65 mile south of SR 1 (CNDDDB Occurrence #32). The BSA is located approximately 1.45 miles north of designated critical habitat for this species.</p> <p>The project will result in a may affect, likely to adversely affect determination for this species.</p>

Table 4: Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Common Name	Scientific Name	Federal Status	General Habitat Description	Habitat Present/Absent	Rationale
Amphibians					
California red-legged frog	<i>Rana draytonii</i>	FT	Aquatic breeding habitats with little or no flow and surface water depths to at least 2.3 feet. Presence of fairly sturdy underwater supports such as cattails. Foraging and dispersal habitat includes woody vegetation, leaf litter, and small mammal burrows to provide protection from predators and desiccation.	HP	<p>Potential to Occur: The BSA supports suitable habitat for this species within Rodeo Gulch. The nearest known occurrence is located approximately 3.6 miles west of the BSA.</p> <p>The project will result in a may affect, likely to adversely affect determination for this species.</p>
California tiger salamander	<i>Ambystoma californiense</i>	FT	Aquatic breeding includes vernal pools, and seasonal water features. Dispersal habitat includes surrounding areas with ground squirrel burrows or other underground refuges. Documented range of dispersal is up to 1.2 miles from breeding habitat.	A	<p>No Potential to Occur: Based on background literature and a habitat assessment conducted by Bryan Mori, this species is not expected to occur within the BSA.</p> <p>The project will have no effect to this species.</p>

Table 4: Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Common Name	Scientific Name	Federal Status	General Habitat Description	Habitat Present/Absent	Rationale
Santa Cruz long-toed salamander	<i>Ambystoma macrodactylum croceum</i>	FE	Wet meadows near sea level in restricted locales in Santa Cruz and Monterey Counties. Inhabits temporary ponds for breeding (November–March) and adjacent upland scrub and woodland areas during non-breeding season, including upland chaparral and woodland areas of coast live oak, Monterey pine (<i>Pinus radiata</i>), and riparian vegetation.	A	<p>No Potential to Occur: The BSA does not support wet meadows or ponds suitable for this species. This species is known to occur within Valencia lagoon and adjacent uplands within a one-mile radius, approximately 4.5 miles east of the BSA. Based on background literature and a habitat assessment conducted by Bryan Mori, this species is not expected to occur within the BSA.</p> <p>The project will have no effect to this species.</p>
Reptiles					
San Francisco garter snake	<i>Thamnophis sirtalis tetrataenia</i>	FE	Densely vegetated ponds near open hillsides for sun, feeding, and rodent burrows for cover. Temporary ponds and seasonal freshwater bodies also used. Emergent and bankside vegetation such as cattails, bulrush, and spike rush.	A	<p>No Potential to Occur: This species is not known to occur within the BSA. This species is listed by USFWS as occurring in Santa Cruz County, specifically the eastern and western bases of the Santa Cruz Mountains, and along the coast south to Año Nuevo Point, San Mateo County, and Waddell Creek. The BSA is likely too far south to support the species, according to USFWS.</p> <p>The project will have no effect to this species.</p>

Table 4: Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Common Name	Scientific Name	Federal Status	General Habitat Description	Habitat Present/Absent	Rationale
Birds					
California least tern	<i>Sternula antillarum browni</i>	FE	Largely a coastal species that feeds on fish and nests on sandy dunes or beaches. Once a common species in California; currently nesting colonies are isolated to southern California and scattered Bay Area beaches. Typical nesting/breeding period is March 15–August 15.	A	No Potential to Occur: The BSA does not support suitable nesting habitat for this species. There are no known nesting occurrences of this species within a five-mile radius of the BSA. The project will have no effect to this species.
least Bell's vireo	<i>Vireo bellii pusillus</i>	FE	Summer resident of southern California in low riparian in vicinity of water or in dry river bottoms; below 2,000 feet. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, coyote brush, and mesquite.	HP	Low Potential to Occur: The BSA supports riparian habitat marginally suitable for foraging and nesting activity for this species within the Rodeo Gulch. There are no known occurrences of this species within a five-mile radius of the BSA. However, based on technical assistance from USFWS and a habitat assessment conducted by Jackie Hancock of SWCA, this species has a low potential to forage and nest within Rodeo Gulch. The project will result in a may affect, but not likely to adversely affect determination for this species.

Table 4: Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Common Name	Scientific Name	Federal Status	General Habitat Description	Habitat Present/Absent	Rationale
marbled murrelet	<i>Brachyramphus marmoratus</i>	FT	Breeds in coastal Pacific Northwest in coniferous forests, nesting on large horizontal branches high up in trees. Typically nests in the upper branches of redwoods or Douglas fir (<i>Pseudotsuga menziesii</i>) forests. Spends most of the nonbreeding season in off-shore or near-shore environments near coniferous forests.	A	No Potential to Occur: The BSA does not support suitable forest habitat and is outside the documented range for this species. No documented occurrences of this species within a five-mile radius of the BSA. The project will have no effect to this species.
southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	FE	Breeds in relatively dense riparian tree and shrub communities associated with rivers, swamps and other wetlands, including lakes and reservoirs. Vegetation is typically dense within the first 10–13 feet. Habitat patch must be at least 0.25 acre in size and at least 30 feet wide. Breeding season is typically from late May to mid-July. Between August and September, the species migrates to wintering grounds in Mexico and Central America.	HP	Low Potential to Occur: The BSA supports riparian habitat marginally suitable for foraging and nesting activity for this species within the Rodeo Gulch. There are no known occurrences of this species within a five-mile radius of the BSA. However, this has a low potential to forage and nest within Rodeo Gulch given its general habitat requirements. The project will result in a may affect, but not likely to adversely affect determination for this species.

Table 4: Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Common Name	Scientific Name	Federal Status	General Habitat Description	Habitat Present/Absent	Rationale
western snowy plover	<i>Charadrius nivosus</i>	FT	Occur on sandy beaches, salt pond levees, and shores of large alkali lakes. Needs sandy, gravelly, or friable soils for nesting. Breeding period is March 15–August 15. Breeds along the California coast from Mendocino County south to San Diego County.	A	No Potential to Occur: The BSA does not support suitable nesting habitat for this species. The nearest occurrence of this species is located approximately 2.3 miles southwest of the BSA (CNDDDB Occurrence #62). This species is not expected to nest within the BSA. The project will have no effect to this species.
Mammals					
southern sea otter	<i>Enhydra lutris nereis</i>	FT	Found in near-shore marine environments of California from Año Nuevo, San Mateo County, to Point Sal, Santa Barbara County.	A	No Potential to Occur: The BSA does not support marine habitat suitable for this species. The project will have no effect to this species.

Absent [A] – no habitat present and no further work needed. Habitat Present [HP] –habitat is, or may be present. The species may be present. Present [P] – the species is present. Critical Habitat [CH] – project footprint is located within a designated critical habitat unit, but does not necessarily mean that appropriate habitat is present. Status Codes: No status (--); Federal Endangered (FE); Federal Threatened (FT); Federal Proposed (FP); Federal Proposed Endangered (FPE); Federal Proposed Threatened (FPT); Federal Critical Habitat (FCH); Proposed Federal Critical Habitat (PCH); Bald and Golden Eagle Protection Act (BGEPA); Migratory Bird Treaty Act (MBTA); Marine Mammal Protection Act (MMPA)

4.1. Federally-Listed/Proposed Plant Species

It is expected that the proposed project would result in *no effect* to listed plant species. Although the BSA provides potentially suitable habitat for two federally protected plant species, marsh sandwort (*Arenaria paludicola*) and Santa Cruz tarplant (*Holocarpha macradenia*), no listed plant species were observed in the BSA during botanical surveys conducted within the appropriate blooming periods of each species (see Table 4).

4.2. Federally-Listed/Proposed Animal Species Occurrences

4.2.1. Discussion of Tidewater Goby

The tidewater goby is a small (up to two inches), euryhaline (salt-tolerant) member of the *Gobiidae* family endemic to coastal lagoons of California. The tidewater goby was listed as federally endangered by the USFWS in 1994 (Federal Register 59:5494; February 4, 1994) and is considered a California Species of Special Concern (SSC) by CDFW. The tidewater goby, found only in California, is almost unique among fish along the Pacific coast in its restriction to brackish waters of coastal wetlands. This species is typically found within the estuarine habitat of lower reaches of coastal streams (Swift et al. 1989). As of 1989, tidewater goby was considered to have historically occurred in at least 87 California coastal lagoons from San Diego County to Humboldt County; however, as of 2005, 134 localities had been identified (USFWS 2005a). Of the 134 documented locations, 23 (17%) were considered naturally so small or to have been so degraded over time that long-term persistence was uncertain (C. Swift pers. comm. 2004; cited in USFWS 2005a).

Common features of tidewater goby habitat include shallow water with little to no flow, low to moderate salinities (two to 15 parts per thousand), and fine sediment such as sand, mud, or muddy gravel. Tidewater gobies regularly range upstream into fresh water, and downstream into water of up to 28 parts per thousand salinity (Worcester 1992). Tidewater gobies have been documented in water with temperature levels from 35 to 73°F, and water depths from five to 7.5 feet.

4.2.1.1. SURVEY RESULTS

The presence of tidewater goby within Rodeo Gulch is inferred based on the presence of known occurrences within Rodeo Gulch, 1.4 miles downstream at Cochran Lagoon. Tidewater goby could occur within the action area, which would be described as any aquatic habitat located within the Rodeo Gulch that is within Caltrans ROW. No tidewater gobies were observed during reconnaissance surveys of the BSA, although

protocol surveys were not conducted. The nearest occurrences of tidewater goby in the vicinity of the BSA include CNDDDB Occurrences #32 and #93 from 1996 within Rodeo Gulch. The likelihood of tidewater goby occurring in Rodeo Gulch, which is upstream of suitable estuarine habitat, is unlikely.

4.2.1.2. CRITICAL HABITAT

There is no federally designated critical habitat for tidewater goby within the BSA. Although Rodeo Gulch has a hydrologic connection to critical habitat 1.4 miles downstream (SR 6, Cochran Lagoon), the final critical habitat designation (Federal Register 78:8746) excludes freshwater habitats such as the BSA as a primary constituent element.

4.2.1.3. AVOIDANCE AND MINIMIZATION EFFORTS

The following avoidance and minimization efforts are proposed to minimize adverse effects to tidewater goby:

- 1 Construction within Rodeo Gulch shall be timed to occur during the driest portion of the year.
- 2 Before any construction activities begin, a United States Fish and Wildlife Service-approved biologist will conduct a training session for all construction personnel. A description of tidewater goby, its ecology, and the specific measures to be implemented to conserve tidewater goby will be included in the worker environmental training program.
- 3 Prior to in-water work and stream diversion/dewatering in Rodeo Gulch, a United States Fish and Wildlife Service-approved biologist shall conduct a pre-construction survey for tidewater goby and use seining, dip-nets, or other approved methods to capture and relocate tidewater goby from the areas to be dewatered to areas with suitable habitat outside of the area of proposed disturbance.
- 4 If dewatering/stream diversion is necessary, a Diversion and Dewatering Plan shall be prepared and implemented to allow for passage of aquatic species through the site during construction. The form and function of all pumps used during the dewatering activities shall be checked twice daily, at a minimum, by the biological monitor(s) to ensure a dry work environment and minimize adverse effects to aquatic species and habitats.

- 5 During project activities, if pumps are incorporated to assist in temporarily dewatering the site, intakes shall be completely screened with no larger than 0.2-inch wire mesh to prevent tidewater goby and other sensitive aquatic species from entering the pump system. Pumps shall release the additional water to a settling basin allowing the suspended sediment to settle out prior to re-entering the stream(s) outside of the isolated area.
- 6 During dewatering/diversion activities, the United States Fish and Wildlife Service-approved biological monitor(s) or other United States Fish and Wildlife Service-approved biologist(s) shall supervise site dewatering and relocate tidewater goby and other stranded aquatic species.
- 7 If it is determined by the biological monitor(s) or the United States Fish and Wildlife Service-approved biologist(s) that impacts to tidewater goby have the potential to exceed the levels authorized by the United States Fish and Wildlife Service, they will notify the resident engineer (the engineer that is directly overseeing and in command of construction activities) immediately. The resident engineer will either resolve the situation immediately by eliminating the cause of the identified effect to the species or require that all actions that are causing these effects be halted until coordination with the appropriate resource agency is completed. No work will resume until the issue is resolved.
- 8 Following construction, temporary impacts to streamside vegetation used as sheltering areas or streambed sandbars, gravels, and cobbles used by fish species will be restored to their pre-construction conditions, at a minimum.

4.2.1.4. PROJECT EFFECTS

Construction activities within Rodeo Gulch include the construction of a retaining wall on the northbound lane that would span the entire Rodeo Gulch channel where there is a nine-foot concrete arch culvert and a 39-inch culvert crossing. The construction of the retaining wall would not occur directly within the active channel (below the ordinary high water mark), rather it would be placed above the channel near the grade of the existing highway. Due to the widening that is proposed at this location, fill material would be compacted along the slopes and behind the retaining wall. Fill material would need to be compacted along the slopes within Rodeo Gulch, but not directly within the active channel. Based on the current project plans, construction would be limited to areas above the active channel. Total temporary impacts to habitat for tidewater gobies in Rodeo Gulch would be limited to the upstream portion of the

channel on the north side of the highway and would not exceed 0.06 acre of riverine/freshwater marsh habitat.

Direct impacts to tidewater gobies would only occur should diversion of the channel be needed to avoid any unforeseen impacts during construction (i.e. temporary equipment access across the channel). Should diversion of the channel be needed, direct impacts to tidewater goby, may occur in the form of injury or mortality from surveys, capturing/relocating the species, constructing the diversion structure, and dewatering.

Due to the hydrologic connectivity to downstream habitat, documented occurrences of tidewater goby at Cochran Lagoon, and anticipated project impacts, the Tier II project is expected to result in a *may affect, likely to adversely affect* determination to the species. Implementation of avoidance and minimization measures are expected to reduce the magnitude of effects.

4.2.1.5. MODIFICATIONS TO THE PROJECT TO MITIGATE EFFECTS

The following measures are proposed to prevent a net loss of habitat for any potential impacts to aquatic, freshwater marsh or riparian habitat impacts resulting from the project. These measures would also apply to habitat for tidewater goby:

- 1** Affected aquatic, freshwater marsh or riparian habitats shall be mitigated at a 1:1 restoration ratio for temporary impacts and a 3:1 enhancement ratio for permanent impacts. Compensatory mitigation for project impacts shall include in-kind, *on-site* replacement of vegetation. The compensatory mitigation will be implemented immediately following project completion. Compensatory mitigation plantings shall be monitored and maintained as required by regulatory permits. Maintenance activities may include weeding, debris removal, replanting (if necessary), repair of any vandalism, fertilizing, and/or pest control. Monitoring reports shall be submitted to the California Department of Transportation, the Santa Cruz County Regional Transportation Commission, and the affected regulatory agencies.

4.2.1.6. CUMULATIVE EFFECTS

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the BSA considered in this BA. Future federal actions unrelated to the proposed action are not considered in this section because they require separate consultation. The cumulative impact analysis conducted by Caltrans for National Environmental Policy Act (NEPA)/California Environmental Quality Act

(CEQA) compliance considered future projects in a resource study area (RSA) for tidewater goby that extends beyond the action area for tidewater goby identified in Section 4.2.1.1, above. The cumulative impact analysis did not identify any reasonably certain actions within the tidewater goby action area. The project is not expected to result in, or contribute to, cumulative effects to tidewater goby.

4.2.2. Discussion of California Red-Legged Frog

The CRLF was formally listed by USFWS as federally threatened in 1996, and is considered a SSC species by CDFW. Critical habitat has been designated for the subspecies, but not within the BSA. It is recognized by the reddish color that forms on the underside of its legs and belly and the presence of a diagnostic dorsolateral fold. It historically ranged from Marin County southward to northern Baja California (Stebbins 1972, 2003). Riparian habitat degradation, urbanization, predation by bullfrogs (*Rana catesbeiana*), and historic market harvesting has all reportedly contributed to population declines in this subspecies. Presently, Monterey, San Luis Obispo, and Santa Barbara Counties support the largest remaining CRLF populations within California.

The CRLF prefers aquatic habitats with little or no flow, the presence of surface water to at least early June, surface water depths to at least 2.3 feet, and the presence of fairly sturdy underwater supports such as cattails and other persistent emergent vegetation. The largest densities of this subspecies are typically associated with dense stands of overhanging willows and an intermixed fringe of sturdy emergent vegetation (Jennings and Hayes 1994). The CRLF typically breeds from January to July, with peak breeding occurring in February. Eggs are attached to subsurface vegetation, and hatched tadpoles require 11 to 20 weeks to metamorphose. It is estimated that only 1% of eggs actually reach adulthood.

4.2.2.1. SURVEY RESULTS

CRLF could occur within aquatic, marsh, and riparian habitat located within the BSA. Therefore, the action area for CRLF would include habitat within Rodeo Gulch and the Soquel Drive-In ditch. Rodeo Gulch has sufficient habitat for breeding and foraging, whereas the ditch is mainly dispersal habitat. Focused CRLF surveys were conducted within these aquatic, marsh, and riparian areas within the BSA from September 30 to October 2, 2003, under the 1997 USFWS guidance/protocol (USFWS 1997). No CRLFs were observed during this survey effort or during any of the other field surveys conducted for this project (see Section 2.3.1). However, these surveys are not considered sufficient to meet current protocols (USFWS 2005b).

The nearest known CRLF occurrence is approximately 4.25 miles west of the BSA (CNDDDB Occurrence #549). While there are no other CNDDDB records for CRLF between the University of California, Santa Cruz and Ellicott Pond (CNDDDB 2016), presence of CRLF has been inferred in the BSA by Caltrans because the project is within range of the species and there is suitable habitat in the BSA.

4.2.2.2. CRITICAL HABITAT

There is no federally designated critical habitat for CRLF within the action area.

4.2.2.3. AVOIDANCE AND MINIMIZATION EFFORTS

The following measures are consistent with Caltrans' Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration's Federal Aid Program (USFWS 2011):

- 1 Only United States Fish and Wildlife Service-approved biologists will participate in activities associated with the capture, handling, and monitoring of California red-legged frog.
- 2 Ground disturbance will not begin until written approval is received from the United States Fish and Wildlife Service that the biologist is qualified to conduct the work.
- 3 A United States Fish and Wildlife Service-approved biologist will survey the project area 48 hours before the onset of work activities. If any life stage of the California red-legged frog is found and these individuals are likely to be killed or injured by work activities, the approved biologist will be allowed sufficient time to move them from the site before work activities begin. The United States Fish and Wildlife Service-approved biologist will relocate the California red-legged frogs the shortest distance possible to a location that contains suitable habitat and will not be affected by the activities associated with the proposed project. The relocation site should be in the same drainage to the extent practicable. Coordination with the United States Fish and Wildlife Service shall occur with regards to the relocation site prior to the capture of any California red-legged frogs.
- 4 Before any construction activities begin, a United States Fish and Wildlife Service-approved biologist will conduct a training session for all construction personnel. At a minimum, the training will include a description of the California red-legged frog and its habitat, the specific measures to be implemented to conserve the California red-legged frog during the project, and

all project boundary limits. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer questions.

- 5** A United States Fish and Wildlife Service-approved biologist will be present at the work site until all California red-legged frogs have been removed, workers have been instructed, and disturbance of the habitat has been completed. After this time, the state or local sponsoring agency will designate a person to monitor on-site compliance with all minimization measures. The United States Fish and Wildlife Service-approved biologist will ensure that this monitor receives the training outlined in Measure 4 and in the identification of California red-legged frogs. If the monitor or the United States Fish and Wildlife Service-approved biologist recommends that work be stopped because California red-legged frogs would be affected to a degree that exceeds the levels anticipated by the Federal Highway Administration and the United States Fish and Wildlife Service during the review of the proposed action, they will notify the resident engineer (the engineer that is directly overseeing and in command of construction activities) immediately. The resident engineer will either resolve the situation by eliminating the effect immediately or require that all actions that are causing these effects be halted. If work is stopped, the United States Fish and Wildlife Service will be notified as soon as is reasonably possible.
- 6** During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.
- 7** All refueling, maintenance, and staging of equipment and vehicles will occur at least 60 feet from the riparian habitat or water bodies and not in a location from where a spill would drain directly toward aquatic habitat. The monitor will ensure contamination of habitat does not occur during such operations. Prior to the onset of work, the Federal Highway Administration will ensure that a plan is in place for prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take shall a spill occur.
- 8** Habitat contours will be returned to their original configuration at the end of the project activities. This measure will be implemented in all areas disturbed

by activities associated with the project, unless the United States Fish and Wildlife Service and the Federal Highway Administration determine that it is not feasible or modification of original contours would not benefit the California red-legged frog.

- 9** The number of access routes, size of staging areas, and the total area of activity will be limited to the minimum necessary to achieve the project goal. Environmentally Sensitive Areas will be established to confine access routes and construction areas to the minimum area necessary to complete construction, and minimize the impact to California red-legged frog habitat; this goal includes locating access routes and construction areas outside of wetlands and riparian areas to the maximum extent practicable.
- 10** The Federal Highway Administration will attempt to schedule work activities for times of the year when impacts to the California red-legged frog would be minimal. For example, work that would affect large pools that may support breeding would be avoided, to the maximum degree practicable, during the breeding season (November through May). Isolated pools that are important to maintain California red-legged frogs through the driest portions of the year would be avoided, to the maximum degree practicable, during the late summer and early fall. Habitat assessments, surveys, and informal consultation between the Federal Highway Administration and the United States Fish and Wildlife Service during project planning shall be used to assist in scheduling work activities to avoid sensitive habitats during key times of year.
- 11** To control sedimentation during and after project implementation, the Federal Highway Administration and sponsoring agency will implement best management practices outlined in any authorizations or permits issued under the authorities of the Clean Water Act that it receives for the specific project. If best management practices are ineffective, the Federal Highway Administration will attempt to attempt to remedy the situation immediately, in consultation with the United States Fish and Wildlife Service.
- 12** If a work site is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh not larger than 0.2 inch to prevent California red-legged frogs from entering the pump system. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. The methods and materials used in any dewatering will be determined by the Federal Highway Administration in consultation

with the United States Fish and Wildlife Service on a site-specific basis. Upon completion of construction activities, any diversions or barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the substrate. Alteration of the streambed will be minimized to the maximum extent possible; any imported material will be removed from the streambed upon completion of the project.

- 13** Unless approved by the United States Fish and Wildlife Service, water will not be impounded in a manner that may attract California red-legged frogs.
- 14** A United States Fish and Wildlife Service-approved biologist will permanently remove any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes from the project area, to the maximum extent possible. The United States Fish and Wildlife Service-approved biologist will be responsible for ensuring his or her activities are in compliance with the California Fish and Game Code.
- 15** To ensure that diseases are not conveyed between work sites by the United States Fish and Wildlife Service-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all time.
- 16** Project sites will be re-vegetated with an assemblage of native riparian, wetlands, and upland vegetation suitable for the area. Locally collected plant materials will be used to the extent practicable. Invasive, exotic plants will be controlled to the maximum extent practicable. These measures will be implemented in all areas disturbed by activities associated with the project, unless the United States Fish and Wildlife Service and the Federal Highway Administration determine that it is not feasible or practical.
- 17** The Federal Highway Administration will not use herbicides as the primary method used to control invasive, exotic plants. However, if the Federal Highway Administration determines the use of herbicides is the only feasible method for controlling invasive plants at a specific project site, it will implement the following additional protective measures for the California red-legged frog:
 - a. The Federal Highway Administration will not use herbicides during the breeding season for the California red-legged frog;

- b. The Federal Highway Administration will conduct surveys for the California red-legged frog immediately prior to the start of any herbicide use. If found, California red-legged frogs will be relocated to suitable habitat far enough from the project area that no direct contact with herbicides would occur;
- c. Giant reed and other invasive plants will be cut and hauled out by hand and the stems painted with glyphosate or glyphosate-based products, such as Aquamaster or Rodeo.
- d. Licensed and experienced Federal Highway Administration staff or a licensed and experienced contractor will use a hand-held sprayer for foliar application of Aquamaster or Rodeo where large monoculture stands occur at an individual project site;
- e. All precautions will be taken to ensure that no herbicide is applied to native vegetation;
- f. Herbicides will not be applied on or near open water surfaces (no closer than 60 feet from open water).
- g. Foliar applications of herbicide will not occur when wind speeds are in excess of three miles per hour.
- h. No herbicides will be applied within 24 hours of forecasted rain.
- i. Application of all herbicides will be done by a qualified Federal Highway Administration staff or contractors to ensure that overspray is minimized, that all application is made in accordance with label recommendations, and with implementation of all required and reasonable safety measures. A safe dye will be added to the mixture to visually denote treated sites. Application of herbicides will be consistent with the United States Environmental Protection Agency's Office of Pesticide Programs, Endangered Species Protection Program county bulletins.
- j. All herbicides, fuels, lubricants, and equipment will be stored, poured, or refilled at least 60 feet from riparian habitat or water bodies in a location where a spill would not drain directly toward aquatic habitat. The Federal Highway Administration will ensure that contamination of

habitat does not occur during such operations. Prior to the onset of work, the Federal Highway Administration will ensure that a plan is in place for a prompt and effective response to accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

- 18** Upon completion of any project for which this programmatic consultation is used, the Federal Highway Administration will ensure that a Project Completion Report is completed and provided to the Ventura Fish and Wildlife Office. The Federal Highway Administration should include recommended modification of the protective measures if alternative measures would facilitate compliance with the provisions of this consultation. In addition, Federal Highway Administration will reinstate formal consultation in the event any of the following thresholds are reached as a result of projects conducted under the provisions of this consultation:
- a. 10 California red-legged frog adults or juveniles have been killed or injured in a given year (for this and all other standards, an egg mass is considered to be one California red-legged frog);
 - b. 50 California red-legged frogs have been killed or injured in total;
 - c. 20 acres of critical habitat for the California red-legged frog that include the primary constituent elements of aquatic breeding and non-breeding aquatic habitat and upland and dispersal habitat have been permanently lost in any given year;
 - d. 100 acres of critical habitat for the California red-legged frog that include the primary constituent elements of aquatic breeding and non-breeding aquatic habitat and upland and dispersal habitat have been permanently lost in total;
 - e. 100 acres of critical habitat for the California red-legged frog that include the primary constituent elements of aquatic breeding and non-breeding aquatic habitat and upland and dispersal habitat have been temporarily disturbed in any given year; or,
 - f. 500 acres of critical habitat for the California red-legged frog that include the primary constituent elements of aquatic breeding and non-

breeding aquatic habitat and upland and dispersal habitat have been temporarily disturbed in total.

4.2.2.4. PROJECT EFFECTS

As proposed, the project would permanently impact 0.13 acre of riparian forest and temporarily impact 0.09 acre of riparian habitat. The project would also permanently impact 0.02 acre of riverine/freshwater marsh and temporarily impact 0.06 acre of riverine/freshwater marsh. Both habitats could be utilized by CRLF for foraging purposes. Project construction could result in the injury or mortality of CRLFs (if present) during impacts to these habitats, including diversion of Rodeo Gulch. The potential need to capture and relocate CRLFs could subject these animals to stresses that could result in adverse effects. Injury or mortality could occur via accidental crushing by worker foot-traffic or construction equipment. Erosion and sedimentation could also occur, which could directly or indirectly affect water quality. The potential for direct take is anticipated to be low due to lack of observations of the species within the BSA during project surveys.

The ESA Section 7 effects determination is that the proposed project *may affect, and is likely to adversely affect* CRLF. The basis for this determination is that CRLF presence has been inferred and there would be potential for take of the species during construction. The magnitude of direct species take will be minimized with the avoidance and minimization measures provided above.

4.2.2.5. MODIFICATIONS TO THE PROJECT TO MITIGATE EFFECTS

The following measures are proposed to prevent a net loss of habitat for any potential impacts to aquatic or dispersal habitat impacts resulting from the project. These measures would also apply to habitat for CRLF:

- 1 Affected aquatic, freshwater marsh, or riparian habitats shall be mitigated at a 1:1 restoration ratio for temporary impacts and a 3:1 enhancement ratio for permanent impacts. Compensatory mitigation for project impacts shall include in-kind, *on-site* replacement of vegetation. The compensatory mitigation will be implemented immediately following project completion. Compensatory mitigation plantings shall be monitored and maintained as required by regulatory permits. Maintenance activities may include weeding, debris removal, replanting (if necessary), repair of any vandalism, fertilizing, and/or pest control. Monitoring reports shall be submitted to the California Department of Transportation, the Santa Cruz County Regional Transportation Commission, and the affected regulatory agencies.

4.2.2.6. CUMULATIVE EFFECTS

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the BSA considered in this BA. Future federal actions unrelated to the proposed action are not considered in this section because they require separate consultation. The cumulative impact analysis conducted by Caltrans for NEPA/CEQA compliance considered future projects in an RSA for CRLF that extends beyond the action area for CRLF identified in this BA. The cumulative impact analysis did not identify any reasonably certain actions within the CRLF action area. The project is not expected to result in, or contribute to, cumulative effects to CRLF. Therefore, there are no anticipated cumulative effects to CRLF.

4.2.3. Discussion of Least Bell's Vireo and Southwestern Willow Flycatcher

Least Bell's Vireo

The LBV is a federal and state endangered species. Critical habitat has been designated for the species, but not within the BSA. It is one of four recognized subspecies of Bell's vireo and is the westernmost subspecies, breeding entirely within California and northern Baja California. Historically, the LBV was a common to locally abundant species in lowland riparian habitat, ranging from coastal southern California through the Sacramento and San Joaquin Valleys as far north as Tehama County (Kus 2002). It has also occurred in foothill streams of the Sierra Nevada and Coast Ranges, and in Owens Valley, Death Valley, and scattered locations in the Mojave Desert. Grinnell and Miller (1944) reported elevation range extremes of -175 feet (-54 meters) in Death Valley to 4,100 feet (1,260 meters) at Bishop, Inyo County.

By the time the species was listed by USFWS in 1986, the LBV had been extirpated from most of its historic range, and numbered just 300 pairs statewide (Kus 2002). Populations were confined to eight counties south of Santa Barbara, with the majority of birds occurring in San Diego County. Since its listing, LBV numbers have increased 600%, and the species is expanding into its historic range. In 1998, the population size was estimated at 2,000 pairs. Roughly half of the current vireo population occurs on drainages within Marine Corps Base Camp Pendleton in San Diego County (USFWS 1998).

LBVs usually arrive in California during mid- to late-March. They build their nests in a variety of plants that provide concealment in the form of dense foliage. The most frequently used species include willows (*Salix* spp.), mulefat (*Baccharis glutinosa*), California wildrose (*Rosa californica*), poison oak, mugwort, and cottonwood

(*Populus* spp.). Nests are typically placed within one meter of the ground (Kus 2002). The nests are open-cup nests placed in the horizontal fork of a tree or shrub branch and bound at the rim. Females typically lay clutches of two to four eggs, and incubation takes 14 days. Nestlings fledge 10 to 12 days after hatching. Vireos usually leave breeding grounds by September, but will occasionally overwinter in California. Their primary diet is insects.

Recovery efforts for LBV focus on addressing two major causes of decline: 1) habitat loss and degradation; and 2) brown-headed cowbird (*Molothrus ater*) nest parasitism. Specific LBV recovery actions include: 1) protect and manage riparian and adjacent upland habitats within the LBV's historical range; 2) conduct LBV research; 3) develop and evaluate LBV habitat restoration techniques; 4) reintroduce LBVs to unoccupied habitat in the historical range through translocation; 5) evaluate progress of recovery, effectiveness of management and recovery actions, and revise management plans; and 6) provide public information and education (USFWS 1998).

Southwestern Willow Flycatcher

The SWWF is a federal and state endangered species. It is a summer breeder within its range in the United States. It is gone to wintering areas in Central America by the end of September. Nest territories are set up for breeding, and there is some site fidelity to nest territories.

For nesting, SWWF requires dense riparian habitats (cottonwood/willow and tamarisk vegetation) with microclimatic conditions dictated by the local surroundings. Saturated soils, standing water, or nearby streams, pools, or cienegas are components of nesting habitat that also influence the microclimate and density vegetation component. Habitat not suitable for nesting may be used for migration and foraging. Recurrent flooding and a natural hydrograph are important to withstand invading exotic species (tamarisk). The SWWF is present in breeding territories by mid-May and will typically migrate to wintering grounds in Mexico, Central America, and possibly northern South America between August and September. Within California, SWWF is typically observed in southern California. Critical habitat was designated for this species in January 2013; however, the nearest federally designated critical habitat is located in Santa Ynez, California.

4.2.3.1. SURVEY RESULTS

LBV and SWWF have the potential to occur within the riparian habitat of Rodeo Gulch. The action area for these species would be limited to the riparian habitat within the segment of Rodeo Gulch within the BSA. There are no CNDDDB records

for LBV or SWWF in or near the BSA, nor are there any known recent nesting records in the vicinity of the BSA. The species were included for consideration because they are included within the USFWS species list as potentially occurring in the region and suitable habitat is found in the BSA. No LBVs or SWWFs were observed during reconnaissance surveys of the BSA, although protocol surveys were not performed.

Based on the habitat assessment conducted in 2016, the portion of Rodeo Gulch south of Soquel Avenue and the highway contains very steep banks and is heavily vegetated. The banks are largely covered by California blackberry and poison oak and are spotted with dogwood (*Cornus canadensis*). Coast live oaks create a dense canopy, which also includes arroyo willow and California bay laurel. The bank perpendicular to Soquel Avenue is highly disturbed and littered with cut vegetation and refuse. Water was present at the time of the survey and bird activity was abundant up to approximately 10 feet of the road shoulder. Nine species of birds were detected in the immediate vicinity, but LBV and SWWF were not detected.

The stratified canopy that Rodeo Gulch provides would support the foraging strategy of LBV and SWWF, and the dense foliage of the understory vegetation is sufficient to support nesting activity of these species. Although sightings of LBV and SWWF are rare in northern California, there is potential for these species to occur in Rodeo Gulch. Project impact to the species can be minimized by limiting disturbance to the existing Soquel Avenue bank where vegetation is degraded from road maintenance.

4.2.3.2. CRITICAL HABITAT

There is no federally designated critical habitat for LBV or SWWF within the action area.

4.2.3.3. AVOIDANCE AND MINIMIZATION EFFORTS

The following measures will be implemented to avoid or minimize any potential effects to LBV and SWWF:

- 1** Focused surveys following United States Fish and Wildlife Service survey guidelines for least Bell's vireo and southwestern willow flycatcher shall be completed to determine the presence/absence of least Bell's vireo and southwestern willow flycatcher wherever suitable habitat is present within 500 feet of the limits of construction. Surveys shall be conducted within one year prior to the on-set of construction activities. If least Bell's vireo or southwestern willow flycatcher are detected during these surveys, formal Section 7 consultation will be reinitiated.

- 2 Caltrans will provide the United States Fish and Wildlife Service with a report detailing least Bell's vireo and southwestern willow flycatcher survey efforts for the breeding season preceding construction.
- 3 Worker awareness trainings and educational materials will include information about least Bell's vireo and southwestern willow flycatcher and their habitat.

In addition to those measures above, the following measures would be implemented to avoid and minimize potential effects to nesting migratory birds, including LBV and SWWF, if present:

- 4 If feasible, removal of trees shall be scheduled to occur in the fall and winter (between September 15 and February 15), outside of the typical nesting season.
- 5 If any construction activities are proposed to occur during the typical nesting season (February 15 to September 15), a nesting bird survey of the area of disturbance shall be conducted by qualified biologists no more than two weeks prior to construction to determine presence/absence of nesting birds within the project area.
- 6 If evidence of migratory bird nesting that may be impacted by construction activities is discovered, or when birds are injured or killed as a result of construction activities, the contractor shall immediately notify the engineer or biological monitor. At a minimum, a 500-foot radius of the nest shall be designated an Environmentally Sensitive Area for nesting raptors, and a 250-foot radius shall be designated an Environmentally Sensitive Area for other nesting avian species, unless otherwise directed by the United States Fish and Wildlife Service or California Department of Fish and Wildlife. Nests, eggs, or young of birds covered by the Migratory Bird Treaty Act and California Fish and Game Code would not be moved or disturbed until the end of the nesting season or until young fledge, whichever is later, nor would adult birds be killed, injured, or harassed at any time. The Environmentally Sensitive Area shall remain in place until such time that the nest is no longer considered active by the qualified biologist. Written notification shall be provided to the California Department of Transportation, the Santa Cruz County Regional Transportation Commission, and the resource agencies by the qualified biologist.
- 7 If least Bell's vireo and/or southwestern willow flycatcher are identified within the Biological Study Area at any time during the proposed project, the

biological monitor shall thoroughly document the species activity and ensure that immediate project activities avoid any impacts to the species. If there is a potential for take, the United States Fish and Wildlife Service shall be contacted immediately to ensure that avoidance of take is maintained throughout the duration of project activities.

- 8 Vegetation removal in potential nesting habitats shall be monitored and documented by the biological monitor(s) regardless of time of year.

4.2.3.4. PROJECT EFFECTS

Although sightings of LBV and SWWF are rare in northern California, there is potential for these species to occur in Rodeo Gulch based on existing habitat conditions. As proposed, the project would permanently impact 0.13 acre of riparian forest and temporarily impact 0.09 acre of riparian habitat, which could be utilized by LBV and SWWF for nesting or foraging purposes.

If individuals are nesting adjacent to the PIA within the Rodeo Gulch riparian corridor, indirect impacts to nesting LBV or SWWF could occur as a result of noise disturbance and increased airborne dust associated with construction activities. Increased, prolonged, ambient construction-related noise and vibration could adversely affect breeding and nesting behavior and contribute to a decrease in nesting success.

Various activities that would occur adjacent to suitable habitat but not necessarily affect the habitat itself include site preparation, grading, and construction activities. These activities will produce noise in areas adjacent to riparian habitat. In addition, excessive airborne or deposited dust may degrade habitat. Many songbirds, including the LBV and SWWF, are sensitive to prolonged loud noises, construction-related noise, and vibrations that can adversely affect breeding and nesting behavior, resulting in a decrease in nesting success.

Nesting pairs of both of these species are considered unlikely, but cannot be ruled out due to the presence of suitable riparian habitat. Therefore, the proposed ESA Section 7 effects determination is that the project *may affect, but is not likely to adversely affect* these species with implementation of the recommended avoidance and minimization measures.

4.2.3.5. MODIFICATIONS TO THE PROJECT TO MITIGATE EFFECTS

Modification to the project is not necessary to mitigate effects to these species.

4.2.3.6. CUMULATIVE EFFECTS

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the BSA considered in this BA. Future federal actions unrelated to the proposed action are not considered in this section because they require separate consultation. The cumulative impact analysis conducted by Caltrans for NEPA/CEQA compliance considered future projects in an RSA for LBV that extends beyond the action area for LBV and SWWF identified in Section 4.2.3.1, above. The cumulative impact analysis did not identify any reasonably certain actions within the LBV and SWWF action area.

Chapter 5. Conclusions and Determination

5.1. Conclusions

Based on the USFWS official species list for the project (USFWS 2017), an in-depth review of species range and habitat requirements, and botanical and habitat suitability field surveys in the BSA, the following species managed by the USFWS are not expected to occur in the project action area, and will not be impacted by the proposed project:

- marsh sandwort (*Arenaria paludicola*)
- Santa Cruz tarplant (*Halocarpa macradenia*)
- Scotts Valley polygonum (*Polygonum hickmanii*)
- Scotts Valley spineflower (*Chorizanthe robusta* var. *hartwegii*)
- Ohlone tiger beetle (*Cicindela ohlone*)
- Zayante band-winged grasshopper (*Trimerotropis infantilis*)
- California tiger salamander (*Ambystoma californiense*)
- Santa Cruz long-toed salamander (*Ambystoma macrodactylum*)
- California least tern (*Sterna antillarum browni*)
- marbled murrelet (*Brachyramphus marmoratus*)
- western snowy plover (*Charadrius nivosus* ssp. *nivosus*)
- southern sea otter (*Enhydra lutris nereis*)
- San Francisco garter snake (*Thamnophis sirtalis tetrataeni*)

Based on site conditions, it was determined that the project area supports potentially suitable habitat for four federally listed wildlife species within or adjacent to the BSA: tidewater goby, CRLF, LBV and SWWF. There is no designated critical habitat for any of these species in the BSA.

The project area supports marginally suitable habitat for tidewater goby. However, presence of tidewater goby within Rodeo Gulch is inferred based on known occurrences within Rodeo Gulch, 1.4 miles downstream at Cochran Lagoon, and the hydrologic connection to the BSA. Potential adverse effects to tidewater goby resulting from construction activities includes temporary impacts to freshwater marsh habitat in Rodeo Gulch and potential take of species if diversion of the channel is

needed during species surveys, species capture/relocation, diversion structure construction, and dewatering. Construction within drainages would be timed to occur during the driest portion of the year. Potential adverse effects to tidewater goby resulting from construction activities occurring when flow is in the creek can also be avoided or minimized through the implementation of avoidance and minimization measures.

The BSA supports marginally suitable aquatic and upland habitat for CRLF. Although no CRLF were observed during the field surveys in 2003, or during other field surveys for this project, and there are no nearby CNDDDB records, presence is inferred. The BSA is within range of the species, and suitable habitat for the species occurs within the BSA. Potential adverse effects to CRLF resulting from construction activities includes permanent and temporary impacts to riparian and freshwater marsh habitat in Rodeo Gulch and potential take of the species if a stream diversion is needed during construction. Potential adverse effects to CRLF resulting from construction activities can also be avoided or minimized through the implementation of avoidance and minimization measures.

The stratified canopy in Rodeo Gulch may support the foraging strategy of LBV and SWWF, and the dense foliage of the understory vegetation is sufficient to support nesting activity of the species. Potential adverse effects to LBV and SWWF resulting from construction activities can be avoided or minimized through the implementation of avoidance and minimization measures.

5.2. Determinations

Table 5 below includes a summary of the proposed effects determinations for federally listed species. Chapter 4 provides more detailed discussions of each species and associated critical habitat.

Table 5: Federal Endangered Species Act Effects Determination – USFWS

Common Name	Scientific Name	Legal Status	Rationale
Flowering Plants			
marsh sandwort	<i>Arenaria paludicola</i>	Endangered	No effect
Santa Cruz tarplant	<i>Halocarpa macradenia</i>	Threatened	No effect
Scotts Valley polygonum	<i>Polygonum hickmanii</i>	Endangered	No effect
Scotts Valley spineflower	<i>Chorizanthe robusta var. hartwegii</i>	Endangered	No effect

Table 5: Federal Endangered Species Act Effects Determination – USFWS

Common Name	Scientific Name	Legal Status	Rationale
<i>Insects</i>			
Ohlone tiger beetle	<i>Cicindela ohlone</i>	Endangered	No effect
Zayante band-winged grasshopper	<i>Trimerotropis infantilis</i>	Endangered	No effect
<i>Fish</i>			
tidewater goby	<i>Eucyclogobius newberryi</i>	Endangered	May affect, likely to adversely affect
<i>Amphibians</i>			
California red-legged frog	<i>Rana draytonii</i>	Threatened	May affect, likely to adversely affect
California tiger salamander	<i>Ambystoma californiense</i>	Threatened	No effect
Santa Cruz long-toed salamander	<i>Ambystoma macrodactylum</i>	Endangered	No effect
<i>Birds</i>			
California least tern	<i>Sterna antillarum browni</i>	Endangered	No effect
least Bell's vireo	<i>Vireo bellii pusillus</i>	Endangered	May affect, not likely to adversely affect
marbled murrelet	<i>Brachyramphus marmoratus</i>	Threatened	No effect
southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Endangered	May affect, not likely to adversely affect
western snowy plover	<i>Charadrius nivosus ssp. nivosus</i>	Threatened	No effect
<i>Mammals</i>			
southern sea otter	<i>Enhydra lutris nereis</i>	Federally threatened	No effect
<i>Reptiles</i>			
San Francisco garter snake	<i>Thamnophis sirtalis tetrataenia</i>	Endangered	No effect

This page intentionally left blank.

Chapter 6. References

- Baichich, P.J. and C.J.O. Harrison. 1997. A Guide to the Nests, Eggs, and Nestlings of North American Birds. Second Edition. Academic Press: San Diego, California. 347 pp.
- Biosearch Associates. 2008. Santa Cruz long-toed salamander study, Valencia Lagoon and adjacent drainage channel, Santa Cruz, California (Research Agreement 0600245). Submitted to: U.C. Davis Information Center for the Environment.
- Brode, J.M. 1993. Sampling Procedures for Determining Presence or Absence of the Santa Cruz Long-toed Salamander (*Ambystoma macrodactylum croceum*). Developed jointly by CDFW and USFWS. May 1993.
- Bury, R.B., and S.B. Ruth. 1972. Santa Cruz long-toed salamander: Survival in doubt. Herpetological Review 4(1): 20-22.
- California Department of Transportation (Caltrans). 2011. Environmental Handbook Volume 3 – Biological Resources. California Department of Transportation Environmental Program, Biological Studies Branch. June 2011.
- . 2015a. Natural Environmental Study for the Tier I – Corridor Analysis of High Occupancy Vehicle (HOV) Lanes and Transportation System Management Alternatives and Tier II – Build Project Analysis of 41st Avenue to Soquel Avenue/Drive Auxiliary Lanes And Chanticleer Avenue Pedestrian Overcrossing. Prepared by SWCA Environmental Consultants. January 29, 2015.
- . 2015b. Preliminary Geotechnical Report for the Tier I – Corridor Analysis of High Occupancy Vehicle (HOV) Lanes and Transportation System Management Alternatives and Tier II – Build Project Analysis of 41st Avenue to Soquel Avenue/Drive Auxiliary Lanes And Chanticleer Avenue Pedestrian Overcrossing. Prepared by Parikh Consultants. July 16, 2015.

- . 2015c. Draft Relocation Impact Study – Corridor Analysis of High Occupancy Vehicle (HOV) Lanes and Transportation System Management Alternatives and Tier II – Build Project Analysis of 41st Avenue to Soquel Avenue/Drive Auxiliary Lanes And Chanticleer Avenue Pedestrian Overcrossing. Prepared by Bender Rosenthal. June 3, 2015.
- California Department of Fish and Wildlife (CDFW). 2009. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. State of California, California Natural Resources Agency, Department of Fish and Game. May 9, 2016.
- . 2010. California Essential Habitat Connectivity Mapper. February 2010. Available at:
<https://www.wildlife.ca.gov/conservation/planning/connectivity/CEHC>. Accessed May 9, 2016.
- California Natural Diversity Data Base (CNDDDB). 2016. Rarefind data output for a 5-mile radius of the project site. California Department of Fish and Wildlife. Sacramento, California.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. Prepared for the U.S. Fish and Wildlife Service. December 1979. Available at:
<http://www.fws.gov/wetlands/Documents/Classification-of-Wetlands-and-Deepwater-Habitats-of-the-United-States.pdf>. Accessed May 9, 2016.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.
- Grinnell, J., and A. Miller. 1944. The distribution of the birds of California. Pacific Coast Avifauna No. 26.
- Holland, R.F. 1986. Preliminary Description of Terrestrial Natural Communities of California. State of California, The Resources Agency, Department of Fish and Game.
- Holland, V.L., and D.J. Keil. 1995. California vegetation. Kendall/Hunt Publishing Company, Dubuque, Iowa.

- Irwin, J.F., and D.L. Soltz. 1984. The natural history of the tidewater goby, *Eucyclogobius newberryi*, in the San Antonio and Shuman creek systems, Santa Barbara County, California. U.S. Fish and Wildlife Service, Sacramento Endangered Species Office. Contract Order No. 11310-0215-2.
- Jennings, M.R., and M.P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game, Rancho Cordova, California.
- Kus, B. 2002. Least Bell's Vireo (*Vireo bellii pusillus*). The Riparian Bird Conservation Plan: a strategy for reversing the decline of riparian-associated birds in California. California Partners in Flight. Available at: http://www.prbo.org/calpif/htmldocs/riparian_v-2.html. Accessed March 2016.
- Mori, B. 2007. Mori Biological Consulting. Personal communication via phone call with Geoff Hoetker of Morro Group/SWCA via on July 9, 2007.
- Morro Group, Inc. 2004. California Red-legged Frog Survey Report for the Santa Cruz County Regional Transportation Commission Highway 1 HOV Lane Project. Prepared for the Parsons Transportation Group. September 17, 2004.
- National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries). 2007. Essential Fish Habitat for the Pacific Council. Available at: <http://www.nmfs.noaa.gov/habitat/habitatprotection/profile/pacificcouncil.htm#efhinfo>. Accessed May 9, 2016.
- Shaffer, H.B., R.N. Fisher, and S.E. Stanley. 1993. Status report: the California tiger salamander (*Ambystoma californiense*). Final report. Contracts (FG9422 and FG1383). Rancho Cordova, CA: California Department of Fish and Game, Inland Fisheries Division.
- Soil Conservation Service. 1976a. Soil survey of Santa Cruz County, California, Coastal Part. U.S. Department of Agriculture, Washington, D.C.
- . 1976b. Comprehensive hydric soils list for Santa Cruz County, California. U.S. Department of Agriculture, Washington, D.C.

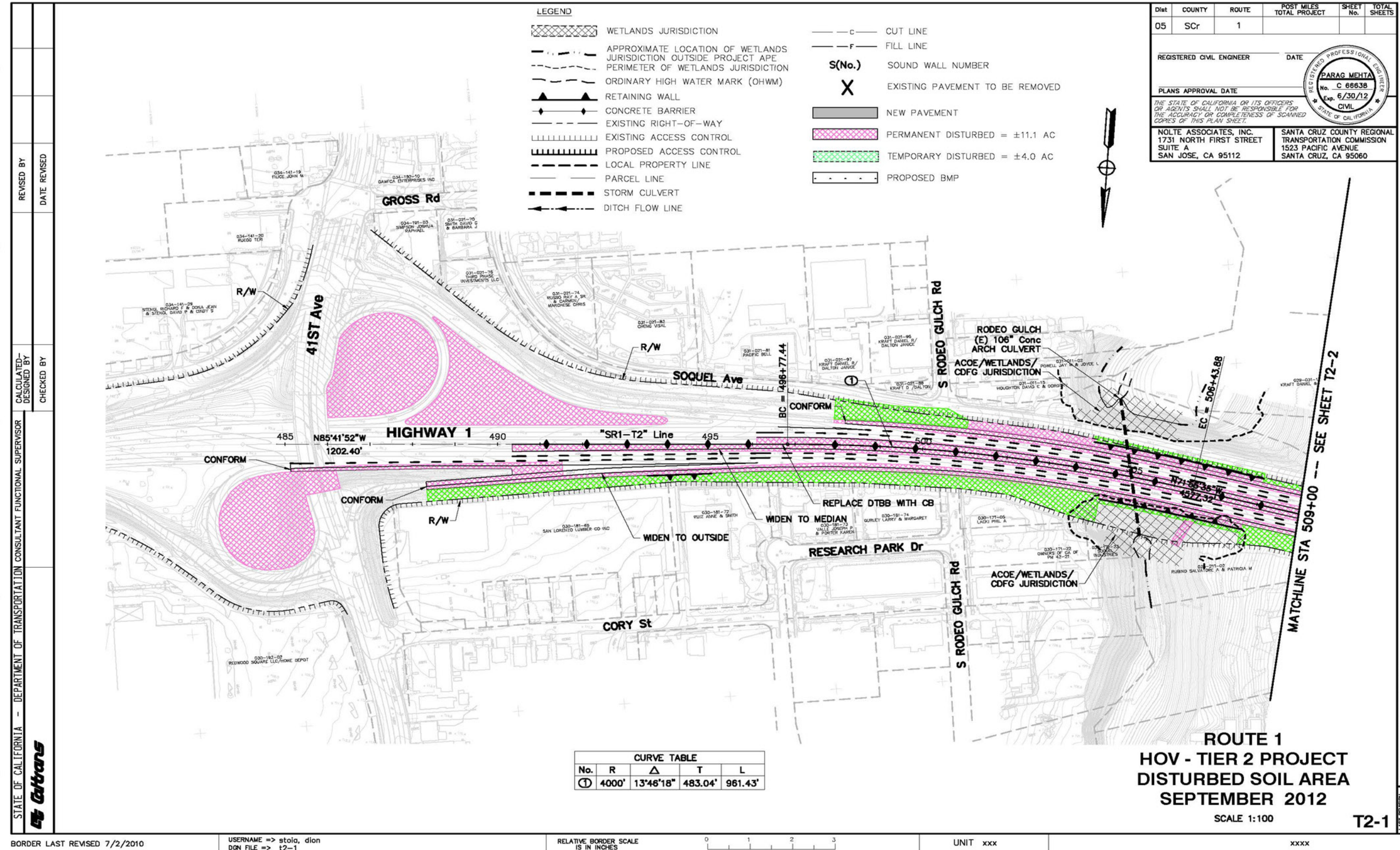
- Stebbins, R.C. 1972. California reptiles and amphibians. University of California Press: Berkeley, London, and Los Angeles. 152 pp.
- . 2003. A field guide to western reptiles and amphibians. 3rd ed., revised. Houghton Mifflin Company, Boston. 533 pp.
- Swift, C.C., J.L. Nelson, C. Maslow, and T. Stein. 1989. Biology and distribution of the tidewater goby, *Eucyclogobius newberryi* (Pisces: Gobiidae) of California. Natural History Museum of Los Angeles County, No. 404.
- United States Army Corps of Engineers (USACE). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- United States Fish and Wildlife Service (USFWS). 1997. Guidance on Site Assessment and Field Surveys for the California Red-legged Frogs (*Rana aurora draytonii*). February 18, 1997.
- . 1998. Draft recovery plan for the least Bell's vireo. U.S. Fish and Wildlife Service, Portland, Oregon. 139 pp.
- . 2000a. Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants. Available at: http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/docs/botanicalinventories.pdf. Accessed on May 9, 2016.
- . 2000b. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Tidewater Goby; Final Rule. U.S. Department of the Interior. 50 CFR Part 17. Federal Register 65:69693–69717.
- . 2001. Least Bell's vireo survey guidelines. Available at: http://www.fws.gov/ventura/sppinfo/protocols/leastbellsvireo_surveyguidelines.pdf. Accessed on March 30, 2007.
- . 2003. Recommended avoidance and minimization measures, as provided by the Programmatic Biological Opinion for Projects Funded or Approved under the Federal Aid Program.

-
- . 2004. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the California Tiger Salamander; and Special Rule Exemption for Existing Routine Ranching Activities; Final Rule. Federal Register Vol. 69, No. 149:47212-47248.
- . 2005a. Recovery Plan for the Tidewater Goby (*Eucyclogobius newberryi*). Available at: <https://www.fws.gov/pacific/ecoservices/endangered/recovery/documents/TidewaterGobyfinalRecoveryPlan.pdf>. Accessed January 17, 2018.
- . 2005b. Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog. Available at: https://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/Documents/crf_survey_guidance_aug2005.pdf. Accessed February 14, 2018.
- . 2006. Least Bell's vireo (*Vireo bellii pusillus*): 5-Year Review Summary and Evaluation. September 2006. Available at: https://ecos.fws.gov/docs/five_year_review/doc781.pdf. Accessed May 9, 2016.
- . 2008. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the Tidewater Goby (*Eucyclogobius newberryi*); Final Rule. U.S. Department of the Interior. 50 CFR Part 17. Federal Register 73:5920-6006.
- . 2009. Ohlone tiger beetle (*Cicindela ohlone*) 5-Year Review: Summary and Evaluation. November 2009. Available at: https://ecos.fws.gov/docs/five_year_review/doc3220.pdf. Accessed May 9, 2016.
- . 2010. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the California Red-Legged Frog (*Rana aurora draytonii*); Final Rule. 50 CFR Part 17. Federal Register 75:12816–12959.

- . 2011. Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration’s Federal Aid Program (8-8-10-F-58). May 4, 2011. Available at:
http://www.dot.ca.gov/ser/downloads/MOUs/2011_crlf_programmatic_bo.pdf. Accessed May 9, 2016.———. 2017. Unofficial Species List for Project site. Requested and received on June 20, 2017.
- United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW). 2003. Interim Guidelines on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander. October 2003. Available at:
<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83915>. Accessed May 9, 2016.
- . 2012. Guidance on Site Assessment and Field Surveys to Detect Presence or Report a Negative Finding of the Santa Cruz Long-toed Salamander. Unpublished Report. December 2012. Available at:
<https://www.fws.gov/ventura/docs/species/protocols/sclts/SCLTS%20Survey%20Protocol%202012.pdf>. Accessed May 9, 2016.
- Wilbur Smith Associates. 2012. State Route 1 HOV Lane Project [From Morrissey Boulevard to San Andreas Road] Traffic Operations Report. April 2012.
- Worcester, K.R. 1992. Habitat utilization in a central California coastal lagoon by the tidewater goby (*Eucyclogobius newberryi*). Master’s thesis, California Polytechnic State University, San Luis Obispo. Available at:
https://www.researchgate.net/publication/34093893_Habitat_utilization_in_a_central_California_coastal_lagoon_by_the_tidewater_goby_Eucyclogobius_newberryi. Accessed May 9, 2016.
- Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White (eds.). 1990. California’s Wildlife. Volumes I (amphibians and reptiles), II (birds), and III (mammals). California Statewide Wildlife Habitat Relationships System. The Resources Agency, California Department of Fish and Game. November, 1990.

Appendix A Project Plans

This page intentionally left blank.



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SCr	1			

REGISTERED CIVIL ENGINEER _____ DATE _____

PLANS APPROVAL DATE _____

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOLTE ASSOCIATES, INC.
1731 NORTH FIRST STREET
SUITE A
SAN JOSE, CA 95112

SANTA CRUZ COUNTY REGIONAL TRANSPORTATION COMMISSION
1523 PACIFIC AVENUE
SANTA CRUZ, CA 95060

REGISTERED PROFESSIONAL ENGINEER
PARAG MEHTA
No. C 66638
Exp. 6/30/12
CIVIL
STATE OF CALIFORNIA

PATH => n:\s\086000\cadd\civil\iter 2\22' median\disturbed areas

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION CONSULTANT FUNCTIONAL SUPERVISOR
Coltans

REVISOR BY _____ DATE REVISED _____
CALCULATED BY _____ DESIGNED BY _____
CHECKED BY _____

BORDER LAST REVISED 7/2/2010

USERNAME => stoia, dion
DGN FILE => t2-1

RELATIVE BORDER SCALE IS IN INCHES

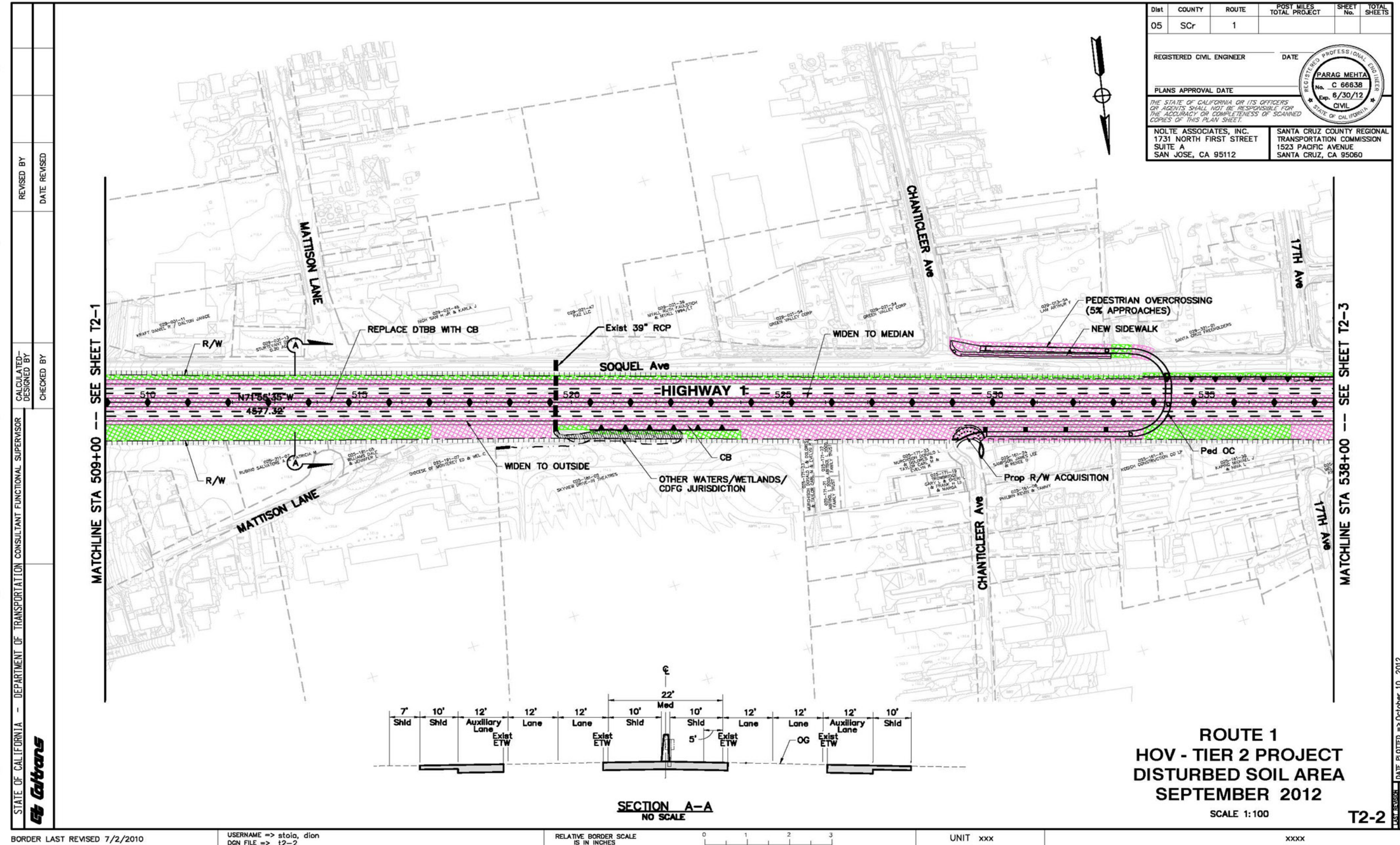


UNIT xxx

xxxx

DATE PLOTTED => October 8, 2012
TIME PLOTTED => 11:58:27 AM
XXX

This page intentionally left blank.



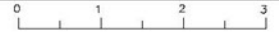
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION CONSULTANT FUNCTIONAL SUPERVISOR

REVISOR BY DATE REVISED
 CALCULATED BY DESIGNED BY
 CHECKED BY

BORDER LAST REVISED 7/2/2010

USERNAME => stoia, dion
 DGN FILE => t2-2

RELATIVE BORDER SCALE IS IN INCHES



UNIT xxx

xxxx

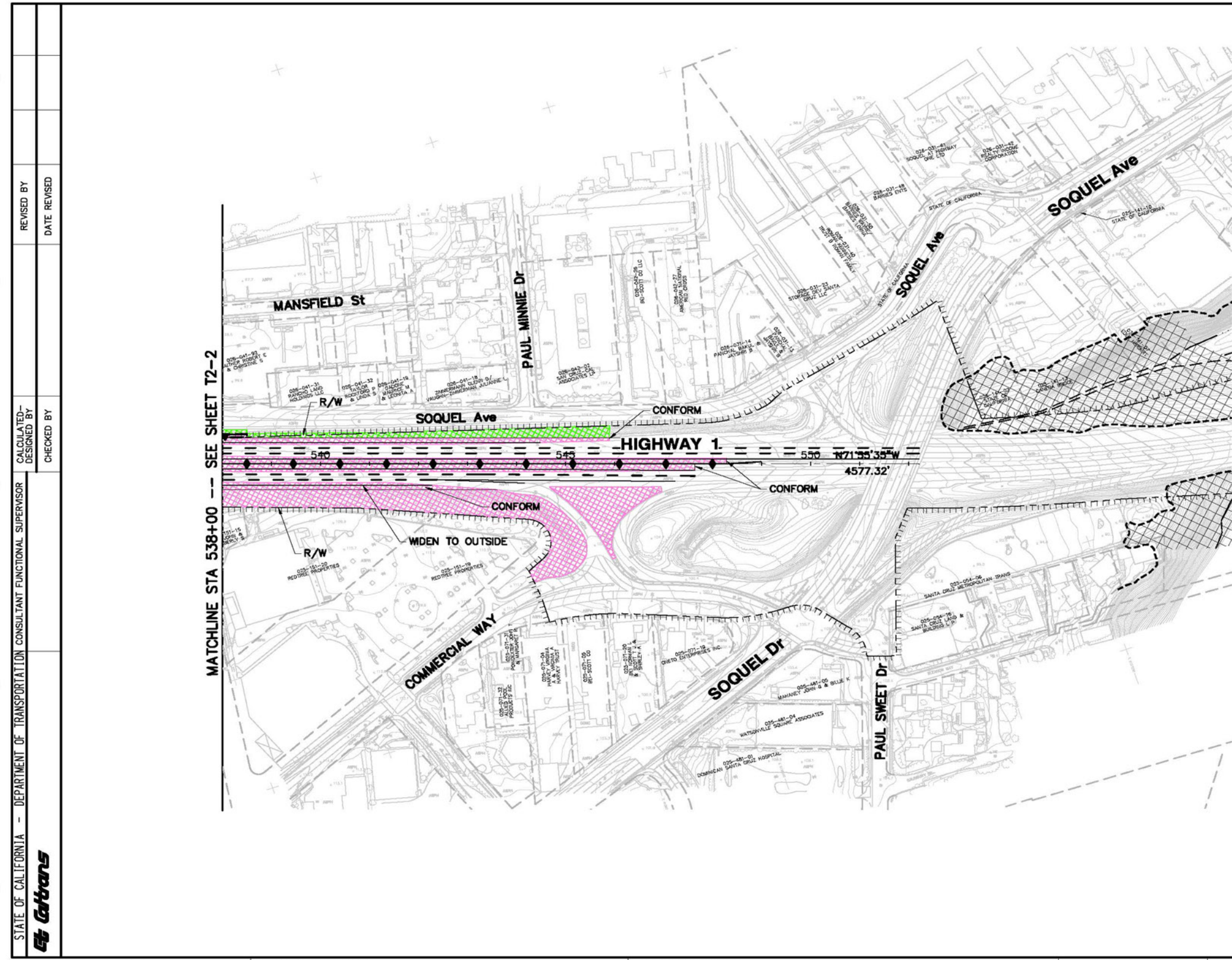
**ROUTE 1
 HOV - TIER 2 PROJECT
 DISTURBED SOIL AREA
 SEPTEMBER 2012**

SCALE 1:100

T2-2

DATE PLOTTED => October 10, 2012
 TIME PLOTTED => 7:18:18 AM
 XXX

This page intentionally left blank.



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SCr	1			

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

NOLTE ASSOCIATES, INC. 1731 NORTH FIRST STREET SUITE A SAN JOSE, CA 95112	SANTA CRUZ COUNTY REGIONAL TRANSPORTATION COMMISSION 1523 PACIFIC AVENUE SANTA CRUZ, CA 95060
--	---

**ROUTE 1
HOV - TIER 2 PROJECT
DISTURBED SOIL AREA
SEPTEMBER 2012**

SCALE 1:100

T2-3

DATE PLOTTED => October 8, 2012
TIME PLOTTED => 12:03:39 PM

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION CONSULTANT FUNCTIONAL SUPERVISOR
Stoltman

BORDER LAST REVISED 7/2/2010

USERNAME => stola, dion
DGN FILE => t2-3

RELATIVE BORDER SCALE IS IN INCHES

UNIT xxx

xxxx

This page intentionally left blank.

Appendix B USFWS IPaC and CNDDDB Results

This page intentionally left blank.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ventura Fish And Wildlife Office

2493 Portola Road, Suite B

Ventura, CA 93003-7726

Phone: (805) 644-1766 Fax: (805) 644-3958



In Reply Refer To:

February 16, 2018

Consultation Code: 08EVEN00-2018-SLI-0293

Event Code: 08EVEN00-2018-E-00883

Project Name: Santa Cruz Highway 1 HOV Lanes

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed list identifies species listed as threatened and endangered, species proposed for listing as threatened or endangered, designated and proposed critical habitat, and species that are candidates for listing that may occur within the boundary of the area you have indicated using the U.S. Fish and Wildlife Service's (Service) Information Planning and Conservation System (IPaC). The species list fulfills the requirements under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the species list should be verified after 90 days. We recommend that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists following the same process you used to receive the enclosed list. Please include the Consultation Tracking Number in the header of this letter with any correspondence about the species list.

Due to staff shortages and excessive workload, we are unable to provide an official list more specific to your area. Numerous other sources of information are available for you to narrow the list to the habitats and conditions of the site in which you are interested. For example, we recommend conducting a biological site assessment or surveys for plants and animals that could help refine the list.

If a Federal agency is involved in the project, that agency has the responsibility to review its proposed activities and determine whether any listed species may be affected. If the project is a major construction project*, the Federal agency has the responsibility to prepare a biological assessment to make a determination of the effects of the action on the listed species or critical habitat. If the Federal agency determines that a listed species or critical habitat is likely to be adversely affected, it should request, in writing through our office, formal consultation pursuant to section 7 of the Act. Informal consultation may be used to exchange information and resolve conflicts with respect to threatened or endangered species or their critical habitat prior to a

written request for formal consultation. During this review process, the Federal agency may engage in planning efforts but may not make any irreversible commitment of resources. Such a commitment could constitute a violation of section 7(d) of the Act.

Federal agencies are required to confer with the Service, pursuant to section 7(a)(4) of the Act, when an agency action is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat (50 CFR 402.10(a)). A request for formal conference must be in writing and should include the same information that would be provided for a request for formal consultation. Conferences can also include discussions between the Service and the Federal agency to identify and resolve potential conflicts between an action and proposed species or proposed critical habitat early in the decision-making process. The Service recommends ways to minimize or avoid adverse effects of the action. These recommendations are advisory because the jeopardy prohibition of section 7(a)(2) of the Act does not apply until the species is listed or the proposed critical habitat is designated. The conference process fulfills the need to inform Federal agencies of possible steps that an agency might take at an early stage to adjust its actions to avoid jeopardizing a proposed species.

When a proposed species or proposed critical habitat may be affected by an action, the lead Federal agency may elect to enter into formal conference with the Service even if the action is not likely to jeopardize or result in the destruction or adverse modification of proposed critical habitat. If the proposed species is listed or the proposed critical habitat is designated after completion of the conference, the Federal agency may ask the Service, in writing, to confirm the conference as a formal consultation. If the Service reviews the proposed action and finds that no significant changes in the action as planned or in the information used during the conference have occurred, the Service will confirm the conference as a formal consultation on the project and no further section 7 consultation will be necessary. Use of the formal conference process in this manner can prevent delays in the event the proposed species is listed or the proposed critical habitat is designated during project development or implementation.

Candidate species are those species presently under review by the Service for consideration for Federal listing. Candidate species should be considered in the planning process because they may become listed or proposed for listing prior to project completion. Preparation of a biological assessment, as described in section 7(c) of the Act, is not required for candidate species. If early evaluation of your project indicates that it is likely to affect a candidate species, you may wish to request technical assistance from this office.

Only listed species receive protection under the Act. However, sensitive species should be considered in the planning process in the event they become listed or proposed for listing prior to project completion. We recommend that you review information in the California Department of Fish and Wildlife's Natural Diversity Data Base. You can contact the California Department of Fish and Wildlife at (916) 324-3812 for information on other sensitive species that may occur in this area.

02/16/2018

Event Code: 08EVEN00-2018-E-00883

3

[*A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.]

Attachment(s):

- Official Species List

02/16/2018

Event Code: 08EVEN00-2018-E-00883

1

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Ventura Fish And Wildlife Office

2493 Portola Road, Suite B

Ventura, CA 93003-7726

(805) 644-1766

02/16/2018

Event Code: 08EVEN00-2018-E-00883

2

Project Summary

Consultation Code: 08EVEN00-2018-SLI-0293

Event Code: 08EVEN00-2018-E-00883

Project Name: Santa Cruz Highway 1 HOV Lanes

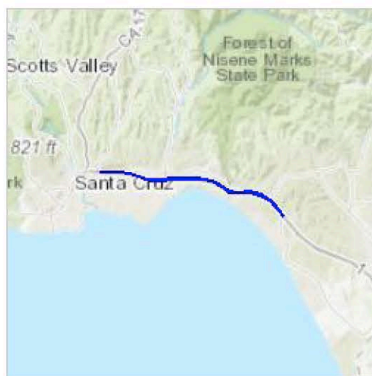
Project Type: TRANSPORTATION

Project Description: The California Department of Transportation (Caltrans), in cooperation with the Federal Highway Administration and the Santa Cruz County Regional Transportation Commission (SCCRTC), is evaluating at the programmatic level proposed improvements to SR-1 in Santa Cruz County along a distance of approximately 8.9 miles, from approximately 0.4 mile south of the San Andreas/Larkin Valley Road Interchange through the Morrissey Boulevard Interchange. The project proposes to widen State Route 1 by adding an auxiliary lane to both the northbound and southbound sides. The purpose of the project is to achieve the following:

- Reduce congestion;
- Improve safety; and,
- Promote the use of alternative transportation modes as means to increase transportation system capacity.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/36.973965482365585N121.88293755830291W>



Counties: Santa Cruz, CA

02/16/2018

Event Code: 08EVEN00-2018-E-00883

3

Endangered Species Act Species

There is a total of 20 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered
Southern Sea Otter <i>Enhydra lutris nereis</i> No critical habitat has been designated for this species. <i>This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.</i> Species profile: https://ecos.fws.gov/ecp/species/8560	Threatened

Birds

NAME	STATUS
California Least Tern <i>Sterna antillarum browni</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Least Bell's Vireo <i>Vireo bellii pusillus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Marbled Murrelet <i>Brachyramphus marmoratus</i> Population: U.S.A. (CA, OR, WA) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Western Snowy Plover <i>Charadrius alexandrinus nivosus</i> Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

02/16/2018

Event Code: 08EVEN00-2018-E-00883

4

Reptiles

NAME	STATUS
San Francisco Garter Snake <i>Thamnophis sirtalis tetrataenia</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5956	Endangered

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened
Santa Cruz Long-toed Salamander <i>Ambystoma macrodactylum croceum</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7405	Endangered

Fishes

NAME	STATUS
Tidewater Goby <i>Eucyclogobius newberryi</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Ohlone Tiger Beetle <i>Cicindela ohlone</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8271	Endangered
Zayante Band-winged Grasshopper <i>Trimerotropis infantilis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1036	Endangered

02/16/2018

Event Code: 08EVEN00-2018-E-00883

5

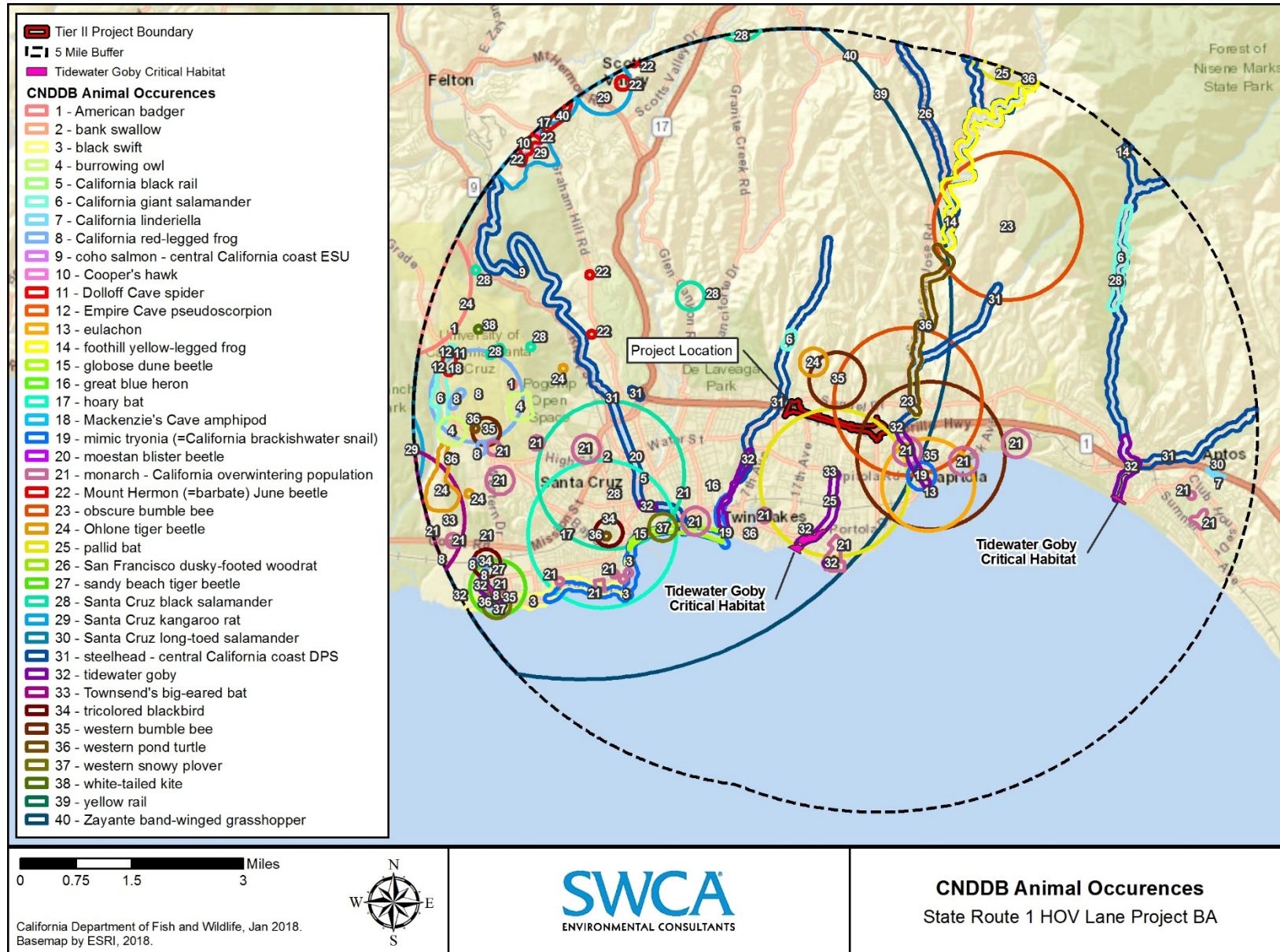
Flowering Plants

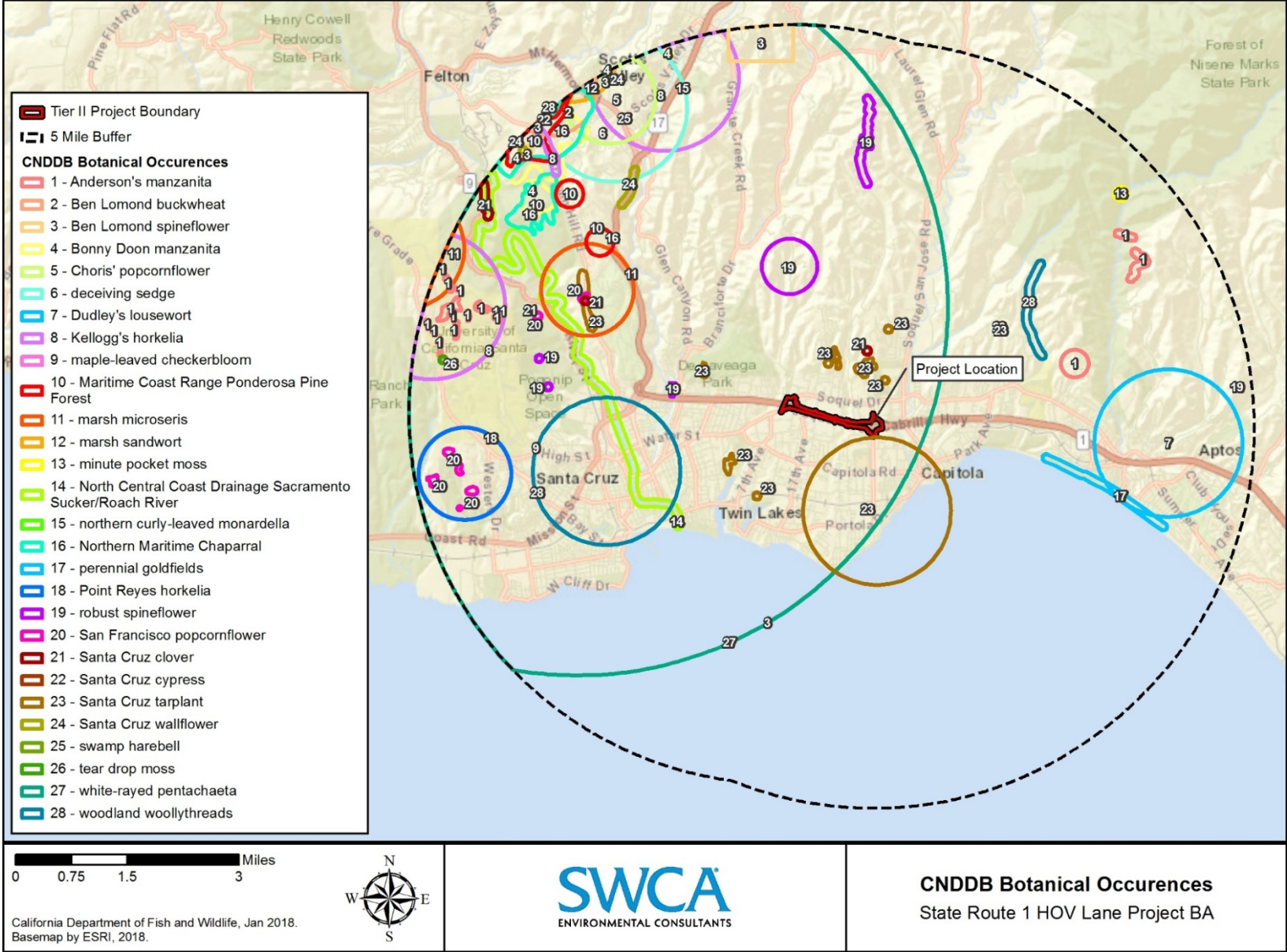
NAME	STATUS
Marsh Sandwort <i>Arenaria paludicola</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2229	Endangered
Monterey Gilia <i>Gilia tenuiflora ssp. arenaria</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/856	Endangered
Monterey Spineflower <i>Chorizanthe pungens var. pungens</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/396	Threatened
Santa Cruz Tarplant <i>Holocarpha macradenia</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6832	Threatened
Scotts Valley Polygonum <i>Polygonum hickmanii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3222	Endangered
Scotts Valley Spineflower <i>Chorizanthe robusta var. hartwegii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7108	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

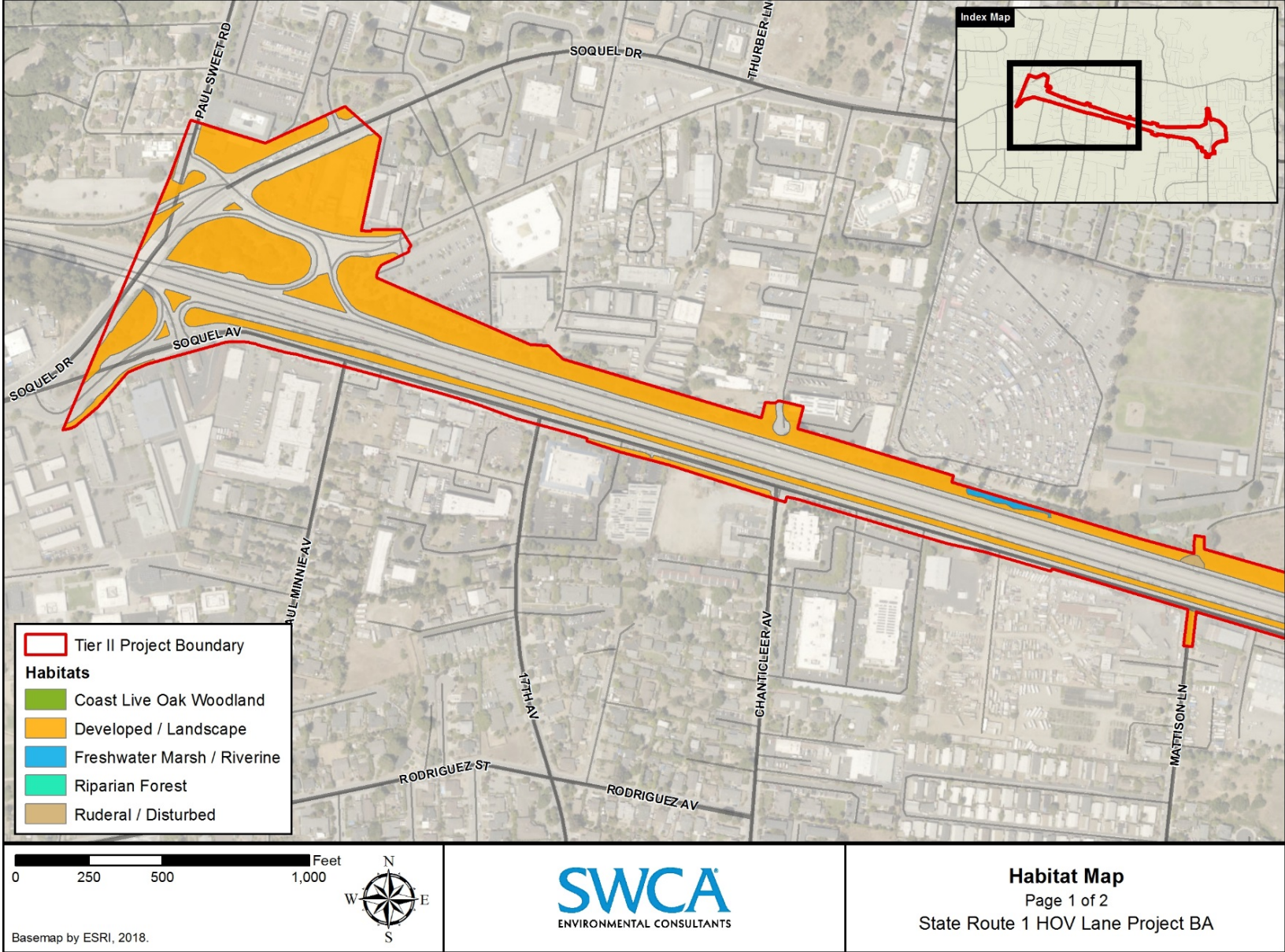
This page intentionally left blank.

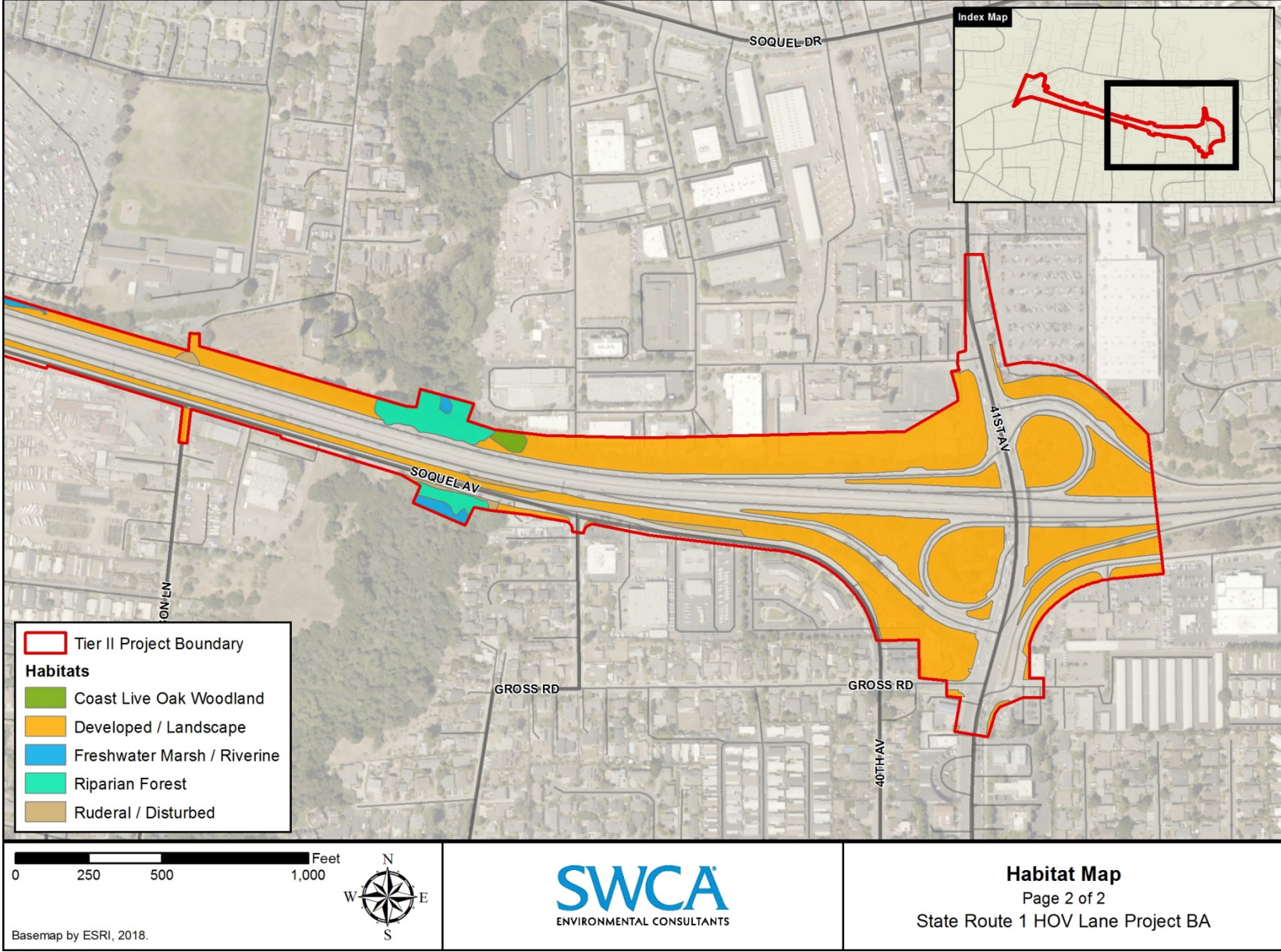




Appendix C Habitat Impact Maps

This page intentionally left blank.





Appendix D Photo Documentation

This page intentionally left blank.



PHOTO 1:

An example of riverine habitat and riparian forest in the overstory.

Photo taken on September 30, 2003.



PHOTO 2:

An example of freshwater marsh habitat.

Photo taken on February 22, 2007.



PHOTO 3:
An example of ruderal/
disturbed
habitat (in the
foreground) and
landscaped
vegetation (in
the
background)
along the edge
of SR 1.

Photo taken on
May 13, 2007.



PHOTO 4:
An example of
landscaped
vegetation
along the edge
of SR 1.

Photo taken on
May 13, 2007.

Appendix E CTS and SCLTS Habitat Assessment

BRYAN MORI BIOLOGICAL CONSULTING SERVICES

1016 Brewington Avenue, Watsonville, CA 95076

831.728.1043 (O) 310.408.6690

moris4wildlife@earthlink.net

May 31, 2016

Jon Claxton
SWCA Environmental Consultants
1422 Monterey St, C-200
San Luis Obispo, CA 93401-5415

RE: CALTRANS STATE ROUTE 1 HOV PROJECT - CALIFORNIA TIGER SALAMANDER AND SANTA CRUZ LONG-TOED SALAMANDER SITE ASSESSMENT

Dear Jon:

The purpose of this letter-report is to provide Caltrans, the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) the current understanding of known and potential habitat for California tiger salamander (CTS) (*Ambystoma californiense*) and Santa Cruz long-toed salamander (SCLTS) (*A. macrodactylum croceum*) within and adjacent to the proposed Caltrans State Route 1 HOV Project in Santa Cruz County, CA (Figure 1). This site assessment does not include focused aquatic or upland surveys for these species.

METHODS

The habitat assessment was performed using the protocol Interim Guidance on Site Assessment for Determining the Presence or a Negative Finding of the California Tiger Salamander, October 2003 (USFWS and CDFW 2003) and Guidance on Site Assessment and Field Surveys to Detect Presence or Report a Negative Finding of the Santa Cruz Long-toed Salamander December 2012 (USFWS and CDFW 2012) as guides and includes upland and aquatic habitat descriptions within the project alignment R/W and surrounding landscape and relevant CTS/SCLTS records.

The description of existing habitat conditions of the project alignment and surrounding landscape is based on a reconnaissance-level survey performed on 9 May 2016. Due to limited access along SR 1, the project alignment and surrounding landscape were cursorily assessed by driving public roadways, interpretation of the project aerial maps and, in limited instances, by foot. The principal habitats were identified and recorded on aerial maps of the study area. Habitats within and adjacent to the project alignment were photographed in areas of concern

for the target species. The California Natural Diversity Data base (CNDDDB), Strategic Plan for Recovery of the Santa Cruz Long-toed Salamander (*Ambystoma macrodactylum croceum*) and California Red-legged Frog (*Rana draytoni*) in the Larkin Valley Area, Santa Cruz County, California (Resource Conservation District of Santa Cruz County 2013) and local studies were reviewed and consultations with local biologists conducted to document relevant observations of CTS and SCLTS in the study area.

EXISTING HABITAT CONDITIONS

Project Site

The project alignment extends from just east of the N. Branciforte Avenue overpass in Santa Cruz to between the San Andreas Road and Mar Monte Avenue exits northwest of Watsonville (Figure 1). The alignment is divided into two segments, Tiers 1 and 2, with Tier 1 further divided into two disjunct sections - a short section from east of N. Branciforte Avenue to Soquel Drive and a longer section from 41st Avenue to beyond San Andreas Road. Tier 2 occupies the section between the two sections of Tier 1.

Throughout much of the length of the combined Tiers, from Santa Cruz to at least until the Rio Del Mar Boulevard exit, the project alignment passes through primarily urban landscapes consisting of high density residential and commercial land uses. An exception to this is the area south of SR 1 occupied by New Brighton State Beach Park and an adjacent open space area, east of the Park Avenue exit. South of Rio Del Mar Boulevard, housing and commercial uses thin out and the landscape becomes primarily rural south of the Freedom Boulevard exit, for the remainder of the alignment.

For the purposes of this assessment, the discussion of aquatic and upland habitats, below, will focus on the section of the project alignment south of Rio Del Mar Boulevard to the southern end of the project alignment, since the distributional range of either species does not extend northward and habitat for both species is lacking due to urbanization.

Aquatic Habitats. Based on review of aerial photography and relevant local studies, at least thirteen seasonal and semi-perennial ponds are present in the study area (project alignment plus 1.2 miles of the surrounding landscape). Of these, ten are known SCLTS breeding sites, one of which occurs within the project alignment envelope –Valencia Lagoon. The remaining three are potential breeding ponds that have not been surveyed for CTS or SCLTS. Figure 2 depicts the pond locations in relation to the project alignment.

Uplands. From Rio Del Mar Boulevard to just south of Freedom Boulevard, native vegetation (e.g., Douglas fir, coast redwood, live oaks, willows, etc.) and landscape trees are more prominent features within the alignment and in the adjacent uplands. Unlike in the highly

developed, urbanized northern section of the project alignment, here residential housing is less dense and designed into the hardwood-conifer forests. Moving southward beyond this tree dominated section, the landscape along both sides of the alignment is rural, with broad, open areas and sparse development, except for the Seascape and La Selva areas along the immediate coastline. The habitat mosaic surrounding and within the project alignment consists of ruderal and grassland patches interspersed within coast live oak woodland and coastal scrub.

CALIFORNIA TIGER SALAMANDER AND SANTA CRUZ LONG-TOED SALAMANDER STATUS AND NATURAL HISTORY

California Tiger Salamander

The California tiger salamander is a Federal threatened species and State species of special concern (USFWS 2004; CDFG 2009). The population consists of three Distinct Population Segments (DPS) – the Santa Rosa DPS, Santa Barbara DPS and Central California DPS, all of which are federally listed as threatened or endangered (USFWS 2004; USFWS 2003). The California tiger salamander has disappeared from 55% of its historic range (Jennings and Hayes 1994). Presently, this species is distributed in the Central Valley from Yolo County south to Tulare County, and in the Coast Range valleys and lower foothills from Sonoma County south to Santa Barbara County (Shaffer 1991).

CTS primarily inhabit valley floor and foothill grasslands, open oak woodlands and scrub habitats encompassing vernal pools and seasonal ponds (Trenham 2001; USFWS 2000). Post-metamorphic individuals (i.e., adults and juveniles) live in rodent burrows in uplands for most of their lives (Trenham 2001; Trenham *et al* 2000; Loredó *et al* 1996). During the rainy season, typically November through March, adults migrate at night to aquatic breeding sites (Loredó and Van Vuren 1996), which include quiet waters of seasonal ponds, reservoirs, lakes and occasionally stream pools (Stebbins 2003). Based on a recent study (Searcy 2013), median migration distances were 49 m, 615 m, and 667 m for metamorphs, juveniles, and adults, respectively, and distances greater than 1 km are not considered rare (P. Trenham, California Tiger Salamander Workshop 2011). Studies have estimated that 90% of the adult population occurs within 400m of the pond, whereas 90% of subadults are found within 600m of the breeding pond (Trenham and Shaffer 2005). In habitats encompassing several ponds, experienced adults may breed at more than one pond during their lifetime (Trenham *et al* 2001). The adults remain at the breeding pond from one day to several weeks, then return to upland refugia (Loredó and Van Vuren 1996). Males tend to arrive at breeding sites before females and stay at breeding sites longer (e.g., 6 – 8 weeks for males and 1 – 2 weeks for females)(Trenham *et al* 2000; Loredó and Van Vuren 1996; Shaffer 1993). Eggs are laid singly, or in small groups of up to four, on stalks of submerged vegetation or other objects (e.g., rocks woody material, etc.), typically along the shoreline. The eggs hatch in 10 days to approximately three weeks (USFWS 2000; Jennings and Hayes 1994; Storer 1925). The number of eggs

deposited per female per breeding season ranges from around 400 – 1,300 (USFWS 2000). Larvae typically metamorphose in two to three months, from late spring to summer, when ponds begin to dry (USFWS 2000). Metamorphs emerge from ponds and seek shelter mostly in the immediate vicinity in burrows, cracks in the ground or under debris, but sometimes as far as 200m away, even in the absence of rain (Trenham 2001; Trenham and Shaffer 2005; Loredó *et al* 1996). During the rainy-season, the juveniles continue to disperse farther to seek refuge in upland areas within 640 m of the breeding pond. Adults live up to at least 10 years, but may take up to 4 – 5 years to reach sexual maturity (Trenham *et al* 2000). Females may not breed every year and some may only may breed once or twice during their lifetime (Trenham *et al* 2000).

Threats and reasons for the decline of this species include loss of breeding and upland habitat and habitat fragmentation due to agricultural and urban development; the introduction of bullfrogs (*Rana catesbeiana*) and predatory non-native fishes; use of larval forms as fishing bait; and hybridization with introduced non-native tiger salamanders (USFWS 2000; Stebbins 2003).

Santa Cruz Long-toed Salamander

The SCLTS was listed as endangered by the U.S. Fish and Wildlife Service in 1967 (USFWS 2004b), and subsequently in 1970 by the State of California under the California Species Preservation Act (Ruth 1989). The SCLTS is the southernmost subspecies of *Ambystoma macrodactylum* (Russell and Anderson 1956), and geographically isolated from the southern long-toed salamander (*Ambystoma macrodactylum sigillatum*) population, which is located 150 miles to the northeast in the Sierra Nevada (Russell and Anderson 1956). This species was first discovered in 1954 at Valencia Lagoon, near Aptos, in Santa Cruz County, California (Russell and Anderson 1956). The current known distribution of SCLTS is restricted to only southern Santa Cruz and northern Monterey Counties, within the coastal belt, and consists of six metapopulations (FWS 2009).

Adult and sub-adult SCLTS spend most of the year in upland refugia, including rodent burrows, leaf litter, underneath surface objects, and in rotting logs within dense oak woodlands, riparian vegetation and mesic coastal scrub (Ruth 1989). Adults migrate from upland habitats to seasonal/semi-perennial breeding ponds at night, during late fall and winter rains, generally from November through March. In contrast, juvenile dispersal is mostly confined to the first substantial fall rains, sometimes as early as August (M. Allaback, pers. comm.). SCLTS appear to travel in nearly straight lines, with marked individuals documented to migrate 0.6 mile from breeding ponds to upland habitat (USFWS 2004b; M. Allaback, pers. comm.). However, unmarked long-toed salamanders have been observed 1 mile from the nearest breeding pond (USFWS 2004b). Males usually precede females to the breeding site by one to two weeks, remain at the pond longer than females, and may mate with more than one female each season (Ruth and Tollestrup 1973; USFWS 2004b). Mating and egg-laying generally peak in January and

February (USFWS 2004b). The female deposits 200 - 400 eggs singly on stems of emergent vegetation (Anderson 1967). After mating, the adults return to upland habitat within 6 - 12 weeks, typically by March or April (Ruth 1989; USFWS 2004b). Eggs hatch within 15 - 30 days and metamorphose into juveniles between May and September, depending on aquatic conditions. In drought years, larvae may perish prior to transformation due to insufficient water levels (Ruth 1989). Recently metamorphosed salamanders (metamorphs) typically seek terrestrial refuge immediately adjacent to the breeding pond, and remain until dispersing during the first fall rains, however, early rains may induce metamorphs to move up to 200 feet from the breeding pond (Ruth 1989; USFWS 2004b). Adults are estimated to live up to twenty years (Ruth 1989). A long life span and high reproductive output are believed to be adaptations which allow for populations to persist at seasonal breeding sites during prolonged periods of drought (Reed 1979; Ruth 1989).

Climatic changes over geologic time have restricted the distribution of the Santa Cruz long-toed salamander, making the species especially vulnerable to habitat loss resulting from agricultural and urban developments, predation from bullfrogs and non-native predatory fishes, as well as natural catastrophes related to climate and infestations (Ruth 1989; USFWS 2004b).

Local California Tiger Salamander and Santa Cruz Long-toed Salamander Locations

Thirty-three SCLTS and one CTS records were identified in the study area, based on review of the CNDDDB and relevant literature. These records are of breeding sites, as well as upland observations. Also, in addition to the confirmed observations, three potential SCLTS breeding ponds are included in the table, due to their proximity to the project. These records are summarized in Table 1 of the Appendix and depicted on Figure 3.

DISCUSSION OF POTENTIAL IMPACTS

California Tiger Salamander

The nearest known CTS breeding site is located approximately 2.50 miles southeast of the southern end of the project and marks the northern distribution of CTS in the project region. No CTS upland habitat is present between the Buena Vista breeding pond and the project site and the project site is located well beyond the documented distance of upland movement for this species. Therefore, CTS are not expected to be impacted by the proposed project and no further discussion is warranted.

Santa Cruz Long-toed Salamander

Tier 1: Rio Del Mar Boulevard to Freedom Boulevard. Of high concern is the proximity of the project to the SCLTS Valencia Lagoon Reserve breeding site, which is encompassed within the

project boundary, together with a narrow band of upland habitat adjacent to the southwestern shoulder of the highway (Figure 4). Breeding habitat at Valencia Lagoon includes the main pond within the reserve, as well as the highway drainage channel that parallels the highway, and juveniles dispersing from breeding sites at the main pond and the drainage channel can access marginal upland habitats along the highway. An exclusion fence runs along the outside margin of the highway drainage channel and helps to minimize the movement of SCLTS from Valencia Lagoon to the highway shoulder. This barrier, however, does not run the complete length of the highway between the Rio Del Mar Boulevard and Freedom Boulevard interchanges, thus, dispersing SCLTS are likely diverted to opposite ends of the exclusion fence and, from these points, SCLTS can move into upland habitats near both interchanges (Figures 5 and 6). Therefore, depending on construction activities, breeding habitat in the highway drainage channel can be negatively impacted, through changes in the hydrologic regime, and SCLTS inhabiting uplands along the highway interchanges can be injured or killed.

SR 1 is a complete barrier to SCLTS movement northeastward across the highway. Thus, no impacts to SCLTS are expected within construction zones along the northeast side of the highway.

Tier 1: Freedom Boulevard to San Andreas Road

From Freedom Boulevard to the end of Tier 1, just beyond San Andreas Road, the project boundary contains potential SCLTS upland habitat on both sides of the highway, but no breeding habitat (Figure 7). In this section, vegetation within the project boundary consists mostly of oak woodlands, scrub, landscape trees and ruderal habitats. SCLTS dispersing from nearby ponds, such as, Seascape Ponds 1-3, Racehorse Pond and Calabazas Pond, may inhabit areas within the project site boundary, either as temporary dispersal or permanent habitat, as the ponds are located within the movement capabilities of this species. As no barriers to movement across the highway are known, likely a few individuals attempt to cross.

While construction activities in this reach will not impact breeding habitats, it is reasonable to assume that injuries or mortalities to some individuals may occur as a result of project activities in upland vegetation.

In summary, the project site boundary south of Rio Del Mar Boulevard contains two breeding sites - Valencia Lagoon and the adjacent highway drainage channel - and most of the uplands south to past San Andreas Road falls into the category of potential SCLTS upland habitat, except for the section opposite Valencia Lagoon.

RECOMMENDATIONS

A presence/absence drift fence study should be performed in all project areas that support potential SCLTS upland habitat, following the guidelines of the SCLTS protocol. In general, the study would be performed in fall/winter, from 15 October through 15 March. Drift fence arrays would consist of fence segments of undetermined length with paired traps installed a minimum of every 30'. A gap is placed between each fence segment to allow for passage on days when the traps remain closed. Traps consist of 2-gallon plastic pails a minimum of 8" in height and with fitted covers. Each trap would include drainage holes no greater than 1/8" diameter and contain a piece of moistened, non-cellulose sponge. Plywood coverboards and weights (e.g., bricks) are used at each trap, following guideline recommendations. Quarter-inch dowels are added to allow the escape of small rodents and shrews. The trap lines are to have "Do Not Disturb" placards attached with a brief description of the study, and permit and telephone numbers in both English and Spanish. Drift fences should be installed by 15 October.

Once installed, traps are to be monitored through the rainy season, opening traps in the afternoon under appropriate weather conditions, and checked and closed the following morning; traps would remain open if additional rain is predicted. Adults and sub-adults are to be measured, sexed (if possible) and photographed for identification to determine if specific individuals are recaptured. Individuals may be marked for capture-recapture analyses. All individuals captured along the fence would be placed in appropriate cover (e.g., burrow entrances, thick vegetation, etc...) on the opposite side of the fence. During the staking and installation of the drift fence, but prior to the operation of the pitfall traps, areas suitable as release sites would be identified. At the end of the study period, all fences and traps would be removed.

Implementation of the study would require FWS and CDFW consultations and approval. Due to the State Fully-protected status of SCLTS, studies would need to show significance as research, such as determining where corridors across the highway could be created to facilitate gene flow between populations.

Please call me if you have any comments or questions regarding this report.

Sincerely,

Bryan Mori
Consulting Wildlife Biologist

Attachments: References; Figures 1 and 2; Appendix.

REFERENCES\PERSONS CONTACTED

ABA Consultants. 1990. Santa Cruz Long-toed Salamander Survey in Upper Moro Cojo Slough, Monterey County, CA. Prepared for Saratoga Savings and Loans and CH2M Hill.

Anderson, J. D. 1967. A Comparison of the Life Histories of Coastal and Montane Populations of *Ambystoma macrodactylum* in California. The American Midland Naturalist 77(2).

Anderson, J. D. 1968. A Comparison of the Food Habits of *Ambystoma macrodactylum sigillatum*, *Ambystoma macrodactylum croceum*, and *Ambystoma tigrinum californiense*. Herpetologica Vol. 24, No. 4.

California Department of Fish and Game. 2006. Special Animals. List of special status animals (dated January). Sacramento, California.

_____. 1988. California's Wildlife. Volume I Amphibians and Reptiles, Volume II Birds, Volume III Mammals. California Department of Fish and Game, Sacramento, CA.

California Natural Diversity Data Base. 2006. Rarefind Prunedale, Marina, Moss Landing and Salinas Quadrangles.

The Habitat Restoration Group. 1994. Machado Land Division.

Holbert, A.G., and Turner, J.S. 1975. An Ecological Analysis of the Habitat of *Ambystoma macrodactylum croceum* (Santa Cruz Long-toed Salamander) at Ellicott Station, Santa Cruz County, California. Department of Biology, Cabrillo College.

Jennings, M. R. and M. P. Hayes. 1994. Amphibian and Reptile Species of Concern in California. California Department of Fish and Game. Sacramento, CA.

Kirschner, L. B., Kerstetter, T., Porter, D. and R.H. Alvarado. 1971. Adaptation of Larval *Ambystoma tigrinum* to Concentrated Environments. American Journal of Physiology Vol. 220 No. 6.

Lindquist, S. B. and M. D. Bachman. 1980. Feeding Behavior of the Tiger Salamander, *Ambystoma Tigrinum*. Herpetologica, 36(2), pp. 144-158.

Loredo, I. and D. Van Vuren. 1996. Reproductive Ecology of a Population of the California Tiger Salamander. Copeia 1996(4), pp. 895-901.

- Loredo, I., Van Vuren, D. and M. L. Morrison. 1996. Habitat Use and Migration Behavior of the California Tiger Salamander. *Journal of Herpetology*, Vol. 30, No. 2, pp. 282-285.
- Petranka, J. W. 1998. Salamanders of the United States and Canada. Smithsonian Institution Press, Washington, D.C.
- Reed, R. 1980. Final Report: The 1979 - 1980 Study of the Santa Cruz Long-toed Salamander (*Ambystoma macrodactylum croceum*) at Ellicott Slough, Santa Cruz, California.
- Reed, R. 1978. Population Study of the Santa Cruz Long-toed Salamander (*Ambystoma macrodactylum croceum*) at Valencia Lagoon 1977-78 With Notes on Habitat and Occurrence in Santa Cruz and Monterey Counties. Prepared for CDFG.
- The Resource Conservation District of Santa Cruz County. 2013. Strategic Plan for Recovery of the Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*) and California red-legged frog (*Rana draytoni*) in the Larkin Valley Area, Santa Cruz, California.
- Romspert, A. P. and L. L. McClanahan. 1981. Osmoregulation of the Terrestrial Salamander, *Ambystoma tigrinum*, in Hypersaline Media. *Copeia* 1981(2):400-405.
- Ruth, S. B. and K. Tollestrup. 1973. Aspects of the Life History and Current Status of the Santa Cruz Long-toed Salamander (*Ambystoma macrodactylum croceum*) at Valencia Lagoon, Santa Cruz County, California. Prepared for the Museum of Vertebrate Zoology, UC Berkeley.
- Ruth, S. B. 1988. The Life History and Current Status of the Santa Cruz Long-toed Salamander (*Ambystoma macrodactylum croceum*). Southwestern Herpetologists Society.
- Ruth, S. B. 1989. Seascape Uplands Santa Cruz Long-toed Salamander Study.
- Russell, R.W. and J. D. Anderson. 1956. A Disjunct Population of the Long-nosed Salamander from the Coast of California. *Herpetologica* Vol. 12.
- Shaffer, H. B., Fisher, R. N. and Stanley, S. 1993. Status Report: The California Tiger Salamander *Ambystoma californiense*. Zoology Department, U.C. Davis.
- Shaffer, H. B., and Stanley, S. 1991. Interim Report to California Department of Fish and Game: California Tiger Salamander Surveys 1991. Zoology Department, UC Davis.
- Stebbins, R. C. 2003. Petersen Field Guides Western Reptiles and Amphibians, Third Edition. Houghton Mifflin Co., Boston.

Trenham, P. C. and H. B. Shaffer. *In Prep.* Upland Spatial Distribution and Habitat Use in a Declining Amphibian.

Trenham, P. C. 2001. Terrestrial Habitat Use by Adult California Tiger Salamanders. *Journal of Herpetology*, Vol. 35, No. 2, pp. 343-346.

Trenham, P. C., Koenig, W. D. and H. B. Shaffer. 2001. Spatial Autocorrelated Demography and Interpond Dispersal in the Salamander *Ambystoma Californiense*. *Ecology*, 82(12), pp. 3519-3530.

Trenham, P. C., Shaffer, H. B., Koenig, W. D. and M. R. Stromberg. 2000. Life History and Demographic Variation in the California Tiger Salamander (*Ambystoma californiense*). *Ecology*, 82(12), pp. 3519-3530.

U.S. Fish and Wildlife Service. 2009. Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*), 5-year review: summary and evaluation. Ventura Fish and Wildlife Office, Ventura, CA.

_____. 2004a. Federal Register: August 4, 2004, Volume 69, Number 169.

_____. 2004b. Recovery Plan for the Santa Cruz Long-toed Salamander. U.S. Fish and Wildlife Service Portland, Oregon.

_____. 2003. Federal Register/Vol. 68, No. 189, Tuesday, September 30, 2003/Proposed Rules.

_____. 2000. Federal Register/Vol. 65, No. 12, Wednesday, January 19, 2000/Rules and Regulations.

U.S. Fish and Wildlife Service and California Department of Fish and Game. 2003. Interim Guidance on Site Assessment for Determining the Presence or a Negative Finding of the California Tiger Salamander, October 2003.

U.S. Fish and Wildlife Service and California Department of Fish and Wildlife. 2012. Guidance on Site Assessment and Field Surveys to Detect Presence or Report a Negative Finding of the Santa Cruz Long-toed Salamander December 2012

Personal Communications:

Mark Allaback, Biosearch, Santa Cruz, CA.

Dana Bland, Dana Bland and Associates, Aptos, CA.

Chris Caris, US Fish and Wildlife Service, Ventura Field Office

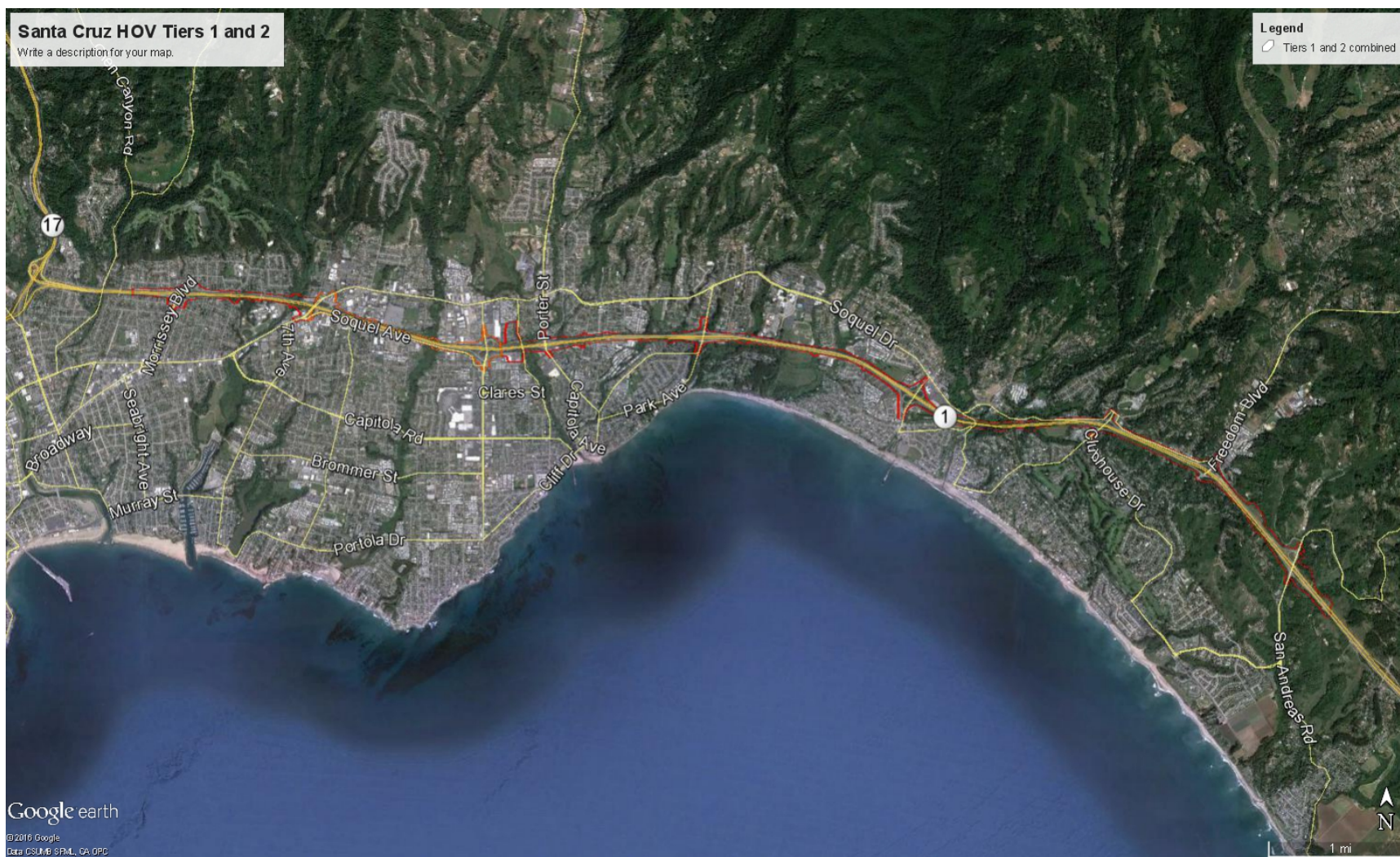
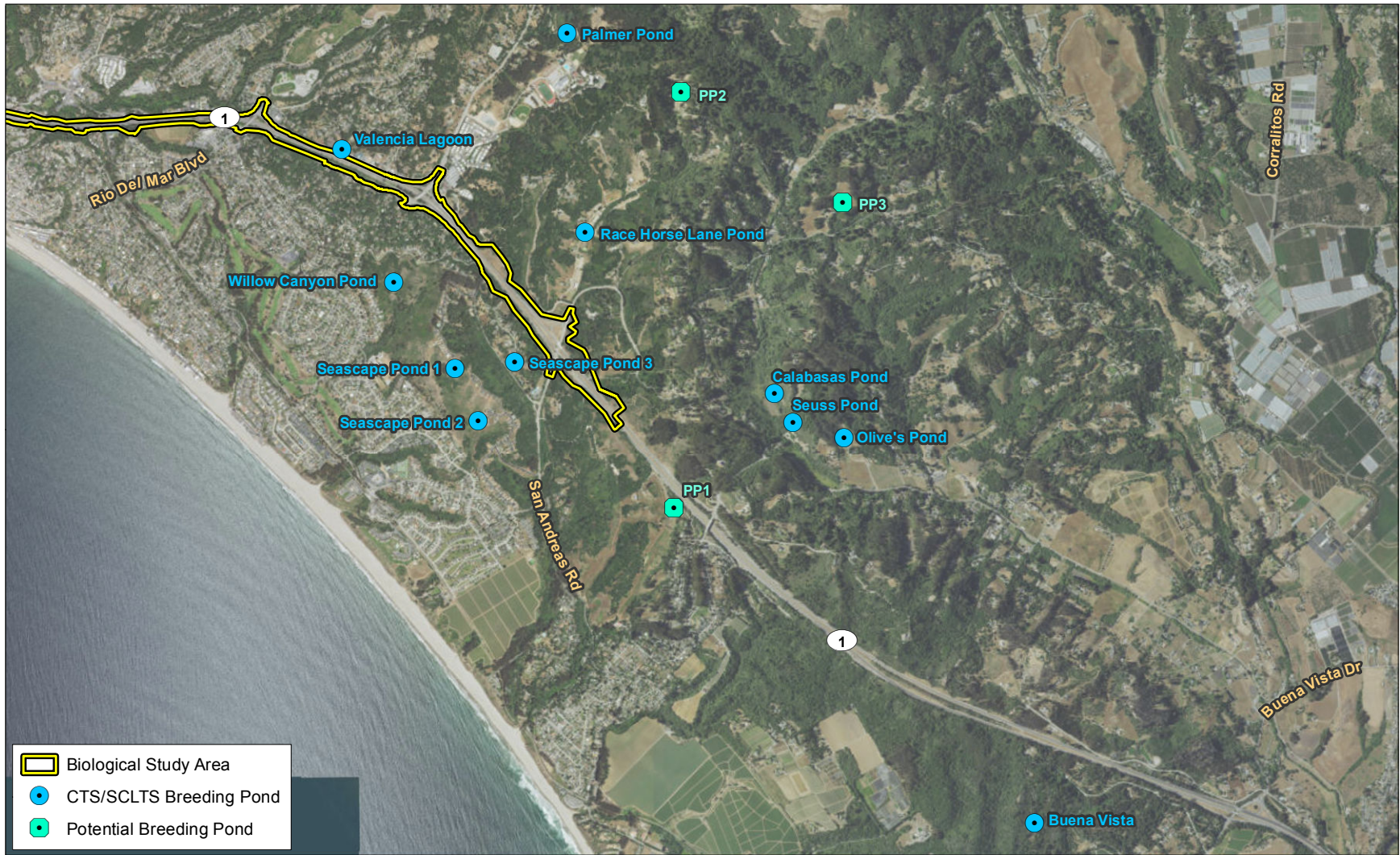
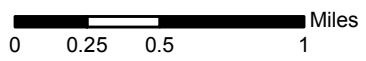


Figure 1. Caltrans SR 1 HOV project alignment



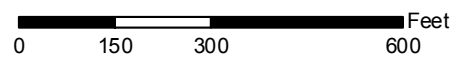
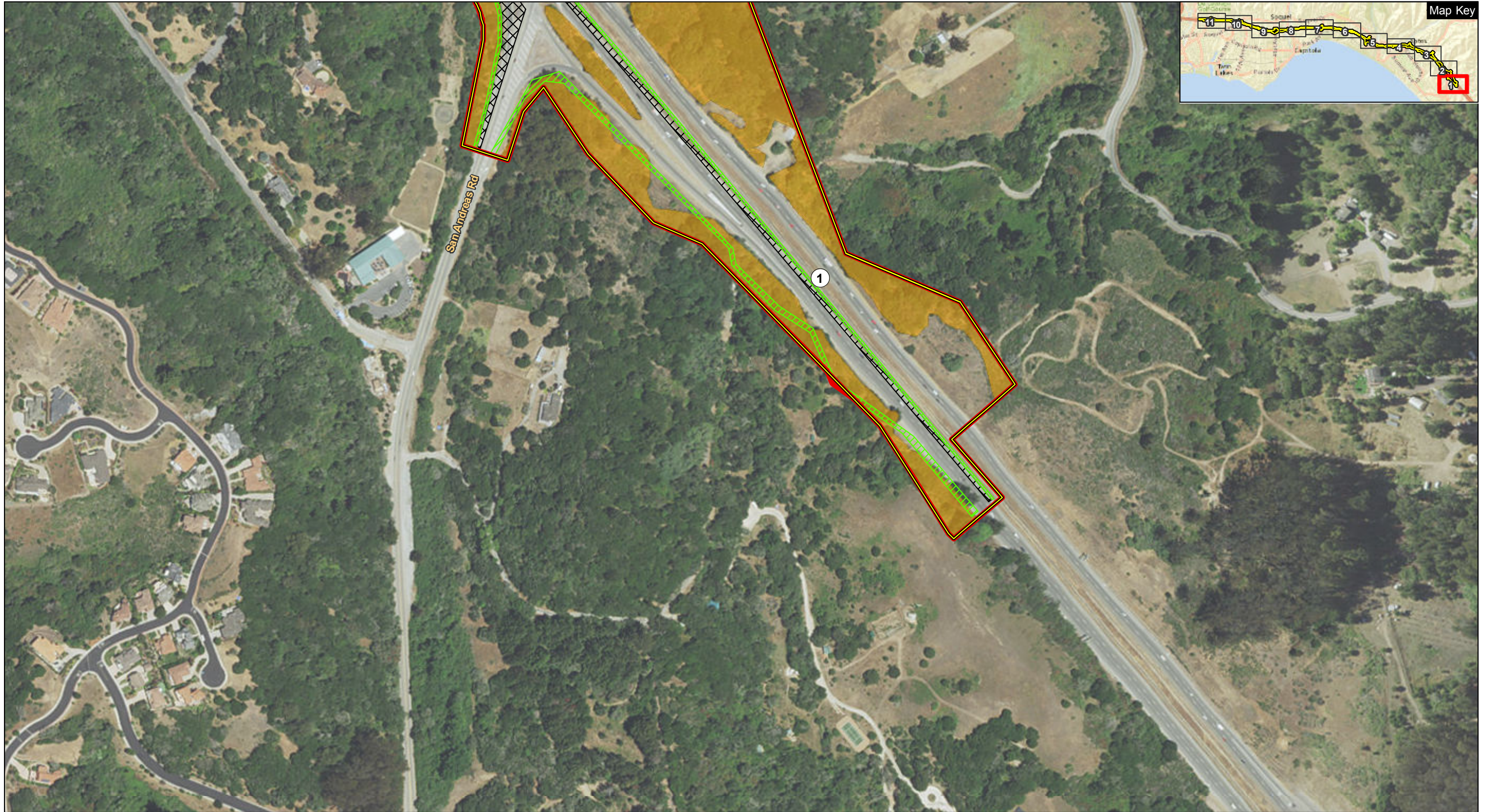
- Biological Study Area
- CTS/SCLTS Breeding Pond
- Potential Breeding Pond



Aerial Imagery: County of San Luis Obispo, 2011.



Santa Cruz Long-Toad Salamander and California Tiger Salamander Habitat Assessment
 CTS and SCLTS Known and Potential Breeding Ponds



1 inch = 300 feet

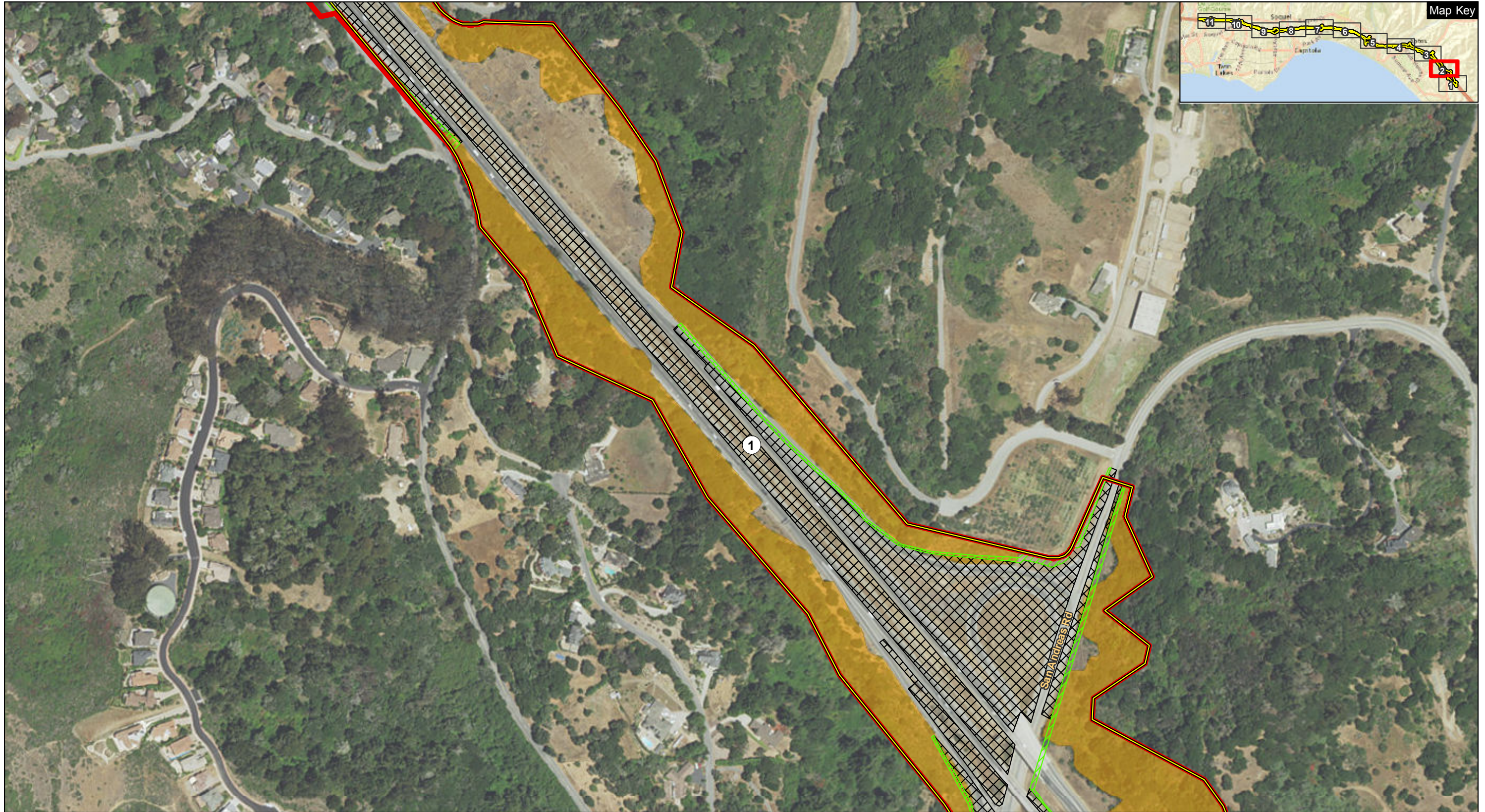
Base map Source: ESRI, 2016.
SCLTS location data by Brian Mori, 2016.
Impact Data, 2010.

Legend

- SCLTS Potential Upland Habitat
- Permanent Impact
- Temporary Impact

HOV Impacts





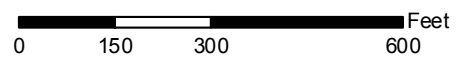
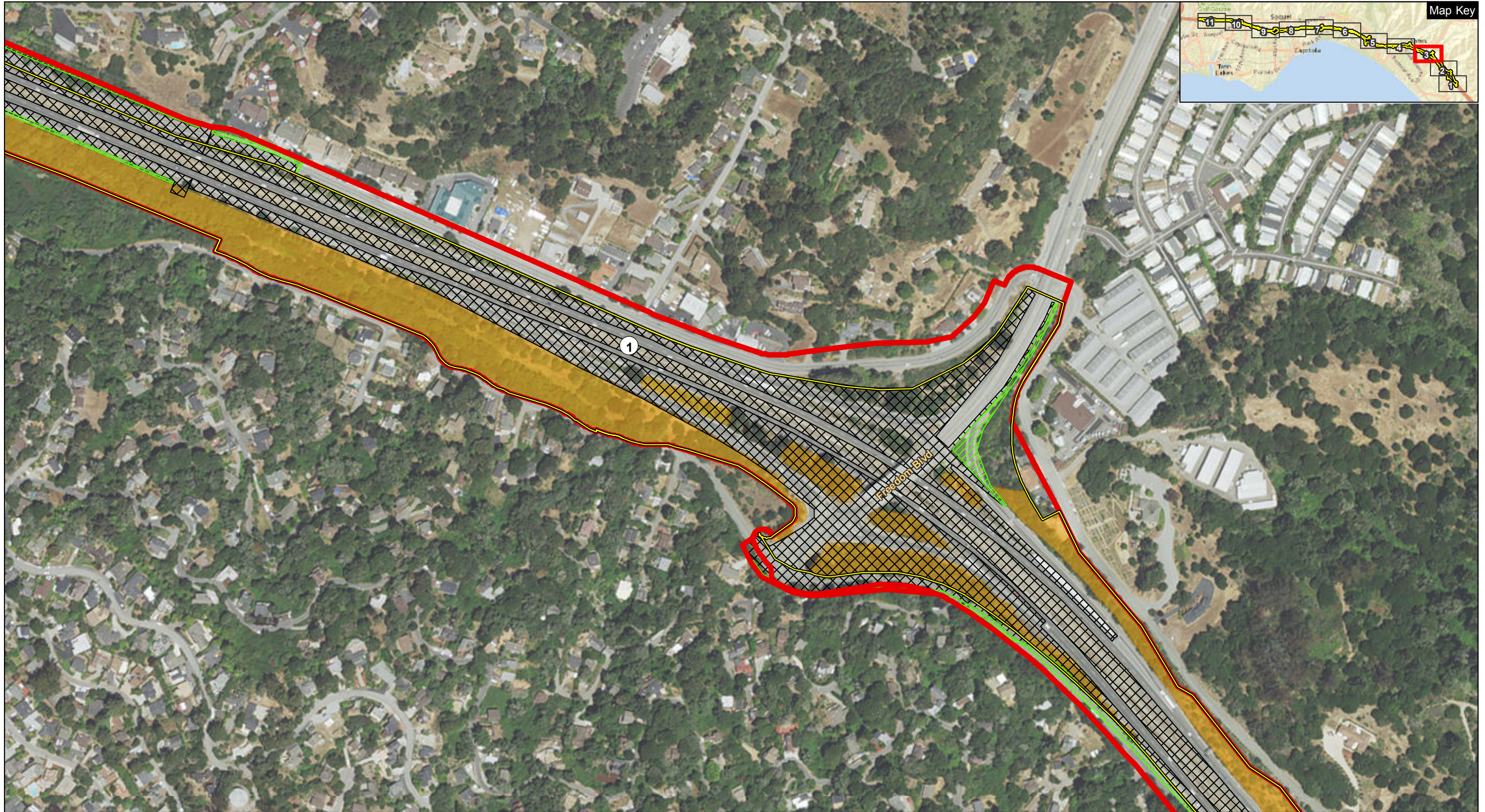
0 150 300 600 Feet
 1 inch = 300 feet

Legend

SCLTS Potential Upland Habitat	HOV Impacts Permanent Impact
Temporary Impact	

SWCA
 ENVIRONMENTAL CONSULTANTS

Santa Cruz Long-Toad Salamander and California Tiger Salamander Habitat Assessment
 HOV Alternative
 Page 2 of 11



1 inch = 300 feet

Base map Source: ESRI, 2016.
SCLTS location data by Brian Mori, 2016.
Impact Data, 2010.

Legend

- SCLTS Potential Upland Habitat
- Permanent Impact
- Temporary Impact

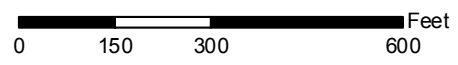
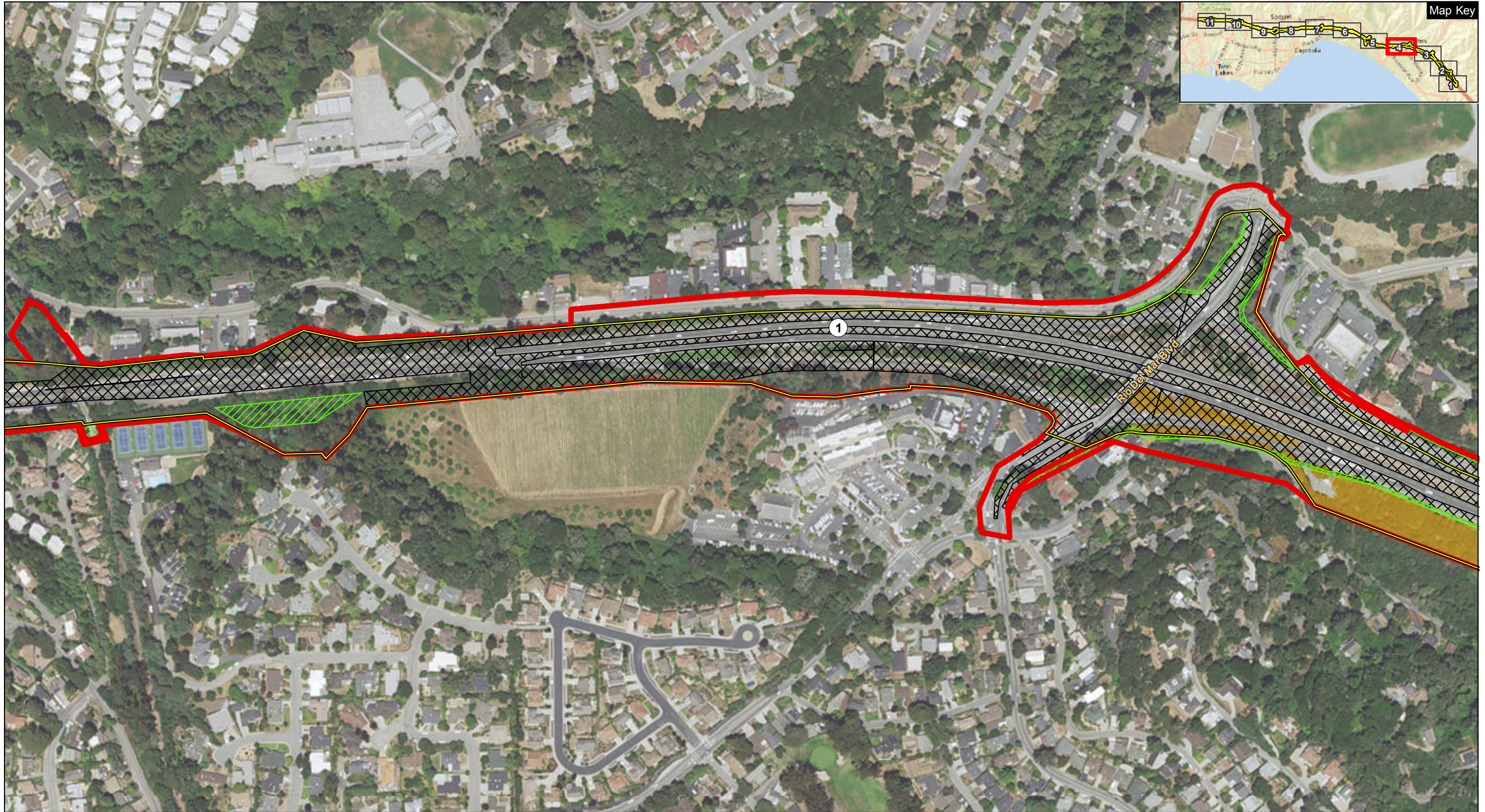
HOV Impacts

- Permanent Impact
- Temporary Impact



Santa Cruz Long-Toad Salamander and California Tiger Salamander Habitat Assessment

HOV Alternative



1 inch = 300 feet

Base map Source: ESRI, 2016.
SCLTS location data by Brian Mori, 2016.
Impact Data, 2010.

Legend

- SCLTS Potential Upland Habitat
- Temporary Impact
- Permanent Impact

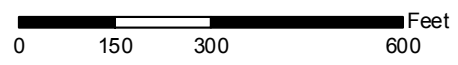
HOV Impacts

- Permanent Impact
- Temporary Impact



Santa Cruz Long-Toad Salamander and California Tiger Salamander Habitat Assessment

HOV Alternative



1 inch = 300 feet

Base map Source: ESRI, 2016.
SCLTS location data by Brian Mori, 2016.
Impact Data, 2010.

Legend

- SCLTS Potential Upland Habitat
- Temporary Impact
- Permanent Impact

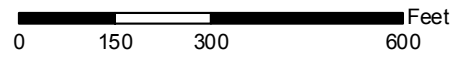
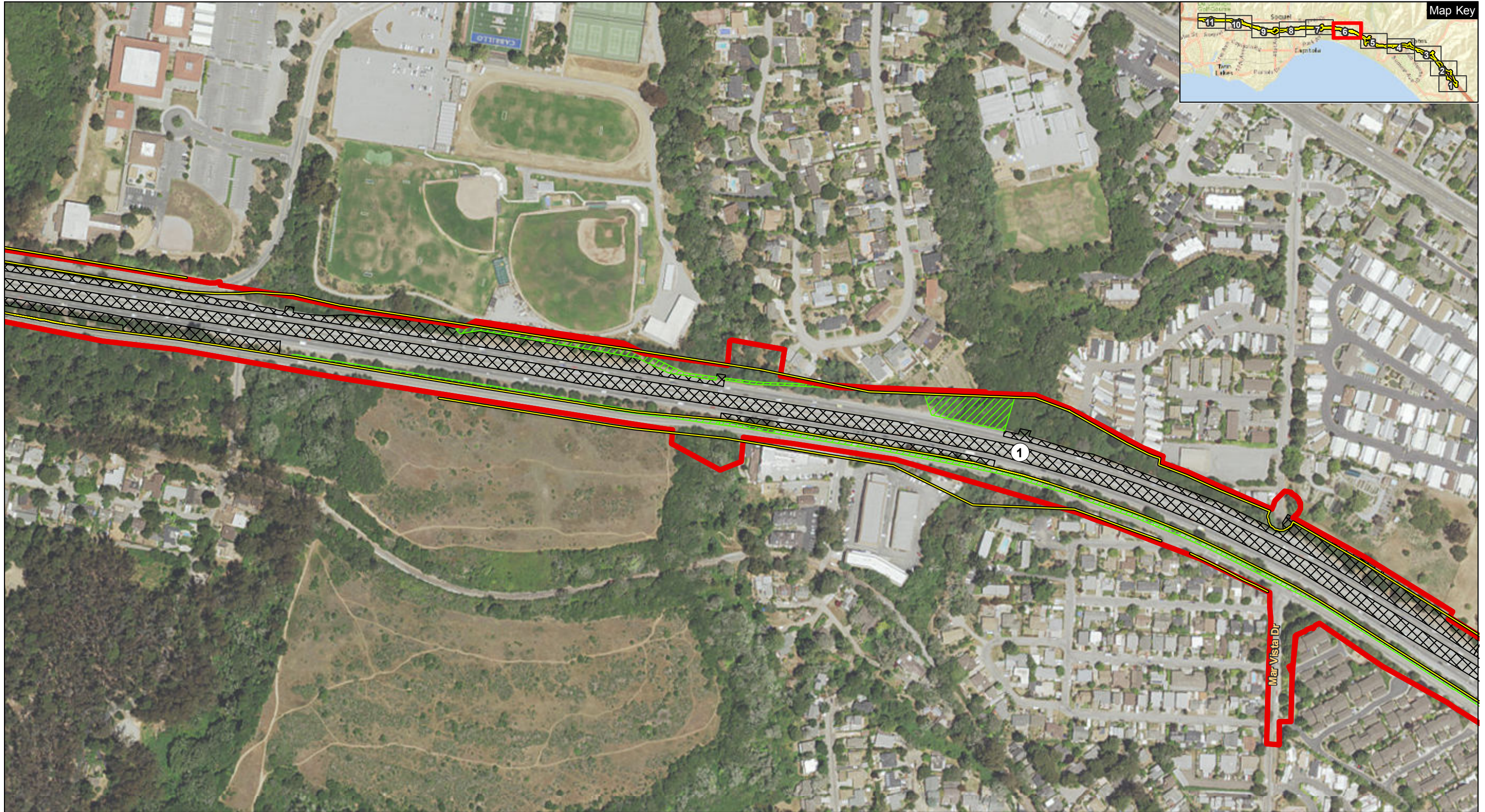
HOV Impacts

- Permanent Impact
- Temporary Impact



Santa Cruz Long-Toad Salamander and California Tiger Salamander Habitat Assessment

HOV Alternative



1 inch = 300 feet

Base map Source: ESRI, 2016.
SCLTS location data by Brian Mori, 2016.
Impact Data, 2010.

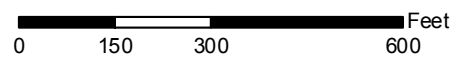
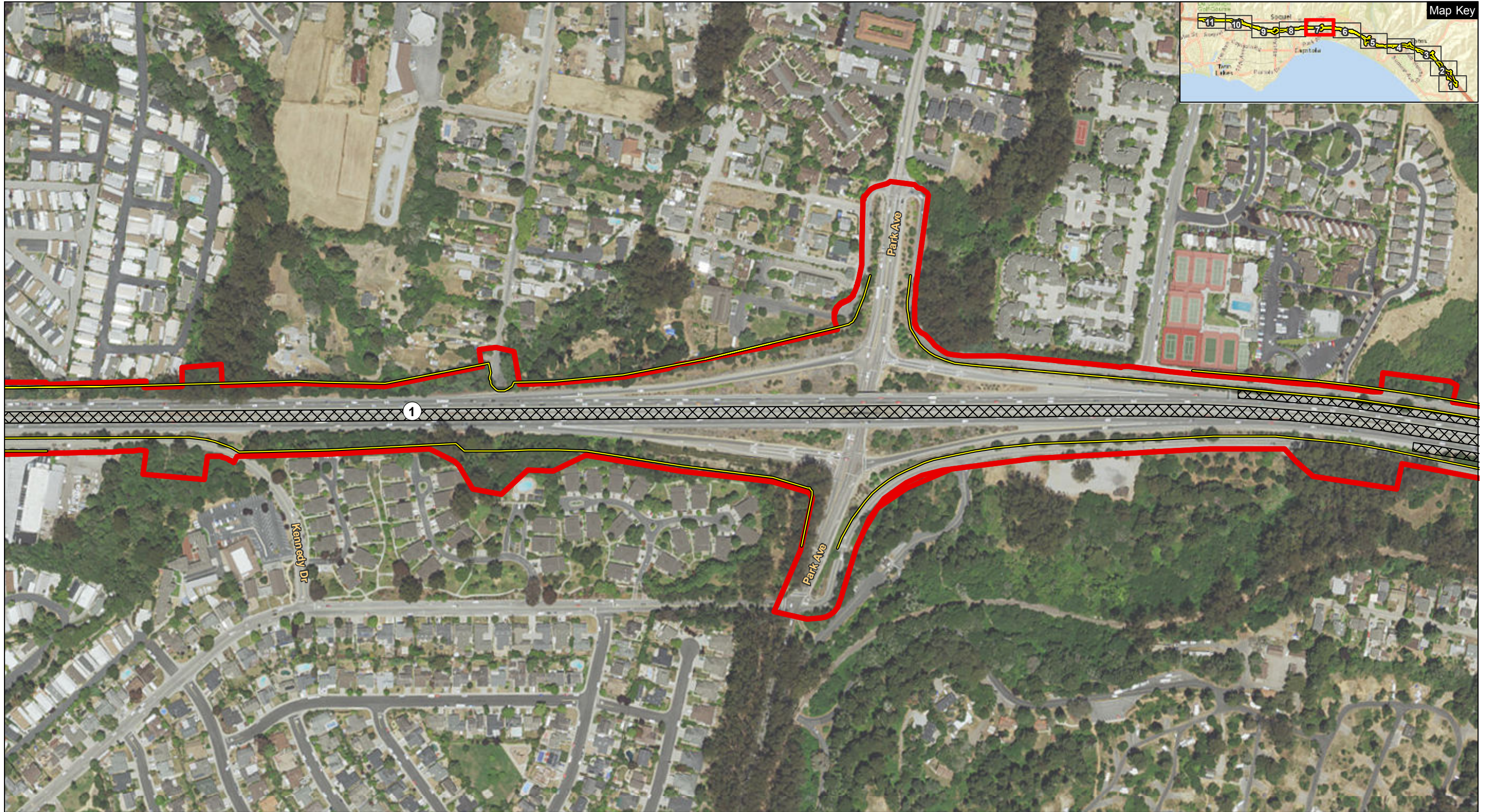
Legend

- SCLTS Potential Upland Habitat
- Temporary Impact
- HOV Impacts**
- Permanent Impact



Santa Cruz Long-Toad Salamander and California Tiger Salamander Habitat Assessment

HOV Alternative



1 inch = 300 feet

Base map Source: ESRI, 2016.
SCLTS location data by Brian Mori, 2016.
Impact Data, 2010.

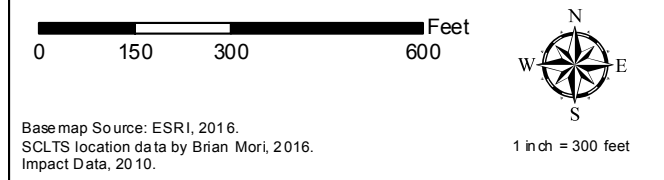
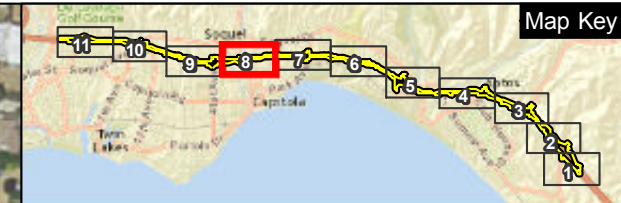
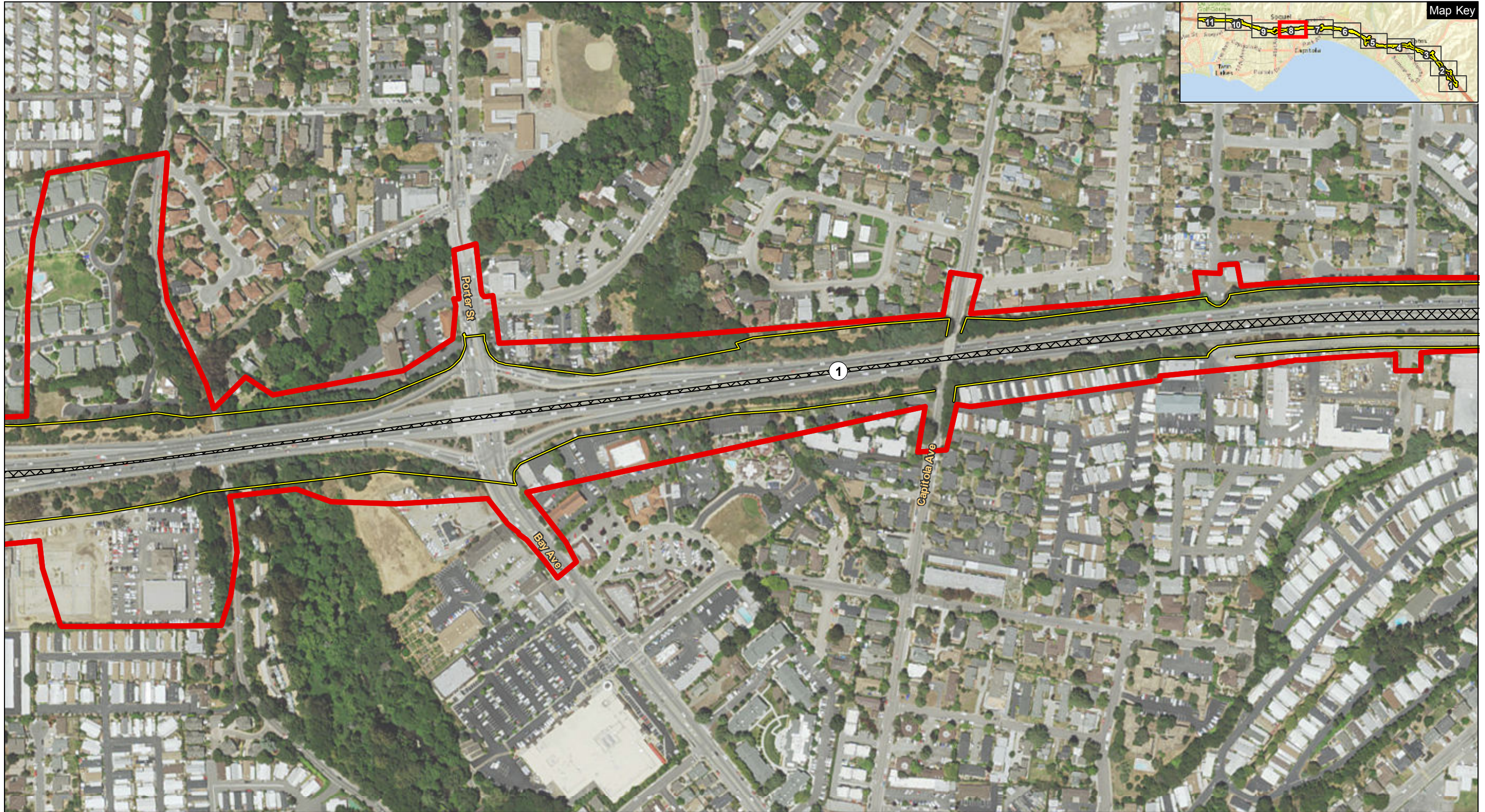
Legend

- SCLTS Potential Upland Habitat
- HOV Impacts
- Permanent Impact
- Temporary Impact



Santa Cruz Long-Toad Salamander and California Tiger Salamander Habitat Assessment

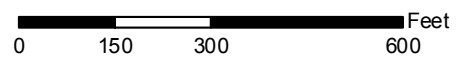
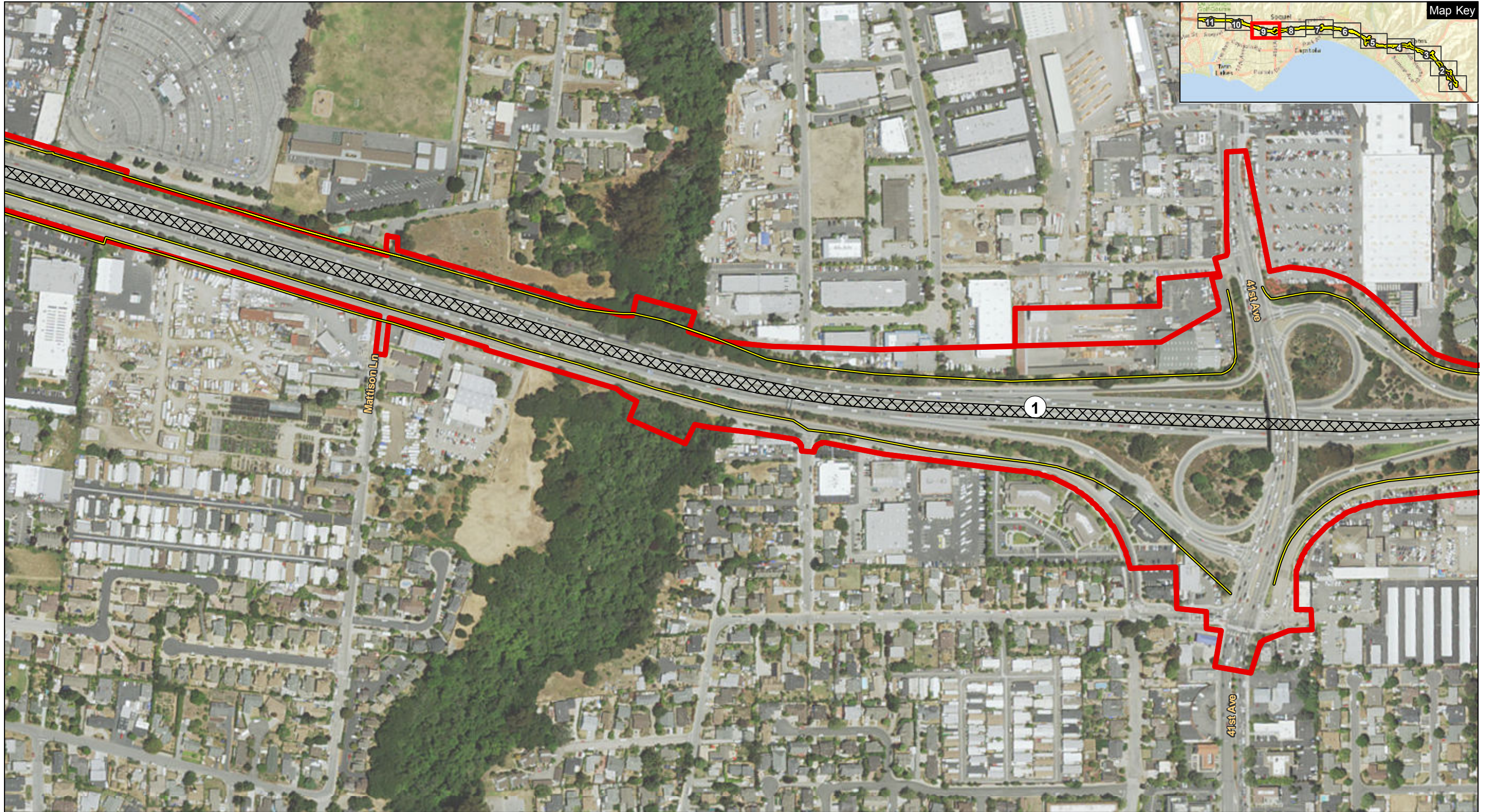
HOV Alternative



Base map Source: ESRI, 2016.
 SCLTS location data by Brian Mori, 2016.
 Impact Data, 2010.

Legend		HOV Impacts	
	SCLTS Potential Upland Habitat		Permanent Impact
	Temporary Impact		





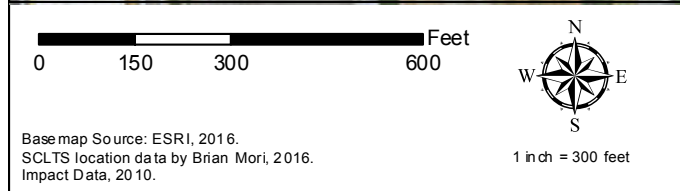
1 inch = 300 feet

Base map Source: ESRI, 2016.
SCLTS location data by Brian Mori, 2016.
Impact Data, 2010.




Legend


- SCLTS Potential Upland Habitat
- HOV Impacts Permanent Impact
- HOV Impacts Temporary Impact



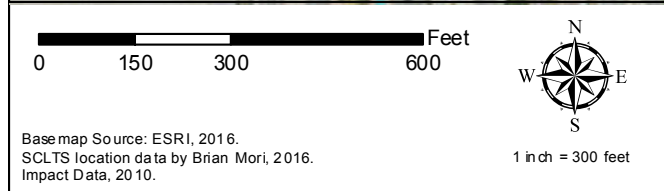
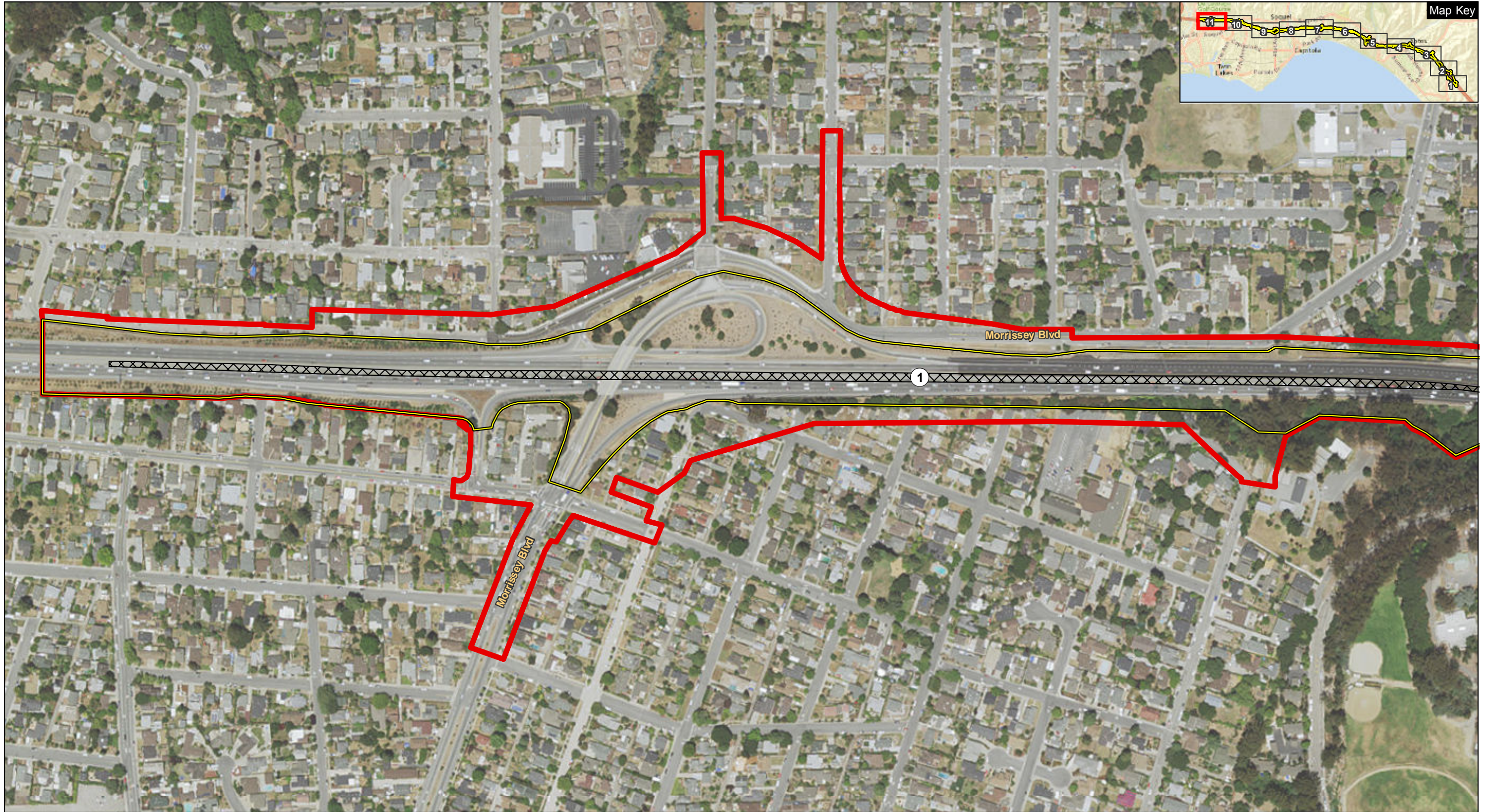


Legend

 SCLTS Potential Upland Habitat	 HOV Impacts Permanent Impact
	 Temporary Impact



SWCA
ENVIRONMENTAL CONSULTANTS



Base map Source: ESRI, 2016.
 SCLTS location data by Brian Mori, 2016.
 Impact Data, 2010.

Legend		HOV Impacts	
	SCLTS Potential Upland Habitat		Permanent Impact
	Temporary Impact		





Figure 5. Photo showing the northern end of the exclusion fence near Rio Del Mar Boulevard. Note the open access to the shoulder.



Figure 6. Photo showing the southern end of the exclusion fence near Freedom Boulevard. Note the open access to the shoulder.

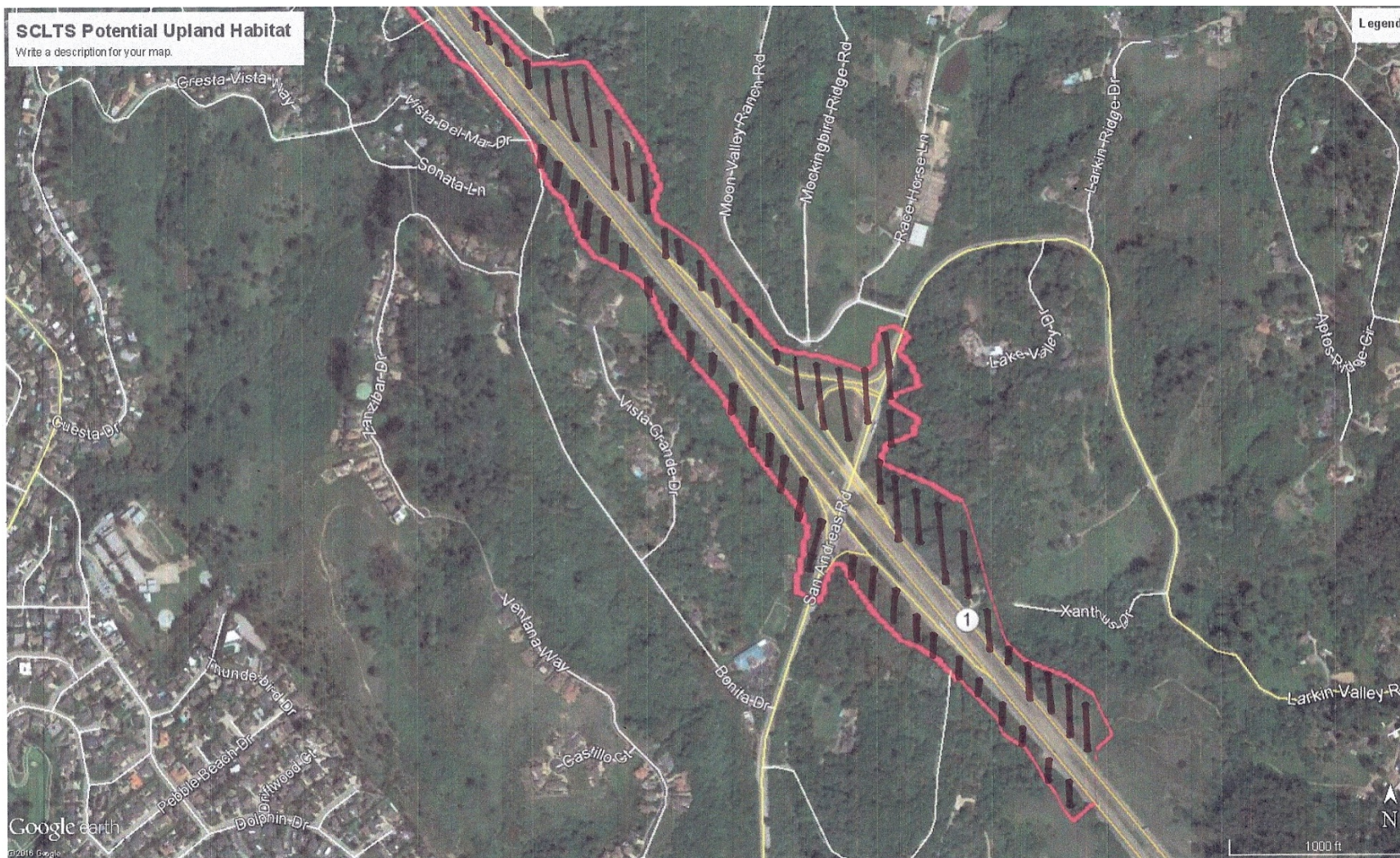


Figure 7. Potential SCLTS upland habitat within the SR 1 HOV project boundary south of Freedom Boulevard to beyond San Andreas Road

Appendix: SCLTS and CTS Observations and Potential Breeding Ponds within the Caltrans State Route 1 Hov Study Area, Santa Cruz County, California

MAP ID	SPECIES	OBSERVATION TYPE	DISTANCE FROM PROJECT (Miles)	COMMENTS
Valencia Lagoon	SCLTS	Breeding pond	0.00	This site is the type locality for SCLTS and was discovered in 1954. Valencia Lagoon is owned by the CDFW. The site was last studied in 2008 by Biosearch Associates.
Valencia Lagoon	SCLTS	Upland	0.00	Thousands of SCLTS captured in pitfall traps along Bonita Dr. and the Hwy 1 side of the breeding pond during the Biosearch 2008 study.
Zanzibar Dr.	SCLTS	Upland	0.07	Juvenile SCLTS observed on a rainy night survey at the intersection of Zanzibar Dr. and Bonita Rd. by Mark Allaback. Date uncertain.
Encino Drive	SCLTS	Upland	0.12	Adult observed on Encino Drive during rainy nights surveys in 1978 (Reed 1978).
Vista Del Mar Drive 1	SCLTS	Upland	0.14	Adult observed on Vista Del Mar Drive during rainy nights surveys in 1978 (Reed 1978).
Seascape Pond 3	SCLTS	Breeding pond	0.15	Mitigation pond for the Seascape Uplands HCP. The HCP conservation area studies have been performed by Biosearch Associates through 2014.
Loma Prieta Drive	SCLTS	Upland	0.15	Adult observed on Loma Prieta Drive during rainy nights surveys in 1978 (Reed 1978).
Katz	SCLTS	Upland	0.16	SCLTS captured in upland pitfall traps on the Katz property. Study performed by Dana Bland Associates in 2007-08.
Bonita Dr.	SCLTS	Upland	0.17	SCLTS roadkill observed on Bonita Dr. near the intersection with Vista Grande Dr. by Mark Allaback in February 2014. The location is near Seascape 3 (see below).
Vista Del Mar Drive	SCLTS	Upland	0.20	Adult observed on Vista Del Mar Drive during rainy nights surveys in 1978 (Reed 1978).
Menge 1	SCLTS	Upland	0.29	Three SCLTS observed in uplands off of Race Horse Lane by Fred Menge in 2004 (M. Allaback, pers. comm.).
Race Horse Lane Pond	SCLTS	Breeding pond	0.32	Larvae captured and juveniles observed under woody debris near pond in 2006 (Resource Conservation District of Santa Cruz County 2013).
HRG 1	SCLTS	Upland	0.35	SCLTS observed near the intersection of Larkin Valley Rd. and White Rd. during rainy night surveys in 1993-94 (Habitat Restoration Group 1994).

MAP ID	SPECIES	OBSERVATION TYPE	DISTANCE FROM PROJECT (Miles)	COMMENTS
Willow Canyon	SCLTS	Breeding Pond	0.36	This site is a SCLTS habitat enhancement pond created in 2012. SCLTS eggs were observed in 2012 by Chad Mitchum, FWS (Chris Caris, FWS, pers. comm.).
Seascape Pond 2	SCLTS	Breeding pond	0.40	SCLTS breeding pond on the Seascape Uplands HCP conservation area. The HCP conservation area studies have been performed by Biosearch Associates through 2014.
Seascape Pond 1	SCLTS	Breeding pond	0.41	Source SCLTS breeding pond at the Seascape Uplands HCP conservation area. The HCP conservation area studies have been performed by Biosearch Associates through 2014.
PP 1	SCLTS	Potential breeding pond	0.41	A large perennial pond located southeast of the Tier 1 project site, off of Barret Dr., just west of HWY 1. This pond has not been formally studied.
HRG 2	SCLTS	Upland	0.42	SCLTS observed on White Rd. during rainy night surveys in 1993-94 (Habitat Restoration Group 1994).
Calabassas Pond	SCLTS	Breeding pond	0.61	Surveys have confirmed SCLTS breeding beginning in 1989. SCLTS breeding last confirmed in 2013 (Resource Conservation District of Santa Cruz County 2013).
Menge 2	SCLTS	Upland	0.67	Observation of two SCLTS in upland habitat, one in 1999 and one in 2001, by Fred Menge (M. Allaback, pers. comm.).
King	SCLTS	Upland	0.70	Eight adults and one juvenile SCLTS captured in upland pitfall traps in 2008 by Dana Bland (Resource Conservation District of Santa Cruz County 2013).
Suess Pond	SCLTS	Breeding pond	0.73	SCLTS larvae were observed in a pond downstream of the Calabassas Pond in 2010 by Dana Bland (Resource Conservation District of Santa Cruz County 2013).
Palmer Pond	SCLTS	Breeding pond	0.87	SCLTS larvae were observed in a shallow pool in a roadside ditch along Shadowmere Way, Aptos. The site may be too seasonal for successful SCLTS reproduction (Resource Conservation District of Santa Cruz County 2013).
HRG 3	SCLTS	Upland	0.93	SCLTS observed on Larkin Valley Rd. during rainy night surveys in 1993-94 (Habitat Restoration Group 1994).
Olive's Pond	SCLTS	Breeding pond	0.97	SCLTS larvae were captured in 2004, and reproductive adults were observed ~450 from the pond in 2013 (Resource Conservation District of Santa Cruz County 2013).

MAP ID	SPECIES	OBSERVATION TYPE	DISTANCE FROM PROJECT (Miles)	COMMENTS
PP2	SCLTS	Potential breeding pond	0.98	This site is located near the terminus of Halton Lane, NE of the Hwy 1 Freedom Blvd interchange. The pond has not been formally studied.
PG&E 1	SCLTS	Upland	0.99	11 adults captured in upland traps off of Larkin Valley Rd., SE of the project site, by Biosearch Associates in 2012-13 (Resource Conservation District of Santa Cruz County 2013).
PG&E 2	SCLTS	Upland	1.06	28 adults and 1 juvenile captured in upland traps off of Larkin Valley Rd., SE of the project site, by Biosearch Associates in 2012-13 (Resource Conservation District of Santa Cruz County 2013).
Nunes Road	SCLTS	Upland	1.10	CAS specimen of a roadkill found on Nunes Road in 2004 (Resource Conservation District of Santa Cruz County 2013).
PG&E 3	SCLTS	Upland	1.11	19 adults and 1 subadult captured in upland traps off of Larkin Valley Rd., SE of the project site, by Biosearch Associates in 2012-13 (Resource Conservation District of Santa Cruz County 2013).
PG&E 4	SCLTS	Upland	1.14	62 adults and 3 subadults captured in upland traps off of Larkin Valley Rd., SE of the project site, by Biosearch Associates in 2012-13 (Resource Conservation District of Santa Cruz County 2013).
White Road	SCLTS	Upland	1.23	One roadkill on White Road and one adult unearthed by a tractor operator in 1988 (CNDDDB).
PP3	SCLTS	Potential breeding pond	1.24	San Hernandez Reservoir is located east of the project site, off of White Rd and east of Emerald City Way. This site has not been formally studied.
Buena Vista	CTS	Breeding pond	2.50	This pond is seasonal and supports both CTS and SCLTS breeding populations. This site was last studied during the 2014-15 winter (M. Allaback, pers. comm.).