CONCEPTUAL HABITAT MITIGATION AND MONITORING PLAN FOR THE EL CAMINO REAL BRIDGE REPLACEMENT

DRAFT

November 2017

PREPARED FOR

County of San Luis Obispo
Department of Public Works
San Luis Obispo, CA 93408

PREPARED BY

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1 INTRODUCTION

This Conceptual Habitat Mitigation and Monitoring Plan (CHMMP) has been prepared by SWCA Environmental Consultants (SWCA) to describe the proposed methods for mitigating project impacts to riparian and wetland habitats associated with the El Camino Real Bridge Replacement project (project). The project is anticipated to result in permanent and temporary impacts to U.S. Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), and Regional Water Quality Control Board (RWQCB) jurisdictions in Santa Margarita Creek. This document is conceptual and is intended to assist project planners in preparing agency permit applications. The CHMMP will be augmented to include detailed planting and monitoring plans following receipt of agency comments during the permitting process. The CHMMP follows guidelines presented in the *Checklist for Compensatory Mitigation Proposals* (USACE 2008a) and the *Final Rule for Compensatory Mitigation for Losses of Aquatic Resources* (USACE 2008b). The previously prepared Natural Environment Study (NES) (SWCA 2016) and its associated appendices (such as the Biological Assessment) fully describe the scope and impacts of the proposed project.

2 PROJECT AND SITE DESCRIPTION

2.1 Responsible Parties and Financial Assurances

As the project applicant, the party responsible for meeting the mitigation obligation pursuant to anticipated conditions of the USACE Nationwide Permit Authorization and other pertinent permits will be:

County of San Luis Obispo
Department of Public Works
Environmental Division
San Luis Obispo, California 93408

The applicant has included sufficient funding in the overall project budget to implement the final CHMMP and any required contingency actions.

2.2 Project Location

The project site is located approximately 2.6 miles north of Santa Margarita in San Luis Obispo County, California. The project involves the existing El Camino Real steel truss bridge located above Santa Margarita Creek (refer to Figures 1 and 2).

Figure 1. Project Vicinity Map

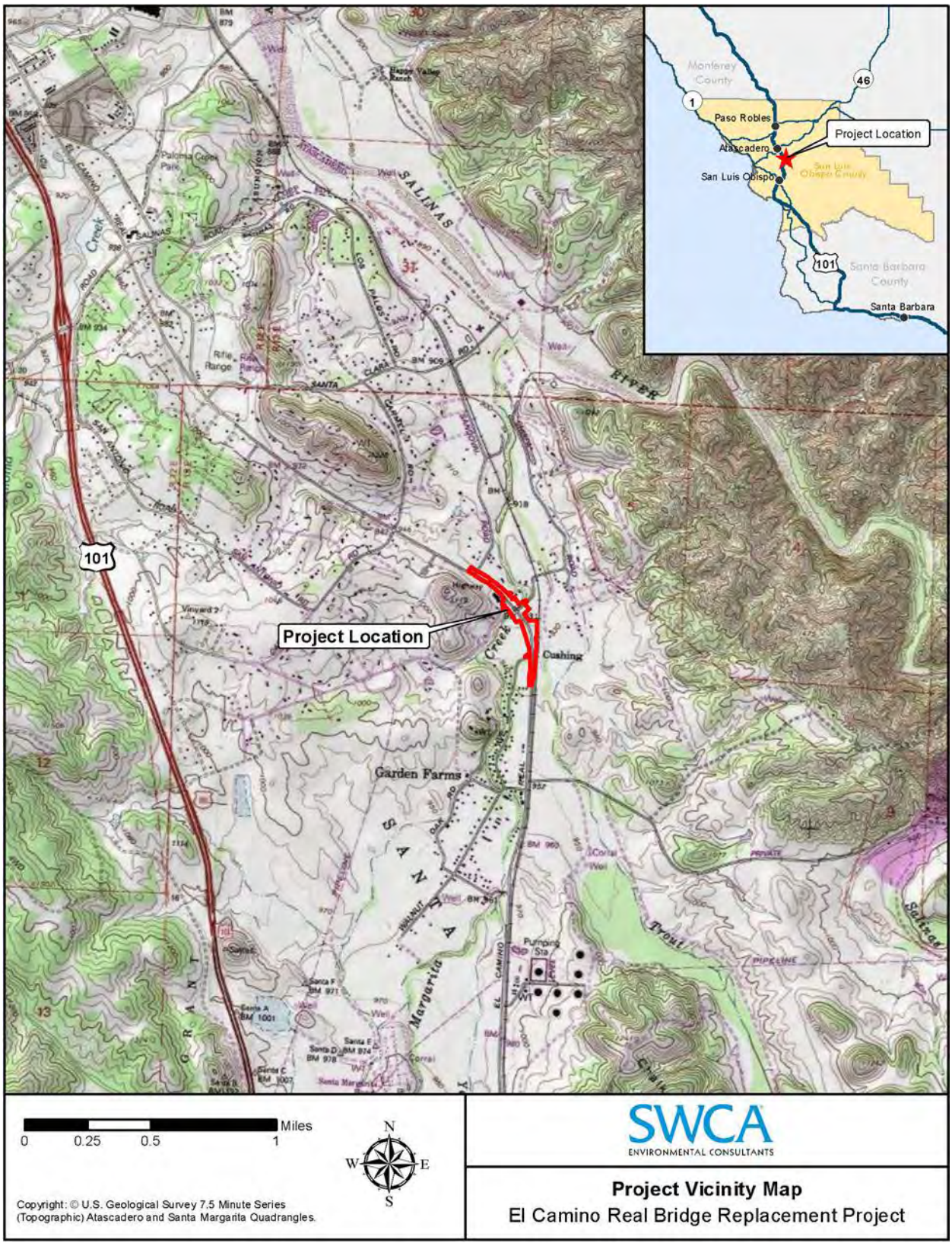

Figure 2. Project Location Map

2.3 Project Summary

The County of San Luis Obispo (County) proposes to replace the existing El Camino Real Bridge (Bridge Number 49C0310) over Santa Margarita Creek and to improve the roadway approaches with FHWA funding from the federal Highway Bridge Program (HBP). The California Department of Transportation (Caltrans) is the lead agency for the project with its FHWA delegated authority. The existing bridge is hydraulically inadequate and prone to undermining of the foundations via scour. The steel structural members of the existing bridge are corroded and have been classified as fracture critical by Caltrans. The bridge identification information is listed below:

08-SLO-El Camino Real
BRLS-5949(131)
Bridge No. 49C-0310
El Camino Real, San Luis Obispo County

The existing bridge, built in the early 1900s and realigned in 1930, is a steel truss bridge composed of four steel truss piers on concrete footings and extending approximately 81 feet in length. Seasonal high flow events within Santa Margarita Creek caused a substantial amount of scour at the sandstone foundation of the pier footings and the stability of the bridge is severely compromised. The County conducted a scour remediation project for the bridge in 2012. However, it did not permanently resolve the scour issues and the problem persisted. The existing bridge is hydraulically inadequate and prone to undermining of the foundations via scour. The steel structural members of the existing bridge are corroded and have been classified as fracture critical by Caltrans.

The County proposes to replace the existing bridge with a new, longer, modern bridge that will conform to the current structural and geometric standards to increase public safety. The project also includes reconstructing the roadway approaches to provide the appropriate standard roadway transitions and will incorporate left turn channelization at Asuncion and Santa Margarita roads, which will increase public safety along this entire portion of the roadway. Caltrans has concurred with the proposed bridge structured type which will be designed to *AASHTO LRFD 6th Edition with California Amendments*. The new bridge will be a cast-in-place (CIP) pre-stressed (PS) concrete slab type bridge, approximately 140 feet long with three unequal spans (42 feet, 58.5 feet, and 39.5 feet), and a structure depth of two feet to clear the hydraulic opening of the creek. The new bridge will have an improved clear deck width of 60.5 feet between the railings to accommodate three 12-foot vehicle lanes, plus eight-foot shoulders and additional width for staging. Due to the extensive history of scour on-site, the new bridge design includes cast-in-drilled-hole (CIDH) piles under each column extension. Given the exposed sandstone at the site, driven piles cannot be used. Installation of the CIDH piles will require contractor equipment access within the creek channel to drill these foundations. Installation of the cast-in-place pre-stressed concrete slab will require installation of temporary falsework within the creek channel. Four sets of columns and piles will support the new structure. Two sets would be located at the existing location of the abutments on the creek banks and another two sets would be located within the creek channel. The sets in the creek channel will consist of seven two-foot-diameter columns spaced approximately eight to 10 feet apart. Each column will be supported on a four-foot CIDH pile. The abutments will be supported on two-foot CIDH piles.

The contractor will need access into the creek channel to install the temporary falsework and CIDH piles and to remove the existing bridge. Access may be achieved by temporarily diverting water through or around the work area and constructing a temporary access path down into the creek channel. Water diversion may use a combination of cofferdams, pipes, sand bags, and temporary fill. If a temporary culvert or diversion dam is required, which is unlikely given the ephemeral hydrology of the stream, it will be sized appropriately to facilitate fish passage during construction; however, this component is not expected to be

necessary. Isolated plunge pools will be dewatered and any resident fish will be captured and relocated prior to dewatering.

The primary temporary access would be located on the north bank; access from the southern bank would be limited to maintain the natural rock formations on the south bank. The temporary access path would traverse the creek bank, enter the channel, and extend under the proposed and existing bridges. The contractor may place clean crushed rock into the creek in order to create the temporary path and construct the CIDH piles, as well as provide level surfaces to place pads for construction of temporary falsework. Temporary fill associated with the creek diversion and the access path would be removed after construction is complete. This project is anticipated to span over two construction seasons and the contractor will be required to remove the diversion system as well as temporary fill within the creek channel at the completion of first construction season. These materials would be placed again at the beginning of the second season. Ungrouted rock slope protection (RSP) will be placed around the abutments along the banks to prevent potential erosion. Based on the current project goals and plans, RSP would be placed immediately below the bridge abutments and extend beyond the bridge rails on the northeast, northwest, and southeast banks. The RSP would range from 2.5 feet thick to 4.5 feet thick and include 0.25-ton material. Where feasible, the RSP will be backfilled with native soil and willow cuttings from willow stakes collected on-site will be installed between the rocks.

In order to accommodate the wider bridge and middle turn lane between Santa Margarita Road and Asuncion Road the north and south bridge approaches require modification. The horizontal alignment will matching the existing roadway but will have corrected super elevation and a raised vertical profile to accommodate the hydraulic requirements of Santa Margarita Creek. The southern approach will consist of approximately 1,200 feet of new roadway in order to conform to back to the existing roadway. Intersections at both Walnut Avenue and Asuncion Road will be reconstructed to conform to the new roadway. The intersection of Asuncion Road will require relocation to the south to allow for the new bridge construction. Approximately 230 feet of Asuncion Road will be realigned in order to match the grade and super elevation of El Camino Real. The northern approach will consist of approximately 930 feet of new roadway in order to conform to the existing roadway. The intersection of Santa Margarita Road will also require reconstruction along with several driveways within this section of roadway. It is anticipated that some temporary widening will be required to handle and maintain traffic at all stages during construction. Temporary pavement that is required outside of the final roadway width will be removed once it is no longer needed and restored to the preconstruction conditions.

2.4 Existing Conditions

The Biological Study Area (BSA) surveyed during preparation of the Natural Environment Study (NES) includes an approximately 0.5-mile section of roadway along El Camino Real Road, between Santa Margarita Road and Asuncion Road. The BSA limits along the roadway are consistent with the County right-of-way (ROW), which is 100 feet wide along El Camino Real and includes portions of an agricultural parcel that would be acquired for the proposed curve correction. The BSA also includes areas beyond the County ROW at the bridge location and around intersections and driveways that connect with El Camino Real within the outer project limits. The BSA is approximately 10.7 acres in size. Adjacent parcels are owned by private farmers, a private convalescent hospital, and private residences.

The vegetation communities observed within the BSA include: ruderal/developed, annual brome grassland, coast live oak woodland, valley oak woodland, arroyo willow thicket, and Fremont cottonwood forest (refer to Figures 3 and 4). Approximately 0.37 acre of riparian habitat (classified as either arroyo willow thicket or Fremont cottonwood forest) and approximately 0.69 acre of oak woodlands (classified as coast live oak woodland and valley oak woodland) adjacent to the riparian areas were mapped within the BSA. Hydrology is controlled by Santa Margarita Creek and, to a lesser extent, runoff from adjacent agricultural areas.

2.5 Jurisdictional Areas to be Impacted by Habitat Type

Habitat types present within the BSA include: ruderal/developed, annual brome grassland, coast live oak woodland, valley oak woodland, arroyo willow thicket, and Fremont cottonwood forest. The coast live oak woodland, valley oak woodland, Freemont cottonwood forest, and arroyo willow thicket habitats form the riparian canopy and demarcates the CDFW/RWQCB jurisdictions in Santa Margarita Creek. Riverine and freshwater marsh habitats located within the OHWMs and under the riparian canopy are within USACE jurisdiction. Jurisdictional features are quantified in Table 1 and impacts are quantified in Table 2.

2.5.1 Arroyo Willow Thicket

Arroyo willow thicket (*Salix lasiolepis* Woodland Alliance; CDFW CA Code: 61.201.00) is described by Sawyer et al. (2009) as being dominated by arroyo willow (*Salix lasiolepis*) or co-dominant in the in the tall shrub or low tree canopy. Along Santa Margarita Creek, the arroyo willow thicket occurs with California black walnut (*Juglans californica*) saplings, American dogwood (*Cornus sericea*), mulefat (*Baccharis salicifolia*), coyote bush (*Baccharis pilularis*), and California blackberry (*Rubus ursinus*). The arroyo willow thicket may have an open, tall shrub canopy or a closed, continuous tree canopy reaching up to approximately 26 feet (eight meters) in height. Along the central coast, arroyo willows grow on seasonally or intermittently flooded sites and are typically shrubby and multi-branched (Sawyer et al. 2009). The arroyo willow thicket associated with Santa Margarita Creek falls within the Holland (1986) description of central coast riparian scrub and is recognized by the CNDDB (CTT63200CA) as a natural community of special concern. The USFWS Wetland Inventory (2014 national list) recognizes arroyo willow as a Facultative Wetland (FACW) plant, meaning it usually occurs in wetlands, but may occur in non-wetlands. Within the BSA, the arroyo willow thicket is restricted to open areas within the Santa Margarita Creek riparian corridor and is bordered by Fremont cottonwood forest, valley oak woodland, annual brome grassland, and ruderal habitat. Evidence of frequent disturbance from seasonal flooding was observed within this habitat type and it appears to be in a transition state because the vegetation is rebounding. Approximately 3,250 ft^2 (0.07 acre) of arroyo willow thicket was mapped within the BSA.

2.5.2 Fremont Cottonwood Forest

Fremont Cottonwood Forest (*Populus fremontii* Forest Alliance; CDFW CA Code: 61.130.00) is described by Sawyer et al. (2009) as occurring on floodplains, along low-gradient rivers, along perennial or seasonally intermittent streams, in valleys with a dependable subsurface water supply that varies considerably during the year. The Fremont cottonwood forest falls within the Holland (1986) description of southern cottonwood willow riparian forest (CNDDB CTT61330CA) as it is recognized as a natural community of special concern by the CDFW. The USFWS Wetland Inventory (1996 national list) recognizes Fremont cottonwood as a FACW plant. This alliance generally occurs adjacent to river and creek channels, within seasonally flooded arroyos, and in topographic depressions close to ground water. This community consists of forested stream-side riparian vegetation, varying from open to closed canopies (Holland 1986). Along the Santa Margarita Creek riparian corridor the Fremont cottonwood forest is co-dominant in the tree canopy with boxelder (*Acer negundo*), California black walnut, coast live oak, red willow (*Salix laevigata*), and arroyo willow (*Salix lasiolepis*). Dominant shrubs within the Fremont cottonwood forest community in the BSA consists of American dogwood, poison oak (*Toxicodendron diversilobum*), virgin's bower (*Clematis ligusticifolia*), snowberry (*Symphoricarpos mollis*), and scattered coyote bushes and mulefat. Fremont cottonwood forest intergrades with valley oak woodland along the southwestern banks and with coast live oak woodland along the northeastern banks of Santa Margarita Creek. Within the BSA, approximately 4,737 ft^2 (0.32 acre) of Fremont cottonwood forest was mapped.

Figure 3. Habitat Map

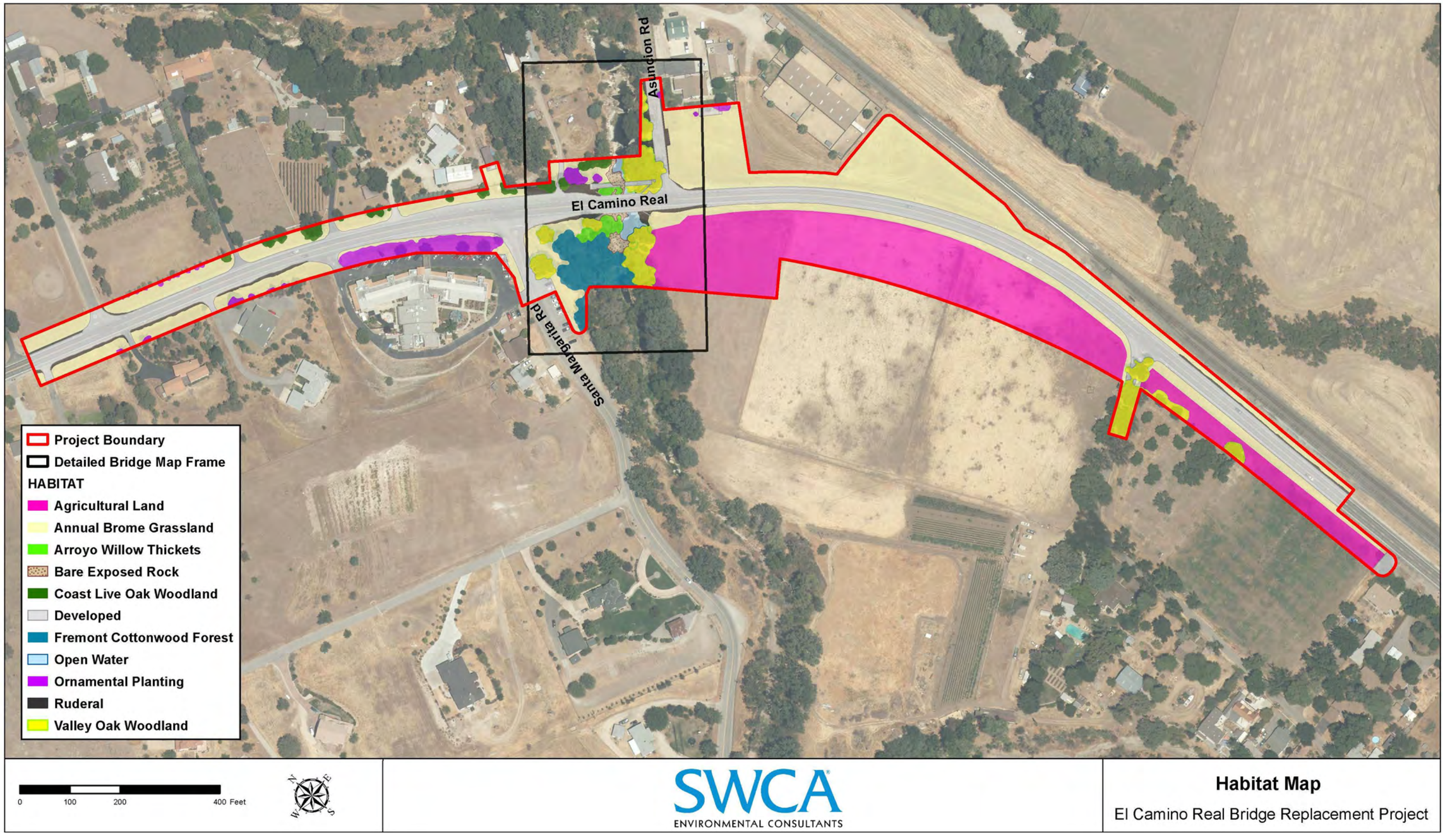

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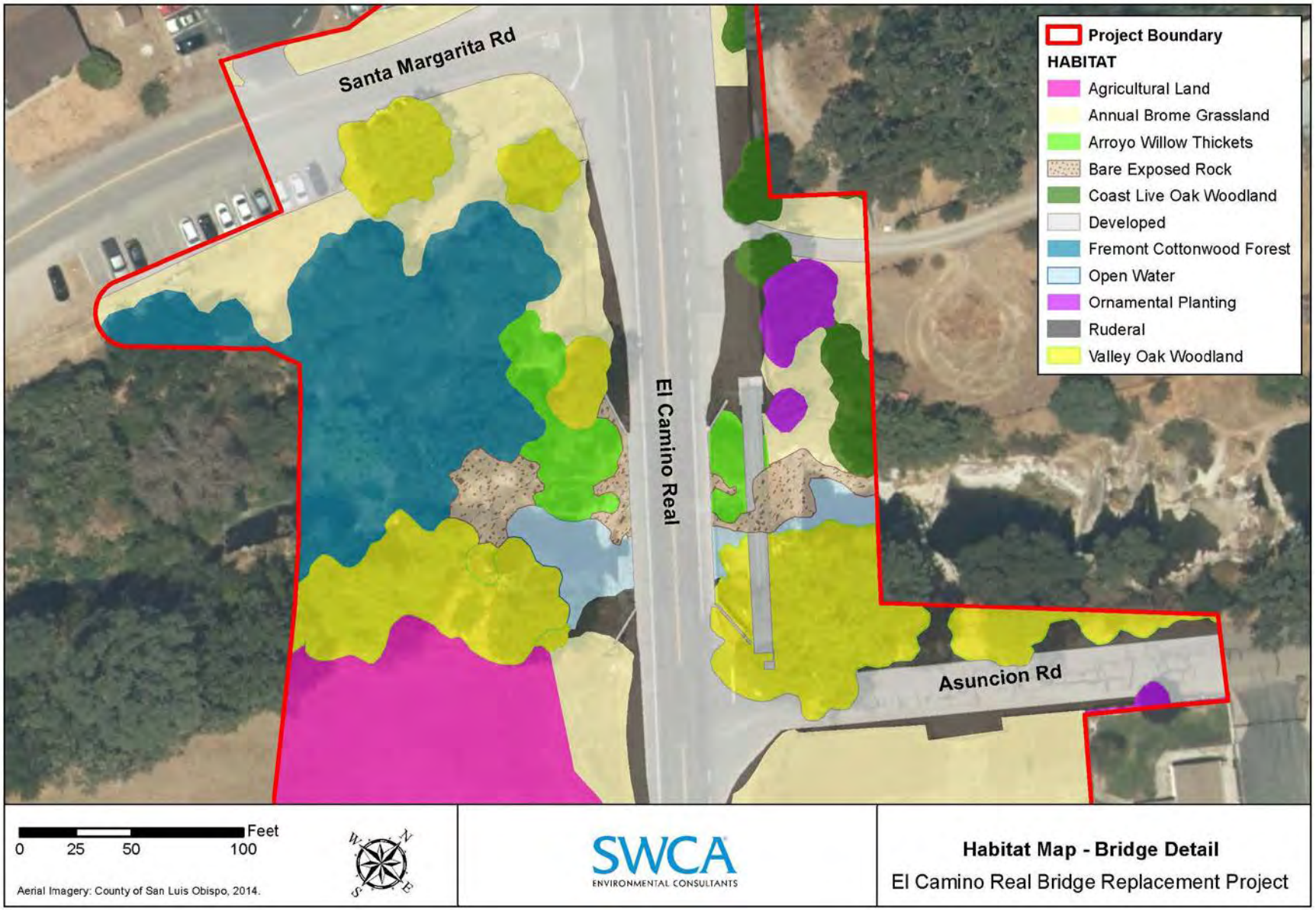
Figure 4. Habitat Map Detail



2.5.3 Coast Live Oak Woodland

Coast live oak woodland (*Quercus agrifolia* Woodland Alliance: CNDDB: CTT71160CA; CDFW CA Code: 71.060.00) is described by Sawyer et al. (2009) as being dominated by coast live oak (*Quercus agrifolia*) with scattered foothill pine (*Pinus sabiniana*) in the tree canopy. Although not a natural community of special concern, California Public Resources Code Section 21083.4 (Senate Bill 1334) directs counties to evaluate and mitigate for impacts to oak woodlands when reviewing projects under CEQA. Within the BSA, the coast live oak woodland is located mostly on the northern banks of Santa Margarita Creek riparian corridor. The coast live oak woodland has areas of open grassland and ruderal habitat understory as well as a thick scrub layer in other areas. Coast live oak woodland provides suitable habitat for a wide range of wildlife species. Coast live oak woodland is utilized by many nesting birds and is breeding habitat for many mammals and herpatofauna. Within the BSA, mule deer (*Odocoileus hemionus*), striped skunk (*Mephitis mephitis*) were observed within the coast live oak woodland. Acorn woodpeckers (*Melanerpes formicivorus*), bushtits (*Psaltriparus minimus*), ash-throated flycatchers (*Myiarchus cinerascens*), orange-crowned warbler (*Oreothlypis celata*), Bewick's wren (*Thryomanes bewickii*), Anna's hummingbird (Calypte anna), oak titmouse (Baeolophus inornatus), and violet-green swallow (*Tachycineta thalassina*) were observed foraging and utilizing the coast live oak woodland. Within the BSA, native shrubs that occur in association with coast live oak woodland include California rose (*Rosa californica*), elderberry (*Sambucus nigra* ssp. *caerulea*), coffee berry (*Frangula californica*), snowberry (*Symphoricarpos mollis*), and poison oak. Grasses and forbs associated with annual brome grassland are common within the understory. Other plant species observed within the understory of this community include geranium (*Geranium dissectum*, *G. molle*, and *G. rotundifolium*), Italian thistle (*Carduus pycnocephalus*), common fiddleneck (*Amsinckia intermedia*), and purple vetch (*Vicia villosa*). Approximately 4,924 ft^2 (0.11 acre) of coast live oak woodland was mapped within the BSA.

2.5.4 Valley Oak Woodland

Valley Oak Woodland (*Quercus lobata* Woodland Alliance; CNDDB: CTT71130CA; CDFW Ca Code: 71.040.00) is described by Sawyer et al. (2009) as being dominated by valley oaks (*Quercus lobata*). Valley oak woodlands are often found in valley bottoms, lower slopes, and summit valleys that may be seasonally flooded. Soils within this community type are alluvial or residual. Trees canopies may reach heights up to 98 feet (30 meters). Shrub layers may be open to intermittent and herbaceous layers often have grassland components. Within the BSA, remnants of valley oak woodland stands are present along the southern banks of Santa Margarita Creek and along the southern portion of the BSA along El Camino Real. Within the BSA, wildlife species observed in the valley oak woodland are similar to those described above in the description of coast live oak woodland and annual brome grassland. Approximately 21,245 ft^2 (0.949 acre) of valley oak woodland was mapped within the BSA.

2.5.5 Summary of Jurisdictional Features

A jurisdictional assessment was conducted for the project and potential federal and state jurisdictional areas were delineated within the BSA. The results of the delineation are preliminary and are subject to review by the resource agencies prior to issuance of any permits. During the permit review process, the resource agencies may conduct a site visit to verify the conditions and extents of the jurisdictional areas identified and will approve or request amendments to the report based on their findings. Based on the conditions observed in the field, Santa Margarita Creek is likely subject to USACE, CDFW, and RWQCB jurisdiction. This is due to the presence of a clearly identifiable OHWM, the evidence of a defined bed and bank, connectivity to relatively permanent waters (Salinas River), presence of riparian vegetation, and evidence of wetland hydrology. The existing riparian corridor of Santa Margarita Creek extends beyond the top-of-bank; therefore, CDFW jurisdiction is mapped to include those areas within the outermost extent of riparian vegetation. The RWQCB also asserts jurisdiction over waters of the State, through the Porter Cologne Act. The definition of this state jurisdiction is very general and no formal delineation process is in place at this

time. Therefore, the RWQCB will also commonly utilize the extent of riparian as the extent of their jurisdiction under Porter Cologne Act.

Within the BSA, potential USACE jurisdiction was mapped to include areas identified as 'other waters'. No USACE-defined 'wetlands' were present within the BSA. 'Other waters' were mapped between the OHWMs observed along the creek banks. In addition, a small ponded area was mapped that is located directly adjacent to the OHWM along the west bank of Santa Margarita Creek. Table 1 quantifies the total area of USACE, CDFW, and RWQCB jurisdictional features mapped within the BSA during the jurisdictional assessment.

Table 1. Jurisdictional Areas Present within the BSA

Jurisdictional Feature	Total Jurisdictional Areas Present
Federal - Clean Water Act (Sections 404/401 applicable)	11,060 ft^2 (0.26 acre)
State - California Fish and Game Code (Sections 1600–1602 applicable), Porter Cologne Act	40,282 ft^2 (0.93 acre)

The proposed bridge construction project will result in permanent and temporary impacts to natural communities of special concern as well as USACE and CDFW jurisdictional areas. Both permanent and temporary impacts to these jurisdictional areas have been quantified for the project (refer to Table 2 and Figure 4). Areas with negative impact values represent areas where existing concrete will be removed from the channel.

Table 2. Estimated Impacts to Habitat and Natural Communities of Special Concern

Community/Habitat	Estimated Impacts	
	Permanent	Temporary
Terrestrial		
Arroyo Willow Thicket	1,306 ft^2 (0.03 acre)	3,250 ft^2 (0.07 acre)
Fremont Cottonwood Forest	237 ft^2 (0.01 acre)	4,500 ft^2 (0.10 acre)
Coast Live Oak Woodland[1,2]	60 ft^2 (0.0001 acre)	4,924 ft^2 (0.11 acre)
Valley Oak Woodland[1]	5,792 ft^2 (0.13 acre)	15,453 ft^2 (0.35 acre)
Aquatic		
Total Clean Water Act Impacts (After Concrete Removal)	-206 ft^2 (-0.005 acre)	6,529 ft^2 (0.15 acre)
Total California Fish and Game Code (Sections 1600–1602)	6,568 ft^2 (0.15 acre)	19,622 ft^2 (0.45 acre)
Steelhead Critical Habitat	-206 ft^2 (-0.005 acre)	7,302 ft^2 (0.17 acre)

[1] Impacts to oak woodland were quantified based on canopy cover.
[2] Two coast live oak trees with larger than six-inch diameter at breast height (DBH) are slated for removal.

2.5.6 Non-Jurisdictional Areas

Areas outside the creek banks consist primarily of annual brome grassland habitat, agricultural areas ornamental plantings, and other ruderal/disturbed habitats. These habitats would be disturbed by the proposed project, but are not addressed in this CHMMP because they do not constitute jurisdictional areas requiring compensatory mitigation. However, ruderal areas temporarily disturbed during construction activities will be hydroseeded with an erosion control seed mix, containing an assemblage of native riparian and grassland species, to increase the function and values of adjacent jurisdictional areas.

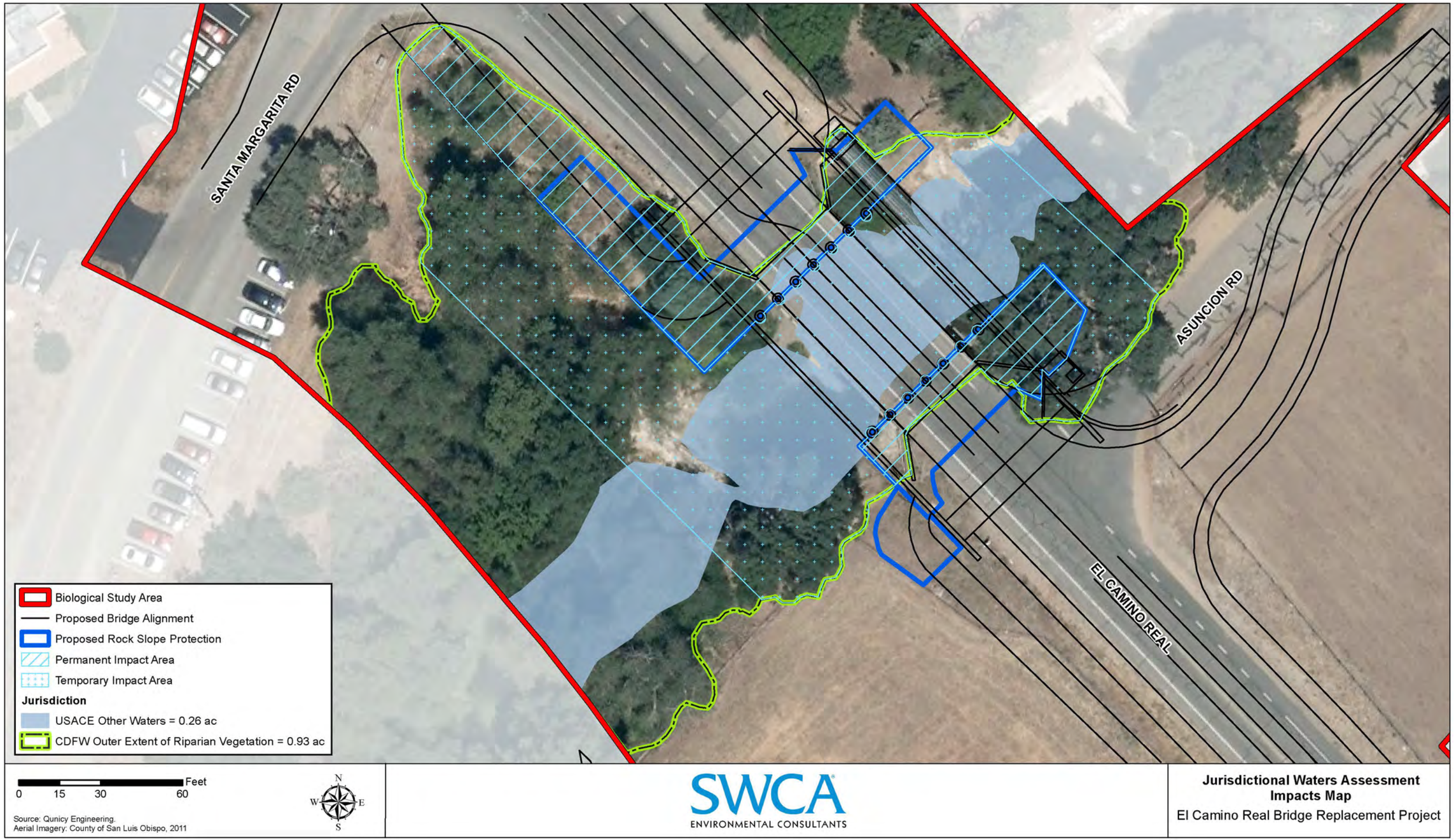
2.6 Function and Value Assessment

Santa Margarita Creek is an intermittent creek that originates in the Santa Lucia range near Cuesta Pass. It follows U.S. Highway 101 (US 101) north, makes a confluence with Tassajara Creek, and then passes under US 101 near the State Route (SR) 58 intersection. The creek enters the wide and flat portion of the Santa Margarita Valley near the town of Santa Margarita, where it joins Yerba Buena Creek and flows north to the BSA. The portion of creek from Cuesta Pass to approximately 0.25 miles before the BSA is typically dry in the summer and fall. Within the BSA, Santa Margarita Creek enters an area of uplifted sandstone bedrock about 300 feet before the bridge. The BSA is within the Salinas River watershed, which drains into the Pacific Ocean approximately 115 miles north, near the town of Castroville. At this location, the creek is perennial and flows year-round because the existing ground water cannot completely penetrate the bedrock and must flow over the underlying rock. The layers of sandstone are angled upward at about 45 degrees and set perpendicular to the bank. Over time, the creek has carved a series of plunge pools between layers of sandstone.

Upstream of the bridge, the riparian corridor is approximately 200 feet wide. The active creek channel is approximately 20 feet wide. Prior to passing under the bridge structure, the creek enters the first plunge pool within the BSA. The first upstream pool is approximately 60 feet in diameter and about 4.8 feet deep. This pool supported dark, stagnant water with minimal vegetative cover along the banks, which is the general condition observed at most of the plunge pools on-site. The pool is lined with exposed sandstone bedrock. It is unknown if woody debris occurs at the bottom of the pool due to lack of suitable water clarity. In general, the area directly beneath the bridge is considered highly disturbed due to recreational impacts. Concrete walls, footings, and scour repairs, including additional concrete and grout, under the bridge have been painted with graffiti. Several rope swings hanging from tree limbs indicate frequent human activities and swimming within the plunge pools during summer months. Foot trails adjacent to the creek shoreline are abundant in the area. A moderate amount of trash was also observed under the bridge. The riparian corridor on the upstream side of the bridge is less confined and has a more developed vegetation community. While the south bank upstream was not much wider than the south bank downstream of the bridge, it supported more trees and a thicker understory. The most expansive portion of riparian vegetation was present along the upstream northern bank.

Downstream of the bridge, the channel continues to flow into several additional plunge pools. The riparian corridor narrows to a width of approximately 100 feet and the channel becomes more incised. The first downstream pool is approximately 100 feet wide and 6.5 feet deep and flanked by steep, narrow banks. Exposed sandstone bedrock is also visible along the pool margins and at the footings of the bridge. Continuing downstream there are two more pools with similar vegetative characteristics and structure, both approximately 70 feet wide and roughly four feet deep. As Santa Margarita Creek continues north, it passes under railroad tracks and makes a confluence with Trout Creek approximately 0.5 mile north of the El Camino Real Bridge. At dry times of the year, the creek becomes intermittent to completely dry at this location and remains dry all the way north to its confluence with the Salinas River.

Figure 5. Jurisdictional Features and Impacts Map



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The portion of Santa Margarita Creek within the BSA is designated as critical habitat for the South-Central California Coast steelhead DPS. Final ruling on critical habitat for the South-Central California Coast steelhead DPS was established by NOAA Fisheries on September 2, 2005 (70 CFR 52488–52627). Potential impacts to steelhead designated critical habitat that may result from project implementation include relatively small amounts of permanent and temporary loss of vegetation and other minor modifications to the stream channel. Santa Margarita Creek functions as steelhead migration habitat and may possibly provide spawning or rearing habitat. Any tree removals required for project implementation may have an indirect effect on water quality and temperatures (depending on the distance from the waterline) because trees and other surrounding vegetation function to shade the stream and filter sediments.

3 GOALS OF THE CONCEPTUAL HABITAT MITIGATION AND MONITORING PLAN

Implementation of this CHMMP will mitigate for permanent and temporary impacts to jurisdictional areas and restore appropriate native vegetation to disturbed portions of the project site. This CHMMP addresses the project-related impacts to USACE, CDFW, and RWQCB jurisdictional areas using on-site and in-kind habitat restoration and enhancement within the stream channel. The following compensatory mitigation ratios are proposed:

- On-site mitigation for permanent impacts to jurisdictional areas would be implemented at a 3:1 ratio.
- On-site mitigation for temporary impacts to jurisdictional areas would be implemented at a 1:1 ratio.

3.1 Mitigation Strategy

Table 3 provides a summary of potential project related impacts that would be subject to environmental permitting by USACE, under Section 404 of the CWA; CDFW, under Sections 1600-1602 of the CFG Code; and RWQCB, under Section 401 of the CWA. Areas with negative impact values represent areas where existing concrete will be removed from the channel.

Table 3. Summary of Impact and Mitigation Acreage Requirements

Jurisdictional Feature	Impact Type	Impact Area (acres)	Mitigation Ratio	Required Mitigation Area (acres)
Federal - Clean Water Act (Sections 404/401)	Permanent	-0.005	3:1	N/A
	Temporary	0.15	1:1	0.15
		Total USACE Mitigation Requirement		**0.15**
CDFW/RWQCB Waters of the State*	Permanent	0.15	3:1	0.45
	Temporary	0.45	1:1	0.45
		Total RWQCB/CDFW Mitigation Requirement		**0.90**
Total Mitigation Acreage Required for USACE/CDFW/RWQCB Combined Permanent and Temporary Impacts				*1.05*
USACE/CDFW/RWQCB Mitigation to be performed on-site in Temporary Impact Areas				*0.60*
Permanent Impact Mitigation Area Required				*0.45*

*Includes all USACE Jurisdictional Areas

Ideally, all compensatory mitigation for the project would be in-kind (i.e., essentially the same species, functions, and values as the habitats to be replaced) and would occur within the BSA; however, the acreage of jurisdictional areas within the BSA is not sufficient to accommodate the required 1.05 acres of mitigation areas. Therefore, the County is coordinating with the City of Atascadero to pay into their established Tree Fund, which acts as a mitigation bank for projects that result in tree removal, to supplement on-site mitigation and meet the compensatory mitigation requirements. The City's mitigation program has been established since the late 1990s and is on-going. Native riparian trees are planted in City-owned designated open space adjacent to the Salinas River. The property is maintained by City staff and staff from Althouse and Meade, Inc. The site has been treated for yellow star thistle and all planted trees are equipped with gopher caging. The site is fed by a gravity drip irrigation system that uses reclaimed water from the adjacent water treatment facility. Tree species that are planted at the site include Valley oak, western sycamore, black walnut, & box elder. Shrubs include coyote brush, buck brush, dogwood, yerba santa, buckwheat, coffeeberry, toyon, holly-leaved redberry, gooseberry, California wild rose, elderberry, snowberry and woolly blue curls. Althouse and Meade generates annual reports regarding the survival success and maintenance and monitoring conducted at the mitigation site each year.

The County proposes to fund this effort according to the City's baseline for tree replacement which is set at $100 per 6" DBH removed. Assuming that the County can replace all of the trees removed during construction on site at a 1:1 ratio, the County would need to offset the loss of 19 additional trees that cannot feasibly fit on site to meet the proposed 2:1 ratio. However, one of the trees removed will be over 24" DBH and meet CDFW's criteria for a 10:1 replacement ratio per their Heritage Tree Program. Thus, the County would add funds to cover the cost of additional trees to meet this requirement.

3.1.1 Permanent Impacts

Permanent impacts will result from installation of the approach abutments, placement of RSP, and construction of the fill slopes. Permanent impacts to jurisdictional areas will be mitigated at a 3:1 ratio. The permanent impact mitigation area will be located within the Santa Margarita Creek corridor immediately downstream and upstream of the project footprint and in areas in and adjacent to the BSA that support exotic species, contain debris, and have erosion. Compensatory mitigation for permanent impacts will focus on enhancing the undisturbed riparian vegetation on the banks of the creek. Habitat enhancement activities will include removing concrete and debris from the channel, removing non-native plant species from the creek banks, and planting riparian scrub species. The locations of proposed mitigation areas are identified on Figure 6.

3.1.2 Temporary Impacts

Temporarily impacted areas are expected to be returned to the pre-construction condition following project completion. Temporary impacts will occur within an estimated 110-foot-wide dewatering and construction corridor that spans approximately 30 feet upstream and downstream of the proposed bridge. The corridor would include the dewatered area, temporary crossing, and associated riparian vegetation removal. Temporary impacts will also occur in the riparian vegetation located within 10 feet of either side of the proposed temporary clear span bridge. Project staging areas have been selected to minimize unnecessary impacts to native riparian vegetation. Temporary impacts to jurisdictional areas on the creek banks will be mitigated at a 1:1 ratio by restoring the topography and vegetation in the temporarily impacted areas. Temporary impact restoration activities will focus on re-contouring the disturbed areas, placing geotextiles or erosion control blankets, applying an appropriate seed mix, and planting willow cuttings and container stock. Temporary impacts within the creek channel will be restored naturally. The removal of the existing concrete from the streambed beneath the bridge will enable habitat conditions to become re-established. The locations of proposed mitigation areas are identified on Figure 6.

Figure 6. Mitigation Area Map

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3.2 Target Functions and Values

The goal of the CHMMP is to restore and enhance the diverse and valuable biological and hydrologic resources within the BSA. The project will remove the existing bridge, concrete, and debris from the streambed, and restore the former footprint and all other disturbed areas to natural conditions. Exotic species will be removed and replaced with native plants. A significant decrease in functions and values is not expected because loss of vegetation will be minimized, significant amounts of debris will be removed, and stream contours will be restored to reduce erosion; the enhanced vegetative structure in restored areas will improve stream functions and values; and greater wildlife cover and forage areas will be provided.

3.3 Time Lapse between Impacts and Expected Compensatory Mitigation Success

Implementation of the final CHMMP would begin upon completion of construction activities within temporary impact areas. Revegetation is anticipated to occur in the fall and early winter, when the plant materials have the greatest chance of becoming established. The standard 5-year monitoring period will be followed for the project, and mitigation success is anticipated to occur within the 5-year timeframe. Table 4 provides a proposed schedule for mitigation and monitoring.

Table 4. Proposed Mitigation and Monitoring Schedule*

YEAR 1	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Implementation Tasks												
Construction Monitoring						X	X	X	X	X		
Prepare Planting Areas										X		
Install and Water Plantings											X	
Site/Revegetation Monitoring										X	X	X
Mitigation Implementation Report												X
YEAR 2	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
First Year Tasks												
Weeding/Maintenance	X		X	X		X		X			X	
General Site Monitoring			X			X				X		X
Biological Data Collection						X						
Annual Report												X
YEAR 3	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
Second Year Tasks												
Weeding/Maintenance		X		X		X		X			X	
General Site Monitoring			X			X				X		X
Biological Data Collection						X						
Annual Report												X

YEAR 4	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Third Year Tasks												
Weeding/Maintenance		X		X		X		X		X		
General Site Monitoring			X					X				X
Biological Data Collection						X						
Annual Report												X
YEAR 5	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
Fourth Year Tasks												
General Site Monitoring				X								X
Biological Data Collection						X						
Annual Report												X
YEAR 6	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
Fifth Year Tasks												
General Site Monitoring						X						X
Biological Data Collection						X						
Completion Report												X

*Schedule subject to change if date of implementation is delayed or permit conditions dictate otherwise.

4 MITIGATION AND RESTORATION IMPLEMENTATION PLAN

Implementation of the restoration and mitigation activities will be conducted or overseen by a County-approved restoration specialist. The restoration specialist will oversee all debris removal, site preparation, invasive weed removal, seeding, and planting installation, and will ensure conformity with this CHMMP. Restoration and enhancement activities will commence upon completion of grading and construction, and prior to the onset of the rainy season.

4.1 Debris Removal

There is substantial concrete and other debris present in and adjacent to the project area. Mitigation will include removal of the existing debris. Debris will be removed with mechanical equipment and primarily from the top of bank to avoid unnecessary disturbance to slopes. Slopes will be re-contoured to match the existing natural grade and/or to be consistent with adjacent undisturbed areas.

4.2 Site Preparation

4.2.1 Temporary Impact Restoration Areas

Site preparation of temporary impact areas will consist of restoring the disturbed areas to original contours where possible. Areas that cannot be returned to original contours will be graded to a hydrologically stable configuration that matches adjacent undisturbed areas. Willow cuttings will be installed in suitable areas, and hydroseed or erosion control blankets will be used to stabilize disturbed upland areas. Applied seed mixes will be composed of native riparian species including purple needlegrass (*Stipa pulchra*), coyote

brush, giant wild rye (*Elymus condensatus*), golden yarrow (*Eriophyllum confertiflorum*), small fescue (*Vulpia microstachys*), and deergrass (*Muhlenbergia rigens*).

4.2.2 Permanent Impact Mitigation Areas

Prior to planting for mitigation of permanent impacts, all invasive weed species will be removed by hand and with an approved herbicide (e.g., glyphosate-based herbicide Aquamaster). No grading or contouring will occur in this area. Planting will occur following approval of invasive species removal efforts conducted by the County-approved restoration specialist.

4.2.3 Invasive Species Removal Methods

At least one grow-and-kill cycle using an approved herbicide shall be implemented to remove invasive weed seed banks prior to planting in mitigation areas. This preparatory action must be completed prior to planting efforts. The County will not use herbicides as the primary method to control invasive weeds; however, if the County determines the use of herbicides is the only feasible method for controlling invasive weeds at the project site, the County will implement additional measures to protect resident aquatic species. Grow-and-kill cycle details are described below.

- Herbicide use shall be restricted to application of the glyphosate-based herbicide Aquamaster above the OHWM (refer to Figure 3). All herbicide applications shall be performed by an individual in possession of a Qualified Applicators License and with experience managing invasive weed species in sensitive habitats.

- Following removal of invasive weed cover, all areas to be planted shall be watered repeatedly to stimulate germination of existing weed seeds. Sprouted weeds should be sprayed with an approved herbicide, covered with black plastic for a period of at least 4 weeks, or removed by hand to conclude at least one grow-and-kill cycle prior to planting on the site.

- Invasive weed cover may also be achieved through mechanical means. Equipment will be staged at the top of bank to avoid further impact to the creek channel.

4.3 Use of Container Stock

Container stock will be used to supplement willow plantings and hydroseeding in the temporary impact area and, if necessary in the permanent impact mitigation area. The project shall utilize native riparian plant species that currently occur in the BSA. Such species include but are not limited to arroyo willow, western sycamore, California coffeeberry (*Frangula californica*), California bay (*Umbellularia californica*), California blackberry, coast live oak (*Quercus agrifolia*), and coyote brush. Planting standards are provided in Section 4.5 below. The County-approved restoration specialist shall oversee the container stock installation.

4.4 Willow Cuttings

Willow cuttings will be installed in areas permanently and/or temporarily impacted and will be collected from the Santa Margarita Creek riparian corridor. If willow cuttings are salvaged from trees trimmed to clear space for the new bridge, they shall be properly treated, stored, and installed in open areas of the temporary disturbance zone as soon as possible—preferably within the same day they are trimmed. Additional cuttings may be obtained from healthy populations of adjacent un-impacted trees in or near the BSA, although no more than 20% of material from individual plants shall be removed as cuttings.

The County-approved restoration specialist shall oversee willow cutting collecting and planting efforts in the field. If it is determined that willows from the riparian corridor will not adequately supply the replanting effort, commercially available container stock may be utilized.

4.5 Planting Methodology

4.5.1 Temporary Impact Mitigation Areas

Temporarily impacted areas will be restored by re-contouring the disturbed slopes and revegetated with purchased container stock and willow cuttings as necessary. Willow cuttings and container stock will be installed above the OHWMs. Upper bank areas will be stabilized with a riparian/grassland hydroseed mix per the project Stormwater Pollution Prevention Plan and planted with riparian shrubs and trees.

4.5.2 Permanent Impact Mitigation Areas

Permanent impacts to jurisdictional areas will be compensated by enhancing riparian vegetation, and by removing debris and invasive weed species from within the permanent impact mitigation area. Plantings will consist of willow cuttings and container stock and will be installed following removal of invasive weed species.

4.5.3 Installation

4.5.3.1 CONTAINER STOCK

Container stock will be installed by hand and subject to the following conditions:

- Container stock will be planted at 5-foot centers in unvegetated areas and in gaps with vegetated areas.
- Prior to planting container stock, an area 2 feet in diameter at each proposed planting location shall be manually cleared of non-native species.
- All planting holes shall be dug to equal the depth and 1.5 times the width of the rootball or rhizome.
- Each planting shall be planted in the center of the pit, and backfilled with native material. Rootballs or rhizomes should not be disturbed when planting.
- After the soil has been well firmed around the rootball and watered, the crown of the rootball shall be at the surrounding finish grade of the slopes.

4.5.3.2 WILLOW CUTTINGS

Willow cuttings will be installed by hand and subject to the following conditions:

- Willow cuttings will be planted at 8-foot centers.
- Prior to planting willow cuttings, an area 2 feet in diameter at each proposed plant site shall be manually cleared of any weed growth.
- Cuttings shall be planted within 24 hours after harvesting, and shall be soaked in water for a minimum of 8 hours before planting.

- Willow cuttings shall be placed in deep narrow holes made with a digging bar. At least 50% of the cutting shall be buried in the ground. Each planting hole shall be filled with water and covered with soil following cutting placement.

4.5.3.3 SOIL STABILIZATION AND SEEDING

All bare soil located above the OHWM will be covered with erosion control blankets or geotextiles and seeded with a native riparian/grassland mix immediately following construction to ensure establishment of native vegetative growth and for soil stabilization purposes. The seed mix shall at minimum consist of the following species: purple needlegrass, coyote brush, creeping wild rye (*Leymus triticoides*), golden yarrow, meadow barley (*Hordeum brachyantherum*), and deergrass.

4.5.3.4 ROCK SLOPE PROTECTION

Soil-filled rock slope protection (RSP) will be installed within the permanent impact area. Willow cuttings (see above) will be installed between the rocks to increase function and values at the bridge site and to provide habitat for wildlife (e.g., nesting birds, steelhead, etc.). The willow cuttings will be installed as discussed in the California Department of Transportation Erosion Control Tool Box.

4.6 As-Built Conditions

An as-built Mitigation Implementation Plan will be prepared and submitted to interested agencies prior to start of the 5-year monitoring period. The plan will illustrate the final construction of the mitigation and restoration areas, show planting locations, and detail any final modifications not included in this CHMMP.

5 MAINTENANCE PLAN

Maintenance during plant establishment is necessary to ensure success of the mitigation effort. The 5-year maintenance period will begin immediately upon completion of the mitigation planting. At the end of the maintenance period, the appropriate regulatory resource agencies will review the monitoring reports, evaluate whether the performance standards have been met, and determine whether the maintenance period will be ended or extended. The maintenance program will ensure that watering of installed plants, weed control, debris removal, vandalism, replanting, plant protection, and site protection are performed adequately.

5.1 Watering

Supplemental water will be applied to the restoration plantings via water truck. The agricultural areas located adjacent to the site provide suitable surfaces for the water truck to access all portions of the restoration and enhancement areas. In addition, the steep banks will allow the water tuck operator to utilize gravity to charge the water hose.

5.2 Weed Control and Herbicide Use

Weed control will be performed by hand methods during regularly scheduled monitoring site visits (refer to Table 4). The County will not rely on herbicides for weed control. However, if the use of herbicides is deemed necessary, the County will utilize herbicides on a limited basis.

5.3 Trash Removal

Any trash will be removed as necessary during the regularly scheduled monitoring visits (refer to Table 4).

5.4 Vandalism

Vandalism of the site is not expected. Any vandalism of restoration plantings that compromise success goals will be rectified with replacement plantings.

5.5 Remedial Planting

Remedial planting will be performed as necessary to remain in compliance with the targeted success goals/criteria. Any such plantings will be performed per the CHMMP planting methods and requirements.

5.6 Fertilizing

The use of fertilizers is not anticipated.

6 MONITORING PLAN

In order to accomplish project goals and objectives, the monitoring program will provide qualitative data to be used to determine the success of the mitigation area and to identify the need for subsequent mitigation.

The project restoration specialist will collect and evaluate data indicating the relationship between actual site conditions and the performance criteria. Field monitoring and sampling will be followed by preparation of brief reports that include photo-documentation and evaluation of the success of the mitigation effort based on whether or not the annual performance goals for that year were met.

6.1 Monitoring Schedule

The monitoring program would consist of general monitoring visits and annual biological data collection visits (refer to Table 4). General monitoring visits can be conducted concurrently with maintenance visits. The focus of general monitoring visits is to assess the plantings need for supplemental water or other maintenance-related issues. The focus of the biological monitoring visits is to collect quantitative data that will provide an assessment of the site's relative vegetative cover of freshwater marsh and willow riparian scrub vegetation.

At a minimum, the restoration specialist will monitor the site quarterly during the first 3 years after planting and semi-annually for the fourth and fifth years of the monitoring program (refer to Table 4). After large storm events that inundate the site, the restoration specialist will inspect the site for damage. The restoration specialist will ensure that the project is maintained as necessary during the monitoring period.

6.2 Performance Goals

Table 5 lists the annual performance standards for the mitigation areas. The mitigation areas will be monitored as necessary until the final success criteria are met. If the program is determined to be unsuccessful, the restoration specialist will recommend appropriate contingency measures. The mitigation sites will not be considered successful until the involved regulatory agencies have provided written verification that the final success criteria have been met. It is anticipated that by the third year, the mitigation sites will be well established and functioning such that it should be self-sustaining for the long term.

Table 5. Performance Standards and Final Success Criteria

Mitigation Area	Mitigation Area Native Vegetative Cover Goal				
	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Temporary Impact Restoration Area	20%	35%	50%	65%	80%
Permanent Impact Mitigation Area	30%	45%	55%	60%	85%

6.3 Other Attributes to be Monitored

The presence of native volunteer species indicates that the site conditions are suitable for development of self-sustaining natural habitat. New non-native species occurrences noted during monitoring must be removed before they produce seed. Monitoring activities will observe and record the presence of such species and determine if action is required.

All wildlife observed in and around the mitigation areas will be documented as to species, number, and functional use of habitat (i.e., feeding, nesting, roosting, etc.). Permanent photo points will be established throughout the mitigation site to assist in tracking the success of the mitigation program. Permanent photo points will also be established during the preparation of the as-built planting plan, and ground view photos will be taken during each monitoring year from the same vantage point.

6.4 Reporting Requirements

The different regulatory agencies that have discretionary approval over the bridge replacement project have varying reporting requirements associated with the mitigation effort. The reporting requirements for each agency are discussed below.

6.4.1 United States Army Corps of Engineers

Annual reports shall be written pursuant to the USACE Mitigation Monitoring Guidelines requirements (refer to Appendix A) during the 5-year monitoring period.

6.4.2 Regional Water Quality Control Board

A RWQCB water quality certification typically requires submittal of a project completion report and two annual monitoring reports pertaining to the project.

6.4.3 California Department of Fish and Wildlife

CDFW typically requires submittal of annual monitoring reports that must include photo documentation to detail the progression of the revegetation efforts.

7 COMPLETION OF COMPENSATORY MITIGATION

7.1 Notification of Completion

The applicant will notify the USACE, RWQCB, and CDFW in writing upon completion of the monitoring period and attainment of the success criteria. At the end of the monitoring period the restoration specialist will request agency verification that the final success criteria have been met. The restoration specialist may

request the agency verification of compliance prior to the end of the monitoring period if the final success criteria have been met at an earlier date.

Following receipt of the final monitoring report, the applicant understands that the agencies may request a site visit to confirm the completion of the compensatory mitigation effort and any jurisdictional delineation. The compensatory mitigation effort will not be considered complete without an on-site inspection by an agency representative or written confirmation that approved success criteria have been achieved.

8 CONTINGENCY MEASURES

8.1 Adaptive Management

The mitigation sites should be self-sustaining (i.e., no maintenance or artificial irrigation) for a period of 2 years to be considered successful. If replanting is determined to be necessary, replanted areas will be monitored and maintained for a period agreeable to the relevant regulatory agencies. If a total site failure is evident, the applicant shall coordinate with the involved regulatory agencies to determine what alternative compensatory mitigation will be required. Identification of alternative mitigation sites may be necessary.

8.2 Long-Term Management

If it becomes apparent that the mitigation effort will not attain the final success criteria within the expected time frame, the applicant will begin an assessment of reasons for failure and will work with the involved regulatory agencies to determine an acceptable solution. If the site trends indicate that the success criteria will eventually be met but in a longer timeframe than anticipated, maintenance and monitoring will continue until the criteria have been satisfied.

9 REFERENCES

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National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries). 2005. Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California; Final Rule. *Federal Register* Vol. 70, No. 170:52488-52537. September 2, 2005.

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SWCA Environmental Consultants. 2016. *Natural Environment Study Report for the El Camino Real at Santa Margarita Creek Bridge Replacement Project*. Prepared for the County of San Luis Obispo, California. February 2016.

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Appendix A.
Monitoring Report Guidelines

U.S. Army Corps of Engineers
Mitigation and Monitoring Report Requirements

The required compensatory mitigation monitoring reports shall be a minimum of six pages and a maximum of eight pages. The following information shall be included within the report of the specific pages described below:

Pages 1-2:

1. Project Information

    1. Project Name.
    2. Applicant name, address, and phone number.
    3. Consultant name, address, and phone number (for permit application, if necessary).
    4. Corps permit file number.
    5. Acres of impact and type(s) of habitat impacted (or proposed for impact)
    6. Date project construction commenced (or proposed to begin).
    7. Location of the project and directions to site (including latitude/longitude or UTM coordinates).
    8. Date of the report and the corresponding permit conditions pertaining to the compensatory mitigation.
    9. Amount and information on any required performance bond or surety.

2. Compensatory Mitigation Site Information

    1. Location and directions to the site (including latitude/longitude or UTM coordinates).
    2. Size and type(s) of habitat existing at the site and proposed for restoration, enhancement, and/or creation.
    3. Stated purpose/goals for the compensatory mitigation site.
    4. Date site construction and planting completed.
    5. dates of previous maintenance and monitoring visits.
    6. Name, address, and contact number of responsible agent for the site.
    7. Name, address, and contact number for designer.

3. Brief Summary of Remedial Actions(s) and Maintenance of the Compensatory Mitigation Site

Page 2 or 3:

1. Map of the compensatory mitigation site

    1. 8 ½ Diagram of the site including:

        1. Habitat types (as constructed).
        2. Locations of photographic record stations.
        3. Landmarks
        4. Inset defining location of the site.

Page 3 or 4:

1. List of Corps-approved success criteria.

2. Table of results from the monitoring visits versus performance standards for specified target dates.

Page 4, 5, and/or 6:

1. Photographic record of the site during most recent monitoring visit at record stations (at least four photos on at least one page, no more than two pages).

Page 5, 6, or 7:

1. Summary of field data taken to determine compliance with performance criteria. At least one page, no more than two pages.

Page 6, 7, 8 (if needed):

1. Summary of any significant events that occurred on the site that may affect ultimate compensatory mitigation success.

The completed monitoring reports shall be submitted unbound to the Corps for inclusion into the official case file. Electronic copies of these reports can be submitted in lieu of written reports and may be required in the future.