

BIOLOGICAL ENVIRONMENT

2.13 Natural Communities

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed below in Section 2.17, Threatened and Endangered Species. In addition, wetlands are discussed in Section 2.14, Wetlands and Other Waters.

2.13.1 Affected Environment

The information presented in this section was compiled from two technical reports prepared in 2017 and 2018, including the Amended Natural Environment Study prepared for the *SR-133 Safety Improvement Project at El Toro Road* (EA 0N0600) and the Natural Environment Study prepared for the *SR-133 Widening and Drainage Improvement Project* (EA 0Q3600).

2.13.1.1 Biological Study Area

The study area assessed for biological resources is referred to as the Biological Study Area (BSA). The BSA is approximately 161 acres and is shown in Figure 2.13-1, Biological Study Area. The BSA represents the area of potential direct and indirect project impacts to biological resources and includes the direct project disturbance limits from approximately 0.3 mile south of State Route 133 (SR-133, or Laguna Canyon Road)/El Toro Road intersection (Post Mile [PM] 3.1) to the State Route 73 (SR-73)/SR-133 interchange (PM R4.1) plus a 500-foot (ft) buffer to account for indirect effects.

The BSA is located on Section 7 of Township 7 South, Range 8 West of the United States Geological Survey (USGS) *Laguna Beach, California* 7.5-minute series topographic quadrangle. The BSA is also within the San Joaquin and Niguel Land Grants. Much of the landscape surrounding the BSA is undeveloped, with adjacent land uses including the SR-73 to the north, and Laguna Coast Wilderness Park to the

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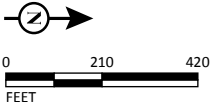


FIGURE 2.13-1

LEGEND

- Project Location
- BSA Mapped by ICF for the SR-133 Safety Improvement Project (EA 0N0600)
- BSA Mapped by LSA for the SR-133 Widening and Drainage Improvement Project (EA 0Q3600)

- NCCP Reserve
- Coastal Zone Boundary



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west and east, the Aliso and Wood Canyons Wilderness Park to the east, a private development to the east, and residential developments to the southeast. An unnamed natural drainage feature (commonly referred to as Laguna Canyon Creek) runs along both sides of SR-133. The BSA is located within the planning area of the Orange County Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP) for the Central-Coastal Subregion. The County of Orange, in conjunction with State and federal resource agencies, local jurisdictions, utility companies, the Transportation Corridor Agencies (TCA), and major private landowners, prepared the NCCP/HCP which is intended to ensure the long-term survival of special-status coastal sage scrub-dependent plant and wildlife species, and certain other identified species and habitats while allowing for reasonable economic growth in accordance with state-sanctioned NCCP/HCP program guidelines. A majority of the BSA is located within the Central-Coastal NCCP/HCP Reserve (refer to Figure 2.13-1). Planned impacts to the Reserve System by certain infrastructure projects, including the proposed project, were acknowledged in the NCCP/HCP documents. Authorization for impacts of these infrastructure projects, within specified limits, was granted to participating landowners, including the County. Any impacts to the Reserve will be mitigated through a minor amendment to the NCCP/HCP, if required. The amendment, if required, will be made between the County and the resource agencies (the California Department of Fish and Wildlife [CDFW] and the United States Fish and Wildlife Service [USFWS]).

Elevations in the BSA range from approximately 215 to 400 ft above mean sea level. The topography surrounding the BSA consists of rock outcrops and steep canyon hillsides that define Laguna Canyon. The proposed project is located within the Laguna Coastal Streams Watershed, which is bound on the west by Emerald Canyon and on the east by the Aliso Creek Watershed. The total area of the watershed is approximately 19.35 square miles. This watershed originates at the northernmost section of the Laguna Coast Wilderness Park and ultimately flows into the Pacific Ocean.

2.13.1.2 Vegetation Communities

Natural communities and land cover types existing within the BSA were mapped and classified based on existing conditions at the time of the surveys using the habitat classes described in the Orange County Habitat Classification System developed for the Natural Resources Geographic Information Systems Project (Gray and Bramlet 1992). The following 18 natural communities and other land cover types were identified within the BSA:

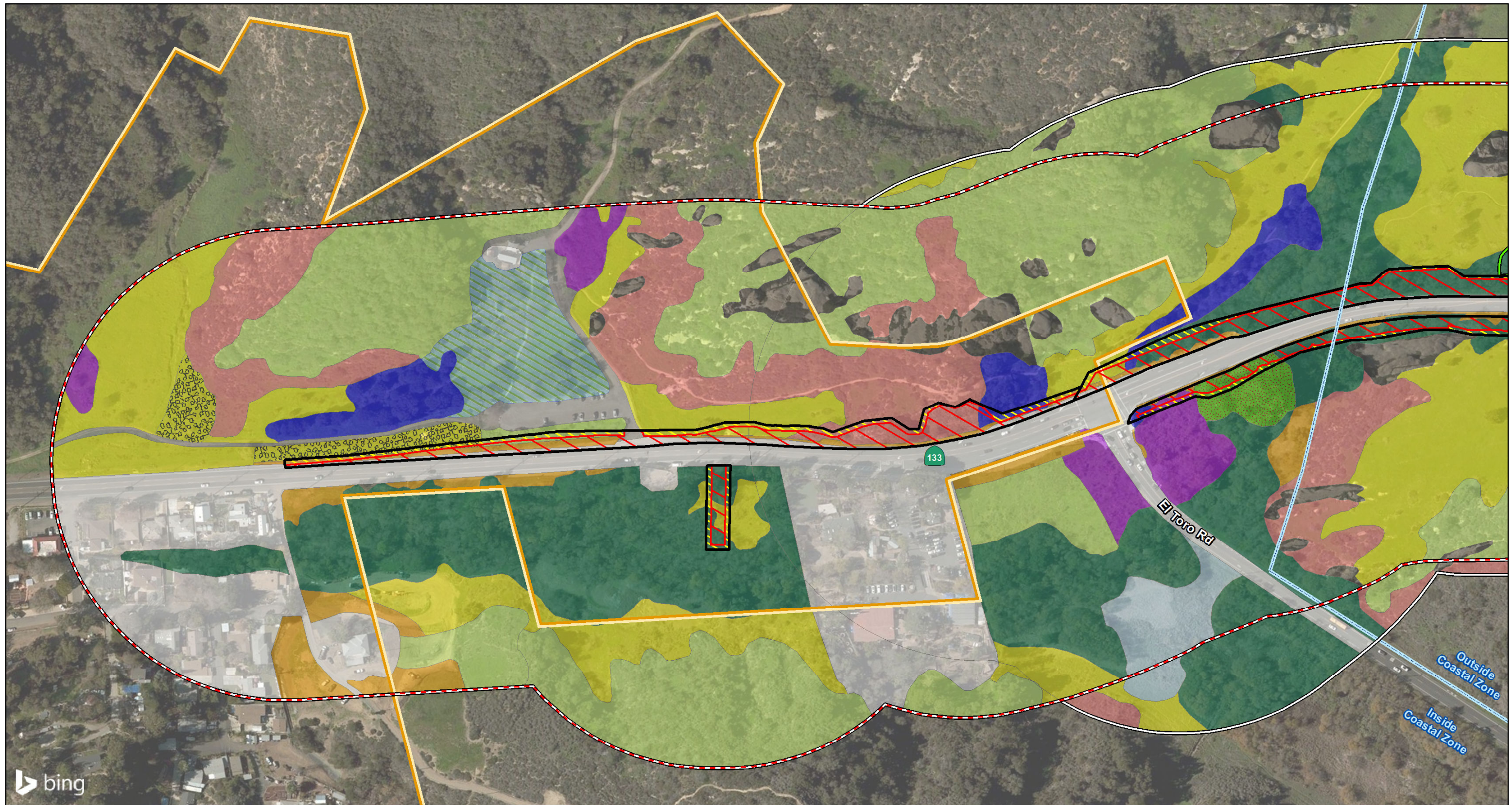
- California sagebrush-California buckwheat scrub
- Mixed sage scrub-grassland ecotone
- Coastal goldenbush-grassland ecotone
- Coyote brush scrub
- Annual grassland
- Maritime chaparral-sagebrush ecotone
- Coast live oak woodland
- Oak plantings
- Southern sycamore riparian woodland
- Eucalyptus woodland
- Southern black willow forest
- Elderberry woodland
- Mulefat scrub
- Rock outcrop
- Freshwater seep
- Cleared or graded
- Urban
- Ruderal

Habitats are considered to be of special concern based on (1) federal, State, or local laws regulating their development; (2) limited distributions; and/or (3) the habitat requirements of sensitive plants or animals occurring on site. Natural communities of special concern within the BSA include: California sagebrush-California buckwheat scrub, coyote brush scrub, maritime chaparral-sagebrush ecotone, coast live oak woodland, southern sycamore riparian woodland, southern black willow forest, mulefat scrub, freshwater seep, and rock outcrops (refer to Figure 2.13-2, Vegetation).

Detailed descriptions of each natural community of special concern within the BSA are provided below.

California Sagebrush-California Buckwheat Scrub

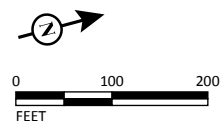
Areas classified as California sagebrush-California buckwheat scrub within the BSA comprise a diverse mosaic of annual and perennial herbs, forbs, and wildflowers, with at least 20 percent cover by native perennial shrubs. Dominant plant species in this mixed scrub community include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), black sage (*Salvia mellifera*),



- Project Location
- Permanent Impact Area
- Temporary Impact Area
- BSA Mapped by LSA for the SR-133 Widening and Drainage Improvement Project (EA 0Q3600)
- BSA Mapped by ICF for the SR-133 Safety Improvement Project (EA 0N0600)
- Coastal Zone Boundary
- Existing Mitigation Site

- County of Orange Central-Coastal Subregion NCCP/HCP Reserve
- Vegetation/Land Cover Types**
- Annual Grassland
- California Sagebrush-California Buckwheat Scrub
- Cleared or Graded
- Coast Live Oak Woodland

- Coastal Goldenbush Grassland
- Coyote Brush Scrub
- Elderberry Woodland
- Eucalyptus Woodland
- Freshwater Seep
- Maritime Chaparral Sagebrush
- Mixed Coastal Sage Scrub Grassland
- Mulefat Scrub
- Rock Outcrops
- Ruderal
- Oak Plantings
- Southern Black Willow Forest
- Sycamore Riparian Woodland
- Urban

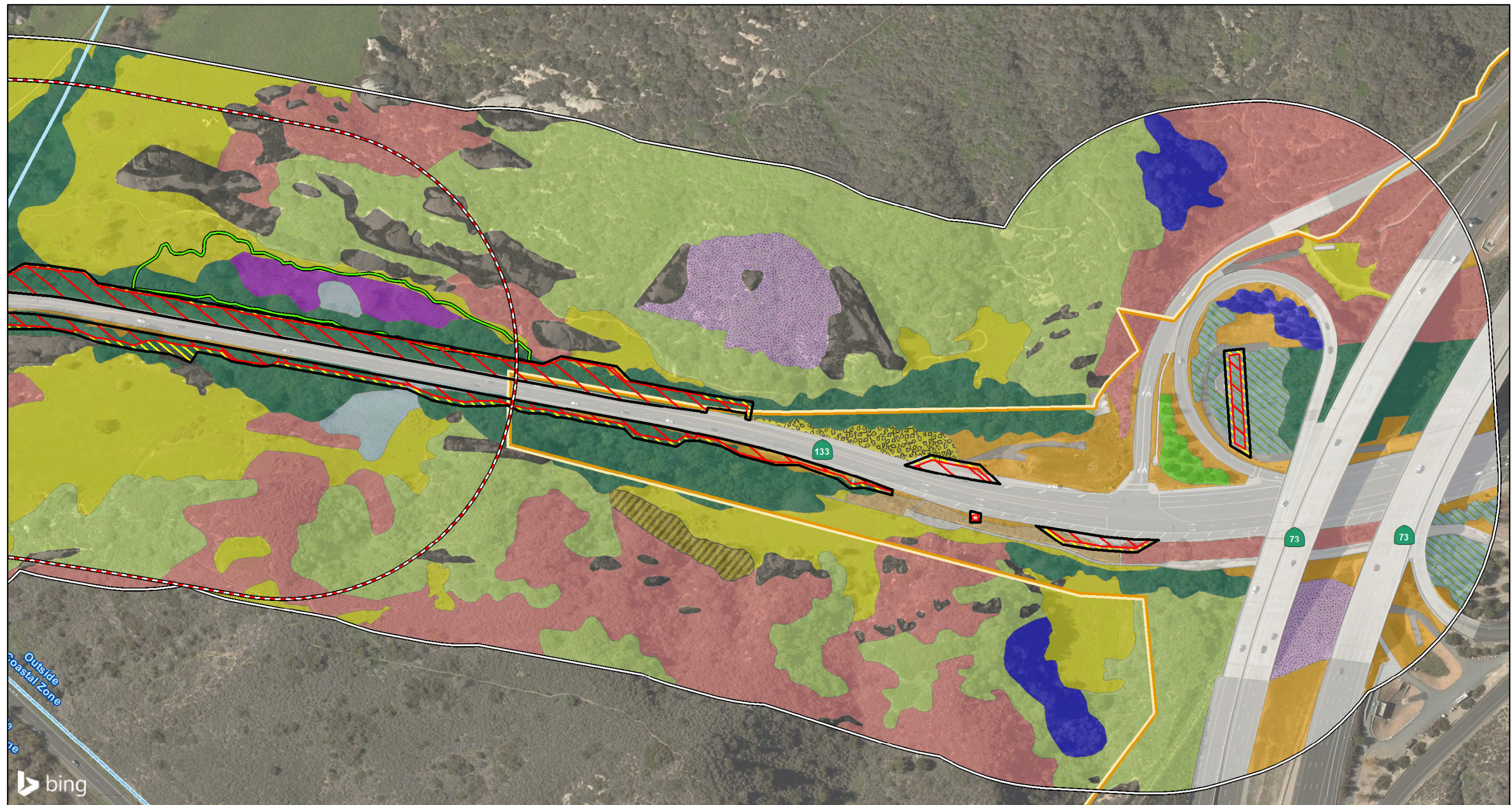


SOURCE: Bing Maps (1/2015); Caltrans (10/2017, 3/2018, 9/2018); NROC (8/2010); CCC (2015)
 I:\CDT1609\GIS\MXD\Task28_SR133_Segment4_Env\Bio_VegetationMapbook.mxd (9/24/2018)

FIGURE 2.13-2
 Sheet 1 of 2

SR-133 Improvement Project
 Vegetation within the BSA
 12-ORA-133 PM 3.1/R4.1
 EA 0P94U

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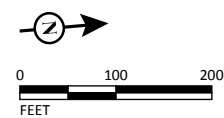
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- Freshwater Seep
- Maritime Chaparral Sagebrush
- Mixed Coastal Sage Scrub Grassland
- Mulefat Scrub
- Rock Outcrops
- Ruderal
- Oak Plantings
- Southern Black Willow Forest
- Sycamore Riparian Woodland
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FIGURE 2.13-2
Sheet 2 of 2

SR-133 Improvement Project
Vegetation within the BSA
12-ORA-133 PM 3.1/R4.1
EA 0P94U



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white sage (*Salvia apiana*), coastal prickly pear (*Opuntia littoralis*), and laurel sumac (*Malosma laurina*), among others, with native and non-native grasses, forbs, and wildflowers commonly occurring in openings and disturbed areas.

Coyote Brush Scrub

One area within the BSA classified as coyote brush scrub consists of a dense stand of coyote brush (*Baccharis pilularis*) with subdominant species, including mulefat (*Baccharis salicifolia*) and California sagebrush. Additional species in this area include Canadian horseweed (*Erigeron canadensis*), non-native brome grasses, and wild oats.

Maritime Chaparral-Sagebrush Ecotone

Areas classified as maritime chaparral sagebrush within the BSA are dominated by large shrubs, including laurel sumac, toyon (*Heteromeles arbutifolia*), and lemonade berry (*Rhus integrifolia*), with scrub oak (*Quercus berberidifolia*), coast live oak (*Quercus agrifolia*), monkey flower (*Mimulus aurantiacus*), pine goldenbush (*Ericameria pinifolia*), California sagebrush, coastal prickly pear, and California buckwheat, along with other coastal scrub species as subdominants.

Coast Live Oak Woodland

Areas classified as coast live oak woodland within the BSA are dominated by an open cover of mature coast live oak trees with both native and non-native shrubs and grasses comprising the understory. Subdominant species include laurel sumac, scrub oak, poison oak (*Toxicodendron diversilobum*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), and phacelia (*Phacelia* spp.), among other coastal scrub species and annual grassland species. It should be noted that coast live oak woodland mapped within the BSA is not considered a riparian vegetation community (although there is one transitional overlap area associated with Drainage 4; refer to Section 2.14, Wetlands) and that individual coast live oak trees are found within other habitat types within the BSA.

Southern Sycamore Riparian Woodland

Areas classified as southern sycamore riparian woodland within the BSA are dominated by western sycamore trees (*Platanus racemosa*) with native shrubs and non-native grasses comprising the understory. Some of these areas, particularly near the SR-73 on- and off-ramps, may have been installed as native ornamental landscaping.

Southern Black Willow Forest

Areas classified as southern black willow forest within the BSA consist of dense riparian forest along ephemeral stream beds. Dominant tree species include black willow (*Salix gooddingii*) and arroyo willow (*Salix lasiolepis*), with southern California black walnut (*Juglans californica*), coast live oak, and blue elderberry as subdominant tree species occurring in some localized areas. Understory species include mulefat, mugwort (*Artemisia douglasiana*), ragweed (*Ambrosia psilostachya*), poison oak, seep monkeyflower (*Mimulus guttatus*), and non-native grass species, among others.

Mulefat Scrub

Areas within the BSA classified as mulefat scrub consist of dense to sparse stands of mulefat with subdominant species including coyote brush, blue elderberry, and non-native annual grasses.

Freshwater Seep

Areas classified as freshwater seep within the BSA occur adjacent to southern black willow forest and annual grassland, and are dominated by common rush (*Juncus patens*), salt grass (*Distichlis spicata*), alkali mallow (*Malvella leprosa*), alkali heath (*Frankenia salina*), and ragweed as well as non-native sweet fennel (*Foeniculum vulgare*) and brome grasses.

Rock Outcrops

Areas classified as rock outcrop within the BSA consist of small to large outcroppings with sparse vegetative cover influenced by the bordering vegetation communities. Plant species present on portions of the outcroppings include those described under maritime chaparral-sagebrush ecotone, California sagebrush-California buckwheat scrub, coast live oak woodland, southern black willow forest, as well as annual grassland vegetation dominated by non-native annual grasses and forbs.

2.13.1.3 Wildlife Corridors and Movement

The BSA is characterized by natural areas adjacent to the existing SR-133 roadway. Much of the landscape surrounding the BSA is undeveloped, with adjacent land uses including the SR-73 to the north, Laguna Coast Wilderness Park to the west and east, Aliso and Wood Canyons Wilderness Park to the east, and developments to the southeast. An unnamed drainage feature (commonly referred to as Laguna Canyon Creek) runs along both sides of SR-133. Wildlife movement of species such as

bobcats (*Lynx rufus*) and coyotes (*Canis latrans*) is expected within the BSA, particularly in the riparian habitats. The Laguna Coast Wilderness Park and the Aliso and Wood Canyons Wilderness Park provide habitat and cover for movement of animals within the NCCP/HCP Reserve, although the proposed Build Alternative direct impact areas are not located within a designated wildlife movement corridor.

2.13.2 Environmental Consequences

Direct impacts to all mapped land cover types in the BSA associated with the Build Alternative are presented in Table 2.13.1, below. Impacted land cover types within the NCCP/HCP Reserve are presented in Table 2.13.2. Note that these tables include mapped land cover types that are not considered sensitive natural communities; these classifications are included to provide an inventory of all impacts associated with the Build Alternative. Descriptions of all land cover types are provided in the Natural Environment Study prepared for the *SR-133 Safety Improvement Project at El Toro Road* (EA 0N0600) and the Natural Environment Study prepared for the *SR-133 Widening and Drainage Improvement Project* (EA 0Q3600).

Table 2.13.1 Direct Impacts to All Land Cover Types within the BSA

Land Cover Type	Permanent Impact (ac)	Temporary Impact (ac)	Total Impact (ac)
Natural Communities of Special Concern			
California Sagebrush-California Buckwheat Scrub	0.33	0.11	0.44
Coast Live Oak Woodland	0.06	0.06	0.12
Coyote Brush Scrub	0.02	0.04	0.06
Freshwater Seep	0.04	0.01	0.05
Maritime Chaparral-Sagebrush Ecotone	0.03	0.07	0.10
Mulefat Scrub	0.02	0.02	0.04
Rock Outcrops	-	0.02	0.02
Southern Black Willow Forest	2.43	0.76	3.19
Sycamore Riparian Woodland	0.10	0.08	0.18
<i>Total</i>	3.03	1.17	4.20
Other Vegetation Types			
Annual Grassland	0.15	0.16	0.31
Coastal Goldenbush-Grassland Ecotone	0.01	0.07	0.08
Eucalyptus Woodland	0.10	0.04	0.14
Ruderal	0.56	0.10	0.66
<i>Total</i>	0.82	0.37	1.19
Other Land Cover Types			
Cleared or Graded	0.02	0.02	0.04
Urban	0.64	0.04	0.68
<i>Total</i>	0.66	0.06	0.72
Grand Total	4.51	1.60	6.11

Note: Acreages are rounded to two decimal places.
ac = acre(s)
BSA = Biological Study Area

**Table 2.13.2 Direct Impacts to All Land Cover Types within the
NCCP/HCP Reserve**

Land Cover Type	Permanent Impact (ac)	Temporary Impact (ac)	Total Impact (ac)
Natural Communities of Special Concern			
California Sagebrush-California Buckwheat Scrub	-	0.004	0.004
Coast Live Oak Woodland	0.03	0.01	0.04
Freshwater Seep	0.04	0.01	0.05
Mulefat Scrub	0.02	0.02	0.04
Rock Outcrops	-	0.02	0.02
Southern Black Willow Forest	2.17	0.57	2.74
<i>Total</i>	<i>2.26</i>	<i>0.63</i>	<i>2.89</i>
Other Vegetation Types			
Annual Grassland	0.05	0.03	0.08
Eucalyptus Woodland	0.10	0.04	0.14
Ruderal	0.13	-	0.13
<i>Total</i>	<i>0.28</i>	<i>0.07</i>	<i>0.35</i>
Other Land Cover Types			
Urban	0.13	-	0.13
<i>Total</i>	<i>0.13</i>	<i>-</i>	<i>0.13</i>
Grand Total	2.67	0.70	3.37

Note: The acreages presented in this table are included in the acreages presented in Table 2.13.1. This table only shows impacted land cover types that fall within the HCCP/NCP Reserve. Grand totals are rounded to two decimal places.

ac = acre(s)

NCCP/HCP = Orange County Natural Communities Conservation Plan/Habitat Conservation Plan for the Central-Coastal Subregion

Temporary and permanent impacts to sensitive vegetation communities are discussed in the following subsections. None of the areas to be directly impacted by the Build Alternative is within designated critical habitat and none are known to be occupied by any listed special-status species.

2.13.2.1 Temporary Impacts

Alternative 1 (Build Alternative)

Coastal Sage Scrub Habitats (California Sagebrush-California Buckwheat Scrub, Coyote Brush Scrub, and Maritime Chaparral-Sagebrush Ecotone)

Coastal sage scrub (CSS) is generally a vegetation community found in diverse mosaics of many species and is dominated by a suite of shrub species found in southern California. Several distinct variants of CSS vegetation have been mapped in the direct impact area, including California sagebrush-California buckwheat scrub, coyote brush scrub, and maritime chaparral-sagebrush ecotone. Each of these communities is included under “CSS” in the impact discussion below.

The Build Alternative would result in direct temporary impacts to CSS associated with construction staging and access areas and/or areas of temporary ground disturbance required for undergrounding overhead utilities, slope contouring, and

roadway widening. The Build Alternative would temporarily impact approximately 0.22 acre of CSS vegetation communities, of which 0.004 acre is within the NCCP/HCP Reserve.

Indirect temporary impacts may include those generated from construction-related activities (e.g., dust, potential fuel spills from construction equipment, and temporary changes in hydrology from water diversion, construction-related runoff, or erosion).

Implementation of Measures BIO-1 through BIO-6 would avoid and/or minimize temporary indirect impacts to CSS by (1) designating Environmentally Sensitive Areas (ESAs) that are to be preserved during construction, (2) restoring areas temporarily affected by construction activities, (3) utilizing best management practices (BMPs) to prevent construction runoff and dust from entering adjacent habitat areas and minimizing fire risks, (4) preventing the spread of invasive species, (5) monitoring construction activities to ensure that practicable measures are being employed to avoid and minimize incidental disturbance to sensitive resources, and (6) training all construction personnel regarding the applicable avoidance and minimization measures. With the implementation of Measures BIO-1 through BIO-6, construction of the Build Alternative would not result in temporary adverse impacts to CSS vegetation communities within the BSA.

Rock Outcrops

The Build Alternative would result in direct temporary impacts to approximately 0.03 acre of rock outcrops associated with construction staging and access areas and/or areas of temporary ground disturbance required for undergrounding overhead utilities and roadway/shoulder widening. With implementation of Measures BIO-1 through BIO-6 (defined in Section 2.13.3), construction of the Build Alternative would not result in temporary adverse impacts to rock outcrops within the BSA.

Coast Live Oak Woodland and Oak Trees

Construction of the Build Alternative would result in direct temporary impacts to approximately 0.06 acre of coast live oak woodland associated with construction staging and access areas and/or areas of temporary ground disturbance required for undergrounding overhead utilities, slope contouring, and roadway widening. Several individual coast live oak trees are also present within other mapped vegetation communities, including southern black willow forest. Indirect temporary impacts may include those generated from construction-related activities (e.g., dust, potential fuel spills from construction equipment, and temporary changes in hydrology from water

diversion, construction-related runoff, or erosion). With implementation of Measures BIO-1 through BIO-6 (defined in Section 2.13.3), along with BIO-7 through BIO-9, which provide for the avoidance of retained oak tree root zones, monitoring of retained oak trees, and all pruning to be conducted in accordance with International Society of Arboriculture (ISA) standards, construction of the Build Alternative would not result in temporary adverse impacts to coast live oak woodland and oak trees.

Riparian Habitats (Freshwater Seep, Mulefat Scrub, Southern Black Willow Forest, and Southern Sycamore Riparian Woodland)

The Build Alternative would result in direct temporary impacts to riparian habitats associated with construction staging and access areas and/or temporary ground disturbance required for undergrounding overhead utilities, slope contouring, roadway/shoulder widening, and constructing the proposed drainage improvement features (e.g., culvert modifications, concrete check dam, and articulated block channel). Several riparian vegetation communities are present within the direct temporary impact limits, including freshwater seep, mulefat scrub, southern black willow forest, and southern sycamore riparian woodland. Each of these communities is included under “riparian habitats” in the impact discussion below.

The Build Alternative would temporarily impact approximately 0.87 acre of riparian habitats. The Build Alternative could also result in indirect temporary construction-related impacts (e.g., dust, potential fuel spills from construction equipment, and temporary changes in hydrology from water diversions, construction-related runoff, or erosion). With implementation of Measures BIO-1 through BIO-6 (defined in Section 2.13.3), construction of the Build Alternative would not result in temporary adverse impacts to riparian habitats within the BSA.

A small amount (approximately 0.03 acre) of mapped southern black willow forest habitat within an existing mitigation site (Streambed Alteration Agreement No. 1600-2002-0150-R5) may be temporarily impacted under the Build Alternative. The mitigation site, located on the west side of SR-133 (shown on Figure 2.13-2), was originally installed within alkali meadow vegetation. While small temporary impacts to the mitigation site are identified under current plans (associated with construction access for the proposed articulated block channel), no loss in functions or values of the mitigation site is anticipated. Temporary impacts to this area will be avoided during construction, if feasible, and all temporary impacts areas will be re-vegetated after construction. In-perpetuity conservation of the mitigation site will be maintained.

Wildlife Corridors and Movement

Construction of the Build Alternative would not result in direct barriers to wildlife movement within any known wildlife corridors within the BSA. Should species such as mountain lion, bobcat, mule deer, or coyote be present within the BSA, they are expected to move out of or avoid the work area during construction.

Active construction activities could temporarily deter wildlife movement near the roadway and drainages due to increased noise and human activity; however, wildlife is expected to continue to use corridors when construction work is not occurring, particularly at dawn and dusk, or avoid the work areas during construction. Therefore, construction of the Build Alternative would not result in any substantial adverse temporary direct or indirect impacts to wildlife corridors or movement.

Alternative 2 (No Build Alternative)

The No Build Alternative would not include construction of any of the proposed project improvements. Therefore, the No Build Alternative would not result in temporary impacts to CSS, rock outcrops, riparian habitat, or wildlife movement. Existing operations of SR-133 would continue under the No Build Alternative.

2.13.2.2 Permanent Impacts

Alternative 1 (Build Alternative)

Coastal Sage Scrub Habitats (California Sagebrush-California Buckwheat Scrub, Coyote Brush Scrub, and Maritime Chaparral-Sagebrush Ecotone)

Implementation of the Build Alternative would result in direct permanent impacts to CSS communities due to undergrounding of the overhead utilities and the roadway/shoulder widening. CSS vegetation communities in newly paved areas and areas with new and relocated roadway, utility, and drainage infrastructure will be permanently impacted. The Build Alternative would permanently impact approximately 0.38 acre of CSS vegetation communities, none of which occurs within the NCCP/HCP Reserve. A large portion of the CSS permanent impact area is vegetated with disturbed CSS containing a relatively higher percentage of non-native species and is located adjacent to the roadway.

Indirect permanent impacts may occur in limited areas outside the direct disturbance limits where construction activities would result in lasting effects on the physical environment (changes in hydrology where existing drainages are relocated or where existing drainage infrastructure is modified, or through enhancing the germination and proliferation of non-native invasive plant species). With implementation of

Measures BIO-1 through BIO-6 (defined in Section 2.13.3), construction of the Build Alternative is not expected to result in adverse indirect permanent impacts to CSS within the BSA.

The CSS habitats in the direct disturbance limits are not known to be occupied by any federally or State-listed endangered or threatened upland animal species and are not protected by any federal, State or local regulations. Based on the County's role as a Participating Landowner and a signatory to the NCCP/HCP Implementation Agreement, and its fulfillment of its NCCP/HCP responsibilities, no mitigation for CSS is required at this time.

Rock Outcrops

The Build Alternative would not result in direct permanent impacts to rock outcrops due to refinements of the design and proposed project foot print. The rock outcrops in the direct disturbance limits are not known to be occupied by any federally or State-listed endangered or threatened upland animal species and are not protected by any federal, State or local regulations. No additional mitigation for rock outcrops is required.

Coast Live Oak Woodland

The Build Alternative would result in direct permanent impacts to approximately 0.06 acre of coast live oak woodland. Direct impacts to oak trees may include pruning of large limbs greater than three inches in diameter, removal, or activities occurring within the root zone. Although the oak tree roots may extend up to three times the extent of the dripline, the most important roots are located within the dripline of the oaks. For the purpose of balancing project constructability and tree protection, the protected root zone is considered coincident with the dripline. Potential direct impacts include adding or removing soil within the dripline, which would occur during utility undergrounding, slope contouring, and roadway widening, and could potentially damage oak trees. With implementation of Measures BIO-7 through BIO-9 (defined in Section 2.13.3), along with compensatory mitigation for permanently impacted oak trees in accordance with State Senate Concurrent Resolution No. 17 (Measure BIO-10), construction of the Build Alternative would not result in adverse permanent impacts to coast live oak woodland within the BSA. In July 2018, Caltrans conducted an assessment of potential oak tree planting areas within the project watershed (e.g., within Laguna Canyon and within adjacent OC Parks-managed lands). Several oak planting areas have been preliminarily identified and are shown on Figure 2.13-3, below.

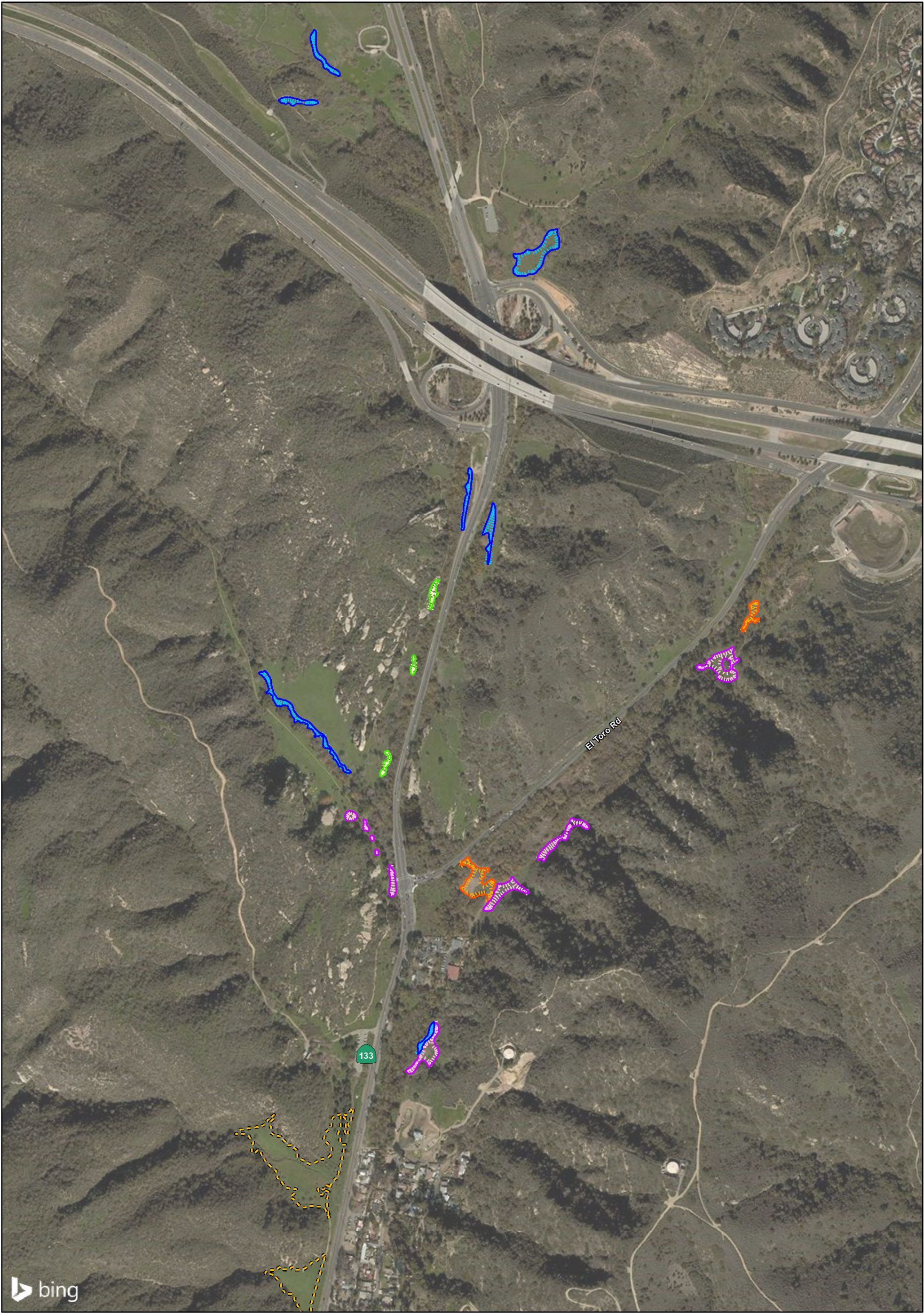


FIGURE 2.13-3

LEGEND

Potential Mitigation/Planting Areas*

- Oak Planting Area
- Oak/Riparian Trail Buffer
- Riparian/Wetland Creation
- Riparian/Wetland Enhancement
- Laguna Beach Foundation Restoration Site

* Based on preliminary field assessments.
Areas shown are subject to revisions based
on further technical analyses and stakeholder input.

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SOURCE: Bing Maps (2016)

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Riparian Habitats (Freshwater Seep, Mulefat Scrub, Southern Black Willow Forest, and Southern Sycamore Riparian Woodland)

Implementation of the Build Alternative would result in direct permanent impacts to approximately 2.59 acres of riparian habitats associated with construction of the concrete check dam and the articulated block trapezoidal channel as well as the undergrounding of the overhead utilities and the widening of the shoulder. Riparian habitats within new paved areas and areas with new or relocated roadway and drainage infrastructure will be permanently impacted.

All direct permanent impacts to sycamore riparian woodland (approximately 0.10 acre) are solely associated with the proposed concrete check dam in the area of the southbound SR-133 loop on-ramp to the southbound SR-73. It should be noted that approximately 0.05 acre of mapped southern sycamore riparian woodland vegetation within the direct disturbance limits for the proposed check dam was treated with rock slope protection (e.g., riprap) during construction of SR-73 (Transportation Corridor Agencies 1995). Furthermore, permanent impacts to drainage features and associated riparian vegetation within this area were fully mitigated through the implementation of the Final Concept Wetlands Mitigation Program for the San Joaquin Hills Transportation Corridor (SR-73) Project (LSA 1993).

Indirect permanent impacts to riparian habitats could result in limited areas outside of the direct disturbance limits where construction activities would result in lasting effects on the physical environment (changes in hydrology where existing drainages are relocated or where existing drainage infrastructure is modified, or through enhancing the germination and proliferation of non-native invasive plant species). With implementation of Measures BIO-1 through BIO-6 (defined in Section 2.13.3), construction of the Build Alternative would not result in adverse indirect permanent impacts to riparian habitat within the BSA.

Riparian habitat is under the regulatory authority of the United States Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the Regional Water Quality Control Board (RWQCB). Within the Coastal Zone, these habitats also fall under the jurisdiction of the California Coastal Commission (CCC)/Local Coastal Program (LCP). Compensatory mitigation for impacts to these areas will be determined during the permitting phase in coordination with these agencies. To the extent riparian areas are permanently affected by the project, compensatory mitigation for this habitat will likely be required where it is associated with jurisdictional features that are subject to USACE regulatory authority under the

Section 404 permitting requirements, the CDFW under the Section 1600 permitting requirements, and the CCC/LCP under the coastal development permitting requirements. In July 2018, Caltrans conducted an assessment of potential riparian mitigation areas within the project watershed (e.g., within Laguna Canyon and adjacent OC Parks lands). Several riparian/wetland creation and enhancement sites have been identified as being potentially suitable for riparian and wetland compensatory mitigation, as shown on Figure 2.13-3. The boundaries of all potential mitigation and planting areas identified are subject to alterations based on stakeholder input (including landowner and resource agency approvals), as well as further technical analyses to determine the feasibility of any given site (e.g., soil and hydrology studies, and engineering constraints analyses, etc.). The current compensatory mitigation proposal for impacts to jurisdictional features, to be confirmed during the regulatory permitting process, is outlined in Measure BIO-11. With the implementation of Measure BIO-11, permanent impacts to riparian habitats would be fully compensated and the impacts would be less than significant.

Wildlife Corridors and Movement

Implementation of the Build Alternative is not expected to permanently affect wildlife movement or decrease the functionality of any wildlife crossings within the BSA, as no new permanent barriers would be placed within any designated wildlife movement corridors as part of the Build Alternative. Wildlife movement is expected to continue throughout the BSA following construction of the Build Alternative.

Alternative 2 (No Build Alternative)

The No Build Alternative would not include the construction of any of the proposed project improvements. Existing activities along SR-133 would continue under the No Build Alternative. Therefore, the No Build Alternative would not result in any new permanent impacts to CSS, rock outcrops, riparian habitat, or wildlife movement.

2.13.3 Avoidance, Minimization, and/or Mitigation Measures

The measures listed below would minimize and/or mitigate impacts to sensitive natural communities. In addition to compliance with measures listed in the Letter of Concurrence (FWS-)R-17B0314-17I0983) obtained for the Safety Improvement Project (0N060), several measures included in the United States Fish and Wildlife Service Section 7 Consultation letter dated August 30, 2018 (FWS-OR-17B0314-18I1613), as described in Section 2.17.4, would have the added benefit of avoiding or minimizing impacts to sensitive natural communities (note that there is some overlap between these measures).

- BIO-1** **Delineation of Environmentally Sensitive Areas.** Prior to construction, highly visible barriers (e.g., orange construction fencing) will be installed along the boundaries of the project footprint to designate Environmentally Sensitive Areas (ESAs) that are to be preserved. No project activity of any type will be permitted within these ESAs. In addition, heavy equipment, including motor vehicles, will not be allowed to operate within the ESAs. All construction equipment will be operated in a manner so as to prevent accidental damage to ESAs. No structure of any kind, or incidental storage of equipment or supplies, will be allowed within these protected zones. Silt fence barriers will be installed at the ESA boundary to prevent accidental deposition of fill material in areas where vegetation is immediately adjacent to planned grading activities.
- BIO-2** **Restoration of Temporary Impacts to Native Vegetation.** Areas of natural habitat that are temporarily affected by construction activities will be restored with native shrubs and grasses. The restoration effort will emulate surrounding vegetation characteristics. For state highway construction projects, revegetation plans will be part of the project design following California Department of Transportation (Caltrans) landscape architecture guidelines and requirements. Restoration plans will be reviewed and approved by the involved regulatory agencies (e.g., the California Department of Fish and Wildlife [CDFW], Orange County Parks [OC Parks], the United States Fish and Wildlife Service [USFWS], the Regional Water Quality Control Board [RWQCB], United States Army Corps of Engineers, and/or the Local Coastal Program [LCP]).
- BIO-3** **Best Management Practices (BMPs) During Construction.** All equipment maintenance, staging, and dispensing of fuel, oil, or any other such activities will occur in developed or designated non-sensitive upland habitat areas. The designated upland areas will be located in such a manner as to prevent any spill runoff from entering waters of the United States or adjacent sensitive vegetation communities.

Dust control measures will be implemented by the contractor to reduce excessive dust emissions. Dust control measures will be carried out at least two times per day during periods of grading or other activities that would disturb soils, and may include wetting work areas, the use of soil binders on dirt roads, and wetting or covering stockpiles.

Fire suppression capability, including extinguishers, shovels, and water tankers, will be available onsite whenever construction occurs during the fire season (as determined by the Orange County fire department). Activities that may produce sparks, including welding or grinding, will use protective gear to reduce fire risks, such as shields and protective mats.

BIO-4

Invasive Species Control. A weed abatement plan will be developed to minimize the spread and importation of non-native plant material during and after construction in compliance with Executive Order 13112. Project measures will be included to ensure invasive plant material is not spread from the project site to other areas by disposal off site or by tracking seed on equipment, clothing, and shoes. Invasive species will be removed from the project work area and controlled during construction. If invasive plants are established, then the use of herbicides will be prohibited within, and adjacent to, native vegetation except as specifically authorized by the Caltrans Biologist. The use of known invasive plant species (i.e., plant species listed in the California Invasive Plant Council [Cal-IPC] California Invasive Plant Inventory with a high or moderate rating) will be prohibited for construction, revegetation, and landscaping activities. Only certified weed-free straw, mulch, and/or fiber rolls will be used for erosion control. In addition, soil, gravel, and rock will be obtained from weed-free sources. Equipment/material imported from an area of invasive plants must be identified and measures implemented to prevent importation and spreading of non-native plant material within the project site. During construction, the construction contractor shall inspect and clean

construction equipment at the beginning of each day and prior to transporting equipment from one project location to another. The construction equipment will be cleaned with water to remove dirt, seeds, vegetative material, or other debris that could contain or hold seeds of noxious weeds before arriving to and leaving the project site.

- BIO-5** **Biological Monitoring.** A qualified biologist will monitor construction activities prior to and during vegetation removal for the duration of the project to ensure that practicable measures are being employed to avoid and minimize incidental disturbance of habitat and covered species inside and outside the project footprint.
- BIO-6** **On-Site Training.** All personnel involved in the on-site project construction will be required to participate in a pre-construction environmental training program to understand the avoidance and minimization measures and resource agency permit obligations for the project.
- BIO-7** **Avoidance of Oak Tree Dripline.** ESA fencing will be installed around the dripline of retained oak trees to avoid or minimize unnecessary encroachment and prohibit mechanical activity within the root zone. No construction activities or placement of structures will occur within the root zone of any retained oak trees. Landscaping, trenching, or irrigation systems will not be installed within the root zone of any retained oak trees. Sedimentation and siltation will be controlled to avoid filling around an oak tree's base.
- BIO-8** **Monitor Retained Oak Trees.** Monitor retained oak trees adjacent to the project during grading and construction activities. Monitoring of retained oak trees will occur at intervals warranted by the site conditions and level of activity. A qualified arborist will conduct all monitoring. All oak tree removals will be verified to check for damage to any retained oak trees growing in close proximity to the removed oak trees.

BIO-9

Conduct Pruning of Retained Oak Trees According to Approved Standards. All pruning will be directed by an International Society of Arboriculture (ISA)-certified arborist and performed by ISA certified tree workers in accordance with the Best Management Practices (BMPs) for Pruning by the ISA Society of Arboriculture and will adhere to the most recent editions of the American National Standards Institute (ANSI) for Tree Care Operations and Pruning A300, Part 1.

BIO-10

Oak Tree Replacement. In compliance with State Senate Concurrent Resolution No. 17, impacts to upland oak trees (excluding California scrub oak [*Quercus berberidifolia*]) with trunk sizes greater than eight inches diameter at breast height (DBH) but less than 36 inches DBH will be replaced at a minimum mitigation-to-impact ratio of 1:1, as feasible. Heritage oaks (i.e., oaks with trunk sizes greater than 36 inches DBH) will be replaced at a minimum mitigation-to-impact ratio of 3:1, as feasible. It should be noted that coast live oak trees not associated with riparian areas are not subject to the requirements of a Streambed Alteration Agreement. For impacts to oak trees located within associated riparian habitat (under the jurisdiction of CDFW), compensation will be provided under Measure BIO-11.

Based on a determination of suitable and available open land, permanent impacts to upland and riparian coast live oak trees will be mitigated in close proximity to the project disturbance limits, within the County of Orange parks. If insufficient land is available within adjacent OC Parks lands, Caltrans will propose off-site mitigation and will determine the location of the planting site(s) during the project design phase.

BIO-11

Compensatory Mitigation for Riparian Habitats. Temporary impacts to riparian habitat will be restored with native shrubs and grasses after construction of all project components is completed. Caltrans proposes to mitigate permanent impacts to jurisdictional features (including wetlands and riparian habitats) within the project watershed, where feasible. If

additional mitigation acreage is required, Caltrans proposes that permanent effects will be mitigated off-site at a 3:1 ratio by purchasing mitigation credits from the San Luis Rey Mitigation Bank. The San Luis Rey Mitigation Bank is approved to provide mitigation for permitted projects under USACE Section 404 permits, RWQCB Section 401 certifications, and CDFW 1600 streambed alteration agreements.

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