

4.3 BIOLOGICAL RESOURCES

This section evaluates potential impacts to biological resources within the project area. The analysis considers sensitive habitats, plant, and animal species that are either known to occur, or have the potential to occur, within the project corridor. Potential short-term and long-term impacts to biological resources, based on the proposed construction and maintenance activities included in the Waterway Management Program (WMP). For those instances where potential impacts to sensitive biological resources may occur, mitigation measures and best management practices have been proposed with the objective of avoiding or minimizing impacts.

The information presented within this section is based on a compilation of several previous biological studies conducted within or in the vicinity of the project corridor, and additional focused surveys conducted by SWCA biologists from 2008 to 2009. The primary documents used in preparation of this section include the following:

- Botanical Survey Report for the Arroyo Grande Creek Waterway Management Plan; SWCA Environmental Consultants, 2008.
- Preliminary Jurisdictional Determination for the Arroyo Grande Creek Waterway Management Plan; SWCA Environmental Consultants, 2009.
- Arroyo Grande Creek Management Plan Update; Central Coast Salmon Enhancement Group, 2009.
- Final Biotic Assessment for the Arroyo Grande Creek Flood Control Project; Biotic Resources Group, 2006.
- Habitat Assessment for the Arroyo Grande Creek Flood Control Project; Essex Environmental, 2000.

4.3.1 Existing Conditions

The project corridor is a linear corridor generally following the location of the lower reaches of Arroyo Grande Creek, from near the intersection of Los Berros Creek to the Arroyo Grande lagoon, and along Los Berros Creek from Century Lane to the confluence with Arroyo Grande Creek. Historically, the project corridor was a part of a large alluvial valley where sediment from the upper watershed was transported and deposited onto the broad floodplains within Oceano, referred to as the Cienaga Valley. Since the early 1800s this area has been developed and altered by humans to create more farmland on the rich alluvial deposits. The project corridor is best described as 3.5 miles of trapezoidal channel along Arroyo Grande Creek and Los Berros Creek, primarily surrounded by agricultural, commercial, and residential land uses. Natural features within the vicinity of the project corridor include the Oceano Lagoon immediately north, the Oceano Dunes located to the south, and the Pacific Ocean to the west.

Overall, the project corridor is generally flat at approximately 25 to 60 feet above sea level (asl) in elevation. The mild Mediterranean climate of the area and coastal influence produce summer temperatures averaging 59.9 to 72.4 degrees Fahrenheit (°F), winter temperatures averaging 41.6 to 60.8°F, and annual precipitation averaging 15.6 inches.

The *Soil Survey Geographic (SSURGO) database for San Luis Obispo County, California* identifies the occurrence of three separate soil units within the project corridor (United States Department of Agriculture [USDA] Natural Resources Conservation Service [NRCS]; December 12, 2007). According to the NRCS database, the property contains Mocho variant fine sandy loam, Mocho fine sandy loam. Both of these soils types belong to the Mocho Series. The property also contains Marimel silty clay loam, which belongs to the Marimel Series. None of the soils present are listed as NRCS hydric soils. A more detailed description of soil characteristics are in Section 4-5, Geology and Soils.

4.3.1.1 Environmentally Sensitive Habitat Area

The California Coastal Act defines Environmentally Sensitive Habitat Areas (ESHA) as "any area in which plant or animal life or their habitats are either rare or especially valuable because of their nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments." Under this definition, unique plant habitats; rare and endangered animal habitats; wetlands; coastal streams; rocky points; intertidal areas; and kelp beds are typically considered ESHAs. Based on this definition, the various jurisdictional waters, Arroyo Grande Creek, and the California Natural Diversity Database (CNDDDB) special communities that occur in the project corridor described below and which also occur within the Coastal Zone (approximately downstream of the Union Pacific Railroad [UPRR] line), are ESHAs.

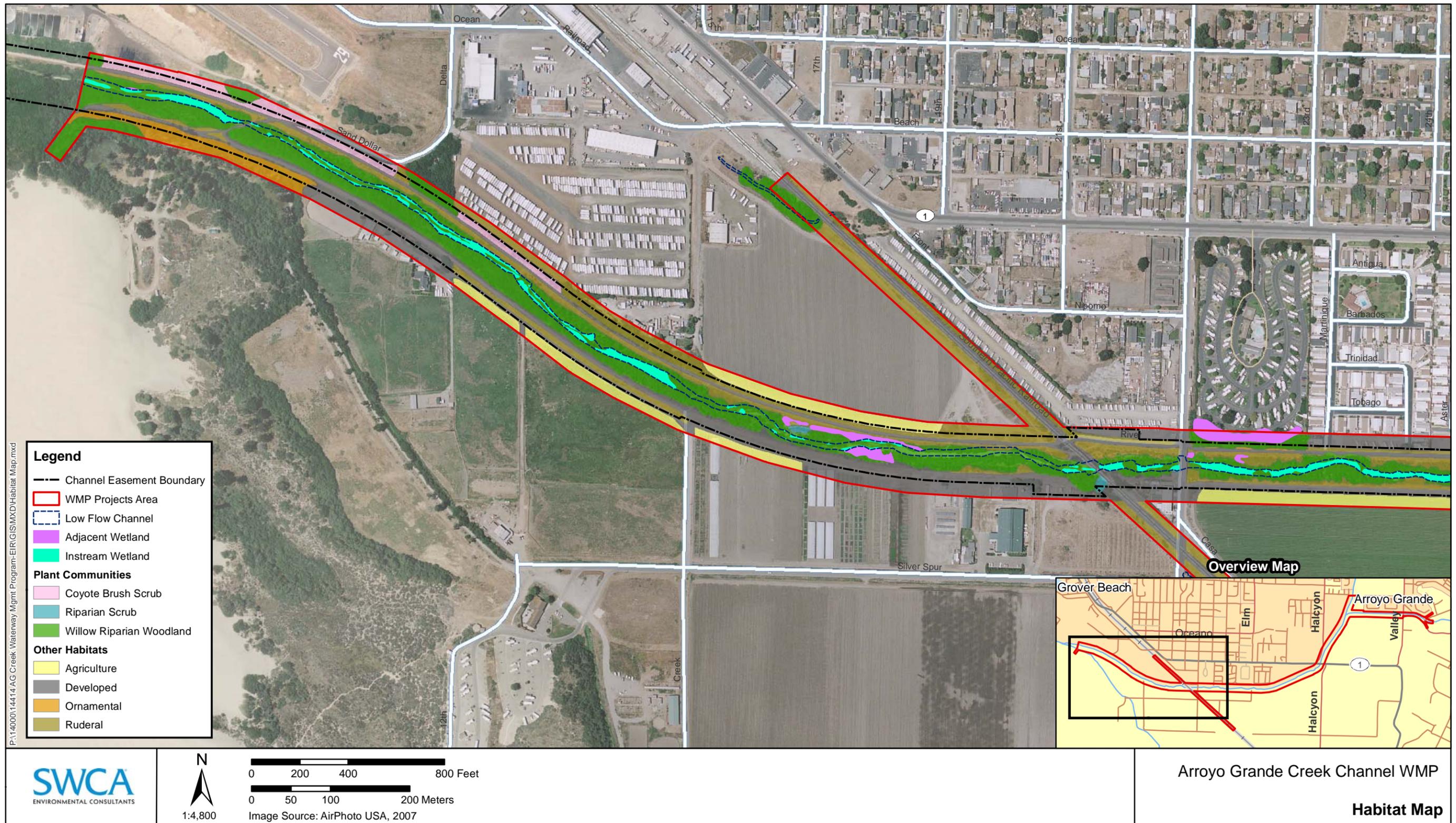
4.3.1.2 Plant Communities

The project corridor is situated within the Central Coast subregion of the Central Western California floristic province (Hickman 1993). Comprehensive botanical field surveys were conducted by SWCA biologists on May 29, June 27, and September 5, 2008 following United States Fish and Wildlife Service (USFWS) *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS 2000) and California Department of Fish and Game (CDFG) *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities* (CDFG revised 2000) (SWCA 2009). During this time, SWCA biologists compiled a list of plant species which occur within the project corridor, identified any special-status plant species occurring on-site, and updated the existing plant community map which was originally conducted for the *Biotic Assessment*, prepared for the *Arroyo Grande Creek Flood Control Project* by Biotic Resources Group (2006).

Based on the results of the botanical field surveys, the project corridor includes six generalized plant communities. The general location of these communities in relation to the project elements is depicted in Figures 4.3-1 through 4.3-3. A description of those plant communities which are found within the project corridor is provided in the following section.

Within the six plant communities, a total of 113 plant species were identified within the project corridor. Overall, identified plant species consisted of 47 (41.5 percent) native taxa and 66 (58.5 percent) non-native naturalized taxa. The percentage of non-native taxa is greater than for the State as a whole, which is approximately 17.4 percent (Allen-Diaz 2000), reflecting the relatively high level of colonization by non-native species within the project corridor.

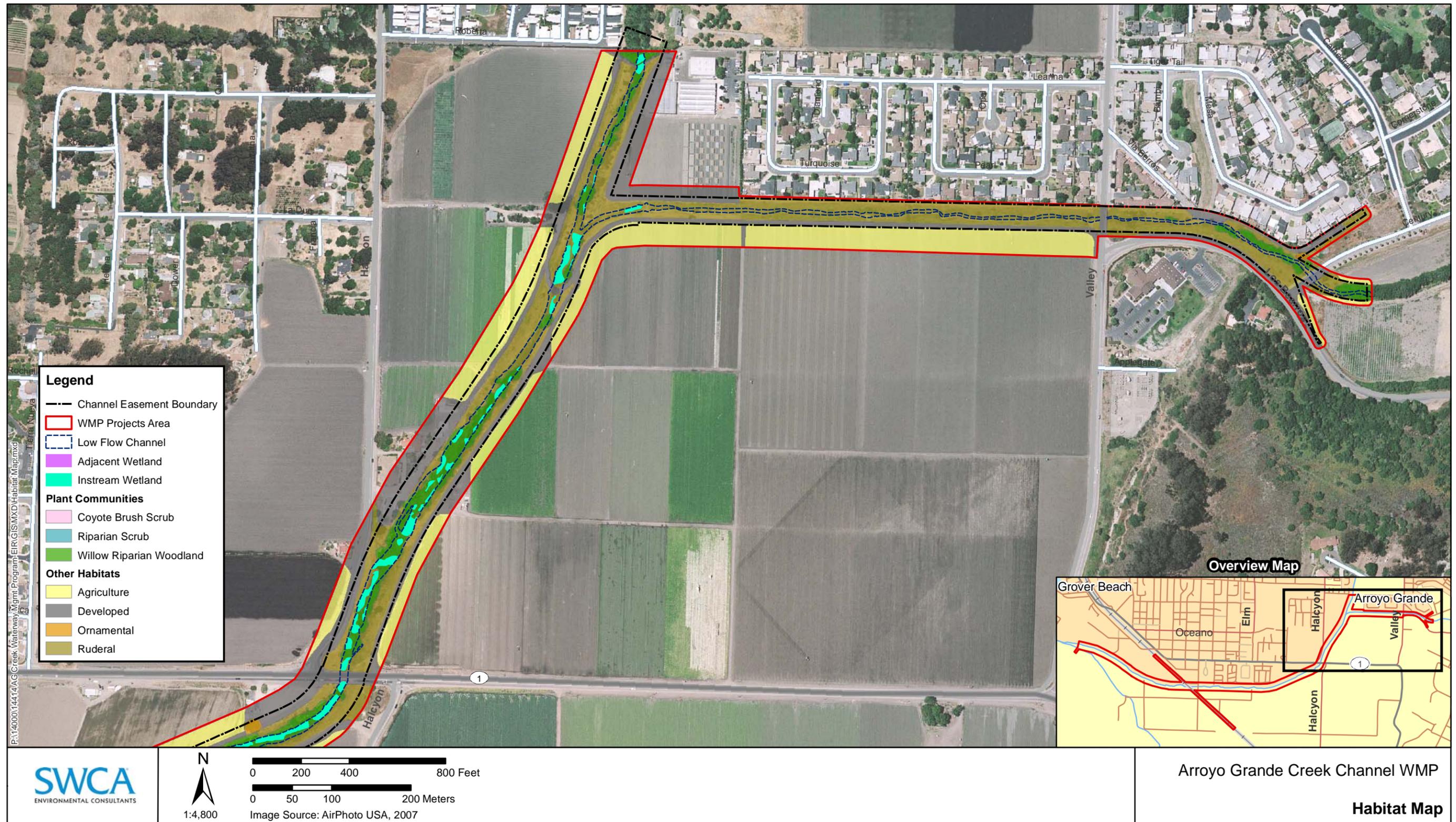
Figure 4.3-1. Habitat Map



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Figure 4.3-3. Habitat Map



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Willow Riparian Woodland

Willow riparian scrub within the project corridor is largely limited to the banks of Arroyo Grande Creek. This area was historically associated with a much larger complex of riparian woodland vegetation prior to farming from the late 1800s to the present, and the channelization of Arroyo Grande Creek. The vegetation within this plant community is largely dominated by arroyo willow (*Salix lasiolepis*) and red willow (*S. laevigata*) with scattered occurrences of black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), American dogwood (*Cornus sericea*), box elder (*Acer negundo* var. *californica*), blue elderberry (*Sambucus mexicana*), and western sycamore (*Platanus racemosa*). Previous maintenance activities implemented within the channel have resulted in this habitat being thinned out, although regrowth of willow has occurred rapidly (refer to Photos 4, 5, and 6 in Appendix WMP).

The understory is limited to shrubs and herbaceous species, most of which are non-native. Typical species observed include curly dock (*Rumex crispus*), fennel (*Foeniculum vulgare*), wild radish (*Raphanus sativa*), summer mustard (*Hirschfeldia incana*), mallow (*Malva neglecta*), castor bean (*Ricinus communis*), and garden nasturtium (*Tropaeolum majus*). Native species include coyote brush (*Baccharis pilularis*), creek clematis (*Clematis* sp.), toyon (*Heteromeles arbutifolia*), and California blackberry (*Rubus ursinus*). Occurrences of invasive, non-native plant species were also observed along Arroyo Grande Creek; stands of giant reed (*Arundo donax*), and pampas grass (*Cortaderia jubata*) occur amid the willow-dominated woodland.

Riparian Scrub

A few small areas along the banks of Arroyo Grande Creek lack dominant mature willow vegetation to qualify as willow riparian woodland, described above. These areas are better described as riparian scrub, in which the dominant plant species are young willows and includes an understory that varies from shrubby to impenetrable. Understory species within the project corridor includes young willows, intermixed with common California aster (*Aster chilensis*), coyote brush, Italian ryegrass (*Lolium multiflorum*), and Himalayan blackberry (*Rubus discolor*).

In-Stream Wetlands

In-stream wetlands exist within various portions of the Arroyo Grande Creek channel. Some of these areas are dominated by large expanses of wetland vegetation which covers the entire creek channel. Dominant vegetation within these areas consists of watercress (*Rorippa nasturtium-aquaticum*) and water smartweed (*Polygonum* spp.). Along the edges of the creek banks, species such as cocklebur (*Xanthium strumarium*), bristly ox-tongue (*Picris echioides*), curly dock, and Pacific silverweed (*Potentilla anserina* ssp. *pacifica*) are found. Those areas within the channel that lack the aquatic vegetation are expected to be open water habitat in the presence of water.

In-stream wetlands also exist within several small backwater areas that are occasionally flooded when water flows exceed the Ordinary High Water Mark (OHWM) and inundates adjacent depressions. Vegetation in these areas is dominated by stands of cattail (*Typha* sp.), bur-reed (*Sparganium eurycarpum*), bulrush (*Scirpus americanus*), and sedge (*Cyperus* sp.).

Coyote Brush Scrub

Coyote brush scrub habitat is found along some of the outer slopes of the levees along the lower reaches of Arroyo Grande Creek. The dominant plant species is coyote brush, yet also includes other disturbance-adapted species such as fennel, summer mustard, Kikuyu grass (*Pennisetum clandestinum*), and Himalayan blackberry.

Non-native (Ruderal) Grassland

Several of the levee slopes along Arroyo Grande Creek are dominated by ruderal (disturbed) grassland species. Plant species are typical of previously disturbed areas and are dominated by non-native plant species. Typical species within the project corridor are wild radish, telegraph weed (*Heterotheca grandiflora*), fennel, summer mustard, Kikuyu grass, Italian ryegrass, bull mallow (*Malva neglecta*), and Himalayan blackberry. Native plant species are scattered within the grassland and include common California aster, coyote brush, California poppy (*Eschscholzia californica*), and mugwort (*Artemisia douglasiana*). The project corridor also supports scattered plants of mission cactus (*Opuntia ficus-indica*).

Ornamental Vegetation

Ornamental plant species within the project corridor are located adjacent to residential areas and include Monterey pine (*Pinus radiata*), myoporum (*Myoporum laetum*), blue gum eucalyptus (*Eucalyptus globulus*), and weeping willow (*Salix babylonica*). Other landscape plants include mallow (*Sidalcea* sp.), geranium (*Geranium* sp.), and English ivy (*Hedera helix*).

Agriculture

Portions of agricultural fields occur within and adjacent to the project corridor and consist of crop plants when actively farmed, occasionally with weedy, mostly non-native vegetation when left fallow.

4.3.1.3 Wildlife

General wildlife surveys were conducted in conjunction with SWCA's botanical surveys in 2008. Detection methods included direct observation with binocular, examination and identification of tracks, scats, burrows/diggings, and carcasses/skeletal remains; and identification of vocalizations (calls and songs). Survey results were supplemented with previously published biological reports, regional and local species distribution references, and consultation with the USFWS and CDFG to determine which species occur or potentially occur within the project corridor. It should be noted that accurate assessment of wildlife populations would require extended periods of site research, trapping, and census taking. It is particularly difficult to detect nocturnal, rare, or reclusive species to obtain accurate estimates of population size and geographical distribution. Other complications in the quantitative assessment of vertebrate (and invertebrate) populations include:

- Many species may occur in the area only for short periods during migrations;
- Many species of amphibians and reptiles become inactive during one or more seasons; and,
- Seasonal or annual fluctuations in climate or weather patterns may confound observations.

The principal wildlife habitat that would be potentially impacted by proposed project activities include those plant communities previously discussed, in addition to Open Water Habitat (not a plant community). Typical wildlife species found in association with each of these cover types are discussed below. Further detailed discussion on sensitive wildlife species is included in Section 4.3.1.7.

Willow Riparian Woodland and Riparian Scrub

Riparian habitats support a wide diversity of wildlife due to the availability of important features such as nesting sites, escape and thermal cover, food, and dispersal corridors. Animal species that utilize riparian habitat include, but are not limited to, species such as striped skunk (*Mephitis mephitis*), coyote (*Canus latrans*), raccoon (*Procyon lotor*), dusky-footed woodrat (*Neotoma fuscipes*), Virginia opossum (*Didelphis virginianus*), common garter snake (*Thamnophis sirtalis*), and Pacific chorus frog (*Pseudacris regilla*). Some of the more common birds expected to nest in this habitat include, but are not limited to California towhee (*Pipilo crissalis*), black phoebe (*Sayornis nigricans*), bushtit (*Psaltirparus minimus*), song sparrow (*Melospiza melodia*), spotted towhee (*Pipilo maculatus*), Pacific-slope fly catcher (*Empidonax difficilis*), western scrub jay (*Aphelocoma californica*), Bewick's wren (*Thryomanes bewickii*), Anna's hummingbird (*Calypte anna*), Wilson's warbler (*Wilsonia pusilla*), and American robin (*Turdus migratorius*).

In-Stream Wetlands and Open Water

In-stream wetlands and open water habitat include the active channel of the project corridor. Water flow is regulated by Lopez Dam and varies during seasonal rainfall activity. In-stream wetlands include those areas with some emergent or aquatic vegetation. Areas devoid of vegetation are considered open water. Animal species which utilize these habitats include, but are not limited to, semi-aquatic species such as Pacific chorus frog, California red-legged frog (*Rana draytonii*), and southwestern pond turtle (*Actinemys marmorata pallida*). Aquatic species expected to utilize this habitat include south-central California coast steelhead (*Oncorhynchus mykiss irideus*), tidewater goby (*Eucyclogobius newberryi*), three-spine stickleback (*Gasterosteus aculeatus*), and speckled dace (*Rhinichthys osculus*). It is also important to mention that in-stream wetlands and open water habitat is being utilized by American beaver (*Castor canadensis*) throughout the channel, with beaver dams constructed in some locations.

Coyote Brush Scrub

Due to the moderate cover provided by coyote brush, this habitat type provides nesting and foraging habitat for a variety of smaller bird species such as California towhee (*Pipilo crissalis*), spotted towhee, song sparrow, bushtit, Bewick's wren, and white-crowned sparrow (*Zonotrichia leucophrys*). Shrubs within this habitat also provide shade and shelter for several reptilian and mammalian species. Common reptiles include species such as western fence lizard (*Sceloporus occidentalis*), western rattlesnake (*Crotalus viridis*), and western whiptail (*Cnemidophorus tigris*). Mammalian species expected to occur within this habitat includes desert cottontail (*Sylvilagus audubonii*), raccoon, opossum, striped skunk, dusky-footed woodrat, and coyote.

Non-native (Ruderal) Grassland

Several of the levee slopes along Arroyo Grande Creek are dominated by ruderal (disturbed) grassland species. The wildlife habitat values provided by this community are dependent on the level of on-going disturbance and the type of plants present. Annual grasslands provide foraging habitat for small mammals such as voles (*Microtus* spp.) and white-footed mice (*Peromyscus* spp.). Predators including red-tailed hawk, white-tailed kite, American kestrel, and Cooper's hawk may also utilize annual grassland for foraging habitat. Overall, most ruderal habitat within the project corridor receives regular disturbance and is expected to provide only minimal habitat for wildlife.

Ornamental

This habitat encompasses a very small portion of the project corridor. Wildlife use of ornamental species is expected to be low because most are only single shrubs or trees interspersed among an otherwise urbanized and developed area providing little vegetative cover for wildlife. Urban adapted species such as scrub jay, northern mockingbird (*Mimus polyglottos*), house sparrow (*Passer domesticus*), Brewer's blackbird (*Euphagus cyanocephalus*), mourning dove (*Zenaida macroura*), and European starling (*Sturnus vulgaris*) may use the ornamental areas for perches, foraging, and potential nesting sites. Ornamental plant species may also provide suitable roosting sites for various raptor species, including red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), white-tailed kite (*Elanus leucurus*), and Cooper's hawk (*Accipiter cooperii*).

Agriculture

Agricultural fields, because of regular disturbance, do not typically support habitat for sensitive wildlife species in this particular region of San Luis Obispo County. Common wildlife species adapted to disturbance that may be encountered in agricultural fields include western fence lizard, Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Spermophilus beecheyi*), and American crow (*Corvus brachyrhynchos*).

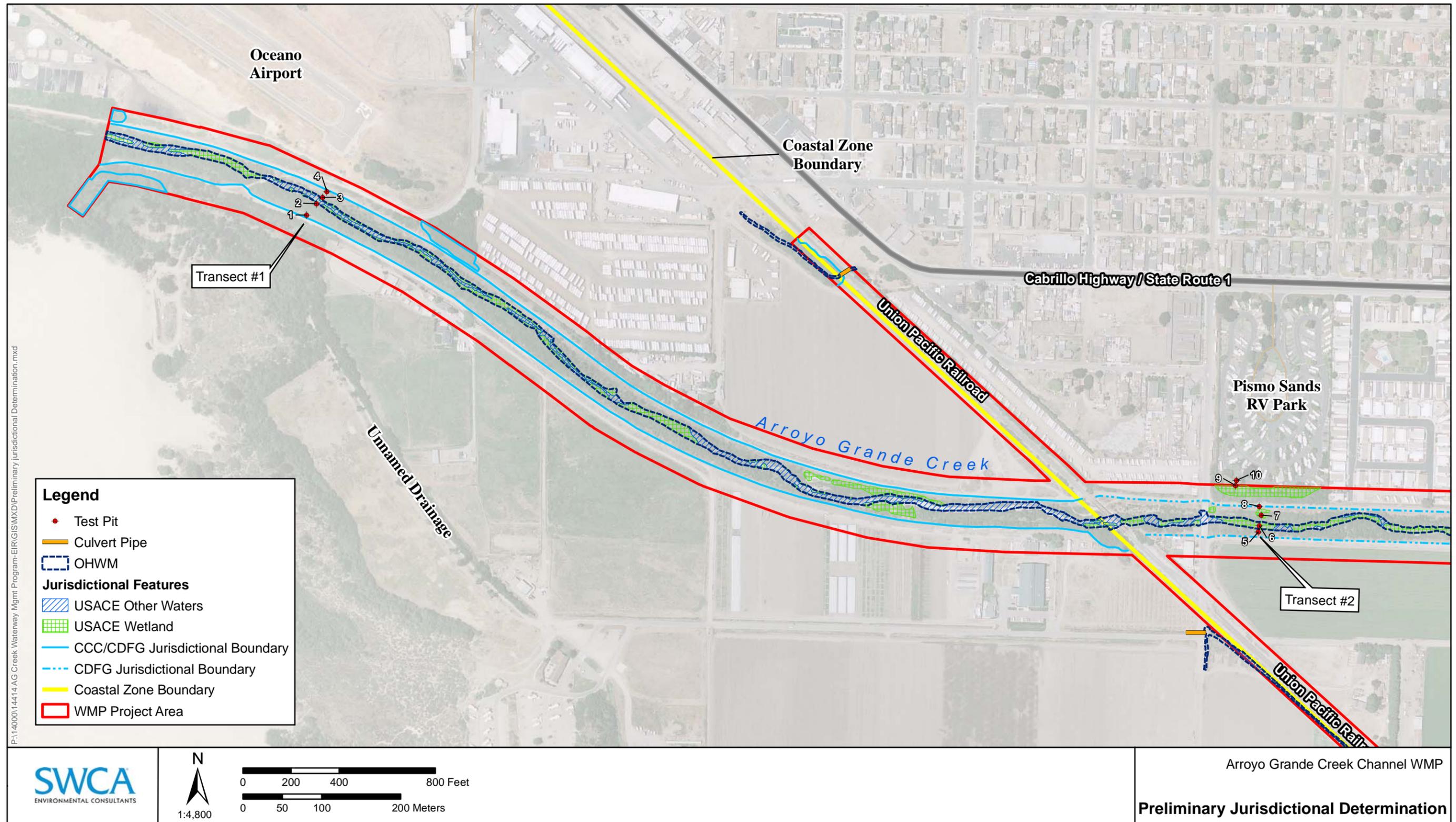
4.3.1.4 Jurisdictional Waters

A Preliminary Jurisdictional Determination was prepared for the project on October 9 and 31, and November 6 2008, and September 23 2009, by Jon Claxton and Bob Sloan, SWCA biologists (SWCA 2009). Wetland delineation efforts utilized the routine delineation methodology described in the 1987 United States Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (Environmental Laboratory 1987), as supplemented in the *Final Arid West Supplement Version 2.0* (Environmental Laboratory 2008), and other relevant literature. Jurisdictional features, including OHWM and top-of-bank/edge of riparian canopy, were mapped using a Trimble® Pathfinder Global Positioning System (GPS) capable of sub-meter accuracy. Jurisdictional boundaries for the CDFG and for the California Coastal Commission (CCC) were mapped where applicable. All mapped jurisdictional boundaries are shown on Figures 4.3-4 through 6.

U.S. Army Corps of Engineers Jurisdictional Areas

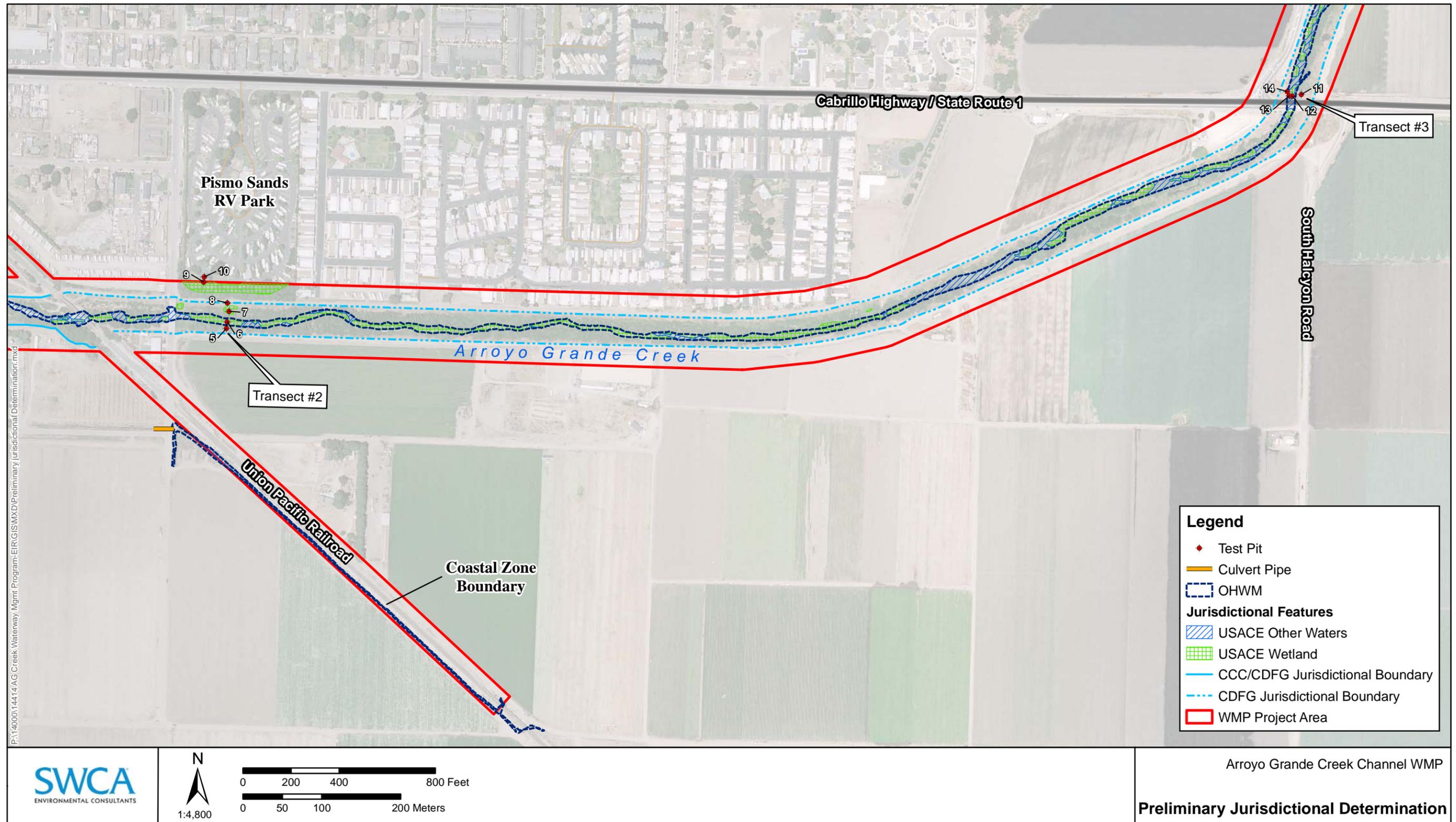
The site investigation identified a total of 11.1 acres potentially subject to USACE jurisdiction under Section 404 of the Clean Water Act. USACE jurisdictional determinations were based on the presence/absence of wetland indicators, definable OHWM's, and connectivity to relatively permanent waters. Potentially jurisdictional areas include all wetland and other waters areas located within the OHWM of both creek channels (10.1 acres), and areas mapped as adjacent wetlands outside the OHWM (0.99 acres).

Figure 4.3-4. Preliminary Jurisdictional Determination



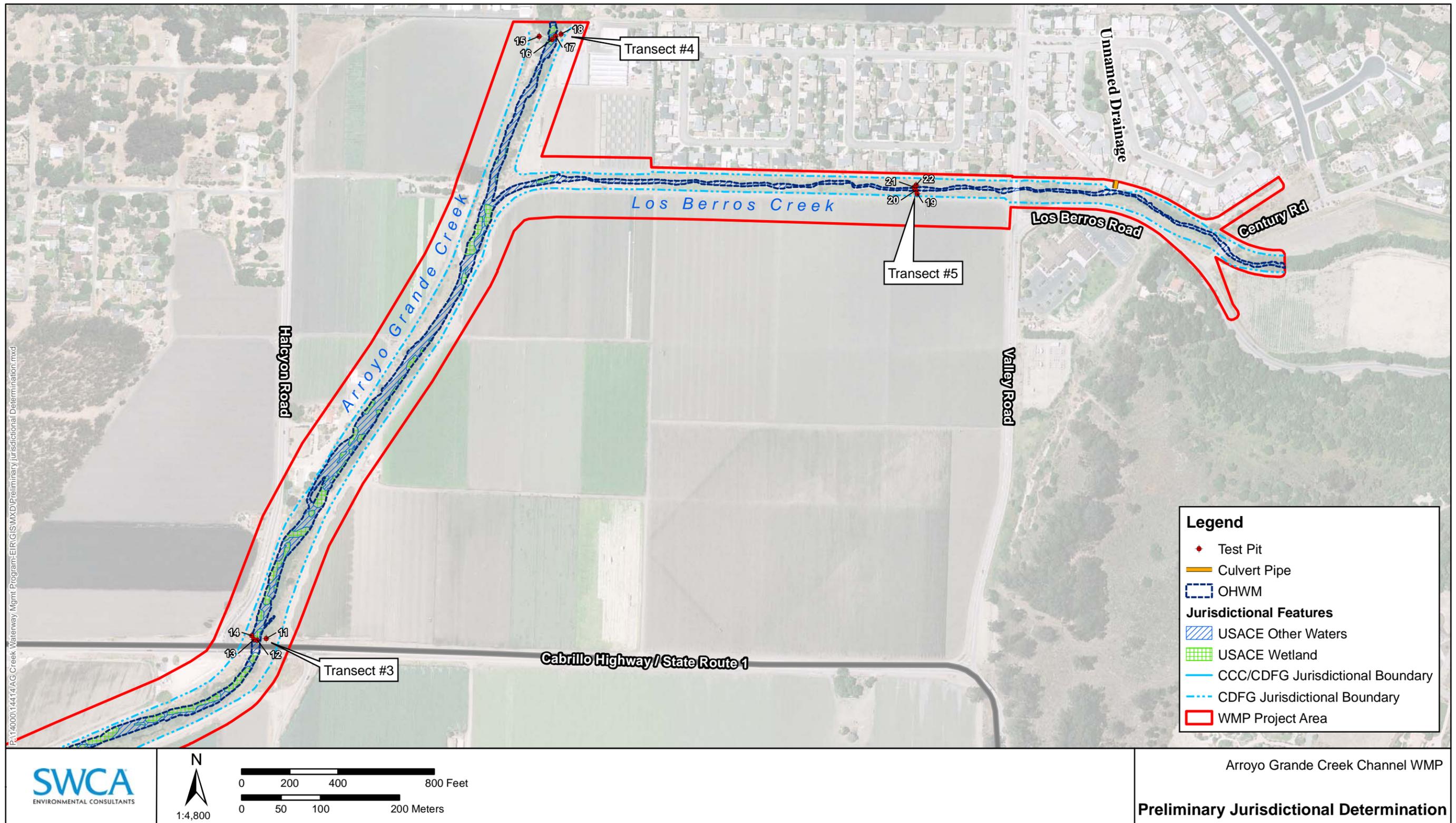
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Figure 4.3-5. Preliminary Jurisdictional Determination



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Figure 4.3-6. Preliminary Jurisdictional Determination



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California Department of Fish and Game Jurisdictional Areas

The site investigation identified a total of 58.8 acres of CDFG jurisdiction within the project corridor. CDFG jurisdictional boundaries are more extensive than and typically include USACE jurisdictional areas. CDFG jurisdictional areas were delineated by the evidence of a defined bed and bank or riparian dripline vegetation, connectivity to relatively permanent waters, and evidence of hydrology. Jurisdictional areas include all channel features within the levee banks, and areas where riparian canopy extends over the banks.

Regional Water Quality Control Board Jurisdictional Areas

The 2009 *Technical Memorandum No. 2: Wetland Definition* by the Technical Advisory Team to the Policy Development Team for the California Wetland and Riparian Area Protection Policy (San Francisco Estuary Institute 2009) recommends defining a State wetland as the following:

An area is wetland if, under normal circumstances, it (1) is saturated by ground water or inundated by shallow surface water for a duration sufficient to cause anaerobic conditions within the upper substrate; (2) exhibits hydric substrate conditions indicative of such hydrology; and (3) either lacks vegetation or the vegetation is dominated by hydrophytes.

The recommended State definition uses field indicators of hydrological regimen, substrate condition, and plant community composition to distinguish wetland areas from other areas of a landscape. This is commonly regarded as the “three-parameter approach” to defining, identifying, and delineating wetland areas in the field. These are the same parameters incorporated into the wetland definition used by the USACE and the US Environmental Protection Agency (USEPA) for Clean Water Act purposes.

This definition recognizes that all three parameters may not be evident or present in some areas that provide wetland functions, beneficial uses, or ecological services at some times of the year or in some years (especially during prolonged dry periods), and that some of these areas lack vegetation and therefore may satisfy only two parameters (i.e., wetland hydrology and hydric substrates). It was determined that a modification for the vegetation parameter was necessary to address instances where the USACE definition is problematic. The recommended State definition identifies non-vegetated areas that satisfy the hydrology and substrate parameters. It is recommended that the State initially identify the USACE’s 1987 wetland manual (Environmental Laboratory 1987) and the supplement for arid regions (Environmental Laboratory 2008), and any subsequent replacement USACE technical guidance as the primary sources for information and practices necessary for identifying wetland areas and delineating wetland boundaries pursuant to the recommended State definition.

The site investigation identified a total of 11.1 acres of Regional Water Quality Control Board (RWQCB) jurisdiction (i.e., State wetlands) within the project corridor. The RWQCB adheres to the delineation protocols set forth by the USACE for wetlands and other waters. Under the definition outlined above, potential Waters of the State under the jurisdiction of the RWQCB include all potential USACE jurisdictional areas.

California Coastal Commission Jurisdictional Areas

The site investigation identified a total of 14.9 acres of CCC jurisdiction within the project corridor. CCC considers any area that supports one or more of the three wetland indicators to be a state wetland. As a result, all USACE and CDFG jurisdictional areas within the coastal

zone fall under CCC jurisdiction. Only the portion of the project west of the UPRR crossing is within the Coastal Zone (refer to Figure 4.3-6), and all channel features within the levee banks within this area fall under CCC jurisdiction.

4.3.1.5 Special-Status Species

Several species known to occur within, or in the vicinity of the project corridor, are accorded “special-status” designation because of their recognized rarity or vulnerability to various causes of habitat loss or population decline. Some of these receive specific protection defined in federal or state endangered species legislation. Others have been designated as “sensitive” on the basis of adopted policies and expertise of State resource agencies or organizations with acknowledged expertise, or policies adopted by local governmental agencies such as counties, cities, and special districts to meet local conservation objectives. These species are referred to collectively as “special-status species” in this EIR, a collective term indicating some level of local, state or federal concern for populations or habitats.

The description and analysis of special-status biological resources within the project corridor is based on the results of a California Natural Diversity Database (CNDDDB) query for records of special-status species that are known to occur within the region. The records search included the following nine 7.5-minute United States Geological Survey (USGS) quadrangle maps: Santa Maria, Oceano, Nipomo, Huasna Peak, Twitchell Dam, Sisquoc, Orcutt, Casmalia, and Guadalupe. Special-status taxa that are known to occur, or have the potential to occur, in the project corridor were also identified through a review of relevant literature (California Native Plant Society [CNPS] 2001, 2008; Zeiner et al. 1988, 1990a, 1990b), previous biological studies in the area, and surveys conducted by SWCA biologists.

Further, a list of federally threatened and endangered species potentially occurring within the area was requested from the USFWS. Although this document was not received prior to impact analysis, SWCA biologists evaluated all federally listed species in San Luis Obispo County with the potential to occur within the immediate project corridor (see Table D-1 and D-2 in Appendix D) based on habitat requirements and known habitat within the project corridor. Species included within the impact analysis were derived from the unofficial USFWS list titled: “*Federal Endangered and Threatened Species that may be affected by projects in San Luis Obispo County*” (website: <http://ventura.fws.gov>). Subsequent to survey efforts, a letter was received from the USFWS dated November 6, 2009, indicating that marsh sandwort, Gambel’s watercress, tidewater goby, steelhead trout, California red-legged frog, and least Bell’s vireo are federally listed species known to occur in Arroyo Grande, San Luis Obispo County, California.

4.3.1.6 Special-status Plant Species

The following section describes those special-status plant species which have been documented within an approximate ten-mile radius of the project corridor. For the purposes of this section, sensitive plant species are defined as the following:

- Plants listed or proposed for listing as threatened or endangered under the Federal Endangered Species Act (FESA) (50 Code of Federal Regulations [CFR] 17.12 for listed plants and various notices in the Federal Register for proposed species).
- Plants that are candidates for possible future listing as threatened or endangered under FESA (Federal Register Vol. 74, No. 215, pp. 57804-57878, November 9, 2009).

- Plants that meet the definitions of rare or endangered species under CEQA (State CEQA Guidelines, Section 15380).
- Plants considered by CNPS to be "rare, threatened, or endangered" in California (Lists 1B and 2 in CNPS, 2010).
- Plants listed by CNPS as plants about which we need more information and plants of limited distribution (Lists 3 and 4 in CNPS, 2010).
- Plants listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (CESA) (14 California Code of Regulations [CCR] 670.5).
- Plants listed under the California Native Plant Protection Act (California Fish and Game Code 1900 et seq.).
- Plants considered sensitive by other Federal agencies (i.e., U.S. Forest Service, Bureau of Land Management), state and local agencies, or jurisdictions.

Based on the literature review for this project, a total of 60 sensitive plant taxa have been documented in a 10-mile radius of the project corridor (refer to Table 1, in Appendix D). Because the plant species list presented in Table 1 is regional, an analysis of the range and habitat preferences of those species was conducted to identify which special-status plant taxa have the potential to occur within the project corridor. This analysis considered existing habitat, elevation, results of previous surveys conducted for other projects, and soils within the project corridor.

As a result of the analysis conducted by SWCA it was determined that five sensitive plant taxa had the greatest potential to occur within, or directly adjacent to, the project corridor. However, based on the field surveys which were conducted during the appropriate blooming period for these taxa, results of previous studies conducted nearby, and a field evaluation of the habitat within the project corridor it was determined that no special-status plant taxa occur within the project corridor. For a complete listing of vascular flora observed within the project corridor, please refer to Appendix D.

4.3.1.7 Special-status Wildlife

For the purposes of this section, special-status animal taxa are defined as the following:

- Animals listed or proposed for listing as threatened or endangered under FESA (50 CFR 17.11 for listed animals and various notices in the Federal Register for proposed species).
- Animals that are candidates for possible future listing as threatened or endangered under FESA (Federal Register Vol. 74, No. 215, pp. 57804-57878, November 9, 2009).
- Animals that meet the definitions of rare or endangered species under CEQA (State CEQA Guidelines, §15380).
- Animals listed or proposed for listing by the State of California as threatened and endangered under CESA (14 CCR 670.5).

- Animal species of special concern to the CDFG (Shuford and Gardali 2008 for birds; Williams, 1986 for mammals).
- Animal species that are fully protected in California (California Fish and Game Code, §3511 [birds], §4700 [mammals], and §5050 [reptiles and amphibians]).

Based on a CNDDDB query, a review of existing literature and the local experience of SWCA biologists, a total of 37 special-status wildlife taxa have been documented or have the potential to occur within the reviewed USGS quadrangles (refer to Appendix D). Because this list of taxa is regional, an analysis of the range and habitat preferences of those species was conducted to identify which sensitive wildlife species have the potential to occur within the project corridor given the existing habitat. Previous survey reports were also reviewed for occurrences of these taxa.

This analysis determined that the following sensitive wildlife taxa have potential to occur within or directly adjacent to the project corridor, or are warranted of further discussion:

- Tidewater goby
- Steelhead trout
- California red-legged frog
- Coast range newt
- Southwestern pond turtle
- Coast horned lizard
- Two-striped garter snake
- Cooper's hawk
- Sharp-shinned hawk
- Western yellow-billed cuckoo
- Yellow warbler
- White tailed kite
- Purple martin
- Least bell's vireo
- Southwestern willow flycatcher
- Pallid bat
- Townsend's big-eared bat
- Other nesting birds and roosting bats

The following presents the applicable ecological and range information for those special-status wildlife species documented within the vicinity of the project corridor, or otherwise worthy of further discussion. The likelihood of these species occurring within the project corridor is also discussed, based on existing conditions and the known habitat requirements for each species.

Tidewater Goby (*Eucyclogobius newberryi*)

Tidewater goby is listed as federal endangered and as a Species of Special Concern (SSC) by CDFG. The tidewater goby is a small estuarine fish, rarely exceeding two inches in length that inhabits lagoons and the tidally influenced region of rivers from San Diego County to Del Norte County, California. They are typically found in the upper ends of lagoons in brackish water, usually in salinities of less than 10 parts per thousand (ppt). Tidewater gobies are bottom dwellers and are typically found at depths of less than three feet. Instream, they inhabit low-velocity habitats out of the main current.

Tidewater goby has been documented as present within the Arroyo Grande Lagoon (CNDDDB 2009) although survey efforts indicate that occupancy by tidewater gobies at Arroyo Grande Lagoon is intermittent and only in small numbers (USFWS 2005). Based on the final rule in January 2008, the USFWS has not designated Arroyo Grande Creek as critical habitat.

However, this species does have the potential to occur upstream from the Arroyo Grande Lagoon, and within the project corridor.

South-central California Coast Steelhead (*Oncorhynchus mykiss*)

The south-central California coast steelhead was listed as federally threatened by the USFWS in 1997 and is also considered a SSC species by the CDFG. Optimal habitat for steelhead on the Pacific Coast can generally be characterized by clear, cool water with abundant instream cover (i.e., submerged branches, rocks, and logs), well-vegetated stream margins, relatively stable water flow, and a 1:1 pool-to-riffle ratio (Raleigh et al. 1984). Steelhead along the central coast of California typically begin migrating up coastal drainages following the first substantial rainfall of the fall season. Spawning typically occurs during the spring in riffle areas that consist of clean, coarse gravels. Deposited eggs incubate for approximately three to four weeks, with hatched fry rearing within the gravel interstices for an additional two to three weeks. Emergent fry rear at the stream margins near overhanging vegetation. Juveniles (smolts), after rearing for one to three years within freshwater, migrate out to the ocean from March to July, as do post-spawning adults, depending on stream flows.

This species has been well documented as occurring within Arroyo Grande Creek and tributary channels (Central Coast Salmon Enhancement 2009; Swanson Hydrology + Geomorphology 2008; Rischbeiter 2004, and 2007;). The project corridor is located within designated critical habitat for this species (NMFS 2005).

Habitat data collected in 2005 by California Conservation Corps staff (CCC 2005) and population data collected by Swanson Hydrology + Geomorphology (2008) suggest that the flood control reach is primarily used as a migratory corridor for adult steelhead attempting to reach higher quality spawning and rearing habitat upstream. Although steelhead juveniles have been observed rearing in the flood control reach, their survival is low due to high summer water temperatures and low flow conditions in late summer and fall. In many years, portions of the flood control reach dry up completely.

Arroyo Grande Creek is one of the few streams at the southern portion of the subject Evolutionarily Significant Unit (ESU) where age zero and older juvenile steelhead occur during summer and fall, and sexually mature adults occur in winter and early spring (NMFS 2005). There are numerous streams in San Luis Obispo County, but a disproportionate number in the southern portion of the subject ESU currently do not appear suitable for steelhead; Arroyo Grande Creek is one of the notable exceptions (NMFS 2005). Arroyo Grande Creek has been determined to have medium conservation value and essential for the conservation of the ESU (NMFS 2005).

California Red-Legged Frog (*Rana draytonii*)

The California red-legged frog was listed as federally threatened by the USFWS in 1996, and is also considered a SSC by CDFG. Critical habitat has been designated for the species but the project corridor does not occur within a critical habitat unit. Riparian habitat degradation, urbanization, predation by bullfrogs, and historic market harvesting has all reportedly contributed to population declines in this species. The California red-legged frog occurs in various habitats during its life cycle. Breeding areas include aquatic habitats such as lagoons, streams and ponds, and siltation and irrigation ponds. California red-legged frogs prefer aquatic habitats with little or no flow, the presence of surface water to at least early June, surface water depths to at least 0.7 meters (2.3 feet), and the presence of fairly sturdy underwater supports such as cattails (*Typha* spp.). The largest densities of California red-legged frog are typically

associated with dense stands of overhanging willows and an intermixed fringe of sturdy emergent vegetation.

California red-legged frog is known to be present within the project corridor, having been well documented during previous biological surveys (Biotic Resources Group 2006) and observed by SWCA biologists in 2008.

Coast Range Newt (*Taricha torosa torosa*)

The Coast Range newt is considered a SSC by CDFG. Two subspecies of California newt (*T. torosa*) are currently recognized in California: Coast Range newt (*T. t. torosa*) and Sierra newt (*T. t. sierrae*). The former ranges discontinuously along the coast of California from Mendocino County to San Diego County. Optimum habitats reportedly consist of valley-foothill hardwood forest in association with rivers, creeks, ponds, and lakes. This species is seasonally abundant within the upper watersheds of several San Luis Obispo County creeks. Coast Range newts have both terrestrial and aquatic phases to their life cycle. Adults are largely inactive, aestivating within subterranean refuges during most of the year. Following the first rains of fall, adults migrate to water, with mating occurring from September to May. Adhesive egg masses are deposited on submergent vegetation and rocks from May to June, with larvae hatching 5 to 7 weeks thereafter. Larvae transform to adults during the summer or fall of their first year. Sexual maturity is reached at approximately the end of the first year. Riparian degradation related to urban development has likely contributed to population declines.

Although coast range newt has been documented just below Lopez Dam, the likelihood for coast range newt to occur within the project corridor is considered low, due to poor breeding habitat quality that is present for newts in this area, and the lack of evidence of this species within the lower reaches of Arroyo Grande Creek.

Southwestern Pond Turtle (*Actinemys marmorata pallida*)

The southwestern pond turtle is considered a SSC by CDFG. Pond turtles prefer quiet waters of ponds, lakes, streams, and marshes. This subspecies inhabits reaches of streams that contain deep pools, from 3.0 to 5.2 feet in depth (Stebbins 1972). The ponds favored by turtles typically support emergent and floating vegetation such as cattails and algal mats. The southwestern pond turtle historically has been present in most Pacific slope drainages between the Oregon and Mexican borders (Jennings and Hayes 1994). It is mostly aquatic, leaving its aquatic site to reproduce, estivate, and over-winter. Pond turtles also bask on half-submerged logs, rocks, or flat shorelines close to the edge of water. In warmer areas along the central and southern California coast, pond turtles may be active all year (Zeiner et al. 1988). Nesting sites may be more than 400 meters from the aquatic site, but most nests are within 200 meters.

Southwestern pond turtle is known to inhabit Arroyo Grande Creek, and one southwestern pond turtle was observed during field surveys conducted by SWCA biologists in 2009. This species was observed using open water habitat which has been created as a result of existing beaver dams in the channel. Suitable habitat occurs throughout the project corridor.

Coast Horned Lizard (*Phrynosoma coronatum frontale*)

The coast (California) horned lizard is considered a SSC species by CDFG. This species is a relatively large horned lizard, less rounded than other species, with numerous pointed scales along the sides of the body and over the back. Only the horns around the head are rigid. The range of the species extends from northern California to the tip of Baja California, distributed

throughout foothills and coastal plains in areas with abundant, open vegetation such as chaparral or coastal sage scrub. The species typically occupies open country, especially sandy areas, washes, flood plains, and wind-blown deposits in a wide variety of habitats. The coast horned lizard is a ground dweller, and does not climb shrubs or trees. Egg-laying in southern California extends from late May through June with a mean clutch size of 13 eggs. Coast horned lizards feed on ants and other small insects.

The likelihood for this species to occur within the project corridor is low. Habitat for Coast horned lizard is considered to be marginal within the project corridor due to minimal sandy soils and open habitat.

Two-striped Garter Snake (*Thamnophis hammondi*)

The two-striped garter snake is considered a SSC species by the CDFG. It is a medium-sized garter snake with a variable dorsal coloration of olive, brown, or brownish gray, with a single yellow-orange lateral stripe on each side of the body (Jennings and Hayes 1994). There is no dorsal stripe, and the ventral surface is pale cream-colored to salmon, becoming white toward the throat. The lateral stripes may be lacking on melanistic individuals, which are common in the northern third of the species range (Bellemin and Stewart 1977; Stewart 2003). Melanistic individuals along the Central Coast are black underneath with a white throat; however, there are several other morphs found in the area (Stewart 2003). The dark color of these specific morphs may be a selective factor that allows them to blend in with exposed root systems (Stewart 2003). During the day, this garter snake often basks on streamside rocks or on densely vegetated stream banks. Prey items include fish, fish eggs, and various frogs and toads (Jennings and Hayes 1994; Stewart 2003).

The likelihood for two-striped garter snake to occur within the project corridor is considered moderate. Although this species was not observed during surveys, there is a potential for this species to occur due to the presence of suitable habitat.

Cooper's hawk (*Accipiter cooperii*)

Cooper's hawk is considered a SSC by CDFG during nesting periods; primarily due to the loss of riparian nesting habitat. Preferred nesting habitat typically consists of dense stands of coast live oak, riparian or other forest habitat located near water. This species generally is solitary and feeds on small birds and mammals captured in surprise attack. Cooper's hawk is an uncommon permanent resident and fairly common fall transient along the central coast.

The likelihood for Cooper's hawk to occur within the project corridor is considered high. One individual was identified within the project corridor during the field surveys conducted by SWCA. Based on this observation and the presence of suitable habitat within the project corridor, this species has the potential to occur within the project corridor for nesting and foraging purposes.

Sharp-shinned hawk (*Accipiter striatus*)

The sharp-shinned hawk is considered a SSC by CDFG during nesting periods. The species is also protected under the Migratory Bird Treaty Act (MBTA). This species typically builds nests within woodland habitat where they forage on small birds. Sharp-shinned hawks will also occasionally eat small mammals and insects. This species is a fairly common winter visitor and resident along coastal ridges foraging in woodland and semi-open habitats.

The likelihood for sharp-shinned hawk to nest within the project corridor is considered low, due to the marginal quality of habitat within the project corridor. However, this species may occur within the project corridor as an infrequent forager.

Western Yellow-billed Cuckoo (*Coccyzus americanus*)

The western yellow-billed cuckoo is a federal candidate for listing and a state endangered species. It is a casual spring and fall transient in San Luis Obispo County (Edell 2004). Although its historic status within the county is unknown, it was likely a regular breeder in large cottonwood-willow riparian woodlands. There are only eight San Luis Obispo County records for the species over the last fifty years, two of which involve nesting birds. The six recent non-breeding records are from Morro Bay (1961), Los Osos (1980), Morro Bay (1989), Carrizo Plain (1991), Oso Flaco Lake (1999), and San Simeon Creek (1999).

Due to the rarity of this species, the likelihood of western yellow-billed cuckoo would occur within the project corridor is considered very low. This species was not observed or heard during surveys, there are no known recent nesting records in San Luis Obispo County, and there are no known breeding locations outside of the currently known breeding locations, none of which occur in San Luis Obispo County (Edell 2004). This species is not expected to nest along Arroyo Grande Creek.

Yellow Warbler (*Dendroica petechia brewsteri*)

The yellow warbler is considered a SSC by CDFG during the nesting period. Yellow warblers are migratory and are broadly distributed throughout North America, though their California distribution is largely restricted to the northern and coastal portions of the State, and the Sierra Nevada foothills. Within San Luis Obispo County, this species is a fairly common summer transient of deciduous riparian habitats. Breeding and nesting of yellow warbler typically occurs from mid-April to early August, with peak activity occurring in June. Eggs (typically three to six) are incubated for approximately 11 days, and young fledge approximately nine to 12 days thereafter. Brood parasitism by brown-headed cowbirds has reportedly reduced numbers of this species statewide, though predation and destruction/clearing of riparian habitat is also implicated in population declines of this species.

The likelihood for this species to occur within the project corridor is considered high. Although this species was not observed or heard during surveys, yellow warbler has the potential to occur within the project corridor based on the presence of suitable habitat and known occurrences in the area. Yellow warblers have been recently observed in the Oceano campground area (San Luis Obispo County Birding Digest 2873).

White-tailed kite (*Elanus leucurus*)

The white-tailed kite is not listed as an endangered or threatened species; however, this species is listed as California fully-protected by the CDFG and is considered to be a Federal migratory non-game bird of special concern by the USFWS. Within San Luis Obispo County, white-tailed kites are common, especially along the coastline from Morro Bay north, though it is possible to find them in a variety of habitats near the coast. Populations do not seem to be migratory, and annual abundance variances are generally “apparent changes” meaning that abundance probably remains constant, but activity patterns and frequency of observation changes.

The likelihood of white-tailed kite to occur within the project corridor is considered low to moderate. Although this species was not observed or heard during field surveys, this species

has the potential to roost and nest within the project corridor given the presence of suitable foraging habitat adjacent to the project corridor.

Purple Martin (*Progne subis*)

The purple martin is considered a SSC by CDFG. This species was formerly a common breeder along the length of the Coast Range of California and in smaller numbers in the Sierra Nevada. There has been a dramatic decrease in southern California during the last 15 years where it was once a common breeder in the mountains and where it even nested in some lowland residential areas. The species uses valley foothill and montane hardwood, valley foothill and montane hardwood-conifer, riparian habitats, and coniferous habitats. The purple martin may nest in old woodpecker cavities or in human-made structures such as bridges and culverts. It nests from April to August, with peak activity in June, laying three to eight eggs. Food is primarily insects.

The likelihood of purple martin to occur within the project corridor is considered to be low. Although this species was not observed or heard during surveys; there is a potential that this species may utilize riparian habitat and mature trees within the project corridor.

Least Bell's Vireo (*Vireo bellii pusillus*)

Least Bell's vireo is state and federally listed as endangered. It primarily occurs in association with low, dense riparian growth in the vicinity of water or dry river bottoms. Nesting usually occurs along the margins or on twigs of various shrubs including low-growing species of willow. Breeding and nesting primarily occurs in May and June (Zeiner et al. 1990a). Vegetation characteristics of riparian stands between five to ten years of age are most suitable for nesting least Bell's vireo (Goldwasser 1981; USFWS 1998). Prior to a recent observation of least Bell's vireo in Los Osos in 2009, the nearest known documented occurrence of least Bell's vireo was observed near the Wellsona Road crossing over the Salinas River in 2005.

The likelihood for least bell's vireo to occur within the project corridor is considered to be low. Although riparian vegetation is present within the project corridor, this vegetation is not likely to be suitable for nesting least Bell's vireo due to ongoing disturbances and continual annual thinning activities resulting in a lack of dense, low growing vegetation. This species is not expected to nest along Arroyo Grande Creek.

Southwestern Willow Flycatcher (*Empidonax trailli extimus*)

Southwestern willow flycatcher is state listed as endangered. This subspecies is a rare spring transient and an uncommon spring/summer migrant to San Luis Obispo County. It is most commonly found as a summer resident within mountainous wet meadow and montane riparian habitats of the Sierra Nevada and Cascade ranges after migrating from winter habitat in Central and South America. Dense willow thickets are required for nesting and roosting.

The likelihood for southwestern willow flycatcher to occur within the project corridor is very low. Although riparian vegetation is present within the project corridor, this vegetation is not likely to be suitable for southwestern flycatcher due to the ongoing disturbances and general lack of dense understory. There are no documented occurrences of this species breeding within San Luis Obispo County. This species is not expected to nest along Arroyo Grande Creek.

Other Nesting Birds (Class Aves)

A number of other bird species have the potential for nesting within the project corridor, and are protected during their nesting period under the federal MBTA and CDFG Code Section 3503. Birds may nest in urban habitats (such as buildings, bridges, and landscaped ornamental vegetation), windrows, riparian forest and scrub areas, and ruderal habitats. During surveys, several bird species protected under MBTA were observed within the project corridor. These species likely utilize habitats within the project corridor for nesting and foraging purposes; therefore, nesting activity during the nest season (February 15 to August 15) should be expected.

Pallid Bat (*Antrozous pallidus*), Townsend's Big-eared Bat (*Corynorhinus townsendii*), and Other Roosting Bats

The following discussion on sensitive bat taxa have been combined together for conciseness and because they share similar habitat requirements and regulatory protections.

The pallid bat is considered a SSC by CDFG. Pallid bats range over much of the western United States, from central Mexico to British Columbia (Zeiner et al. 1990a). They are found throughout California, especially in lowland areas below 6,400 feet (1,950 meters). Pallid bats are apparently not migratory, but make local, seasonal movements. This species resides in colonies consisting of a dozen to over 100 individuals. Pallid bats roost in deep crevices, caves, mines, rock faces, bridges and buildings. Like many bat species, pallid bats maintain both day and night roosts. Night roosts are used for feeding and are typically 0.25 mile (0.4 kilometers) from the day roosts, which are used for sleeping. Females have one to two pups for each pregnancy, usually born between mid to late June.

Townsend's big-eared bat is considered a SSC by CDFG. It is most abundant in mesic (wet) habitats. Townsend's big-eared bat requires caves, mines, tunnels, buildings or other human-made structures for roosting. It may use separate sites for night, day, hibernation, or maternity roosts. Maternity roosts are the most important limiting resource. Maternity roosts are found in caves, tunnels, mines, and buildings. Small clusters or groups (usually fewer than 100 individuals) of females and young form the maternity colony. Maternity roosts are in relatively warm sites. Most mating occurs from November-February. Births occur in May and June, peaking in late May. This species is extremely sensitive to disturbance of roosting sites (Zeiner et al., 1990a).

Roosting bats in general are also considered as sensitive by CDFG and under CEQA. Although no bat roosting or evidence of roosting was observed during surveys, potential roosting habitat for bats may occur under bridges within the project corridor, particularly under the UPRR bridge. The bat maternity roosting season typically begins around April 15).

4.3.2 Regulatory Overview

4.3.2.1 Federal Policies and Regulations

Section 404 of the Clean Water Act of 1977

The USACE is responsible for the issuance of permits for the placement of dredged or fill material into "waters of the United States" pursuant to Section 404 of the Clean Water Act (CWA) (33 United States Code [USC] 1344). As defined by USACE at 33 CFR 328.3(a)(parts 1-6), the following summarizes "Waters of the United States" as:

“Those waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; tributaries and impoundments to such waters; all interstate waters including interstate wetlands; and territorial seas.”

Based on the Preliminary Jurisdictional Determination prepared (SWCA 2009), the project would result in dredge or fill of “waters of the U.S.” Therefore, the project would be subject to Section 404 of the CWA based on review by the USACE.

Section 401 of the Clean Water Act of 1977

Section 401 of the CWA and its provisions ensure that federally permitted activities comply with the CWA and state water quality laws. Section 401 is implemented through a review process that is conducted by the RWQCB, and is triggered by the Section 404 permitting process (see above). The RWQCB certifies via the 401 process that a proposed project complies with applicable effluent limitations, water quality standards, and other conditions of California law. Evaluating the effects of the proposed project on both water quality and quantity (runoff) falls under the jurisdiction of the RWQCB.

The proposed project has the potential to result in impacts to water quality and quantity, resulting in compliance with Section 404 of the CWA. Therefore, the proposed project would also require compliance with Section 401 of the CWA, requiring certification by the RWQCB.

Federal Endangered Species Act

FESA, administered by the USFWS and NMFS, provides protection to species listed as threatened or endangered. FESA also provides protection to those species proposed to be listed under FESA. In addition to the listed species, the Federal government also maintains lists of species that are neither formally listed nor proposed, but could potentially be listed in the future. Species on this list receive “special attention” from federal agencies during environmental review, although they are not protected otherwise under the FESA. The candidate species include taxa for which substantial information on biological vulnerability and potential threats exist, and are maintained in order to support the appropriateness of proposing to list the taxa as an endangered or threatened species.

USFWS and NMFS also regulate activities conducted in federal critical habitat, which are geographic units designated as areas that support primary habitat constituent elements for listed species.

Due to the presence of federally listed species within the proposed project and the presence of critical habitat for steelhead, compliance with Section 7 of FESA would be required. Potential impacts to listed species resulting from the implementation of a project would require the responsible agency or individual to formally consult with the USFWS or NMFS to determine the extent of impact to a particular species.

Migratory Bird Treaty Act

The MBTA of 1918 protects all migratory birds, including their eggs, nests, and feathers. The MBTA was originally drafted to put an end to the commercial trade in bird feathers, popular in the latter part of the 1800's. The MBTA is enforced by the USFWS, and potential impacts to species protected under the MBTA are evaluated by the USFWS in consultation with other federal agencies. Several migratory bird species were present within the project corridor.

4.3.2.2 State Policies and Regulations

California Endangered Species Act

The CESA ensures legal protection for plants listed as rare or endangered, and wildlife species formally listed as endangered or threatened. The state also maintains a list of SSCs. SSC status is assigned to species that have limited distribution, declining populations, diminishing habitat; or unusual scientific, recreational, or educational value. Under state law, the CDFG is empowered to review projects for their potential to impact special-status species and their habitats. Under CESA, CDFG reserves the right to request the replacement of lost habitat that is considered important to the continue existence to CESA protected species.

California Fish and Game Code

California Fish and Game Code §3511 includes provisions to protect Fully Protected (FP) species, such as: (1) Prohibiting take or possession "at any time" of the species listed in the statute, with few exceptions; (2) stating that "no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to "take" the species; and (3) stating that no previously issued permits or licenses for take of the species "shall have any force or effect" for authorizing take or possession. CDFG is unable to authorize incidental take of "fully protected" species when activities are proposed in areas inhabited by those species. Sections 3503 of the Fish and Game Code state that it is "unlawful to take, possess, or destroy the nest or eggs of any bird, with occasional exceptions." Section 3503.5 of the Fish and Game Code states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest of eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

In addition, §3513 states that it is unlawful to take or possess any migratory bird as designated in the MBTA or any part of such migratory birds except as provided by rules and regulations under provisions of the MBTA. White-tailed kite is a fully protected species under §3511 and has a potential to occur within the project corridor.

CDFG also manages the California Native Plant Protection Act of 1977 (Fish and Game Code Section 1900, et seq), which was enacted to identify, designate, and protect rare plants. In accordance with CDFG guidelines, California Native Plant Society (CNPS) 1B list plants are considered "rare" under the Act, and are evaluated in CEQA documents.

Section 1602 of the Fish and Game Code

CDFG is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, the law requires any person, state or local government agency, or public utility proposing a project that may impact a river, stream, or lake to notify the CDFG before beginning the project. If the CDFG determines that a project may adversely affect existing fish and wildlife resources, a Lake or Streambed Alteration Agreement (SAA) is required. A SAA lists the CDFG conditions of approval relative to the proposed project, and serves as an agreement between an applicant and the CDFG for a term of not more than five years for the performance of activities subject to this section. As proposed the project would require a SAA from CDFG.

California Coastal Act

The California Coastal Act was enacted in 1976 to provide long-term protection of California's coastal resources. The Act's coastal resources management policies are based on recommendations contained in the California Coastal Plan. One such policy includes:

“Protection, enhancement and restoration of environmentally sensitive habitats, including intertidal and nearshore waters, wetlands, bays and estuaries, riparian habitat, certain wood and grasslands, streams, lakes, and habitat for rare or endangered plants or animals.”

The CCC must evaluate proposed impacts to wetlands. For wetland delineations in the Coastal Zone, the CCC utilizes a single-criteria definition (in addition to the USACE three criteria definition). Delineations performed using the CCC definition generally results in larger wetland areas than a corresponding USACE delineation of the same site. Habitat constituents within the project corridor meet both the single criteria and the three-criteria parameters based on the presence of wetland vegetation, soils, and high ground water (hydrology). A Preliminary Jurisdictional Determination has been prepared (SWCA 2009), which delineates coastal wetland areas. Arroyo Grande Creek also constitutes an environmentally sensitive habitat within the Coastal Zone, as defined by the California Coastal Act. Any proposed impacts to these habitats must conform to Coastal Act/Local Coastal Plan requirements.

4.3.3 Thresholds of Significance

The significance of potential biological impacts is based on Appendix G of the State CEQA *Guidelines*. Using these guidelines, activities requiring CEQA review within the project corridor would have a significant impact on biological resources if they would:

1. Substantially affect a rare or endangered species;
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community;
3. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act;
4. Interfere substantially with the movement of any resident or migratory species of wildlife or with established native resident or migratory wildlife corridors;
5. Conflict with any local policies or ordinances protecting biological resources;
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan;
7. Reduce the long term viability of native plant, fish, or wildlife populations;
8. Reduce species diversity or numbers of species; and,
9. Introduce invasive plant or animal species.

4.3.4 Impact Assessment and Methodology

Impacts have been analyzed using a reasonable “worst-case” scenario for plant communities, jurisdictional features, and sensitive plant and wildlife species. Potential impacts are expected to occur where proposed activities would result in temporary or permanent modification of sensitive plant communities or habitats occupied by special-status species. Impacts to biological resources were evaluated by determining the sensitivity, significance, or rarity of each resource that would be adversely affected by the proposed project. Thresholds of significance were applied to determine if the impact constitutes a significant impact. The significance threshold may be different for each resource and is based on the resource’s rarity or sensitivity and the level of impact that would result. Where potential project-related impacts to sensitive resources were identified, measures for avoiding or minimizing adverse effects to these resources are recommended.

4.3.4.1 Assessing Areas of Disturbance

To allow impacts to plant communities and jurisdictional features to be quantified, a potential area of disturbance was identified based on the WMP Conceptual Plans and proposed management activities (refer to Appendix B) overlain with GIS-based plant community and jurisdictional waters mapping data collected during field surveys conducted for this EIR. Descriptions of the factors that affect the areas of disturbance are presented below. Figure 4.3-7 shows a typical section of the channel and identifies where proposed management activities would potentially occur in relation to existing jurisdictional features.

Vegetation Management

As described in the WMP, woody vegetation would be completely removed from the channel between a 10-foot riparian buffer on each side of the low-flow stream channel and the inside toe of the levee slopes (this buffer would be 5 feet within the Los Berros Channel, and this is reflected in Table 4.3-1 below). This removal would be considered a permanent impact due to the proposed repeated vegetation clearing to facilitate flood control. Riparian vegetation within the buffer area would be hand-trimmed as necessary up to six feet from ground level, and considered subject to temporary disturbances. It should be noted that the impact areas identified for jurisdictional areas in Table 4.3-1 are not necessarily additive. That is, there is some overlap among the jurisdictions. For example, the Coastal Commission jurisdiction includes both the CDFG and USACE jurisdictional areas that are located in the Coastal Zone.

Table 4.3-1. Vegetation Management Impacts to Plant Communities and Jurisdictional Features¹

Plant Communities / Jurisdictional Features	Temporary Impacts (in acres)	Permanent Impacts (in acres)
<i>Plant Communities</i>		
Willow Riparian Woodland	12.30	10.10
Riparian Scrub	0.02	0.10
In-Stream Wetlands	4.34	0
Coyote Brush Scrub	0	0.97
Non-native (ruderal) grassland	4.10	19.39
Ornamental Vegetation	0	0.74
Agriculture ³	0	2.18
<i>Jurisdictional Features</i>		
U.S. Army Corps of Engineers Wetlands	4.47	0.36
U.S. Army Corps of Engineers Other Waters	5.70	0
California Department of Fish and Game	16.76	26.48 ²
Regional Water Quality Control Board ⁴	10.17	0.36
California Coastal Commission ⁵	5.14	9.18

1. There is overlap between the impacts to plant communities and jurisdictional features. For purposes of this EIR, mitigation recommendations are based impacts to jurisdictional features.

2. CDFG jurisdiction extends from the thalweg (low point) of the Arroyo Grande Creek channel to the tops of the levees. While permanent impacts within CDFG jurisdiction would occur between the riparian buffer and the tops of the levees, the extent of permanent impacts to vegetation would be from the riparian buffer to the outer edge of riparian vegetation within the channel. The quantity of vegetation permanently impacted (and therefore, the area requiring mitigation) will be less than the jurisdictional area listed in the table, and equates to approximately 19.9 acres.

3. The Agricultural impact area noted in this table is based on mapping of habitat types during biological resources field surveys. It differs, and is less accurate than the impact areas identified in the Agricultural Resources section of this EIR.

4. These impacts are identical to the U.S. Army Corps of Engineers Wetlands and Other Waters impact areas and should not be considered in addition to those impacts.

Sediment Management

The initial sediment management activities would include the excavation of overflow, or “secondary” channels and installation of log structures which would provide habitat while discouraging the migration of the low flow channel. The excavation would occur outside of the 10-foot buffers guiding the vegetation management activities. Maintenance of the secondary channels would be necessary over the long-term and would be conducted through use of an

excavator from the top of the levee. Installation of the log structures would require some work within the buffer, zone, although the impacts would be temporary.

Impacts to jurisdictional areas outside of the low-flow channel buffer area have been considered in the vegetation management discussion and Table 4.3-1 above and are considered permanent impacts. Because the initial and ongoing sediment management activities would occur primarily outside of the buffer area, occur simultaneously with vegetation management activities, and be temporary, no additional impacts would result.

Alternative 3a and 3c Levee Raise

Alternative 3a and 3c would require earthwork including over excavating the existing levee in some places, and placement of new fill. In some cases, portions of the toe of the levee may need to be expanded as well. This activity would effectively widen the levees at their base, but levee improvements would not encroach within the riparian buffer zone. No additional permanent or temporary impacts to jurisdictional features are expected beyond the ongoing periodic vegetation management activities already described.

Secondary Components

As described in the Project Description, the following construction activities would be required if Alternative 3c is implemented.

Union Pacific Railroad Bridge Replacement

The UPRR bridge raising which would be necessary in order for the benefits of the Alternative 3c levee raise to be realized. Based on preliminary construction drawings, the bridge raising would result in approximately 3 acres of temporary disturbance related to construction and removal of the shoe-fly track. Permanent impacts would be limited to any changes made to the footprint of the existing UPRR grade to allow for the bridge to be raised approximately 5 feet. Financial costs to implement this component, and the necessity of coordinating improvements with UPRR, will likely delay its implementation for some time. An updated assessment of potential impacts associated with the bridge raise may need to be performed once construction details are known.

Table 4.3-2. UPRR Bridge Raise Impacts to Plant Communities and Jurisdictional Features¹

Plant Communities / Jurisdictional Waters	Temporary Impacts (in acres)	Permanent Impacts (in acres)
<i>Plant Communities</i>		
Willow Riparian Woodland	0.18	0.0045
Riparian Scrub	0.03	0.0048
In-Stream Wetlands	0	0
Coyote Brush Scrub	0	0
Non-native (ruderal) grassland	1.49	0.0039

Table 4.3-2. UPRR Bridge Raise Impacts to Plant Communities and Jurisdictional Features¹

Plant Communities / Jurisdictional Waters	Temporary Impacts (in acres)	Permanent Impacts (in acres)
Ornamental Vegetation	0	0
Agriculture	0	0
<i>Jurisdictional Features</i>		
U.S. Army Corps of Engineers Wetlands	0	0
U.S. Army Corps of Engineers Other Waters	0	0.28
California Department of Fish and Game	0.10	0
Regional Water Quality Control Board	0	0.28
California Coastal Commission	0	0

1. There is overlap between the impacts to plant communities and jurisdictional features. For purposes of this EIR, mitigation recommendations are based impacts to jurisdictional features. Refer to Table 4.3-1 for additional clarifications and information.

Structure Encroachment

These activities would require construction of retaining walls, flood walls, or would require the relocation or demolition of structures. They would not require significant earthwork by heavy machinery and would not be expected to impact sensitive vegetation or species, as this work would occur mainly along or outside of the levees.

22nd Street Bridge Modification

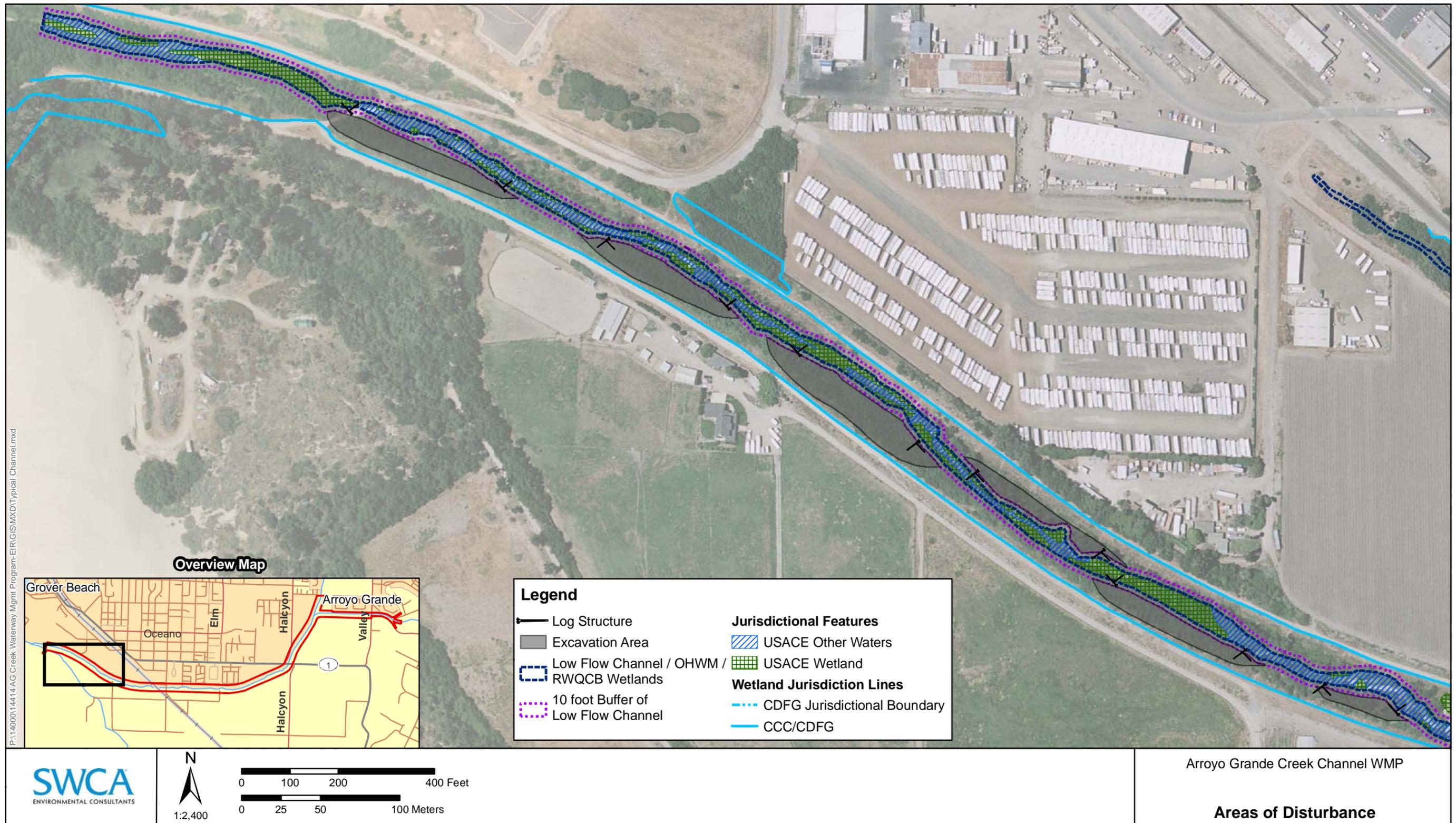
This activity requires modifications to the bridge railings, but significant earthwork or disturbance within the channel would not be required.

4.3.4.2 Development of Mitigation

The WMP was developed to provide guidance for increasing flood capacity of the Arroyo Grande Creek Channel, but also to provide a framework for: (1) addressing the impacts which would result from those activities, and (2) enhancing habitat within the channel. Therefore, the mitigation measures recommended rely on monitoring, performance, and protection measures already included in the WMP, to the extent feasible. If those are exhausted, standard agency mitigation measures addressing impacts are recommended. In some cases, due to the unique nature of this project, additional mitigation measures have been developed. These measures would then be incorporated into the WMP directly, integrated into the various Work Plans required by the WMP, or be shown on construction plans, as applicable.

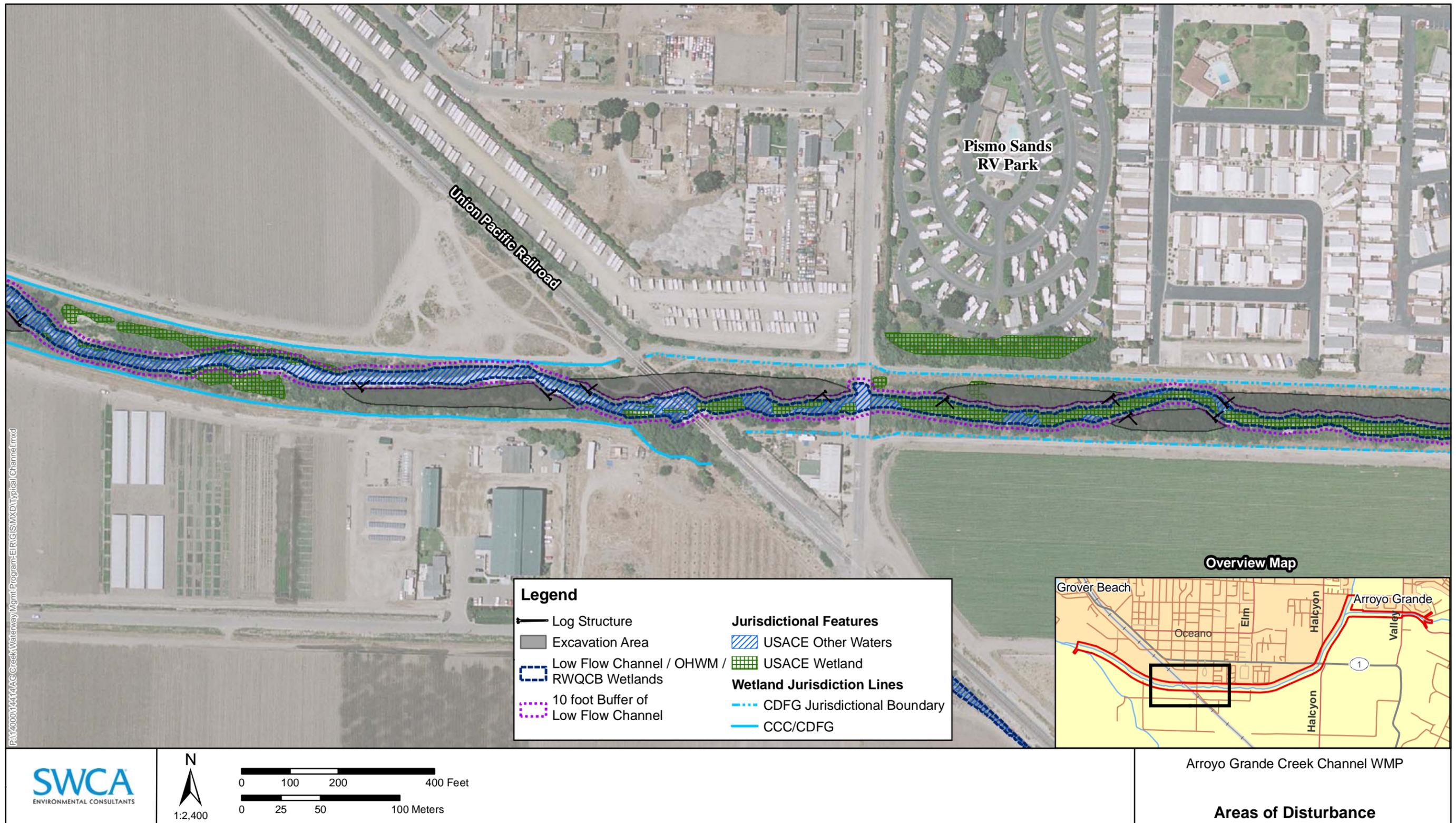
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Figure 4.3-7. Areas of Disturbance



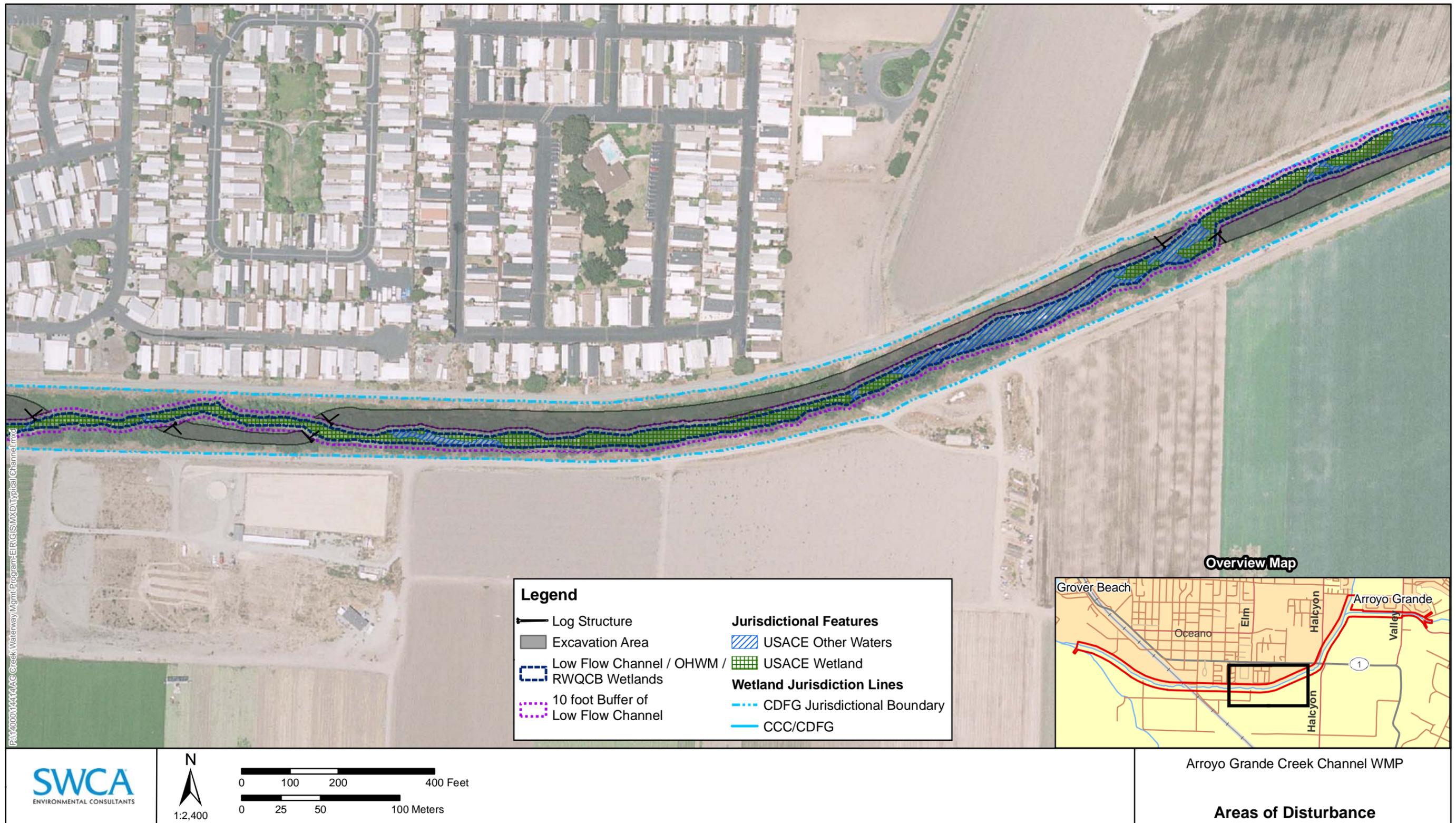
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Figure 4.3-8. Areas of Disturbance



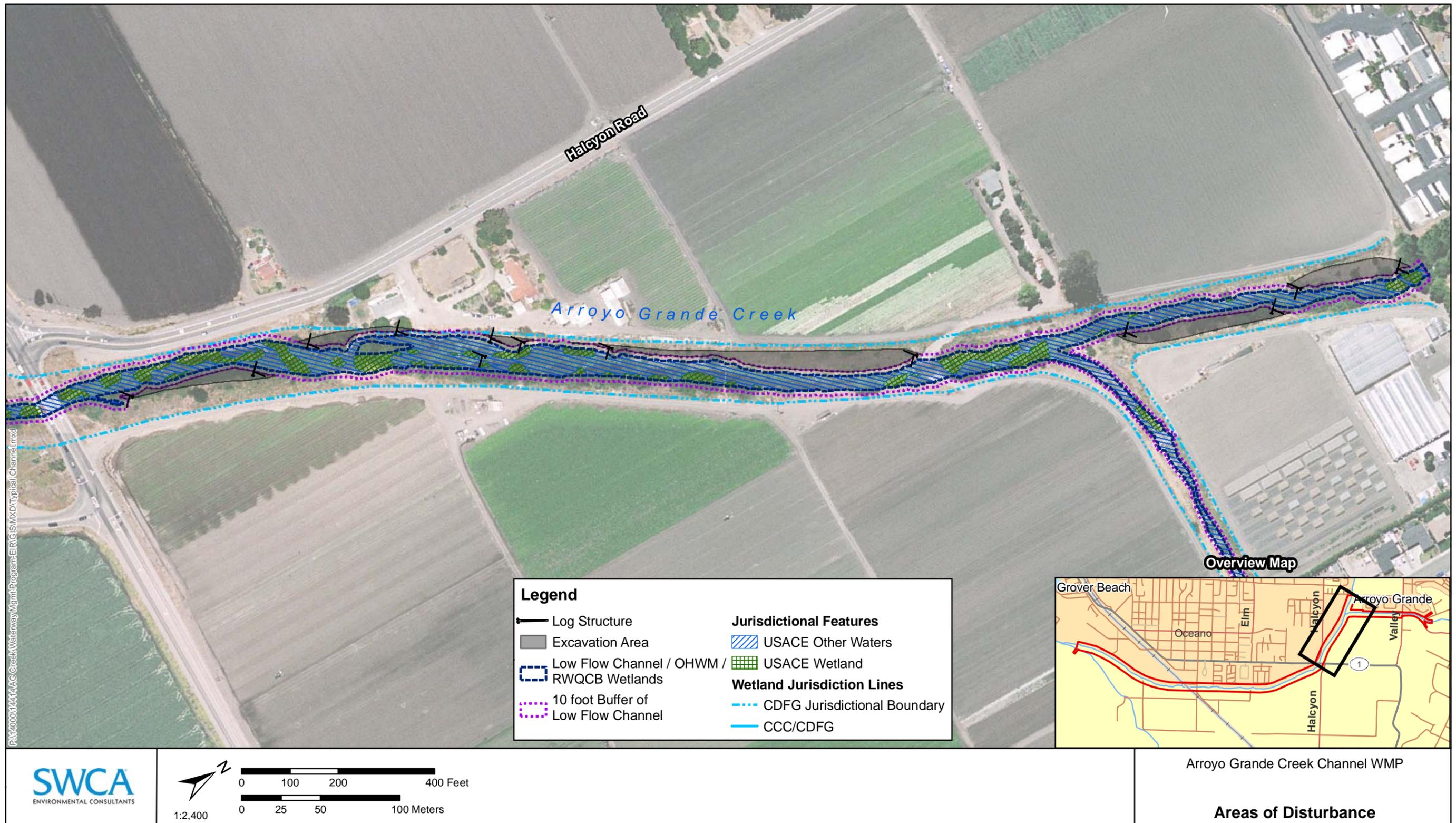
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Figure 4.3-9. Areas of Disturbance



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Figure 4.3-10. Areas of Disturbance



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Figure 4.3-11. Areas of Disturbance



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4.3.5 Project-Specific Impacts and Mitigation Measures

The vegetation and sediment management components of the WMP would be the first components of the project to be implemented, the ones that would potentially result in the most permanent and temporary impacts to biological resources, and are likely to occur simultaneously during annual implementation of the WMP. Therefore the discussion of potential impacts and recommended mitigation measures for these components of the project are considered together in the discussion below. The discussion is structured to address impacts by component, and by resource type (i.e. plant communities, jurisdictional features, sensitive plants, and sensitive wildlife).

4.3.5.1 Plant Communities and Jurisdictional Features

Vegetation and Sediment Management

As discussed above and shown in Table 4.3-1 these components of the project would permanently impact 26.48 acres of CDFG jurisdictional areas, of which approximately 19.9 acres are occupied by riparian vegetation. These jurisdictional areas include 0.36 acre of USACE/RWQCB jurisdictional wetlands, and 9.18 acres of CCC jurisdictional areas. A combination of handwork and heavy machinery would be used for removal of vegetation outside of the riparian buffer. These activities would be considered permanent as they would be ongoing and critical to maintaining the roughness goals (manning's coefficient of 0.04) of the WMP. Within the buffer, vegetation management would include removal by hand of horizontal branches up to six feet from ground level.

Vegetation and sediment management would be conducted as often as necessary (possibly every one to three years) through an adaptive management approach that would include regular reconnaissance surveys, as well as site visits with regulatory agency staff as needed. Sediment management is not expected to occur as frequently (possibly once every five years). These activities are fully described in the WMP (refer to Appendix B).

The WMP also includes three vegetation enhancement activities within the channel, including: (1) systematic removal of invasive, exotic species; (2) increasing species diversity within the buffer area; and (3) increasing the canopy cover throughout the project area by filling in gaps in the existing riparian vegetation within the buffer area.

These three activities, along with the vegetation and sediment management activities would be included within the annual workplan required by MON VEG-1 in the WMP. Preparation of the workplan would allow the San Luis Obispo County Flood Control and Water Conservation District (District) and resource agencies to monitor the affects of previous management efforts, and would provide resource agencies an opportunity to comment on management activities the District for the upcoming season.

The mitigation strategy included below recommends replacement in-kind for permanent impacts to plant communities and jurisdictional areas through development of a Mitigation and Monitoring Plan (MMP), and reliance on the habitat enhancement strategies in the WMP to mitigate initial and ongoing temporary impacts to these areas.

BR Impact 1 **Vegetation and sediment management would include the permanent loss of approximately 26.48 acres of CDFG jurisdiction, 0.36 acres of USACE/RWQCB wetlands, and 9.18 acres of coastal wetlands within Arroyo Grande Creek channel and Los Berros Creek, resulting in a significant impact.**

Mitigation Measures

BR/mm-1 *Prior to implementation of any component of the WMP, the District shall obtain a Section 404 Permit from USACE, a Section 401 Water Quality Certification from RWQCB, a Coastal Development Permit from the CCC, and a Section 1602 Streambed Alteration Agreement from CDFG for project-related impacts that will occur in areas under the jurisdiction of these regulatory agencies.*

BR/mm-2 *Prior to construction, to mitigate for the permanent impacts the District shall develop a Mitigation Monitoring Plan (MMP) in consultation with the appropriate regulatory agencies due to the known presence of sensitive habitats and jurisdictional wetlands/other waters within the project site. The MMP shall include success criteria goals and a five-year monitoring schedule. A qualified biologist/botanist shall supervise site preparation, timing, species utilized, planting installation, maintenance, monitoring, and reporting of the revegetation/restoration efforts. The following measures shall be incorporated into the MMP:*

- a. Prior to construction, locations of wetlands to be avoided shall be flagged by a qualified biologist. The areas to be protected should be shown on all applicable construction plans. Prior to any vegetation or sediment removal, exclusionary fencing should be erected by the contractor at the boundaries of all construction areas to avoid equipment and human intrusion into adjacent habitats. The fencing should be maintained and remain in place throughout construction activities.*
- b. Prior to construction, the District shall specify an on-site mitigation strategy (or combination of on-site and off-site) in the MMP to mitigate for impacts to sensitive habitats which would be impacted. This plan should identify the following:*
 - i. Suitable on-site mitigation locations (or off-site locations, if there is not enough suitable space along Arroyo Grande Creek) based on soil type, hydrologic conditions, and proximity to existing sensitive species populations;*
 - ii. Seed collection and cuttings/plantings requirements and protocol;*
 - iii. Soil seed bank conservation strategies;*
 - iv. Mitigation site preparation techniques;*

- v. *Seeding regimen;*
- vi. *Mitigation site maintenance schedule, including weed abatement strategies, erosion control monitoring, etc.; and,*
- vii. *Monitoring requirements.*

c. *The MMP will be implemented after initial vegetation and sediment removal activities.*

BR/mm-3 Prior to initiation of WMP activities, the District shall retain qualified biological monitor(s) approved by all involved regulatory agencies to ensure compliance with mitigation measures pertaining to biological resources. Monitoring will occur throughout the length of initial vegetation and sediment removal and during supplemental vegetation and sediment removal, or as directed by the regulatory agencies.

BR/mm-4 Prior to initial, and during subsequent management activities,, the project site shall be clearly flagged or fenced so that the contractor is aware of the limits of allowable site access and disturbance.

BR/mm-5 Prior to initiation of WMP activities, the District shall prepare a Hazardous Materials (HAZMAT) Response Plan to allow for a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

BR/mm-6 Prior to initiation of WMP activities, if stream diversion/dewatering shall be necessary for any component of the project, the District shall prepare a Diversion and Dewatering plan. The form and function of all pumps used during the dewatering activities shall be checked by biological monitor(s) to ensure a dry work environment and minimize adverse effects to aquatic species and habitats.

BR/mm-7 During implementation of the WMP, all equipment staging areas, construction-crew parking, and construction access routes shall be established in previously disturbed areas.

BR/mm-8 During implementation of the WMP, the cleaning and refueling of equipment and vehicles shall occur only within a designated staging area and at least 65 ft (20 m) from wetlands, other waters, or other aquatic areas. This staging area shall conform to BMPs applicable to attaining zero discharge of stormwater runoff. At a minimum, all equipment and vehicles shall be checked and maintained on a daily basis to ensure proper operation and avoid potential leaks or spills.

BR/mm-9 During implementation of the WMP, all project-related hazardous materials spills within the project site shall be cleaned up immediately. Spill prevention and cleanup materials shall be on-site at all times during construction.

- BR/mm-10 During implementation of the WMP, trash shall be contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.*
- BR/mm-11 During implementation of the WMP, no pets shall be allowed on the construction site.*
- BR/mm-12 After diversion/dewatering (if necessary) has been completed, all material used for diversion/dewatering shall be removed from creek corridor under the supervision of the biological monitor(s) or qualified fisheries biologist.*
- BR/mm-13 Following initial vegetation and sediment removal, areas of temporary disturbance shall be restored using topsoil salvage and hydroseeding with appropriate non-invasive herbaceous species for erosion control. Because native plant species are likely to be out-competed by non-native species, a ground-cover mix is recommended for impacted areas. Topsoil salvage methods and seed mixes shall be specified in the MMP. Hydroseeded areas shall be monitored by a qualified restoration biologist and/or horticulturalist for viability and overall success, with additional recommendations as necessary.*
- BR/mm-14 To reduce impacts of beaver dams on flood control in the Arroyo Grande Creek channel, coordinate with CDFG to implement beaver management as outlined in the WMP.*

Residual Impact

As they are key components of the project required for increasing flood control capacity, temporary and permanent impacts to riparian vegetation and jurisdictional wetlands/other waters along Arroyo Grande Creek and Los Berros Creek associated with the proposed project would be unavoidable. In order to be consistent with regulatory agency standards for “no net loss” of wetlands, mitigation will be required to offset permanent impacts to jurisdictional features, through a combination of on-site and off-site, in-kind and out-of-kind, restoration, and enhancement. With implementation of these measures, the impact would be *less than significant*. No additional mitigation is required.

BR Impact 2 Vegetation and sediment management would include temporary impacts of up to approximately 16.76 acres of CDFG jurisdiction, 10.17 acres of USACE/RWQCB wetlands, and 5.14 acres of coastal wetlands annually within Arroyo Grande Creek and Los Berros Creek, resulting in a significant impact.

Mitigation Measures

Implement PM VEG-1 through 4, PM SED 4 and 5, and BR/mm- 1, and 3-14.

Residual Impact

The PM VEG and SED measures in the WMP require the District to maintain or increase canopy cover within the project area, remove invasive species, and improve species diversity (planting sycamore or cottonwood, for example) within the buffer area. As described in the WMP, these efforts would be included in the workplans submitted to agencies annually. The

results of the efforts would be measured every three years. After implementation of these measures, ongoing temporary impacts to riparian habitat and jurisdictional areas would be *less than significant*. No additional mitigation is required.

Alternative 3a and 3c Levee Raise

Alternative 3a and 3c would require earthwork including over excavating the existing levee in some places, and placement of new fill. In some cases, portions of the toe of the levee may need to be expanded as well. This activity would effectively widen the levees at their base, but levee improvements would not encroach within the riparian buffer zone. No additional permanent impacts are expected beyond the ongoing periodic vegetation and sediment management activities already described. Alternative 3c construction techniques would be similar to those described for Alternative 3a, but earthwork would be more substantial, requiring more fill and carried out over a longer work schedule. The toe of the levees would encroach more into the channel than compared to Alternative 3a, but not into the riparian buffer zone. Encroachment on the channel side of the levees has been minimized as much as possible, because it would disturb habitat and reduce the capacity of the channel.

BR Impact 3 Construction of the Alternative 3a and/or 3c levee raise would temporarily impact to jurisdictional areas, resulting in a significant impact.

Mitigation Measures

Implement PM VEG-1 through 4, PM SED 4 and 5, and BR/mm-1 through 14, as applicable.

Residual Impact

These measures in the WMP along with the additional mitigation measures recommended to address temporary impacts resulting from the vegetation and sediment management components of the WMP would also apply to temporary impacts resulting from construction of the Alternative 3a and 3c levee raise projects. With implementation impacts would be *less than significant*. No additional mitigation is required.

Secondary Components

Based on Table 4.3-2, the UPRR bridge raising project would temporarily disturb approximately 0.1 acres of jurisdictional features and permanently disturb 0.28 acres of jurisdictional features. Much of this disturbance however would include areas within the channel which would already have been disturbed by the vegetation and sediment management activities by the time this component occurs. Due to the lack of specificity in regards to this component of the project and the relatively long amount of time which may pass before it is implemented, specific impacts to plant communities and jurisdictional areas are somewhat speculative. Subsequent environmental review may be required at such time as this component has been further refined and a potential construction schedule is known.

BR Impact 4 Replacement of the Union Pacific Railroad Bridge would permanently impact 0.28 acres of USACE/RWQCB wetlands and temporarily impact 0.1 acres of CDFG jurisdictional areas, resulting in a significant impact.

Mitigation Measures

Implement BR/mm-1 through 14 as applicable to the UPRR component of the project.

Residual Impact

In order to be consistent with regulatory agency standards for “no net loss” of wetlands, mitigation will be required to offset permanent impacts to jurisdictional features, through a combination of on-site and off-site, in-kind and out-of-kind, restoration, and enhancement. With implementation of these measures, the impact would be *less than significant*. No additional mitigation is required.

The PM VEG and SED measures in the WMP require the District to maintain or increase canopy cover within the project area, remove invasive species, and improve species diversity (planting sycamore or cottonwood, for example) within the buffer area. As described in the WMP, these efforts would be included in the workplans submitted to agencies annually. The results of the efforts would be measured every three years. After implementation of these measures, ongoing temporary impacts to riparian habitat and jurisdictional areas would be *less than significant*. No additional mitigation is required.

4.3.5.2 Sensitive Plant Species

Vegetation and Sediment Management

Although sensitive plant species were not observed during floristic surveys and are not expected to occur along the portion of Arroyo Grande Creek within the project area, there remains a limited potential with the passage of time that the federally listed marsh sandwort, Gambel’s watercress, or other sensitive plant species could be found within the project corridor, due to the presence of suitable habitat. If found to occupy habitat within the project corridor, project activities could result in the take of sensitive plant species.

BR Impact 5 Implementation of the WMP could result in take of federally listed marsh sandwort, Gambel’s watercress, or other sensitive plant species

Mitigation Measures

BR/mm-15 During construction or subsequent survey efforts, if marsh sandwort, Gambel’s watercress, or other sensitive species are observed within the project corridor by biological monitor(s), areas with sensitive plant species will be fenced or marked for avoidance until coordination with regulatory agencies can be facilitated to obtain incidental take (if necessary) or mitigation can be developed to avoid, minimize, or offset impacts to sensitive plant species.

Residual Impact

These measures would require the District to replace in-kind all permanently impacted jurisdictional areas through development and implementation of an MMP. Because the goal of the WMP is to reduce the quantity of vegetation within the channel to allow for greater flood capacity, it is unlikely that replacement efforts would occur within the project corridor. However, there are a number of potential habitat improvement projects in the Arroyo Grande Creek watershed that have been identified by the Central Coast Salmon Enhancement. These projects could provide opportunities for offsite mitigation efforts. Impacts to sensitive plant

species are not expected in the short-term and remain unlikely in the long-term. With implementation of these measures, the impact would be *less than significant*. No additional mitigation is required.

Alternative 3a and 3c Levee Raise

No sensitive plant species were observed during floristic surveys and are not expected to occur along the portion of Arroyo Grande Creek within the project area after implementation of the vegetation management activities (with the buffer area within the channel being one potential exception). Still, due to funding limitations, it is possible that the Alternative 3a or 3c levee raise projects would not occur for 5 years or more after approval of initial permits for the WMP. With the passage of time there is potential that the federally listed marsh sandwort, Gambel's watercress, or other sensitive plant species could be found within the project area due to the presence of suitable habitat.

BR Impact 6 Implementation of the levee raise components of the project could result in take of federally listed marsh sandwort, Gambel's watercress, or other sensitive plant species.

Mitigation Measures

BR/mm-16 Prior to finalization of the Alternative 3a and/or 3c levee raise components of the project, a qualified biologist shall perform an updated full floristic survey of the proposed area of disturbance to identify sensitive species which could be impacted during construction.

BR/mm-17 If marsh sandwort, Gambel's watercress, or other sensitive species are observed within the area of disturbance the District the plans shall be redesigned to avoid these species to the extent feasible, and coordinate with regulatory agencies to facilitate to obtain incidental take (if necessary) or mitigation can be developed to avoid, minimize, or offset impacts to sensitive plant species.

Residual Impact

Impacts to sensitive plant species are not expected in the short-term and remain unlikely in the long-term due to the proposed vegetation maintenance outside of the buffer area. With implementation of this measure, the impact would be *less than significant*. No additional mitigation is required.

Secondary Components

As with the levee raise component, the UPRR bridge raise may not occur for a number of years. Refer to BR Impact 9, and BR/mm-33 and 34. These impacts and mitigation measures would also be applicable to the UPRR bridge raise component.

4.3.5.3 Sensitive Wildlife Species

Vegetation and Sediment Management

Tidewater goby and south-central California coast steelhead

Vegetation and sediment removal activities have the potential to directly and/or indirectly impact the federally listed tidewater goby and south-central California coast steelhead.

Vegetation management activities would result in removal of large amounts of vegetation from Arroyo Grande Creek, and less so for Los Berros Creek. Streamside vegetation enhances aquatic habitat conditions by providing shade, terrestrial insects, and instream cover habitat. The trimming or removal of riparian vegetation would likely permanently affect overhanging vegetation and microclimate conditions in overflow areas on the outer edge of the riparian buffer in each drainage; however, areas within the riparian buffer zone along the typically wetted portions of the streams would only be subjected to temporary impacts associated with periodic limbing/trimming, and would not be expected to significantly affect habitat and microclimate conditions for steelhead and other fish within the typically wet portions of Arroyo Grande Creek and Los Berros Creek. A Mitigation and Monitoring Plan would also be implemented, which would compensate for losses of riparian vegetation and would function to replace lost habitat.

Water quality is important for aquatic life and maintaining quality of steelhead critical habitat for rearing and spawning. Sediment removal activities would not be expected to result in direct impacts to water quality if conducted during dry conditions, but alteration of the substrate topography in overflow areas of Arroyo Grande Creek could result in future alteration of water quality in those areas during overflow conditions. Installation and removal of temporary stream diversions would likely temporarily increase the potential for sedimentation and turbidity, which can result in fish mortality, reduce the effectiveness of feeding behaviors, and decrease food sources. Although turbidity and sedimentation rates are expected to increase during installation of the temporary diversion, these increases are not expected to significantly affect tidewater goby or steelhead habitat because they would be temporary, localized, similar to or less than the levels fish species can be subjected to as part of natural storm flow events, and would be expected to settle out relatively quickly. Use of heavy equipment also has the potential to accidentally release hazardous materials harmful to aquatic life. To further reduce potential inputs of hazardous substances to the stream all equipment and vehicles will operate only outside of flowing water and all servicing and staging of vehicles will be conducted away from the stream channel (at minimum of 20 m) in designated areas and a Hazardous Materials Response Plan will be prepared and implemented.

In addition to the direct loss of habitat, installation of the log structures during the initial sediment removal may require dewatering portions of the creek. The excavations would be limited in size and occur during the dry season, so it is unlikely that vegetation or sediment management activities would require dewatering when surface flows exist..

Prior to any dewatering process, if necessary, tidewater goby and steelhead would be relocated from wetted areas where work will be conducted. While the goal of relocation is to avoid injury or mortality, relocated fish will unavoidably be subjected to the stresses of capture, handling, and relocation. Arroyo Grande Creek has a viable steelhead population, and an unknown number of steelhead would potentially require relocation during dewatering activities (although abundance surveys performed in the channel only identified 0.004 fish/feet of channel, or 4 per 1000 feet). It is anticipated that any incidental injury or mortality of steelhead associated with

implementation of the proposed project would be low with the use of qualified biological monitors experienced in salmonid capture, handling, and relocation. The potential types of impacts to tidewater goby are similar, but would be less expected, as potential for tidewater goby presence is reduced with increased distance upstream from the lagoon.

Any project-related activities that affect instream habitat could potentially affect food resources for tidewater goby and steelhead, such as aquatic invertebrates. Individual benthic aquatic insects would be expected to be affected when sections of the creek would be temporarily dewatered. Effects to aquatic insects resulting from the stream diversion would be temporary because diversion/dewatering activities would be relatively short, and short-term recolonization of disturbed areas by invertebrates would be likely. The effect of insect loss on tidewater goby and steelhead would be at least partially countered by food from upstream sources carried through the diversion pipe that would remain available to fish downstream of the diversion.

The sediment management component of the WMP is intended to enhance aquatic habitats as well. Specifically, the secondary channels would potentially create complex flow conditions that may create habitat (eddies, backwater, scour) for aquatic species. This component would also include the installation of large woody structures at the intersection of the primary and low-flow channels. These structures have been proposed to reduce the potential for headcutting into the primary channel and to encourage pool scour and mimic an undercut bank. They also will provide important escape cover habitat during high flow conditions when steelhead are attempting to migrate through the project reach. This type of habitat has been shown to be lacking through the project reach.

The WMP has been designed with performance measures for steelhead, including maintaining or increasing cover habitat for steelhead, despite the loss of vegetation outside of the buffer area. Protection measures for steelhead are also included in the WMP. These would also result in protections for tidewater goby. Implementation of WMP Protection Measures PM-4, PM-5, and PM-6 would minimize impacts to steelhead and tidewater goby and result in less risk of injury or mortality to these sensitive fish species.

BR Impact 7 **Vegetation and sediment removal activities have the potential to directly and/or indirectly impact the federally listed tidewater goby and south-central California coast steelhead.**

Mitigation Measures

Implement WMP Performance Measures PM SED-4 and 5, and Protection Measures PM-3, PM-4, and PM-5, and BR/mm-1 through 14.

BR/mm-18 Prior to construction, the District shall coordinate with USACE via the Section 404 permitting process to acquire incidental take authorization from 1) USFWS through a FESA Section 7 Biological Opinion and Incidental Take Statement for tidewater goby; and, 2) NMFS through a FESA Section 7 Biological Opinion and Incidental Take Statement for steelhead.

BR/mm-19 Prior to construction, a component including a description of tidewater goby and south-central California coast steelhead, their ecology, legal status, and the need for conservation of these species shall be integrated into a worker environmental training program. All construction personnel conducting in-

stream work shall participate in the training program conducted by a qualified biologist.

BR/mm-20 If in-stream work is necessary, a qualified biologist shall be retained with experience in tidewater goby and steelhead biology and ecology, aquatic habitats, biological monitoring (including diversion/dewatering), and capturing, handling, and relocating fish species. During in-stream work, the biological monitor(s) shall continuously monitor placement and removal of any required stream diversions to capture stranded steelhead and other native fish species and relocate them to suitable habitat as appropriate. The biologist(s) shall capture native fish stranded as a result of diversion/dewatering and relocate them to suitable instream habitat immediately downstream of the work area. The biologist shall note the number of native fish observed in the affected area, the number of fish relocated, and the date and time of the collection and relocation.

BR/mm-21 During construction, non-native fish and other aquatic species shall be permanently removed from Arroyo Grande Creek when captured.

BR/mm-22 During in-stream work, if pumps are incorporated to assist in temporarily dewatering the site, intakes shall be completely screened with no larger than 0.2 inch (five mm) wire mesh to prevent tidewater goby, steelhead, and other sensitive aquatic species from entering the pump system. Pumps shall release the additional water to a settling basin allowing the suspended sediment to settle out prior to re-entering the stream(s) outside of the isolated area. The form and function of all pumps used during the dewatering activities shall be checked daily, at a minimum, by a qualified biological monitor to ensure a dry work environment and minimize adverse effects to aquatic species and habitats.

BR/mm-23 During construction, the biological monitor shall monitor erosion and sediment controls to identify and correct any conditions that could adversely affect sensitive aquatic species or habitats. The biological monitor shall be granted the authority to halt work activity as necessary and to recommend measures to avoid/minimize adverse effects to steelhead and steelhead habitat.

Residual Impact

Impacts to and take of federally listed tidewater goby and steelhead are likely to occur as a result of the proposed project. With implementation of these measures and the other previous measures, the impacts would be *less than significant*. These measures may be refined by USFWS and NMFS in federal Biological Opinions that would be required prior to implementation of the WMP.

California Red-legged Frog

Vegetation and sediment removal activities and ongoing maintenance have the potential to directly and/or indirectly impact the federally listed California red-legged frog. Stream diversion/dewatering, if required, could directly impact and result in take of California red-legged frog; Introduction of sediment into wetted portions of Arroyo Grande Creek could directly and/or

indirectly impact California red-legged frog. Removal of vegetation and sediment could directly impact California red-legged frogs residing in drier areas adjacent to the riparian zone buffer.

Stream diversion/dewatering, if required, would remove shelter, breeding habitat, and foraging habitat by dewatering the creek channel, as well as trimming riparian vegetation within the buffer zone and permanent removal of vegetation outside the buffer zone in overflow areas; however, California red-legged frog habitat within the typically wetted portions of Arroyo Grande Creek and Los Berros Creek would be expected to recover to their pre-construction condition. Impacts to water quality, as described previously for tidewater goby and steelhead, could also impact California red-legged frog. California red-legged frogs that are not detected and relocated during preconstruction surveys could be subjected to injury or mortality or otherwise harmed by worker foot traffic. An unknown number of California red-legged frogs would be affected.

The WMP has been designed with protection measures for California red-legged frog. Implementation of WMP Protection Measures PM-1 and PM-6 would minimize impacts to California red-legged frog and result in less risk of injury or mortality to this and other sensitive aquatic species.

In anticipation that USACE would serve as the lead federal agency for the proposed project, and that a Clean Water Act Section 404 would be issued by USACE, recommended avoidance, minimization, and mitigation measures, include the following as provided by the *Programmatic Formal Endangered Species Act Consultation on Issuance of Permits under Section 404 of the Clean Water Act or Authorizations under the Nationwide Permit Program for Projects that May Affect the California Red-legged Frog* (USFWS 1999). With the use of protective measures contained in the USACE programmatic biological opinion, it is anticipated that few, if any, California red-legged frogs would likely be killed or injured during implementation of the project. These measures provide overlap with Protection Measure PM-1 for California red-legged frog presented in the WMP.

BR Impact 8 Vegetation and sediment management activities have the potential to directly and/or indirectly impact the federally listed California red-legged frog.

Mitigation Measures

Implement BR/mm-3 through 14, 22, and 23.

BR/mm-24 At least 15 days prior to the onset of activities, the District or project proponent shall submit the name(s) and credentials of biologists who would conduct activities specified in the following measures. No project activities shall begin until proponents have received written approval from the Service that the biologist(s) is qualified to conduct the work.

BR/mm-25 A Service-approved biologist shall survey the work site two weeks before the onset of activities. If California red-legged frogs, tadpoles, or eggs are found, the approved biologist shall contact the Service to determine if moving any of these life-stages is appropriate. In making this determination the Service shall consider if an appropriate relocation site exists. If the Service approves moving animals, the approved biologist shall be allowed sufficient time to move California red-legged frogs from the work site before work activities

begin. Only Service-approved biologists shall participate in activities associated with the capture, handling, and monitoring of California red-legged frogs.

BR/mm-26 Prior to initiation of the WMP, a Service-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the California red-legged frog and its habitat, the importance of the California red-legged frog and its habitat, the general measures that are being implemented to conserve the California red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.

BR/mm-27 A Service-approved biologist shall be present at the work site until such time as all removal of California red-legged frogs, instruction of workers, and habitat disturbance have been completed. After this time, the contractor or permittee shall designate a person to monitor on-site compliance with all minimization measures. The Service-approved biologist shall ensure that this individual receives training outlined in the above measure and in the identification of California red-legged frogs. The monitor and the Service-approved biologist shall have the authority to halt any action that might result in impacts that exceed the levels anticipated by the Corps and Service during review of the proposed action. If work is stopped, the Corps and Service shall be notified immediately by the Service-approved biologist or on-site biological monitor.

BR/mm-28 The number of access routes, number and size of staging areas, and the total area of the activity shall be limited to the minimum necessary to achieve the project goal. Routes and boundaries shall be clearly demarcated, and these areas shall be outside of riparian and wetland areas. Where impacts occur in these staging areas and access routes, restoration shall occur as identified in measures above.

BR/mm-29 A Service-approved biologist shall permanently remove, from within the project area, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes, to the maximum extent possible. The permittee shall have the responsibility to ensure that their activities are in compliance with the California Fish and Game Code.

Residual Impact

Impacts to and take of federally listed California red-legged frog are likely to occur as a result of the proposed project. Permanent losses to habitat would be mitigated through development of the MMP. Temporary impacts would be mitigated through the measures listed above. With implementation of these measures and the other previous measures, the impacts would be *less than significant*. Additional mitigation measures may eventually be required by USFWS and CDFG.

Other Sensitive Wildlife Species

Vegetation and sediment removal activities and ongoing maintenance have the potential to directly and/or indirectly impact Coast Range newt, southwestern pond turtle, coast horned lizard, and two-striped garter snake, which are all California Species of Special Concern. Potential impacts previously described for tidewater goby, steelhead, and California red-legged frog would also apply for the aquatic Coast Range newt, southwestern pond turtle, and two-striped garter snake. Coast horned lizard has a more limited potential of occurring along drier areas of Arroyo Grande Creek and Los Berros Creek. Monitoring by qualified biologists and capture and relocation of these species when observed (if necessary) would minimize impacts to these species and reduce the risk of injury or mortality.

BR Impact 9 **Vegetation and sediment management activities have the potential to directly and/or indirectly impact the following California Species of Special Concern: Coast Range newt, southwestern pond turtle, coast horned lizard, and two-striped garter snake.**

Mitigation Measures

BR/mm-30 *Prior to initiation of the WMP, the District shall obtain a letter of permission (or similar authorization) from CDFG to capture and relocate Coast Range newt, southwestern pond turtle, coast horned lizard, two-striped garter snake and other CSC species from work areas encountered during construction as necessary. Qualified biologists shall conduct a pre-construction survey for these species in areas where construction will occur. The qualified biologists shall capture and relocate these sensitive species or other sensitive aquatic species to suitable habitat outside of the area of impact. Observations of Species of Special Concern or other special-status species shall be documented on CNDDDB forms and submitted to CDFG.*

Residual Impact

Impacts to special status wildlife species are likely to occur as a result of the proposed project. With implementation of this measure and the other previous measures, the impacts would be *less than significant*. Additional mitigation measures may eventually be required by regulatory agencies, to be determined during the permitting process.

Nesting Birds

Vegetation removal activities, including trimming of riparian vegetation within the buffer zone, have the potential to directly and/or indirectly impact nesting Cooper's hawk, sharp-shinned hawk, yellow warbler, white-tailed kite, purple martin, and other nesting bird species. Sedimentation removal activities and ongoing maintenance have the potential to indirectly impact nesting birds via noise and other disturbance associated with construction. Although riparian vegetation is present, western yellow-billed cuckoo, least Bell's vireo, and southwestern willow flycatcher are not expected to nest within the project corridor due to unsuitable types of riparian habitat present and a lack of historical nesting records in the region.

BR Impact 10 **Vegetation and sediment management have the potential to directly and/or indirectly impact nesting bird species.**

Mitigation Measures

- BR/mm-31 Prior to construction, vegetation removal shall be scheduled to occur outside of the typical nesting season (vegetation removal after August 15) if possible, to prevent birds from nesting within areas of disturbance during or just prior to construction.*
- BR/mm-32 Prior to construction, if construction activities are proposed to occur during the typical nesting season (between February 15 and August 15 as outlined in WMP Protection Measure PM-2) within 300 ft (90 m) of potential nesting habitat, a nesting bird survey shall be conducted by qualified biologists in potential nesting habitat at least two weeks prior to construction to determine presence/absence of nesting birds within the area of disturbance. Work activities shall be avoided within 100 ft (30 m) of active bird nests and 300 ft (90 m) of active raptor nests until young birds have fledged and left the nest. Readily visible exclusion zones shall be established in areas where nests must be avoided. USFWS and CDFG shall be contacted for additional guidance if nesting birds are observed within or near the boundaries of the project site. Nests, eggs, or young of birds covered by the MBTA and California Fish and Game Code shall not be moved or disturbed until the end of the nesting season or until young fledge, whichever is later, nor would adult birds be killed, injured, or harassed at any time.*
- BR/mm-33 The District shall ensure avoidance of take of the Fully Protected white-tailed kite at all times.*
- BR/mm-34 Vegetation removal in potential nesting habitats shall be monitored and documented by the biological monitor(s) regardless of time of year.*

Residual Impact

Impacts to nesting birds as a result of the proposed project are possible but can be avoided by removing vegetation outside of the nesting season, or with pre-construction surveys and implementation of exclusion zones around active nests, as necessary. With implementation of these measures and the other previous measures, the impacts would be *less than significant*. Additional mitigation measures may eventually be required by regulatory agencies, to be determined during the permitting process.

Alternative 3a and 3c Levee Raise

While raising the levees would increase the size of these features as barriers to terrestrial wildlife movement along a portion of the channel, it would not otherwise be expected to impact wildlife species other than via the generation of noise and disturbance associated with the activity. All levee work would be conducted by heavy equipment restricted to the top or immediate vicinity of the levees. The tops of the levees would be subjected to routine temporary disturbance from heavy equipment and vehicles for maintenance purposes (levee, vegetation, and sediment maintenance).

- BR Impact 11 Implementation of the levee raise components of the project could result in take of sensitive wildlife species including the California red-legged frog and two striped garter snake, among others.**

Mitigation Measures

Implement BR/mm-3, 14, and 22 through 29.

Residual Impacts

Impacts to special status wildlife species are likely to occur as a result of the levee raise component of the proposed project. With implementation of these measures the impacts would be *less than significant*. These measures may need to be refined by regulatory agencies, during the permitting process, particularly if the levee raise activities do not occur in the near future.

Secondary Components

Because this component would require construction within channel, including within the buffer zone, sensitive wildlife species which could be affected by the UPRR bridge raise include all of those previously discussed in the vegetation and sediment management discussion. In addition, replacement of the Union Pacific Railroad Bridge has the potential to impact nesting birds, pallid bat, Townsend's big-eared bat, or other roosting bats, if these species are found to be using the bridges as artificial habitat prior to construction.

BR Impact 12 Replacement of the Union Pacific Railroad bridge and modification of the 22nd Street Bridge have the potential to impact nesting birds, pallid bat, Townsend's big-eared bat, or other roosting bats.

Mitigation Measures

BR/mm-35 Prior to bridge demolition, a qualified biologist shall conduct a nest survey and any unoccupied nests (such as cliff swallow nests) under the existing bridge shall be knocked down prior to the typical nesting season (nests removed from August 16 to February 14) to discourage nesting activity just prior to demolition. After February 14, pre-construction surveys by qualified biologists shall continue on a weekly basis to determine if any new nesting activity has occurred under the existing bridges. Partially constructed but unoccupied nests shall be destroyed before they are 1/3 complete. The District shall coordinate with the appropriate regulatory agencies to allow for the legal removal of any bird nests prior to or during the nesting bird season.

BR/mm-36 Prior to construction, if construction activities are proposed to occur during the typical nesting season (February 15 to August 15) within 100 ft (30 m) of potential nesting habitat under bridges, a nesting bird survey shall be conducted by qualified biologists at least two weeks prior to construction to determine presence/absence of nesting birds. Work activities shall be avoided within 100 ft (30 m) of active bird nests under the bridge, until young birds have fledged and left the nest. Readily visible exclusion zones shall be established in areas where nests must be avoided. USFWS and CDFG shall be contacted for additional guidance if nesting birds are observed within or near the boundaries of the project site. Nests, eggs, or young of birds covered by the MBTA and California Fish and Game Code would not be moved or disturbed until the end of the nesting season or until young fledge, whichever is later, nor would adult birds be killed, injured, or harassed at any time.

- BR/mm-37* Prior to construction, pre-construction surveys (at least two at dawn and two at dusk at appropriate times of the year, such as in the fall and spring prior to construction) shall be conducted by qualified biologists to determine if bats are roosting under bridges. The biologist(s) conducting the preconstruction surveys will also identify the nature of the bat utilization of the bridge (i.e., no roosting, night roost, day roost, maternity roost). The last survey shall be conducted no later than March 15 to allow for bat exclusion (if required) prior to the onset of the maternity roosting season (typically around April 15).
- BR/mm-38* Prior to demolition or modification of existing bridges, if bats are found to be roosting under the bridges, bat exclusion shall be conducted by a qualified biologist or firm qualified to conduct bat exclusion activities. Exclusion methods may include, but are not limited to, wire mesh, spray foam, or fabric placement. If exclusion is necessary, a Bat Exclusion Plan shall be submitted to CDFG for approval prior to construction.
- BR/mm-39* Prior to demolition or modification of existing bridges, the District may opt to employ bat exclusion, even if roosting bats aren't observed during pre-construction surveys, prior to the maternity roosting season to eliminate the potential for bat roosting during bridge replacement or modification.
- BR/mm-40* If bats are found to be roosting under the Union Pacific Railroad Bridge at any time prior to construction, the new bridge design shall be examined by a qualified biologist in coordination with design engineers to determine if the new bridge will be capable of supporting roosting bats. If bats are found to roost under the existing bridge and it is determined that the new bridge will not support roosting bats, features facilitating bat roosting such as rails under the bridge or bat boxes shall be attached to the new bridge to allow for bat roosting opportunities. The design, number, and placement of any bat boxes shall be determined by a qualified biologist and coordination with CDFG. Any bat structure proposed as mitigation shall be reviewed by a qualified biologist.

Residual Impact

Impacts to bird nests or bat roosts under the Union Pacific Railroad Bridge or the 22nd Street Bridge would be unexpected, but remain possible with the passage of time. Impacts can be avoided with pre-construction nest and roost surveys, removing inactive nests prior to the nesting season, implementation of exclusion zones around active nests, and exclusion of bats prior to the maternity roosting season, as necessary. With implementation of these measures and the other previous measures, the impacts would be *less than significant*. Additional mitigation measures may eventually be required by regulatory agencies, to be determined during the permitting process.

4.3.6 Cumulative Impacts

Long-term sediment and vegetation management activities would potentially affect biological resources, including sensitive habitats, jurisdictional waters, and sensitive plant and wildlife species. The Arroyo Grande Creek Waterway Management Plan Update prepared by Central Coast Salmon Enhancement identifies a number of reasonably foreseeable projects that, along with the proposed project, could have a significantly cumulative negative or beneficial impact to the Arroyo Grande Creek watershed. These include increasing the capacity of Lopez Dam,

proposed urban development at the Laetitia Vineyard, and habitat enhancement projects such as barrier removal, erosion control, and removal of non-native species from the creek and its tributaries.

Projects that potentially directly affect Arroyo Grande Creek are generally highly regulated. The proposed project would require permits or other authorizations from regulatory agencies including the USACE, RWQCB, CDFG, CCC, USFWS, and NMFS. These agencies are responsible to authorize projects that avoid, minimize, and/or mitigate impacts to habitats, jurisdictional waters, and sensitive plant and wildlife species. The proposed project is also subject to regulations by all of these agencies and would not be expected to contribute cumulative impacts to biological resources. Cumulative impacts to biological resources would be realized, but would be anticipated to be less than significant with incorporation of proposed mitigation. No mitigation beyond that already discussed in this EIR is required.

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