South Bay Boulevard Bridge Replacement Project
Habitat Mitigation and Monitoring Plan

~~DRAFT~~February 5, 2024

San Luis Obispo County

Federal Project BRLS-5949(137)

Prepared by
San Luis Obispo County
Public Works Department
Environmental Programs Division

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1 Introduction

This Habitat Mitigation and Monitoring Plan (HMMP) was prepared to describe the methods proposed to mitigate for project-related impacts to federal, state, and county jurisdictional areas associated with implementation of the South Bay Boulevard Bridge Replacement Project (project). Implementation of the project is anticipated to result in temporary impacts to areas subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE), the Central Coast Regional Water Quality Control Board (RWQCB), the California Department of Fish and Wildlife (CDFW). The project site is also within the coastal zone, subject to regulation by the California Coastal Commission (CCC) and the San Luis Obispo County Local Coastal Program. The HMMP follows the guidelines presented in the Checklist for Compensatory Mitigation Proposals (USACE 2008a) and the Final Rule for Compensatory Mitigation for Losses of Aquatic Resources (USACE 2008b). The Natural Environment Study (NES) and the Biological Assessment prepared for the project fully describe the project scope and review the project-related impacts to biological resources in greater detail (County 2021a and b).

Revisions that are specific to a particular agency requirement are indicated in the text or by using footnotes (i.e., CCC, USACE, RWQCB, and CDFW).

2 Project and Site Description

This section identifies the responsible party for the project, provides the location of the project, and summarizes the project description. More detailed information about the physical and biological setting of the site and project description are available in the NES.

2.1 Responsible Parties and Financial Assurances

The County of San Luis Obispo Department of Public Works (County) is the project applicant. Therefore, the County is the party responsible for fulfilling all the mitigation obligations pursuant to the anticipated conditions of the USACE Nationwide Permit Authorization and the other pertinent regulatory permits acquired for the project. Correspondences to the County as the responsible party for the project should be sent to:

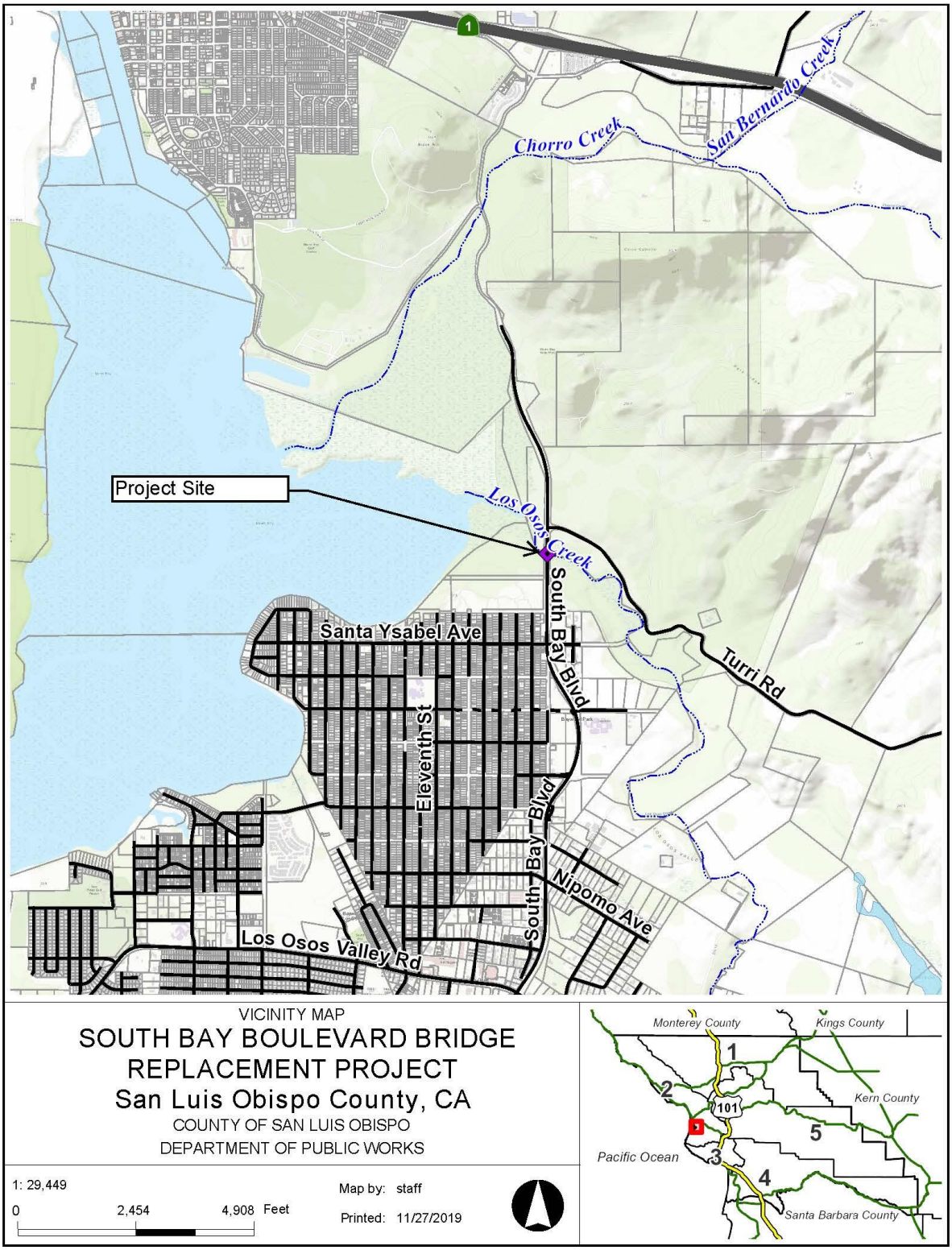
County of San Luis Obispo
Department of Public Works
County Government Center, Room 206
San Luis Obispo, California 93408

The County has allocated sufficient funding in the overall project budget to implement the requirements outlined in this HMMP and any other contingency actions that may become necessary during the mitigation and monitoring phase of the project development.

2.2 Project Location

The South Bay Boulevard Bridge (No. 49C-0351) spans Los Osos Creek within unincorporated San Luis Obispo County, approximately 2,000 feet southeast of the City of Morro Bay, California (35.33509ºN, 120.82332ºW) (Figure 1). South Bay Boulevard is approximately four miles long and extends from Bay Oaks Drive near Los Osos Valley Road on the south, in the community of Los Osos, to State Route 1 on the north, near the City of Morro Bay. The project site is located within the Morro Bay South, California 7.5-minute U.S. Geological Survey (USGS) topographic quadrangle. South Bay Boulevard is classified as a rural arterial in the County's Estero Area Plan and serves approximately 15,000 vehicles per day. The existing and proposed bridges are located within existing County right-of-way (ROW).

Figure 1: Project Location Map



2.3 Project Summary

The County proposes to replace the existing South Bay Boulevard Bridge that crosses Los Osos Creek where it enters Morro Bay. The bridge has been identified as seismically deficient and the project would replace it with a modern concrete bridge that would provide adequate capacity, and reliable, safe service for the public.

The replacement bridge is proposed to be a two-span bridge, cast-in-place prestressed concrete box girder bridge. Compared to the existing bridge (189 feet long and 37 feet wide), the replacement bridge would be larger at 300 feet long and 50 feet wide. The bridge abutments and center bent would be supported on cast-in-drilled-hole (CIDH) concrete piles. The center bent would be located above the high tide line (HTL). No permanent structures or fill are expected to extend below the HTL. Excavation for the abutments would be approximately 10 to 15 feet deep, and the CIDH pile shafts would be drilled over 50 feet deep in temporary casings. If drilling slurry is used, it would be contained for off-site disposal.

Constructing the new bridge would require temporary falsework and temporary support piles, which may be located below the HTL. Temporary falsework piles would be inside shoreline cofferdams. Two temporary work trestles composed of timber and steel decking would also be installed on temporary piles, one for construction of the new bridge and one for demolition of the existing bridge. The trestles, temporary falsework, and all support piles would be removed completely when construction is complete.

Constructing the new bridge center support and removing the existing bridge piles during demolition would require dewatering below the HTL. Dewatering would be limited to localized shoreline construction zones; creek flow would not be blocked or diverted at any time.

The road approaches along South Bay Boulevard would be realigned to align with the new bridge. The road approach realignment would be the minimum necessary to safely approach the new bridge and the South Bay Boulevard - Turri Road intersection would remain as is.

Construction staging would be in the County right-of-way on South Bay Boulevard to the north and south of the bridge. A secondary staging and material storage area would be established south of the bridge at the east end of Santa Ysabel Avenue.

Temporary construction impacts may impact up to approximately 0.3 acre below the HTL in Los Osos Creek for dewatering areas and the work trestles. This area would likely be split between year 1 and year 2 construction impacts (i.e., would not impact the entire area for both construction seasons). This impact area may include temporary impacts in salt marsh located under and adjacent to the bridge.

Temporary construction impacts in uplands would include approximately 0.6 acre of upland historic fill area that has been colonized by a federally protected plant, Morro manzanita. Temporary construction impacts in uplands would also affect other Environmentally Sensitive Habitat Areas (ESHA) and ruderal/disturbed lands. These areas are proposed to be restored to pre-existing conditions, or in the case of ruderal habitats, enhanced as part of the proposed mitigation.

Permanent impacts from constructing the new bridge are limited to the bridge foundations, center pier, and realigned road approaches, all of which would be above the HTL and outside of wetlands. No permanent impacts below the HTL or in wetlands are anticipated.

Permanent impacts in uplands would affect approximately 0.24 acre of Morro manzanita habitat, and 0.08 acre of native oak woodland. Mitigation is proposed at a 3:1 replacement ratio.

Construction is expected to take approximately two years to complete. Construction activities below the HTL would be restricted to the dry season (June 1 to October 31) to take advantage of

lower creek flow and reduced likelihood of precipitation. Generally, construction of the new bridge is expected to occur in year 1 and demolition of the old bridge in year 2.

For the purposes of this HMMP, the project limits include the entire project site and all the project elements outlined in the project description. The project limits are depicted as the Project Impact Area (PIA; red line) in Figures 2a, 2b, and 2c.

Figure 2a: Project Impact Areas (north) [Fig 3a from NES]

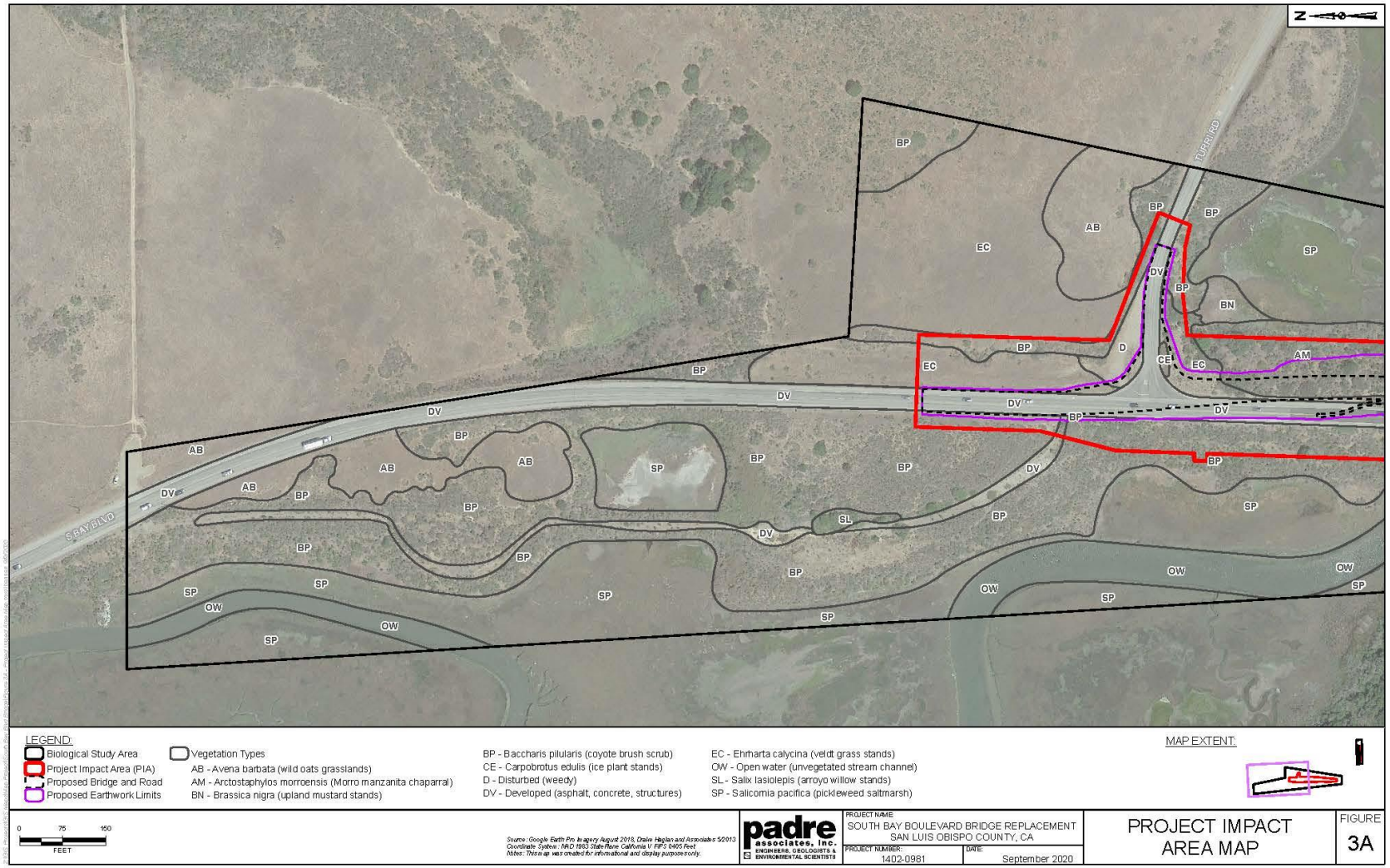


Figure 2b: Project Impact Areas (south) [Fig 3b from NES]

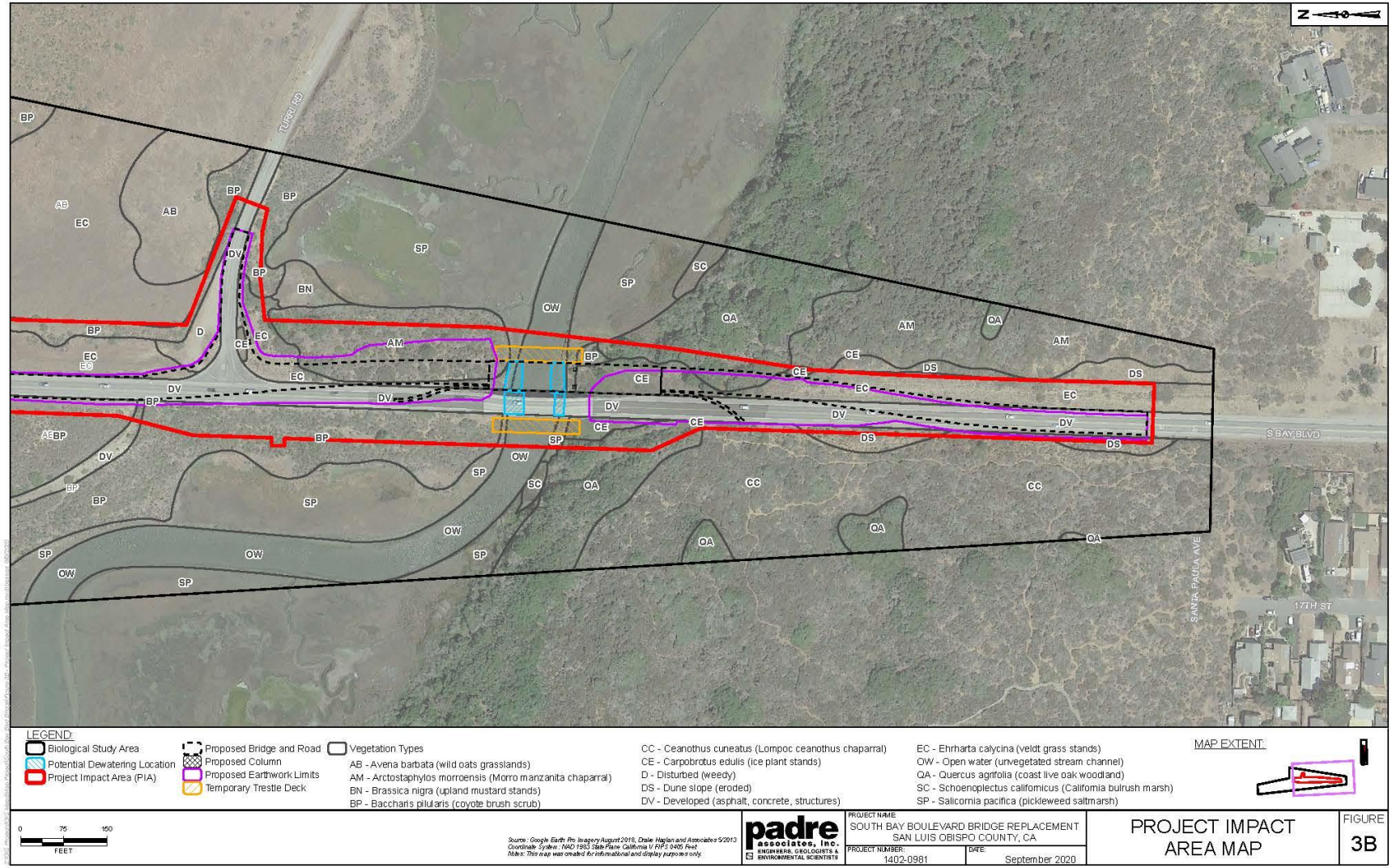
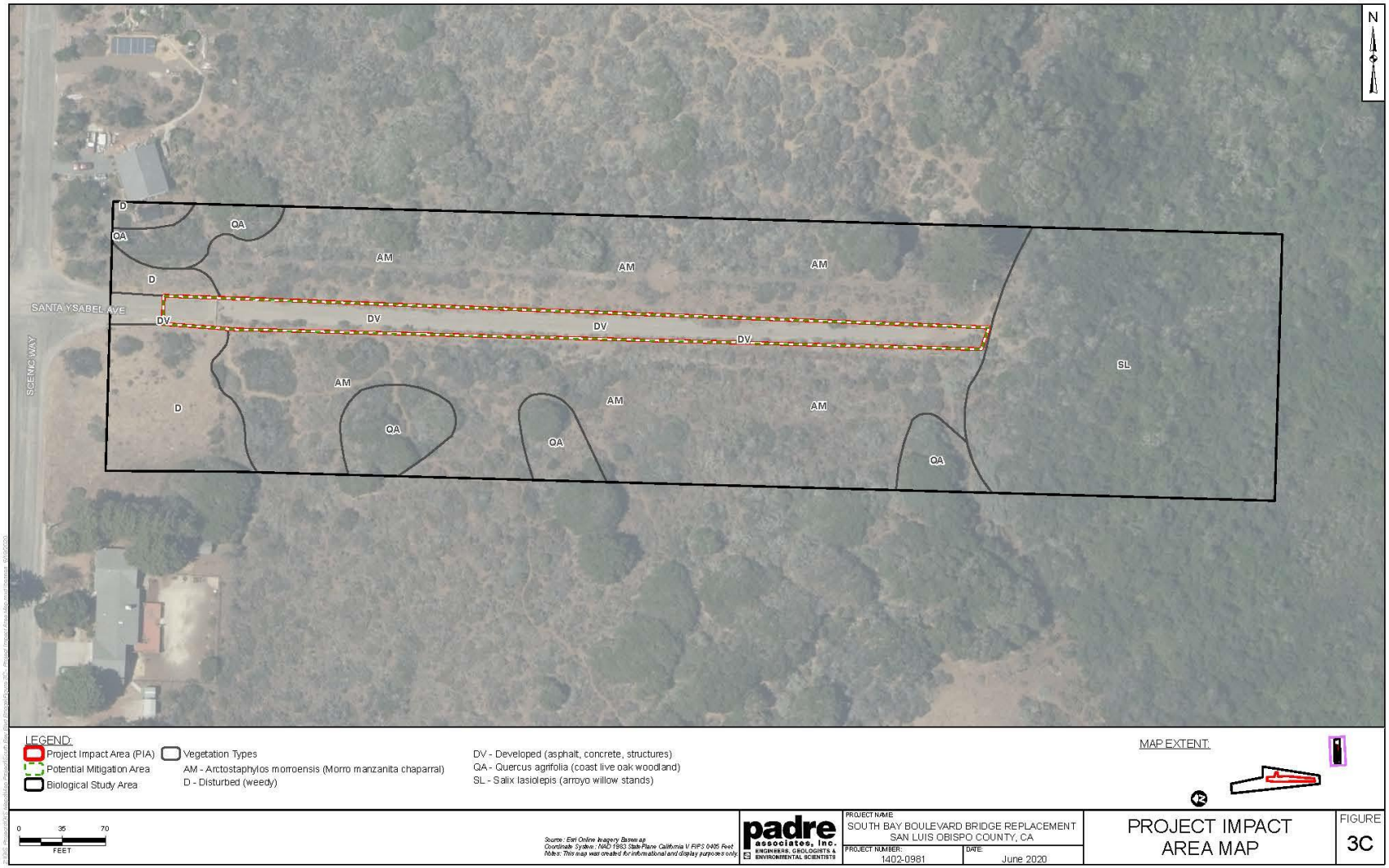


Figure 2c: Project Impact Areas (Santa Ysabel Avenue) [Fig 3c from NES]



2.4 Existing Conditions

The Biological Study Area (BSA) was identified based on preliminary bridge designs provided by the design engineer, and includes the bridge construction impact area, construction staging areas, potential mitigation areas and a minimum 100-foot-wide buffer. The BSA is approximately 49 acres in size and is shown as the black line in Figures 2a, 2b, and 2c above from the NES. The BSA and surrounding areas are primarily public lands including the El Moro Elfin Forest, Morro Bay State Park, and Morro Bay State Marine Reserve.

Current land use of the BSA and surrounding areas includes flood conveyance, livestock grazing (northeast of the bridge site), residential (west of South Bay Boulevard near Santa Ysabel Avenue), institutional (Church of the Nazarene), and conservation areas (El Moro Elfin Forest, Morro Bay State Park, Morro Bay State Marine Reserve, Morro Estuary Natural Preserve).

The County monitors stream flow in Los Osos Creek at the Los Osos Valley Road bridge, located approximately three miles upstream of the BSA. Stream flow data recorded at this station includes 3,769 acre-feet/year (AFY) average flow, 2,220 AFY median flow and 19,270 AFY maximum flow (in 1995). Upper portions of Los Osos Creek may become dry in the summer; however, tidal influence provides year-round surface water within the BSA. The BSA includes approximately 1,300 linear feet of the Los Osos Creek channel, and the creek is tidal at the existing and proposed bridge locations.

Within the BSA, the smaller PIA was defined based on the 65% design plans and anticipated limits of temporary and permanent impacts. The PIA is the red line in Figures 2a, 2b, and 2c from the NES. The PIA forms the basis of the project impacts and mitigation requirements in this HMMP. The PIA is approximately 7.7 acres, of which approximately 3.3 acres is pavement and 4.4 acres is non-pavement.

3 Habitat Types and Jurisdictional Areas

Thirteen vegetation communities/land cover types were identified within the BSA during the field surveys conducted for the NES including: wild oats grassland, Morro manzanita chaparral, upland mustard stands, coyote brush scrub, Lompoc ceanothus chaparral, ice plant stands, eroded dune slope, veldt grass stands, coast live oak woodland, pickleweed salt marsh, California bulrush marsh, arroyo willow stands, and disturbed areas.

Of these communities, the following meet the definition of Environmentally Sensitive Habitat Areas (ESHA) based on proximity to the Morro Bay estuary and/or presence of special-status species: Morro manzanita chaparral, Lompoc ceanothus chaparral, eroding dune slope, coyote brush scrub, coast live oak woodland, pickleweed salt marsh, California bulrush marsh, and arroyo willow stands. The California bulrush marsh and arroyo willow stands are outside the PIA and would not be impacted by the project. The characteristics of the ESHA communities in the PIA as described in the NES are summarized below.

3.1 Vegetation Communities

Morro Manzanita Chaparral. This community is dominated by Morro manzanita (*Arctostaphylos morroensis*), chamise (*Adenostoma fasciculatum*), and black sage (*Salvia mellifera*). Other species found in this community within the BSA include California sagebrush (*Artemisia californica*), Lompoc ceanothus (*Ceanothus cuneatus* var*. fascicularis*), and mock heather (*Ericameria ericoides*). This vegetation community has been assigned a rarity ranking of S1, meaning it is critically imperiled at the State level.

Coyote Brush Scrub. This community is co-dominated by coyote brush (*Baccharis pilularis*) and California sagebrush. Approximately eight Morro manzanita shrubs as well as Coast live oak (*Quercus agrifolia*) saplings and patches of arroyo willow (*Salix lasiolepis*) occur within

the community northwest of the bridge. This vegetation community has been assigned a rarity ranking of S5, meaning it is secure at the State level. However, in the project area it meets the definition of ESHA pursuant to Section 30107.5 of the Coastal Act because it includes Morro manzanita and may provide suitable habitat for Morro shoulderband snail (BA Section 4.2.11).

Lompoc Ceanothus Chaparral. This community is dominated by Lompoc ceanothus, mock heather and chamise. Other species occurring in this community are black sage, bush monkeyflower (*Diplacus aurantiacus*) and Morro manzanita. *Ceanothus cuneatus* var. *fascicularis* chaparral communities have been assigned a rarity ranking of S4, meaning it is apparently secure at the State level. However, this species is listed by the California Native Plant Society as having limited distribution. Therefore, they individual plants removed for construction will be replaced at a 1:1 ratio in accordance with the California Coastal Commission recommendations (CCC 2021).

Eroded Dune Slope. This term is used to describe the vegetation of the eroded dune slope along South Bay Boulevard south of the bridge. These areas appear to be partially eroded due to the loss of chaparral shrubs. Common species found in this community include telegraph weed (*Heterotheca grandiflora*), rat-tail fescue (*Festuca myuros*), California croton (*Croton californicus*), narrow-leaf spineflower (*Chorizanthe angustifolia*), deerweed (*Acmispon glaber* var. *glaber*) and mock heather seedlings.

Coast Live Oak Woodland. This community is dominated by coast live oak trees (*Quercus agrifolia*), but also includes patches of shrubs found in Morro manzanita chaparral. This vegetation community has been assigned a rarity ranking of S4, meaning it is apparently secure at the State level.

Pickleweed Salt Marsh. This community is dominated by pickleweed (*Salicornia pacifica*), alkali heath (*Frankenia salina*), jaumea (*Jaumea carnosa*), saltgrass (*Distichlis spicata*) and seaside arrowgrass (*Triglochin concinna*). Watson's saltbush (*Atriplex watsoni*) occurs with saltgrass on the upper margins of the salt marsh. Within the BSA, pickleweed salt marsh is limited to tidally influenced areas at/below the HTL in Los Osos Creek. This vegetation community has been assigned a rarity ranking of S3, meaning it is vulnerable, at moderate risk of elimination at the State level.

Limited Distribution Species. In addition to Lompoc ceanothus, discussed above, special-status plants present in the PIA that are listed by the California Native Plant Society as having limited distributions include Suffrutescent wallflower (*Erysimum suffrutescens*) and southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*). Individual plants that are removed for construction will be replaced at a 1:1 ratio in accordance with the CCC recommendations (CCC 2021).

Other. As described in the NES (Table 9 of NES), other vegetation communities include arroyo willow stands, veldt grass stands, iceplant stands, and disturbed land (e.g., the Turri Road pullout). While there are willow stands in the BSA, no willow stands occur in the PIA. Iceplant stands occur along the road embankments and are dominated by dense stands of freeway iceplant (*Carpobrutus edulis*).

The veldt grass stands occur primarily along the eastern shoulder of South Bay Boulevard and are dominated by ruderal, non-native species that typically displace more desirable native vegetation in such settings. The veldt grass stands are dominated by veldt grass (*Ehrharta calycina*), but contain other non-native species such as slender wild oats, red brome, ripgut grass, and red-stem filaree.

3.2 Los Osos Creek Channel

The project site is located at the lower reach of Los Osos Creek where it empties into Morro Bay; the creek is tidal at the project site. The open water channel is approximately 70 to 100 feet wide and is bordered by narrow (2 to 20 feet wide) shoreline saltmarsh on both banks within the PIA.

3.3 Jurisdictional Areas

The Los Osos Creek channel and adjacent wetlands are subject to the jurisdiction of the USACE (Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act), RWQCB (Section 401 of the Clean Water Act), the California Department of Fish and Game (CDFW), and the California Coastal Commission (CCC). The jurisdictional boundary consists of the HTL (7.0 feet NAVD88), which is also the landward limit of salt marsh and top of bank (Figure 4).

The Morro manzanita chaparral is an upland vegetation community but contains the federally threatened Morro manzanita. Impacts to this species would be subject to Section 7 of the Federal Endangered Species Act.

The project is within the coastal zone, including areas subject to approval by the California Coastal Commission and areas outside Original Coastal Jurisdiction subject to the Local Coastal Program approval. A Coastal Development Permit would be obtained, and would include consideration of the ESHA described in Section 3.1. As of May 4, 2021, the Local Coastal Program agreed to a consolidated permit process and submitted a request to the CCC to process and act upon a consolidated permit.

3.4 Anticipated Impacts to Jurisdictional Habitats

Implementation of the project will result in temporary impacts to portions of Los Osos Creek below the HTL (Figure 4). The project is not anticipated to result in any adverse permanent impacts below the HTL. Permanent beneficial impacts below the HTL will include removal of the existing bridge piers from the channel (two rows of nine concrete 1.5-ft diameter piers). Temporary construction impacts below the HTL will include support piles for two temporary construction trestles and shoreline dewatering areas to accomplish installation of the new bridge support (construction year 1) and removal of the existing bridge support (construction year 2).

Temporary impacts below the HTL have the potential to impact pickleweed salt marsh. Impacts to salt marsh will be avoided and minimized to the extent possible in the final design configuration of trestle piles and dewatering areas.

The project will also result in temporary impacts to 0.6 acre (4 individual shrubs, plus two just outside the mapped PIA), and permanent impacts to 0.24 acre (13 shrubs), of Morro manzanita chaparral, which is located in upland areas above the HTL (Figure 2b). Approximately five additional Morro manzanita shrubs are located in the coyote brush scrub on the northwest side of the bridge and have the potential to be temporarily impacted for construction. Approximately 17 additional Morro manzanita shrubs are located in the native oak woodland on the southeast side of the bridge and have the potential to be permanently impacted for road realignment. Three shrubs are just outside the mapped PIA and have the potential to be impacted during construction. Approximately 11 shrubs are located southwest of the bridge, plus an additional two shrubs just outside the mapped PIA, and have the potential to be impacted for construction. The proposed temporary and permanent impact areas contain approximately 23 and 30 individual shrubs, respectively, that may be removed by the project. The County expects that most, if not all, of the temporary shrub impacts can be avoided entirely by reconfiguring the construction impact areas but this will need to be confirmed prior to construction.

The project would result in temporary impacts to 0.34 acre, and permanent impacts to 0.08 acre, of coast live oak woodland (Figure 2b). Based on the May 4, 2020, tree survey, approximately

thirty mature coast live oak trees are located within the PIA, including in the area mapped as coast live oak woodland and in other habitat types. It is estimated that approximately 15 to 20 trees, possibly a maximum of 25 trees, may need to be removed for construction. These tallies count multiple limbs greater than 4-inch diameter at breast height (DBH) as separate trees.

Impacts to the remaining ESHA types, Lompoc ceanothus chaparral, coyote brush scrub, and dune slope would be limited to temporary construction disturbance.

The anticipated impacts to jurisdictional areas, upland ESHA, and protected plants are summarized below in Tables 1a, 1b, and 1c, respectively. Potential for indirect impacts would be avoided with implementation of the mitigation measures provided in the NES. The County proposes 1:1 restoration of temporary impact areas, 3:1 mitigation for permanent impacts to Morro manzanita chaparral and coast live oak woodland, 3:1 replacement of individual Morro manzanita shrubs and 4:1 replacement of oak trees.

The CCC has indicated that they consider temporary impacts that can't be restored to pre-existing conditions within one year to be permanent impacts (CCC 2022). The CCC has also indicated that they require 4:1 mitigation for impacts to salt marsh and 3:1 mitigation for impacts to Morro manzanita chaparral.

The impacts shown in the tables below represent a likely worst-case scenario. Direct impacts would be avoided and minimized to the extent possible as determined during the final project design and based on pre-construction coordination with the contractor. This would include an on-site discussion of specific construction access and staging requirements and feasible alternatives to construction configuration to reduce temporary impacts. The goal would be to avoid and minimize temporary impacts to salt marsh, oak woodland, and Morro manzanita chaparral (and individual shrubs) to the greatest extent possible. The project impacts and associated mitigation requirements would be adjusted in accordance with the results of the coordination. The appropriate regulatory agency notifications would be made to adjust permitted impacts and required mitigation if necessary.

Pre-construction surveys and coordination with the contractor that could result in reductions in project impact areas are included in the proposed pre-construction surveys listed in Table 2.

Finally, the quantification of project impacts and mitigation areas in this draft HMMP are based on the 65% design plans. Project impacts and mitigation areas will be revisited and revised if needed based on the design plans as they progress until 100% design is complete.

A summary of potential future revisions to the impacts and mitigation areas provided in the HMMP includes:

- Review based on subsequent design plans;
- Changes based on requirements of agency permits; and
- Proposed pre-construction review with the contractor to avoid and minimize impacts.

Changes from each of these steps would be incorporated into a final HMMP.

Table 1a. Summary of Impacts to Jurisdictional Habitats and Proposed Restoration and Mitigation (in acres)

		Temporary				Permanent			Overall Total
Feature Type	Regulatory Jurisdiction	Temporary Impacts	USACE/RWQCB/ CDFW 1:1 Restoration (in place)	Additional 3:1 CCC Mitigation	**Total Mitigation**[1]	Permanent Impacts	Proposed 3:1 Mitigation for Permanent Impacts	**Total Mitigation**	**Temporary plus Permanent Impacts Mitigation Total**
Waters, Wetlands, and Bank									
Tidal Wetlands (pickleweed salt marsh)	USACE, RWQCB, CDFW, CCC	0.11	0.11	0.33	0.44	0	0	0	0.44
Channel (non-wetland waters below HTL/top of bank)	USACE, RWQCB, CDFW, CCC	0.38[2]	0.38	0.00	0.38	0	0	0	0.38
Total		**0.49**	**0.49**	**0.33**	**0.82**	**0**	**0**	**0**	**0.82**

1 – Total Mitigation for temporary impacts in this column includes restoration of the temporary impact area plus additional mitigation.
2 - Trestle piles footprints and dewatering areas total 0.11 acre of unvegetated channel; the entire channel area from west to east trestle is 0.38 acre, providing the maximum potential area of substrate effects to provide the most conservative estimate.

Table 1b. Summary of Impacts to Upland ESHA and Proposed Restoration and Mitigation (in acres)

		Temporary				Permanent			Overall Total
Feature Type	Regulatory Jurisdiction	Temporary Impacts	USACE/RWQCB/ CDFW 1:1 Restoration (in place)	Additional 2:1 CCC Mitigation[1]	**Total Mitigation[2]**	Permanent Impacts	Proposed 3:1 Mitigation for Permanent Impacts	**Total Mitigation**	**Temporary plus Permanent Impacts Mitigation Total**
Upland ESHA Habitats									
Morro manzanita chaparral	USFWS, CCC	0.60	0.60	1.2	1.8	0.24	0.72	0.72	2.52
Lompoc ceanothus chaparral	CCC	0.08	0.08	0	0.08	0	0	0	0.08
Coyote brush scrub	CCC	1.37	1.37	0	1.37	0	0	0	1.37
Coast live oak woodland	CCC	0.34	0.34	0	0.34	0.08	0.24	0.24	0.58[3]
Dune slope (eroding)	CCC	0.1	0.1	0	0.1	0	0	0	0.1
Total		**2.49**	**2.49**	**1.88**	**4.37**	**0.32**	**0.96**	**0.96**	**5.33**

1 – CCC requires 3:1 mitigation for temporary impacts to Morro manzanita chaparral and native oak woodland. Restoration of temporary construction impact areas counts for one third; an additional 2/3 or 2:1 acreage is required.
2 - Total Mitigation for temporary impacts in this column includes restoration of the temporary impact area plus additional mitigation.
3 – Proposed oak plantings will be in areas totaling a minimum of approximately 1 acre.

Table 1c. Summary of Impacts to Vegetation and Proposed Restoration and Mitigation (in plant counts)

Feature Type	Regulatory Jurisdiction	Temporary Impacts	Mitigation	Permanent Impacts	Mitigation	Total Mitigation
Regulated Plants[1]						
Morro manzanita plants[2]	USFWS, CCC	23 plants	23 plants	30	90	113 plants
Coast live oak trees	CCC	16 trees	64 trees	9	36	100 trees
Lompoc ceanothus	CCC	50 plants	50 plants	0	0	50 plants

1 – Not listed: several suffrutescent wallflower and three southwestern spiny rush that, if impacted by the project, will be replaced as part of restoration plantings in accordance with CCC recommendations (wallflower in chaparral communities and spiny rush in channel edge environments adjacent to salt marsh).
2 - Morro manzanita shrub counts are “worst case;” the County expects these numbers to be lower based on review of construction impact areas.

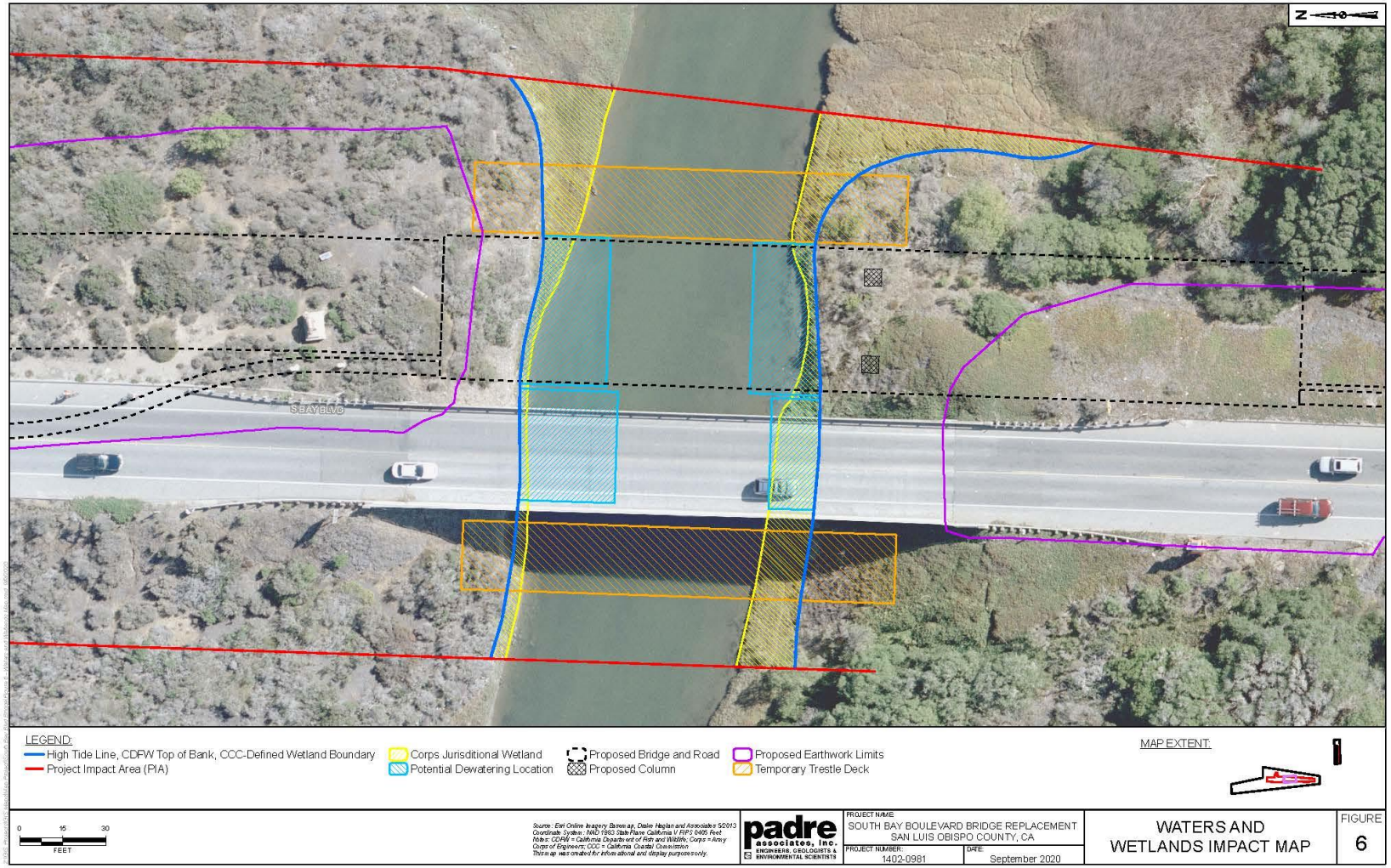
Table 2. Summary of Past Field Surveys and Proposed Pre-Construction Recommendations

Survey Type	Most Recent Survey Date	Recommendation
Botanical		
Special-status plants	May 2020 (NES)	a) 1 year prior to construction generate current CNDDB list and conduct seasonal surveys [*NES plant surveys were conducted in **March** and **May** to encompass the flowering period for most of the reported special-status species*].
Native Oak	October 2015 (30% Design Plans) May 2016 (NES) October 2021 (65% Design Plans)	a) Prior to construction confirm native oak map in the field. b) Pre-construction meeting with contractor to avoid/minimize impacts. c) Document reduced impacts and reduced mitigation requirements in **HMMP** and with permit agencies.
Morro manzanita	May 2016 (NES) March 2022 (northwest of bridge)	a) Prior to construction confirm Morro manzanita map in the field. b) Pre-construction meeting with contractor to avoid/minimize impact. c) Document reduced impacts and reduced mitigation requirements in **HMMP** and with permit agencies.
Lompoc ceanothus (*Ceanothus cuneatus* var. *fascicularis*)	May 2020 (NES)	a) Prior to construction confirm count in project impact areas [*NES states 50 shrubs in PIA*] b) CCC will require 1:1 replacement (in chaparral habitat restoration areas)
Suffrutescent wallflower (*Erysimum suffrutescens*)	May 2020 (NES)	a) Prior to construction confirm count in project impact areas [*NES states "several" occur in PIA*] b) CCC will require 1:1 replacement (in chaparral habitat restoration areas)
Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*)	May 2020 (NES)	a) Prior to construction confirm count in project impact areas [*NES states 3 occur in PIA*] b) CCC will require 1:1 replacement
Jurisdictional determination (NES App. D)	May 12, 2016 (NES Appendix) May 2020 (NES Update) June 2021 (confirmation)	a) Prior to construction confirm delineation and/or resurvey salt marsh and confirm no eelgrass in PIA. b) Pre-construction meeting with contractor to avoid/minimize impacts. c) Document reduced impacts and reduced mitigation requirements in **HMMP** and with permit agencies.
Special-status wildlife		a) Pre-construction surveys for CRLF, MSS, CA brackish water snail, coast horned lizard, northern CA legless lizard, burrowing owl, American badger
California red-legged frog	May 12, 2016 (NES, nighttime eye-shine survey)	a) Assumed present. b) CRLF PBO Mitigation measures are adequate to protect and require pre-construction and construction monitoring, including: **Measure 3:** A USFWS-approved biologist will survey the Project site no more than 48 hours before the onset of work activities; and **Measure 5**: A USFWS-approved biologist will be present at the work site until all California red-legged frogs have been relocated out of harm's way, workers have been instructed, and disturbance of habitat has been completed. After this time, the State or local sponsoring agency will designate a person to monitor on-site compliance with all minimization measures.

Survey Type	Most Recent Survey Date	Recommendation
		c) Dip net or nighttime eye-shine surveys not required.
Morro shoulderband snail	September 2018	Pre-construction and during construction, implement USFWS survey recommendations from NES: A USFWS-approved biologist will survey the PIA (and any other areas where take may occur) for Morro shoulderband snail that may be present. Any identified individuals, in all life stages, will be captured and moved out of harm's way. Field surveys described above will be conducted within one week prior to commencement of initial ground disturbance activities within or adjacent to vegetation, including vegetation removal, materials staging, and any earthwork.
Tidewater goby	September-November 2015 (NES Appendix C, focused presence/absence protocol survey)	a) Assumed present. b) During construction, implement NES mitigation measures, including: A qualified, USFWS-authorized biologist shall monitor installation of the approved dewatering containment system and all dewatering activities that could impact tidewater goby and their habitat; and Dewatering operations shall be halted periodically to allow the qualified USFWS-approved biologists to seine the exclusion area for additional trapped fishes and aquatic organisms. All captured organisms shall be immediately released into areas of the creek that will not be affected by dewatering. c) New protocol surveys are not required.
California black rail	March and April, 2016 (NES Appendix F, broadcast calls)	a) Conduct pre-construction literature review for occurrences in Morro Bay. b) Most recent documentation for Morro Bay is confirmed calls in 2005 and unconfirmed in 2009-2010 survey. If no more recent confirmed sightings are documented at time of construction, a new survey is not required. c) If there have been more recent sightings in the vicinity, determine if a repeat of the breeding period (Mar. 15 – May 31) survey is warranted prior to construction start. Decision may include consideration of proximity of suitable habitat (bulrush west of bridge) to construction disturbance and/or if standard nesting bird surveys are sufficient.
Marine mammal survey	June 6, 2016 (NES Appendix J; overwater survey at high tide during peak pupping season and within a month of construction start)	a) Prior to construction review current NMFS documented haul-outs and rookeries in Morro Bay and compare to list in NES App. J. If no new sites are listed closer to the PIA, no survey required. b) If new sites closer to the PIA are included, coordinate with NMFS on need for a pre-construction survey.
Nesting birds	NA	Pre-construction nesting bird surveys for vegetation removal Feb. 1 – Sep. 1.
Swallows	2016 (NES) 2021, 2022 nesting observed	Prior to construction install exclusion measures on bridge (consider exclusion measures on the east side only of the existing bridge for construction season; and the west side only of the new bridge for demolition, to provide nesting area for swallows during each season[1]).

1 – The suggestion to allow swallow nesting on one side of the bridge during each construction season was made by the Morro Coast Audubon Society in comments on the CEQA MND (email dated 8-4-2021). During discussion of permit issues in November 2022, CCC suggested that nearby construction disturbances may be detrimental to nesting birds. A plan to allow bird nesting on the non-construction side of the bridges during construction would be in conflict with the CCC recommended setbacks from nesting birds, and will not be implemented.

Figure 3: Jurisdictional Features at Los Osos Creek [Fig. 6 from NES]



3.5 Functions and Values Assessment

Los Osos Creek, shoreline salt marsh, and adjacent upland vegetation communities provide important habitat, including shelter, shade, cover, breeding, and foraging habitat, for a variety of aquatic, estuarine, and terrestrial wildlife species. Streams and estuarine tributaries serve as migration and movement corridors for aquatic and terrestrial species.

Creek. The creek and shoreline areas provide fish habitat and support species such as tidewater goby, steelhead, and marine and aquatic birds. The Biological Assessment for the project concluded that Los Osos Creek in the project area does not provide breeding habitat for tidewater goby or steelhead, but provides a migration corridor. These areas also provide habitat for riparian species.

Los Osos Creek and its floodplain provide important hydrologic functions, including estuarine tidal exchange and flood storage. Shoreline and floodplain vegetation communities provide water quality renovation functions.

Unvegetated channel areas provide soft-bottom benthic community habitat. The muddy intertidal shoreline in the project area includes scattered rocks that were placed for shoreline stabilization when the bridge was built. These provide cover for crabs and other motile species.

Salt marsh. The PIA is in close proximity to broad expanses of salt marsh bordering Los Osos Creek upstream and downstream of the existing bridge. Channel tidal flats and nearby marshes provide expansive habitat areas removed from human disturbance with mosaics of marsh and open water that provide substantially higher-value habitat than the salt marsh in the PIA.

The salt marsh in the project area is limited to narrow marshes bordering the channel that range from roughly 1 to 20 feet wide on the south bank and 1 to 10 feet wide on the north bank. The north bank salt marsh is situated on a rocky slope established when the bridge was built, at slopes of roughly 1:1 to 2:1. Vegetation between the rocks on the north bank is dense (75 to 90% cover). The south bank marsh is flatter beneath the bridge and on a steep rock bank to the east, with 25 to 90% cover. Areas lacking vegetative cover consist of animal trails, rocks, and muddy substrate. The rock that was placed when the existing bridge was built stabilizes the marsh edge on both banks.

The salt marshes in the project areas provide shoreline foraging areas for motile aquatic species during higher stages of the tide, resulting in contiguous foraging areas along both creek banks. However, the narrow width of the marshes, lack of complexity (such as channel networks), proximity to human disturbance, steep terrain, and lack of high-value buffers substantially limit their value as nesting and nursery, cover, and foraging habitat.

Upland communities. Upland vegetation communities provide habitat for terrestrial species, migratory birds, and raptors. Special-status species may also occur in this area, such as California red-legged frog, coast horned lizard, and northern California legless lizard. The vegetation communities in the project area support several special-status plants, including Morro manzanita, Lompoc ceanothus, and suffrutescent wallflower.

Some of the upland vegetation communities in the project area have suitable habitat elements to support Morro shoulderband snail, although no live snails have been documented in the project area.

The relative values of upland community functions are increased by proximity to Morro Bay estuary and the ocean coastline, and because surrounding lands consist primarily of undeveloped park lands. The native oak woodland, Morro manzanita chaparral, and coyote brush scrub habitats serve as a buffer between the creek and bay and the developed lands and human

disturbance associated with the road. Buffer functions include stormwater attenuation, water quality renovation, debris trapping, and nesting, foraging and cover for wildlife.

4 Goals of the Habitat Mitigation and Monitoring Plan

Implementation of this HMMP will restore temporary impacts and mitigate for permanent impacts to jurisdictional areas and ESHA. This HMMP addresses the project-related impacts to USACE, CDFW, RWQCB, and coastal jurisdictional areas using on-site and in-kind habitat restoration and enhancement within the creek channel and upland habitats in the PIA.

The County anticipates being able to provide all necessary mitigation within the PIA (Table 3 and Figures 4a and 4b) with the possible exception of an additional 3:1 mitigation area for salt marsh required by the CCC. In the event additional mitigation areas are required, consideration will be given to additional areas within the BSA (described in the NES), or elsewhere in the same watershed if necessary.

4.1 Mitigation Strategy

Overview. The proposed mitigation strategy has been developed based on the impacts shown in the draft 65% level design plans, and with the goal of providing adequate and appropriate restoration and in-kind/on-site mitigation. The following apply to the strategy:

- Standard mitigation ratios for jurisdictional impacts are proposed (i.e., 1:1 restoration of temporary impacts, 3:1 mitigation for permanent impacts).
- The CCC requires additional mitigation for temporary impacts to salt marsh and Morro manzanita chaparral (see Section 3.4) (CCC 2022).
- The USFWS BO for the project requires that the final mitigation and monitoring strategy be developed in collaboration with the USFWS (Reasonable and Prudent Measure 3, USFWS BO, dated April 26, 2022). Collaboration was commenced in August 2022, and is on-going.
- The CCC requested that proposed mitigation areas be adjusted to minimize the establishment of mitigation areas adjacent to areas with a predominance of non-native, invasive vegetation. To accomplish this, the County added additional mitigation areas in County right-of-way along South Bay Boulevard, and eliminated the proposed mitigation area along Santa Ysabel Avenue.
- The County is proposing to review details of temporary project impacts with the contractor prior to construction with the goal of reducing impacts to the extent feasible, particularly in salt marsh, Morro manzanita chaparral, and oak woodland. Any reductions in the impact areas that result from such coordination will be documented in an amendment to this HMMP and the restoration goals will be adjusted accordingly.
- Compensatory mitigation is proposed to be in-kind (i.e., similar habitat conditions to the impacted areas) and located within the PIA to the extent feasible. As of September 2022, the County has determined there is sufficient, suitable space available in the PIA to accomplish this, with the potential exception of mitigation for salt marsh required by CCC.
- Restoration plantings on the northwest and northeast side of the new bridge will accommodate the CCC requirement that the County establish a 5-foot-wide graded bench that would be suitable for future development of a trail. The CCC requires the following modification: “The HMMP proposes to install container plants at precise intervals. This is not how native communities establish. Instead, please take samples and then seek to mimic the relative cover and spacing of the species in the community.” Morro manzanita plantings will be planted in a mosaic pattern with average spacing of approximately 1.5 times the mature crown size of each species to best simulate the natural ecology (approximately 10-15 ft). Reference populations in less

disturbed areas are consistent with this space (State Parks land uphill of Broderson Road).

Proposed mitigation includes:

- 1:1 ratio for restoration of temporary construction impacts;
- 3:1 ratio for permanent impacts to Morro manzanita chaparral;
- 4:1 ratio for replacement of native oak trees greater than 4-inch DBH removed for the project, corresponding to up 100 replacement trees (1.0 acre of land required); and
- Additional 3:1 ratio for restoration of temporary construction impacts to salt marsh and additional 2:1 ratio for mitigation for permanent impacts to Morro Manzanita chaparral to meet the CCC-required mitigation ratios for these resources (4:1 for salt marsh and 3:1 for Morro manzanita chaparral).

This proposed mitigation is detailed in Tables 1a-1c.

Tidal Areas Strategy.

- No permanent adverse impacts below the HTL are proposed.
- Beneficial impacts will result from removal of the existing bridge piers from the channel (removal affecting approximately 32 square feet of direct impact area plus surrounding indirect scour effects).
- Field review: Temporary construction impact areas will be revisited prior to construction to ensure correct baseline conditions are documented for restoration purposes (for example, wetland acreage, percent cover and species composition).
- Contractor review: Temporary construction impacts to salt marsh will be minimized to the greatest extent possible based on coordination with the contractor regarding the location of the dewatering features and trestle piles.
- Temporary impacts below the HTL (shown in detail in Figure 3) will be restored to pre-existing contours and vegetative cover. No import or export of fill material is proposed.
- Cofferdam and trestle piles installation and removal is expected to result in minor, localized sediment displacement, which will be carefully smoothed to restore natural contours.
- Salt marsh restoration areas will be revegetated using pickleweed mulch and container plants to restore pre-existing conditions (percent cover, dominant species) as documented during pre-construction baseline surveys. The County conducted a salt marsh restoration pilot project from April to September, 2021, to evaluate the feasibility of restoring pickleweed marsh using cuttings (“mulch”). The pilot project confirmed the ability to establish pickleweed using mulch covered with protective mesh. The County anticipates that use of this approach, supplemented with container plantings of additional marsh species, will result in relatively quick restoration of salt marsh impact areas.
- Spiny rush plants removed during construction will be replaced at a 1:1 ratio in suitable channel-edge locations.
- Salt marsh mitigation areas, up to 0.33 acre, *to be determined*.

Morro Manzanita Strategy.

- Impacts to Morro manzanita chaparral and removal of individual plants will be minimized to the greatest extent possible.

- Temporary impacts to 0.6 acre of Morro manzanita chaparral (mitigation area 2 in Figure 4a and Table 3) will be restored to pre-existing contours, soil conditions, and vegetation using with a combination of hydroseeding and container plants. Between this area and other habitat types with individual shrubs, up to 38 individual Morro manzanita plants may be removed for construction access and staging and would be replaced for restoration. The County expects that temporary construction impacts can be configured to avoid most, if not all, impacts to individual Morro manzanita plants, but this will need to be finalized prior to construction.
- Permanent impacts to 0.24 acre of Morro manzanita chaparral and up to 27 individual plants will be mitigated at a 3:1 mitigation ratio, requiring 0.72 acre and approximately 81 individual plants. As required by the CCC, an additional 3:1 mitigation area will be provided as mitigation for temporary impacts (1.8 acres), resulting in a total mitigation acreage of 2.52 acres.
- In addition to the temporary construction impact restoration area (0.6 acre, 2nd bullet above, mitigation area 2 in Table 3), mitigation areas for Morro manzanita chaparral could be established in the following areas (listed in Table 3):
    - Iceplant stand temporary construction impact area northeast of the bridge to be restored (area 3; 0.14 acre);
    - Veldt grass stand temporary construction impact area southeast of the bridge to be restored (area 8; 0.68 acre);
    - Southern half of the construction impact area to be restored on the northwest side of South Bay Boulevard (area 4; 0.36 acre);
    - North and south South Bay Boulevard abandoned lane removal areas (areas 5 and 11; 1.2 acres); and
    - Individual plantings in the dune slope and Lompoc ceanothus restoration areas (areas 9 and 10; 0.30 acre).

These areas total 3.27 acres for restoration and mitigation. This indicates that there is sufficient space available in the PIA and adjacent right-of-way to implement the required Morro manzanita chaparral restoration/mitigation of 2.52 acres. The additional area available will help offset small reductions expected to result from drainage swales to be located in several areas (areas 1, 5, 7, 11).

Oak Woodland. Removal of oak trees will be minimized to the greatest extent possible. Removal of trees with diameter at breast height (DBH) of 4 inches or more is anticipated to include 9 trees in the permanent impact footprint for the realigned approach roads and additional trees in the temporary construction disturbance area, for a total of 15 to 25 trees. Replacement plantings at a 4:1 replacement ratio would correspond to up to 100 replacement plantings.

Replacement plantings could be planted in the following areas (listed in Table 3):

- Oak woodland temporary construction impact area to be restored, 0.2 acre, (area 7; approximately 10 trees);
- Veldt grass dominated construction staging area to be restored, bordering the east side of South Bay Boulevard north of Turri Road 0.61 acre (area 1; approximately 100 trees; this area could be expanded further north in County right-of-way if necessary, although this area is outside the Project Impact Area evaluated for CEQA and NEPA);
- Northern half of the construction impact area to be restored on the west side of South Bay Boulevard north of the bridge, approximately 0.36 acre (area 4); and

- Iceplant stands southwest of the bridge, 0.1 acre (area 12; approximately 20 trees).

These areas provide sufficient space to plant a total of 180 oak trees. This indicates that there is more than enough space available in the PIA to install the required oak replacement plantings (100 trees).

Remaining ESHA. Temporary construction impacts to Lompoc ceanothus chaparral and dune slope (areas 9 and 10, Table 3) will be restored to pre-existing contours and vegetated with container plants and a native seed mix. In accordance with the pre-application CCC recommendations (CCC 2022) individual Lompoc ceanothus and suffrutescent wallflower will be replaced at a 1:1 ratio in suitable vegetation communities as part of the restoration plantings.

Table 3. Proposed Restoration and Mitigation Areas

Area[1]	Existing Conditions	Acreage	Restoration / Mitigation	Details	Success Criteria
1	Veldt grass	0.61	Construction disturbance to be restored and enhanced with oak replacement plantings	Approximately 100 oak plantings; 10-ft setback from pavement for oaks; native seed mix	Groundcover to prevent erosion; oak survival; <25% non-native species excluding non-native annual grasses
2	Morro manzanita chaparral	0.61	Construction disturbance to be restored to Morro manzanita chaparral	Establish approximately 20 MM plants (transplants or seedlings); plus additional plantings to mimic pre-existing community; plus native seed mix	Groundcover to prevent erosion; MM survival; <5% non-native species excluding non-native annual grasses
3	Iceplant stands	0.14	Construction disturbance to be restored and enhanced with Morro manzanita chaparral	Establish approximately 3 MM plants (transplants or seedlings); plus additional plantings to mimic adjacent, pre-existing MM community; plus native seed mix	Groundcover to prevent erosion; MM survival; <5% non-native species excluding non-native annual grasses
4	Coyote brush scrub with approximately 8 Morro manzanita shrubs	0.72	Construction disturbance to be restored and enhanced with 0.36 acre MM chaparral and 0.36 acre oak plantings	MM southern half (10); oaks northern half; plus additional plantings to mimic pre-existing MM and oak woodland habitats in PIA; coyote brush container stock; native seed mix; drainage swale	Groundcover to prevent erosion; MM and oak survival; <5% non-native species excluding non-native annual grasses
5	Pavement	0.49	Pavement removal area to be restored to Morro manzanita chaparral, and north end available for oak plantings if needed	MM southern portion (10); oaks northern portion; plus additional plantings to mimic pre-existing MM and oak woodland habitats in PIA; coyote brush container stock; native seed mix	Groundcover to prevent erosion; MM and oak survival; <5% non-native species excluding non-native annual grasses
6	Salt marsh	0.11	Construction disturbance to be restored to salt marsh	Pickleweed cuttings; container plants to mimic pre-existing salt marsh community	Native survival/cover to meet or exceed baseline; <5% non-native species

7	Oak woodland	0.20	Construction disturbance to be restored to oak woodland	Approximately 10 oak plantings, plus additional plantings to mimic pre-existing community, native seed mix, 10-ft setback from pavement for oaks; new road berm may limit plantable area for oaks; drainage swale	Groundcover to prevent erosion; oak survival; <5% non-native species excluding non-native annual grasses
8	Veldt grass	0.68	Construction disturbance to be restored and enhanced to Morro manzanita chaparral	Approximately 15 MM plants; plus additional plantings to mimic pre-existing community, native seed mix	Groundcover to prevent erosion; MM survival; <5% non-native species excluding non-native annual grasses
9	Dune Slope (2 areas)	0.1	Construction disturbance to be restored and available for oak or MM plantings if needed	Native seed mix; container plants to mimic pre-existing community; available if needed for MM, oaks, or Lompoc ceanothus	Groundcover to prevent erosion; MM survival; <5% non-native species excluding non-native annual grasses
10	Lompoc ceanothus chaparral (2 areas)	0.08	Construction disturbance to be restored and available for oak or MM plantings if needed	Lompoc ceanothus container plants, plus additional plants to mimic pre-existing community; native seed mix	Groundcover to prevent erosion; MM survival; <5% non-native species excluding non-native annual grasses
11	Pavement	0.71	Pavement removal area to be restored to Morro manzanita chaparral	Approximately 15 MM; plus additional plants to mimic pre-existing community; native seed mix	Groundcover to prevent erosion; MM and oak survival; <5% non-native species excluding non-native annual grasses
12	Iceplant stands	0.10	Construction disturbance to be restored and enhanced for oak tree replacement	Approximately 20 oak plantings; plus additional plants to mimic pre-existing community; native seed mix.	Groundcover to prevent erosion; oak survival; <5% non-native species excluding non-native annual grasses

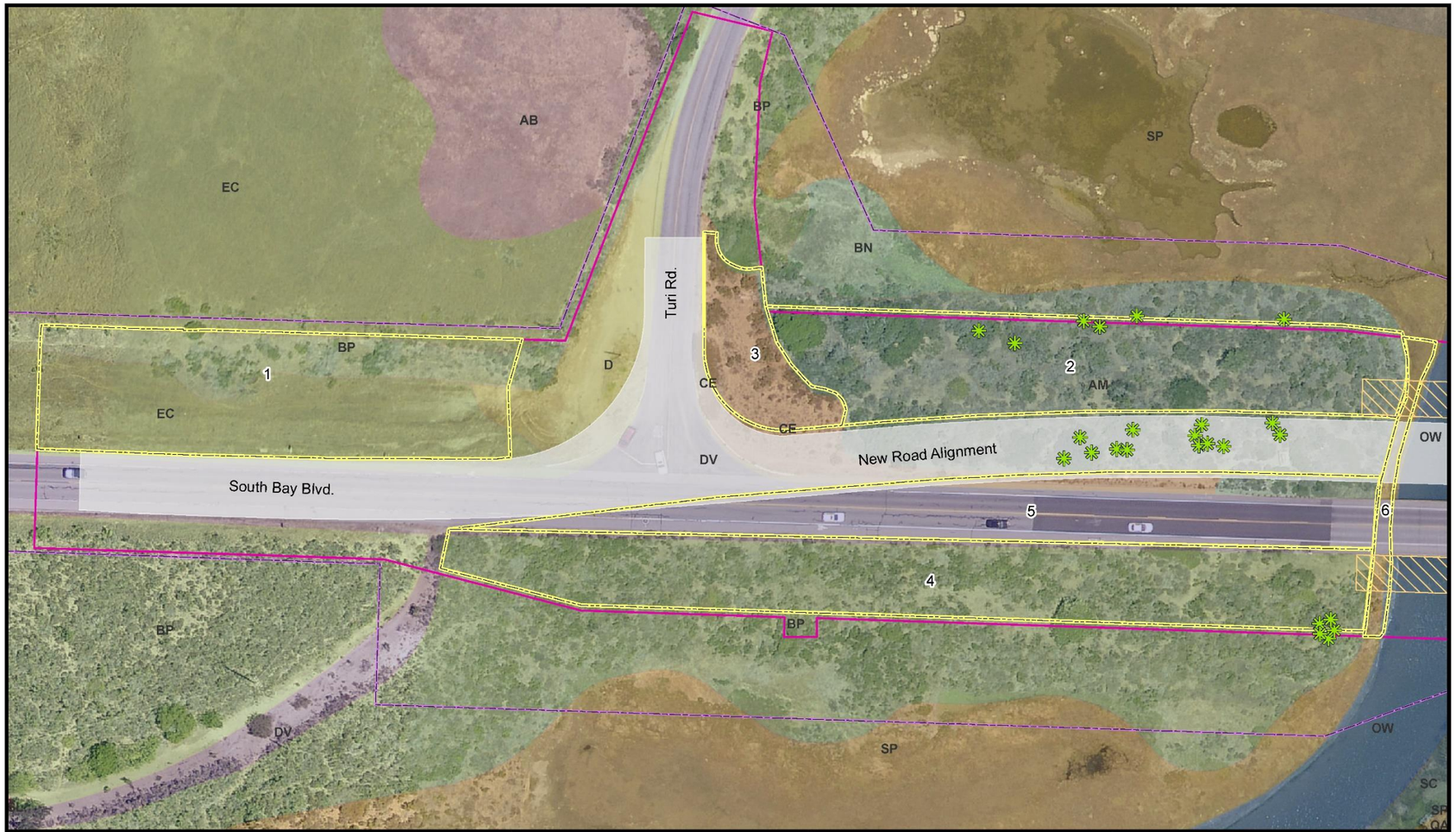
1 – Refer to Figures 4a and 4b for locations; area 6 is shown in Figure 3.

4.2 Target Functions and Values

The goal of the HMMP is to restore and enhance the diverse and valuable biological and aquatic resources within the project area after the project is completed. An increase in functions and values on site is expected as a result of the project because:

- Permanent impacts have been reduced to relatively small areas given the overall scope of the project;
- No adverse permanent impacts to estuarine habitats are proposed and incremental improvement will be accomplished with removal of the existing bridge piers from the channel;
- Temporary impacts to estuarine habitats will be of short duration (five months) and divided between two construction seasons;
- Temporary construction impacts to valuable habitat areas will be restored;
- Removal of abandoned road sections provides the opportunity to mitigate for permanently impacted habitats; and
- Some lower-value habitats will be enhanced as part of the proposed mitigation for permanent impacts.

Figure 4a. Proposed Restoration and Mitigation Areas

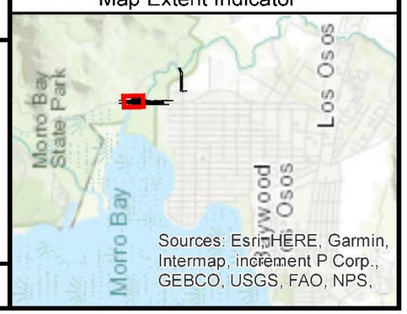


South Bay Blvd. Bridge Project

North Mitigation and Restoration Areas (Map 1/2)

Date: February 2023
Created By: K. Whelan

Map Extent Indicator



Legend

- Morro Manzanita
- Temporary Tresle Deck
- Mitigation and Restoration Areas
- County Right-of-Way
- Project Impact Area (PIA)
- New Road and Bridge Alignment

Existing Vegetation Cover

- AB-Avena barbata (wild oats grasslands)
- AM-Arctostaphylos morroensis (Morro manzanita cha*
- BN-Brassica nigra (upland mustard stands)
- BP-Baccharis pilularis (coyote brush scrub)
- CC-Ceanothus cuneatus (Lompoc ceanothus chaparral)
- CE-Carpobrotus edulis (ice plant stands)
- D-Disturbed (weedy)
- DS-Dune slope (eroded)
- DV-Developed (asphalt, concrete, structures)
- EC-Ehrharta calycina (veldt grass stands)
- OW-Open water (unvegetated stream channel)
- QA-Quercus agrifolia (coast live oak woodland)
- SC-Schoenoplectus californicus (California bulrus*
- SL-Salix lasiolepis (arroyo willow stands)
- SP-Salicornia pacifica (pickleweed saltmarsh)

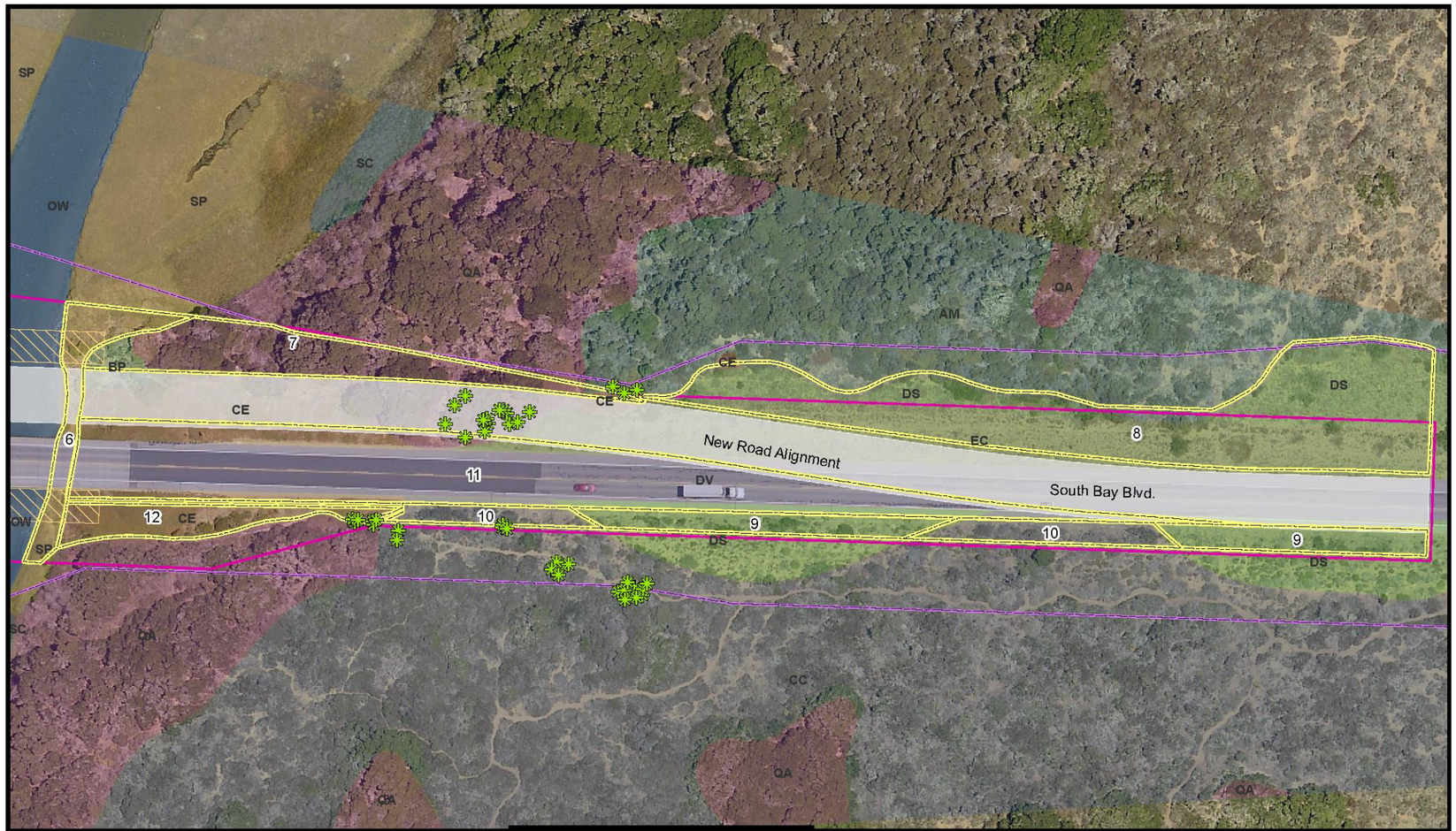
0 25 50 100 150 Feet

1 inch = 90 feet

N

Coordinate System: NAD_1983_2011_StatePlane_California_V_FIPS_0405_Ft_US Note: This map was created for information and display purposes only

Figure 4b. Proposed Restoration and Mitigation Areas



4.3 Time Lapse between Impacts and Expected Compensatory Mitigation Success

Construction is expected to take two seasons, one for construction of the new bridge and one for demolition of the existing bridge. Some of the temporary impact areas may be required for construction staging for both construction periods. The South Bay Boulevard road removal areas will likely not be available until the end of the second construction season.

Temporary construction impacts in jurisdictional areas are expected to be in place in individual shoreline locations for a single construction season for a duration of five months:

- Construction Season 1: east work trestle and dewatering areas for bridge construction
- Construction Season 2: west work trestle and dewatering areas for bridge demolition

Season 1 structures are expected to be removed and the impacted areas restored at the end of Season 1, although it may be necessary to leave the work trestle in place. This will be avoided to the extent feasible. All structures are expected to be removed and the impacted areas restored following completion of the second construction season.

Upland temporary construction impacts are anticipated to be in place for two construction seasons. It may be possible to restore some of the temporary impact areas following completion of Season 1. This will be determined in coordination with the contractor based on access and staging needs for Season 2. Restoration of temporary impacts to Morro manzanita chaparral will be the first priority for post-Season 1 restoration, if feasible. Otherwise, it is anticipated that restoration and mitigation for upland impact areas would occur following completion of the project.

Hydroseeding, transplants, and container stock associated with restoration and mitigation efforts will be installed in the late fall/early winter after completion of construction activities, when the plant materials installed will have the greatest chance of becoming established because they will receive natural rainfall during the cooler portion of the year.

The County expects restoration of temporarily disturbed salt marsh habitat to be restored more quickly; a preliminary estimate is within one or two years following restoration activities. Table 5 provides a typical implementation, maintenance, and monitoring schedule for County projects. The schedule will be complicated for this project because there will be two construction seasons, and some of the restoration may be accomplished at the end of Season 1, with the remainder following Season 2. Two construction seasons results in a total monitoring duration of seven years from construction start.

The proposal to remove, store, and transplant Morro manzanita plants, if feasible, and the use of container stock being generated for the project in the County's greenhouse, will jump-start the functions and values of the oak and Morro manzanita mitigation areas considerably compared to the alternative of using seeds/acorns on site. The County expects to have sufficient container stock generated in the greenhouse to avoid the need to use seed/acorns for restoration. The County will target attaining container stock of sufficient size to minimize predation losses. Feasibility of transplanting Morro manzanita plants will likely be limited to smaller shrubs, and the methods/approach will need to be developed in a pilot project prior to construction. These approaches are expected to result in shortened timeframes between restoration work and compensatory mitigation success.

Table 4. Typical Mitigation and Monitoring Schedule

Year 1 Bridge Construction and Year 2 Demolition	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
Construction Monitoring						X	X	X	X	X		
Prepare Planting Areas										X		
Install and Water Plantings											X	
Site/Revegetation Monitoring										X	X	X
Year 3 - Monitoring Year 1	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
Weeding/Maintenance	X		X			X		X			X	
General Site Monitoring			X			X				X		X
Biological Data Collection			X							X		
Annual Report												X
Year 4 - Monitoring Year 2	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
Weeding/Maintenance		X		X		X		X			X	
General Site Monitoring				X		X				X		X
Biological Data Collection				X						X		
Annual Report												X
Year 5 - Monitoring Year 3	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
Weeding/Maintenance		X		X		X		X		X		
General Site Monitoring				X						X		
Biological Data Collection				X						X		
Annual Report												X
Year 6 - Monitoring Year 4	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
General Site Monitoring				X						X		X
Biological Data Collection				X						X		
Annual Report												X
Year 7 - Monitoring Year 5	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
General Site Monitoring				X						X		X
Biological Data Collection				X						X		
Completion Report												X

5 Mitigation Implementation Plan

This section describes how the required mitigation for the project will be conducted and includes the specific methodologies and plant species that will be used.

Implementation of the restoration and mitigation activities will be conducted or overseen by a County-approved restoration specialist that has the necessary experience and skills to complete the required mitigation for the project. The restoration specialist will ensure conformity of all the mitigation activities with this HMMP.

Only native, non-invasive species will be used for restoration and mitigation efforts. No plant species listed as problematic and/or invasive by the California Native Plant Society, the California Exotic Pest Council, or by the State of California will be used in restoration and mitigation sites. No plant species listed as a noxious weed by the State of California or the U.S. Federal Government will be used.

Suitable erosion and sedimentation control measures will be maintained on site until plant cover is sufficiently dense to protect the soil from erosion. Measures could include, for example, use of weed-free straw wattles, silt fence, jute netting, and sand or gravel bags. All measures used will be biodegradable; measures incorporating plastic mesh will not be allowed.

All proposed restoration and mitigation areas are in County right-of-way. No temporary construction easements (TCE) are anticipated to be required. In the event TCE's are required, it would most likely be with State Parks, which owns most of the adjoining land.

5.1 Site Preparation

The restoration and mitigation activities will be initiated when construction is finished and prior to the onset of the winter rainy season. Restoring pre-existing substrate conditions and grades, installing necessary sedimentation and erosion controls, and hydroseeding disturbed areas will generally be part of the construction contract to be implemented by the contractor. Hydroseeding in specific habitat restoration areas may be accomplished separately by the County.

5.1.1 Temporary Impact Restoration Areas

Tidal Areas. Site preparation in tidal restoration areas will include removing all construction materials (cofferdams, trestle piles) and smoothing any displaced sediment in unvegetated areas to restore pre-existing conditions. No import or export of fill material is proposed. Any displaced sediment in the channel that results from installation and removal of the cofferdams and trestle piles is expected to be of minimal quantity and localized to the immediate vicinity of the structures.

Non-Tidal Areas. Temporary construction impacts to ESHA will be restored to pre-existing conditions. Temporary impacts to non-ESHA will be enhanced to higher-value habitats in most locations (e.g., Morro manzanita chaparral and oak plantings). Site preparation in non-tidal areas will include removing all construction-related materials and debris and restoring pre-existing contours and hydroseeding. Soils will be stabilized with suitable measures (e.g., weed-free straw wattles, jute netting) on or adjacent to slopes.

In accordance with CCC requirements, restoration plant communities will mimic pre-existing communities (dominant species, relative cover, and spacing) for Morro manzanita chaparral, oak woodland, Lompoc ceanothus chaparral, and coyote brush scrub. Container stock will be planted in a mosaic pattern with average spacing of approximately 1.5 times the mature crown size of each species to best simulate the natural ecology (approximately 10-15 ft for Morro Manzanitas and Lompoc Ceanothus). Duplicate plantings or closer spacing may be used in anticipation of relatively high mortality rates of manzanita transplants and number of available nursery stock. Reference populations in less disturbed areas are consistent with this space (State Parks land uphill of Broderson Road).

Seed mixes to establish the ESHA community habitat conditions provided in Section 4.1 for the restoration areas listed in Table 3 would be derived from the following:

Morro Manzanita Chaparral: yarrow (*Achillea millefolium*), coyote brush, black sage, California sagebrush, coastal golden yarrow (*Eriophylum staechadifolium*), deerweed, dune bush lupine (*Lupinus chamissonis*), and mock heather (*Ericameria ericoides*).

Coyote Brush Scrub: yarrow, coyote brush, black sage, California sagebrush, coastal golden yarrow, deerweed, dune bush lupine, and mock heather.

Lompoc Ceanothus Chaparral: yarrow, coyote brush, black sage, California sagebrush, coastal golden yarrow, deerweed, dune bush lupine, and mock heather.

Eroded Dune Slope: coyote brush, Coastal golden yarrow, coast goldenbush (*Isocoma menziesii*), mugwort (*Artemisia douglasiana*), California croton, deerweed, and mock heather.

Coast Live Oak Woodland: yarrow, coyote brush, black sage, California sagebrush, coastal golden yarrow, deerweed, dune bush lupine, and mock heather (*Ericameria ericoides*).

Stormwater drainage swales: seeding/planting will be consistent with an approved plant list provided in the Central California Coast Low Impact Development Bioretention Guidance Technical Assistance Memo (Central Coast LIDI 2011). This document lists species to be selected from for the bottom of swales (e.g., California gray rush (*Juncus patens*), clustered field sedge (*Carex praegracilis*), deer grass (*Muhlenbergia rigens*), common yarrow, and yerba mansa (*Anemopsis californica*)) and sideslopes (e.g., coast live oak, coyote brush, Pacific blackberry (*Rubus ursinus*), toyon (*Heteromeles arbutifolia*), coffeeberry (*Rhamnus californica*), wax myrtle (*Morella californica*), California poppy (*Eschscholzia californica*), and sky lupine (*Lupinus nanus*)). Any of the plants selected from the approved plant list will be compatible with the mitigation efforts.

Additional site preparation details for Morro manzanita chaparral will include ensuring appropriate soil conditions. Potential strategies to facilitate restoration after construction may include protecting the native soil in situ or removing and storing it to be used in site restoration. For the 0.6-acre construction impact area, topsoil could potentially range from 1,000 to 2,000 cubic yards (based on 1- to 2-foot depth). As a general approximation, roughly 0.5 acre may be needed for storage. The most feasible and cost-effective approach will need to be determined.

Imported soil is not expected to be needed for restoration. However, if it is, soil specifications will be developed to ensure that the restoration area has suitable substrate to maximize Morro manzanita restoration success (e.g., beach sand or sandy loam).

To accommodate a future coastal trail as required by CCC, shrub and oak trees will not be planted in the 5-foot-wide graded bench proposed to connect the northwest side of the new bridge, with an undercrossing under the bridge, and a portion of the restoration area on the northeast side of the new bridge. A preliminary estimate is that this area would include up to approximately 3,500 s.f. (0.08 acre) of the restoration areas. Shrubs and trees planted in the trail alignment would have to be removed for development of the trail in the future, so these areas will be seeded with a native seed mix. The proposed trail alignment areas will not mimic the random plant arrangement required by CCC, but a 5-foot gap between plantings is smaller than the anticipated spacing between shrubs so is not expected to have adverse effects on habitat value.

5.1.2 Permanent Impact Mitigation Areas

Tidal Areas. No permanent impacts to tidal areas are required.

Non-Tidal Areas. Site preparation in non-tidal mitigation areas includes Morro manzanita chaparral and oak woodland.

Morro manzanita chaparral: In addition to use of lower-value construction impact areas described in Section 5.1.1, the proposed mitigation areas for Morro manzanita chaparral include

road removal areas. Site preparation will include removal of existing pavement and road base materials. Compacted soils would be disked. If necessary to establish desirable grades, weed-free soil suitable for the targeted habitat type would be placed.

The feasibility of removing and storing the native topsoil from the permanent impact area (as described for the temporary construction impact area above) may be considered. An estimated 400 to 800 cubic yards of topsoil may be available from the 0.24-acre permanent impact area. In the event soil for the mitigation area must be imported from offsite, specifications for suitable soil will be developed (e.g., beach sand or sandy loam).

The Morro manzanita mitigation areas will be vegetated with suitable container stock and seeded with the same mix described for the Morro manzanita restoration area in Section 5.1.1.

Oak Woodland: In addition to the use of lower-value construction impact areas described in Section 5.1.1, the proposed oak woodland mitigation and additional oak tree replacement planting areas may include road removal areas. Site preparation will include removal of existing pavement and road base materials. Compacted soils would be disked. If necessary to establish desirable grades, weed-free soil suitable for the targeted habitat type would be placed. The oak woodland mitigation area will be vegetated with suitable container stock and seeded with the same seed mix described for the oak woodland restoration area in Section 5.1.1.

5.2 Plantings

5.2.1 Tidal Areas

Areas where pickleweed has been removed by construction activities will be restored by mulching with pickleweed cuttings to restore vegetative cover that is comparable to the pre-existing salt marsh vegetation. Pickleweed mulching has been documented as a reliable way to re-establish cover and may be applied from fall through spring as a way to establish pickleweed cover and reduce invasive species colonization (Miles et. al. 2015).

It is anticipated that there are sufficient pickleweed stands in the project vicinity to obtain cuttings. The proposed approach consists of obtaining cut pieces about 20 cm long that will be placed by hand in restoration areas and covered with anchored jute mesh for protection. Details may be refined through agency coordination as part of the permit application process.

The need for container plantings to re-establish additional species will be based on the results of the pre-construction baseline surveys of the marsh areas to be impacted and the success of pickleweed mulching. Additional plantings may be included in the restoration design. This could include, for example, jaumea and saltgrass plantings from nursery stock.

5.2.2 Non-Tidal Areas

For all non-tidal restoration and mitigation areas, the target species included in the proposed hydroseed mixes could be supplemented with container stock if deemed necessary (e.g., coyote brush). Because of the aerial extent of areas to be treated, hydroseeding will be relied upon as the initial/primary method.

Morro manzanita plantings are proposed to include the plants generated in the County greenhouse, and may also include plants in the construction disturbance zone that would be removed and set aside for the duration of construction, if feasible. Additional plants would be obtained from nursery stock if necessary. Some of the plants on site will likely be too large to remove and store for transplanting. Smaller plants in the project impact areas may be removed and set aside for replanting in restoration and mitigation areas. The County is coordinating with State Parks and the U.S. Fish and Wildlife Service for their expertise regarding the removal methods, storage, maintenance, and transplanting of the plants. Details will be refined through continued coordination and the permit application process. Plants could be stored in County right-of-way at the site, State Parks greenhouse facilities or lands, and/or the County greenhouse

facility at Kansas Avenue in San Luis Obispo. Storage would likely be in containers, although the feasibility of installing temporary containment ditches may be considered. Plants would be watered and protected from damage for the duration of construction.

Morro manzanita seedlings will be used to attain the necessary quantity of replacement plants. Seedlings may be obtained from commercial nurseries and/or propagated for the project. The County currently has approximately 35 seedlings obtained from a local nursery that are intended to be used for the project and additional container stock is being generated by the County using seed propagation and cuttings collected at the project site or other locations in Los Osos. Propagation efforts are being coordinated with the USFWS.

Coast live oak seedlings will be propagated by the County using acorns collected in the project vicinity and/or purchased from nursery stock.

Lompoc ceanothus plantings will be from County greenhouse or nursery stock.

5.3 Planting Methodology

5.3.1 Installation of Container Stock

Container stock plantings will be installed by hand in accordance with the following general guidelines:

- Container stock will generally be planted in clusters and with spacing to match the impact areas;
- Morro manzanita will be planted in a mosaic pattern with average spacing of 1.5 times the mature crown size (approximately 10 to 15 ft);
- Duplicate plantings or closer spacing may be used in anticipation of relatively high mortality rates of manzanita transplants and number of available nursery stock;
- Prior to planting container stock, an area approximately two feet in diameter at each proposed planting location will be manually cleared of any non-native, invasive plant species.
- Once the area is cleared of non-natives, a planting hole will be excavated.
- All planting holes will be excavated to equal the depth and approximately 1.5 times the width of the root-ball or rhizome.
- Each plant will be installed in the center of the hole and subsequently backfilled with the native soil material removed to create the hole. Attention will be given not to disturb rhizomes when planting.

Details pertaining to transplanting Morro manzanita plants and installing seedlings may be refined based on coordination with the regulatory agencies.

5.3.2 Soil Stabilization and Seeding

Bare soil resulting from installation of container plants will be reseeded and stabilized with erosion control devices if necessary. Suitable erosion and sedimentation control measures will be maintained on site until plant cover is sufficiently dense to protect the soil from erosion.

6 Maintenance Plan

Maintenance during plant establishment is necessary to ensure success of the mitigation efforts. The five-year maintenance period will begin immediately after completion of the mitigation plantings. At the end of the maintenance period, the appropriate regulatory resource agencies will review the monitoring reports submitted, evaluate whether the performance standards have been achieved, and determine whether the maintenance period will be ended or extended. The maintenance program will ensure that watering of installed plants, weed abatement, trash removal, vandalism, replanting, plant protection, and general site safeguarding are performed adequately and at appropriate frequencies.

6.1 Watering

Supplemental water will be applied to the restoration plantings via a water truck. Installation of irrigation systems that use on-site water storage tanks may be proposed.

6.2 Weed Abatement

The USFWS BO (under Proposed Mitigation, page 4) requires weed abatement using hand removal methods in the restoration areas for five years.

The USFWS BO also requires implementation of the mitigation measures on pages 7 through 12 of the USFWS/Caltrans Programmatic BO (PBO) for CRLF. Condition 18 of the PBO addresses use of herbicides, including the following:

a. Caltrans will not use herbicides during the breeding season for the California red- legged frog [*NOTE: the CRLF breeding season is November through May*];

b. Caltrans will conduct surveys for the California red-legged frog immediately prior to the start of any herbicide use. If found, California red-legged frogs will be relocated to suitable habitat far enough from the project area that no direct contact with herbicides would occur;

c. Giant reed and other invasive plants will be cut and hauled out by hand and painted with glyphosate or glyphosate-based products, such as Aquamaster® or Rodeo®;

d. Licensed and experienced Caltrans staff or a licensed and experienced contractor will use a hand-held sprayer for foliar application of Aquamaster® or Rodeo® where large monoculture stands occur at an individual project site;

e. All precautions will be taken to ensure that no herbicide is applied to native vegetation.

f. Herbicides will not be applied on or near open water surfaces (no closer than 60 feet from open water) [*NOTE: Figure 5 shows 60-foot setback from HTL*].

g. Foliar applications of herbicide will not occur when wind speeds are in excess of 3 miles per hour.

h. No herbicides will be applied within 24 hours of forecasted rain.

i. Application of all herbicides will be done by a qualified Caltrans staff or contractors to ensure that overspray is minimized, that all application is made in accordance with label recommendations, and with implementation of all required and reasonable safety measures. A safe dye will be added to the mixture to visually denote treated sites. Application of herbicides will be consistent with the U.S. Environmental Protection Agency's Office of Pesticide Programs, Endangered Species Protection Program county bulletins.

j. All herbicides, fuels, lubricants, and equipment will be stored, poured, or refilled at least 60 feet from riparian habitat or water bodies in a location where a spill would not drain directly toward aquatic habitat. Caltrans will ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, Caltrans will ensure that a plan is in place for a prompt and effective response to accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

The County will continue coordinating with USFWS regarding the following:

a) Whether aquatic-approved herbicides that are included in the RWQCB Aquatic Use General Permit may be used within the 60-foot setback from open water;

b) Whether the CRLF PBO restriction on use of herbicides during the CRLF breeding season applies to the entire project area, including aquatic and non-aquatic areas, given that suitable conditions for CRLF breeding have not been documented in the project area and documented breeding locations are generally on the order of 1 to 2 miles from the PIA; and

c) Because PBO Condition 18.c specifically mentions use of glyphosate or glyphosate-based products, whether Arrow 2EC and/or other non-aquatic approved herbicides, can be used outside the 60-foot aquatic setback area.

Resolution regarding these constraints is still pending. Any changes in the allowable use of herbicides based on coordination with the regulatory agencies will be documented in this HMMP. A final HMMP will be provided to all regulatory agencies prior to construction.

6.3 Trash Removal

Any trash that is present within the mitigation areas will be removed as necessary during the regularly scheduled monitoring/maintenance visits. Trash is not expected to be a significant issue for these mitigation efforts because of the rural location of the project site.

6.4 Vandalism

Vandalism of the mitigation sites is not expected because of the rural nature of the project site. Should any of the restoration plantings be vandalized in a manner that has potential to compromise the success of the mitigation efforts, those factors will be rectified as soon as possible, and replacement plantings will be installed as needed.

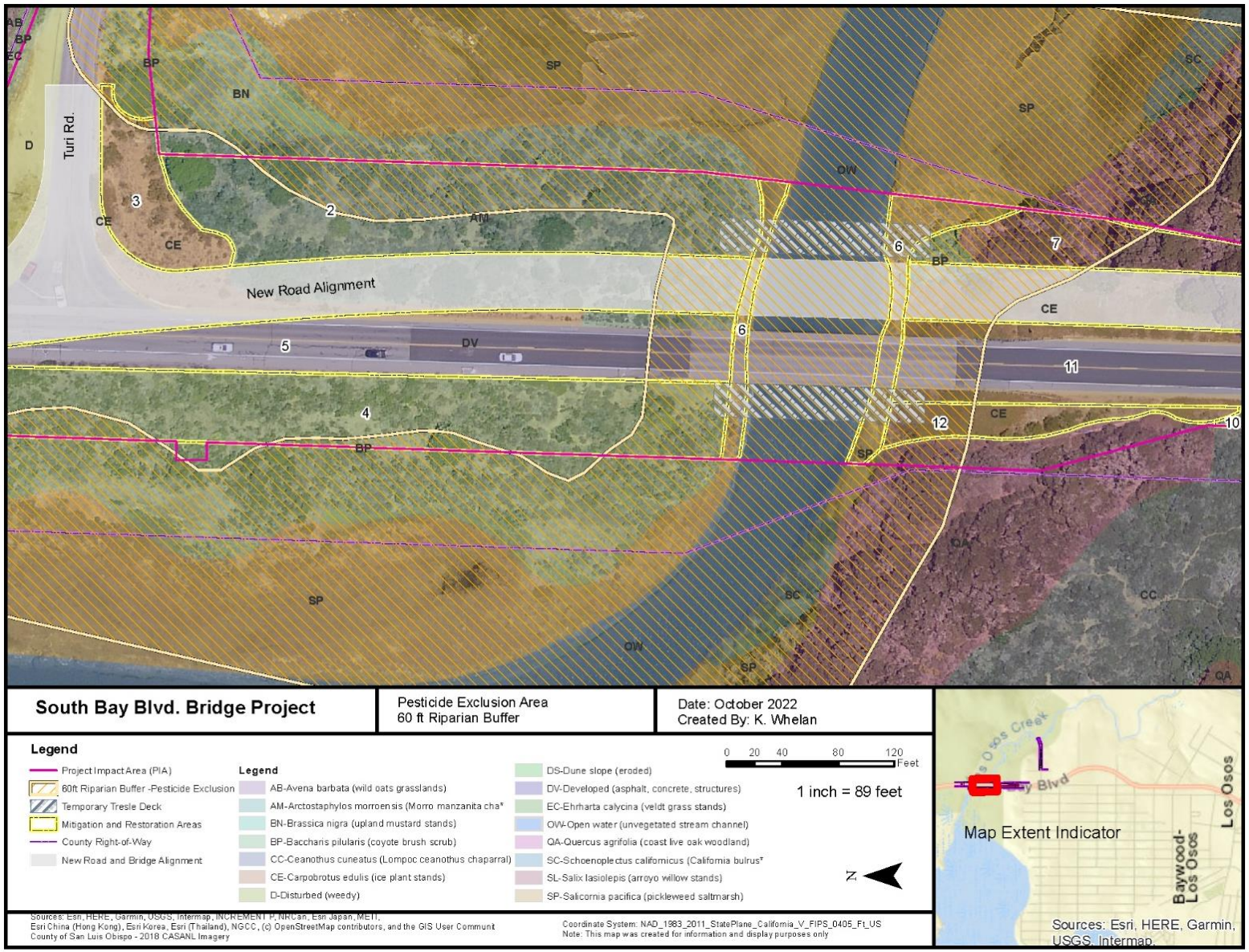
6.5 Remedial Plantings

A limited amount of mortality is expected and inherent to any mitigation activity. Remedial plantings to replace installed plantings will be performed as necessary to remain in compliance with the mitigation plan and on a trajectory to accomplish the targeted success goals/criteria. Any such plantings will be performed per the methodologies described in Section 5.3 and will be consistent with the other parameters outlined in this HMMP.

6.6 Fertilizing

For initial plantings, compost and slow-release fertilizer may be used for certain container plants to bolster establishment.

Figure 5. Sixty-foot setback from the high tide line for restricting use of herbicides in open water.



7 Monitoring Plan

The goals of the monitoring plan are to:

- Ensure project restoration and mitigation goals and objectives are being met;
- Document compliance using qualitative data regarding percent cover/substrate conditions, percent native / non-native species, and habitat conditions;
- Document compliance using quantitative data regarding Morro manzanita and oak tree survival rates;
- Identify the need for remedial mitigation, augmentative measures, or adaptive management strategies.

The project restoration specialist and/or a County Environmental Resource Specialist will perform the monitoring activities and will collect and evaluate monitoring data. Through this process, the relationship between the actual site conditions and the success criteria will be identified. After the field monitoring and vegetative sampling is complete, the results will be summarized in brief annual monitoring reports that will include photo-documentation and a comprehensive evaluation of the overall success of the mitigation efforts based on whether or not the performance goals for that year were met. Remedial measures to augment or rectify any problematic issues identified on site will also be included, if determined to be needed.

7.1 Monitoring Schedule

The monitoring program will consist of general monitoring and maintenance site visits and annual data collection visits. The focus of general monitoring is to assess the plantings overall health, vigor, and status and to determine the need for supplemental water, weeding, mulching, and other maintenance-related issues. The focus of the vegetative monitoring visits is to collect the qualitative and quantitative data that will inform a more comprehensive assessment of compliance with the proposed success criteria.

The County will conduct the monitoring surveys at the project site (at least once per year) for a minimum of five consecutive years as a part of standard mitigation reporting requirements. Surveys will include representative photo documentation. The restoration specialist will typically monitor the site quarterly during the first three years after planting and semiannually for the fourth and fifth years of the monitoring program. The site may also be monitored after large storm events to identify any damage and erosion. The restoration specialist will ensure that the project is maintained as necessary during the entire monitoring period.

The CCC suggested that live oak trees and Morro manzanita shrubs are slow-growing species and may warrant a longer monitoring period to ensure restoration success. The County will evaluate the condition of restoration areas during the 5th monitoring period, including size and condition of plants, and will coordinate with the CCC staff on whether additional monitoring years are needed,

7.2 Performance Goals

Tables 6a through 6d provide the annual performance standards and final success criteria for the restoration and mitigation efforts. The criteria assume that herbicides will be used to control non-native, invasive species, which are prevalent in the project area. The target goals also exclude non-native grasses such as veldt grass, which already occur in broad portions of the project site and adjoining parcels.

In the event herbicide use is prohibited due to proximity to estuarine waters, control of invasive species will be even more challenging and the performance standards may need to be adjusted.

As described in the NES, the pickleweed salt marsh consists primarily of native species. Performance standards for percent cover and percent native species will be developed based on pre-construction baseline conditions and based on coordination with the regulatory agencies.

The mitigation areas will be monitored annually for five years, or longer if necessary, until the final success criteria are accomplished. Annual monitoring results will be used to gage progress toward achievement of the final success criteria, and to implement appropriate corrective and contingency measures so that success will be achieved. By the third year post-implementation, the mitigation sites are anticipated to be well established and predominantly self-sustaining, so that supplemental watering is no longer required.

The mitigation sites will not be considered successful until the involved regulatory agencies provide written verification that the final success criteria have been met.

Table 5a. Final Success Criteria for Salt Marsh

Attribute	Criteria
Total percent cover	to be determined based on baseline conditions; likely ≥75% based on current conditions
Total percent native cover	≥95%
Species richness	>50% planted species

Table 5b. Final Success Criteria for Morro Manzanita Chaparral

Attribute	Criteria
Total percent cover	≥75%
Morro manzanita transplant and seedling survival	≥75%
Invasive species cover exclusive of non-native grasses	≤5%
Species richness	>50% planted species

Table 5c. Final Success Criteria for Oak Woodland

Attribute	Criteria
Total percent cover	≥75%
Oak planting survival	≥75%
Invasive species cover exclusive of non-native grasses[1]	≤5%
Species richness	NA

1 – Excluding oak planting area bordering South Bay Boulevard north of Turri Road (restoration area 1), where success criteria will be 25%.

Table 5d. Final Success Criteria for Coyote Brush Scrub, Lompoc Ceanothus, and Dune Slope

Attribute	Criteria
Total percent cover	≥75%
Lompoc ceanothus plant survival	≥75%
Invasive species cover exclusive of non-native grasses	≤5%
Species richness	>50% planted species

7.3 Other Attributes to be Monitored

The presence of other native volunteer plant species within the mitigation sites indicates that the site conditions are suitable for development of a healthy and self-sustaining natural habitat. Newly

established non-native, weedy plant species observed during monitoring will be removed immediately, so that they do not disperse seed and proliferate. The presence of newly occurring non-native plant species will be observed during the monitoring activities and noted; so that an appropriate course of action can be put into effect.

Wildlife species observed in and around the mitigation areas will be documented along with evidence of the functional use of habitat (i.e., feeding, nesting, roosting, etc.).

Photo points will be established throughout the mitigation site to assist in tracking the success of the mitigation program and to provide further documentation of the existing site conditions. The photo points will be established during the preparation of the as-built planting plan and ground view photos will be taken during each monitoring year from the same vantage point.

7.4 Reporting Requirements

Reporting will be done in accordance with the regulatory permits issued for the project. The reporting requirements for each agency are discussed below.

7.4.1 United States Army Corps of Engineers

Annual reports will follow the USACE Mitigation Monitoring Guidelines requirements (refer to Appendix A). These annual reports will satisfy the terms and conditions outlined in the Section 404 Nationwide Permit obtained for the project, which are anticipated to be required for salt marsh restoration and for restoration and mitigation for the federally protected Morro manzanita in accordance with the Section 7 approval for the project from the U.S. Fish and Wildlife Service.

7.4.2 Central Coast Regional Water Quality Control Board

Section 401 – Water Quality Certifications issued from the RWQCB typically require submittal of a project completion report and at least two annual monitoring reports for certified projects. A project completion report and annual reports will be prepared to satisfy the requirements of the RWQCB Water Quality Certification acquired for the project.

7.4.3 California Department of Fish and Wildlife

Section 1600 Streambed Alteration Agreements (SAA) issued by CDFW typically require submittal of annual monitoring reports for five consecutive years that include photo documentation to document the progress and status of the revegetation efforts. Annual reports will be prepared to satisfy the requirements of the SAA obtained for the project.

7.4.4 California Coastal Commission

Coastal Development Permits issued by the CCC requires annual reporting.

8 Completion of Compensatory Mitigation

This section explains the process required to close out the mitigation project with the various regulatory agencies, once all the success criteria have been achieved. The necessary documentation to verify that all of the County's mitigation obligations for the project have been satisfied is also explained.

8.1 Notifications of Completion

The County will notify the USACE, RWQCB, and CDFW in writing when the monitoring period is completed and all the designated success criteria for the project have been met. The different permitting regulatory agencies have slightly different requirements and each agencies' obligations will be fulfilled. Following receipt of the final monitoring report and submission of any other required documentation, the County understands that the regulatory agencies may request a site visit to confirm project completion of the compensatory mitigation efforts. If site visits of this nature are requested, the County will comply and facilitate these arrangements accordingly.

9 Contingency Measures

Contingency measures are specific actions that will be taken by the County if it becomes apparent that the success criteria for the mitigation program are not being achieved or if the efforts are likely to fail. These measures will be implemented at any time when necessary and they are intended to reverse the issue and reset the mitigation trajectory so that the performance goals can be attained.

9.1 Adaptive Management

The mitigation sites should be considered self-sustaining when no maintenance or artificial irrigation is required for a period of at least two years. If replanting is determined to be necessary, replanted areas will be monitored and maintained for a duration that is agreeable to the relevant regulatory agencies. If a total site failure is evident, the County will coordinate with the involved regulatory agencies to determine what alternative compensatory mitigation will be required. Similarly, if it becomes apparent that the designated success criteria are not feasible, an alternative set of objectives will be developed. Identification of alternative mitigation sites, planting palettes and/or species may be considered if necessary.

9.2 Long-Term Management

If it becomes apparent that the mitigation efforts will not attain the final success criteria within the expected time frame, the County will begin an assessment of the particular reasons for failure and will work with the involved regulatory agencies to determine an acceptable solution. If the site trends indicate that the success criteria will eventually be met, but in a longer timeframe than anticipated, maintenance and monitoring will continue until the criteria have been satisfied. In this scenario, a time extension will be proposed to the pertinent regulatory agencies by the County and the monitoring period (and possibly the maintenance program) will be extended accordingly. For example, as described in Section 7.1, longer than 5 years may be required to monitor success of slow-growing native oak trees and Morro manzanita.

10 References

California Coastal Commission. 2022. Letter dated March 1, 2022, from Esme Wahl, Coastal Planner, Central Coast District, to Monica Stillman, County of San Luis Obispo, Department of Public Works.

Central Coast LIDI. 2011. Central California Coast Low Impact Development Bioretention Guidance Technical Assistance Memo. Available at centralcoastlidi.org/resources.php. Accessed July 29, 2022.

Miles, A.K., D.H. Van Vuren, D.C. Tsao, and J.L. Yee. 2015. Experimental enhancement of pickleweed, Suisan Bay, California, California Fish and Game 101(2): 87-100.

San Luis Obispo County Department of Public Works (County). 2021a. South Bay Boulevard Bridge (49C-0351) Replacement Project, Natural Environment Study, Federal Project BRLS-5949(137). San Luis Obispo, California.

———. 2021b. South Bay Boulevard Bridge Replacement Project, Biological Assessment, Federal Project Number BRLS-5949(137). San Luis Obispo, California.

U.S. Army Corps of Engineers (USACE). 2008a. Checklist for Compensatory Mitigation Proposals, Compensatory Mitigation Checklist – Page 1 of 5. Charleston District, Regulatory Branch. Charleston, South Carolina.

———. 2008b. Compensatory Mitigation for Losses of Aquatic Resources; Final Rule. Federal Register Vol. 73, No. 70: 19594-19705. April 10, 2008.

Appendix A. USACE Monitoring Report Guidelines

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

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

Pages 1-2:

A. Project Information:

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

B. Compensatory Mitigation Site Information:

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

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

Page 2 or 3:

D. Map of the compensatory mitigation site:

1. 8 ½ x 11-inch diagram of the site including:

a) Habitat types (as constructed).
b) Locations of photographic record stations.
c) Landmarks
d) Inset defining location of the site.

Page 3 or 4:

A. List of Corps-approved success criteria.

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

Page 4, 5, and/or 6:

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

Page 5, 6, or 7:

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

Page 6, 7, 8 (if needed):

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

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