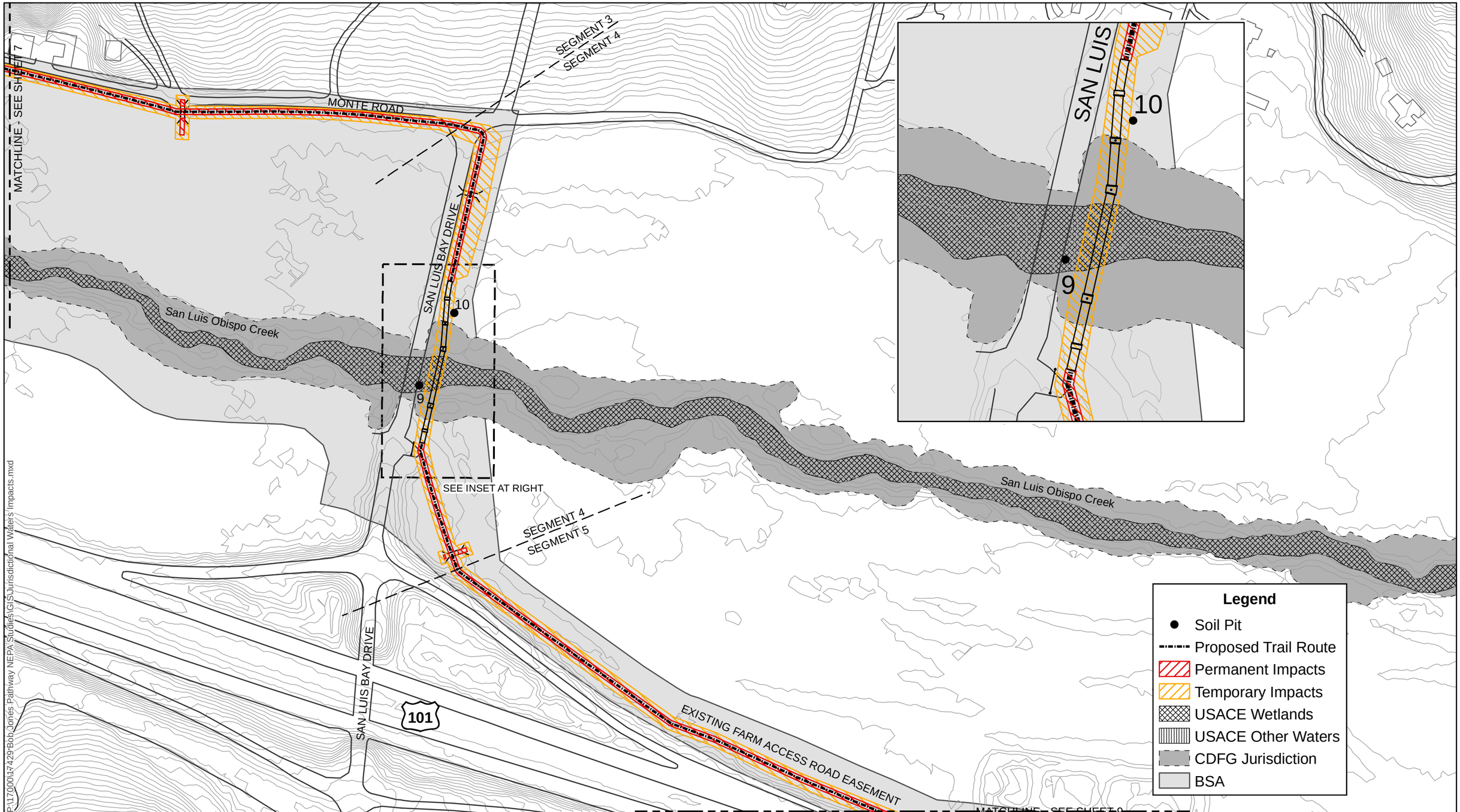


BOB JONES PATHWAY

SAN LUIS OBISPO TO ONTARIO ROAD

SWCA® ENVIRONMENTAL CONSULTANTS

Sound Science. Creative Solutions.

DRAWING DETAILS	
DRAWN BY:	KD
CHECKED BY:	TB
DATE:	12-23-11
PROJECT NUMBER:	17429

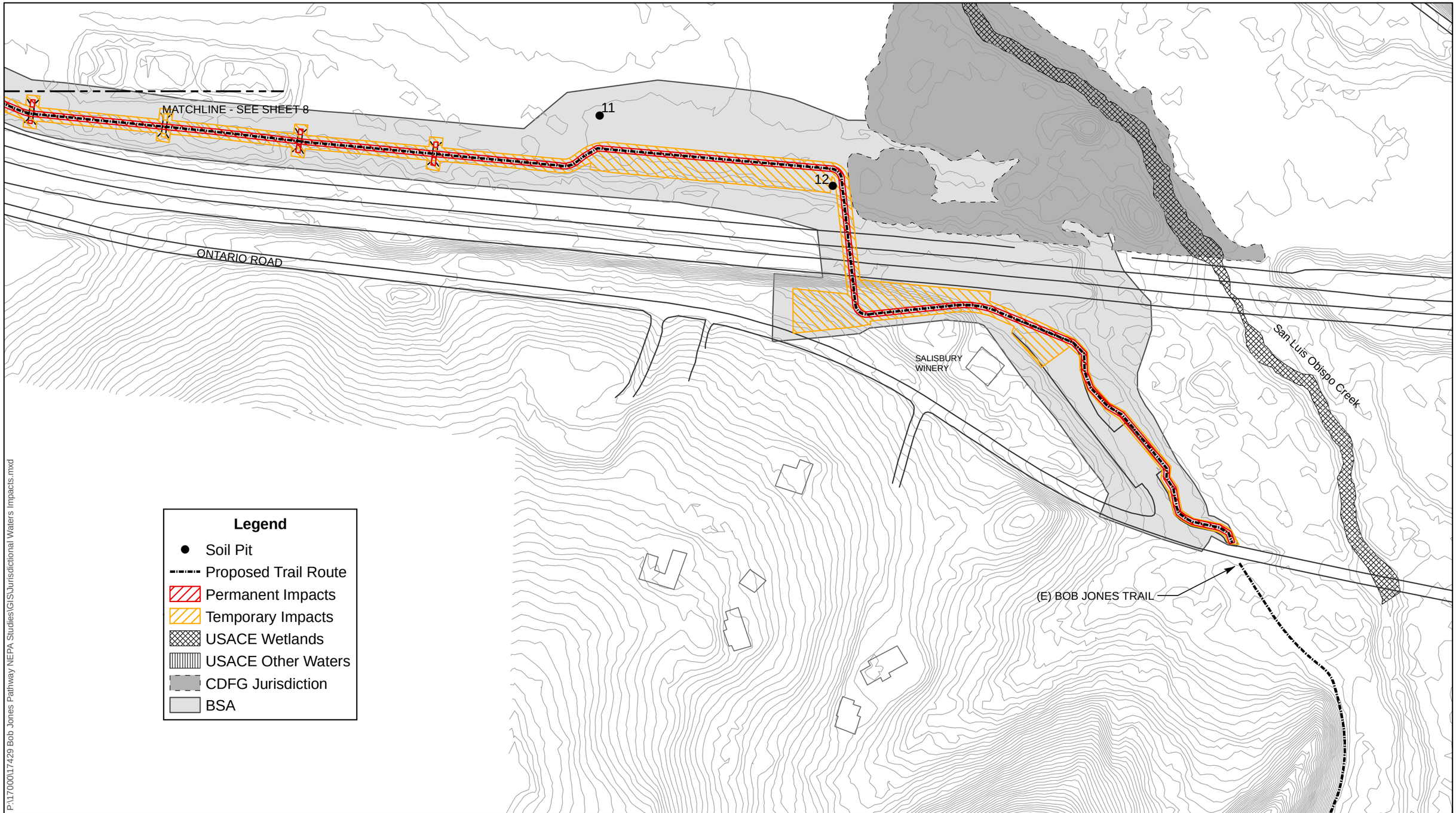
1" = 200'

0 100 200 400 Feet

Impacts to Jurisdictional Waters of the U.S.

SHEET

8 OF 9



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Impacts to Jurisdictional Waters of the U.S.

SHEET

9 OF 9

Appendix H Wetland Assessment

Bob Jones Pathway – San Luis Obispo to Ontario Road Wetland Assessment

Prepared for

County of San Luis Obispo

Prepared by

SWCA Environmental Consultants

February 2012

BOB JONES PATHWAY – SAN LUIS OBISPO TO ONTARIO ROAD WETLAND ASSESSMENT

Prepared for

County of San Luis Obispo
General Services Agency
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February 29, 2012

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1. INTRODUCTION

1.1. Scope

The Wetland Assessment summarizes existing vegetative conditions, soil, and hydrology associated with potential U.S. Army Corps of Engineers (USACE) jurisdictional waters for the proposed Bob Jones Pathway – San Luis Obispo to Ontario Road (project) in San Luis Obispo County, California (refer to Figures 1 through 3). SWCA Environmental Consultants (SWCA) has prepared this report at the request of the County of San Luis Obispo Department of General Services (County) and the California Department of Transportation (Caltrans), and it is intended for use by the County, Caltrans, and other regulatory agencies. This report identifies potential waters of the United States occurring within the proposed project area, and is intended to assist in the identification of related constraints that could affect construction of the proposed project. Findings reported herein are based on information gathered in the field at the time of investigation, and on SWCA's understanding of the U.S. Army Corps of Engineers (USACE) 1987 Wetlands Delineation Manual (Environmental Laboratory, 1987), *the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE, 2006), and federal, state, and local guidelines for identification of wetland areas. This report is subject to jurisdictional review by the USACE, and may be submitted to the USACE for confirmation during the permitting phase of the project.

1.2. Project Background and Location

The portion of the proposed Bob Jones Pathway – San Luis Obispo to Ontario Road (project) discussed herein is an approximately 4.4-mile (7.1-kilometer) path that would connect the existing path along South Higuera Street from the San Luis Obispo Land Conservancy's (SLOLC) Octagon Barn, then south and paralleling San Luis Obispo Creek (SLO Creek) to the Ontario Road Staging Area, near State Route 101 and Avila Bay Drive in San Luis Obispo County, California. The purpose and need is to complete a primarily Class I (off street) pedestrian/bike path for recreational and alternative transportation use that will connect the community of Avila Beach with San Luis Obispo. Portions of the Bob Jones Pathway have previously been completed from Avila Beach to the Ontario Road Staging Area, and this project would reconcile the discontinuity between Avila Beach and San Luis Obispo.

1.3. Project Description

Several proposed project alternatives were examined for feasibility and to examine relative impacts to sensitive resources. During the project development phase it was proposed that the path would either be on the west side of SLO Creek, between State Route 1, existing streets, and the creek, or on the east side of SLO Creek within a 20-foot (ft) (6-meter (m)) corridor at the top of bank (or beyond the riparian edge), or a combination of both. The final preferred alignment was selected based on an evaluation that determined which path has the least environmental and land use impacts and is most cost effective, while still meeting the overall purpose of the project. The two alternatives remaining include the No-Build Alternative and one Build Alternative. The No-Build Alternative would essentially maintain the status quo with the discontinuous mosaic of existing roadways and bike lanes between South Higuera and Ontario Road and assumes no construction to resolve this discontinuity.

Construction would primarily occur within a typically narrow 30 to 140-ft (9 to 43-m) wide construction disturbance zone on nearly level terrain. In several areas the path would run parallel to and within 30 ft (9 m) of the banks of SLO Creek and its riparian corridor, potentially requiring the trimming and possible removal of some trees to clear necessary space to allow construction. Trimming and/or removal of trees would also be required for three proposed new bridge crossings of SLO Creek for the new pathway. Some trees may also be trimmed for construction access along the path and for overhead clearance.

Segment 1 of the new path would begin at the Octagon Barn on South Higuera Street where a trailhead with parking and other facilities would be constructed. A Class I path with a retaining wall would proceed along the east side of South Higuera Street, and then cross to the west side, where the Class I path would be between the road and SLO Creek. The path would then be routed across to the east side of South Higuera Street before reaching a new South Higuera Bridge (BR-A) for the path to be constructed across SLO Creek near the Filipponi Ecological Reserve. Several culverts would be installed along this segment.

Segment 2 of the Class I path would proceed between the east edge of South Higuera Street and SLO Creek at or near the top of bank, upon reaching the Maino property in the vicinity of the U.S. 101 northbound off ramp. Along this section just north of Cloveridge Lane, a retaining wall and curb would be added as needed where the west bank of SLO Creek slopes steeply toward the thalweg (low point of the channel). At the southern end of this section, the path would be located within the Cloveridge Lane right-of-way and would become a Class III, then a Class I path, before crossing SLO Creek again at the new Bunnell Bridge (BR-B). Several culverts would need to be repaired along this segment in the future.

After crossing SLO Creek at the Bunnell Bridge, Segment 3 of the Class I path would proceed adjacent to an agricultural field in Baron Canyon open space lands east of the SLO Creek corridor. Four new culverts would be installed under the path along this section, primarily extensions of the culverts that drain Monte Road, along with the improvement of two existing culverts near where the path would join Monte Road, as needed. Once this section of the trail reaches Monte Road, it would proceed along Monte Road as a Class III path before converting to a Class I path through the edge of agricultural land just west of Monte Road, with the extension of three existing culverts as needed and the installation of two new culverts, before reaching San Luis Bay Drive.

At Segment 4, a new crosswalk with a three-way stop would be implemented at the intersection of Monte Road and San Luis Bay Drive. The Class I path would parallel San Luis Bay Drive before reaching a new San Luis Bay Drive Bridge (BR-C) for the path across SLO Creek. Several culverts would be installed or extended. The final segment of the path, Segment 5, extends from San Luis Bay Drive to the Ontario Road Staging Area. The Class I path would extend from the junction of Segment 4 and Segment 5, eventually traveling along an existing farm access road easement with two culverts installed under the path. The Class I path would then reach an elevated approach ramp for the new Highway 101 pedestrian overcrossing toward the Ontario Road Staging Area before connecting with the existing Bob Jones Trail to the south.

Several proposed staging areas have been identified along the new path. All staging areas will result in temporary impacts unless otherwise described. Access will be along public and private roads and along California Department of Transportation (Caltrans) ROW.

The County has indicated that construction of the new corridor would be in roughly three sections/phases as funding becomes available. Construction of the entire path would be anticipated to occur within six years of the start of Phase 1. Construction of the bridge crossings and pathway segments located immediately adjacent to and through the riparian corridor of SLO Creek would occur within the typical agency-allowed window from June 1 to October 31 of any given year. Construction of the remainder of the pathway outside of the riparian corridor would occur year-round, weather permitting, and provided that all erosion control and stormwater management measures were in place and properly functioning.

Figure 1. Project Vicinity Map

Figure 2. Project Location Map

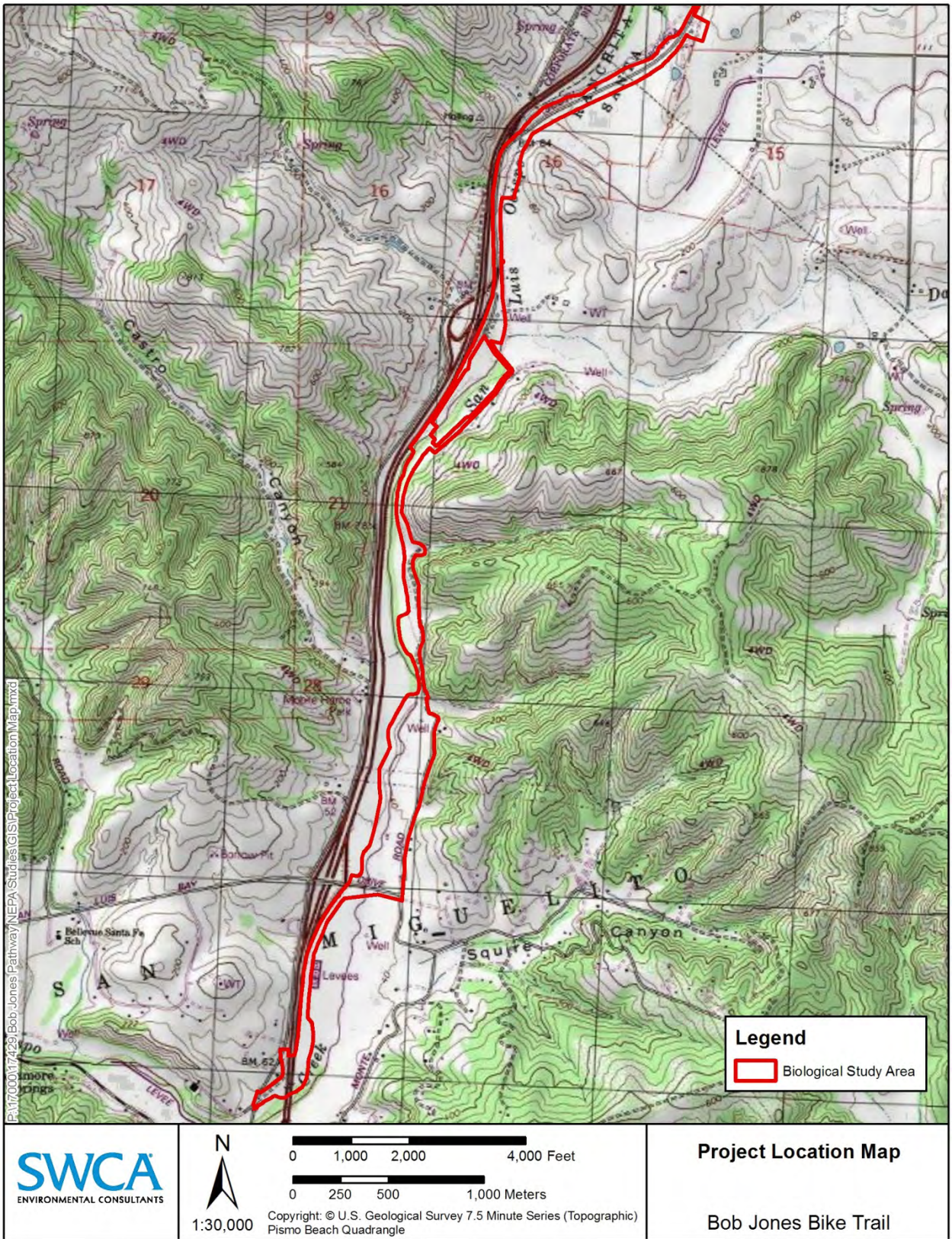
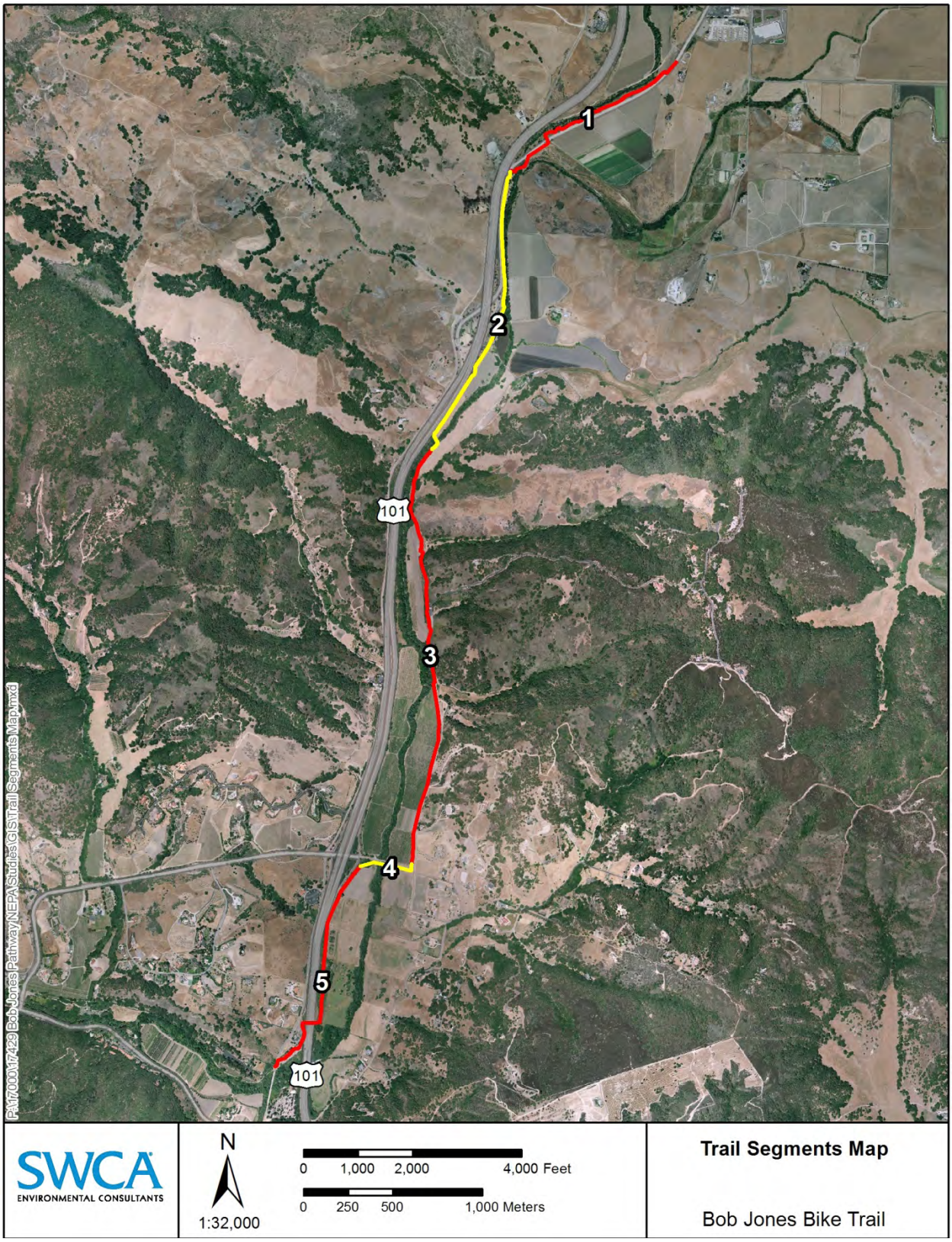


Figure 3. Trail Segments Map



1.4. Study Area

The size of the study area is approximately 6,477,607 ft² (601,7894.4m^2) (148.7 ac) and includes a polygon larger than the area encompassing the bridge and surrounding areas anticipated to be temporarily impacted by project-related activities,

The northern terminus of the study area begins approximately 500 feet north of the Land Conservancy's Octagon Barn on South Higuera Street, continues south along a corridor that includes SLO Creek, State Route 101, and adjacent lands, and reaches the southern terminus at the Ontario Road Staging Area/parking lot, south of Avila Bay Drive. Much of the proposed route occurs east of State Route 101 and west of SLO Creek, mainly paralleling both of these features north to south (refer to Attachment A), with a portion along and south of San Luis Bay Drive on the west side of the highway.

Some features of SLO Creek were previously mapped for the *Waterway Management Plan for San Luis Obispo Creek Watershed* (City of SLO and County of SLO, 2003) and have been incorporated into habitat mapping for this project. This delineation gives particular focus to the proposed bridge crossings of potentially jurisdictional areas as well as portions of the proposed pathway that would run adjacent to the riparian vegetation of the SLO Creek corridor. The goal of the Wetland Assessment was to delineate all potentially jurisdictional areas that could be impacted by the proposed project.

1.4.1. Baseline Vegetative Conditions

Natural communities/habitats present within the BSA include agricultural land, ruderal (disturbed), landscaping/ornamental vegetation (including groundcover and planted trees), non-native annual grassland, serpentine bunchgrass, coastal scrub, coast live oak woodland, riparian (including riparian forest, riparian scrub, freshwater marsh, and riverine habitats), and seasonal wetlands that may not be USACE-jurisdictional. Much of the remaining areas within the BSA consist of roads, buildings, and other artificial structures, are largely unvegetated, and have been mapped as developed areas. The riparian habitat associated with SLO Creek is the vegetative community of particular concern in the Wetland Assessment, and is discussed in more detail as follows.

SLO Creek has a nearly continuous riparian corridor from its headwaters at Cuesta Grade to Avila Beach. The riparian forest habitat within the BSA can be further classified as central coast arroyo willow riparian forest (Holland, 1986). Dominant tree species of the riparian forest habitat along SLO Creek supports a diverse assemblage, including California black walnut (*Juglans californica*), western sycamore (*Platanus racemosa*), cottonwood (*Populus* spp.) box elder (*Acer negundo* var. *californicum*), California bay (*Umbellularia californica*), white alder (*Alnus rhombifolia*), arroyo willow (*Salix lasiolepis*), and coast live oak (*Quercus agrifolia*).

Riparian scrub occurs below the riparian forest layer. The riparian scrub habitat within the BSA can be further classified as central coast riparian scrub (Holland, 1986). These riparian scrub communities are typically close to groundwater and usually vegetated by willows (*Salix* spp.) (Holland, 1986). They have relatively low overstories compared to riparian forest communities. Dominant plant species for this habitat type within the BSA include arroyo willow, with species such as California blackberry (*Rubus ursinus*), greater periwinkle (*Vinca major*), and garden nasturtium at the ground layer. Young coast live oak trees and coyotebrush are occasionally interspersed with the willows in these riparian scrub communities.

Freshwater marsh communities typically occur in nutrient-rich mineral soils that are saturated throughout most of the year. These communities are found in locations containing slow-moving or stagnant shallow water and a high water table (Holland, 1986), such as the streambed of SLO Creek. Such sites commonly occur in stream channels and around springs, seeps, and depressional areas. Standing water does not have

to be present throughout the entire year, since the water table is so close to the soil surface that it can be tapped in the dry season by hydrophytic plants. Freshwater marsh vegetation ranges from sparse to moderately dense along the channel section traversing the study area, including species such as common watercress (*Rorripa nasturtium-aquaticum*), smartweed (*Polygonum* sp.), brown-headed rush (*Juncus phaeocephalus*), umbrella sedge (*Cyperus eragrostis*), spikerush (*Eleocharis macrostachya*), stinging nettle (*Urtica dioica*), and horsetail (*Equisetum arvense*). No such areas with freshwater marsh wetlands occurred within the study area in this Wetland Assessment.

Riverine habitat occurs along the streambed of SLO Creek. This habitat type is seasonally variable, and includes open water components (active, flowing channel), unvegetated sandbars (riverwash, active floodplain), and seasonally emergent freshwater marsh in some areas. The tributaries of SLO Creek can be described as riverine intermittent streambeds, some with riparian vegetation and others without.

Certain areas of low relief in or adjacent to the floodplain of SLO Creek within the study area support seasonal wetlands and are inundated for only a portion of the year, but long enough to support the growth of hydrophytic vegetation. Areas that are occasionally inundated or close to groundwater support stands of facultative wetland species such as poison hemlock (*Conium maculatum*). Areas more frequently inundated, such as the center of the SLO Creek floodplain, support wetland species such as brown-headed rush and spikerush.

1.4.2. Baseline Soil Conditions

As SLO Creek enters the northern limits of the City of San Luis Obispo, it begins a descent through moderately sloping alluvial fans and then the alluvial valley fill sediments of SLO valley. The valleys through which SLO Creek and its tributaries flow are underlain by both younger and older alluvial deposits. Several older alluvial deposits and stream terraces occur well above the modern floodplain in the watershed, attesting to the various episodes of sea level rise and fall, uplift, and consequent stream erosion as the creeks have adjusted to the changing base levels.

The alluvial floodplain deposits in the lower SLO Creek area, below Los Osos Valley Road and in the Laguna Lake area, show little or no indication of soil profile development and are considered recent alluvium. Local soil surveys indicate that these soils have a gleyed horizon located at a depth of about three or four feet (SCS, 1984). The blue-gray or grayed color (gleying) is indicative of poorly drained or anoxic conditions created by a permanent high ground water table during the period these soils developed. This apparently is a relict feature, as the high groundwater table is now only a seasonal occurrence, with the water table likely lowered several meters (three to four) by the historic incision of SLO Creek in this area. Incision or downcutting of the channel bed has caused significant secondary channel degradation or stream headcutting of East Fork and Davenport Creek. The dark colors of the surface soils indicate high organic matter accumulation, such as occurs in a swampy flood plain or backwater environment of lower velocity flows, consistent with the flatter stream gradients in this and the Laguna Lake areas.

The Soil Conservation Service (SCS) has mapped 14 soil series within the BSA (SCS, 1984) (refer to Figure 5). These include map units (MUs): 116 – Chamise shaly clay loam, 15 to 30 percent slopes; 120 – Concepcion loam, 2 to 5 percent slopes; 131 – Diablo and Cibo clays, 10 to 30 percent slopes; 142 – Gaviota fine sandy loam, 15 to 50 percent slopes; 152 – Lodo-rock outcrop complex, 30 to 75 percent slopes; 156 – Lopez very shaly clay loam, 30 to 75 percent slopes; 169 – Marimel sandy clay loam, occasionally flooded; 181 – Nacimiento-Calodo complex, 30 to 50 percent slopes; 191 – Pismo-Tierra complex, 9 to 15 percent slopes; 194 – Riverwash; 197 – Salinas silty clay loam, 0 to 2 percent slopes; 198 – Salinas silty clay loam, 2 to 9 percent slopes; 203 – Santa Lucia shaly clay loam, 30 to 50 percent slopes; and 210 – Still gravelly sandy clay loam, 2 to 9 percent slopes. A description of each MU follows.

1.4.2.1. #116 – Chamise shaly clay loam, 15 to 30 percent slopes

Chamise shaly clay loam is a very deep, well-drained, moderately steep soil on dissected terraces and foothills that formed in old alluvium weathered from sedimentary rocks. Typically, the surface layer is gray (10YR 5/1) shaly loam about 12 inches thick. In some areas the surface is shaly clay loam. Permeability of this soil is very slow, with very low or low water capacity, rapid surface runoff, and high water erosion hazard potential. Included in this map unit are areas of Chamise soils on slopes of more than 30 percent. Also included are minor areas of Lopez and Santa Lucia very shaly clay loams and Zaca clay. Chamise shaly clay loam and its inclusions are non-hydric soils (SCS, 1984; 1997).

1.4.2.2. #120 – Concepcion loam, 2 to 5 percent slopes

Concepcion loam is a very deep, moderately well-drained, gently sloping soil on marine terraces and foothills that formed in old alluvium weathered from sedimentary rocks. Typically, the surface layer is dark grayish brown (10YR 4/2) loam about 14 inches thick. Some areas have a slightly lighter soils surface color than is typical. Permeability of this soil is very slow, with moderate to high water capacity, slow surface runoff, and slight water erosion hazard potential. Included in this map unit are a few small areas of Cropley clay, Los Osos loam, Tierra loam, and San Simeon sandy loam. Concepcion loam and its inclusions are non-hydric soils (SCS, 1984; 1997).

1.4.2.3. #131 – Diablo and Cibo clays, 10 to 30 percent slopes

Diablo and Cibo clays are moderately steep soils on foothills and mountains. Diablo soil differs from Cibo soil by being deep, having a darker surface layer, being calcareous in the underlying material, and overlying softer, weathered rock. The Diablo soil is deep and well-drained, having formed in residual material weathered from sandstone, shale, or mudstone. Typically, the surface layer is very dark (10YR 3/1) gray clay about 38 inches thick. Some areas have a clay loam or silty clay surface area. Permeability of this soil is slow, with moderate to very high water capacity, rapid surface runoff, and moderate water erosion hazard potential. This soil has high shrink-swell potential and is subject to slippage when wet. The Cibo soil is moderately deep and well-drained soil that formed in residual material weathered from hard sandstone or shale. Typically, the surface layer is dark brown clay (7.5 YR 3/2) about 31 inches thick. Some areas have a clay loam surface area. Permeability of this soil is slow, with very low to moderate water capacity, rapid surface runoff, and moderate erosion hazard potential. This soil also has high shrink-swell potential and is subject to slippage when wet.

Included in this undifferentiated group are minor areas of Lodo clay loam, Los Osos loam, and Zaca clay, and small areas of rock outcrop. Diablo and Cibo clays and its inclusions are non-hydric soils (SCS, 1984; 1997).

1.4.2.4. #142 – Gaviota fine sandy loam, 15 to 50 percent slopes

Gaviota fine sandy loam is a shallow, well-drained, moderately steep soil on foothills and mountains, having formed in residual material weathered from sandstone. Typically, the surface layer is light brownish gray (10YR 6/2) fine sandy loam about 13 inches thick. Some minor areas have a loamy sand surface layer. Permeability of this soil is moderately rapid, with low water capacity, rapid surface runoff, and high water erosion hazard potential. Coarse texture, shallow depth, and steep slopes make this droughty soil subject to sheet and gully erosion. Included in this map unit are a few small areas of Briones and Pismo loamy sands. Gaviota fine sandy loam and its inclusions are non-hydric soils (SCS, 1984; 1992).

1.4.2.5. #152 – Lodo-rock outcrop complex, 30 to 75 percent slopes

Lodo rock outcrop complex is a steep to very steep soil and rock outcrop that occurs on foothills and mountains. This complex is about 55 percent Lodo soil and 40 percent rock outcrop. The rock outcrop is

hard sandstone, red rock, or shale at or near the surface. The Lodo soil is shallow and somewhat excessively-drained, formed in residual material weathered from red rock, sandstone, or shale. Typically, the surface layer is dark brown (7.5YR 3/2) clay loam about 12 inches thick. Permeability of this soil is moderate, with very low to low water capacity, rapid or very rapid surface runoff, and high or very high water erosion hazard potential. Included in this map unit are a few small areas of Chamise shaly loam, Gaviota sandy loam, Lopez very shaly clay loam, and Santa Lucia shaly clay loam. Lodo soil and its inclusions are non-hydric soils (SCS, 1984; 1992).

1.4.2.6. #156 – Lopez very shaly clay loam, 30 to 75 percent slopes

Lopez very shaly clay loam is a shallow, somewhat excessively-drained, steep to very steep soil on mountains, having formed in residual material weathered from hard shale. Typically, the surface layer is gray very shaly (10YR 6/2) clay loam about 18 inches thick. Some small areas have a very shaly loam surface layer. Permeability of this soil is moderate, with very low water capacity, rapid to very rapid surface runoff, and high or very high water erosion hazard potential. Included in this map unit are a few small areas of Lodo clay loam, Los Osos loam, rock outcrop, and Santa Lucia very shaly clay loam. Lopez very shaly clay loam and its inclusions are non-hydric soils (SCS, 1984; 1992).

1.4.2.7. #169 – Marimel sandy clay loam, occasionally flooded

This very deep, somewhat poorly drained, nearly level soil is on alluvial fans, floodplains, and narrow valleys, having formed in alluvium weathered from sedimentary rocks. Typically, the surface layer is grayish brown (2.5Y 5/2) sandy clay loam about 16 inches thick. Some areas have a surface layer of loam, clay loam, or silty clay loam. Permeability of this soil is moderately slow, with high or very high water capacity, slow surface runoff, and slight water erosion hazard. This soil has a water table within 2 to 3 feed of the surface from about November to July in most years and is subject to occasional, brief flooding from December to March. Included in this area are minor areas of Camarillo sandy loam, Tujunga loamy sand, frequently flooded; and Psamments and Fluvents, occasionally flooded.

An unnamed inclusion of Marimel sandy clay loam associated with depressions has the following Hydric Criteria Code (SCS, 1992):

> *2A: soils in Aquic suborder that are somewhat poorly drained and have a frequently occurring water table less than 0.5 feet from the surface for a significant period (usually 14 consecutive days or more) during the growing season.*

1.4.2.8. #181 – Nacimiento-Calodo complex, 30 to 50 percent slopes

These steep soils are on foothills and mountains. This complex is about 45 percent Nacimiento soil and 35 percent Calodo soil. Nacimiento soil differs from Calodo soil by being moderately deep, formed in residual material weathered from calcareous sandstone or shale. Typically, Nacimiento soil is well-drained and the surface layer is grayish brown (10 YR 5/2) silty clay loam about 19 inches thick. Permeability of Nacimiento soil is moderately slow, with low to moderate water capacity, rapid surface runoff, and high water erosion hazard potential. Calodo soil is shallow and well-drained, formed in residual material weathered from limestone. Typically, the surface layer is gray (10YR 5/1) loam about 16 inches thick. Permeability of Calodo soil is moderately slow, with very low or low water capacity, rapid surface runoff, and high water erosion hazard potential.

Included in this complex are small areas of Gazos and Lodo clay loams, Santa Lucia shaly clay loam, and Zaca clay. The Nacimiento-Calodo complex and its inclusions are non-hydric soils (SCS, 1984; 1992).

1.4.2.9. #191 – Pismo-Tierra complex, 9 to 15 percent slopes

These strongly sloping soils are on foothills and mountains. This complex is about 40 percent Pismo soil and 30 percent Tierra soil. Pismo soil differs from Tierra soil by having a clay sub-soil and by being very deep. Pismo soil is shallow and somewhat excessively-drained, formed in residual material weathered from sandstone. Typically, the surface layer is medium acid, light brownish gray (10 YR 6/2) loamy sand about 19 inches thick. Some areas of this soil have a sand surface layer. Permeability of Pismo soil is rapid, with low water capacity, medium to rapid surface runoff, and moderate to high water erosion hazard potential. Tierra soil is very deep and moderately well-drained, formed in residual material weathered from sedimentary rocks. Typically, the surface layer is gray (10YR 5/1) sandy loam about 16 inches thick. Permeability of Tierra soil is very slow, with low to moderate water capacity, rapid surface runoff, and high water erosion hazard potential.

Included in this complex unit are soils similar to Pismo and Tierra soils. Small areas of Arnold and Briones loamy sand are also included. The Pismo-Tierra complex and its inclusions are non-hydric soils (SCS, 1984; 1992).

1.4.2.10. #194 – Riverwash

Riverwash consists of active stream and river channels that consist of excessively drained, water-deposited sand, loamy sand, and sandy loam that have varying amounts of gravel and cobbles. The soil material is highly stratified, with most features too variable to characterize. Areas are subject to flooding during and immediately after every storm, with subsequent scouring and deposition. Riverwash generally is excessively drained, but it ranges to somewhat poorly drained in some low lying areas. Permeability is very rapid, surface runoff is very slow, the erosion hazard is variable, and low water capacity. Included with Riverwash are small areas of Psamments and Fluvents, occasionally flooded, and Corralitos soils.

Riverwash is considered a hydric soil with the following Hydric Criteria Code (SCS, 1992):

> *4: Soils frequently flooded for long or very long duration during the growing season.*

1.4.2.11. #197 –Salinas silty clay loam, 0 to 2 percent slopes

Salinas silty clay loam is a very deep, well drained, nearly level soil on alluvial fans and plains, having formed in alluvium weathered from sedimentary rocks. Typically, the surface layer is dark gray (10YR 4/1) silty clay loam about 29 inches thick. Some areas of this soil have a sandy loam or clay loam surface layer. A few areas have stratified layers of coarse sand or gravel in the substratum. In places, the Salinas soil overlies a heavy clay soil at a depth of 20 to 40 inches. Permeability of this soil is moderately slow, with high or very high water capacity, slow surface runoff, and slight water erosion hazard. Included in this map unit are a few small areas of Camarillo loam, Cropley clay, Marimel silty clay loam, Mocho loam, and Mocho Variant fine sandy loam.

The Camarillo loam inclusion of Marimel sandy clay loam associated with depressions has the following Hydric Criteria Code (SCS, 1992):

> *2B3: soils in Aquic suborder that are poorly drained or very poorly drained and have a frequently occurring water table less than 1.5 feet from the surface for a significant period (usually 14 consecutive days or more) during the growing season if permeability is less than 6.0 in/hr in any layers within 20 inches.*

1.4.2.12. #198 –Salinas silty clay loam, 2 to 9 percent slopes

This Salinas silty clay loam is similar to the one previously described, except it occurs on slightly steeper slopes with slow or medium surface runoff and slight or moderate water erosion hazard. Also, the inclusions consist of a few small areas of Cropley clay and Marimel silty clay loam.

1.4.2.13. #203 Santa Lucia shaly clay loam, 30 to 50 percent slopes

Santa Lucia shaly clay loam is a moderately deep, well drained, steep soil on mountains, formed in residual material weathered from sandstone or shale. Typically, the surface layer is dark gray (10YR 4/1) shaly clay loam about 17 inches thick. Permeability of this soil is moderate, with very low or low water capacity, rapid surface runoff, and moderate to high water erosion hazard. Included in this map unit are a few small areas of Calodo loam, Gazos clay loam, Lompico and McMullin loams, and Nacimiento silty clay loam. The major inclusion in this map unit is Lopez very shaly clay loam. Santa Lucia shaly clay loam and its inclusions are non-hydric soils (SCS, 1984; 1992).

1.4.2.14. #210 Still gravelly sandy clay loam, 2 to 9 percent slopes

Still gravelly sandy clay loam is a very deep, well drained, gently sloping to moderately sloping soil on alluvial plains and marine terraces. It formed in alluvium weathered from sedimentary rocks. The surface layer is typically very dark grayish brown (10YR 3/2) gravelly sandy clay loam to a depth of about 23 inches. Some areas of this soil contain higher amounts of gravel. Permeability of this soil is moderately slow, with moderate or high water capacity, and slow or medium surface runoff. Hazard of water erosion is slight. Mapped inclusions within this series are a few small areas of Diablo clay, Lopez very shaly clay loam, Nacimiento silty clay loam, and Santa Lucia very shaly clay loam. Still gravelly sandy clay loam and its inclusions are non-hydric soils (SCS, 1984; 1997).

1.4.3. Baseline Hydrological Conditions

Information in regards to the hydrology of the SLO Creek watershed has been previously addressed by the following sources:

- *Waterway Management Plan for San Luis Obispo Creek Watershed, Volume 1, Appendix B: Biological Resources Inventory* (City of SLO and County of SLO, 2003). The Waterway Management Plan (WMP) contains inventory information, a detailed hydrologic/hydraulic analysis of the watershed and its main tributaries, and an identification of the management problems and management needs of the waterways;

- *Distribution and Abundance of Steelhead in the San Luis Obispo Creek Watershed, California* (Thomas R. Payne & Associates, 2004), which generated estimates of abundance and described the distribution of juvenile steelhead rearing during the summer low-flow period throughout the SLO Creek watershed; and,

- *Distribution of the Five Native Fish Species in the San Luis Obispo Creek Watershed* (Tamagni, 1995), which contains information on the distribution of the five native fish species in the watershed and habitat data.

The SLO Creek watershed is centrally located in San Luis Obispo County between the Santa Lucia Mountains and coastal hills of central California. Its headwaters originate in the foothills near Cuesta Grade north of San Luis Obispo, flowing approximately 18 miles (29 km) to the Pacific Ocean at San Luis Bay, near the community of Avila Beach. The general flow of water is from the northeast to the southwest, closely paralleling State Route 101 south of San Luis Obispo. The City of San Luis Obispo

encompasses 9.5 mi^2 (24.6 km^2) near the center of the watershed, with the remaining 84 mi^2 (217 km^2) watershed area in County jurisdiction.

The watershed extends from a high elevation of 2,461 ft (750 m) above sea level near Cuesta Grade to sea level at Avila Beach. SLO Creek is the major waterway that runs through the City of San Luis Obispo, which is situated at an elevation of about 230 ft (70 m) (downtown). The drainage area of the SLO Creek watershed at its mouth is approximately 84.2 mi^2 (218 km2). The basin is a slightly elongated area about 13 miles (21 km) long and between 6.2 and 10 miles (10 and 16 km) wide, with a dendritic drainage pattern.

The upper watershed is steep, and SLO Creek and its tributaries flow through narrow canyons with steep stream gradients in their headwaters. From its headwaters, SLO Creek spills onto a small sparsely developed grassy plateau-like area below Cuesta Grade at Reservoir Canyon, before descending onto the gently to moderately sloping alluvial plain occupied by the City of San Luis Obispo. East Fork and Davenport Creek drain the Islay Hill area. East Fork drains an area of generally flat to rolling relief on the east side about 1.2 miles (2 km) below (south of) the confluence of Prefumo Creek and the City limits. Davenport Creek drains a rugged canyon area on the east side of SLO Creek below East Fork.

While SLO Creek is incised into an alluvial plain within the downtown and upper residential area of City of SLO, it crosses the broader upper Los Osos Valley and the lower Laguna Lake area before changing its character below Froom Creek and Los Osos Valley Road. The creek descends through a narrow alluvial valley bounded by the steep Irish Hills in this area. SLO Creek turns abruptly westward from its southerly ascent through the City and lower valley area to enter a more narrow and steep-sided canyon before discharging into an estuary area at Avila Beach below the See Canyon confluence.

About 11 percent of the watershed is urbanized; principally the town of San Luis Obispo and the surrounding unincorporated area, and the community of Avila Beach; however, the urbanized area upstream of the lower urban reserve limits of the City (near Los Osos Valley Road) is about 15 percent of the watershed above this point. The urbanized area is predominantly suburban, with the exception of the central downtown area where building densities are higher with a larger percentage of impervious surfaces. Much of the upper and lower watershed is in open space, used as grazing land or range. Upper watershed areas are not heavily wooded; oak forests occur predominantly on north facing canyon slopes and canyon bottoms, with chaparral vegetation generally on steep south facing slopes and areas with shallow, rocky soils.

Many changes have taken place in the SLO Creek watershed since 1960 (Tamagni, 1995). Urban and agricultural development has channelized the watershed and encroached upon the riparian corridor. Groundwater pumping has reduced flows and toxic spills have resulted in fish kills; however, upgrades to the SLO wastewater treatment plant have improved the quality of effluent discharged into SLO Creek and implementation of the WMP has benefited the watershed.

1.4.3.1. Upper Watershed

The areas in the watershed that consist of cool, clear water passing through V-shaped canyons are located mainly in the upper reaches of the drainage, above the City of San Luis Obispo (Tamagni, 1995). This area is well north of the study area and is not examined in detail for the purposes of the Wetland Assessment.

1.4.3.2. Middle Watershed

The portions of the watershed in the mid-section include SLO Creek from its confluence with Reservoir Canyon Creek downstream to a point just above the outlet of the wastewater treatment plant. This includes all of Davenport Creek downstream to its confluence with SLO Creek and all of the East Fork to

its confluence with SLO Creek. In the mid-reaches of the watershed, portions of the riparian corridor are severely fragmented due to development (Tamagni, 1995). The SLO Creek streambed has been altered and straightened through this section and passes through an underground culvert through sections of San Luis Obispo. Water quality is influenced throughout this section from both urban and agricultural runoff. The stream bottom consists of larger (shallower) pools than the upper sections of the watershed with some riffles in between. Sediment buildup in this section is higher due to increased erosion and a declining stream gradient. Upstream portions of this area usually have a perennial flow with downstream portions becoming intermittent during the summer months. The lower, wetted portion of the middle reach is similar in character to the lower reach (described next), but with less streamflow (Thomas R. Payne & Associates, 2004).

1.4.3.3. Lower Watershed

The lower section of the SLO Creek main channel extends from the wastewater treatment facility downstream to the Pacific Ocean. While the riparian corridor is established throughout most of this section, it is only a few trees wide to almost non-existent in some areas due to agricultural encroachment. Water quality has historically been poor throughout most of this section due to the outflow of secondary treated sewage effluent at the wastewater treatment facility (Tamagni, 1995), but has improved in recent years. The lower reach contains a thick riparian zone with an abundance of instream cover provided by overhanging branches, aquatic vegetation, accumulations of woody debris, and occasional undercut banks (Thomas R. Payne & Associates, 2004). Most of the channel substrate is composed of sand, silt, or fine gravel, with little cover provided by larger substrate elements. Pool habitats in the lower reach are longer, wider, and deeper than pools in any other reach. Riffles, in contrast, are typically very short and represent the smallest proportion of habitat (nine percent) of all reaches.

SLO Creek flows throughout the lower stretch all year; however, during the late summer and early fall the continuous overland flow can be mainly attributed to the influx of treated sewage effluent. If there was no effluent discharge from the SLO wastewater treatment plant, the summer baseflow normally would not provide enough water for continuous overland flow (Tamagni, 1995); however, continual flow may be possible following an above average rainfall year. The stream flow is generally slow through this section with high siltation, limited shallow pools, and many aquatic plants. Fresh water from See Canyon Creek enters SLO Creek at a point northeast of Avila Beach, and Castro Canyon adds additional fresh water approximately 2.5 miles (4 km) above this point, north of the intersection of San Luis Bay Drive and State Route 101. Historically, these fresh water influxes have diluted the severely polluted water to some extent and a positive change in fish populations has resulted below these areas (Tamagni, 1995).

2. METHODOLOGY

Literature reviewed and referenced as part of the Wetland Assessment included Cowardin et al. (1979), Holland (1986), Reed (1988, 1996), Hickman (1993), Stein (1999), and USGS (2003). Other references not listed above are cited in text.

2.1. Delineation Procedure

An assessment and delineation of potentially jurisdictional areas was conducted within the study area on April 3 and 4, 2008 by SWCA Biologists Geoff Hoetker and Jon Claxton. Both Mr. Hoetker and Mr. Claxton are Wetland Training Institute-certified wetland delineators. The assessment was conducted based on the review of pertinent literature and a thorough on-site investigation to determine the presence of three parameters -- hydrophytic vegetation, hydric soil, and wetland hydrology, within the study area. The wetland determination methodology used was conducted in accordance with the *1987 Army Corps of*

Engineers (USACE) *Wetlands Delineation Manual* (Environmental Laboratory, 1987) and *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual for the Arid West Region* (USACE 2006).

Representative plots in potentially jurisdictional areas and surrounding vegetation were evaluated to investigate the presence of hydrophytic vegetation, hydric soil, and wetland hydrology indicators within the study area. Hydrophytic vegetation indicators are perhaps the most readily recognizable of the three indicators in the field. For the purposes of wetland delineation, the National Indicators reflect the range of estimated probabilities (expressed as a frequency of occurrence) of a species occurring in wetland versus non-wetland across the entire distribution of the species (Reed, Jr., 1988). Indicator categories include:

- **Obligate Wetland (OBL):** Occur almost always (estimated probability >99%) under natural conditions in wetlands.

- **Facultative Wetland (FACW):** Usually occur in wetlands (estimated probability 67% to 99%), but occasionally found in non-wetlands.

- **Facultative (FAC):** Equally likely to occur in wetlands or non-wetlands (estimated probability 34% to 66%).

- **Facultative Upland (FACU):** Usually occur in non-wetlands (estimated probability 67% to 99%), but occasionally found in wetlands (estimated probability 1% to 33%).

- **Obligate Upland (UPL):** Occur in wetlands in another region, but occur almost always (estimated probability >99%) under natural conditions in non-wetlands in the region specified. If a species does not occur in wetlands in any region, it is not on the National List (Reed, Jr., 1988).

In the Wetland Assessment, the abbreviations for these categories follow the species names for identified dominant plants to reflect hydrophytic indicator status as presented in Reed, Jr. (1988).

Twelve soil test pits/sampling points were excavated throughout the study area (refer to Jurisdictional Determination Maps in Attachment B for test pit locations) to allow for soil characterization and examination for hydric soil indicators. Soil test pits were excavated to either a depth of 20 inches or as deep as any restrictive layer allowed. Examined soils were moistened and characterized using Munsell Soil Color Charts standards (Munsell Color, 2000). Hydrophytic vegetation and wetland hydrology indicators were also considered in the vicinity of these sampling locations. Percent cover estimates were conducted by walking the sampled area and visually estimating the coverage of each species. All data collected were recorded on the USACE *Wetland Determination Data Forms - Arid West Region* (refer to Attachment C). Photo documentation is in Attachment D.

Jurisdictional boundaries for USACE were delineated using a Trimble Pathfinder GPS unit capable of sub-meter accuracy. SWCA delineated jurisdictional wetlands in areas where all three wetland parameters were present. In general, areas within the ordinary high water mark (OHWM) of drainages or other features with hydrological connectivity to “waters of the U.S.” but lacking one or more of the three wetland parameters were delineated as USACE “other waters.” To determine jurisdictional boundaries for CDFG, areas were mapped that included the top of a bank or outer edge of riparian canopy, whichever was greater. In the instances where jurisdictional boundaries were not completely accessible by foot, SWCA recorded individual GPS waypoints along the jurisdictional boundary and utilized aerial photography and field notes to refine the CDFG jurisdictional boundary.

2.2. Functions and Values Assessment

Wetland functions and values are typically complex, interrelated, and difficult to assess and quantify. Wetland functions are defined as a process or series of processes that take place within a wetland. Wetlands have value for the wetland itself, for surrounding ecosystems, and for people. Functions can be grouped broadly as habitat, hydrologic, or water quality, and may include water quality improvement, floodwater storage, fish and wildlife habitat, aesthetics, and biological productivity. Functions of wetlands and other waters are assessed independently of any value such functions might provide to people, while values assess those benefits that do accrue to people. The value of a wetland is an estimate of the importance or worth of one or more of its functions to society. This can include values associated with commerce, recreation, tourism, or public support for conservation.

The functions and values of the jurisdictional areas identified in the project area were evaluated using the criteria-based method developed by Dr. Eric Stein, published in the USACE report titled, *Function-based Performance Standards for Evaluating the Success of Riparian and Depressional/Emergent Marsh Mitigation Sites* (Stein, 1999). This method was developed for evaluating the success of riparian and depressional marsh mitigation sites. Although wetland functions and values are often complex, this method provides an adequate baseline for evaluating the functions and values of existing jurisdictional areas.

Stein's method ranks several biological and physical characteristics that contribute to the functionality of a wetland system. For riparian systems, seven characteristics are analyzed: Structural Diversity, Coverage and Spatial Diversity, Percent of Exotic Vegetation, Hydrologic Regime, Characteristics of the Flood Prone Area, Topographic Complexity, and Biogeochemical Processes. A table that outlines the conditions and rating criteria for riparian systems is provided in Attachment E. For emergent marsh systems, five characteristics are analyzed: Diversity of Aquatic Vegetation, Ratio of Open Water to Hydrophytic Vegetation, Percent of Exotic Invasive Vegetation, Hydrologic Support, and Duration of Ponding.

Using Stein's criteria as the baseline, the site is assigned a rating for each of the characteristics. Averaging the site scores can provide a measurement of the relative functions and values for the site. For example, a non-functioning system would score a 0.0, a moderately functioning system would score a 0.5, and a highly functioning system would score a 1.0. The results of the functions and values assessment are presented in Section 3.5, and in Table 2.

3. RESULTS

For the purposes of the Wetland Assessment, the results for site-specific vegetative, soil, and hydrological conditions have been addressed by segment. A National Wetlands Inventory (NWI) Map (USFWS, 2007) of the vicinity of the SLO Creek study area is included in Figure 4. This map may not exactly match the fine-scale Jurisdictional Determination Maps for each segment produced in the Wetlands Assessment, but it is useful for baseline information purposes. A Soils Map is included in Figure 5. Jurisdictional Determination Maps are included in Attachment B.

3.1. Segment 1

Segment 1 includes the section of the new pathway from the Octagon Barn on South Higuera Street to the proposed new South Higuera Street Crossing at BR-A. This section primarily includes ruderal/disturbed areas between SLO Creek and the edges of South Higuera Street until the crossing of the SLO Creek

riparian corridor at BR-A. Four soil test pits (Soil Test Pits #1 to #4) were excavated within Segment 1 (refer to Attachment B, Sheets 2 and 3).

Vegetative Conditions

The edges of South Higuera Street and its vicinity at this location supported mainly ruderal/disturbed vegetation at the time of the Wetland Assessment. Species observed included annual grasses, forbs, and introduced weedy species. In the vicinity of Soil Test Pit #1, the dominant species were hoary cress (*Cardaria draba*) (UPL), poison hemlock (FACW), and ripgut brome (*Bromus diandrus*) (UPL). In the vicinity of Soil Test Pit #2, the dominant species were *Cardaria draba* (UPL) and milk-thistle (*Silybum marianum*) (UPL). These areas were not considered to be dominated by hydrophytic vegetation. Soil Test Pit #3 was located at the streambed of SLO Creek within the footprint of the proposed new bridge. Dominant vegetation in this location was arroyo willow (*Salix lasiolepis*), a FACW hydrophytic indicator species. Dominant vegetation in the vegetation at Soil Test Pit #4 included *Bromus diandrus* (UPL) and foxtail barley (*Hordeum murinum*) (UPL), indicating this was an upland location.

Soil Conditions

Soil Test Pit #1 was excavated in a drainage ditch in a disturbed field between SLO Creek and South Higuera Street. Very dark grayish brown (10YR 3/2) silty clay loam was observed from top to bottom (0 to 20 inches) of the soil profile. Soil Test Pit #2 was excavated in the field west of Soil Test Pit #2. Very dark grayish brown (10YR 3/2) silt loam was observed from top to bottom (0 to 20 inches) of the soil profile. The soil in both of these pits closely matched the Salinas silty clay loam (#197) soil description and no hydric soil indicators were observed.

Soil Test Pit #3 was excavated at the streambed near the west bank of SLO Creek. Very dark grayish brown (10YR 3/2) sand was observed from 0 to 9 inches of the soil profile, and riverwash sand/gravel was observed from 9 to 20 inches. Riverwash qualifies as a hydric soil indicator in this location. Soil Test Pit #4 was excavated in an upland area in a field outside of the SLO Creek riparian corridor. Very dark grayish brown (10YR 3/2) sandy loam was observed from top to bottom (0 to 20 inches) of the soil profile, becoming gritty at 2 inches and deeper. Riverwash sand/gravel was observed from 9 to 20 inches. This soil closely more closely matched the Salinas silty clay loam (#197) soil description rather than the Marimel sandy clay loam (#169) soil description and no hydric soil indicators were observed.

Hydrological Conditions

Soil Test Pit #1 was located in a drainage ditch with hydrological connectivity to SLO Creek. Based on presence of secondary indicators such as water marks (e.g., on fence posts) and drainage patterns, this ditch was determined to exhibit wetland hydrology. Soil Test Pit #2 was in an upland area with no hydrological indicators. Soil Test Pit #3 was located in the SLO Creek streambed and supported several wetland hydrology indicators, including surface water. Soil Test Pit #4 was located in a field north of SLO Creek and exhibited no hydrological indicators.

Figure 4. National Wetlands Inventory Map

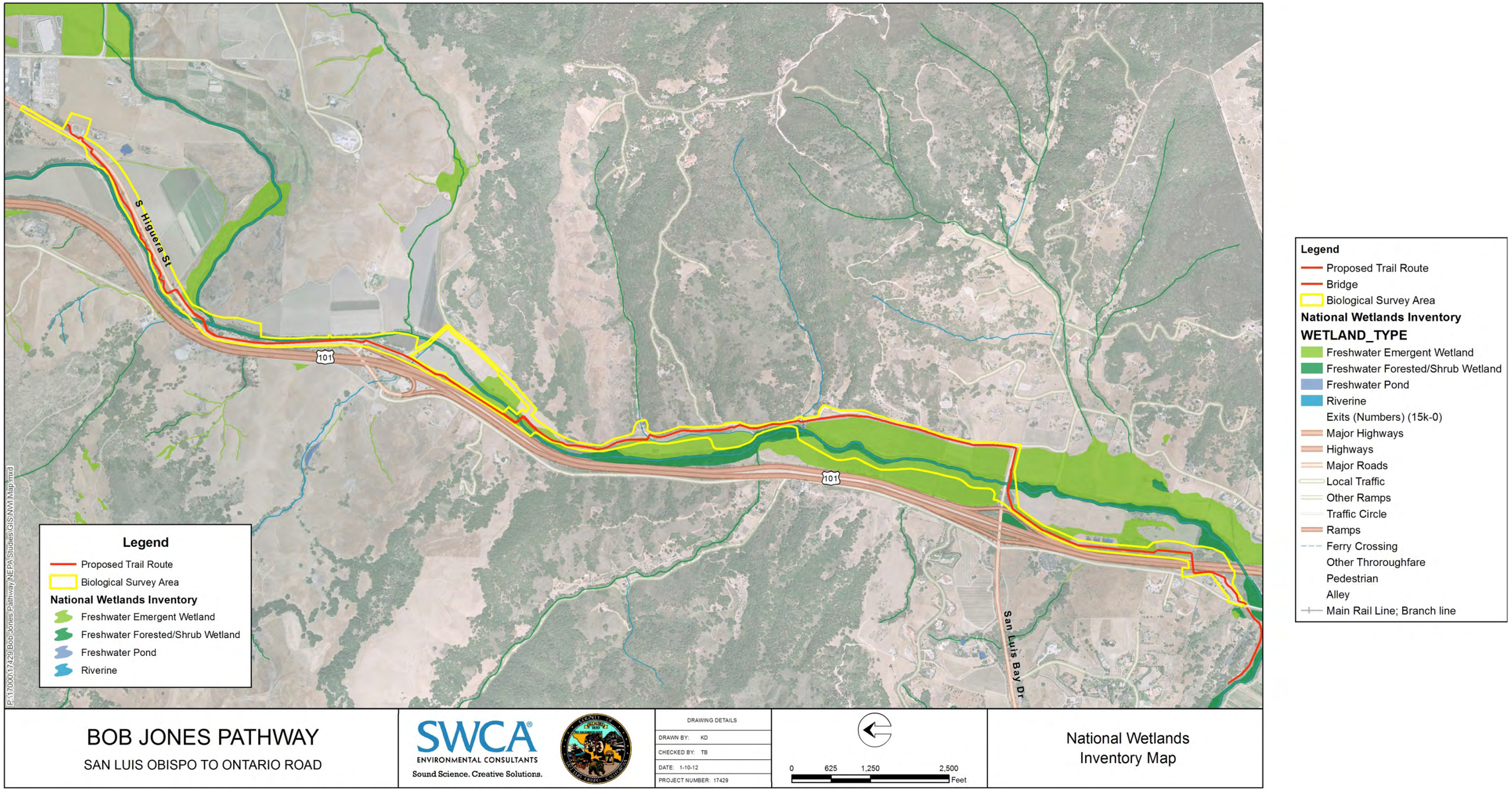


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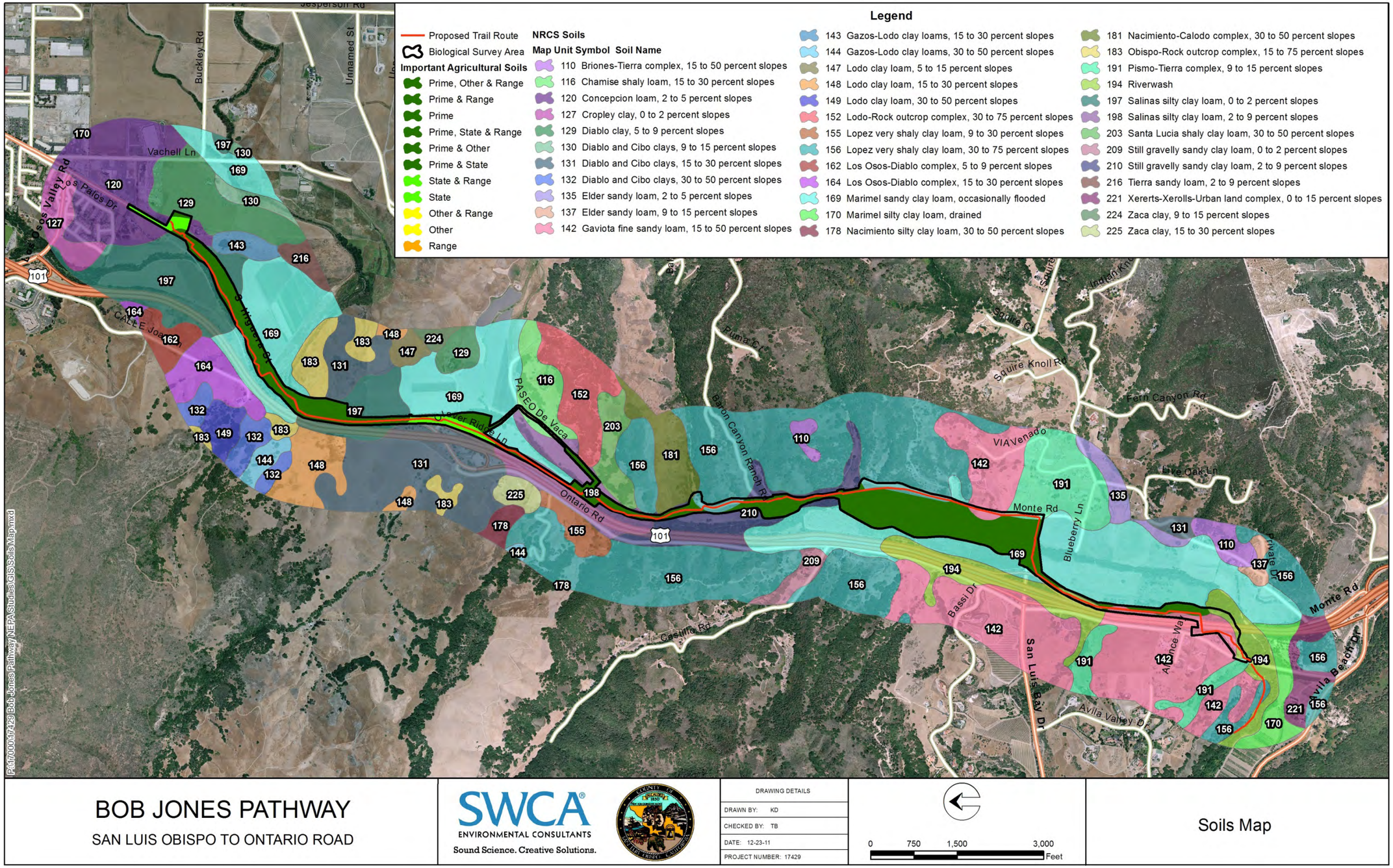
Figure 5. Soils Map



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3.2. Segment 2

Segment 2 includes the section of the new pathway from the proposed new South Higuera Street Crossing at BR-A to the proposed Bunnell Crossing at BR-B. This section primarily includes ruderal/disturbed areas between the east edge of South Higuera Street and SLO Creek and until the crossing of the SLO Creek riparian corridor at BR-B. Two soil test pits (Soil Test Pits #5 and 6) were excavated within Segment 2 (refer to Attachment B, Sheet 5).

Vegetative Conditions

The edges of South Higuera Street in the vicinity of Segment 2 supported mainly introduced annual grasses and weeds at the time of the Wetland Assessment. Soil Test Pit #5 was located within the footprint of the proposed new bridge in the riparian corridor of SLO Creek, with the dominant species in the tree stratum being *Salix lasiolepis* (FACW) and California black walnut (*Juglans californica*) (FAC) and the dominant species in the herb stratum being Cape ivy (*Senecio mikanioides*) and poison hemlock (*Conium maculatum*). This was sufficient to characterize this area as being dominated by hydrophytic species. Soil Test Pit #6 was located just north of the proposed BR-B in a grazed field/pasture almost entirely dominated by wild oats (*Avena fatua*) (UPL). This area was not considered to be dominated by hydrophytic vegetation

Soil Conditions

Soil Test Pit #5 was excavated in the streambed near the west bank of SLO Creek. Very dark grayish brown (10YR 3/2) mud/sand was observed from 0 to 8 inches of the soil profile, and riverwash sand/gravel was observed from 8 to 20 inches. Riverwash qualifies as a hydric soil indicator in this location. Soil Test Pit #6 was excavated in an upland area in a field outside of the SLO Creek riparian corridor. Very dark grayish brown (10YR 3/2) sandy loam was observed from top to bottom (0 to 20 inches) of the soil profile. The soil in Soil Test Pit #6 closely matched the Salinas silty clay loam (#198) soil description and no hydric soil indicators were observed.

Hydrological Conditions

Soil Test Pit #5 was located in the streambed of SLO Creek and supported several wetland hydrology indicators, including surface water. Soil Test Pit #6 was located in a field adjacent to SLO Creek and exhibited no hydrological indicators.

3.3. Segment 3

Segment 3 includes the section of the new pathway from the Bunnell Crossing at BR-B to San Luis Bay Drive. This section traverses areas adjacent to agricultural fields near the east side of SLO Creek, including a disturbed area with dense poison hemlock, coastal scrub vegetation, and previously disturbed areas along Monte Road. Two soil test pits (Soil Test Pits #7 and 8) were excavated within Segment 3 (refer to Attachment B, Sheet 6).

Vegetative Conditions

Soil Test Pit #7 was located just south of the proposed BR-B in a field dominated by *Avena fatua* (UPL). This area was not considered to be dominated by hydrophytic vegetation. Soil Test Pit #8 was chosen as a sampling location in an area adjacent to SLO Creek and an agricultural field, because it was dominated exclusively by dense *Conium maculatum*, a FACW hydrophytic species. Other areas traversed by the proposed path in Segment 3 include coastal scrub or ruderal/disturbed vegetation and were obvious uplands.

Soil Conditions

Soil Test Pit #7 was excavated in another field outside of the SLO Creek riparian corridor, south of Soil Test Pit #6. Very dark grayish brown (10YR 3/2) loam was observed from 0 to 3 inches of the soil profile, becoming sandy loam of the same color from 3 to 20 inches. The soil in Soil Test Pit #7 closely matched the Salinas silty clay loam (#198) soil description and no hydric soil indicators were observed. The soil conditions of Soil Test Pit #8 included very dark grayish brown (10YR 3/2) loam was observed from top to bottom (0 to 20 inches) of the soil profile, which somewhat matched the Still gravelly sandy clay loam (#210) soil description. No hydric soil indicators were observed at this location.

Hydrological Conditions

Soil Test Pit #7 was located in a field adjacent to SLO Creek and exhibited no hydrological indicators. Soil Test Pit #8 occurs adjacent to the SLO Creek floodplain but no wetland hydrology indicators were observed at this location.

3.4. Segment 4

Segment 4 includes the section of the new pathway from San Luis Bay Drive and the proposed new San Luis Bay Drive Bridge crossing of SLO Creek (BR-C). This section includes ruderal/disturbed areas along the edge of San Luis Bay Drive until the crossing of the SLO Creek riparian corridor at BR-B. Two soil test pits (Soil Test Pits #9 and #10) were excavated within Segment 4 (refer to Attachment B, Sheet 8).

Vegetative Conditions

Soil Test Pit #9 was located within the footprint of the proposed new bridge in the riparian corridor of SLO Creek, with the dominant species being *Salix lasiolepis* (FACW). The edges of San Luis Bay Drive and its vicinity supported mainly ruderal/disturbed vegetation at the time of the Wetland Assessment. Species observed included annual grasses, forbs, and introduced weedy species. In the vicinity of Soil Test Pit #10, the dominant species were introduced grasses such as soft-chess brome (*Bromus hordeaceus*) (UPL) and *Hordeum murinum* (UPL).

Soil Conditions

Soil Test Pit #9 was excavated in the streambed of SLO Creek. Riverwash sand/gravel was observed from 0 to 20 inches and is considered a hydric soil, as expected by the soil maps for this location. Soil Test Pit #10 was excavated east of the proposed BR-C in an upland field and exhibited very dark grayish brown (10YR 3/2) sandy loam from top to bottom (0 to 20 inches) of the soil profile. This closely matched the Marimel sandy clay loam (#169) soil description.

Hydrological Conditions

Soil Test Pit #9 was located in the streambed of SLO Creek and supported a high water table and saturation, which are wetland hydrology indicators. Soil Test Pit #10 was located in a field adjacent to SLO Creek and exhibited no hydrological indicators.

3.5. Segment 5

Segment 5 includes the section of the new pathway from just south of the proposed new San Luis Bay Drive Bridge (BR-C) to the proposed Highway 101 overcrossing, and on to its terminus and connection with the existing Bob Jones Trail near the Ontario Road Staging Area. This section traverses agricultural land along an existing dirt access road and would cross Highway 101 north of the SLO Creek riparian

corridor. Two soil test pits (Soil Test Pits #11 and #12) were excavated within Segment 5 (refer to Attachment B, Sheet 9).

Vegetative Conditions

After crossing SLO Creek via BR-C, the proposed path would primarily traverse disturbed agricultural land before reaching the point of the proposed Highway 101 overcrossing. This area supports mainly introduced grasses and weedy species. Soil Test Pit #11 was located in a disturbed field adjacent to the proposed pathway where a staging area is proposed, with the dominant species in the sapling/shrub stratum being wild radish (*Raphanus sativus*) (UPL) and *Conium maculatum* (FACW) and the dominant species in the herb stratum being bristly ox-tongue (*Picris echioides*). This was sufficient to characterize this area as being dominated by hydrophytic species. Soil Test Pit #12 was located south of Soil Test Pit #11 near the proposed Highway 101 overcrossing location, north of the SLO Creek riparian corridor. This area was dominated by *Salix lasiolepis* (FACW) in the tree stratum and Italian ryegrass (*Lolium multiflorum*) (FAC) in the herb stratum, which was sufficient to characterize this area as being dominated by hydrophytic species.

Soil Conditions

Soil Test Pit #11 was excavated in an upland field and exhibited very dark grayish brown (10YR 3/2) loam from top to bottom (0 to 20 inches) of the soil profile. This somewhat matched the Gaviota fine sandy loam (#142) soil description rather than the Marimel sandy clay loam (#169) soil description. Soil Test Pit #12 was excavated in a moist grassy area near the SLO Creek riparian corridor and similarly exhibited very dark grayish brown (10YR 3/2) loam from top to bottom (0 to 20 inches) of the soil profile. This also somewhat matched the Gaviota fine sandy loam (#142) soil description.

Hydrological Conditions

No wetland hydrology indicators were observed at Soil Test Pit #11. Although Soil Test Pit #12 occurred near the SLO Creek floodplain, no wetland hydrology indicators were observed at this location either.

3.6. Jurisdictional Determination

Within the study area, potential jurisdictional wetland habitat was observed to be associated with the riparian corridor of SLO Creek to the upper limit of the OHWM (refer to Attachment B). The presence of all three wetland parameters along SLO Creek constitutes jurisdictional wetlands of the U.S. as defined by the USACE. Several other areas dominated by hydrophytic vegetation and located adjacent to SLO Creek were also investigated but lacked hydric soils and/or wetland hydrology; therefore, these areas were determined to be non-wetlands/uplands.

The total area of USACE jurisdictional wetlands delineated along SLO Creek within the study area was approximately 251,292 ft^2 (23,345 m^2) (5.8 acre). One ephemeral drainage ditch with hydrological connectivity to SLO Creek within the study area was delineated as USACE jurisdictional other waters. Although this drainage ditch exhibited wetland hydrology indicators, dominant hydrophytic vegetation and hydric soils were determined to be absent. A small amount of other waters were also delineated for stormwater drainage features (typically culverted outlets) that convey water to SLO Creek and exhibited OHWMs. The total area of USACE jurisdictional other waters delineated within the study area was approximately 4,415 ft^2 (410 m^2) (0.10 acre). A total area of 1,097,240 ft^2 (101,937m^2) (25.9 ac) within CDFG jurisdiction was identified within the study area. Table 1 summarizes the results of the jurisdictional determination by sample plot. Table 2 quantifies potential USACE and CDFG jurisdictional areas in the study area. These totals reflect the findings of the field investigators for this Wetland Assessment, and are subject to final verification by USACE.

Table 1. Jurisdictional Determination Summary

Soil Test Pit #	Hydrophytic Vegetation	Hydric Soil	Wetland Hydrology	Jurisdictional Determination
1	No	No	**Yes**	**Jurisdictional Other Waters (Drainage Ditch)**
2	No	No	No	Non-Jurisdictional (Uplands)
3	**Yes**	**Yes**	**Yes**	**Jurisdictional Wetlands (SLO Creek)**
4	No	No	No	Non-Jurisdictional (Uplands)
5	**Yes**	**Yes**	**Yes**	**Jurisdictional Wetlands (SLO Creek)**
6	No	No	No	Non-Jurisdictional (Uplands)
7	No	No	No	Non-Jurisdictional (Uplands)
8	**Yes**	No	No	Non-Jurisdictional (Uplands)
9	**Yes**	**Yes**	**Yes**	**Jurisdictional Wetlands (SLO Creek)**
10	No	No	No	Non-Jurisdictional (Uplands)
11	**Yes**	No	No	Non-Jurisdictional (Uplands)
12	**Yes**	No	No	Non-Jurisdictional (Uplands)

Table 2. USACE and CDFG Jurisdictional Area Totals

Jurisdictional Areas	ft^2	m^2	ac
Grand Totals (SLO Creek and Drainage Ditch)			
USACE Jurisdictional Wetlands (SLO Creek)	251,292	23,346	5.8
USACE Jurisdictional Other Waters	4,415	410	0.10
CDFG Jurisdictional Areas	1,097,240	101,937	25.2

3.5 Functions and Values of Potentially Jurisdictional Areas

The average site scores derived in Table 3 below include characteristics of SLO Creek and the mapped drainage ditch with hydrological connectivity to SLO Creek. Based on an evaluation of each resource area it was determined that SLO Creek, with its permanent hydrological activity and diverse riparian corridor, provides moderately-high riparian and wetland habitat functions and values overall. The drainage ditch with connectivity to SLO Creek, along with its lack of riparian habitat and dominance by weedy vegetation, provides poor riparian and wetland habitat functions and values. No emergent marsh systems were characterized within the study area.

Table 3. Function and Value Ratings of Riverine Systems

Resource Area	Stein's Criteria for Evaluating the Functions and Values of Riverine Systems							Average Site Score
	Habitat Structural Diversity	Habitat Coverage / Spatial Diversity	Percent of Exotic / Invasive Vegetation	Hydrologic Regime of Riparian Zone	Characteristics of Floodprone Area	Micro / Macro Topographic Complexity	Biogeo-chemical Processes	
Ditch Test Pit #1	0	0	0	0.5	0.6	0.2	0.2	**0.2**
SLO Creek Test Pit #3	0.8	1.0	0.8	1.0	0.8	0.5	0.8	**0.8**
SLO Creek Test Pit #5	0.6	1.0	0.4	1.0	0.8	0.5	0.8	**0.7**
SLO Creek Test Pit #9	0.6	0.4	1.0	1.0	0.8	0.5	0.6	**0.7**

*Refer to Stein's Criteria for Evaluating the Functions and Values of Riverine Systems in Attachment C for the full text of ratings and associated characteristics.

4. DISCUSSION

Approximately 251,292 ft² (23,346 m^2) (5.8 acres) of potentially jurisdictional USACE wetlands were delineated along the riparian corridor of SLO Creek. Approximately 4,415 ft² (410 m^2) (0.10 acre) of potentially jurisdictional USACE other waters were delineated along a drainage ditch and other culverted drainage features with hydrological connectivity to SLO Creek. The potentially jurisdictional area associated with the section of SLO Creek investigated can be primarily classified as a riverine, lower perennial forested wetland (broad-leaved deciduous) (Cowardin et al. 1979), dominated by arroyo willow and California black walnut. The potentially jurisdictional area associated with the drainage ditch investigated can be primarily classified as a riverine, intermittent streambed with unconsolidated bottom (Cowardin et al. 1979).

A discussion of hydrologic conditions for the study area should take into consideration that the two to three months leading up to field investigations in April 2008 featured levels of precipitation that were both typical and atypical at times (refer to Table 4). The amount of rainfall that occurred in January 2008 was higher than normal, within the normal range in February 2008, and lower than normal in March 2008, according to Natural Resources Conservation Service (NRCS) Climate Analysis for Wetlands (WETS) tables (NRCS, 2008). The lower and upper limits of the normal range are indicated by columns labeled "30% chance will have less than" and "30% chance will have more than" in the WETS table (USACE, 2006).

During the time in which the Wetland Assessment field work was conducted, conditions in the study area ranged from moist in uplands to fully inundated with surface flow in SLO Creek. Water levels and soil saturation within the study area are expected to be substantially higher during the wet season (typically

recognized as from October 15 to June 30) as compared to the dry season. Rains in the San Luis Obispo area occur mainly between November and April and average approximately 24.6 inches (NRCS, 2008), with stored available soil moisture typically becoming depleted by June.

Table 4. Seasonal and Historical Precipitation Data for San Luis Obispo

Month	Total Precipitation[1]	Historical Avg. for Precipitation[1,2]	Within Normal Range[2]
January 2008	7.30 in	1.71 – 6.39	No (higher)
February 2008	2.43 in	1.98 – 6.67	Yes
March 2008	0.14 in	2.03 – 5.53	No (lower)

[1] Weather Underground, 2008
[2] NRCS, 2008

5. REGULATORY SETTING

5.1. Clean Water Act Section 404/USACE

Regulatory protection for water resources throughout the United States is under the jurisdiction of the USACE. Section 404 of the Clean Water Act (CWA) prohibits the discharge of dredged or fill material into waters of the U.S. without formal consent from the USACE. Waters of the U.S. (considered jurisdictional waters) includes special aquatic sites (e.g., marine waters, tidal areas, stream channels, and wetlands). Constraints to federally protected biological resources are assessed as part of the 404 permitting process through consultation with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). Policies relating to the loss of aquatic habitats generally stress the need for no net loss of wetland resources. Under section 404, actions in waters of the U.S. may be subject to an individual permit, nationwide permit, a general permit, or may be exempt from regulatory requirements. Any activities that would result in the deposition of dredged or fill material within the OHWMs of SLO Creek or the drainage ditch with hydrological connectivity to SLO Creek would likely require an USACE Section 404 permit, upon field verification by USACE staff.

5.2. Clean Water Act Section 401/RWQCB

Section 401 of the CWA ensures that federally permitted activities comply with the federal CWA and state water quality laws. Section 401 is implemented by California's Regional Water Quality Control Board (RWQCB), triggered by the Section 404 permitting process. The RWQCB issues a Water Quality Certification via the 401 process that a proposed project complies with water quality standards and other conditions of California law. Evaluating the effects of the proposed project on both water quality and quantity (runoff) falls under the jurisdiction of the RWQCB. Any activities within the project area that have the potential to result in a need for a permit from the USACE would require a RWQCB Section 401 Water Quality Certification.

Section 401 of the CWA regulates activities that have the potential to cause water quality impacts to Waters of the United States, including wetlands, as defined by the USACE. This certification typically precedes USACE permit issuance. Any activities that would require an USACE Section 404 permit would also likely require a Section 401 Water Quality Certification from the RWQCB.

5.3. California Fish and Game Code Section 1602/CDFG

Section 1602 of the State of California Fish and Game Code requires any person, state or local government agency, or public utility proposing a project that may affect a river, stream, or lake to notify the CDFG before beginning the project. If activities will result in the diversion or obstruction of the natural flow of a stream, or substantially alter its bed, channel, or bank, or adversely affect existing fish and wildlife resources, a Streambed Alteration Agreement is required. A Streambed Alteration Agreement lists the CDFG conditions of approval relative to the proposed project, and serves as an agreement between an applicant and the CDFG for a term of not more than five years for the performance of activities subject to this section. Implementation of the proposed project may require a 1602 Streambed Alteration Agreement for any impacts within the beds or banks of the drainages, or within the outer edges of any delineated riparian canopy, whichever is greater.

5.4. Avoidance and Minimization of Impacts to Jurisdictional Areas

Avoidance and minimization measures for jurisdictional areas in the study area will include environmental training for construction workers, marking work area boundaries, implementation of erosion controls, containment of hazardous materials spills, monitoring, and revegetation/restoration. A detailed description of general Best Management Practices (BMPs), resource avoidance recommendations, and mitigation for identified impacts to jurisdictional areas will be included within the Natural Environment Study Report (NESR) and Habitat Mitigation and Monitoring Plan (HMMP) for the proposed project.

6. REFERENCES

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Attachment A:
Preliminary Plans