DRAFT WETLAND DELINEATION AND JURISDICTIONAL DETERMINATION REPORT

FOR THE

HYLA CROSSING REPLACEMENT PROJECT, ARROYO GRANDE OIL FIELD

SAN LUIS OBISPO COUNTY, CALIFORNIA

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LIST OF ACRONYMS AND ABBREVIATIONS

CalWater	California Interagency Watershed Mapping Committee
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
CCSE	Central Coast Salmon Enhancement
CWA	Clean Water Act
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
FM O&G	Freeport-McMoRan Oil and Gas
HSA	Hydrologic Sub-area
HA	Hydrologic Area
HR	Hydrologic Region
HU	Hudrologic Unit
NHD	National Hydrography Dataset
NRCS	National Resources Conservation Service
NTCHS	National Technical Committee for Hydric Soils
OBL	Obligate Wetland
OHWM	Ordinary High Water Mark
Project	Hyla Crossing Replacement Project
PW	Planning Watershed
RWQCB	Regional Water Quality Control Board
SPW	Super Planning Watershed
SSURGO	Soil Survey Geographic Database
SWRCB	State Water Resources Control Board
UPL	Upland
URS	URS Corporation
USDA	U.S. Department of Agriculture
USACE	United States Army Corps of Engineers
USGS	United States Geologic Survey

SECTION 1.0
INTRODUCTION

On behalf of Freeport-McMoRan Oil and Gas (FM O&G), URS Corporation (URS) has prepared this Wetland Delineation and Jurisdictional Determination Report for the Hyla Crossing Replacement Project (Project) site located in San Luis Obispo County, California. This report presents an assessment and delineation of U.S. Army Corps of Engineers (USACE) jurisdictional waters of the U.S. (including wetlands), and California Department of Fish and Wildlife (CDFW) jurisdictional streams.

1.1 BACKGROUND AND PURPOSE

The purpose of the Project is to provide safe, all-weather access to the existing Hyla Extension lease area and to allow for the removal of the existing Hyla road (culvert) crossing of Pismo Creek that is structurally compromised and currently presents a barrier to migration of steelhead (*Oncorhynchus mykiss*), which are designated as Threatened under the federal Endangered Species Act (ESA). The existing Hyla Crossing features a concrete road deck allowing an unnamed oil field access road to traverse Pismo Creek, with two parallel, 18-inch corrugated metal pipe culverts designed to convey base flows beneath the road. The proposed Project includes installation of a new permanent bridge, removal of the existing roadway once the bridge is functional, and streambed restoration. Once the new bridge has been installed, the existing crossing would be removed and Pismo Creek habitat would be restored and enhanced in the immediate upstream and downstream areas along Pismo Creek.

This Wetland Delineation and Jurisdictional Delineation Report presents the results of stream mapping and wetland delineation work conducted to facilitate regulatory permitting for the Hyla Crossing Replacement Project. The following elements are included:

- Mapping the extent of aquatic resources regulated by the Clean Water Act (CWA), including boundaries of wetlands and non-wetland waters;
- Mapping the extent of streambeds regulated by the California Fish and Game Code; and
- Recommendations regarding required permitting for project impacts to regulated aquatic resources.

1.2 STUDY AREA

The proposed Project site is located in Price Canyon, San Luis Obispo County; approximately three miles northeast of the City of Pismo Beach. The Project site can be accessed from Price Canyon Road via Interstate 101/State Highway 1. The Project site is located on the Corral De Piedra Land Grant (see Figure 1). To ensure that all project impact areas are encompassed, the Study Area for this Wetland Delineation and Jurisdictional Determination Report included all areas within 360 feet upstream (west) and 810 feet

downstream (east) of the Hyla Crossing. The Study Area upstream and downstream of the crossing is characterized by the perennially-flowing channel of Pismo Creek, lined on both sides by riparian vegetation comprised of willow tree species (*Salix laevigata* and *S. lasiolepis*), California sycamore (*Platanus racemosa*), and coast live oak (*Quercus agrifolia*). At the crossing itself, the paved access road and existing Hyla Crossing structure are in degraded condition and exhibit signs of erosion and surface cracking.

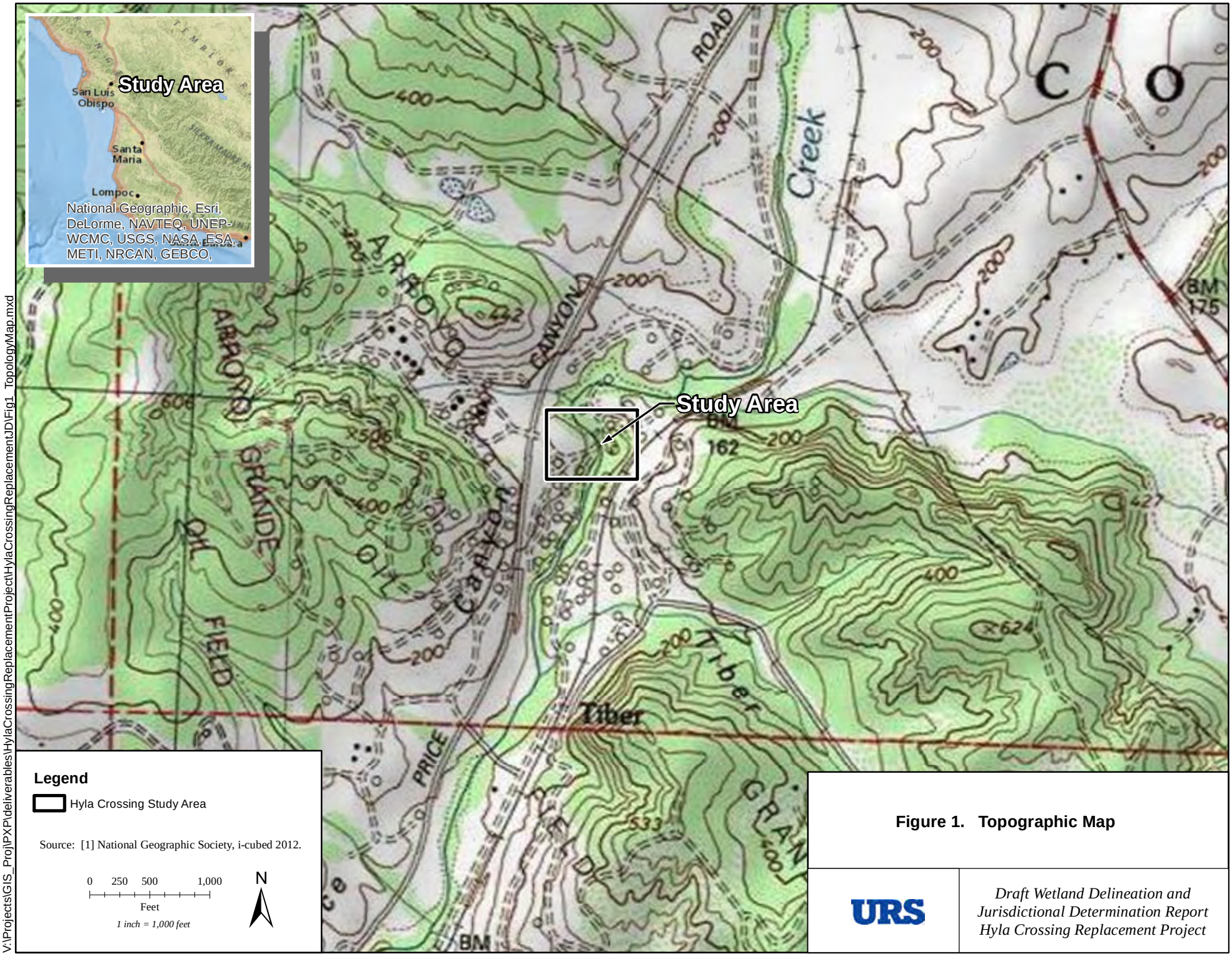

Figure 1. Topographic Map

URS

Draft Wetland Delineation and Jurisdictional Determination Report
Hyla Crossing Replacement Project

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SECTION 2.0
REGULATORY SETTING

Streams and waterways, including ephemeral drainages, dry streambeds, and wetlands, can possess unique ecological functions and values, and are protected from human-induced destruction or degradation by a number of federal and state statutes. The federal and state agencies charged with administering these statutes and their responsibilities are described briefly below.

2.1 FEDERAL

2.1.1 Clean Water Act – Section 404

Pursuant to Section 404 of the CWA, the USACE regulates the discharge of dredge and/or fill material into waters of the United States. Section 404 requires that any person proposing an activity that would discharge these materials must first obtain a permit from the USACE. For discharges proposed in the Project region, Section 404 Permits are issued by the USACE's Los Angeles District. The CWA stipulates that the USACE may not issue a Section 404 Permit if the proposed activity would be contrary to the public interest or would cause substantial degradation of the nation's waters, or if a less environmentally damaging practicable alternative exists.

Waters of the U.S. generally include navigable waterways and wetlands adjacent to navigable waterways, non-navigable tributaries to navigable waterways, and wetlands adjacent to non-navigable waters that are contiguous with navigable waterways. Regulatory definitions of wetlands and waters of the U.S., as well as recent Supreme Court decisions affecting the interpretation of those definitions, are discussed below.

2.1.1.1 <u>Waters of the United States Defined</u>

The term "waters of the U.S." is defined in regulations promulgated by the USACE under the authority of the CWA (see 33 CFR Part 328) and typically includes all navigable waters (including all waters subject to the ebb and flow of the tide); all interstate waters and wetlands; all impoundments of waters mentioned above; all tributaries to waters mentioned above; the territorial seas; and, all wetlands adjacent to waters mentioned above. However, recent Supreme Court decisions have curtailed CWA jurisdiction in some cases, as described in Section 2.1.1.2 below. In water bodies lacking adjacent wetlands, the lateral extent of the USACE's jurisdiction is bounded by Ordinary High Water Mark (OHWM). The OHWM is defined at 33 CFR 328.3(e) as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the

surrounding areas." Where adjacent wetlands are present (see Section 2.1.1.3), CWA jurisdiction extends laterally to the landward edge of the adjacent wetlands. The upstream/downstream limit of CWA jurisdiction is the point beyond which the OHWM is no longer perceptible.

2.1.1.2 Recent Court Cases Limiting Clean Water Act Jurisdiction

In the last decade, two important decisions by the U.S. Supreme Court have limited the scope of CWA jurisdiction. In 2001, the court ruled in *Solid Waste Agency of North Cook County v. United States Army Corps of Engineers* that the USACE exceeded its statutory authority by asserting CWA jurisdiction over "an abandoned sand and gravel pit in northern Illinois, which provides habitat for migratory birds." This ruling invalidated the 1986 "Migratory Bird Rule," and stands for the proposition that CWA jurisdiction does not extend to waters that are non-navigable, isolated, and intrastate. In *Rapanos v. United States* and *Carabell v. United States* (consolidated cases), the question was whether CWA jurisdiction extends to wetlands that do not contain, and are not adjacent to, waters traditionally understood as "navigable." The Court issued two controlling opinions in this case, specifying conditions under which ephemeral and intermittent tributaries and adjacent wetlands are subject to CWA jurisdiction. In the wake of these decisions, the U.S. Environmental Protection Agency (EPA) and the Department of the Army have issued a joint guidance memorandum clarifying CWA jurisdiction.

As described in the USACE and EPA guidance documents, the agencies will assert jurisdiction over the following waters:

- Traditional navigable waters;
- Wetlands adjacent to traditional navigable waters;
- Non-navigable tributaries of traditional navigable waters that are relatively permanent, where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months); and
- Wetlands that directly abut such tributaries.

The USACE and EPA will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with traditionally navigable water:

- Non-navigable tributaries that are not relatively permanent;
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent; and
- Wetlands adjacent to, but that do not directly abut, a relatively permanent non-navigable tributary.

Where this significant nexus analysis is required, the analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters. The analysis will include consideration of hydrologic and ecologic factors.

The USACE and EPA generally will not assert CWA jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow); and
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

2.1.1.3 Wetlands Defined

Wetlands are defined in USACE regulations at 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." In 1987, the USACE published the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987; Wetland Delineation Manual) to guide its field personnel in determining jurisdictional wetland boundaries. In 2008, the USACE published the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008; Arid West Regional Supplement) to complement the Wetland Delineation Manual in the southwestern U.S. The methods set forth in the Wetland Delineation Manual and the Arid West Regional Supplement involves the delineation of wetlands based on the presence of three wetland parameters: a predominance of hydrophytic vegetation; wetland hydrology; and hydric soils. These wetland parameters are discussed in greater detail below.

2.1.1.3.1 Hydrophytic Vegetation. A site is considered to have a "predominance of hydrophytic vegetation" when 50 percent or more of the dominant plant species are classified as Obligate Wetland, Facultative Wetland, or Facultative according to the National Wetland Plant List (Lichvar and Kartesz 2009). Hydrophytic vegetation can also be demonstrated using a different mathematical equation called the "Prevalence Index," as described in the Arid West Regional Supplement.

2.1.1.3.2 Hydric Soils. A hydric soil is defined by the National Technical Committee for Hydric Soils (NTCHS) as "a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (U.S. Department of Agriculture [USDA]-NRCS 1994). A hydric soil may be drained or undrained, and a drained hydric soil may not continue to support hydrophytic vegetation yet still retain the appearance of a hydric soil. The Wetland Delineation Manual and Arid

West Regional Supplement describe visual and textural indicators of hydric soils used in the field to determine the presence of hydric soils. In most situations, only one of these indicators is required to make a positive determination.

2.1.1.3.3 Wetland Hydrology. Wetlands are characterized by various hydrologic regimes that range from permanently inundated to irregularly inundated or saturated. In other words, some wetlands are always wet while other wetlands may contain water during only part of the year. For an area to have "wetland hydrology," as defined in the Wetland Delineation Manual, the area must be "inundated or saturated to the surface for at least five percent of the growing season in most years." In the Arid West Region, the minimum threshold for wetland hydrology under most circumstances is 14 or more consecutive days of flooding or ponding, or a water table 12 inches or less below the soil surface, during the growing season at a minimum frequency of 5 years in 10. The Wetland Delineation Manual and Arid West Regional Supplement describe visual indicators of wetland hydrology used in the field to determine the presence of wetland hydrology. Where either a single primary indicator or two secondary indicators are observed, a positive determination for wetland hydrology is made.

2.1.2 Clean Water Act – Section 401

Under Section 401 of the CWA, every federal permit or license applicant for any activity which may result in a discharge of dredge or fill material to a water body must obtain a state-issued Water Quality Certification that the proposed activity will comply with state water quality standards (i.e., beneficial uses, water quality objectives, and anti-degradation policy). In California, the State Water Resources Control Board (SWRCB) has delegated the responsibility for issuing Section 401 Certifications to the nine Regional Water Quality Control Boards (RWQCB) throughout the state. The Central Coast RWQCB issues Section 401 Certifications for projects in San Luis Obispo County. A CWA Section 404 Permit is a federal permit subject to the terms of Section 401 as described above, and the USACE therefore cannot issue a Section 404 permit in the project region until the permit applicant also receives a Section 401 Certification from the Central Coast RWQCB. Because Section 401 of the CWA is restricted to activities requiring a federal license or permit, this section does not apply to activities affecting waters outside federal jurisdiction, such as isolated, intrastate waters or those excluded from federal jurisdiction based on the significant nexus standard described in Section 2.1.1.2 above.

2.2 STATE

2.2.1 California Fish and Game Code

Pursuant to Sections 1600–1616 of the California Fish and Game Code, the CDFW regulates all diversions, obstructions, or substantial changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. In regulations promulgated by the CDFW at 14 CCR 1.72, a stream is defined as "a body of water that flows at least

periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." In practice, CDFW has interpreted the term "streambed" to encompass all portions of the bed, banks, and channel of any stream, including intermittent and ephemeral streams, extending laterally to the upland edge of riparian vegetation. In the case of watercourses with vegetated floodplains, this interpretation often results in an asserted geographic jurisdictional area that is much wider than the active channel of the stream. The upstream limit of CDFW-jurisdiction is the point upstream of which there is no evidence of a defined bed and bank, and riparian vegetation is not present.

SECTION 3.0
STUDY METHODS

Waters of the U.S. and CDFW-jurisdictional streambeds within the Study Area were delineated using a combination of desktop literature review, field mapping methods, and ArcGIS analysis. A Study Area for this Wetland Delineation and Jurisdictional Determination Report was established to encompass all areas within 360 feet upstream (west) and 810 feet downstream (east) of the Hyla crossing (see Figure 1). The Study Area encompasses significantly more area than would be disturbed by the proposed Project, ensuring that all impacts to the creek are included within the area investigated.

3.1 LITERATURE REVIEW

Prior to field efforts, the United States Geologic Survey (USGS) Arroyo Grande NE, CA 7.5 minute quadrangle map (USGS 2012a), the Arroyo Grande Soil Survey (U.S. Department of Agriculture, National Resources Conservation Service [USDA-NRCS] Soil Survey Geographic [SSURGO] 2008), the National Hydrography Dataset (NHD) (USGS 2012b), the National Wetlands Inventory (U.S. Fish and Wildlife Service [USFWS] 2013) and a high quality aerial photograph of the Study Area and the surrounding area (Bing Maps Hybrid 2012) were reviewed to determine the locations of potential hydrologic features. The USGS 7.5 minute quadrangle map (USGS 2012a) and the National Hydrography Dataset (USGS 2012b) indicated the presence of one potential hydrological feature (the mainstem of Pismo Creek) within the Study Area designated as a perennial stream (shown on Figure 1 with a solid blue line).

3.2 DELINEATION OF WATERS OF THE UNITED STATES

A formal field delineation of waters of the U.S. (including wetlands) and CDFW-jurisdictional streambeds was performed within the Study Area on February 11, 2013 by URS biologists Julie Love and Tiffany Whitsitt, with follow up surveys conducted by URS biologist Jamie Deutsch and geologist Natalie Evans on November 7, 2013 and URS biologists Christopher Julian and Tiffany Whitsitt on November 14, 2013. The methods used during the field surveys are described below. Following completion of the surveys, watershed maps, aerial photographs, and other applicable literature were reviewed to ascertain whether waters identified in the field were tributary to navigable waters. Photographs were taken to document site conditions, and are presented in Appendix A.

3.2.1 Ordinary High Water Mark

The extent of non-wetland waters within the Study Area was determined based on the location of the OHWM. For the portion of Study Area located within or adjacent to the proposed limits of disturbance, the channel banks were examined for signs of flow, terraces,

drift deposits, changes in vegetation, and other indicators that would determine the location of the OHWM. Once the OHWM was identified in the field, the boundary was walked with a Trimble GeoXT 6000 handheld GPS unit set to collect positional data in a "streaming" fashion. For the portion of Study Area located outside the temporary limits of disturbance, topographic maps (USGS 2012a) and aerial photographs maps (Bing Maps Hybrid 2012), combined with known channel widths from the area delineated by GPS, were used to determine the location of the OHWM.

Average channel width and depth for Pismo Creek were estimated in the field and features such as substrate type and topography were recorded. When field data collection was complete, jurisdictional boundaries were downloaded from the Trimble GPS unit and converted into a GIS shape file using ArcGIS software or heads up digitized using ArcGIS software. Properties such as length, width, and jurisdictional acreage were calculated through ArcGIS.

3.2.2 Adjacent Wetlands

A delineation of potential wetlands within the Study Area was conducted in accordance with the procedures described in the Wetland Delineation Manual (Environmental Laboratory 1987) and the Arid West Regional Supplement to that manual (USACE 2008). The methods are summarized below, and are described fully in those documents.

To ascertain whether jurisdictional wetlands occur within the Pismo Creek riparian corridor, a sampling point was established and assessed in the area most likely to exhibit wetland characteristics, based on visual observations. In accordance with the Wetland Delineation Manual, the sampling location was analyzed for hydrophytic vegetation, hydric soil, and wetland hydrology, and a Wetland Delineation Data Form was completed (refer to Appendix B). Photographs were taken to document site conditions (Appendix A), and coordinates for the sample point were recorded using a Trimble GeoXT 6000 series handheld GPS unit. Methods used to evaluate each of the three wetland parameters are described below.

3.2.2.1 <u>Vegetation</u>

Vegetation surrounding the sampling point was analyzed, with the sampling boundaries comprising a radius (10-foot for herbs, 20-foot for shrubs, or 30-foot for trees) surrounding the soil pit but restricted to the top of the drainage banks to avoid sampling adjacent vegetative zones not representative of the area being evaluated. At each sampling point, all plant species present were identified to the species level, and dominant species were determined based on the "50/20 Rule" (see Environmental Laboratory 1987). The wetland indicator status of each dominant plant species within the Study Area was determined using the National Wetland Plant List (Lichvar 2013). The list divides plants into five categories that reflect the range of estimated probabilities (expressed as a frequency of occurrence) of a species occurring in a wetland versus a non-wetland.

These categories are as follows:

- **Obligate Wetland (OBL) –** Hydrophyte. Almost always occurs in wetlands;
- **Facultative Wetland (FACW) –** Hydrophyte. Usually occurs in wetlands, but may occur in non-wetlands;
- **Facultative (FAC) –** Hydrophyte. Occurs in wetlands or non-wetlands;
- **Facultative Upland (FACU) –** Nonhydrophyte. Usually occurs in non-wetlands, but may occur in wetlands; and
- **Upland (UPL) –** Nonhydrophyte. Almost never occurs in wetlands.

Based on the indicator status of the species present, a dominance test was performed to determine whether more than 50 percent of the dominant plant species had an indicator status of OBL, FACW, or FAC. Where the dominance test did not identify dominance of hydrophytic vegetation, a Prevalence Index was also calculated in accordance with the Arid West Regional Supplement. Where either the dominance test or Prevalence Index yielded positive results, vegetation at the sample point was documented as being hydrophytic.

3.2.2.2 Soils

As described previously, a pit 12 inches deep was excavated at the sampling point. At this location, a soil profile was extracted and examined for positive indicators of hydric soils. These indicators can include, but are not limited to:

- Presence of organic soils (Histosols) or soils that have more than 50 percent (by volume) of the upper 32 inches of soil is composed of organic soil materials;
- Presence of histic epipedons (i.e., layers of organic matter in the upper soil) that are saturated for 30 days or more during the growing season;
- Presence of sulfidic material or odors indicating anaerobic conditions;
- Presence of an aquic or peraquic regime in which oxygen in the upper soil has been displaced by surface water or groundwater saturation that causes anaerobic conditions;
- Evidence of chemically reducing conditions in the soil based on chemical tests;
- Presence of gleyed soil conditions or soils with bright mottles and/or low matrix chroma;
- Soils that occur on the NTCHS National Hydric Soils List;
- Presence of manganese and iron concretions; and
- Presence of high amounts of organic matter in the upper soil and/or organic matter streaking (sandy soils only).

In most situations, only one of these indicators is required to make a positive determination. Additional soil characteristics assessed included color, texture, and the presence of redox features, organic matter, and other signs of hydric soils where present. A Munsell® Soil Color Chart (Munsell Color 2009) was used in the field to identify the color of the soil matrices and redox features, if present. For a complete listing of the soil indicators evaluated, please refer to the Arid West Regional Supplement.

3.2.2.3 Hydrology

The Wetland Delineation Manual and Arid West Regional Supplement provide a list of primary and secondary field indicators of wetland hydrology, and prescribe field procedures for detecting these indicators. As described previously, a pit 12 inches deep was excavated at each sampling point, and the area was examined for wetland hydrology along the drainage bottom and banks and within the pit. General observations related to the suspected flow regime, substrate, flood-prone area, and other hydrologic characteristics were noted. In accordance with the Wetland Delineation Manual and Arid West Regional Supplement, the sampling point was examined for surface water, a water table, and/or saturation, and primary and secondary field indicators of wetland hydrology including, but not limited to:

- Visual observation of inundation or soil saturation within 12 inches of the surface;
- Water marks on stems and fixed objects;
- Drift lines consisting of debris and waterborne material;
- Sediment deposition;
- Visual evidence of surface flows and ponding;
- Oxidized root channels in the upper 12 inches of the soil;
- Water-stained leaves;
- Evidence of drainage patterns; and
- Other site-dependent features based on the professional judgment of the delineator.

Where either a single primary indicator or two secondary indicators were observed, a positive determination for wetland hydrology was made. For a complete listing of the primary and secondary indicators evaluated, please refer to the Arid West Regional Supplement.

3.3 DELINEATION OF CDFW-JURISDICTIONAL STREAMBEDS

The extent of streambeds falling under the jurisdiction of the CDFW pursuant to section 1600 *et seq.* of the California Fish and Game Code was determined based on the presence of a defined physical bed, bank, or channel, or the outer edge of riparian vegetation contiguous with the bank of the watercourse. For the portion of Study Area located within or adjacent to

the limits of proposed disturbance, the CDFW-jurisdictional boundary was identified in the field and walked with a Trimble GeoXT 6000 series handheld GPS unit set to collect positional data in a "streaming" fashion. Biologists utilized aerial imagery (Bing Maps Hybrid 2012) in conjunction with field verification during the November 14, 2013 site visit to determine the CDFW-jurisdictional boundary along the eastern boundary of Pismo Creek downstream of the temporary disturbance boundary.

When field data collection was complete, jurisdictional boundaries were downloaded from the Trimble GPS unit and converted into a GIS shape file using ArcGIS software or heads up digitized using ArcGIS software. Properties such as length, width, and acreage of the drainage were calculated through ArcGIS. Photographs were taken to document site conditions (Appendix A).

SECTION 4.0
RESULTS

Results of the jurisdiction delineation are presented below. An overview of the Study Area's vegetation, hydrology, and soils is presented, followed by a description of the jurisdictional areas identified during the delineation.

4.1 SITE OVERVIEW

This section provides an overview of the existing vegetation, soils, and hydrology within the Study Area, to provide a context within which to understand the delineation results.

4.1.1 Hydrology and Climate

According to the Watershed Boundary Dataset prepared by the California Interagency Watershed Mapping Committee (CalWater), which is responsible for all interagency watershed mapping and dataset creation in the state of California, the Study Area is within the Estero Bay hydrologic unit of the Central Coastal hydrologic region. More specifically, the site is within the Upper Pismo Creek planning watershed (CalWater Unit: 331026013) in the Pismo super planning watershed (CalWater 2013)[1]. According to the Watershed Boundary Dataset managed by the USGS (2013b), which utilizes hydrologic unit codes to delineate the location of specific hydrologic units, the Study Area is located within the Pismo Creek Subwatershed (12-digit HUC:18060006) (see Figure 2). The Pismo Creek Subwatershed encompasses approximately 24,135 acres (USGS 2013b), and is comprised of approximately 54 percent mountainous and foothill area and 46 percent valley area (Central Coast Salmon Enhancement [CCSE] 2009). Much of the watershed has been subjected to past human uses, including oil and gas extraction, agriculture, and ranching.

The total length of Pismo Creek from its headwaters in the Los Padres National Forest to the Pacific Ocean is approximately 13.3 miles (USGS 2013a), although the name is not retained through this entire distance (the headwater reach is referred to as Villa Creek, and the intermediate reach flowing predominantly though agricultural areas on the floor of the Edna Valley is East Corral de Piedra Creek). The reach named Pismo Creek, from the confluence of East Corral de Piedra Creek and West Corral de Piedra Creek to the Pacific Ocean, encompasses approximately 5.5 miles with the Study Area located approximately at the

[1] The California Interagency Watershed Map is the state of California's working definition of watershed boundaries. The California Interagency Watershed Map describes California watersheds, beginning with the division of the state's 101 million acres into ten Hydrologic Regions (HR). Each HR is progressively subdivided into six smaller, nested levels: the Hydrologic Unit (HU) (major rivers), Hydrologic Area (HA) (major tributaries), Hydrologic Sub-area (HSA), Super Planning Watershed (SPW), and Planning Watershed (PW). At the PW level (the most detailed level), where implemented, polygons range in size from approximately 3,000 to 10,000 acres. At all levels, a total of 7,035 polygons represent the state's watersheds (CalWater 2004).

midpoint. Pismo Creek enters the Pacific Ocean at Pismo Beach, in a dune region owned by the State of California Department of Parks and Recreation (Central Coast Salmon Enhancement [CCSE] 2009). The reach of Pismo Creek within the Study Area has been designated as critical habitat for the federally-listed threatened South-Central California Coast steelhead trout (*Oncorhynchus mykiss irideus*), and the lagoon where this stream enters the Pacific Ocean is designated as critical habitat for the federally-listed endangered tidewater goby (*Eucyclogobius newberryi*).

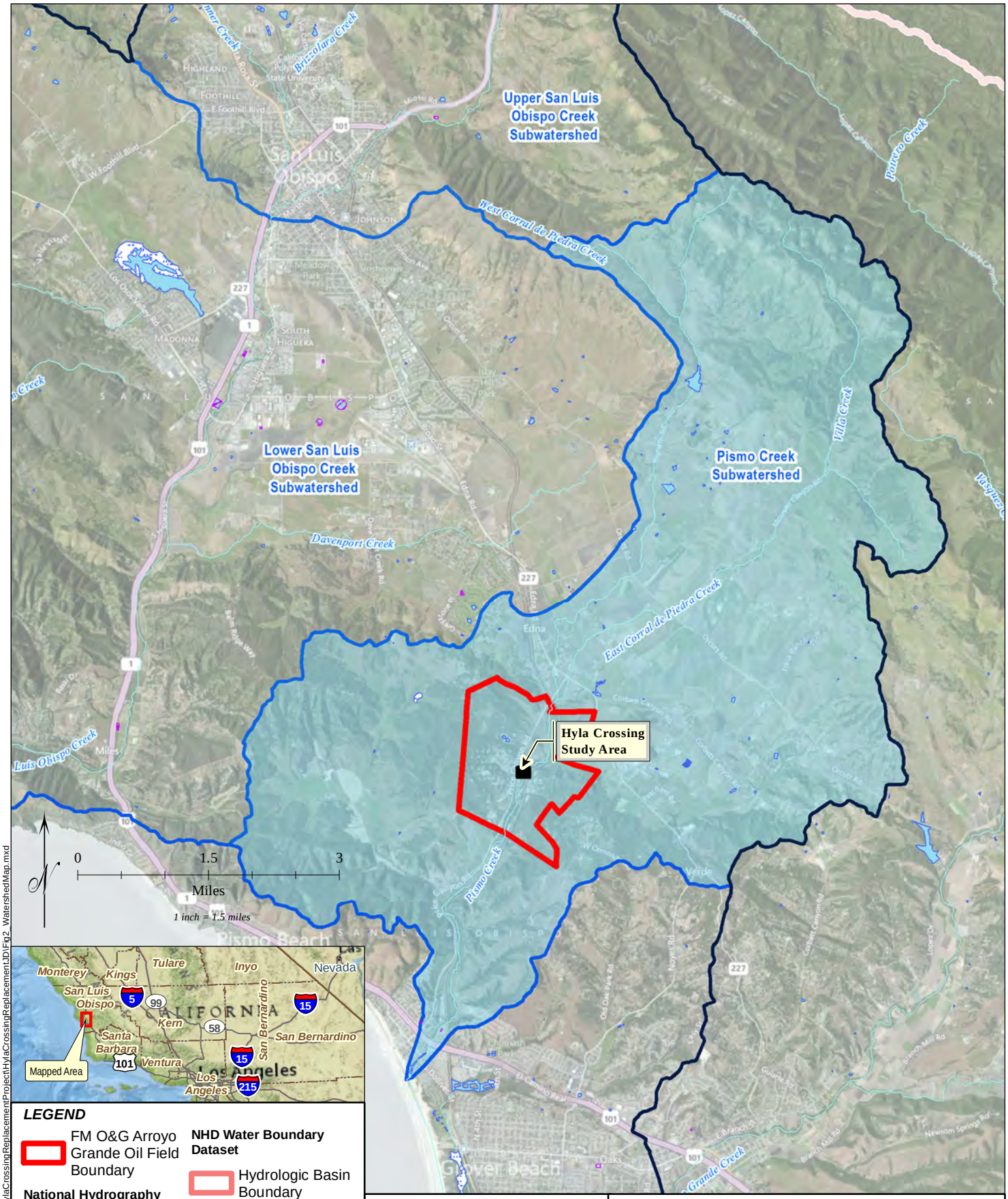
The climate in the Pismo Beach/Arroyo Grande region is classified as a Mediterranean climate. The wet winters generally extend from November through March with local precipitation ranging from 16 inches near the coast to 32 inches in the headwaters area. The hot, dry summers typically consist of temperatures ranging from 60°F to 90°F, with summertime fog an important hydrologic component near the coast during summer months as it can help sustain vegetation (Balance Hydrologics 2008).

4.1.2 Vegetation

The Project site is located within the Central California Coast geographical region (Sawyer *et al.* 2009). The National Wetlands Inventory classifies the reach of Pismo Creek within the Study Area as a palustrine, forested, seasonally flooded wetland. Seasonally flooded palustrine forested systems include non-tidal wetlands dominated by woody vegetation taller than 19 feet where surface water is present for extended periods especially early in the growing season, but absent by the end of the growing season in most years (USFWS 2013).

The incised creek banks within the Study Area are heavily vegetated with riparian vegetation comprised of mature coast live oak (*Quercus agrifolia*), California sycamore (*Platanus racemosa*), and red/arroyo willow (*Salix laevigata/lasiolepis*) trees. (Not all willow individuals could be identified to species due to lack of leaves at the time of assessment). Riparian ground cover is dominated by cape ivy (*Delairea odorata*), California blackberry (*Rubus ursinus*), and periwinkle (*Vinca major*). Vegetation within the Study Area is primarily comprised by the above mentioned riparian vegetation. Upland areas located adjacent to the creek channel in the northern and southern sections of the Study Area are heavily impacted by human disturbance and primarily comprised of paved or graveled roadways with non-native grasses dominating those areas that are vegetated with scattered coast live oaks. See Appendix C for complete list of plant species observed during the field investigation.

As depicted on Figure 3, three native vegetation communities (red/arroyo willow thickets, coast live oak woodland, and coyote brush scrub), and one non-native vegetation community (ruderal vegetation) occur within the Study Area. Additionally, two unvegetated land cover types (open water and developed) are present. Each of these communities is described below.



LEGEND

- FM O&G Arroyo Grande Oil Field Boundary

National Hydrography Dataset (NHD)

- Lake/Pond
- Swamp/Marsh
- Playa
- Reservoir
- Stream or River

NHD Water Boundary Dataset

- Hydrologic Basin Boundary
- Watershed Boundary
- Pismo Creek Subwatershed
- Subwatershed Boundary

Source: [1] USGS NHD & USDA NRCS Watershed Boundary Dataset (WBD) Hydrologic Unit Code (HUC) boundaries (high res. sub region accessed 5/23/2013 from ftp://nhdftp.usgs.gov/DataSets/Staged/); [2] USGS NHD Flowlines & Waterbodies (high res. sub region accessed 5/23/2013 from ftp://nhdftp.usgs.gov/DataSets/Staged/)

Figure 2. Watershed Map

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Figure 3. Vegetation Map

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4.1.2.1 Red/Arroyo Willow Thickets

Red willow thickets (*Salix laevigata* woodland alliance) are characterized by dominant or co-dominant red willow in the tree canopy. The canopy is open to continuous with an open to intermittent shrub layer and variable herbaceous layer. Trees are less than 65.5 feet (20 meters) tall. Red willow thickets are found in ditches, floodplains, lake edges, and low-gradient depositions along streams. Elevation ranges from sea level to 5,577 feet (1,700 meters). Along the Central California Coast stands are scattered along creeks and floodplains (Sawyer *et al*. 2009). Red willow thickets are classified by the CDFW (2010) as a sensitive natural community.

Arroyo willow thickets (*Salix lasiolepis* shrubland alliance) are characterized by dominant or co-dominant arroyo willow in the shrub or tree canopy. The canopy is open to continuous with a variable herbaceous layer. Shrubs are less than 32.8 feet (10 meters) tall. Arroyo willow thickets are found along stream banks and benches, slope seeps, and stringers along drainages. Elevation ranges from sea level to 7,119 feet (2,170 meters) (Sawyer *et al.* 2009). Arroyo willow thickets are classified by the CDFW (2010) as a sensitive natural community.

Within the Study Area, red/arroyo willow thickets including mature trees and saplings are present throughout the riparian corridor along the channel of Pismo Creek. Additionally, scattered mature California sycamores (*Platanus racemosa*) are present within this community type. This community is strongly associated with the stream channel, and does not occur in upland portions of the Study Area (Figure 3). Because the riparian canopy overhangs the Hyla Crossing, the existing road crossing location is within an area mapped as red/arroyo willow thickets.

4.1.2.2 Coast Live Oak Woodland

Coast live oak woodland (*Quercus agrifolia* woodland alliance) is characterized by dominant or co-dominant coast live oak in the tree canopy with a sparse to intermittent shrub layer and sparse or grassy herbaceous layer. Trees are less than 98 feet (30 meters) tall. Coast live oak woodland is found in alluvial terraces, canyon bottoms, stream banks, slopes, and flats. Associated soils are deep, sandy or loamy with high organic matter. Elevation ranges from sea level to 3,937 feet (1,200 meters) (Sawyer *et al.* 2009). Coast live oak woodlands are not classified by the CDFW (2010) as a sensitive community type. California Public Resources Code §21083.4 (Senate Bill 1334) protects and conserves coast live oak woodland as a sensitive natural community.

Within the Study Area, coast live oak woodland is present along the upper terraces of the Pismo Creek streambed and within upland areas (Figure 3).

4.1.2.3 Coyote Brush Scrub

Coyote brush scrub (*Baccharis pilularis* scrub alliance) is characterized by dominant or co-dominant coyote brush in the shrub canopy. Shrubs are less than 9 feet (2 meters) tall and the canopy and herbaceous layers are both variable. Coyote brush scrub is found along river mouths, stream sides, terraces, stabilized dunes of coastal bars, open slopes, and ridges. Elevation of coyote brush scrub ranges from sea level to 4,500 feet (1,370 meters) (Sawyer *et al*. 2009). Coyote brush scrub is not a sensitive community type, and has a ranking of G5, globally secure and S5, State secure (CDFW 2010).

Within the Study Area, coyote brush scrub is present within upland areas primarily located adjacent to the access roadways or developed areas (Figure 3).

4.1.2.4 Ruderal Vegetation

The areas classified as ruderal vegetation (Figure 3) do not correspond to a classification in *A Manual of California Vegetation, Second Edition* (Sawyer *et al.* 2009). Ruderal plants grow in disturbed areas as a result of activities such as road cuts, soil stockpiles, and areas that are continually disturbed. The ruderal areas have a high percentage of bare ground and are dominated by non-native species such as Russian thistle (*Salsola tragus*), black mustard (*Brassica nigra*), and red brome (*Bromus madritensis* ssp. *rubens*). Russian thistle is ranked by the California Invasive Plant Council (Cal-IPC) as having limited invasiveness, black mustard is ranked as moderately invasive, and red brome is ranked as highly invasive (Cal-IPC 2013).

Within the Study Area, ruderal vegetation is present along the roadsides and well pads within upland areas.

4.1.2.5 Open Water

Within the Study Area, the active channel of Pismo Creek naturally lacks vegetation due to hydrologic scouring processes. While some of the channel is covered by the canopy of riparian trees rooted on the banks, and was mapped to correspond with the tree cover, other portions were mapped as open water to distinguish them from other unvegetated areas (e.g., developed areas) within the Study Area (Figure 3). Despite the absence of vegetation, open water areas provide habitat for fishes and aquatic wildlife.

4.1.2.6 Developed

Developed areas are found throughout the Study Area and are comprised of active road and well pad locations; they have little vegetative cover due to soil compaction, road development, and the presence of permanent oil field structures. Human visitation in these areas occurs commonly, as they areas are part of an actively producing oil field. Developed

areas are generally situated in portions of the Study Area away from Pismo Creek, where prior oil field development has occurred, although the unvegetated roadway approaches on either side of the Hyla Crossing are also developed areas (Figure 3). Developed areas generally provide very low quality habitat for native plants and wildlife.

4.1.3 Soils

The Study Area is located within Price Canyon, which is surrounded by the Santa Lucia Mountain foothills. The Soil Survey Geographic Database for Arroyo Grande, California (USDA-NRCS SSURGO 2008) indicates that two soil types occur within the Study Area. The majority of the Study Area soil falls into the Arnold soil series, a non-hydric soil. The far eastern extent of the Study Area falls into the Corralitos soil series, a partially hydric soil. The description of the soils below is abridged from the USDA-NRCS Soil Series Name Search Query Facility (USDA-NRCS 2013). A map of soil types within the Study Area is presented on Figure 4.

4.1.3.1 Arnold Series

Arnold series soils are on hills and hilly uplands at elevations of 100 to 2,500 feet (30 to 762 meters) along the south-central portion of California's Coast Range usually located within 30 miles of the coast. This series consists of deep soils that formed in material weathered from soft sandstone. These soils are somewhat excessively drained soils and produce very low to medium runoff and have rapid permeability above the sandstone and slow within the sandstone; slopes range from 9 to 75 percent. Arnold series soils tend to support chaparral, coastal sagebrush (*Artemisia californica*), coast live oak (*Quercus agrifolia*), shrubs, annual grasses, and forbs. They are primarily used for range, with very limited areas used for growing truck crops, Christmas trees, and improved pasture. These soils are classified as mixed, thermic Typic Xeropsamments. Arnold series soils occur throughout the Study Area.

4.1.3.2 Corralitos Series

Corralitos series soils are on alluvial fans and in small valleys at elevations of 25 to 1,000 feet (8 to 305 meters) from central California southward. These soils formed in recent sandy alluvium derived from acid sandstone and related rocks. These soils are somewhat excessively drained and produce slow runoff with rapid permeability; slopes range from 0 to 15 percent. Corralitos soils tend to support annual grasses, forbs, coyote bush (*Baccharis pilularis*), other shrubs, and few live oak trees (*Quercus* spp.). They are primarily used for range, dryland crops, urban development, and for growing truck crops, alfalfa, citrus, and other fruits under irrigation. These soils are classified as mixed, thermic Typic Xeropsamments. Corralitos series soils occur at the far eastern extent of the Study Area.

4.2 JURISDICTIONAL DRAINAGES

A single drainage is located within the Study Area: the mainstem of Pismo Creek. This drainage is identified as a perennial stream on the USGS (2012a) topographic map, and flows southward through the Edna Valley from the Los Padres National Forest to the Pacific Ocean. Pismo Creek is a perennial tributary to the Pacific Ocean, and is therefore a water of the United States as defined under Clean Water Act regulations.

Within the Study Area, the length of Pismo Creek is approximately 1,170 feet. Throughout this distance, the mainstem of Pismo Creek continuously exhibits a defined bed, bank, and channel, as well as an identifiable OHWM. The width of the active channel, as measured at the OHWM, ranges between approximately 10 feet and approximately 50 feet, while the stream's riparian corridor ranges between approximately 80 and approximately 160 feet wide. Depth of the active channel varies from 6 inches to over 5 feet upstream of the Hyla Crossing and from 4 inches to 4.5 feet downstream of the Hyla Crossing. With the exception of the area immediately adjacent to the Hyla Crossing structure, the creek is confined within a steep canyon with bank heights of approximately 40 feet on the south bank and 20 feet on the north bank. The southern bank is much steeper than the northern, and is vegetated with willow trees and other species including poison oak (*Toxicodendron diversilobum*), mulefat (*Baccharis salicifolia*), and common horsetail (*Equisetum arvense*) near the stream channel and coast live oaks near the top. The northern bank, which exhibits a gradual slope, supports a mix of riparian trees and understory species that gradually transitions to an upland oak woodland community with distance from the active channel.

The twin corrugated metal pipes intended to allow base flows to pass beneath the existing Hyla Crossing concrete structure have become clogged, and flows are no longer able to pass through the pipes. This has caused a shallow, wide pool to form upstream of the structure and a deep, wide pool to form downstream of the structure, with flows overtopping the roadway (see Appendix A). Concrete rip-rap on the downstream side of the existing Hyla Crossing helps confine the pooled water in this area. The substrate within the channel is composed mostly of a mix of cobble and sand. The channel bottom is primarily unvegetated with the exception of a few aquatic plants such as watercress (*Nasturtium officinale*).

4.3 JURISDICTIONAL WETLANDS

As described previously, a single sampling point and Wetland Delineation Data Form was conducted within the riparian corridor along Pismo Creek. Characteristics observed at this sampling location are presented below, and are documented in further detail on the data form in Appendix B.

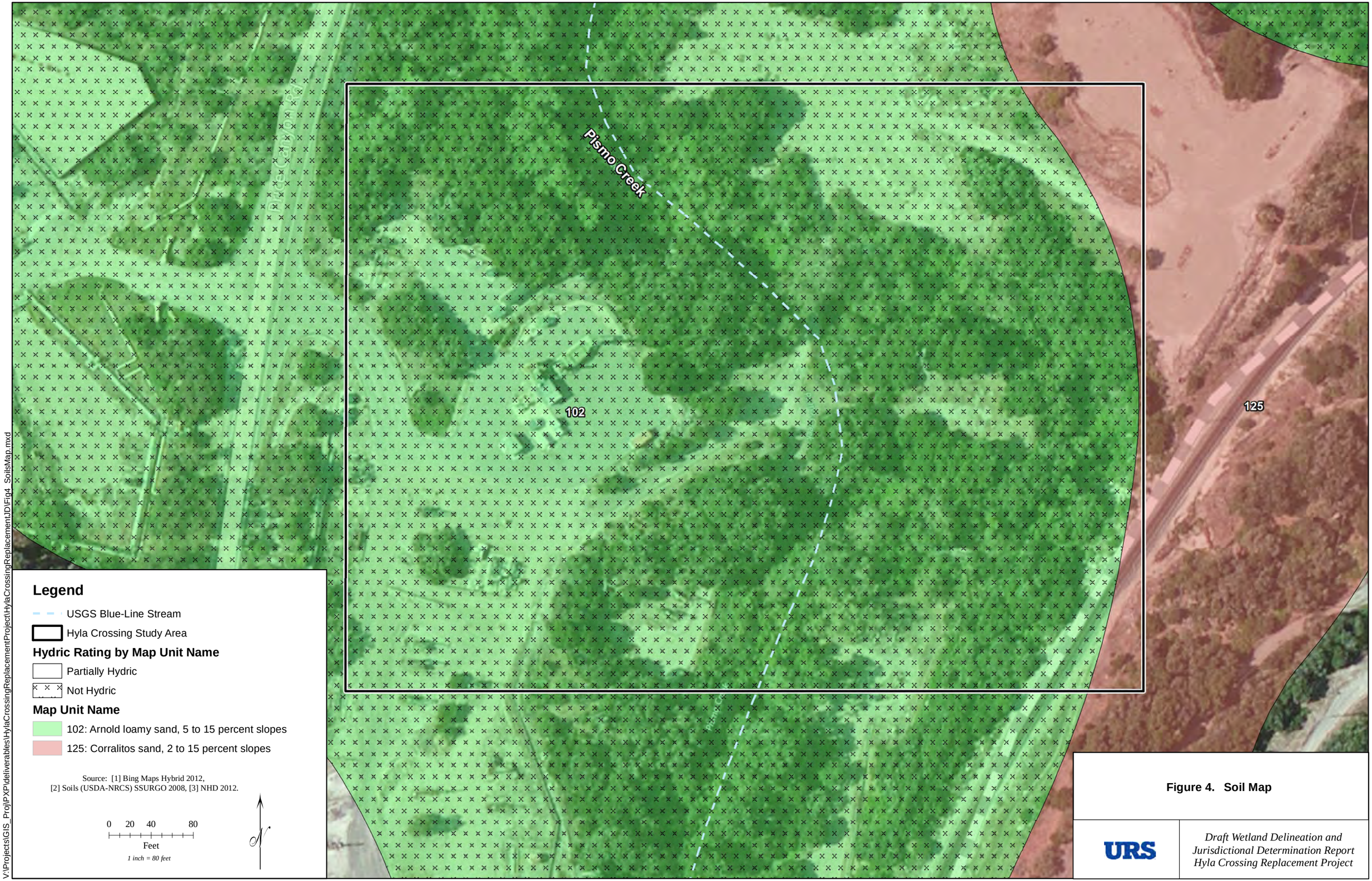

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Figure 4. Soil Map

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4.3.1 Sampling Point 1

Sampling Point 1 (see Figure 3) is located within a floodplain terrace of Pismo Creek, in a potential wetland area on the downstream side of the existing Hyla Crossing.

Indicators of hydrophytic vegetation were observed at this sampling point. At the time of the investigation, vegetation was dominated by common horsetail (FAC) in the herb stratum, California blackberry (FAC) in the woody vine stratum, mulefat (FAC), western sycamore (FAC), and red/arroyo willow (FACW) in the shrub stratum, and red/arroyo willow and California sycamore (FAC) in the tree stratum. All six dominant species present were hydrophytes.

Indicators of hydric soils were not observed at Sampling Point 1. Further, the predominant soil texture was observed to be a sandy loam, suggesting that if hydric soil indicators had been present, they would have been visible.

Indicators of wetland hydrology were observed at Sampling Point 1. No primary wetland hydrology indicators were observed; however this location exhibited drift deposits and passed the FAC-neutral test, both secondary indicators of wetland hydrology. (To make a positive determination, either one primary or two secondary hydrology indicators are required.)

Because Sampling Point 1 exhibited indicators of hydrophytic vegetation and wetland hydrology but did not show evidence of hydric soils, this point is not within a wetland as defined by USACE regulations. Further, because this sampling point was intentionally sited in the area deemed by the investigators as most likely to exhibit wetland characteristics, the fact that this area was not under sufficient hydrologic influence to meet the USACE's wetland definition indicates that the Study Area does not contain jurisdictional wetlands.

4.4 SUMMARY OF REGULATORY AGENCY JURISDICTION

As described above, the Study Area includes one drainage feature, the mainstem of Pismo Creek, and this feature exhibits bed/bank characteristics. A summary of the total acreage of waters subject to the permitting authority of the USACE and CDFW is presented below. All jurisdictional areas are displayed on Figure 5, and acreages are summarized in Table 1. When the precise impact footprint of the Hyla Crossing Replacement Project is known, the extent of permanent and temporary impacts to jurisdictional waters that would result from the project can be determined by spatially comparing the Project footprint with the geographic limits of agency jurisdiction.

TABLE 1
JURISDICTIONAL METRICS FOR PISMO CREEK
WITHIN THE STUDY AREA

	Waters of the U.S.			
Stream Length (Linear Feet)	Non-Wetland Waters (Acres)	Wetland Waters (Acres)	Total Waters of the U.S. (Acres)	CDFW-Jurisdictional Streambeds (Acres)
Approximately 1,170	0.60	–	0.60	4.36

4.4.1 Waters of the United States

The Study Area contains a total of 0.60 acre of waters of the U.S., all of which are comprised of non-wetland waters in the mainstem of Pismo Creek. Pismo Creek is a perennial stream and therefore a "Relatively Permanent" tributary to the Pacific Ocean; thus, Pismo Creek is a water of the United States. No saline or tidal waters are present, and no wetlands or other special aquatic sites occur within the Study Area.

4.4.2 California Department of Fish and Wildlife Jurisdictional Streams

Within the Study Area, a total of 4.36 acres was delineated as jurisdictional streambeds subject to the CDFW's permitting authority under Section 1600 *et seq*. of the California Fish and Game Code. This acreage comprises all potions of the bed, bank, and channel of Pismo Creek within the Study Area, including riparian vegetation contiguous with the physical stream banks.

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Figure 5. Jurisdictional Determination

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SECTION 5.0
CONCLUSION

As described previously, the Study Area contains a total of 0.60 acre of non-wetland waters of the U.S. and 4.36 acres of CDFW-jurisdictional streambeds. Activities impacting these waters may be subject to federal and state permitting jurisdiction, as described below.

5.1 U.S. ARMY CORPS OF ENGINEERS

Because the proposed Project would include discharges of fill material into Pismo Creek for construction and restoration purposes, the Project will require authorization under Section 404 of the CWA. Due to the nature of the proposed Hyla Crossing Repair Project, it is likely that authorization under Nationwide Permit 14 (Linear Transportation Projects) and 27 (Aquatic Habitat Restoration, Establishment, and Enhancement Activities) would be appropriate for this project. Authorization under these existing permits would be subject to conformance with the permitted activities described in the permits, as well as the General Conditions and Regional Conditions specified by the USACE. Importantly, the Project cannot be authorized under Nationwide Permit 14 if it would cause the loss of more than 0.5 acre of waters of the U.S.

5.2 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

Because the proposed Project would temporarily divert flows and would substantially alter the bed, bank, and channel of Pismo Creek, the Project will require authorization from the CDFW pursuant to Sections 1600 *et seq.* of the California Fish and Game Code. This authorization will take the form of a Streambed Alteration Agreement, which will contain terms and conditions governing the nature of the impacts allowed, and may include restrictions on the nature or timing of Project activities affecting the stream.

5.3 CENTRAL COASTAL REGIONAL WATER QUALITY CONTROL BOARD

Because the Section 404 Permit for the project cannot be issued without an accompanying CWA Section 401 Water Quality Certification, the project proponent will be required to obtain the required certification from the Central Coast RWQCB prior to carrying out the proposed maintenance. The Water Quality Certification will include conditions intended to ensure that the proposed discharges do not violate state water quality standards.

SECTION 6.0
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2012a. 7.5 minute quadrangle map. Quadrangle Arroyo Grande NE, CA.

2012b.NHD. NHD flowline map. Dated 10/17/12.

APPENDIX A
PHOTO DOCUMENTATION (FEBRUARY AND NOVEMBER 2013)

Photograph 1
Looking west-northwest from center of existing Hyla Crossing structure.
View upstream. February 11, 2013.

Photograph 2
Looking east-southeast from center of existing Hyla Crossing structure.
View downstream. February 11, 2013.

Photograph 3
Looking northwest from center of existing Hyla Crossing structure.
View of riparian vegetation. February 11, 2013.

Photograph 4
Looking southwest from center of existing Hyla Crossing structure.
View of riparian vegetation. February 11, 2013.

Photograph 5
Looking northeast from center of existing Hyla Crossing structure.
View of riparian vegetation. February 11, 2013.

Photograph 6
Looking southeast from center of existing Hyla Crossing structure.
View of riparian vegetation. February 11, 2013.

Photograph 7
Looking south from Pismo Creek bank northeast of Hyla Crossing structure.
View of downstream side of existing Hyla crossing structure. February 11, 2013.

Photograph 8
Looking southeast from Pismo Creek bank northwest of Hyla Crossing structure.
View of upstream side of existing Hyla crossing structure with pooled area
comprised of turbid water. February 11, 2013.

Photograph 9
Looking west from northern bank of Pismo Creek.
View of jurisdictional wetland determination soil pit in relation to surrounding landscape.
Note existing Hyla crossing structure and pooled water in background. February 11, 2013.

Photograph 10
View of jurisdictional wetland determination soil pit. February 11, 2013.

Photograph 11
Looking northeast from southern edge of Pismo Creek riparian area.
View of existing Hyla crossing structure and surrounding riparian vegetation.
February 11, 2013.

Photograph 12
Looking west-northwest from southern edge of Pismo Creek riparian area.
View of concrete embankment and surrounding vegetation. February 11, 2013.

Photograph 13
Looking east-southeast from southern edge of Pismo Creek riparian area.
View of paved access road, riparian vegetation on the lower slope,
and adjacent upland vegetation. February 11, 2013.

Photograph 14
Looking south-southwest from northern edge of Pismo Creek riparian area.
View of existing Hyla Crossing structure, paved access road,
and surrounding riparian vegetation. February 11, 2013.

Photograph 15
Looking west from northern edge of Pismo Creek riparian area.
View of intersection of riparian vegetation and disturbed upland area. February 11, 2013.

Photograph 16
Looking east-southeast from northern edge of Pismo Creek riparian area.
View of intersection of riparian vegetation and disturbed upland area. February 11, 2013.

Photograph 17
Looking southeast from the western side of Pismo Creek.
View of Pismo Creek immediately downstream of the proposed limits of temporary disturbance and adjacent riparian vegetation. November 14, 2013.

Photograph 18
Looking south from northern edge of Pismo Creek riparian area.
View of Pismo Creek and associated riparian vegetation present at the southern extent of the Study Area. November 14, 2013.

APPENDIX B
WETLAND DETERMINATION DATA FORMS – ARID WEST REGION

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site:	AG PXP - Hyla Crossing	City/County:	San Luis Obispo Co	Sampling Date:	2/11/2013
Applicant/Owner:	PXP	State:	CA	Sampling Point:	SP1
Investigator(s):	J. Love, T. Whitsitt	Section, Township, Range:	Corral De Piedra Land Grant		
Landform (hillslope, terrace, etc.):	Creek Bottom	Local Relief (concave, convex, none):	None	Slope (%):	0%
Subregion (LRR):	C	Lat: 35^0 11'5.603"N	Long: 120^0 37'2.023" W	Datum:	NAD83
Soil Map Unit Name:	Arnold loamy sand, 5 to 15 percent slopes	NWI Classification:	PFOC: Palustrine, Forested, Seasonally Floo		

Are climatic/hydrological conditions on the site typical for this time of the year? ☑ Yes ☐ No

Are Vegetation, ☐ Soil, ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" Present? ☑ Yes ☐ No

Are Vegetation, ☐ Soil, ☐ or Hydrology ☐ naturally problematic? (If needed, explain answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☑ Yes	☐ No	**Is the Sampled Area within a Wetland?** ☐ Yes ☑ No
Hydric Soil Present?	☐ Yes	☑ No	
Wetland Hydrology Present?	☑ Yes	☐ No	

Remarks:
Sampling point located on north bank, east of the Hyla Crossing. Sampling point is located on a floodplain terrace.

VEGETATION

Tree Stratum — Plot size: 30' radius	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata/lasiolepis	15	Y	FACW
2. Platanus racemosa	3	N	FAC
3.			
4.			
Total Cover:	18		
Sapling/Shrub Stratum — Plot size: 20' radius			
1. Baccharis salicifolia	3	Y	FAC
2. Platanus racemosa	2	Y	FAC
3. Salix laevigata/lasiolepis	4	Y	FACW
4.			
5.			
Total Cover:	9		
Herb Stratum — Plot size: 10' radius			
1. Equisetum arvense (dormant)	40	Y	FAC
2. Rumex crispus	1	N	FAC
3. Piptatherum miliaceum	2	N	NI
4. Cyperus eragrostis	<1	N	FACW
5. Foeniculum vulgare	1	N	NI
6. Aster - unknown (live and dormant)	1	N	
7.			
8.			
Total Cover:	46		
Woody Vine Stratum — Plot size: 10' radius			
1. Rubus ursinus	25	Y	FAC
2. Delairea odorata	5	N	NI
Total Cover:	30		
% Bare Ground in Herb Stratum: 29	% Cover of Biotic Crust: 0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiplied by:	
OBL species		x1 =	0
FACW species		x2 =	0
FAC species		x3 =	0
FACU species		x4 =	0
UPL species		x5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = #DIV/0!

Hydrophytic Vegetation Indicators:

☑ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☑ Yes ☐ No

Remarks:
California blackberry (RUUR) and Cape ivy (DEOD) overlap; All willows lack leaves for specific identification; however a dtermination that they were either

SALLAS or SALLAE was possible.

SOIL

Sampling Point: SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/1	100%	N/A				SaLo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: _____
Depth (inches): _____

Hydric Soil Present? ☐ Yes ☑ No

Remarks:
Shovel refusal at 12". No hydric soil indicators are present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizopheres along Living Roots (C3)
- ☐ Presence Of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☑ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	☐ Yes	☑ No	Depth (inches): _____
Water Table Present?	☐ Yes	☑ No	Depth (inches): _____
Saturation Present? (Includes capillary fringe)	☐ Yes	☑ No	Depth (inches): _____

Wetland Hydrology Present? ☑ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Surface water is present in the active channel, approximately 7' away; however surface water is not present adjacent to the sampling point. FAC-neutral test is satisfied.

2:1.

APPENDIX C
PLANT SPECIES LIST

TABLE C-1
PLANT SPECIES LIST

Scientific Name	Common Name	Native/Exotic	Wetland Indicator Status[2]
Ambrosia psilostachya	Western ragweed	N	FACU
Apium graveolens	Wild celery	E[1]	UPL
Artemisia douglasiana	Mugwort	N	FAC
Aster sp.	Aster species	–	–
Baccharis pilularis	Coyote bush	N	UPL
Baccharis salicifolia	Mulefat	N	FAC
Brassica nigra	Black mustard	E[1]	UPL
Carduus pycnocephalus	Italian thistle	E[1]	UPL
Carex sp.	Sedge species	N	–
Conium maculatum	Poison hemlock	E[1]	FACW
Cortaderia selloana	Pampas grass	E[1]	FACU
Cyperus eragrostis	Flatsedge	N	FACW
Delairea odorata (*Senecio mikanioides*)	Cape ivy	E[1]	UPL
Equisetum arvense	Common horsetail	N	FAC
Foeniculum vulgare	Sweet fennel	E[1]	UPL
Geranium spp.	Geranium	E[1]	UPL
Heterotheca grandiflora	Telegraph weed	N	UPL
Lamiaceae	Mint species	–	–
Medicago polymorpha	Burclover	E[1]	FACU
Nasturtium officinale	Watercress	N	OBL
Piptatherum miliaceum	Smilo grass	E[1]	UPL
Plantago lanceolata	English plantain	E[1]	FAC
Platanus racemosa	Western sycamore	N	FAC
Quercus agrifolia	Coast live oak	N	UPL
Rubus ursinus	California blackberry	N	FAC
Rumex crispus	Curly dock	E[1]	FAC
Salix laevigata	Red willow	N	FACW
Salix lasiolepis	Arroyo willow	N	FACW
Sambucus nigra (*S. mexicana*)	Blue elderberry	N	FAC
Symphoricarpos spp.	Snowberry species	N	–
Toxicodendron diversilobum	Poison oak	N	UPL
Typha spp.	Cattail	N	OBL
Umbellularia californica	California bay tree	N	FAC
Urtica dioica	Stinging nettle	N	FAC

TABLE C-1 (CONTINUED)
PLANT SPECIES LIST

Scientific Name	Common Name	Native/Exotic	Wetland Indicator Status[2]
Vinca major	Periwinkle	E[1]	UPL
	Unidentifiable non-native grasses	E[1]	–

1 Listed as invasive by Cal-IPC for the southwest region (Cal-IPC 2013).

2 OBL: Obligate Wetland, FACW: Facultative Wetland, FAC: Facultative, FACU: Facultative Upland, UPL: Upland.