Appendix 4.0

Jurisdictional Delineation of State and Federal Jurisdictional Waters

FAITH BIBLE CHURCH

CITY OF WILDOMAR, RIVERSIDE COUNTY, CALIFORNIA

DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

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March 2016
Updated October 2018

FAITH BIBLE CHURCH PROJECT

CITY OF WILDOMAR, RIVERSIDE COUNTY, CALIFORNIA

DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

The undersigned certify that the statements furnished in this report and exhibits present data and information required for this biological evaluation, and the facts, statements, and information presented is a complete and accurate account of the findings and conclusions to the best of our knowledge and beliefs.

Travis J. McGill
Director

Thomas J. McGill, Ph.D.
Managing Director

March 2016
Updated October 2018

Executive Summary

ELMT Consulting (ELMT) has prepared this updated Delineation of State and Federal Jurisdictional report for the Faith Bible Church Project (project) located in the City of Wildomar, Riverside County, California. The initial field work for this delineation was conducted on February 4, 2016. Following the submittal of the delineation to the Western Riverside County Regional Conservation Authority (RCA) Joint Project Review, the United States Fish and Wildlife Service and the California Department of Fish and Wildlife requested a site visit be conducted to verify site conditions and the extent mapped jurisdictional features. Following the site visit with the regulatory agencies, conducted on January 23, 2018, a second field investigation was conducted on February 20, 2018 to ensure all jurisdictional areas discussed in the field with the regulatory agencies were mapped.

Three (3) drainage features (Drainages A, B, and C) were observed within the boundaries of the project site. All drainage features are ephemeral drainage features that eventually discharge into Murrieta Creek, which exhibits a surface hydrologic connection to the Santa Margarita River (Relatively Permanent Water) and ultimately the Pacific Ocean (Traditional Navigable Water). Therefore, Drainages A, B, and C qualify as waters of the United States and falls under the regulatory authority of the Corps, Regional Board, and CDFW. Placement of fill and/ or alteration within this jurisdictional area is subject to Corps, Regional Board, and CDFW jurisdiction and approval. Table ES-1 identifies the on-site jurisdictional features including the total acreage of jurisdiction for each regulatory agency, and total jurisdictional impact of each feature within the boundaries of the project site.

Table ES-1: Jurisdictional Area and Impact Analysis

Jurisdictional Feature	Corps/Regional Board Jurisdiction Non-Wetland Waters		CDFW Jurisdiction Streambed/Riparian	
	On-Site Jurisdiction Acreage (Linear Feet)	Project Impact Acreage (Linear Feet)	On-Site Jurisdiction Acreage (Linear Feet)	Project Impact Acreage (Linear Feet)
Drainage A	0.063 (619)	0.052 (465)	0.082 (1,306)	0.071 (1,152)
Drainage B	0.026 (243)	0.026 (243)	0.097 (820)	0.097 (805)
Drainage C	0.248 (1,135)	0.002 (50)	0.328 (1,135)	0.002 (50)
TOTAL	**0.337 (1,997)**	**0.08 (758)**	**0.507 (3,261)**	**0.17 (2,007)**

Based on current site conditions and design plans, encroachment into jurisdictional areas within Drainage A, B, and C will occur. Therefore, the project applicant must obtain the following regulatory approvals prior to impacts occurring within the identified jurisdictional areas: Corps CWA Section 404 Permit; Regional Board CWA Section 401 Water Quality Certification; and CDFW Section 1602 Streambed Alteration Agreement (SAA). Refer to Sections 1-7 for a detailed analysis of site conditions and regulatory requirements.

Table of Contents

EXHIBITS

TABLES

APPENDIX

LIST OF ACRONYMS

CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
Corps	United States Army Corps of Engineers
CWA	Clean Water Act
ELMT	ELMT Consulting
EPA	Environmental Protection Agency
FAC	Facultative Vegetation
FACU	Facultative Upland Vegetation
FACW	Facultative Wetland Vegetation
GPS	Global Positioning System
IP	Individual Permit
MSL	Mean Sea Level
NEPA	National Environmental Policy Act
NRCS	Natural Resources Conservation Service
NWP	Nationwide Permit
OBL	Obligate Wetland Vegetation
OHWM	Ordinary High Water Mark
Rapanos	Rapanos v. United States
Regional Board	Regional Water Quality Control Board
RPW	Relatively Permanent Waters
SAA	Streambed Alteration Agreement
SWANCC	Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers
SWRCB	State Water Resources Control Board
TNW	Traditional Navigable Water
UPL	Upland Vegetation
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WoUS	Waters of the United States

Section 1 Introduction

This delineation has been prepared for the Faith Bible Church in order to document the jurisdictional authority of the U.S. Army Corps of Engineers' (Corps), the Regional Water Quality Control Board (Regional Board), and the California Department of Fish and Wildlife (CDFW) pursuant to Section 401 and 404 of the Federal Clean Water Act (CWA), the California Porter-Cologne Water Quality Control Act, and Sections 1600 *et seq.* of the California Fish and Game Code[1]. The analysis presented in this report is supported by field surveys and verification of site conditions conducted on February 4, 2016 and February 20, 2018.

This jurisdictional delineation explains the methodology undertaken by ELMT Consulting (ELMT) to define the regulatory authority of the aforementioned regulatory agencies and documents the findings made by ELMT. This report presents our best effort at documenting the jurisdictional boundaries using the most up-to-date regulations, written policy, and guidance from the regulatory agencies. Ultimately the regulatory agencies make the final determination of jurisdictional boundaries.

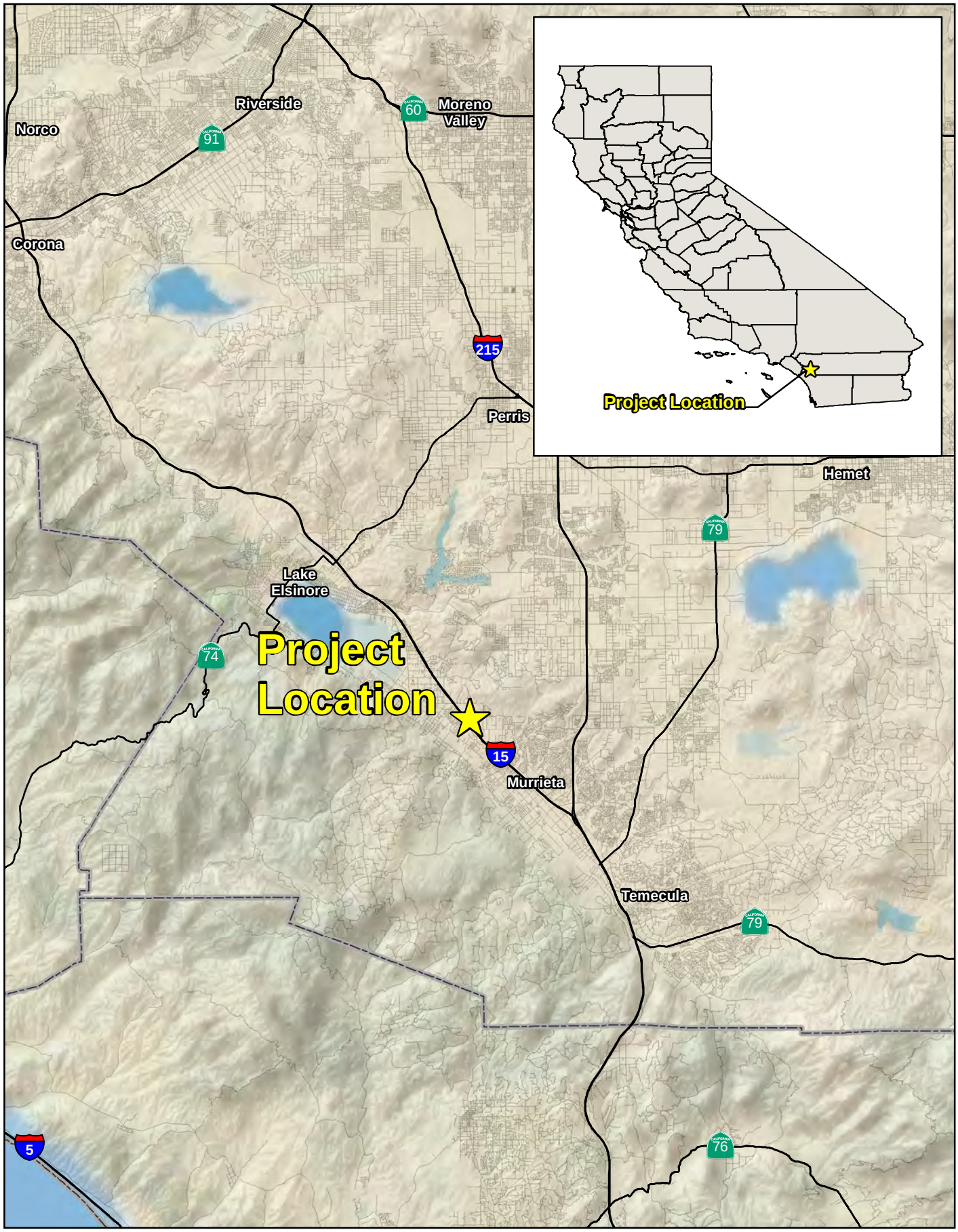
1.1 PROJECT LOCATION

The project site is generally located south of State Route 91, east of Interstate 15, and west of Interstate 215 in the City of Wildomar, Riverside County, California (Exhibit 1, *Regional Vicinity*). The project site is located within the Wildomar and Murrieta quadrangles of the United States Geological Survey's (USGS) 7.5-minute topographic map series in Section 36, Township 6 south, Range 4 west. (Exhibit 2, *Site Vicinity*). Specifically, the project site is located east of Interstate 15, south of Peggy Lane, and north of Glazebrook Road (Exhibit 3, *Project Site*). The project site is composed of two Assessor Parcel Numbers (APNs), 376-410-024 and 376-410-002.

1.2 PROJECT DESCRIPTION

The project proposes the development of a religious institution/community church building and related buildings (Exhibit 4, *Depiction of Proposed Project*). The site plan development will also include three (3) detached single residential family units to house visiting missionaries and their families, classrooms, an equipment room/restrooms, a future outdoor room and gathering area, open space, parking lots, and landscaped areas.

[1] The field surveys for this jurisdictional delineation were conducted on February 4, 2016 and February 20, 2018 pursuant to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0* (Corps 2008); and *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports* (Corps 2017); *The MESA Field Guide: Mapping Episodic Stream Activity* (CDFW 2014); and a *Review of Stream Processes and Forms in Dryland Watersheds* (CDFW 2010).



FAITH BIBLE CHURCH
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

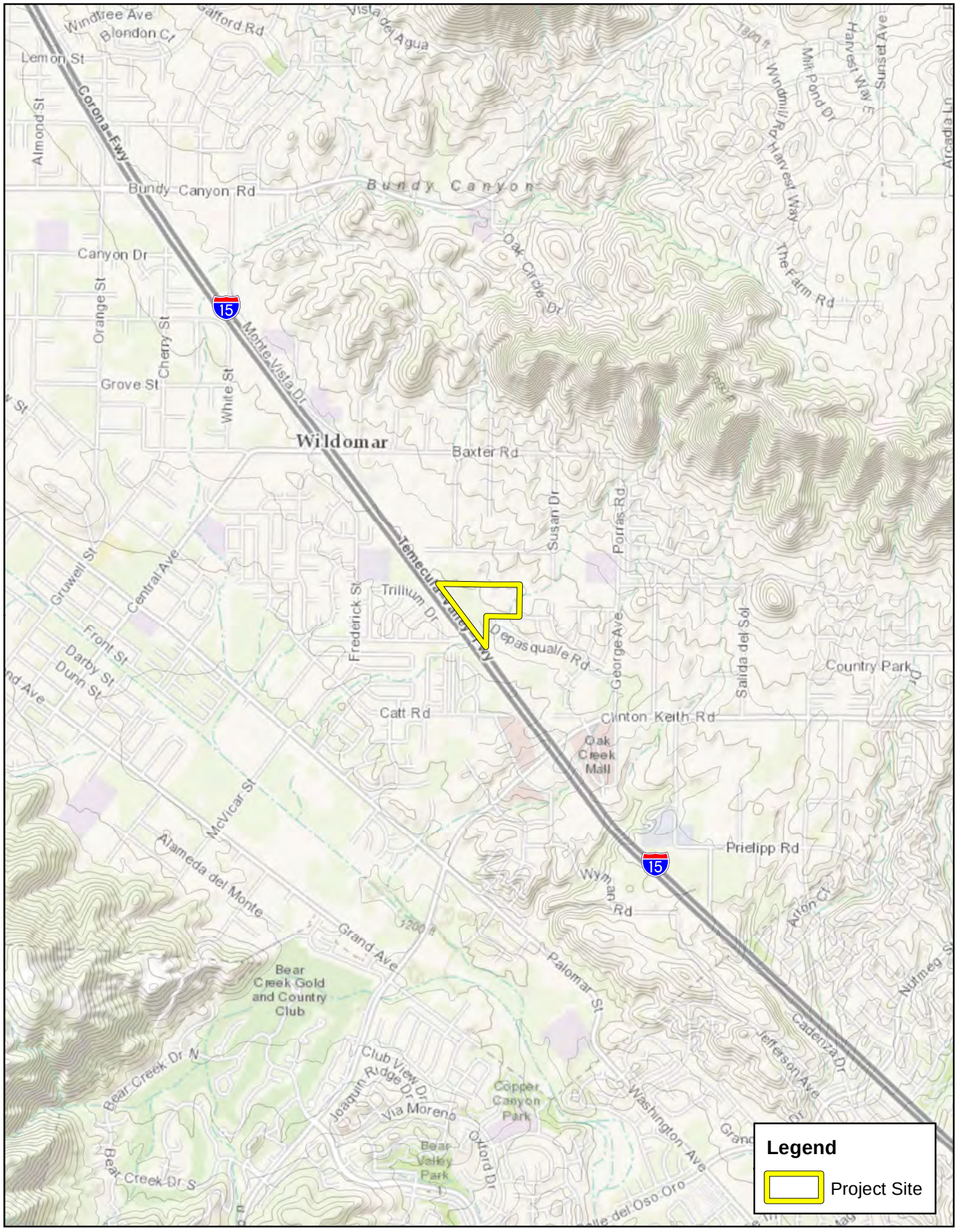
ELMT CONSULTING

0 2.5 5 10 Miles

Source: ESRI Relief Map, National Highway Planning Network

Regional Vicinity

Exhibit 1



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Site Vicinity

ELMT CONSULTING

0 0.25 0.5 1 Miles

Source: Riverside County, ESRI World Topographic Map

Exhibit 2

ELMT CONSULTING

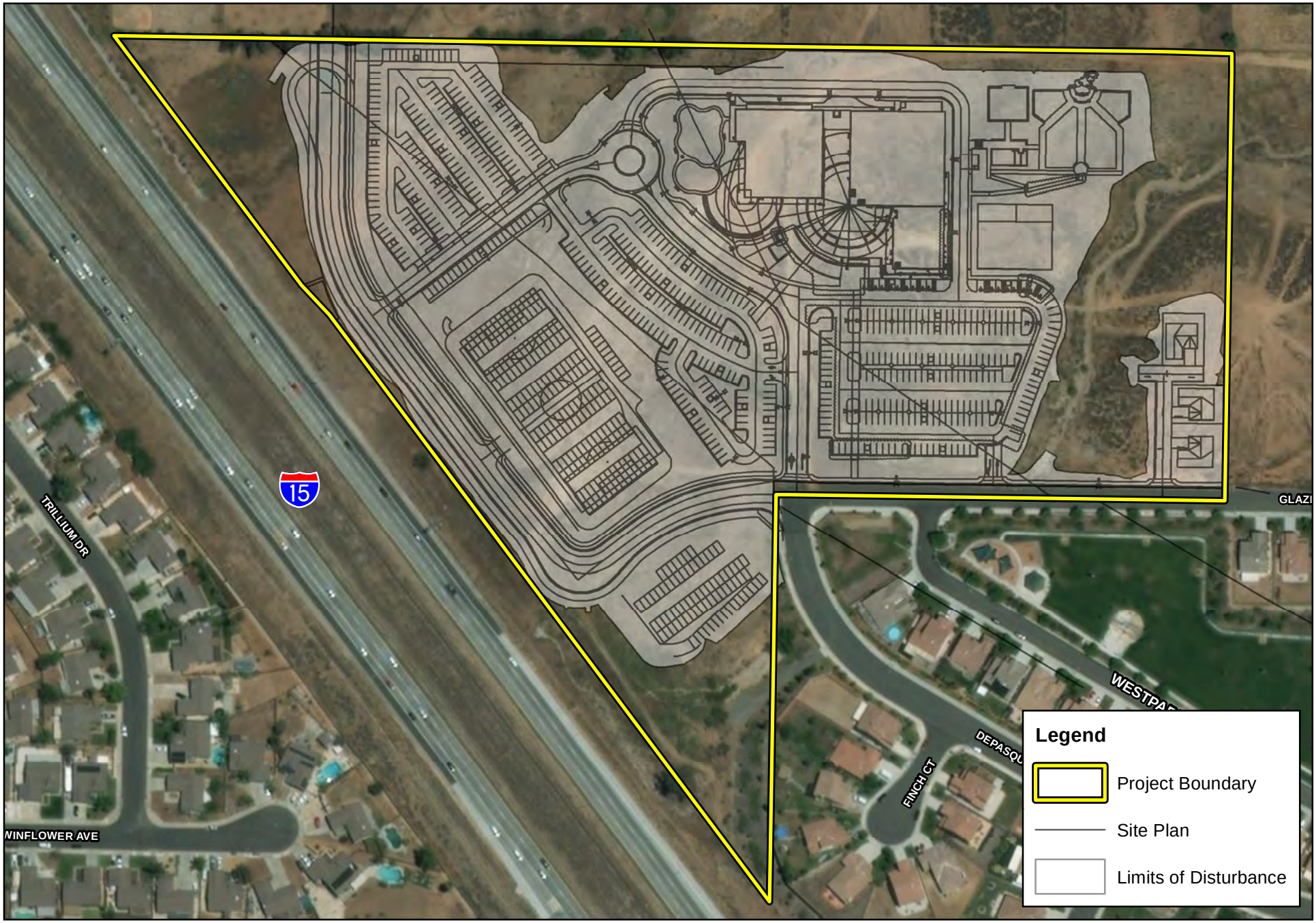
0 100 200 Feet

Source: ESRI Aerial Imagery, Riverside County

FAITH BIBLE CHURCH
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Project Site

Exhibit 3



ELMT CONSULTING

0 100 200 Feet

Source: ESRI Aerial Imagery, Riverside County

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DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Depiction of Proposed Project

Exhibit 4

Section 2 Regulations

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Division regulates activities pursuant to Section 404 of the CWA, Section 10 of the Rivers and Harbors Act, and Section 103 of the Marine Protection, Research, and Sanctuaries Act. The Regional Board regulates activities pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act and the CDFW regulates activities under Sections 1600 *et seq*. of the California Fish and Game Code.

2.1 U.S. ARMY CORPS OF ENGINEERS

Since 1972, the Corps and U.S. Environmental Protection Agency (EPA) have jointly regulated the discharge of dredged or fill material into waters of the United States, including wetlands, pursuant to Section 404 of the CWA. The Corps and EPA define "fill material" to include any "material placed in waters of the United States where the material has the effect of: (i) replacing any portion of a water of the United States with dry land; or (ii) changing the bottom elevation of any portion of the waters of the United States." Examples include, but are not limited to, sand, rock, clay, construction debris, wood chips, and "materials used to create any structure or infrastructure in the waters of the United States." The terms *waters of the United States* and *wetlands* are defined under CWA Regulations 33 Code of Federal Regulations (CFR) §328.3 (a) through (b).

2.2 REGIONAL WATER QUALITY CONTROL BOARD

Pursuant to Section 401 of the CWA, any applicant for a federal license or permit to conduct any activity which may result in any discharge to waters of the United States must provide certification from the State or Indian tribe in which the discharge originates. This certification provides for the protection of the physical, chemical, and biological integrity of waters, addresses impacts to water quality that may result from issuance of federal permits and helps insure that federal actions will not violate water quality standards of the State or Indian tribe. In California, there are nine Regional Boards that issue or deny certification for discharges to waters of the United States and waters of the State, including wetlands, within their geographical jurisdiction. The State Water Resources Control Board (SWRCB) assumes this responsibility when a project has the potential to result in the discharge to waters within multiple Regional Boards.

Additionally, the California Porter-Cologne Water Quality Control Act gives the State very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. The Porter-Cologne Water Quality Control Act has become an important tool post *Solid Waste Agency of Northern Cook County vs. United States Corps of Engineers*[2] (SWANCC) and *Rapanos v. United States*[3] (Rapanos) court cases with respect to the State's regulatory authority over isolated and insignificant

[2] Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, 531 U.S. 159 (2001)
[3] Rapanos v. United States, 547 U.S. 715 (2006)

waters. Generally, any applicant proposing to discharge waste into a water body must file a Report of Waste Discharge in the event that there is no Section 404/401 nexus. Although "waste" is partially defined as any waste substance associated with human habitation, the Regional Board also interprets this to include discharge of dredged and fill material into water bodies.

2.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

Sections 1600 *et seq.* of the California Fish and Game Code establishes a fee-based process to ensure that projects conducted in and around lakes, rivers, or streams do not adversely impact fish and wildlife resources, or, when adverse impacts cannot be avoided, ensures that adequate mitigation and/or compensation is provided. Pursuant to Section 1602 of the California Fish and Game Code, a notification must be submitted to the CDFW for any activity that will divert or obstruct the natural flow or alter the bed, channel, or bank (which may include associated biological resources) of a river or stream or use material from a streambed. This includes activities taking place within rivers or streams that flow perennially or episodically and that are defined by the area in which surface water currently flows, or has flowed, over a given course during the historic hydrologic regime, and where the width of its course can reasonably be identified by physical and biological indicators.

Section 3 Methodology

The analysis presented in this report is supported by field surveys and verification of site conditions conducted on November 29, 2017 and February 8, 2018. ELMT conducted a field delineation to determine the jurisdictional limits of "waters of the United States" and "waters of the State" (including potential wetlands and vernal pools), located within the boundaries of the Project site. While in the field, jurisdictional features were recorded on a aerial base map at a scale of 1" = 50' using topographic contours and visible landmarks as guidelines. Data points were obtained with a Garmin Map62 Global Positioning System to record and identify specific widths for ordinary high water mark (OHWM) indicators and the locations of photographs, soil pits, and other pertinent jurisdictional features, if present. This data was then transferred as a .shp file and added to the Project's jurisdictional exhibits. The jurisdictional exhibits were prepared using ESRI ArcInfo Version 10 software.

Drought conditions have developed over the past three years in California. Evaluation of temporal shifts in vegetation and periodic lack of hydrology indicators during periods of below-normal rainfall, drought conditions, and unusually low winter snowpack is considered during the field review. To the extent possible, the hydrophytic vegetation decision is based on the plant community that is normally present during the wet portion of the growing season in a normal rainfall year. The evaluation of hydrology considers the timing of the site visit in relation to normal seasonal and annual hydrologic variability, and whether the amount of rainfall prior to the site visit has been normal. In drought conditions, direct observation of plants and hydrology indicators may be misleading or problematic, so other methods of making wetland decisions may be appropriate. In general, wetland determinations on difficult or problematic sites must be based on the best information available to the field inspector, interpreted in light of his or her professional experience and knowledge of the ecology of wetlands in the region. Wetland determinations are based on a preponderance of all available information, including in many cases remote sensing and longer term data, not just the field data collected under drought conditions.[4]

3.1 WATERS OF THE UNITED STATES

In the absence of adjacent wetlands, the limits of the Corps jurisdiction in non-tidal waters extend to the OHWM, which is defined 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.*"[5] Indicators of an OHWM are defined in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Corps 2008). An OHWM can be determined by the observation of a natural line impressed on the bank; shelving; changes in the character of the soil; destruction of

[4] Corps Sacramento District, Public Notice SPK-2014-00005, *Guidance on Delineations in Drought Conditions*, February 2014.

[5] CWA regulations 33 CFR §328.3(e).

terrestrial vegetation; presence of litter and debris; wracking; vegetation matted down, bent, or absent; sediment sorting; leaf litter disturbed or washed away; scour; deposition; multiple observed flow events; bed and banks; water staining; and/or change in plant community. The Regional Board shares the Corps' jurisdictional methodology, unless SWANCC or Rapanos conditions are present. In the latter case, the Regional Board considers such drainage features to be jurisdictional waters of the State.

Pursuant to the Corps Wetland Delineation Manual (Corps 1987), the identification of wetlands is based on a three-parameter approach involving indicators of hydrophytic vegetation, hydric soils, and wetland hydrology. In order to qualify as a wetland, a feature must exhibit at least minimal characteristics within each of these three parameters. It should also be noted that both the Regional Board and CDFW follow the methods utilized by the Corps to identify wetlands. For this project location, Corps jurisdictional wetlands are delineated using the methods outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0* (Corps 2008).

3.2 WATERS OF THE STATE

3.2.1 REGIONAL WATER QUALITY CONTROL BOARD

The California *Porter-Cologne Water Quality Control Act* gives the Regional Board very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. The Regional Board shares the Corps' methodology for delineating the limits of jurisdiction based on the identification of OHWM indicators and utilizing the three parameter approach for wetlands.

3.2.2 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

Sections 1600 *et seq*. of the California Fish and Game Code applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State. Generally, the CDFW's jurisdictional limit is not defined by a specific flow event, nor by the presence of OHWM indicators or the path of surface water as this path might vary seasonally. Instead, CDFW's jurisdictional limit is based on the topography or elevation of land that confines surface water to a definite course when the surface water rises to its highest point. Further, the CDFW's jurisdictional limit extends to include any habitat (e.g. riparian), including wetlands and vernal pools, supported by a river, stream, or lake regardless of the presence or absence of hydric soils and saturated soil conditions. For this project location, CDFW jurisdictional limits were delineated using the methods outlined in the *MESA Field Guide* (Brady, III and Vyverberg 2013) and *A Review of Stream Processes and Forms in Dryland Watersheds* (Vyverberg 2010), which were developed to provide guidance on the methods utilized to describe and delineate episodic streams within the inland deserts region of southern California.

Section 4 Literature Review

ELMT conducted a thorough review of relevant literature and materials to preliminarily identify areas that may fall under the jurisdiction of the regulatory agencies. A summary of materials utilized during ELMT's literature review is provided below and in Appendix A. In addition, refer to Section 8 for a complete list of references used throughout the course of this delineation.

4.1 WATERSHED REVIEW

The project site is located within the Murrieta Creek Subwatershed, which is a subset of the larger Santa Margarita Watershed (HUC 18070302). Murrieta Creek flows approximately 10.7 miles southeast of the project site. The size of this river is approximately 11.8 miles long. This reach of the river is considered impaired with copper, iron, manganese, nitrogen, phosphorous, and chlorpyrifos.

The Santa Margarita Watershed encompasses approximately 750 square miles in northern San Diego and southwestern Riverside counties. The watershed is bounded by several mountain ranges, including the Santa Ana and Santa Margarita mountains to the north and the Palomar Mountains to the south. Several tributaries originate on the Santa Rosa Plateau, a region known for its biological diversity and its abundant wetland resources. Currently, this watershed is primarily undeveloped, containing about 20% of urban development and agricultural land use. The upper watershed basin is one of the fastest growing areas in California.

The Santa Margarita Watershed consists of a single major drainage, the Santa Margarita River, which is comprised of several smaller tributaries. The mainstem begins at the confluence of Murrieta and Temecula Creeks. South flowing tributaries include Roblar, Deluz, and Sandia Creeks. Tributaries that flow north into the mainstem include Pechanga and Rainbow Creeks. The Santa Margarita River is approximately 27 miles long and is one of the last undammed rivers in Southern California, making it considered a valuable ecological resource. The mainstem enters the Santa Margarita estuary, which is connected to the Pacific Ocean.

4.2 LOCAL CLIMATE

Riverside County features a somewhat cooler version of a Mediterranean climate, or semi-arid climate, with warm, sunny, dry summers and cool, rainy, mild winters. Relative to other areas in Southern California, winters are colder with frost and with chilly to cold morning temperatures common. Climatological data obtained from nearby weather stations indicates the annual precipitation averages 11.2 inches per year. Almost all of the precipitation in the form of rain occurs in the months between December and March, with hardly any occurring between the months of April and November. The wettest month is February, with a monthly average total precipitation of 3.31 inches, and the driest months are June and July, both with monthly average total precipitation of 0.04 inch. The average maximum and minimum temperatures are 82.6 and 46.5 degrees Fahrenheit (° F) respectively with July and August (monthly average high 100° F) being the hottest months and December (monthly average low 34° F) being the coldest.

4.3 USGS TOPOGRAPHIC QUADRANGLE

The USGS 7.5 Minute Series Topographic Quadrangle maps show geological formations and their characteristics, describing the physical setting of an area through contour lines and major surface features including lakes, rivers, streams, buildings, landmarks, and other factors that may fall under an agency's jurisdiction. Additionally, the maps depict topography through color and contour lines, which are helpful in determining elevations and latitude and longitude within a project site.

The proposed project site is depicted on the Wildomar and Murrieta quadrangles of the United States Geological Survey's (USGS) 7.5-minute topographic map series in Section 36, Township 6 south, Range 4 west. On-site topography ranges from approximately 1,340 to 1,420 feet above mean seal level (msl). No ponds or basins were noted on the topographic map.

4.4 AERIAL PHOTOGRAPH

Prior to the field visits, ELMT reviewed aerial photographs from 2014 to 2018 from Google Earth Imaging for the project site. Aerial photographs can be useful during the delineation process, as the photographs often indicate drainages and vegetation (i.e. riparian vegetation) present within the boundaries of the project site (if any).

According to the aerial photograph, the project site appears to consist of undeveloped land. The eastern side of the project site is bordered by a plot of vacant land. The southern side is bordered by Glazebrook Road and Depasquale Road. The western side is bordered by Interstate 15. The northern side is bordered by semi-developed plots of private land. There is no indication of any steep features within the project site. Drainage A enters the site at the middle of the northern boundary as a feature with a defined streambed with darker green vegetation within the streambed than in the surrounding landscape. The drainage then flows southwest where it dissipates near the middle of the eastern boundary of the project area. An unnamed dirt road travels north off Depasquale Road and cuts east along the northern boundary of the project site. Another unnamed dirt road branches east off this road and transects Drainages B and C. Drainage B enters the project site along the eastern side of the northern boundary. The drainage then flows southwest where it pools near Glazebrook Road, and then spills over the fire road to the west, where it then dissipates into sheet flow. Drainage C enters the project site along the eastern boundary as an earthen feature consisting of a well-defined streambed that is bordered by small amounts of vegetation along the banks. Following the flow path of Drainage C southwest, the drainage enters a box culvert that passes under Glazebrook Road and Depasquale Road, and then exits the box culvert near the southwestern portion of the project site. The drainage then enters another box culvert under Interstate 15 where it exits the project site. Drainage C is more clearly defined than both Drainages A and B. The eastern portion of the project site appears to contain more shrub and dense vegetation than the western portion of the project site, which appears to contain more grassland. A line of trees borders the western end of the northern boundary of the site. Surrounding land uses include residential areas, open space, transportation corridors (Interstate 15), and partially developed

private land. No structures and/or additional improvements are located within the boundaries of the project site.

4.5 SOILS

On-site and adjoining soils were researched prior to the field visits using the U.S. Department of Agriculture National Resources Conservation Service and Soil Survey for Western Riverside Area, California (refer to Appendix A, *Documentation*). Soil surveys furnish soil maps and interpretations originally needed in providing technical assistance to farmers and ranchers; in guiding other decisions about soil selection, use and management; and in planning, research and disseminating the results of the research. In addition, soil surveys are now heavily utilized in order to obtain soil information with respect to potential wetland environments and jurisdictional areas (i.e., soil characteristics, drainage, and color). The following soil series have been reported on site (see Exhibit 5, *Soils*):

- **Cieneba sandy loam, 8 to 15 percent slopes, eroded (ChD):** The Cieneba sandy loam consists of somewhat excessively drained soils formed from material derived from granite and other rocks of similar texture and composition. These soils are found at elevations of 500 to 4,000 feet in a dry subhumid mesothermal climate with warm dry summers and cool moist winters. Mean annual precipitation is 12 to 35 inches. The mean annual air temperature ranges from 57 to 65°F with a frost-free period of 175 to 300 days. In a typical profile for the Cieneba series, the upper 0.5 inch is composed of a loose, grayish brown organic layer. From 0.5 to 10 inches, the soil color is a pale brown (10YR 6/3) fine gravelly loam, and brown (10YR 4/3) when moist; slightly hard and very friable. From 10 to 30 inches the soil color turns into a more reddish yellow and brown color with acid granitic material. Runoff is low to high. Soils in this complex are used for wildlife, recreation, watershed, and incidental grazing.

- **Hanford coarse sandy loam, 2 to 8 percent slopes (HcC):** The Hanford coarse sandy loam consists of well drained soils formed from alluvium derived from granite. These soils are found in alluvial fans with an elevation range from 150 to 900 feet. Mean annual precipitation is 9 to 20 inches. The mean annual air temperature ranges from 63 to 64° F with a frost-free period of 250 to 280 days. In a typical profile for the Hanford series, the upper 18 inches is grayish-brown coase sandy loam. Underlying this is brown, stratified coarse sandly loam and loamy sand. For this soil, 0 to 8 inches is coarse sandy loam, grayish-brown (10YR 5/2) and very dark grayish brown (10YR 3/2) when moist; massive, slightly hard, and very friable. From 8 to 18 inches soils are similar to what is mentioned above, except slightly darker in color. Runoff is low to medium and the erosion hazard is slight to moderate. Soils in this complex are used for irrigated alfalfa, potatoes, and citrus, for dryland grain and pasture, and for home sites.

- **Monserate sandy loam, shallow, 5 to 15 percent slopes, eroded/15 to 25 percent slopes, severely eroded (MnD/MnE):** The Monserate sandy loam consists of moderately to well drained soils formed from alluvium derived from granite. These soils are on flat to moderately steep old

dissected terraces and fans with an elevation range of 700 to 2,500 feet. Mean annual precipitation is 12 to 18 inches. The mean annual air temperature ranges from 62 to 65° F with a frost-free period of 230 to 280 days. In a typical profile for the Monserate series, the top 28 inches consists of a sandy clay loam ranging from brown (7.5YR 5/4) to reddish brown (5YR 5/4) when dry and is a dark reddish brown (2.5YR 3/4) when moist. From 28 to 70 inches the soil consists of a loamy coarse sand ranging from dark brown (10YR 4/3) to yellowish brown (10YR 5/4) when dry and a dark reddish brown (5YR 3/4) when moist. Runoff is slow to rapid. Soils in this complex are used for growing grain, grain hay or pasture, some citrus, and field and truck crops when irrigation water is available.

- **Placentia fine sandy loam, 5 to 15 percent slopes (PlD):** The Placentia fine sandy loam consists of moderately well drained soils formed from alluvium derived from granite. These soils are found mostly in alluvial fans and terraces with an elevation range from 50 to 2,500 feet. Mean annual precipitation is 12 to 18 inches. The mean annual air temperature ranges from 61 to 64° F with a frost-free period of 200 to 300 days. In a typical profile, the surface layer is brown to pale brown fine sandy loam and loam about 18 inches thick. The upper subsoil is brown heavy clay loam about 21 inches thick. The lower subsoil is brown sandy clay loam about 18 inches thick. The available water capacity is 3.0 to 4.5 inches. Runoff is medium, and the erosion hazard is medium. Soils in this complex are used for dryland grain and pasture and for nonfarm purposes.

- **Terrace Escarpments (TeG):** Terrace escaprments consist of steep faces composed of soft coastal sandstone, hard shale, or fine-grained sandstone. This land type is comprised of long, narrow, rocky areas that separate terraces from lower lying land. They are normally found at elevations of 1,035 to 2,800 feet on slopes ranging from 0 to 90 percent. The mean annual air temperature is 49° F with a mean annual precipitation from 11 to 25 inches. The frost-free season is about 100 to 170 days. This land type is used mainly as wildlife habitat.

4.6 HYDRIC SOILS LIST OF CALIFORNIA

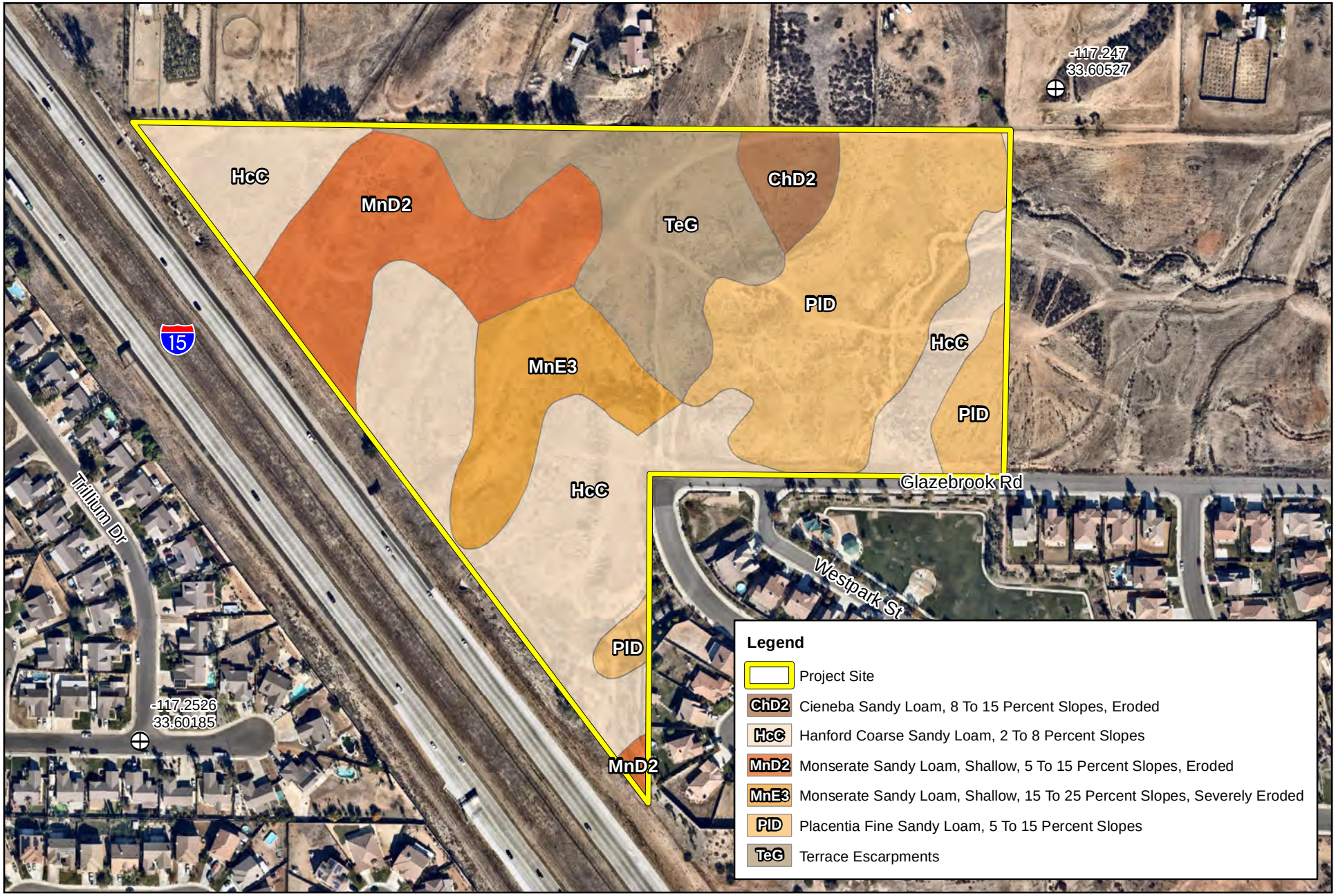
ELMT reviewed the Hydric Soils List of California, provided by the NRCS, in an effort to verify whether or not on-site soils are considered to be hydric. It should be noted that lists of hydric soils along with soil survey maps are good off-site ancillary tools to assist in wetland determinations, but they are not a substitute for onsite investigations. According to the soils list, Placentia fine sandy loam (PlD) is considered hydric.

4.7 NATIONAL WETLANDS INVENTORY

ELMT reviewed the U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory maps. No wetland or riparian areas are reported within the boundaries of the project site. Refer to Appendix A, *Documentation*.

4.8 FLOOD ZONE

ELMT searched the Federal Emergency Management Act website for flood data for the project site. Based on Flood Insurance Rate Map Nos. 06065C2682G and 06065C2705G, the project site is located outside of the 100-year flood zone. Refer to Appendix A, *Documentation*.



FAITH BIBLE CHURCH
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Soils

ELMT CONSULTING

0 150 300 600 Feet

Source: Riverside County, NRCS Soil Datamart ca-678, NearMaps Aerial

Exhibit 5

Section 5 Site Conditions

The initial field work for this delineation was conducted on February 4, 2016 to characterize site conditions and document potential jurisdictional areas. A second field investigation was conducted on February 20, 2018 to ensure all jurisdictional areas discussed in the field with the regulatory agencies during the January 23, 2018 site visit were mapped. The weather during the surveys was sunny with clear skies with temperatures ranging from approximately 50 to 70 °F. ELMT field staff encountered no limitations during the field delineation. Refer to Appendix B for representative photographs taken throughout the project site.

5.1 JURISDICTIONAL FEATURES

5.1.1 DRAINAGE FEATURES

Drainage A

Drainage A is an unnamed ephemeral drainage that flows in a north to south direction across the western half of the project site and extends for approximately 600 feet before dissipating and transitioning to sheet flow. From this point, there are no indicators of OHWM or fluvial processes and the feature becomes non-jurisdictional. Flows from Drainage A have the potential to reach the culvert at the southwest corner of the project site, but are not frequent enough to create an OHWM or well-defined streambed. Drainage A does not meet wetland requirements; however, it is still considered jurisdictional waters under the Corps, Regional Board, and CDFW.

The in-channel vegetation consisted of mostly native species. The dominant plants along the majority of the channel are deerweed (*Acmispon glaber*, UPL) and California buckwheat (*Eriogonum fasciculatum*, FACU). Some less dominant plant species found throughout this drainage include mulefat (*Baccharis salicifolia*, FAC), white sage (*Salvia apiana*, UPL), black sage (*Salvia mellifera*, UPL), and Fremont's cottonwood (*Populus fremontii*, FAC). There was a small amount of non-native vegetation present along the banks and on the upland areas of the site. The majority of non-native vegetation occurred in the upland portion of the site. Non-native vegetation found along the banks and upland areas include Italian thistle (*Carduus pycnocephalus*, UPL) and short prodded mustard (*Brassica geniculate*, UPL).

Drainage B

Drainage B is an unnamed ephemeral drainage that flows in a north to south direction across the entire project site. Drainage B enters the project site on the northern boundary before ponding in the center of the project site approximately 200 feet north of the intersection of Glazebrook Road and Depasqualle Road. Drainage B then dissipates into a sheet flow briefly, and then extends for approximately 203 feet to the west before it fans out across the western half of the project site. It should be noted that portions of Drainage B have been created from stormwater run-off from Glazebrook Road and Depasqualle Road. Drainage B does not meet wetland requirements; however, it is still considered jurisdictional waters under the Corps, Regional Board, and CDFW

The vegetation assemblage of Drainage B was similar to the vegetation assemblage of Drainage A.

Drainage C

Drainage C is an unnamed ephemeral drainage that enters the project site on the eastern boundary of the project site and extends approximately 625 linear feet to the southwest before flowing under Glazebrook Road and Depsaqualle Road via a 6-foot concrete box culvert. Drainage C then continues for approximately 488 linear feet to the west where it flows out of the box culvert onto the southwest corner of the project site. From this point, flows dissipate into sheet flow and are conveyed offsite through two small erosional features, before discharging off-site into another 6-foot concrete box culvert under Interstate 15, on the western boundary of the project site. Flows continue southwest via flood control channels to the Murrieta Creek, a jurisdictional water (approximately 1 mile southwest). The drainage is lined with a streambed substrate consisting of sand and pebbles and is covered in predominantly native vegetation. No surface water was present within the drainage during the site visit; however, evidence of an OHWM was observed via scour holes, changes in particle size distribution, and presence of a bed and bank. Drainage C does not meet wetland requirements; however, it is still considered jurisdictional waters under the Corps, Regional Board, and CDFW.

The vegetation assemblage of Drainage C was similar to the vegetation assemblage of drainage A.

5.1.2 WETLAND FEATURES

In order to qualify as a wetland, a feature must exhibit all three wetland parameters (i.e., vegetation, soils, and hydrology) described in the Corps Arid West Regional Supplement. Although evidence of hydrology (i.e., surface water) was present within portions of the Drainage A, B, and C during the field surveys, these areas were primarily dominated by upland/facultative upland plant species and lacked the necessary amount of hydrophytic vegetation to meet the wetland vegetation parameter. Therefore, no wetland features are anticipated to occur on the project site. Within the project site, water does not persist long enough to create hydric soil conditions. Therefore, no soil pits were dug at the project site.

Section 6 Findings

This report presents ELMT's best effort at determining the extent of jurisdictional features using the most up-to-date regulations, written policy, and guidance from the regulatory agencies. Please refer to the following sections for a summary of jurisdictional areas within the Project site.

6.1 U.S. ARMY CORPS OF ENGINEERS DETERMINATION

6.1.1 WATERS OF THE UNITED STATES DETERMINATION

Drainages A, B, and C discharge into Murrieta Creek, which exhibits a surface hydrologic connection to the Santa Margarita River (Relatively Permanent Water) and ultimately the Pacific Ocean (Traditional Navigable Water). Therefore, Drainages A, B, and C qualify as waters of the United States and falls under the regulatory authority of the Corps.

Approximately 0.337 acre (1,997 linear feet) of Corps jurisdiction (non-wetland waters) is located within the boundaries of the project site. Based on preliminary site plans, approximately 0.08 acre (758 linear feet) of Corps jurisdiction will be impacted by the proposed project. Refer to Table 1 for a summary of on-site jurisdictional areas and impacts, and Exhibit 6, *Corps/Regional Board Jurisdictional Areas and Impact Map*, for an illustration of on-site Corps jurisdictional areas.

Table 1: Corps Jurisdictional Non-Wetland Waters and Impact Analysis

Jurisdictional Feature	Corps Jurisdiction Non-Wetland Waters	
	On-Site Jurisdiction Acreage (Linear Feet)	Project Impact Acreage (Linear Feet)
Drainage A	0.063 (619)	0.052 (465)
Drainage B	0.026 (243)	0.026 (243)
Drainage C	0.248 (1,135)	0.002 (50)
TOTAL	**0.337 (1,997)**	**0.08 (758)**

6.1.2 WETLAND DETERMINATION

As previously noted, an area must exhibit all three wetland parameters described in the Corps Arid West Regional Supplement to be considered a jurisdictional wetland. Based on the results of the field delineation, it was determined that no areas within the project site met all three wetland parameters. Therefore, no jurisdictional wetland features exist within the project site.

6.2 REGIONAL WATER QUALITY CONTROL BOARD

No isolated or Rapanos conditions were observed within the boundaries of the Project site. Therefore, the Regional Board jurisdictional limit follows that of the Corps. Approximately 0.337 acre (1,997 linear feet) of Regional Board jurisdiction (non-wetland waters) is located within the boundaries of the project site. Based on preliminary site plans, approximately 0.08 acre (758 linear feet) of Regional Board jurisdiction will be impacted by the proposed project. Refer to Table 2 for a summary of on-site jurisdictional areas and impacts, and Exhibit 6, *Corps/Regional Board Jurisdictional Areas and Impact Map*, for an illustration of on-site Regional Board jurisdictional areas.

Table 2: Regional Board Jurisdictional Non-Wetland Waters and Impact Analysis

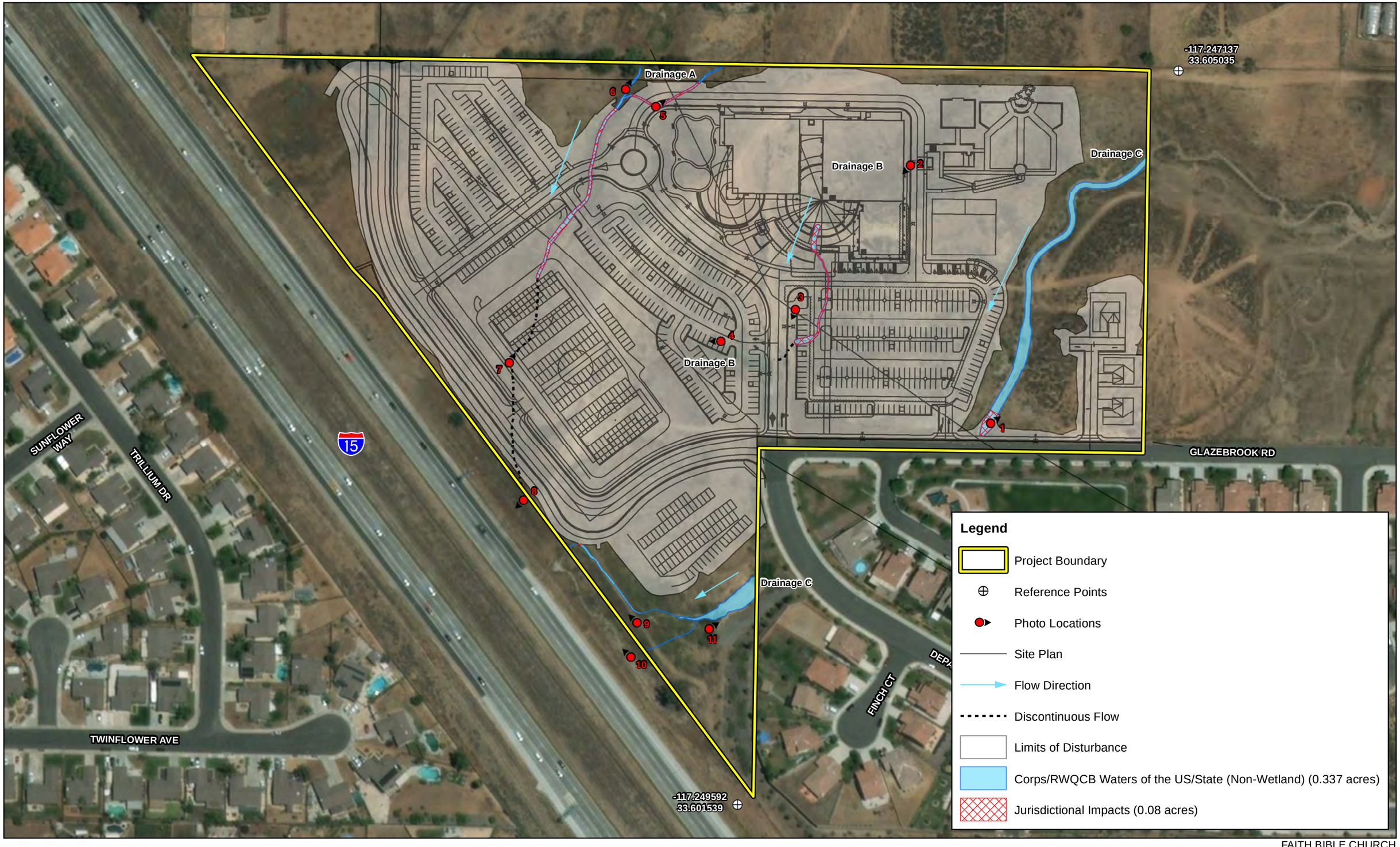
Jurisdictional Feature	Regional Board Jurisdiction Non-Wetland Waters	
	On-Site Jurisdiction Acreage (Linear Feet)	Project Impact Acreage (Linear Feet)
Drainage A	0.063 (619)	0.052 (465)
Drainage B	0.026 (243)	0.026 (243)
Drainage C	0.248 (1,135)	0.002 (50)
TOTAL	**0.337 (1,997)**	**0.08 (758)**

6.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

Drainages A, B, and C exhibit characteristics consistent with CDFW's methodology and would be considered CDFW streambed/riparian totaling approximately 0.507 acre (3,261 linear feet) within boundaries of the project site. Based on preliminary site plans, approximately 0.17 acre (2,007 linear feet) of CDFW jurisdiction will be impacted by the proposed Project. Refer to Table 3 for a summary of on-site jurisdictional streambed and impacts, and Exhibit 7, *CDFW Jurisdictional Streambed and Impact Map*, for an illustration of on-site CDFW jurisdictional areas.

Table 3: CDFW Jurisdictional Streambed and Impact Analysis

Jurisdictional Feature	CDFW Jurisdiction Streambed/Riparian	
	On-Site Jurisdiction Acreage (Linear Feet)	Project Impact Acreage (Linear Feet)
Drainage A	0.082 (1,306)	0.071 (1,152)
Drainage B	0.097 (820)	0.097 (805)
Drainage C	0.328 (1,135)	0.002 (50)
TOTAL	**0.507 (3,261)**	**0.17 (2,007)**



ELMT CONSULTING

0 100 200 Feet

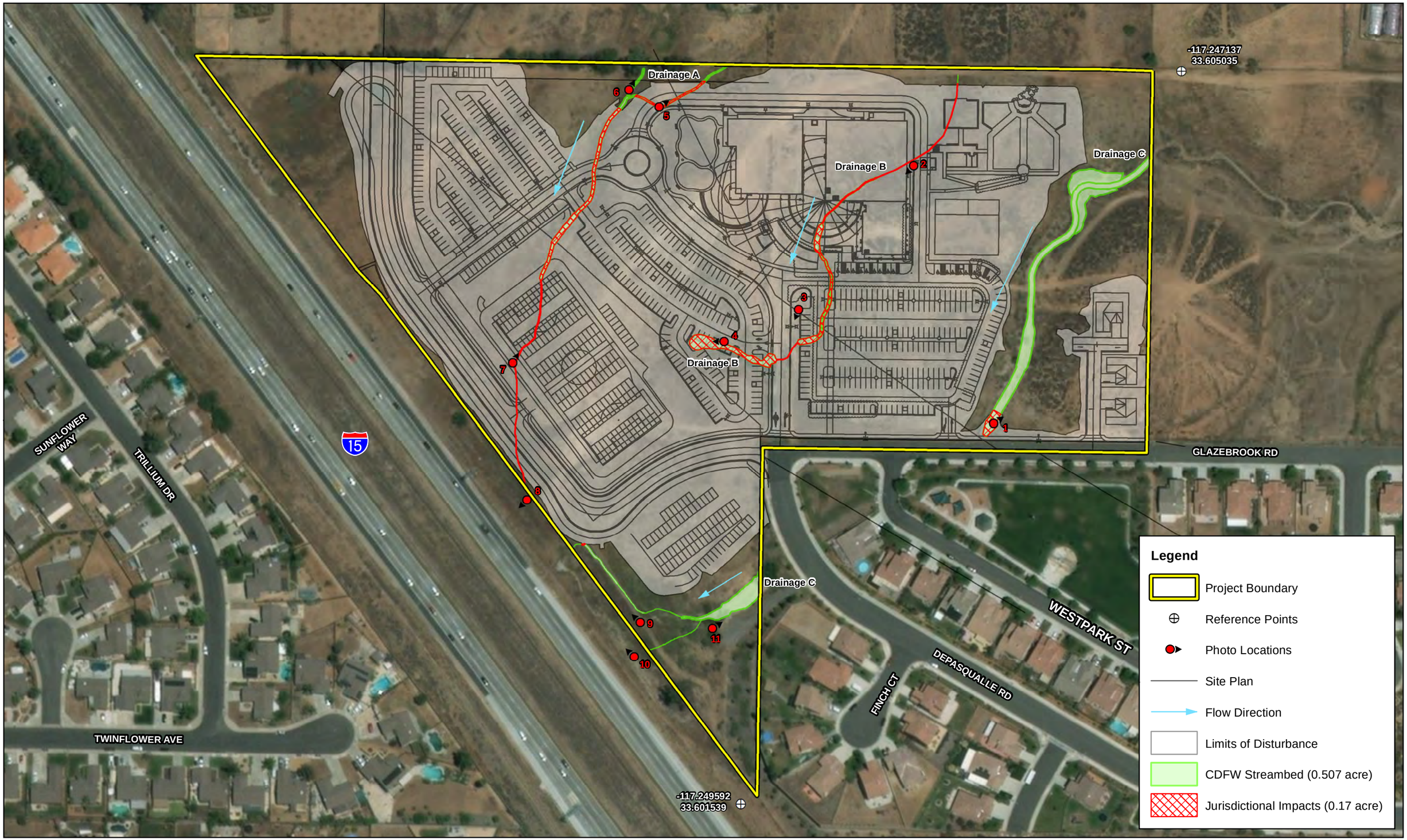
Source: ESRI Aerial Imagery, Riverside County

FAITH BIBLE CHURCH

DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Corps/Regional Board Jurisdictional Areas & Impact Map

Exhibit 6



ELMT CONSULTING

0 100 200 Feet

Source: ESRI Aerial Imagery, Riverside County

FAITH BIBLE CHURCH

DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

CDFW Jurisdictional Streambed & Impact Map

Exhibit 7

Section 7 Regulatory Approval Process

The following is a summary of the various permits, certifications, and agreements that may be necessary prior to construction and/or alteration within jurisdictional areas. Ultimately the regulatory agencies make the final determination of jurisdictional boundaries and permitting requirements.

7.1 U.S. ARMY CORPS OF ENGINEERS

The Corps regulates discharges of dredged or fill materials into waters of the United States, including wetlands, pursuant to Section 404 of the CWA. Therefore, any impacts to on-site jurisdictional areas will require a CWA Section 404 permit prior to project implementation.

In order to qualify for the Corps Nationwide Permit (NWP) program, project impacts to "waters of the United States" typically need to be under a designated acre threshold (typically 0.5 acre). If project impacts exceed the acreage threshold then a Standard Individual Permit (IP) with the Corps would need to be processed. The NWPs are a streamlined process that already have supporting National Environmental Protection Agency (NEPA) compliance completed. If a project does not meet the requirements of the NWPs then IP will need to be processed, which requires its own NEPA compliance document.

In accordance with the Corps Los Angeles District Regional Conditions for the 2017 NWPs, the following conditions apply to projects within the Murrieta Creek Watershed:

> *Within the Murrieta Creek and Temecula Creek Watersheds in Riverside County the use of NWPs 29, 39, 42 and 43, and NWP 14 combined with any of those NWPs shall be restricted. The permanent impact or loss of stream bed plus any other losses of jurisdictional wetlands and non-wetland waters of the U.S. caused by the NWP activity cannot exceed 0.25 acre. The definition of "loss" for this regional condition is the same as the definition of "loss of waters of the United States" used for the Nationwide Permit Program.*

Since the proposed project will impact less than the 0.25 acre, impacts to Corps jurisdictional areas can be authorized via the NWP Program. It is anticipated that the project can be authorized via Nationwide Permit (NWP) No. 39: *Commercial and Institutional Developments*. It should be noted that NWP No. 39 has a linear foot impact threshold of 300 linear feet for all intermittent and ephemeral streams. However, the Corps can waive this threshold upon request through the submission of a Section 404 pre-construction notification.

7.2 REGIONAL WATER QUALITY CONTROL BOARD

The Regional Board regulates discharges to surface waters pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act. Any impacts to on-site jurisdictional areas will require a CWA Section 401 Water Quality Certification prior to project implementation. Therefore, it will

be necessary for the applicant to acquire a CWA Section 401 Water Quality Certification prior to impacts occurring within Regional Board jurisdictional areas. The Regional Board also requires that California Environmental Quality Act (CEQA) compliance be obtained prior to obtaining the 401 Certification. A Regional Board Application fee is required with the application package and is calculated based on the acreage and linear feet of jurisdictional impacts.

7.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

Pursuant to Section 1602 of the California Fish and Game Code, the CDFW regulates any activity that will divert or obstruct the natural flow or alter the bed, channel, or bank (which may include associated biological resources) of a river or stream. Therefore, any impacts to the on-site jurisdictional areas will require a Section 1602 Streambed Alteration Agreement from the CDFW prior to project implementation. The notification will require a processing fee which is based on the term and cost of the proposed Project. It should also be noted that the CDFW requires that the payment of the process fee be paid and CEQA compliance be obtained prior to the issuance of the final Section 1602 Streambed Alteration Agreement.

7.4 RECOMMENDATIONS

It is recommended that this delineation be forwarded to the regulatory agencies for their review and concurrence. The concurrence/receipt would solidify findings noted within this report.

Section 8 References

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Appendix A Documentation

U.S. Fish and Wildlife Service

National Wetlands Inventory

Faith Bible Church

Mar 7, 2016

Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

- Herbaceous
- Forested/Shrub

Riparian Status

- Digital Data

User Remarks:

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0 North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was Universal Transverse Mercator (UTM) zone 11. The horizontal datum was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional discrepancies in map features across jurisdiction boundaries. These discrepancies do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information on bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12,000. Year photographs used: 1994 or later.

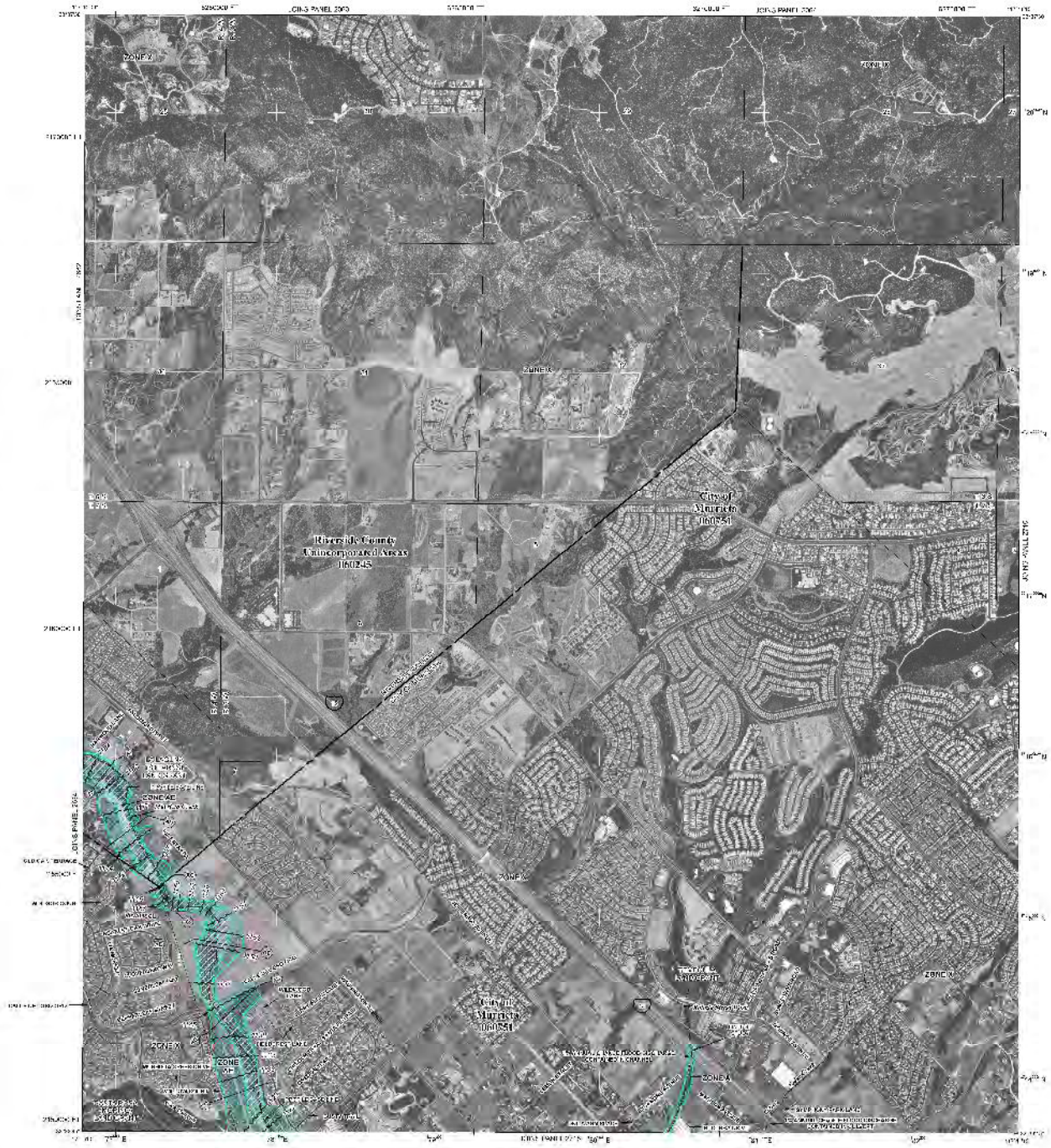
This map may reflect more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed Map Index for an overview map of the county showing the layout of map panels; community map repository addresses; and a listing of communities participating in the National Flood Insurance Program and their effective dates. For the latest product information about National Flood Insurance Program flood maps, check the FEMA Map Service Center website at http://msc.fema.gov.

Contact the FEMA Map Service Center at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov.

If you have questions about this map or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Special Flood Hazard Areas include Zones A, AE, AH, AO, A1-A30, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A — No Base Flood Elevations determined.

ZONE AE — Base Flood Elevations determined.

ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE A99 — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Base Flood Elevation value where uniform within zone; elevation in feet*
- Base Flood Elevation value where uniform within zone; elevation in feet* (EL 987)
- Cross section line
- Transect line
- 97°07'45", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 1000-meter Universal Transverse Mercator grid values, zone 11
- 5000-foot grid ticks: California State Plane Coordinate System, Zone VI (FIPSZONE 0406), Lambert Conformal Conic projection
- DX5510 — Bench mark (see explanation in accompanying publication)
- M1.5 — River mile

*Referenced to the North American Vertical Datum of 1988

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP: AUGUST 28, 2008

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

300 0 1000 2000 FEET
150 0 300 600 METERS

NFIP

PANEL 2705G

FIRM

FLOOD INSURANCE RATE MAP

RIVERSIDE COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 2705 OF 3805

(SEE FAT NOTES FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
RIVERSIDE COUNTY, UNINCORPORATED AREAS	060245	2705	G
CITY OF MURRIETA	060254	2705	G

Notice to User: The Map Number shown below should be used when placing flood insurance orders. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
06065C2705G

EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

NOTES TO USERS

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NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282
(301) 713-3242

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Base map information shown on this FIRM was derived from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12000 from photographs dated 10/4/04 and 2005.

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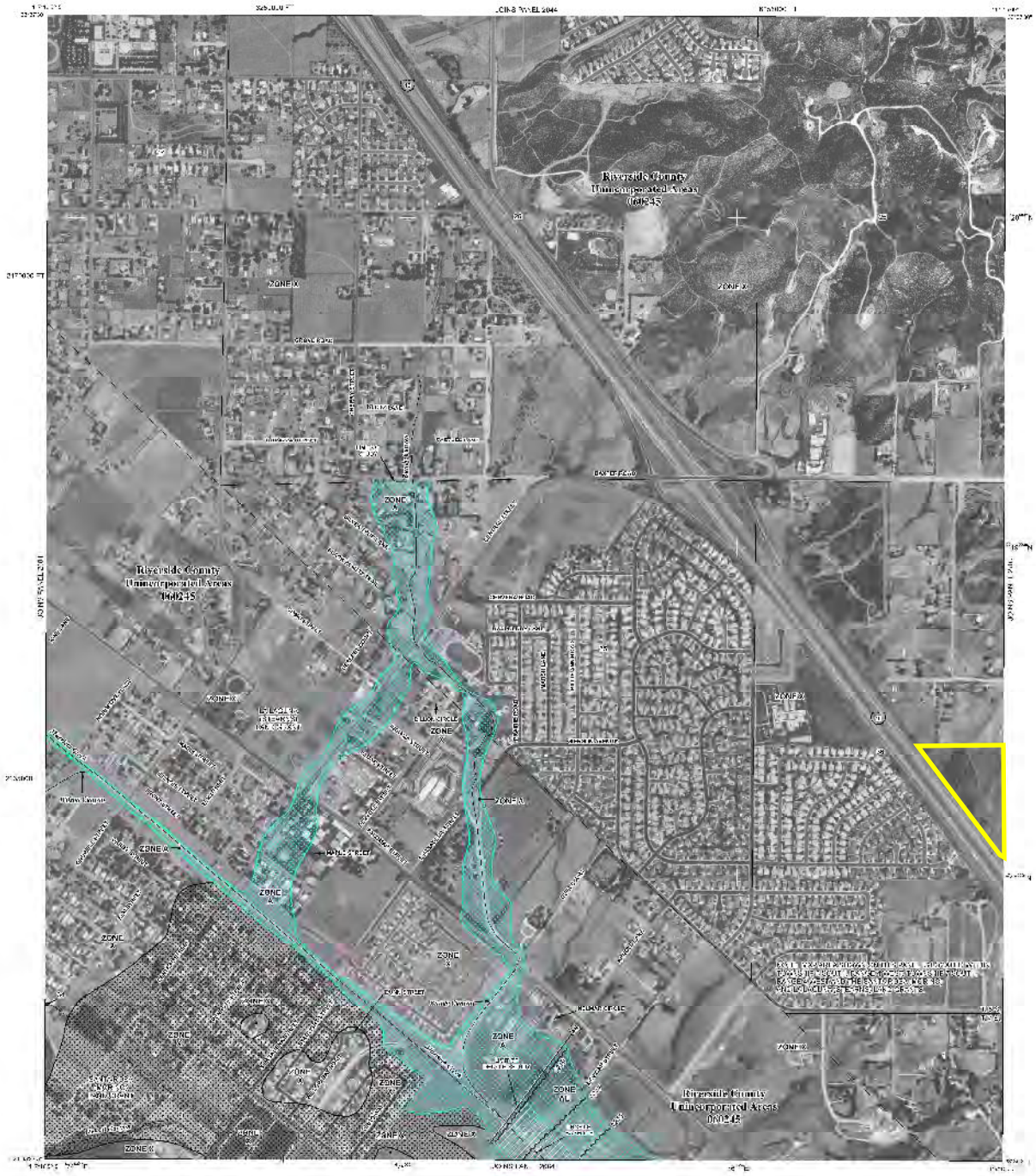
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed Map Index for an overview map of the county showing the layout of maps it contains. For those counties and communities that participate in the National Flood Insurance Program that do not have a printed Map Index, a Publication Panel Map is printed instead.

Contact the FEMA Map Service Center at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov.

For community and countywide map dates refer to the Publication Panel Map. To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

If you have questions about this map or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.



LEGEND

ZONE A — No Base Flood Elevations determined.

ZONE AE — Base Flood Elevations determined.

ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

Base Flood Elevation line and value; elevation in feet*

Base Flood Elevation value where uniform within zone; elevation in feet*

(EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere

1000-meter Universal Transverse Mercator grid values, zone 11

5000-foot grid ticks: California State Plane coordinate system, Zone VI (FIPSZONE 0406), Lambert Conformal Conic projection

DX5510 — Bench mark (see explanation in accompanying publication)

• M1.5 — River mile

MAP SCALE 1" = 500'

PANEL 2682G

FIRM

FLOOD INSURANCE RATE MAP

RIVERSIDE COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 2682 OF 3805

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
RIVERSIDE COUNTY, UNINCORPORATED AREAS	060245	2682	G

MAP NUMBER
06065C2682G

EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Western Riverside Area, California

Faith Bible Church

March 7, 2016

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:3,330 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 45 90 180 270

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Western Riverside Area, California
Survey Area Data: Version 8, Sep 22, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 24, 2015—Feb 26, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Western Riverside Area, California (CA679)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
ChD2	Cieneba sandy loam, 8 to 15 percent slopes, eroded	0.8	3.1%
HcC	Hanford coarse sandy loam, 2 to 8 percent slopes	8.3	33.5%
MnD2	Monserate sandy loam, shallow, 5 to 15 percent slopes, eroded	3.7	15.0%
MnE3	Monserate sandy loam, shallow, 15 to 25 percent slopes, severely eroded	2.2	8.7%
PlD	Placentia fine sandy loam, 5 to 15 percent slopes	5.9	23.9%
TeG	Terrace escarpments	3.9	15.9%
Totals for Area of Interest		**24.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially

where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Western Riverside Area, California

ChD2—Cieneba sandy loam, 8 to 15 percent slopes, eroded

Map Unit Setting

National map unit symbol: hcsb
Elevation: 500 to 4,000 feet
Mean annual precipitation: 12 to 35 inches
Mean annual air temperature: 57 to 64 degrees F
Frost-free period: 200 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Cieneba and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cieneba

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Residuum weathered from igneous rock

Typical profile

H1 - 0 to 14 inches: sandy loam
H2 - 14 to 22 inches: weathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Natural drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: SHALLOW LOAMY (1975) (R019XD060CA)

Minor Components

Friant

Percent of map unit: 5 percent

Vista

Percent of map unit: 5 percent

Fallbrook
Percent of map unit: 5 percent

HcC—Hanford coarse sandy loam, 2 to 8 percent slopes

Map Unit Setting
National map unit symbol: hcw2
Elevation: 150 to 900 feet
Mean annual precipitation: 9 to 20 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 250 to 280 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Hanford and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hanford

Setting
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile
H1 - 0 to 8 inches: coarse sandy loam
H2 - 8 to 40 inches: fine sandy loam
H3 - 40 to 60 inches: stratified loamy sand to coarse sandy loam

Properties and qualities
Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 7.0 inches)

Interpretive groups
Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: SANDY (R020XD012CA)

Minor Components

Greenfield
Percent of map unit: 5 percent

Ramona
Percent of map unit: 5 percent

Tujunga
Percent of map unit: 2 percent

Unnamed
Percent of map unit: 2 percent

Unnamed
Percent of map unit: 1 percent

MnD2—Monserate sandy loam, shallow, 5 to 15 percent slopes, eroded

Map Unit Setting
National map unit symbol: hcx8
Elevation: 700 to 2,500 feet
Mean annual precipitation: 10 to 18 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 220 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition
Monserate and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Monserate

Setting
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile
H1 - 0 to 10 inches: sandy loam
H2 - 10 to 18 inches: sandy clay loam
H3 - 18 to 45 inches: indurated
H4 - 45 to 57 inches: cemented
H5 - 57 to 70 inches: loamy coarse sand

Properties and qualities
Slope: 5 to 15 percent
Depth to restrictive feature: 10 to 20 inches to duripan
Natural drainage class: Well drained

Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 2.5 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: SHALLOW LOAMY (1975) (R019XD060CA)

Minor Components

Greenfield
Percent of map unit: 5 percent

Hanford
Percent of map unit: 5 percent

Tujunga
Percent of map unit: 5 percent

MnE3—Monserate sandy loam, shallow, 15 to 25 percent slopes, severely eroded

Map Unit Setting
National map unit symbol: hcx9
Elevation: 700 to 2,500 feet
Mean annual precipitation: 10 to 18 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 220 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition
Monserate and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Monserate

Setting
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium derived from granite

Typical profile
H1 - 0 to 10 inches: sandy loam

H2 - 10 to 18 inches: sandy clay loam
H3 - 18 to 45 inches: indurated
H4 - 45 to 57 inches: cemented
H5 - 57 to 70 inches: loamy coarse sand

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 10 to 20 inches to duripan
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: SHALLOW LOAMY (1975) (R019XD060CA)

Minor Components

Greenfield

Percent of map unit: 5 percent

Hanford

Percent of map unit: 5 percent

Tujunga

Percent of map unit: 5 percent

PID—Placentia fine sandy loam, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: hcxw
Elevation: 50 to 2,500 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 200 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Placentia and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Placentia

Setting

Landform: Alluvial fans, terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 18 inches: fine sandy loam
H2 - 18 to 39 inches: clay
H3 - 39 to 57 inches: clay loam
H4 - 57 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 50.0
Available water storage in profile: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: CLAYPAN (1975) (R019XD061CA)

Minor Components

Greenfield

Percent of map unit: 5 percent

Hanford

Percent of map unit: 5 percent

Ramona

Percent of map unit: 4 percent

Unnamed, ponded

Percent of map unit: 1 percent
Landform: Depressions

TeG—Terrace escarpments

Map Unit Composition

Terrace escarpments: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Terrace Escarpments

Setting

Landform: Terraces
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium derived from mixed sources

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Ecological site: SHALLOW LOAMY (1975) (R019XD060CA)

References

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Appendix B Site Photographs

Photograph 1: Drainage C box culvert adjacent to Glazebrook Road, facing southwest (downstream).

Photograph 2: Drainage B, facing southwest (downstream).

Photograph 3: Ponded area within Drainage B, facing south-southwest (downstream).

Photograph 4: Terminus of Drainage B, facing west (downstream).

Photograph 5: Drainage A entering the project site, facing northeast (upstream).

Photograph 6: A portion of Drainage A entering the project site, facing north-northeast (upstream).

Photograph 7: Facing northeast at the downstream portion of Drainage A that sheet flows.

Photograph 8: Looking southeast at the portion of Drainage A that flows off-site and into the culvert under Interstate 15.

Photograph 9: Looking southwest at the downstream portion of Drainage C before it flows offsite.

Photograph 10: Looking northwest at the portion of Drainage C that flows off-site and into the culvert under Interstate 15.

Photograph 11: Drainage C where it exits under Depasquale Road.

Appendix C Methodology

WATERS OF THE UNITED STATES

Since 1972, the Corps and EPA have jointly regulated the filling of waters of the United States, including wetlands, pursuant to Section 404 of the CWA. The Corps has regulatory authority over the discharge of dredged or fill material into the waters of the United States under Section 404 of the CWA. The Corps and EPA define "fill material" to include any "material placed in waters of the United States where the material has the effect of: (i) replacing any portion of a water of the United States with dry land; or (ii) changing the bottom elevation of any portion of the waters of the United States." Examples include, but are not limited to, the placement of sand, rock, clay, construction debris, wood chips, and "materials used to create any structure or infrastructure in the waters of the United States." The term "*waters of the United States*" is defined as follows:

(1) all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) all interstate waters including interstate wetlands;

(3) all waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) which are used or could be used for industrial purpose by industries in interstate commerce;

(4) all impoundments of waters otherwise defined as waters of the United States under the definition;

(5) tributaries of waters identified in paragraphs (1)-(4) mentioned above;

(6) the territorial seas; and,

(7) wetlands[1] adjacent to the waters identified in paragraphs (1)-(6) mentioned above.

WETLANDS

For this project location, Corps jurisdictional wetlands are delineated using the methods outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0* (Corps 2008). This document is one of a series of Regional Supplements to the Corps Wetland

[1] The term *wetlands* means those areas that are inundated or saturated by surface or groundwater 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.

Delineation Manual (Corps 1987). The identification of wetlands is based on a three-parameter approach involving indicators of hydrophytic vegetation, hydric soil, and wetland hydrology. In order to be considered a wetland, an area must exhibit at least minimal characteristics within these three (3) parameters. The Regional Supplement presents wetland indicators, delineation guidance, and other information that is specific to the Arid West Region. In the field, vegetation, soils, and evidence of hydrology are examined using the methodology listed below and documented on Corps wetland data sheets, when applicable. It should be noted that both the Regional Board and the CDFW jurisdictional wetlands encompass those of the Corps.

Vegetation

Nearly 5,000 plant types in the United States may occur in wetlands. These plants, often referred to as hydrophytic vegetation, are listed in regional publications by the U.S. Fish and Wildlife Service (USFWS). In general, hydrophytic vegetation is present when the plant community is dominated by species that can tolerate prolonged inundation or soil saturation during growing season. Hydrophytic vegetation decisions are based on the assemblage of plant species growing on a site, rather than the presence or absence of particular indicator species. Vegetation strata are sampled separately when evaluating indicators of hydrophytic vegetation. A stratum for sampling purposes is defined as having 5 percent or more total plant cover. The following vegetation strata are recommended for use across the Arid West:

- *Tree Stratum:* Consists of woody plants 3 inches or more in diameter at breast height (DBH), regardless of height;
- *Sapling/shrub stratum:* Consists of woody plants less than 3 inches DBH, regardless of height;
- *Herb stratum:* Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size; and,
- *Woody vines:* Consists of all woody vines, regardless of size.

The following indicator is applied per the test method below.[2] Hydrophytic vegetation is present if any of the indicators are satisfied.

Indicator 1 – Dominance Test

Cover of vegetation is estimated and is ranked according to their dominance. Species that contribute to a cumulative total of 50% of the total dominant coverage, plus any species that comprise at least 20% (also

[2] Although the Dominance Test is utilized in the majority of wetland delineations, other indicator tests may be employed. If one indicator of hydric soil and one primary or two secondary indicators of wetland hydrology are present, then the Prevalence Test (Indicator 2) may be performed. If the plant community satisfies the Prevalence Test, then the vegetation is hydric. If the Prevalence Test fails, then the Morphological Adaptation Test may be performed, where the delineator analyzes the vegetation for potential morphological features.

known as the "50/20 rule") of the total dominant coverage, are recorded on a wetland data sheet. Wetland indicator status in California (Region 0) is assigned to each species using the *National Wetland Plant List, version 2.4.0* (Corps 2012). If greater than 50% of the dominant species from all strata were Obligate, Facultative-wetland, or Facultative species, the criteria for wetland vegetation is considered to be met. Plant indicator status categories are described below:

- *Obligate Wetland (OBL):* Plants that almost always occur in wetlands;
- *Facultative Wetland (FACW):* Plants that usually occur in wetlands, but may occur in non-wetlands;
- *Facultative (FAC):* Plants that occur in wetlands and non-wetlands;
- *Facultative Upland (FACU):* Plants that usually occur in non-wetlands, but may occur in wetlands; and,
- *Obligate Upland (UPL):* Plants that almost never occur in wetlands.

Hydrology

Wetland hydrology indicators are presented in four (4) groups, which include:

Group A – Observation of Surface Water or Saturated Soils

Group A is based on the direct observation of surface water or groundwater during the site visit.

Group B – Evidence of Recent Inundation

Group B consists of evidence that the site is subject to flooding or ponding, although it may not be inundated currently. These indicators include water marks, drift deposits, sediment deposits, and similar features.

Group C – Evidence of Recent Soil Saturation

Group C consists of indirect evidence that the soil was saturated recently. Some of these indicators, such as oxidized rhizospheres surrounding living roots and the presence of reduced iron or sulfur in the soil profile, indicate that the soil has been saturated for an extended period.

Group D – Evidence from Other Site Conditions or Data

Group D consists of vegetation and soil features that indicate contemporary rather than historical wet conditions, and include shallow aquitard and the FAC-neutral test.

If wetland vegetation criteria is met, the presence of wetland hydrology is evaluated at each transect by recording the extent of observed surface flows, depth of inundation, depth to saturated soils, and depth to free water in the soil test pits. The lateral extent of the hydrology indicators are used as a guide for locating soil pits for evaluation of hydric soils and jurisdictional areas. In portions of the stream where the flow is divided by multiple channels with intermediate sand bars, the entire area between the channels is considered within the OHWM and the wetland hydrology indicator is considered met for the entire area.

Soils

A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper 16-20 inches.[3] The concept of hydric soils includes soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation. Soils that are sufficiently wet because of artificial measures are included in the concept of hydric soils. It should also be noted that the limits of wetland hydrology indicators are used as a guide for locating soil pits. If any hydric soil features are located, progressive pits are dug moving laterally away from the active channel until hydric features are no longer present within the top 20 inches of the soil profile.

Once in the field, soil characteristics are verified by digging soil pits along each transect to an excavation depth of 20 inches; in areas of high sediment deposition, soil pit depth may be increased. Soil pit locations are usually placed within the drainage invert or within adjoining vegetation. At each soil pit, the soil texture and color are recorded by comparison with standard plates within a *Munsell Soil Chart* (2009). Munsell Soil Charts aid in designating color labels to soils, based by degrees of three simple variables – hue, value, and chroma. Any indicators of hydric soils, such as organic accumulation, iron reduction, translocation, and accumulation, and sulfate reduction, are also recorded.

Hydric soil indicators are present in three groups, which include:

<u>All Soils</u>

"All soils" refers to soils with any United States Department of Agriculture (USDA) soil texture. Hydric soil indicators within this group include histosol, histic epipedon, black histic, hydrogen sulfide, stratified layers, 1 cm muck, depleted below dark surface, and thick dark surface.

<u>Sandy Soils</u>

"Sandy soils" refers to soil materials with a USDA soil texture of loamy fine sand and coarser. Hydric soil indicators within this group include sandy mucky mineral, sandy gleyed matrix, sandy redox, and stripped matrix.

[3] According to the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0 (Corps 2008), growing season dates are determined through on-site observations of the following indicators of biological activity in a given year: (1) above-ground growth and development of vascular plants, and/or (2) soil temperature.

Loamy and Clayey Soils

"Loamy and clayey soils" refers to soil materials with a USDA soil texture of loamy very fine sand and finer. Hydric soil indicators within this group include loamy mucky mineral, loamy gleyed matrix, depleted matrix, redox dark surface, depleted dark surface, redox depressions, and vernal pools.

SWANCC WATERS

The term "isolated waters" is generally applied to waters/wetlands that are not connected by surface water to a river, lake, ocean, or other body of water. In the presence of isolated conditions, the Regional Board and CDFW take jurisdiction through the application of the OHWM/streambed and/or the 3 parameter wetland methodology utilized by the Corps.

RAPANOS WATERS

The Corps will assert jurisdiction over non-navigable, not relatively permanent tributaries and their adjacent wetlands where such tributaries and wetlands have a significant nexus to a Traditional Navigable Water (TNW). The flow characteristics and functions of the tributary itself, in combination with the functions performed by any wetlands adjacent to the tributary, determine if these waters/wetlands significantly affect the chemical, physical, and biological integrity of the TNWs. Factors considered in the significant nexus evaluation include:

(1) The consideration of hydrologic factors including, but not limited to, the following:

- volume, duration, and frequency of flow, including consideration of certain physical characteristics of the tributary
- proximity to the TNW
- size of the watershed average annual rainfall
- average annual winter snow pack

(2) The consideration of ecologic factors including, but not limited to, the following:

- the ability for tributaries to carry pollutants and flood waters to TNWs
- the ability of a tributary to provide aquatic habitat that supports a TNW
- the ability of wetlands to trap and filter pollutants or store flood waters
- maintenance of water quality