

Appendix 3.0

Determination of Biologically Equivalent or Superior Preservation

FAITH BIBLE CHURCH

CITY OF WILDOMAR, RIVERSIDE COUNTY, CALIFORNIA

DETERMINATION OF BIOLOGICALLY EQUIVALENT OR SUPERIOR PRESERVATION

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August 2016
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FAITH BIBLE CHURCH

CITY OF WILDOMAR, RIVERSIDE COUNTY, CALIFORNIA
WILDOMAR AND MURRIETA USGS 7.5-MINUTE TOPOGRAPHIC QUADRANGLES
SECTION 36, TOWNSHIP 6 SOUTH, RANGE 4 WEST
APN: 376-410-024 AND 376-410-002

DETERMINATION OF BIOLOGICALLY EQUIVALENT OR SUPERIOR PRESERVATION

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



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August 2016
Updated October 2018

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LIST OF ACRONYMS

APN	Assessor's Parcel Number
BMP	Best Management Practices
CDFW	California Department of Fish and Wildlife
CNDDDB	California Natural Diversity Database
Corps	United States Army Corp of Engineers
CWA	Clean Water Act
DBESP	Determination of Biologically Equivalent or Superior Preservation
ELMT	ELMT Consulting, Inc.
HMMP	Habitat Mitigation and Monitoring Plan
Michael Baker	Michael Baker International
MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan
OHWL	Ordinary High Water Mark
RCIP	Riverside County Integrated Project
Regional Board	Regional Water Quality Control Board
SWPPP	Storm Water Pollution Prevention Plan
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WoS	Waters of the State
WoUS	Waters of the United States

Section 1 Summary

This report contains the results of the updated Determination of Biologically Equivalent or Superior Preservation (DBESP) analysis to demonstrate compliance with the requirements of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) for impacts to riparian/riverine resources as a result of the development of a church and associated facilities on an approximately 24.24-acre property. The Faith Bible Church (“project site” or “site”) is located in the City of Wildomar, Riverside County, California on Assessor’s Parcel Numbers (APNs) 376-410-024 and 376-410-002. The project site is located within the boundary of the MSHCP.

Based on the results of the Delineation of State and Federal Jurisdictional Waters report (Michael Baker 2016) and Habitat Assessment and MSHCP Consistency Analysis report (Michael Baker 2016), and updated Delineation of State and Federal Jurisdictional Waters report (ELMT 2018) three (3) unnamed drainage features (Drainages A, B, and C) were identified on the project site that qualify as riparian/riverine habitat under the MSHCP.

Among the jurisdictional features found on-site, a combined estimated 0.337-acre (1,997 linear feet) of United States Army Corps of Engineers (Corps) Waters of the United States (WoUS) and 0.337-acre (1,997 linear feet) acre of Regional Water Quality Control Board (Regional Board) Waters of the State (WoS) are subject to jurisdiction under Sections 404 and 401 of the Clean Water Act (CWA). In addition, an estimated 0.507-acre (3,261 linear feet) of California Department of Fish and Wildlife (CDFW) jurisdictional streambed is subject to jurisdiction under Section 1600 of the Fish and Game Code. The extent of the riparian/riverine habitat on the project site is synonymous with the jurisdiction of CDFW.

The proposed design plan will result in permanent impacts of 0.08-acre (758 linear feet) of Corps/Regional Board jurisdiction and 0.17-acre (2,007) of CDFW jurisdiction and riparian/riverine habitat.

To offset impacts to 0.17-acre of riparian/riverine habitat, the applicant proposes the enhancement of 0.30-acre of riparian/riverine habitat and the restoration/enhancement of 1.71-acres of Riversidean sage scrub (riparian/riverine habitat buffer) on-site. The project proposes to use on-site native vegetation for seed collection and cuttings in order to plant riparian/riverine plant species throughout the streambed of the proposed mitigation site. Native Riversidean sage scrub (RSS) plant species would be replanted on the streambanks and within the buffer area. The mitigation site would be maintained by a third party approved by the regulatory agencies.

The post-project riparian/riverine function and values will be biologically superior by providing the following:

- The enhancement and long-term management of 0.30-acre of riparian/riverine habitat within Drainage C. This area currently contains limited riparian habitat, but would be enhanced to include riparian plant species that could be supported in this area throughout its limits. It is anticipated that the current project design can be altered to deliver additional water both from Drainages A and B, as well as from on-site development to promote the maintenance of healthy riparian habitat.
- The restoration/enhancement and long-term management of 1.71-acre of RSS habitat. This buffer area would reduce edge effects from the surrounding development to the riparian/riverine habitat within Drainage C.
- Implementation of the minimization measures described in Section 5.4.3 will ensure that all indirect project-related impacts to riparian/riverine habitat, including that which may result from fugitive dust, toxics, invasive plant species, and grading/land development, are avoided or minimized to the greatest extent feasible.

The enhancement of 0.30-acre of riparian/riverine habitat and restoration/enhancement of 1.71-acre of RSS habitat that is biologically superior habitat to the riparian/riverine habitat within Drainage C and surrounding habitat that currently exists on-site will increase biological diversity and the ecological functions and values of the riparian/riverine habitats on the project site and in the overall Santa Margarita Watershed.

The above actions would result in a net increase in the function and value of riparian/riverine habitat within the region and on the project site. The proposed mitigation measures would increase the functions and ecological values of on-site riparian/riverine habitat as compared to the existing on-site jurisdictional features, which consist generally of a mixture of bare ground, RSS, and non-native grassland, with very little riparian habitat. Water quality, nutrient uptake, particulate removal, and other hydrology benefits to Murrieta Creek provided by the mitigation site within Drainage C would be significantly increased and enhanced. The proposed mitigation would provide an increase of habitat value for riparian and sage scrub species. The buffer/open space constructed contiguously to the proposed mitigation site will enhance landscape connectivity and buffer quality along the entire frontage of the project site. The proposed mitigation site will create significant species and habitat quality and diversification when compared to the existing condition or a condition where development abuts the existing on-site jurisdictional features.

Section 2 Introduction

Section 6.1.2 of the Western Riverside County MSHCP requires an assessment of the potentially significant effects of a project on Covered Species, riparian/riverine¹ habitat, and vernal pools. This assessment is independent from considerations given to “WoUS” and “WoS” under the CWA and the California Fish and Wildlife Code. Projects that propose to impact riparian/riverine or vernal pool resources within the MSHCP Plan Area, that cannot be avoided, require a mitigation strategy called a DBESP analysis to be completed to ensure that the proposed alternative provides for “replacement of any lost functions and values of Habitat as it relates to Covered Species.” Conservation of these areas is intended to protect habitat that is essential to a number of listed, water-dependent amphibians, birds, fish, invertebrates, and plants.

As required by the MSHCP, a DBESP analysis must be conducted to address any impacts to riparian/riverine habitat. The objective of this report is to demonstrate that proposed mitigation would provide an equivalent or superior preservation of habitat function and value of riparian/riverine resources. This DBESP analysis includes a detailed discussion of the riparian/riverine habitat on-site that is proposed to be impacted, and incorporates avoidance, minimization, and mitigation measures adequate to offset these impacts and bring them to a level of less than significant.

2.1 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.

2.2 PROJECT DESCRIPTION

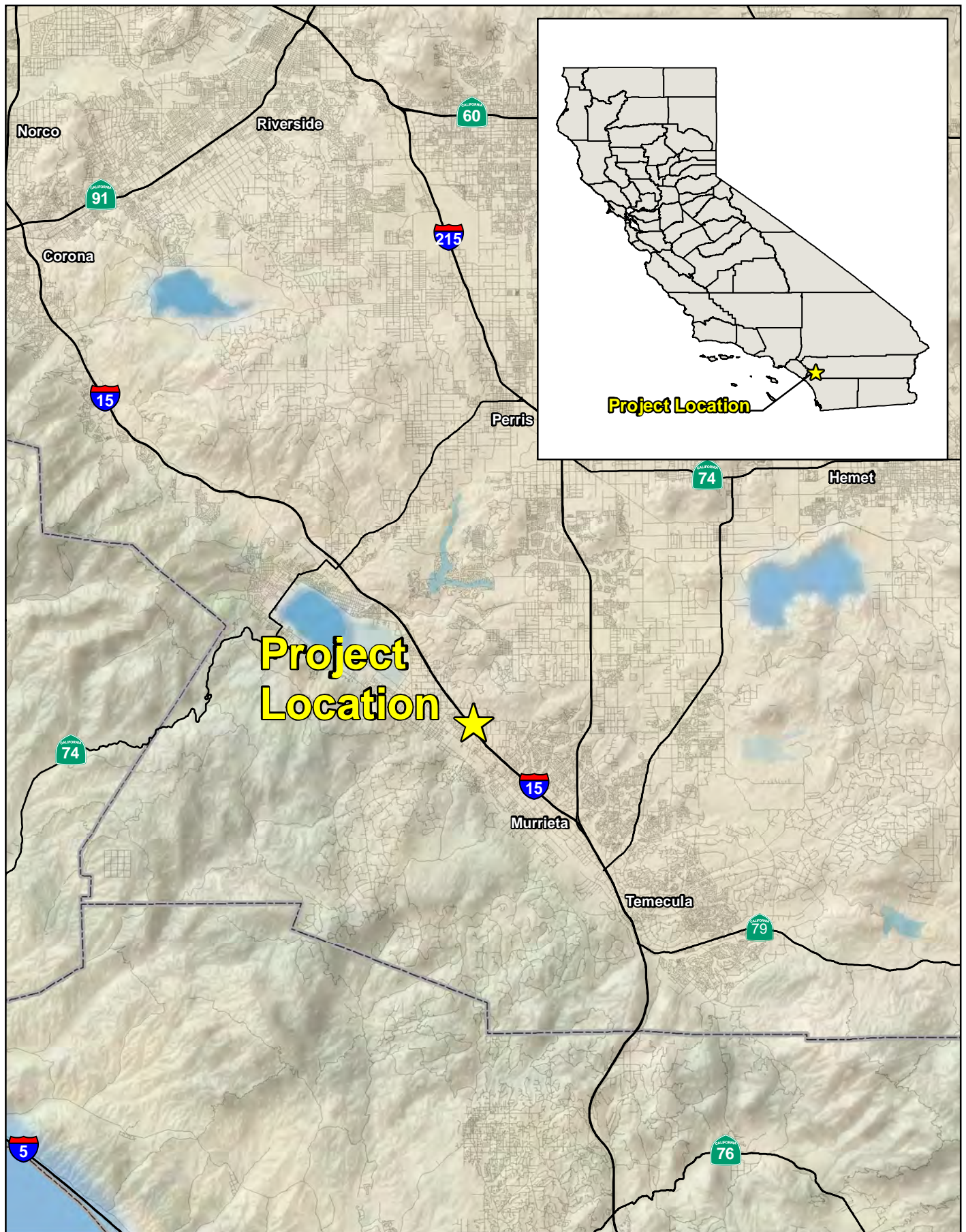
The project proposes the development of a religious institution/community church building and related buildings (Exhibit 4, *Depiction of Proposed Project*). The site plan development will also include three (3) detached single residential family units to house visiting missionaries

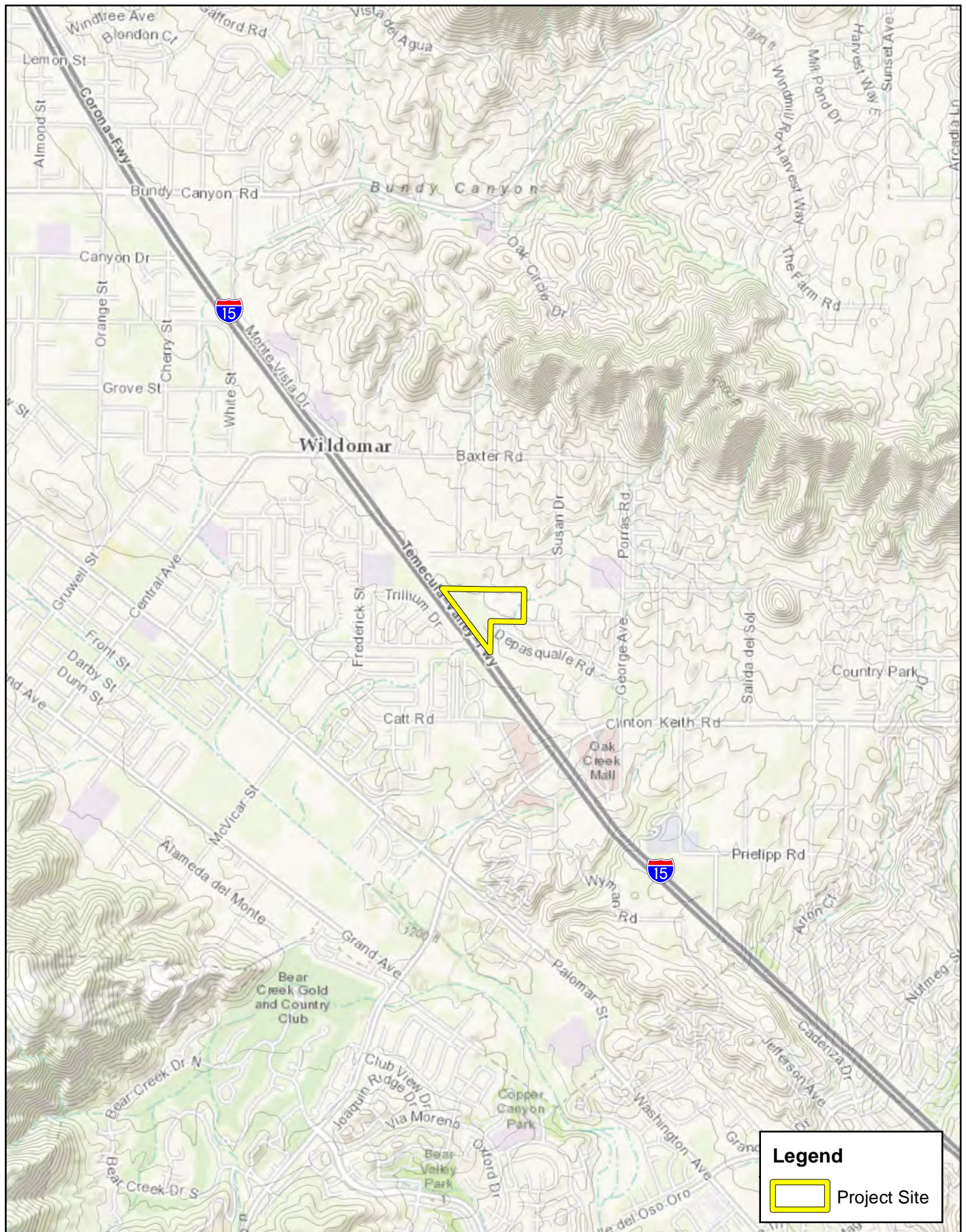
¹ Riparian/riverine areas are defined as areas dominated by trees, shrubs, persistent emergent plants, or emergent mosses and lichens which occur close to or are dependent upon nearby freshwater, or areas with freshwater flowing during all or a portion of the year.

and their families, classrooms, an equipment room/restrooms, a future outdoor room and gathering area, open space, parking lots, and landscaped areas.

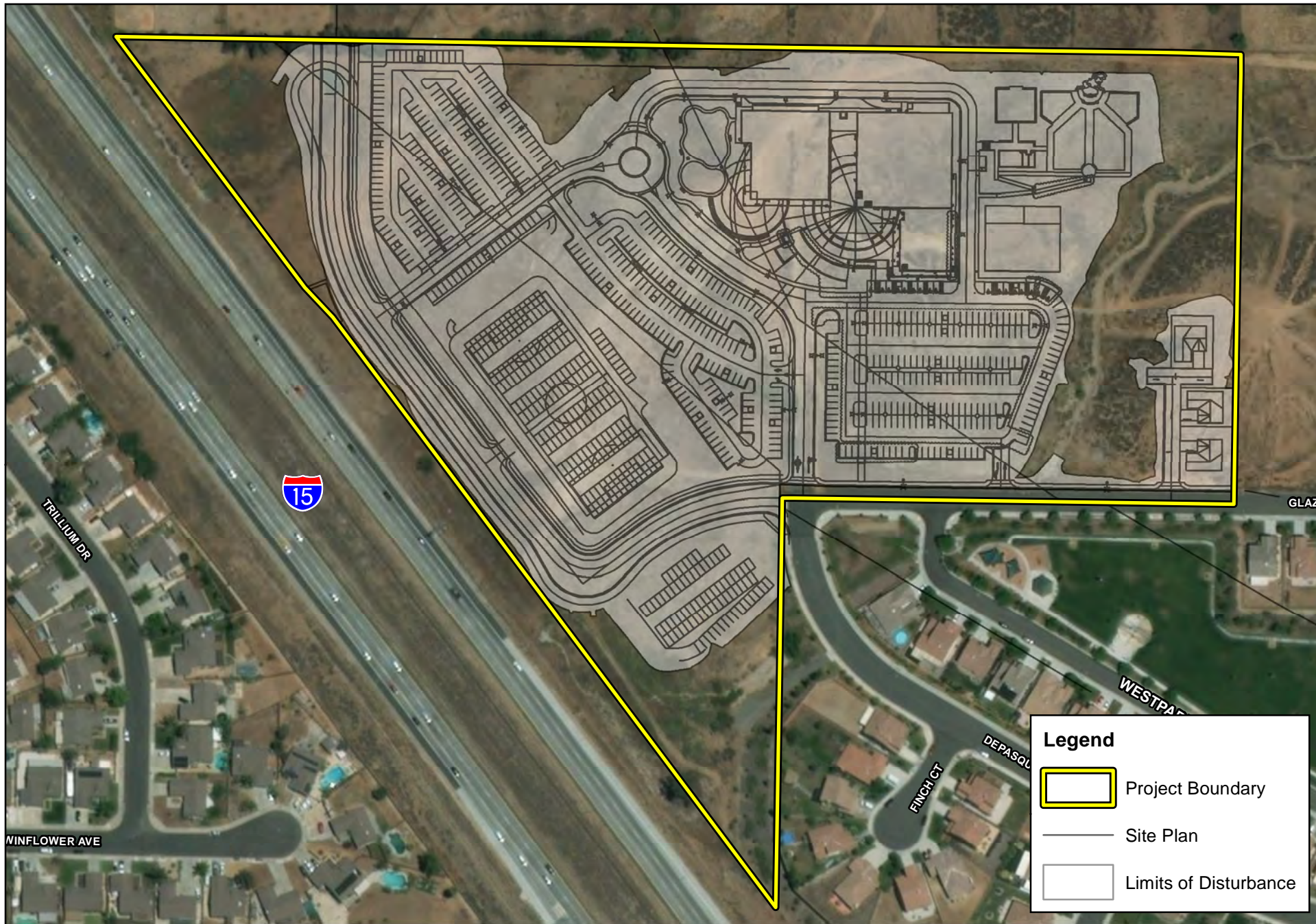
2.3 MSHCP AREAS

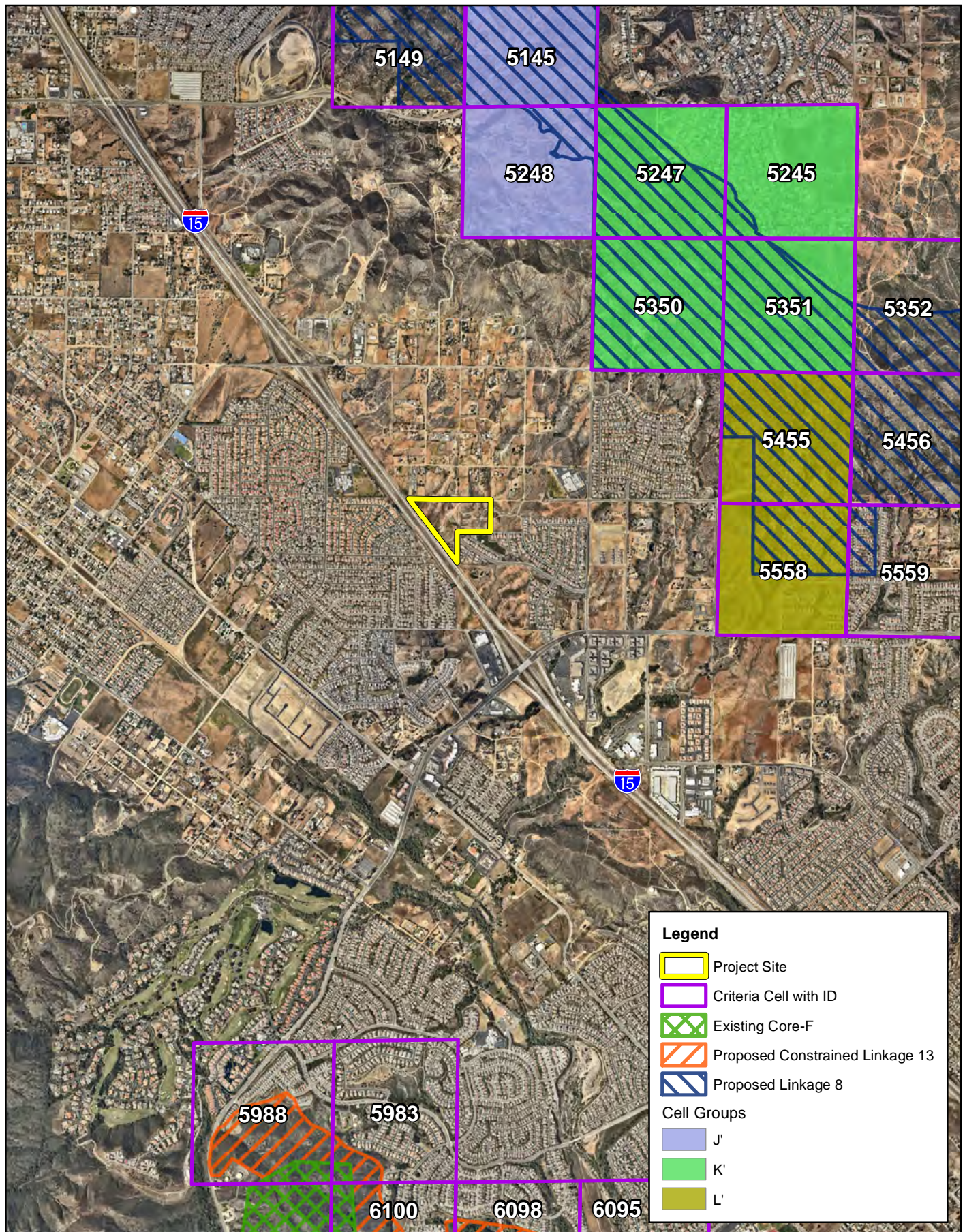
The project site is located in the Elsinore Area Plan of the MSHCP. However, it is not located within any Criteria Cells, conservations areas, cores, or linkages (Exhibit 5, *MSHCP Criteria Area*).











DETERMINATION OF BIOLOGICALLY EQUIVALENT OR SUPERIOR PRESERVATION

MSCHP Criteria Area



Section 3 Methodology

3.1 LITERATURE REVIEW

ELMT Consulting (ELMT) conducted an updated literature review of all relevant environmental documentation prepared for the project to date. This included the following documents:

- Delineation of State and Federal Jurisdictional Waters (Michael Baker 2016);
- Habitat Assessment and MSHCP Consistency Analysis (Michael Baker 2016); and
- Delineation of State and Federal Jurisdictional Waters Update (ELMT 2018).

In addition, ELMT reviewed recent and historical aerial imagery of the project site and local area, USGS topographic maps, and soils maps. ELMT also thoroughly reviewed the MSHCP and Reference Document (Riverside County 2003), and other available literature for resources targeted in the analysis. Information gathered included accounts of sensitive habitat types, species listing and recovery status, morphology, life history and habitat requirements, historic and current distribution, threats, special biological considerations, and known locations of individuals and populations that have been recorded in the region. Critical habitat and known recorded locations of the target resources were queried using various data from the MSHCP and the United States Fish and Wildlife Service (USFWS) Critical Habitat Portal, in addition to the California Natural Diversity Database (CNDDDB) (CDFW 2016) and California Native Plant Society On-Line Inventory of Rare and Endangered Plants (CNPS 2016).

3.2 FIELD INVESTIGATION

The habitat assessment component of the DBESP analysis is based primarily on the findings of the field reconnaissance survey conducted for the 2016 *Habitat Assessment and MSCHP Consistency Analysis Report*, 2016 *Delineation of State and Federal Jurisdictional Waters Report*, and 2018 *Delineation of State and Federal Jurisdictional Waters* report update prepared for the proposed project.

During the field reconnaissance survey conducted for the 2016 *Habitat Assessment and MSCHP Consistency Analysis* report, biologists Travis J. McGill and Thomas C. Millington inventoried and evaluated the extent and conditions of the plant communities found within the boundaries of the project site on February 4, 2016. Plant communities identified on aerial photographs during the literature review were verified by walking meandering transects through the plant communities and along boundaries between plant communities. In addition, field staff identified any jurisdictional features and riparian/riverine habitat, as well as natural corridors and linkages that may support the movement of wildlife through the area.

All plant and wildlife species observed, as well as dominant plant species within each plant community, were recorded. Wildlife detections were made through observation of scat, trails, tracks, burrows, nests, and/or visual and aural observation. In addition, site characteristics such as soil condition, topography, hydrology, anthropogenic disturbances, indicator species, condition of on-site plant communities, and presence of potential jurisdictional drainage and/or wetland features as well as riparian/riverine areas were noted.

Section 4 Existing Conditions

4.1 TOPOGRAPHY AND SOILS

On-site surface elevation ranges from approximately 1,340 to 1,420 feet above mean sea level and consists of rolling terrain with steeper topography on the eastern portion of the site. Based on the U.S. Department of Agriculture Natural Resources Conservation Service Web Soil Survey, the project site is underlain by the following soil units: Hanford coarse sandy loam, 2 to 8 percent slopes (HcC), Terrace escarpments (TeG), Cieneba sandy loam, 8 to 15 percent slopes, eroded (ChD2), Placentia fine sandy loam, 5 to 15 percent slopes (PID), and Monserate sandy loam, shallow, 15 to 25 percent slopes, severely eroded (MnE3), and Monserate sandy loam, shallow, 5 to 15 percent slopes, eroded (MnD2) (Exhibit 6, *Soils*).

4.2 SURROUNDING LAND USES

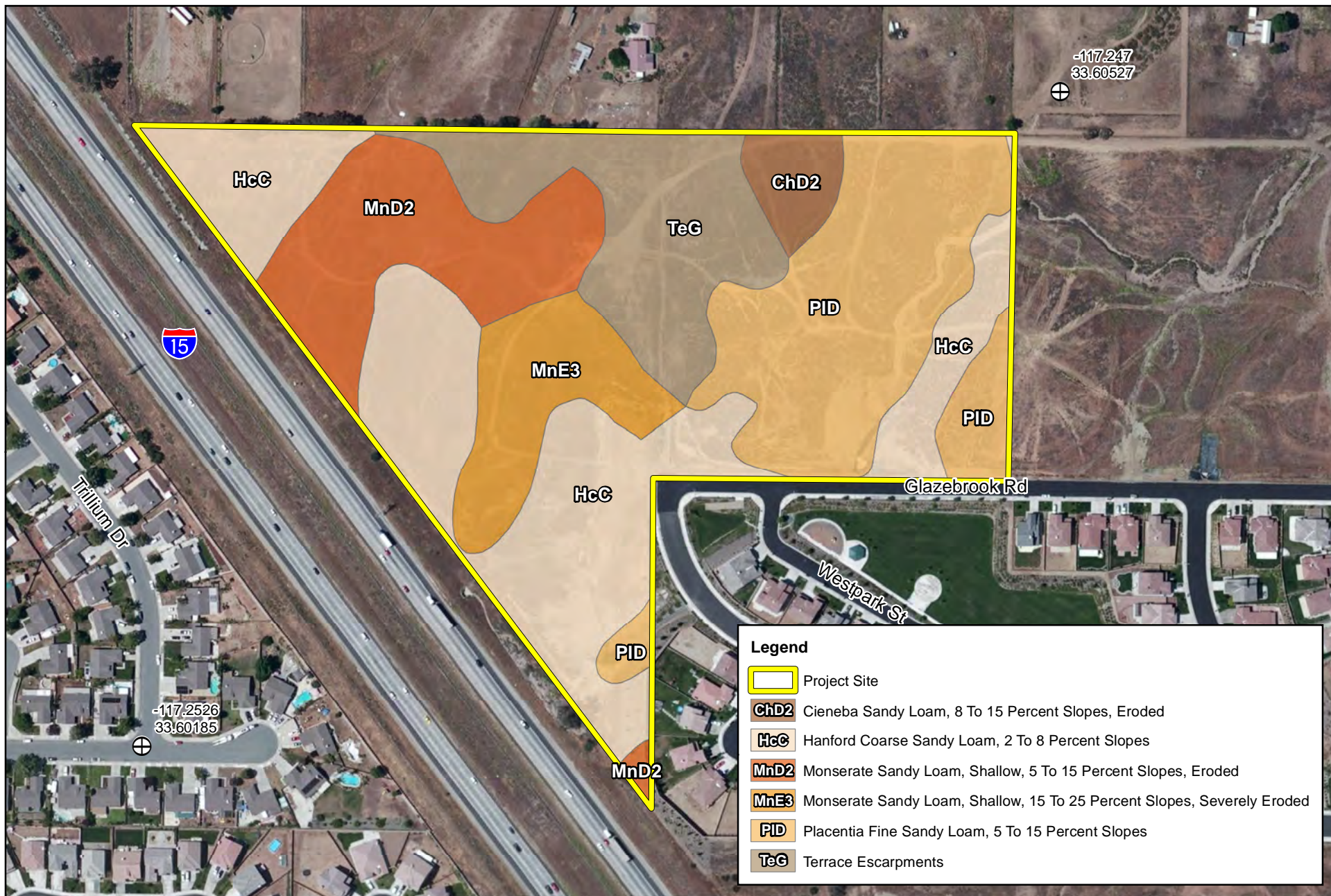
Land uses in the vicinity of the project site mainly consists of residential developments, as well as vacant land. Areas to the southwest and west, west of Interstate 15 freeway, and to the southeast of the project site consist of residential land uses. Vacant, undeveloped land with rural residential properties are located to the north of the project site. Vacant land can also be found to the east of the project site. Interstate 15 freeway runs adjacent to the western boundary of the project site.

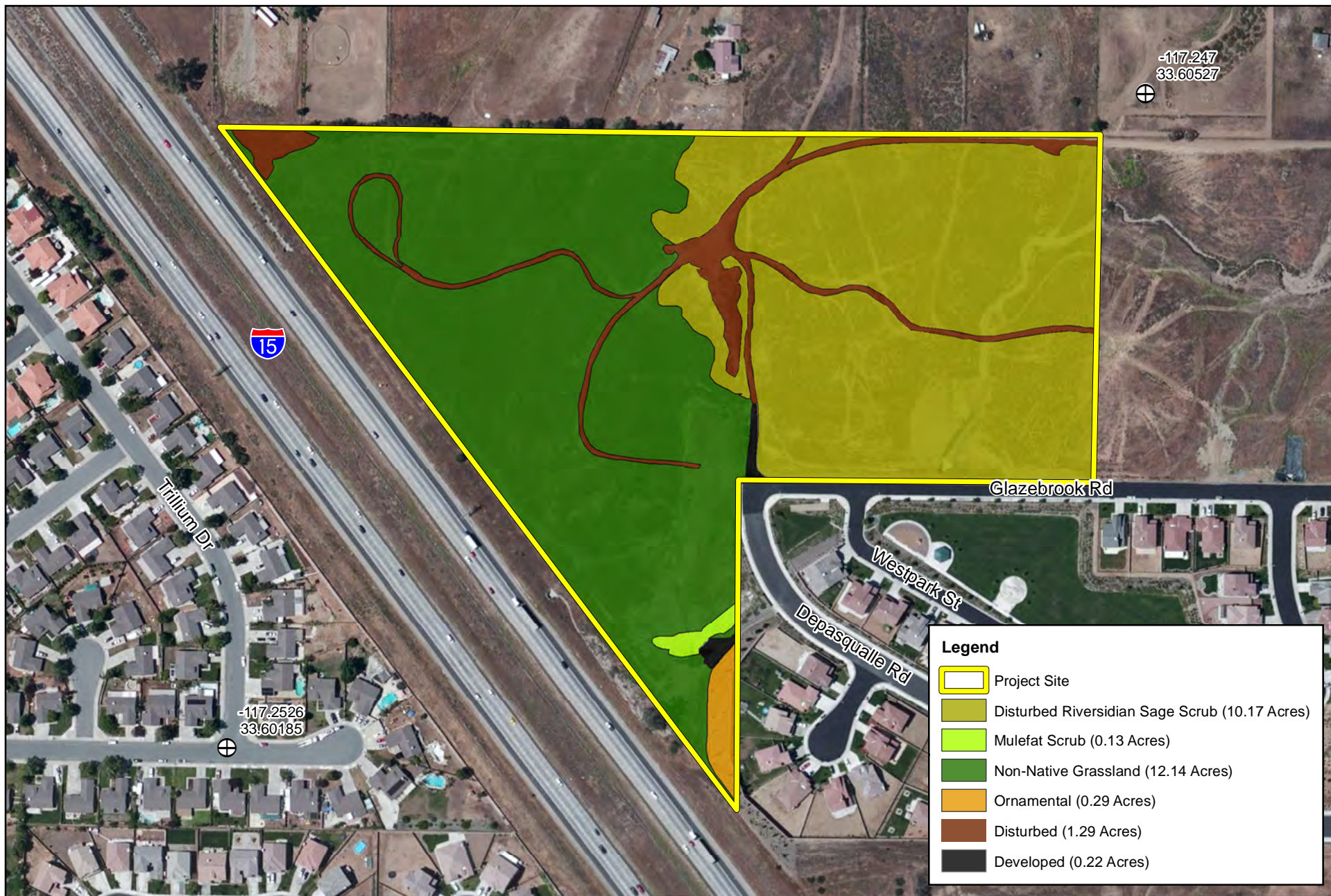
4.3 SITE CONDITIONS

The project site consists of vacant, undeveloped land that has been subject to a variety of anthropogenic disturbances including illegal off-road vehicle activities, weed abatement activities, and dirt trails for recreational use. These disturbances have kept the site from returning to its previous natural condition thereby reducing the suitability of the on-site habitat to support special-status plant and wildlife species. Rolling terrain exists throughout the project site and is dominated by non-native grasses. Multiple ephemeral drainage features traverse the project site and generally flow from northeast to southwest.

4.4 VEGETATION

Three (3) plant communities were observed within the boundaries of the project site during the habitat assessment: mulefat scrub, non-native grassland, and disturbed Riversidian sage scrub (Exhibit 7, *Vegetation*). In addition, the project site contains land cover types that would be classified as ornamental, disturbed, and developed. These communities are described in further detail below.





4.4.1 Mulefat Scrub

The mulefat scrub plant community occurs on the southwestern portion of the project site within one of the ephemeral drainage features (Drainage C). This plant community is dominated by mulefat (*Baccharis salicifolia*) with arroyo willow sapling (*Salix lasiolepis*) and a mixture of upland plant species consisting of California buckwheat (*Eriogonum fasciculatum*), short-podded mustard (*Hirschfeldia incana*), and non-native grasses.

4.4.2 Non-Native Grassland

The non-native grassland plant community covers the majority of the western portion of the project site. This plant community has been subject to a high level of human disturbances from weed abatement activities and illegal off-road vehicle use. Plant species occurring within this plant community include ripgut brome (*Bromus diandrus*), downy brome grass (*Bromus tectorum*), wild oat (*Avena fatua*), Mediterranean grass (*Schismus barbatus*), short-podded mustard, Russian thistle (*Salsola tragus*), and common sunflower (*Helianthus annuus*). Sparse patches of California buckwheat and California sagebrush (*Artemisia californica*) also occur.

4.4.3 Disturbed Riversidian Sage Scrub

The disturbed Riversidian sage scrub plant community primarily occurs on the eastern portion of the project site in association with the steeper topography on the eastern portion of the site. This plant community is dominated by brittlebush (*Encelia farinosa*), California buckwheat, California sagebrush, deerweed (*Acmispon glaber*), slender buckwheat (*Eriogonum gracile*), short-podded mustard, white sage (*Salvia apiana*), black sage (*Salvia mellifera*) and non-native grasses. This plant community has also been subject to a high level of human disturbances.

4.4.4 Ornamental

There is a small area of ornamental vegetation along a hillside within the southern portion of the project site. This area is associated with the residential properties located to the south of the project site.

4.4.5 Disturbed

Disturbed areas include the recreational trails and dirt access roads. These areas consist of highly compacted soils that no longer support a native plant community.

4.4.6 Developed

Developed areas within the project site generally consist of paved, impervious surfaces. Within the boundaries of the project site, this includes paved roadways.

4.5 MIGRATORY CORRIDORS AND LINKAGES

Habitat linkages provide links between larger habitat areas that are separated by development. Wildlife corridors are similar to linkages, but provide specific opportunities for animals to disperse or migrate between areas. A corridor can be defined as a linear landscape feature of sufficient width to allow animal movement between two comparatively undisturbed habitat fragments. Adequate cover is essential for a corridor to function as a wildlife movement area. It is possible for a habitat corridor to be adequate for one species yet inadequate for others. Wildlife corridors are significant features for dispersal, seasonal migration, breeding, and foraging. Additionally, open space can provide a buffer against both human disturbance and natural fluctuations in resources.

No wildlife corridors or MSHCP linkages are defined within the project site boundaries. However, Proposed Linkage 8 is located approximately 0.64 miles northeast of the project site. Proposed Linkage 8 (Sedco Hills/Wildomar) is composed largely of upland habitat in the Sedco Hills and Wildomar area. This Linkage is a major component of one of the two main east-west connections between Core Areas in the Lake Mathews/Estelle Mountain, Alberhill and the Cleveland National Forest in the western portion of the MSHCP Plan Area and Core Areas in the French Valley, Johnson Ranch, Diamond Valley Lake and San Jacinto Mountains in the eastern portion of the MSHCP Plan Area. Proposed Linkage 8 provides live-in habitat for over fifty (50) pairs of coastal California gnatcatcher (*Polioptila californica californica*), as well as a connection to other key populations of gnatcatcher known to occur in Alberhill, North Peak, and the Ramsgate area.

The project site has limited potential to be used for wildlife crossings between the Sedco Hills and Elsinore Mountains due to the Interstate 15 freeway (all terrestrial wildlife would have to cross through the culvert system going underneath the freeway). The site also provides limited stopover habitat for avian species.

4.6 SUMMARY OF MSHCP REQUIREMENTS

4.6.1 MSHCP Areas

The project site is located in the Elsinore Area Plan of the MSHCP. However, it is not located within any Criteria Cells, conservations areas, cores, or linkages (refer to Exhibit 5).

4.6.2 MSHCP Survey Requirements

The MSHCP has habitat assessment survey requirements for certain plant, bird, mammal, and amphibian species. The RCIP Conservation Summary Report Generator was queried to determine if the MSHCP lists any survey requirements for the project site. Based on the RCIP Conservation Summary Report Generator and review of the MSHCP, it was determined that

the project site is located within the designated survey area for burrowing owl (*Athene cunicularia*) as depicted in Figure 6-4 within Section 6.3.2 of the MSHCP.

4.6.2.1 Burrowing Owl

Burrowing owl is currently designated as a California Species of Special Concern and considered a partially covered species under the MSHCP that could require additional surveys. It is a grassland specialist² distributed throughout western North America where it occupies open areas with short vegetation and bare ground within shrub, desert, and grassland environments. Burrowing owls use a wide variety of arid and semi-arid environments with level to gently-sloping areas characterized by open vegetation and bare ground. The species rarely dig their own burrows and are instead dependent upon the presence of burrowing mammals (i.e., ground squirrels, coyotes, and badgers) whose burrows are often used for roosting and nesting. The presence or absence of colonial mammal burrows is often a major factor that limits the presence or absence of burrowing owls. Where mammal burrows are scarce, burrowing owls have been found occupying man-made cavities, such as buried and non-functioning drain pipes, stand-pipes, and dry culverts. They also require low growth or open vegetation allowing line-of-sight observation of the surrounding habitat to forage as well as watch for predators. In California, the burrowing owl breeding season extends from the beginning of February through the end of August.

The project site is vegetated with a variety of low-growing, early successional plant species that allows for line-of-sight observation favored by burrowing owl. The burrows found on-site were generally smaller than what this species typically uses. Further, despite a systematic search of open habitat and the small burrows on the project site, no burrowing owls or recent sign (pellets, feathers, castings, or white wash) was observed during the habitat assessment. Burrowing owls are presumed absent from the project site. Although focused surveys were not recommended, a pre-construction burrowing owl clearance survey was noted as a requirement to ensure burrowing owl remain absent from the project site.

4.6.3 Jurisdictional Drainages, Riparian/Riverine Areas, and Vernal Pools

Jurisdictional Drainages

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates discharge of dredge and/or fill materials into “waters of the United States” pursuant to Section 404 of the Federal Clean Water Act and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFW

² The burrowing owl is a grassland specialist that primarily occurs in open areas with short vegetation and bare ground in desert, grassland, and shrub-steppe environments.

regulates alterations to streambed and associated plant communities pursuant to Section 1602 of the Fish and Game Code, and the Regional Board regulates discharges into surface waters pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

Based on the results of a Delineation of State and Federal Jurisdictional Waters Report (Michael Baker 2016) and Delineation of State and Federal Jurisdictional Waters Report Update (ELMT 2018) prepared under separate covers, three (3) unnamed drainage features were observed on the project site that would be considered jurisdictional by the Corps, Regional Board and CDFW. Activities impacting these drainage features will require a CWA Section 404 permit from the Corps, CWA Section 401 Water Quality Certification from the Regional Board, and a Section 1602 Streambed Alteration Agreement from CDFW.

Riparian/Riverine Areas

Under MSHCP Section 6.1.2, riparian/riverine areas are defined as areas dominated by trees, shrubs, persistent emergent plants, or emergent mosses and lichens which occur close to or are dependent upon nearby freshwater, or areas with freshwater flowing during all or a portion of the year. Conservation of these areas is intended to protect habitat that is essential to a number of listed, water-dependent amphibians, birds, fish, invertebrates, and plants. If all impacts to riparian/riverine habitat cannot be avoided, a mitigation strategy called a DBESP must be developed that addresses the replacement of lost functions of habitats in regards to the listed species. This assessment is independent from considerations given to “waters of the U.S.” and “waters of the State” under the CWA and the California Fish and Game Code.

Based on the results of the Delineation of State and Federal Jurisdictional Waters Reports, prepared under separate cover, three (3) unnamed drainage features were identified on the project. These features will be considered riparian/riverine habitat under Section 6.1.2 of the MSHCP. The extent of the riparian/riverine habitat on the project site is synonymous with the jurisdiction of CDFW. As a result, any alteration or loss of riparian/riverine habitat will require the preparation of a DBESP under the MSHCP. This analysis is separate from any regulatory approvals/permitting by the Corps, Regional Board, and CDFW.

Vernal Pools and Fairy Shrimp Habitat

One of the factors for determining the suitability of the habitat for fairy shrimp would be demonstrable evidence of seasonal ponding in an area of topographic depression that is not subject to flowing waters. These astatic pools are typically characterized as vernal pools. More specifically, vernal pools are seasonal wetlands that occur in depression areas without a continual source of water. They have wetland indicators of all 3 parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetland indicators of hydrology and/or vegetation during the drier portion of the growing season.

Obligate hydrophytes and facultative wetlands plant species are normally dominant during the wetter portion of the growing season. The determination that an area exhibits vernal pool characteristics and the definition of the watershed supporting vernal pool hydrology is made on a case-by-case basis. Such determinations should be considered the length of time the areas exhibits upland and wetland characteristics and the manner in which the area fits into the overall ecological system as a wetland. The seasonal hydrology of vernal pools provides for a unique environment, which supports plants and invertebrates specifically adapted to a regime of winter inundation, followed by an extended period when the pool soils are dry.

Vernal pools are seasonally inundated, ponded areas that only form in regions where specialized soil and climatic conditions exist. During fall and winter rains typical of Mediterranean climates, water collects in shallow depressions where downward percolation of water is prevented by the presence of a hard pan or clay pan layer (duripan) below the soil surface. Later in the spring when rains decrease and the weather warms, the water evaporates and the pools generally disappear by May. The shallow depressions remain relatively dry until late fall and early winter with the advent of greater precipitation and cooler temperatures. Vernal pools provide unusual "flood and drought" habitat conditions to which certain plant and wildlife species have specifically adapted as well as invertebrate species such as fairy shrimp.

The MSHCP lists two general classes of soils known to be associated with listed and sensitive plant species; clay soils and Traver-Domino Willow association soils. The specific clay soils known to be associated with listed and sensitive species within the MSHCP plan area include Bosanko, Auld, Altamont, and Porterville series soils, whereas, Traver-Domino Willows association includes saline-alkali soils largely located along floodplain areas of the San Jacinto River and Salt Creek. Without the appropriate soils to create the restrictive layer, water does not pool for extended periods of time sufficient to support fairy shrimp development. None of these soils occur on the project site and no clay or restrictive soils have been mapped on-site.

A review of recent (1994-2015) and predevelopment aerial photographs of the site and its immediate vicinity did not provide visual evidence of an astatic or vernal pool on or in the near vicinity of the project site. No ponding was observed on-site, further supporting the fact that the drainage patterns currently occurring on the project site do not follow hydrologic regime needed for vernal pools. From this review of historic aerial photos and field observation, it can be concluded that there is no indication of vernal pools or suitable fairy shrimp habitat occurs on the project site.

Based on the historical aerial review, existing human disturbances, and current hydrologic regimes of the project site, it can be concluded that the project site lacks astatic conditions, and, therefore, would not provide suitable fairy shrimp habitat. Fairy shrimp require astatic conditions and a complete drying of occupied ponds so that the fairy shrimp cysts will not rot. As a result, none of the sensitive plant or wildlife species associated with vernal pools are

expected to occur on the project site. Sensitive plant and wildlife species associated with vernal pools and clay soils, including fairy shrimp, are presumed absent from the project site.

Section 5 Determination of Biologically Equivalent or Superior Preservation

5.1 DESCRIPTION OF THE PRE-PROJECT RIPARIAN/RIVERINE FUNCTIONS AND VALUE

5.1.1 On-site Drainage Features

A total of three (3) non-wetland drainage features (Drainages A, B, and C) were identified on the project site in the Delineation of State and Federal Jurisdictional Waters. No wetland features were identified within the site limits. According to aerial imagery, Drainages A and B have been altered over the years due to extensive on-site disturbance (e.g., vegetation removal, use of the site for offroad purposes) but have generally maintained flow patterns out of the hills. Drainage C has been relatively undisturbed within the project site, but was channelized into an underground box culvert running beneath a residential community (entering at Glazebrook Road and exiting at Depasquale Road) between 2006 and 2009 with the community's development. All three drainages qualify as riparian/riverine habitat under the MSHCP (Exhibit 8, *Riparian/Riverine – CDFW Jurisdiction*).

5.1.1.1 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 geniculata*, UPL).



Exhibit 8: Riparian/Riverine – CDFW Jurisdiction

5.1.1.2 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 and extends for approximately 600 feet to the south before ponding in the center of the project site for approximately 200 feet north of the intersection of Glazebrook Road and Depasqualle Road. It 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 runoff from Glazebrook Road and Depasqualle Road. Drainage B does not meet wetland requirements, however it is still considered jurisdictional waters under the Corps, CDFW, and Regional Board.

The in-channel vegetation consisted of mostly native species. The dominant plants along the majority of the channel are deerweed and California buckwheat. Some less dominant species found throughout this drainage include mulefat, white sage, black sage, and Fremont's cottonwood (*Populus fremontii*). 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*) and short podded mustard.

5.1.1.3 Drainage C

Drainage C is an unnamed ephemeral drainage that enters the project site on its eastern boundary and extends approximately 625 linear feet to the southwest before flowing under Glazebrook Road and Depasqualle 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 I-15, on the western boundary of the project site. The erosional features are capable of conveying flows during high storm events, but are not considered to be jurisdictional features of Drainage C. Flows continue southwest via flood control channels to 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, CDFW, and Regional Board.

The vegetation assemblage of Drainage C was similar to the vegetation assemblage of Drainage B. The in-channel vegetation consisted of mostly native species. The dominant plants along the majority of the channel are deerweed and California buckwheat. Some less dominant

species found throughout this drainage include mulefat (FAC), white sage, black sage, and Fremont's cottonwood. 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 and short podded mustard. The drainage runs underneath a portion of a residential neighborhood, and downstream of Depasquale Road, the drainage runs through a patch of mulefat scrub as well as a patch of mulefat, arroyo willow, and Fremont's cottonwood at the culvert outlet, before ultimately flowing back into non-native grassland.

5.1.2 Functions and Values

The three on-site drainages collectively perform the following functions within the local area of the Santa Margarita watershed: regulation of nuisance flows, energy dissipation, nutrient cycling, retention of particulates, nutrient/particulate uptake from off-site, upstream development, and connectivity with similar habitat upstream.

In their current states, these drainages can be considered to have limited resource value to local and migratory wildlife since they are generally disturbed on the project site and both receive flows from and convey immediate flows to developed areas. Although the drainage features are ephemeral and with the exception of the small downstream area in Drainage C, do not support riparian plant communities, all of the drainage features are considered to be riparian/riverine habitat under the MSHCP. Drainage C provides the highest quality riparian/riverine habitat of the three on-site drainages.

5.2 RIPARIAN/RIVERINE SPECIES

Because the on-site riparian/riverine habitat is dominated by a disturbed Riversidian sage scrub plant community with no true riparian vegetation except at one discrete location, there is no suitable habitat for riparian species listed under the MSHCP. The small patch of riparian habitat in the downstream portion of Drainage C is insufficient to support riparian/riverine species. Additionally, none of the soils listed in the MSHCP that are typically associated with vernal pools occur on the project site. As a result, none of the species listed in Section 6.1.2 of the MSHCP are expected to occur on the project site in its current condition, and all are presumed absent. Further, the site is not within designated survey areas for any special-status wildlife species associated with riparian/riverine habitat as listed in Section 6.1.2 of the MSHCP.

The riparian/riverine habitat found on-site connects with riparian habitats associated with Murrieta Creek to the southwest, but generally abuts residential developments to the north and northeast. The riparian/riverine habitat on the project site is connected to upstream habitat that continues for approximately one mile to Iodine Spring, an upstream water source. The

residential developments to the north reduce the riparian/riverine habitat's potential to support migratory linkages or corridors for riparian species covered under the MSHCP.

5.3 PROJECT IMPACTS

The project proposes to permanently impact a total of 0.08-acre (758 linear feet) of non-wetland waters under Corps/Regional Board jurisdiction and 0.17-acre (2,007 linear feet) of CDFW jurisdiction. The extent of the riparian/riverine habitat on the project site is synonymous with the jurisdiction of CDFW.

Table 1: Summary of Jurisdictional Areas

Jurisdictional Feature	Corps/Regional Board Jurisdiction Non-Wetland Waters	CDFW Jurisdiction Streambed/Riparian
	On-Site Jurisdiction Acreage (Linear Feet)	On-Site Jurisdiction Acreage (Linear Feet)
Drainage A	0.063 (619)	0.082 (1,306)
Drainage B	0.026 (243)	0.097 (820)
Drainage C	0.248 (1,135)	0.328 (1,135)
TOTAL	0.337 (1,997)	0.507 (3,261)

5.3.1 Direct Impacts to Riparian/Riverine Habitat

Based on the current project design plans, a total of 0.17-acre of impacts will occur to riparian/riverine habitat as a result of implementation of the proposed project (Exhibit 9, *Riparian/Riverine Impacts*).

Table 2: Impacts to Riparian/Riverine Habitat

Jurisdictional Feature	Riparian/Riverine Habitat	
	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 (820)
Drainage C	0.328 (1,135)	0.002 (50)
TOTAL	0.507 (3,261)	0.17 (2,007)



5.4 PROJECT FEATURES (AVOIDANCE AND MINIMIZATION MEASURES)

As described above, the emphasis of the MSHCP's riparian/riverine and vernal pool policy is on-site conservation of habitats capable of supporting MSHCP Covered Species. The goal of the DBESP process is to determine if the project has, in fact, provided for a project alternative that results in biologically equivalent or superior preservation. The first priority for riparian/riverine habitats that contribute to the biological values of the MSHCP preserve is avoidance of direct impacts, then minimization of any remaining direct impacts.

5.4.1 Avoidance of Direct Impacts

The project applicant has evaluated avoidance of jurisdictional areas on-site. However, based on the project plans (refer to Exhibit 4), most of Drainage A (0.071-acre out of a total 0.082 acre of riparian/riverine habitat) and all of Drainage B (all 0.097 acre of riparian/riverine habitat) will be permanently impacted as a result of site development. According to project plans, Drainage A will be piped underneath the proposed development, where it will run underground and outlet again on the western end of the site at Interstate 15. There are no plans at this time to divert flows from Drainage B. A small portion of Drainage C will be permanently impacted (0.002-acre riparian/riverine habitat out of 0.328-acre).

Due to the extent of development that this project requires, including the church and associated facilities as well as several parking lots, complete avoidance of direct impacts is not feasible. However, the proposed project design will avoid 0.011-acre of riparian/riverine habitat within Drainage A and 0.326-acre of riparian/riverine habitat within Drainage C. The riparian/riverine habitat in Drainage C is the highest quality riparian/riverine habitat on the site. Approximately 66% of the on-site riparian/riverine habitat, 0.337 acre, will be avoided. Of the 0.337-acre of remaining riparian/riverine habitat, 0.30-acre will be enhanced for permanent preservation as part of mitigation located within Drainage C.

5.4.2 Minimization of Direct Impacts

To minimize impacts to the portions of Drainages A and C that will not be directly impacted as part of the proposed development plans, areas that are to be avoided will be temporarily blocked off with silt fence or another permeable material that will prevent construction from depositing sediment into areas outside of the direct project footprint while still allowing water to flow through the site should there be a rain event.

5.4.3 Minimization Measures to Reduce Indirect Impacts

The following minimization measures have been incorporated into the project design to ensure that all indirect project-related impacts to riparian/riverine habitat, including impacts from

fugitive dust, toxics, invasive plant species, and grading/land development, are avoided or minimized to the greatest extent feasible.

Fugitive Dust

During soil excavation, grading, or other subsurface disturbance within 100 feet of conserved riparian/riverine habitat on-site, the construction superintendent shall supervise provision and maintenance of all standard dust control best management practices (BMPs) to reduce fugitive dust emissions, including but not limited to the following actions:

- Water any exposed soil areas a minimum of twice per day, or as allowed under any imposed drought restrictions. On windy days or when fugitive dust can be observed leaving the construction site, additional water shall be applied at a frequency to be determined by the on-site construction superintendent.
- Pave, periodically water, or apply chemical stabilizer to construction access/egress points.
- Minimize the amount of area disturbed by clearing, grading, earthmoving, or excavation operations at all times.
- Operate all vehicles on graded areas at speeds less than 15 miles per hour.
- Cover all stockpiles that will not be utilized within three days with plastic or equivalent material, to be determined by the on-site construction superintendent, or spray them with a non-toxic chemical stabilizer.

Runoff - Toxics

To address potential short-term impacts to water quality within the on-site drainages from construction runoff that may carry storm water pollutants, a Storm Water Pollution Prevention Program (SWPPP) shall be implemented by the construction contractor as required by the California General Construction Storm Water Permit pursuant to State Water Quality Control Board and Regional Board regulations. The SWPPP shall identify BMPs related to the control of toxic substances, including construction fuels, oils, and other liquids. These BMPs will be implemented by the Applicant's contractor prior to the start of any ground clearing activity, shall be subject to periodic inspections by the County and the project's hydrological consultant, and shall be maintained throughout the construction period and remain in place until all landscape and permanent BMPs are in place. BMPs shall be monitored and repaired if necessary to ensure maximum erosion, sediment, and pollution control.

- Permittee shall prohibit the use of erosion control materials potentially harmful to fish and wildlife species, such as mono-filament netting (erosion control matting) or similar material, within and adjacent to CDFW jurisdictional areas.
- All fiber roles³, straw waddles, and/or hay bales utilized within and adjacent to the project site shall be free of non-native plant materials.
- Permittee shall comply with all litter and pollution laws. All contractors, subcontractors, and employees shall also obey these laws and it shall be the responsibility of Permittee to ensure compliance.
- Permittee shall not allow water containing mud, silt, or other pollutants from grading, aggregate washing, or other activities to enter a lake, streambed, or flowing stream or be placed in locations that may be subjected to high storm flows.
- Spoil sites shall not be located within a lake, streambed, or flowing stream or locations that may be subjected to high storm flows, where spoil shall be washed back into a lake, streambed, or flowing stream where it will impact streambed habitat and aquatic or riparian vegetation.
- Raw cement/concrete or washings thereof, asphalt, paint, or other coating material, oil or other petroleum products, or any other substances which could be hazardous to fish and wildlife resources resulting from project related activities shall be prevented from contaminating the soil and/or entering the waters of the State. These materials, placed within or where they may enter a lake, streambed, or flowing stream by Permittee or any party working under contract or with the permission of Permittee, shall be removed immediately.
- No equipment maintenance shall be done within or near any lake, streambed, or flowing stream where petroleum products or other pollutants from the equipment may enter these areas under any flow.
- No broken concrete, cement, debris, soil, silt, sand, bark, slash, sawdust, rubbish, or washings thereof, oil or petroleum products, or other organic or earthen material from any construction or associated activity of whatever nature shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the State. When operations are completed, any excess materials or debris shall be removed from the

³ Fiber rolls or erosion control mesh shall be made of loose-weave mesh that is not fused at the intersections of the weave, such as jute, or coconut (coir) fiber, or other products without welded weaves. Non-welded weaves reduce entanglement risks to wildlife by allowing animals to push through the weave, which expands when spread.

work area. No rubbish shall be deposited within 150 feet of the high water mark of any lake, streambed, or flowing stream.

Accidental Encroachments During Construction

The following measures shall also be incorporated into the construction documents and specifications, and implemented by the contractor, to avoid potential construction-related impacts to conserved riparian/riverine habitat outside of the approved disturbance limits:

- Construction worker training shall be provided by a qualified biologist at the first pre-construction meeting;
- Exclusionary fencing and signs shall be erected near the top of slope adjacent to conserved riparian/riverine habitat to prevent accidental/unauthorized intrusions during construction;
- No equipment shall be operated in areas of flowing water;
- Construction access and staging areas for storage of materials and heavy equipment, and for fueling, cleaning, or maintenance of construction vehicles or equipment, shall be prohibited within 20 feet from the top of slope adjacent to conserved riparian/riverine habitat; and
- A qualified biologist shall be on-site during initial clearing/grubbing, grading, and/or construction activities within the riparian/riverine habitat within Drainages A and B to be impacted, or within 100 feet of the habitat to be avoided, and shall periodically monitor these activities to ensure they do not exceed the fenced construction limits.

Post-Construction Human Disturbances

The project shall incorporate special edge treatments designed to minimize edge effects by providing a safe transition between developed areas and conserved riparian/riverine habitat, and which would be compatible with project operation and the protection and sustainability of conserved areas. Special edge treatments shall include native landscaping on manufactured slopes within the conserved areas and fencing/signage near the top of slope adjacent to conserved areas to prevent unauthorized public access, vandalism, illegal dumping, and other adverse human disturbances.

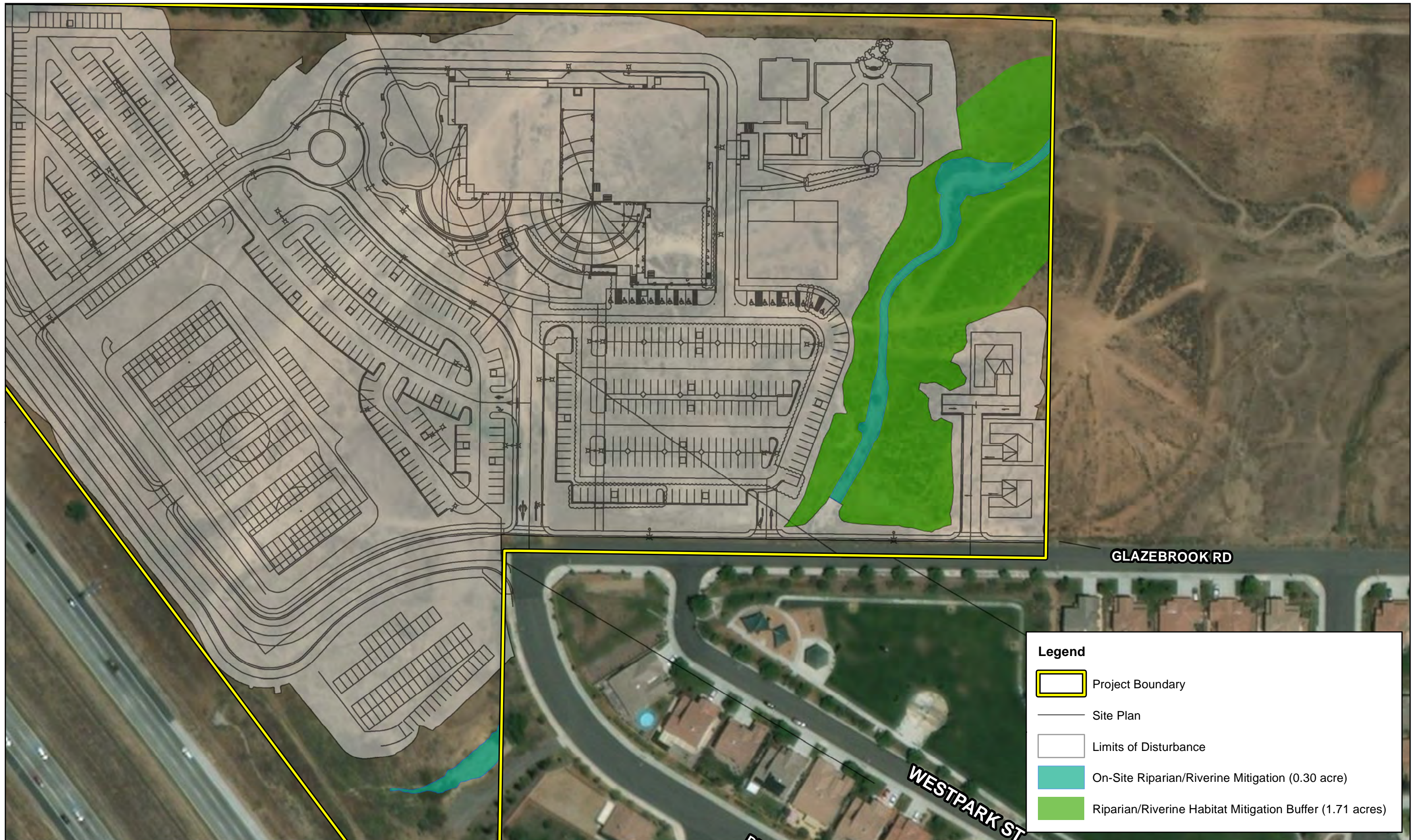
5.4.4 Mitigation Measures to Offset Direct Impacts

The following mitigation is proposed to offset direct impacts to Drainages A, B, and C.

To offset direct impacts to 0.17-acre of riparian/riverine habitat, the applicant proposes the creation of a mitigation site to enhance habitat within Drainage C totaling 0.30-acre of riparian/riverine habitat and 1.71-acre of RSS habitat on-site. Habitat “enhancement” activities shall include the removal of all non-native plant species from the entire mitigation site and non-riparian/wetland plant species (establishment only) from within the streambed, the removal of trash and debris; the installation of temporary irrigation; and the installation of appropriate container stock and seed mixes. Native plant materials (including seeds) that are proposed for removal during project activities will be used for restoration purposes, as will native riparian vegetation that is not proposed for removal but is already located within the mitigation site. Refer to Exhibit 10, *Proposed Mitigation Site*, for a depiction of the proposed mitigation site. The enhancement of 0.30-acre of riparian/riverine habitat and restoration/enhancement of 1.71-acre of RSS habitat that is biologically superior habitat to the riparian/riverine habitat within Drainage C and surrounding habitat that currently exists on-site, including that which will be directly impacted by site development.

All plant species installed within the mitigation site shall include only local California native container plants and cuttings and shall be typical of the existing native plant species present in the existing riparian/riverine areas within and adjacent to the project site. The streambed bottom is proposed to be revegetated with native riparian vegetation, and the streambanks are proposed to be revegetated/enhanced with native RSS plant species. It is recommended that Drainages A and B be pipelined underground across the project site and discharged into the mitigation site to provide increased water flows for the riparian vegetation during rain events. Plant material should be installed between October 1 and April 30 to maximize the benefits of the winter rainy season. The planted area would have a conservation easement placed over it and would be maintained by a third party approved by the regulatory agencies that would provide for the long-term management and maintenance in perpetuity.

The Applicant will be responsible for implementing the requirements of the Habitat Mitigation and Monitoring Plan and initial establishment. The HMMP will describe the methods used for invasive species and trash removal, fencing and signage replacement, will identify success criteria and reporting requirements, and will define responsibilities, adaptive management, and expected maintenance. The long-term management and maintenance costs would transfer to a third party as approved by the regulatory agencies. The mitigation site would be off-limits to the public and residents. Furthermore, signage and homeowner education materials would be provided to local residents, as well as the staff and members of the Faith Bible Church, regarding these restrictions.



Legend

- Project Boundary
- Site Plan
- Limits of Disturbance
- On-Site Riparian/Riverine Mitigation (0.30 acre)
- Riparian/Riverine Habitat Mitigation Buffer (1.71 acres)

5.5 DEMONSTRATION OF INCREASE IN POST-PROJECT RIPARIAN/RIVERINE FUNCTION AND VALUES

With implementation of the project design features, and the mitigation measures proposed in this DBESP analysis, the proposed project would represent a biologically equivalent or superior alternative to the existing pre-project conditions. The enhancement of native RSS and riparian/riverine habitats within the on-site mitigation site would result in a biologically superior function and value over the existing functions and values. The mitigation site would incorporate greater plant biodiversity and result in a betterment of water quality from what currently occurs on-site. This in turn results in a betterment to downstream waters (i.e., Murrieta Creek). The existing habitat within the mitigation site is primarily disturbed RSS in upland areas with generally bare ground in the streambed. These provide for little habitat value and species diversity.

The project would enhance jurisdictional areas on-site and provide a functional increase to water quality and biological functions when compared to the existing condition. Both increased water quality and increased biodiversity would occur on-site as part of the proposed mitigation. An increase in water quality due to the proposed planting would occur resulting in a benefit to downstream waters (i.e. Murrieta Creek). Nuisance and stormwater flows originating from both off-site and on-site sources would be expected to contain nutrients, oxygen-demanding organic matter, heavy metals, hydrocarbons, pesticides, trace organics, and coliform bacteria elevated from pre-construction, background levels, but at levels typical of other urban watersheds. However, implementation of separate water quality control measures, including use of structural and non-structural BMPs to treat runoff, would ensure that implementation of the project would not result in degradation of receiving body water quality. Flows from upstream locations remain unchanged.

The post-project riparian/riverine function and values will be biologically superior by providing the following:

- The enhancement and long-term management of 0.30-acre of riparian/riverine habitat within Drainage C. This area currently contains limited riparian habitat but would be enhanced to include riparian plant species that could be supported in this area throughout its limits. It is anticipated that the current project design can be altered to deliver additional water both from Drainages A and B, as well as from on-site development to promote the maintenance of healthy riparian habitat.
- The restoration/enhancement and long-term management of 1.71-acre of RSS habitat. This buffer area would reduce edge effects from the surrounding development to the riparian/riverine habitat within Drainage C.

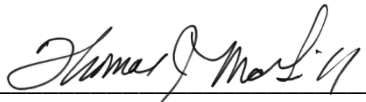
- Implementation of the minimization measures described in Section 5.4.3 will ensure that all indirect project-related impacts to riparian/riverine habitat, including that which may result from fugitive dust, toxics, invasive plant species, and grading/land development, are avoided or minimized to the greatest extent feasible.

The above actions would result in a net increase in the function and value of riparian/riverine habitat within the region and on the project site. The proposed mitigation measures would increase the functions and ecological values of on-site riparian/riverine habitat as compared to the existing on-site jurisdictional features, which consist generally of a mixture of bare ground, RSS, and non-native grassland, with very little riparian habitat. Water quality, nutrient uptake, particulate removal, and other hydrology benefits to Murrieta Creek provided by the mitigation site within Drainage C would be significantly increased and enhanced. The proposed mitigation would provide an increase of habitat value for riparian and sage scrub species. The buffer/open space constructed contiguously to the proposed mitigation site will enhance landscape connectivity and buffer quality along the entire frontage of the project site. The proposed mitigation site will create significant species and habitat quality and diversification when compared to the existing condition or a condition where development abuts the existing on-site jurisdictional features.

Section 6 Certification

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Date: October 22, 2018

Signed: 
Thomas J. McGill, Ph.D.

Section 7 References

- California Department of Fish and Wildlife (CDFW). 2018. RareFind 5, California Natural Diversity Data Base, California. Data Base report on threatened, endangered, rare or otherwise sensitive species and communities for the Murrieta and Wildomar 7.5-minute USGS quadrangles.
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Appendix A RCIP Conservation Summary Report

 Riverside County Transportation and Land Management Agency - TLMA

Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)

APN	Cell	Cell Group	Acres	Area Plan	Sub Unit
376410002	Not A Part	Independent	10.05	Elsinore	Not a Part
376410024	Not A Part	Independent	14.45	Elsinore	Not a Part

HABITAT ASSESSMENTS

Habitat assessment shall be required and should address at a minimum potential habitat for the following species:

APN	Amphibia Species	Burrowing Owl	Criteria Area Species	Mammalian Species	Narrow Endemic Plant Species	Special Linkage Area
376410002	NO	YES	NO	NO	NO	NO
376410024	NO	YES	NO	NO	NO	NO

Burrowing Owl

Burrowing owl.

If potential habitat for these species is determined to be located on the property, focused surveys may be required during the appropriate season.

Background

The final MSHCP was approved by the County Board of Supervisors on June 17, 2003. The federal and state permits were issued on June 22, 2004 and implementation of the MSHCP began on June 23, 2004.

For more information concerning the MSHCP, contact your local city or the County of Riverside for the unincorporated areas. Additionally, the Western Riverside County Regional Conservation Authority (RCA), which oversees all the cities and County implementation of the MSHCP, can be reached at:

Western Riverside County Regional Conservation Authority
3403 10th Street, Suite 320
Riverside, CA 92501

Phone: 951-955-9700
Fax: 951-955-8873

www.wrc-rca.org

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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.