Redlands Boulevard and Hemlock Avenue Gas Station Project

MSHCP
Determination of Biologically Equivalent or Superior Preservation

prepared for

A & S Engineering
28405 Sand Canyon Road, Suite B
Canyon Country, California 91387
Contact: Ahmad Ghaderi

prepared by

Rincon Consultants, Inc.
2215 Faraday Avenue, Suite A
Carlsbad, California 92008

October 2021

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

Table of Contents

Figures

Tables

Appendices

Executive Summary

Rincon Consultants, Inc. (Rincon) prepared this Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Determination of Biologically Equivalent or Superior Preservation (DBESP) for the Redlands Boulevard and Hemlock Avenue Gas Station Project (project) given the project's proposed impacts to MSHCP Section 6.1.2 riparian/riverine habitat.

The project site consists of approximately 7.53 acres and is located in the city of Moreno Valley, Riverside County, California on a vacant lot southwest of the intersection of Redlands Boulevard and Hemlock Avenue. The majority of the project site is currently proposed for the construction of a gas station with a convenience store and service restaurant, while the southern portion of the project site will be left undeveloped.

The Western Riverside County Regional Conservation Authority (RCA) MSHCP information tool was queried using the parcel information for the project site to determine potential MSHCP sensitive species survey and conservation requirements for the project. The proposed project does not occur within a survey area for amphibians, mammals, Criteria Area or Narrow Endemic Plant Species, but it does occur within a survey area for burrowing owl (*Athene cunicularia*) (BUOW). In addition, this DBESP also includes assessments for riparian/riverine habitat, riparian/riverine species and vernal pool/fairy shrimp habitat as well as the urban/wildlands interface.

The project site consists of vacant land which has been subject to periodic mechanical disturbance (Google Earth Pro 2021) and is dominated by annual, ruderal vegetative species.

The project site contains potentially suitable nesting habitat for BUOW. However, no BUOW sign was detected within the BUOW study area. The BUOW study area is defined as the 7.53-acre project site and an additional 500-foot buffer for the BUOW habitat assessment. A BUOW habitat assessment and focused BUOW surveys of the study area were previously conducted by Helix Environmental Planning, Inc. (Helix) in November 2017 and April 2018, respectively. Potentially suitable burrows were detected, however BUOW or sign thereof was not observed. The results were identical during field reconnaissance in March 2021.

The project site contains riparian/riverine resources but does not contain habitat for riparian/riverine/vernal pool species. Project implementation would result in permanent impacts to 0.21 acre of riparian/riverine area. A DBESP is therefore required. To compensate for the permanent loss of 0.21 acre of riparian/riverine resources in the project site, ensure no net loss of riparian/riverine resources, and address the temporal loss of riparian/riverine resources, 0.21 acre of re-establishment credits and 0.21 acre of rehabilitation credits from the Riverpark Mitigation Bank will be purchased. A total of 0.42 acre of riparian/riverine restoration credits will therefore be provided. These offsite credits will offer a biologically equivalent/superior option to an avoidance alternative as the riparian/riverine areas on site do not offer suitable habitat for riparian/riverine species. The project does not propose any impacts to urban/wildlands interfaces. With implementation of this DBESP, the project would be consistent with the MSHCP.

1 Introduction

This report documents the findings of a Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Determination of Biologically Equivalent or Superior Preservation (DBESP) for the Redlands Avenue and Hemlock Boulevard project. The project would impact areas that are described in Section 6.1.2 (Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools) of the MSHCP (Dudek 2003). Any impacts that are unavoidable shall be mitigated such that the lost functions and values as they relate to plant and wildlife species covered in the MSHCP are replaced to conditions that are equivalent or superior.

1.1 Project Location

The project site consists of 7.53 acres which is located southwest of the intersection of Redlands Boulevard and Hemlock Avenue within the city of Moreno Valley (city), California (Figure 1 & Figure 2). The site encompasses Assessor's Parcel Number (APN) 488-310-012 and adjacent public road right-of-way and is located within Township 3 South, Range 3 West, and Section 2, San Bernardino baseline and meridian of the United States (U.S.) Geological Survey (USGS) *Sunnymead*, California 7.5-minute topographic quadrangle (Figure 3).

The area is primarily low-density residential and agricultural in nature. The project site is located within the San Timoteo Habitat Management Unit of the MSHCP's Reche Canyon/Badlands Area Plan but does not occur within a Cell Group or Criteria Cell. The project does not occur within a required amphibian or mammal or invertebrate survey area and does not occur in a Criteria Area Species Survey Area or Narrow Endemic Plant Survey Area. It does, however, occur in a burrowing owl (*Athene cunicularia*) (BUOW) survey area.

1.2 Project Description

The project would include the development of a gas station with 11 fueling stations (16 total dispensers) and a 5,123 square foot food mart/retail store. Nine of the fueling stations would be gasoline dispensers and would be underneath a 5,581 square foot canopy. The remaining two fueling stations would be diesel dispensers underneath a 3,120 square foot canopy. An 18 x 12.5 x six-foot trash enclosure would also be constructed. The project would provide a total of 18 parking spaces in a surface lot with two stalls for electric vehicle parking and charging. Additional improvements include curb and sidewalk improvements, landscaping, and storm drain improvements. Access to the project site would be provided from two driveways off Redlands Boulevard and Hemlock Avenue. Of the 7.53-acre project site, only approximately 2.84 acres (project impact area) would be developed; the remaining 4.27 acres would remain undeveloped.

The project would also modify an existing roadside drainage channel along the west side of Redlands Boulevard. These modifications include removal of two existing 24-inch reinforced concrete pipes (RCPs) with headwalls that outlet into the roadside drainage channel near the intersection of Redlands Boulevard and Hemlock Avenue, replacing the roadside drainage channel with an underground 54-inch RCP, and removal of an existing concrete box culvert that currently conveys flows under Spruce Avenue. The proposed 54-inch RCP would then outlet into an existing concrete channel south of Spruce Avenue and west of Redlands Boulevard.

Figure 1 Regional Location

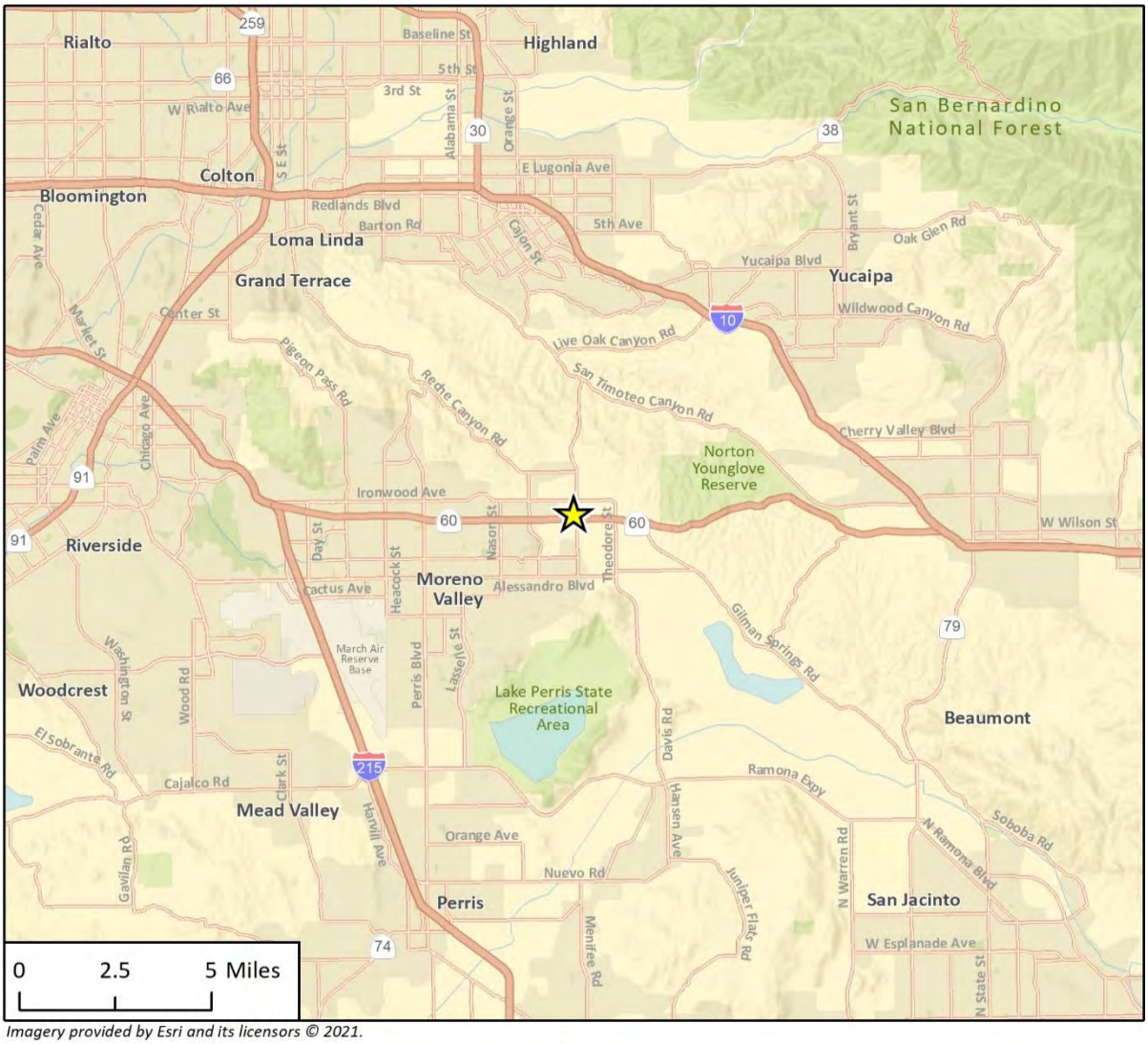
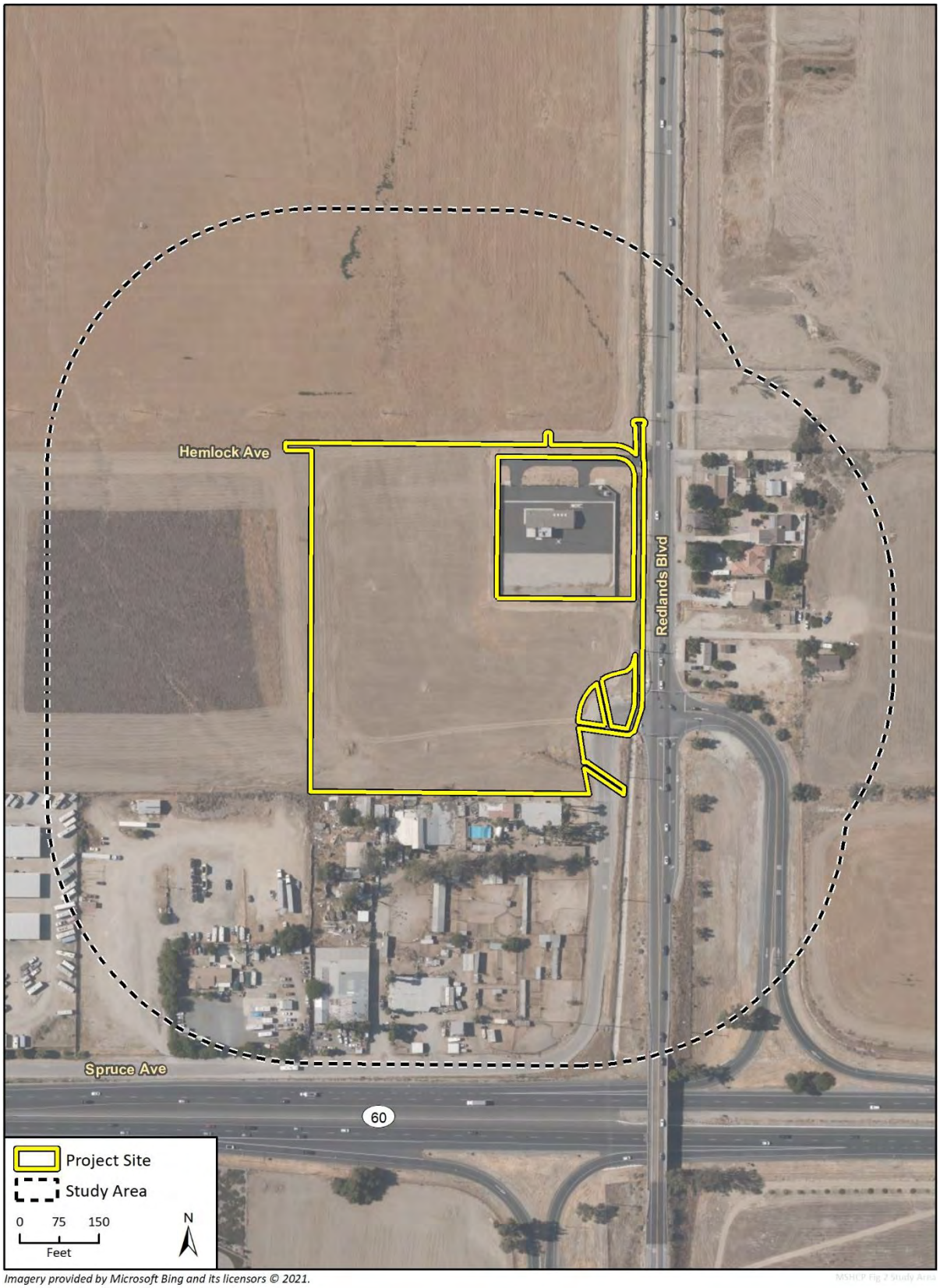
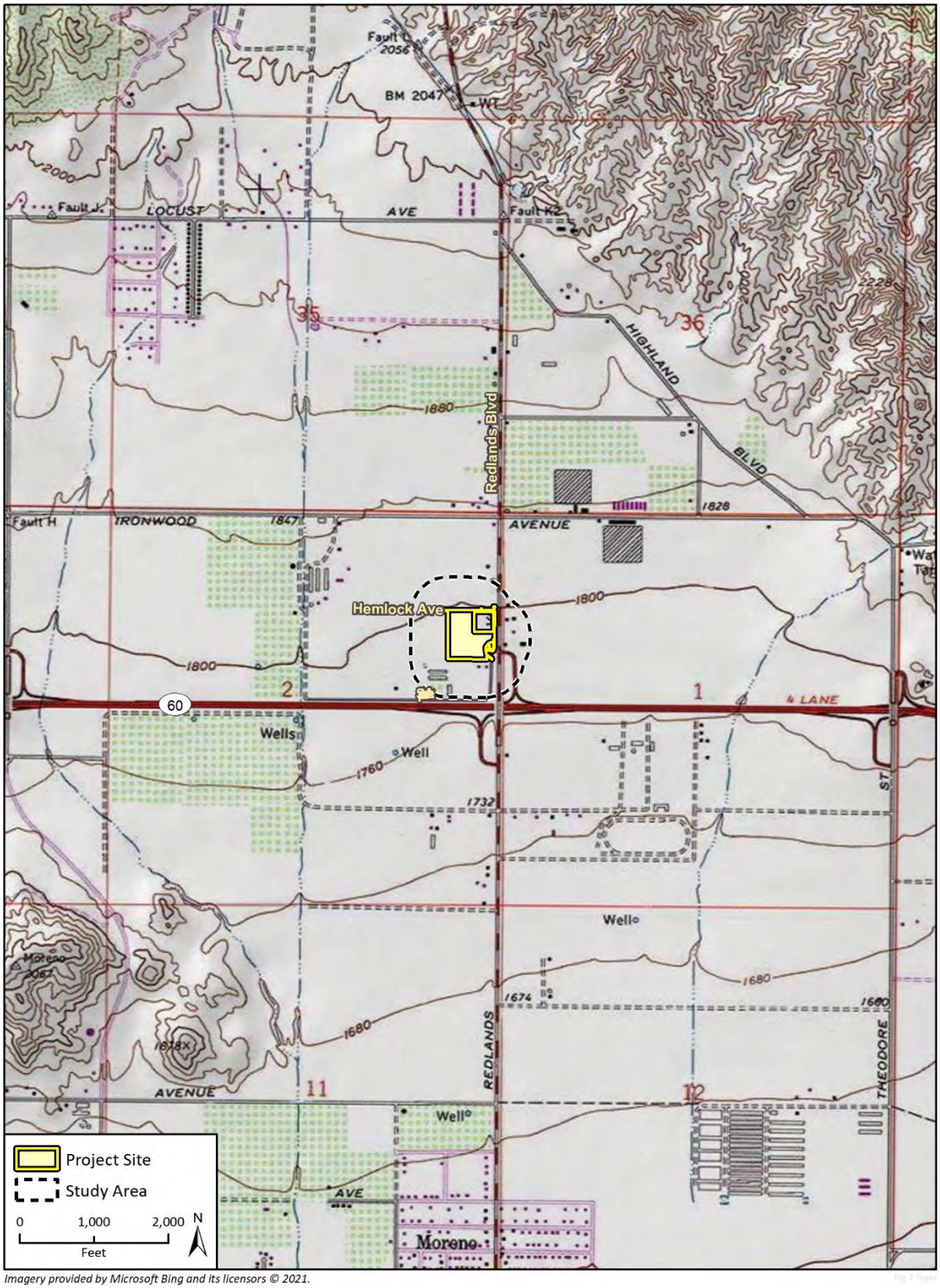


Figure 2 Project Location



Imagery provided by Microsoft Bing and its licensors © 2021.

Figure 3 Topographic Map of Project Site



Imagery provided by Microsoft Bing and its licensors © 2021.

Construction of the project would start in January 2022 and is estimated to be completed in December 2022 for a total construction period of 12 months, although the project construction schedule would be adjusted as necessary depending on agency permitting efforts. Construction activities would include site preparation, grading, building construction, paving, and architectural coating (e.g., painting). During grading, approximately 300 cubic yards of soil would be exported. All construction would occur within the current conceptual limits of the project.

1.3 Summary of Fieldwork

Potential jurisdictional limits of two drainage features were mapped in the field using a hand-held Trimble Geographic Positioning System unit with sub-meter accuracy during the survey on March 22, 2021 along with a BUOW survey. Detailed information regarding the methodology used is included in the MSHCP Consistency Analysis and Habitat Assessment and Jurisdictional Delineation Reports, dated September 9, 2021, which are included in this DBESP as Appendix A and B.

1.4 Topography and Soils

The project site consists of vacant land that has been graded and periodically disturbed by mechanical disking. The site is relatively level with elevations on site ranging from 1,792 feet above mean sea level (msl) at the northern end and 1,780 feet above msl at the southern end.

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey identifies two soil map units in the project site (Figure 4) (USDA NRCS 2021a). These soil units are from the USDA NRCS Soil Survey of the Western Riverside Area, California, which was conducted on a broader scale than this study and did not necessarily include on site observations. The physical characteristics of the soil units, as described below, are general and not necessarily indicative of characteristics currently present within the study area. The soils on the site have been disturbed and likely no longer resemble the mapped soil types. None of these soils are considered hydric. The descriptions of the soil map units (USDA NRCS 2021b) are presented below.

San Emigdio Soils

Two soil types of the San Emigdio series occur on site: San Emigdio fine sandy loam, 2 to 8 percent slopes, eroded (SeC2) and San Emigdio loam, 2 to 8 percent slopes (SgC). The San Emigdio series consists of very deep, well drained soils that form in dominantly sedimentary alluvium. They are found on fans and floodplains and typically have low slopes. They are used for growing citrus fruit, alfalfa, and dryland grain and uncultivated areas are typically annual grasses and forbs (USDA NRCS 2021b). Soils on site have been tilled in the past for agricultural purposes. San Emigdio soils are not considered hydric.

1.5 Vegetation Communities

Three vegetation communities/land cover types occur within the study area: Annual brome grasslands (*Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance), Developed, and Disturbed areas (Figure 5).

Figure 4 USDA Soils Map

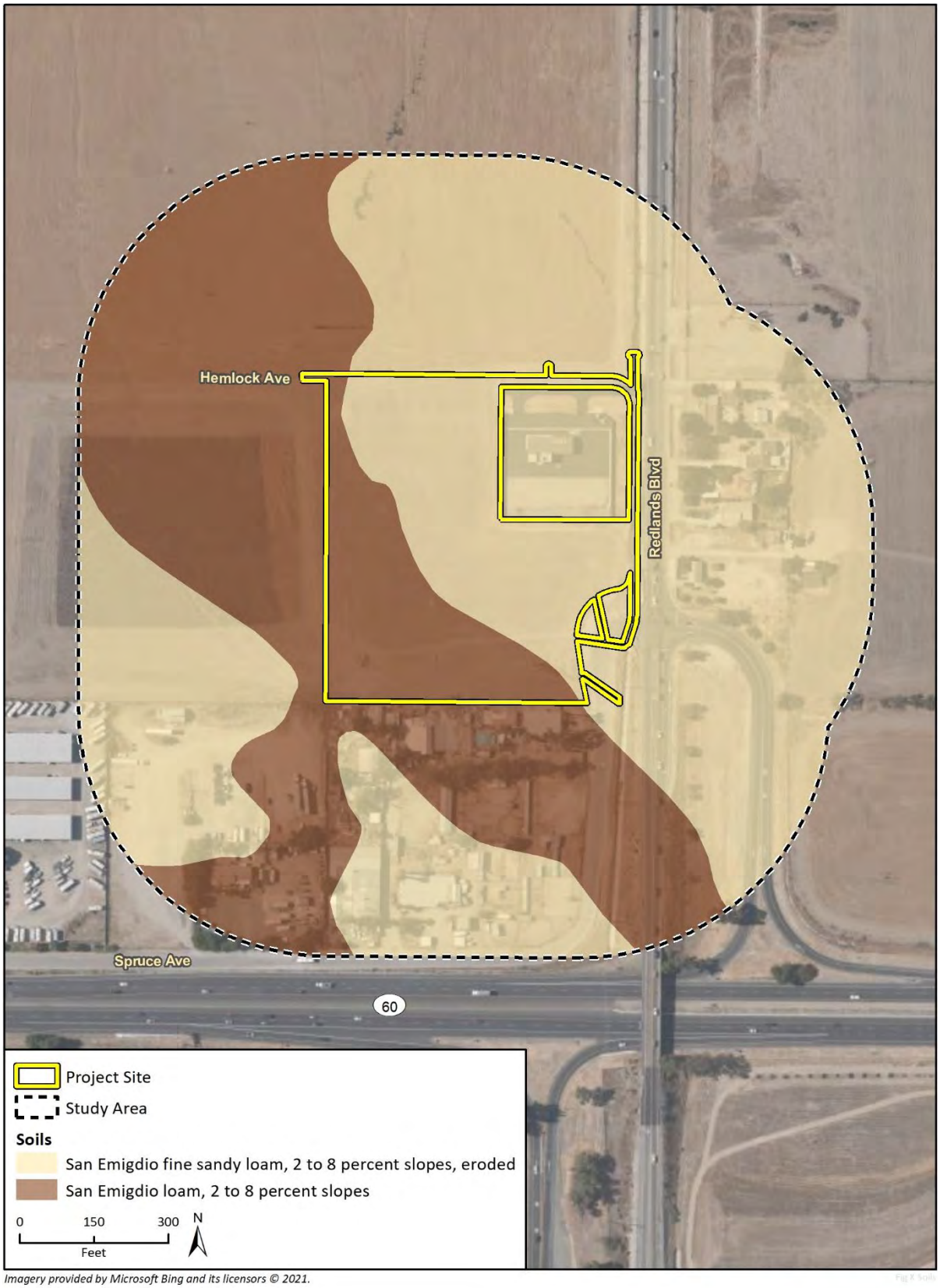
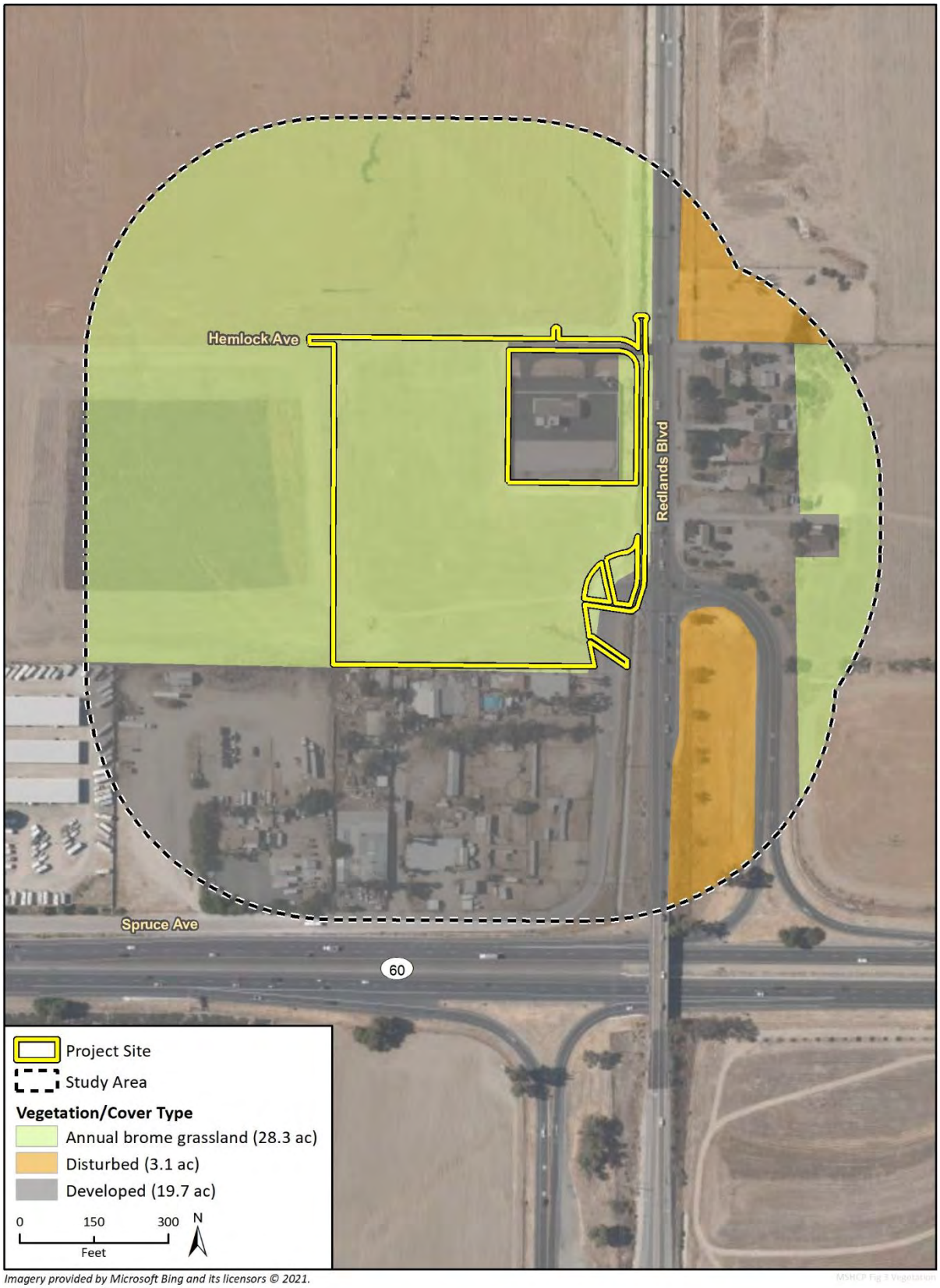


Figure 5 Vegetation Communities and Land Cover Types



Imagery provided by Microsoft Bing and its licensors © 2021.

Annual Brome Grassland

Annual brome (*Bromus* spp.) grasslands are annual non-native grasslands with more than 60% of the herbaceous layer consisting of Bromus species. The entire project site consists of land that is regularly disturbed by tilling, resulting in annual brome grassland as the only vegetation community on site. Species diversity is limited, with only annual grassland species observed including red brome (*Bromus rubens*), ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum*), Rancher's fiddleneck (*Amsinckia menziesii*), and short-pod mustard (*Hirschfeldia incana*). Annual brome grassland comprises 28.3 acres in the study area.

Developed

Developed areas within the study area are comprised of residences and commercial centers, as well as associated ornamental vegetation and the Redlands and Hemlock booster station. Developed areas comprise 19.7 acres in the study area.

Disturbed

Disturbed areas within the study area are comprised of very little grassy and ruderal vegetation and contain bare ground that has been mechanically disturbed. Disturbed areas comprise 3.1 acres in the study area.

1.6 General Wildlife

The study area provides limited habitat for wildlife species that commonly occur within urban communities in Riverside County. Common urban-adapted avian species such as American kestrel (*Falco sparverius*), Bewick's wren (*Thryomanes bewickii*), American crow (*Corvus brachyrhynchos*), mourning dove (*Zenaida macroura*), lesser goldfinch (*Spinus psaltria*), and Anna's hummingbird (*Calypte anna*) were observed in the study area during the survey. Numerous small mammal burrows likely belonging to California ground squirrels (*Otospermophilus beecheyi*) and an individual California ground squirrel were observed throughout the site.

2 Riparian/Riverine & Vernal Pool Habitat

Section 6.1.2 of the MSHCP describes the process to protect species associated with riparian/riverine areas and vernal pools. As defined in the MSHCP, riparian/riverine areas are lands that contain habitat dominated by trees, shrubs, persistent emergents or emergent mosses and lichens that occur close to or depend on a nearby freshwater source or areas that contain a freshwater flow during all or a portion of the year. These areas may support one or more species listed in Section 6.1.2 of the MSHCP. Vernal pools are seasonal wetlands that occur in depressions, typically have wetland indicators that represent all three parameters (soils, vegetation, and hydrology), and are defined based on vernal pool indicator plant species during the wetter portion of the growing season but normally lack wetland indicators associated with vegetation and/or hydrology during the drier portion of the growing season.

2.1 Riparian/Riverine & Vernal Pool Habitat

Based upon the findings of Rincon's reconnaissance survey and jurisdictional delineation, there are two features on the project site. These drainage features do not comprise U.S. Army Corps of Engineers (USACE)-jurisdictional waters of the U.S. under the Clean Water Act (CWA) as they are roadside ditches and erosional features and thus would not be regulated by USACE per the 2008 Rapanos Guidance, but they may qualify as Santa Ana Regional Water Quality Control Board (RWQCB)-jurisdictional waters of the State under the Porter-Cologne Water Quality Control Act and as California Department of Fish and Wildlife (CDFW)-jurisdictional streambeds under California Fish and Game Section 1602.

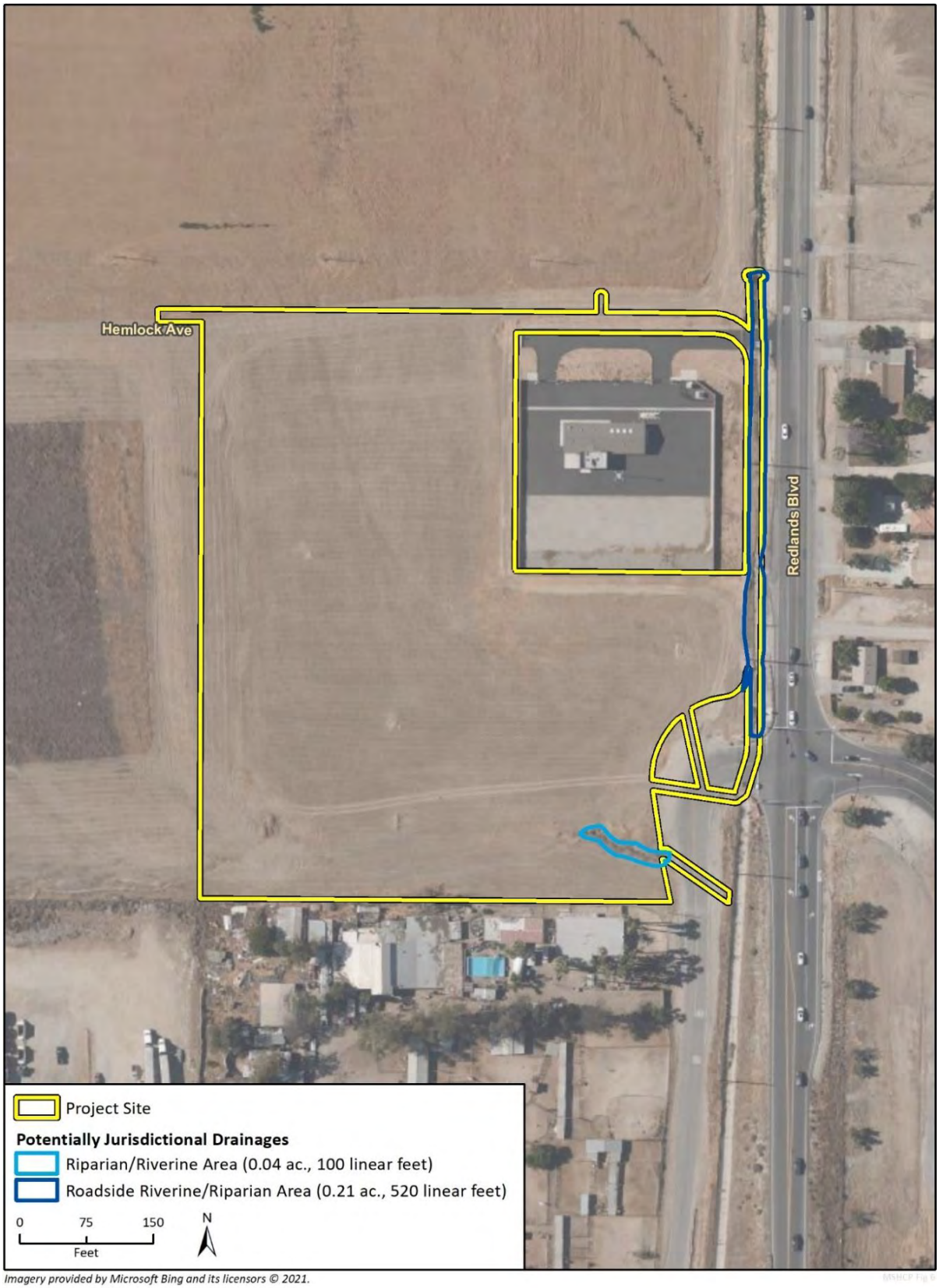
The two drainage features on the project site are considered riverine per MSHCP Section 6.1.2 (Figure 6). These features do not contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or depend on a nearby freshwater source. The two features contain upland, non-riparian/riverine vegetative species and do not contain habitat for MSHCP Section 6.1.2 wildlife species. The features do contain a freshwater flow during a portion of the year, and they do drain directly into an area that is described for conservation under the MSHCP or areas already conserved as they eventually convey flows via an underground storm drain system into downstream waters.

Roadside Drainage Channel

The roadside drainage channel in the east portion of the project site and along the west side of Redlands Boulevard originates from road runoff near the intersection of Redlands Boulevard and Highland Boulevard and conveys flows through a combination of an earthen channel and storm drain culverts. It conveys flows for approximately two miles and into an underground storm drain system near the intersection of Redlands Boulevard and Dracaea Avenue. According to City Planning staff, this storm drain system eventually outlets to downstream waters.

Hydrology within the roadside drainage channel is supplied primarily by storm flows and urban runoff from upstream of the site as well as sheet flow from the adjacent uplands. The drainage contained evidence of flow, including channel incision, scouring, water marks, and sediment and drift deposits. This channel appeared to be an ephemeral water body due to its overall dry condition, and storm flows appeared to last for only a short time following precipitation.

Figure 6 MSHCP 6.1.2 Riparian/Riverine Resources



This feature is regularly weed abated and contains an unlined substrate until Spruce Avenue, where the rest of the channel is concrete-lined running south until flows enter a culvert under State Route 60. Vegetative species associated with the unlined portion of the roadside drainage channel include ripgut brome, slender wild oat (*Avena barbata*), wall barley, short-pod mustard, common sunflower (*Helianthus annuus*), arroyo lupine (*Lupinus succulentus*), red-stem filaree (*Erodium cicutarium*), sourclover (*Melilotus indicus*), brittlebush (*Encelia farinosa*), hairy vetch (*Vicia villosa*), and stinknet (*Oncosiphon pilulifer*).

Jurisdiction

The roadside drainage channel contains 0.21 acre and 520 linear feet of potential streambed subject to the jurisdiction of CDFW, equivalent to riparian/riverine area. This represents the furthest extent of potential jurisdictional area within the channel. The channel's measured width from bank to bank ranges from 12 feet to 24 feet, averaging approximately 18 feet. No riparian vegetation is associated with this feature.

The roadside drainage channel contains 0.07 acre and 520 linear feet of potential non-wetland waters subject to the jurisdiction of the RWQCB. The channel's measured ordinary highwater mark (OHWM) ranges from two feet to 14 feet, averaging approximately eight feet.

Erosional Drainage Ditch

The second feature is an erosional feature that is part of a larger discontinued wash that originates from the Box Springs Mountains and flows southeastward over much of the Moreno Valley. The erosional drainage ditch is a small feature in the southeast portion of the project site that becomes incised where sheet flows converge in a single area. This feature does not receive enough water long enough for it to have different soils or vegetation from the rest of the project site but does connect directly to a culvert under Spruce Avenue where it empties into the roadside drainage channel that borders Redlands Boulevard. Evidence of water flow west and upstream of the incised feature is obscured from disking activities and is weak in the incised feature itself due to dense non-native grass and ruderal vegetation. This channel appeared to be an ephemeral water body due to its overall dry condition, and storm flows appeared to last for only a short time following precipitation. Vegetative species associated with this erosional feature includes ripgut brome, wall barley, slender wild oat, Russian thistle (*Salsola tragus*), sisymbrium (*Sisymbrium* spp.), and buffalo gourd (*Cucurbita foetidissima*).

Jurisdiction

The erosional drainage ditch contains 0.04 acre and 100 linear feet of potential streambed subject to the jurisdiction of CDFW, equivalent to riparian/riverine area. This represents the furthest extent of potential jurisdictional area within the ditch. The ditch's measured width from bank to bank ranges from 12 feet to 16 feet, averaging approximately 14 feet. No riparian vegetation is associated with this feature.

The erosional drainage ditch contains 0.02 acre and 100 linear feet of potential non-wetland waters subject to the jurisdiction of the RWQCB. The ditch's measured OHWM ranges from five feet to nine feet, averaging approximately seven feet.

Total potentially jurisdictional acreage found within the project site is 0.25 acres of CDFW jurisdiction (equivalent to riverine/riparian) and 0.09 acres of RWQCB jurisdiction (Table 1).

Table 1 RWQCB and CDFW (Riverine/Riparian) Jurisdictional Area

Drainage	RWQCB Non-wetland Waters of the State (linear ft.)	CDFW Jurisdictional Streambed/ Riverine/Riparian Areas (linear ft.)
Roadside Drainage Channel	0.07 (520)	0.21 (520)
Erosional Drainage Ditch	0.02 (100)	0.04 (100)
Total	**0.09 (620)**	**0.25 (620)**

Vernal Pools and Fairy Shrimp Habitat Assessment

Vernal pools are depressions in areas where a hard underground layer prevents rainwater from draining downward into the subsoils. When rain fills the pools in the winter and spring, the water collects and remains in the depressions. In the springtime the water gradually evaporates away, until the pools become completely dry in the summer and fall. Vernal pools tend to have an impermeable layer that results in ponded water. The soil texture (the amount of sand, sill, and day particles) typically contains higher amounts of fine silts and clays with lower percolation rates, as opposed to the soils that are found on-site. None of these conditions (i.e., no depressions, hydric soils, etc.) were observed on the project site or study area.

No vernal pools or fairy shrimp habitat were observed within the features in the project site or study area. The creeks flow regularly, and water does not stagnate long enough to create conditions suitable for vernal pool species.

2.1.1 Functions and Values

The two features on site contribute to downstream flows south of the project. They do not contain adequate hydrology to support hydric soils or vegetation.

2.1.2 Riparian/Riverine and Vernal Pool Species

Twenty-three covered plant species and 12 wildlife species are listed in section 6.1.2 of the MSHCP as potentially occurring in riparian/riverine and vernal pool habitats. The MSHCP requires an evaluation of the function and values of the riparian/riverine habitat for the potential to support least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus),* and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). Least Bell's vireo primarily inhabits willow (*Salix* sp.) and mesquite (*Prosopis* sp.) thickets within large riverine areas with dense cover within one to two meters of the ground and a dense, stratified canopy (Riverside County 2003, Sibley 2016). The study area is dominated by exotic grasses and has no riparian habitat. Therefore, the site has no potential to support least Bell's vireo due to the absent habitat constituents required to support the species. Southwestern willow flycatcher primarily inhabits willow riparian areas with a dense understory which does not exist within the study area. Western yellow-billed cuckoo primarily inhabits riparian areas with an abundance of cottonwood (*Populus* sp.) and willow trees which does not exist within the study area. These three species would not be expected to occur within the study area and were not observed during the reconnaissance survey. No vernal pool or fairy shrimp habitat occurs within the proposed project site; and therefore, no further actions related to vernal pools are required pursuant to the MSHCP.

2.1.3 Direct and Indirect Impacts

Project implementation would permanently impact 0.21 acre of potential CDFW jurisdiction, equivalent to riparian/riverine, in the roadside drainage channel and less than 0.01 acre in the erosional feature (Figure 7; Table 2). Total permanent impacts to riparian/riverine area are therefore 0.21 acre. Of the 0.21 acre of potential CDFW jurisdiction (riparian/riverine area), 0.07 acre are considered potential non-wetland waters of the State under the Santa Ana RWQCB. With implementation of proposed avoidance measures, temporary impacts to riparian/riverine resources are not anticipated, as the entirety of the roadside drainage channel within the project site would be converted to an underground storm drain and impacts to the erosional feature would be limited to removal and replacement of the storm drain under Spruce Avenue.

Table 2 Anticipated Permanent Impacts to Potentially Jurisdictional Areas

Drainage	RWQCB Non-wetland Waters of the State (linear ft.)	CDFW Jurisdictional Streambed/ Riverine/Riparian Areas (linear ft.)
Roadside Drainage Channel	0.07 acre (520)	0.21 acre (520)
Erosional Drainage Ditch	Less than 0.01 acre (16)	Less than 0.01 acre (16)
Total	**0.07 acre (536)**	**0.21 acre (536)**

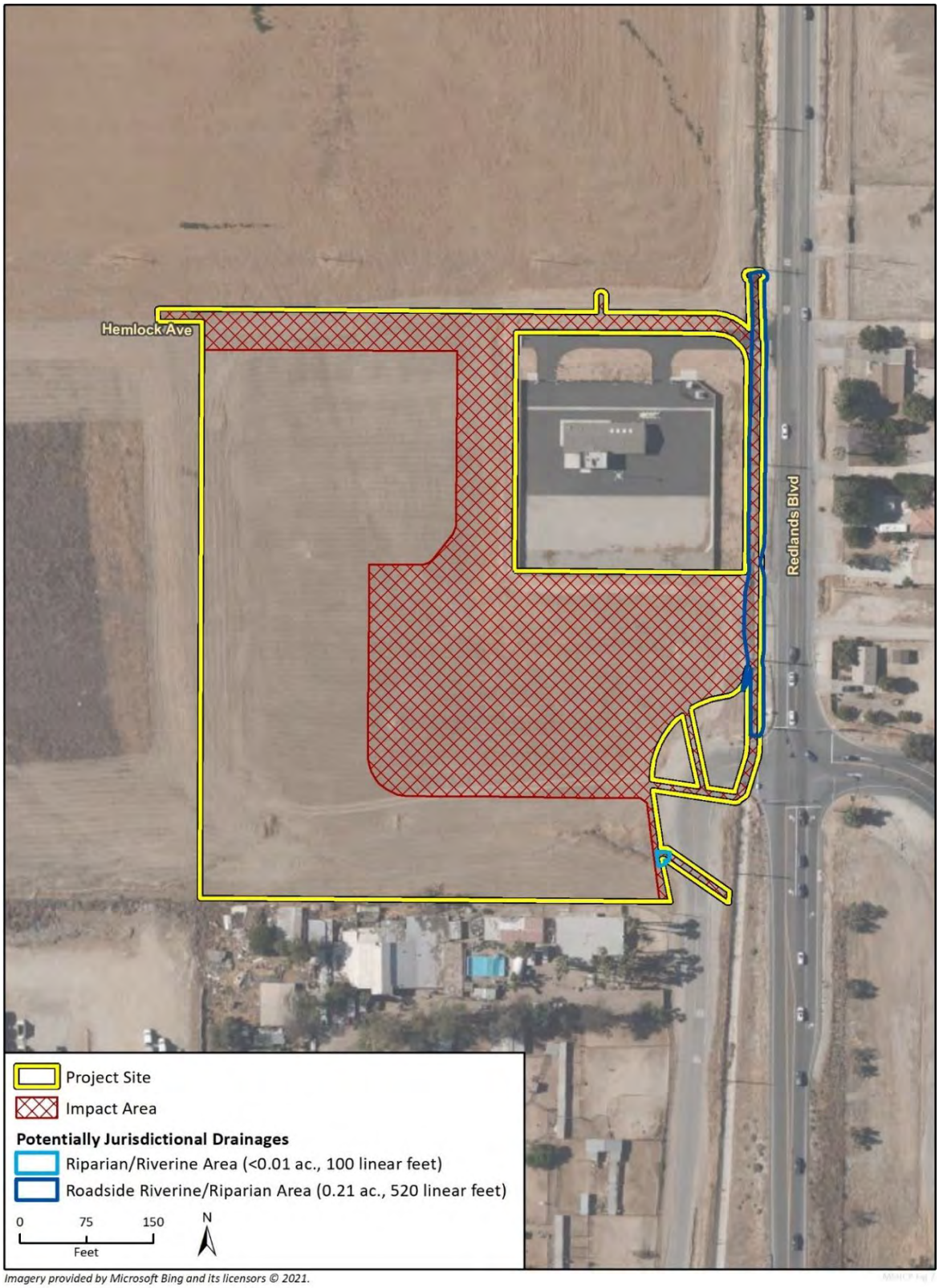
2.1.4 Mitigation

Compensatory mitigation for permanent impacts to riparian/riverine area would involve purchase of re-establishment credits at a 1:1 mitigation to impact ratio and rehabilitation credits at a 1:1 mitigation to impact ratio from the Riverpark Mitigation Bank. To compensate for the permanent loss of 0.21 acre of riparian/riverine resources in the project site, ensure no net loss of riparian/riverine resources, and address the temporal loss of riparian/riverine resources, the project applicant shall therefore purchase 0.21 acre of re-establishment credits and 0.21 acre of rehabilitation credits from the Riverpark Mitigation Bank, based on CDFW and United States Fish and Wildlife Service (USFWS) (collectively referred to as the "Wildlife Agencies") approval. This compensatory mitigation shall be implemented prior to ground disturbance associated with project construction activities.

Habitat quality in the riparian/riverine area is low due to the lack of riparian vegetation and the prevalence of non-native grass and weedy vegetation in the two drainage features on the project site. Habitat quality of the riparian vegetation to be restored at the Riverpark Mitigation Bank would exceed that currently found in the on-site riparian/riverine area, providing better habitat for MSHCP 6.1.2 riparian/riverine species.

The project would result in potential indirect impacts to riparian/riverine resources within the study area and downstream areas of the tributaries. Potential indirect impacts would be limited to the construction of the project. These include increased human vehicle traffic, dust, noise, possible toxin-laden runoff from construction equipment, and increased operational noise and night lighting during construction.

Figure 7 Impacts to Riparian/Riverine Resources



For unavoidable impacts to riparian/riverine systems, the MSHCP requires that a project establishes that it would be "biologically equivalent or superior" when compared to complete avoidance of the existing habitat. The purchase of mitigation credits will accomplish this goal, whereas the following avoidance and minimization measures will be utilized to avoid indirect impacts.

2.2 Avoidance and Minimization

In addition to the mitigation discussed above, best management practices from the MSHCP Appendix C (Dudek 2003) would be implemented during construction.

1. A qualified biologist shall conduct a training session for project personnel prior to grading. The training shall include a description of the species of concern and its habitats, the general provisions of the Endangered Species Act (Act) and the MSHCP, the need to adhere to the provisions of the Act and the MSHCP, the penalties associated with violating the provisions of the Act, the general measures that are being implemented to conserve the species of concern as they relate to the project, and the access routes to and project site boundaries within which the project activities must be accomplished.
2. Water pollution and erosion control plans shall be developed and implemented in accordance with RWQCB requirements.
3. The footprint of disturbance shall be minimized to the maximum extent feasible. Access to sites shall be via preexisting access routes to the greatest extent possible.
4. The upstream and downstream limits of project disturbance plus lateral limits of disturbance on either side of the stream shall be clearly defined and marked in the field and reviewed by the biologist prior to initiation of work.
5. Projects shall be designed to avoid the placement of equipment and personnel within the stream channel or on sand and gravel bars, banks, and adjacent upland habitats used by target species of concern.
6. Projects that cannot be conducted without placing equipment or personnel in sensitive habitats shall be timed to avoid the breeding season of riparian bird species identified in MSHCP Global Species Objective No. 7 (Dudek 2003).
7. When stream flows must be diverted, the diversions shall be conducted using sandbags or other methods requiring minimal in stream impacts. Silt fencing or other sediment trapping materials shall be installed at the downstream end of construction activity to minimize the transport of sediments off site. Settling ponds where sediment is collected shall be cleaned out in a manner that prevents the sediment from reentering the stream. Care shall be exercised when removing silt fences, as feasible, to prevent debris or sediment from returning to the stream.
8. Equipment storage, fueling, and staging areas shall be located on upland sites with minimal risks of direct drainage into riparian areas or other sensitive habitats. These designated areas shall be located in such a manner as to prevent any runoff from entering sensitive habitat. Necessary precautions shall be taken to prevent the release of cement or other toxic substances into surface waters. Project related spills of hazardous materials shall be reported to appropriate entities including but not limited to the City of Moreno Valley, Wildlife Agencies, and RWQCB and shall be cleaned up immediately and contaminated soils removed to approved disposal areas.

9. Erodible fill material shall not be deposited into water courses. Brush, loose soils, or other similar debris material shall not be stockpiled within the stream channel or on its banks.
10. The removal of native vegetation shall be avoided and minimized to the maximum extent practicable. Temporary impacts shall be returned to preexisting contours and revegetated with appropriate native species.
11. Exotic species that prey upon or displace target species of concern shall be permanently removed from the site to the extent feasible.
12. To avoid attracting predators of the species of concern, the project site shall be kept as clean of debris as possible. All food-related trash items shall be enclosed in sealed containers and regularly removed from the site(s).
13. Construction employees shall strictly limit their activities, vehicles, equipment, and construction materials to the proposed project footprint and designated staging areas and routes of travel. The construction area(s) shall be the minimal area necessary to complete the project and shall be specified in the construction plans. Construction limits shall be fenced with orange snow screen. Exclusion fencing shall be maintained until the completion of all construction activities. Employees shall be instructed that their activities are restricted to the construction areas.

3 Burrowing Owl Habitat

Methods

The update BUOW habitat assessment was conducted on March 22, 2021 between the hours of 0730 - 0900. Rincon biologist Christian Nordal walked the entire study area (i.e., the project site and 500-foot buffer, where accessible) to identify the presence or absence of suitable BUOW habitat. Areas of particular interest included all topographic relief areas characterized by low growing vegetation, grasslands, shrub lands with low density shrub cover, earthen berms, and any large debris piles. Access to adjacent properties to the north was not granted. Therefore, these areas were surveyed with binoculars to the maximum extent feasible from the edge of the project site.

Results/Impacts

Suitable surrogate burrow sites (California ground squirrel) were detected throughout the study area and BUOW has been historically documented approximately five miles west of the project site in 2007 (CDFW 2021b). Focused protocol surveys were conducted in April 2018 by Helix and results of the protocol surveys were that the entire site provides suitable habitat, but no BUOW sign or individuals were observed using the site.

The MSHCP requires pre-construction surveys for BUOW to be conducted in all areas of suitable habitat. Since the entire site consists of suitable habitat, a preconstruction survey for BUOW by a qualified biologist will be required within 30 days prior to site disturbance.

Direct and Indirect Impacts

BUOW are considered at present to not be utilizing the project site. Direct and indirect impacts are not anticipated. A preconstruction survey for BUOW by a qualified biologist will be required within 30 days prior to site disturbance. If BUOW are not observed, no further mitigation is required. However, if BUOW are observed, then consultation with the Wildlife Agencies regarding an appropriate buffer from active burrows is required. The Wildlife Agencies may additionally require preparation and implementation of an approved BUOW Avoidance and Relocation Plan to ensure any project impacts to BUOW are avoided.

4 Determination of Biologically Equivalent or Superior Preservation and Equivalency Findings

The project would result in impacts to riparian/riverine areas (0.21 acre total, all permanent impacts, no temporary) as a result of the development of the proposed project. The 0.21-acre riparian/riverine permanent impact area drains directly into a concrete-lined channel between Redlands Boulevard and Spruce Avenue. The proposed impacts would result in the conversion of the roadside drainage channel to an underground storm drain. Since flows within the ditches in the project site feed into a concrete-lined channel, hydrology is not expected to be impacted by the Project.

Mitigation credits at a 1:1 ratio (0.21 acre) for re-establishment and a 1:1 ratio (0.21 acre) for rehabilitation would be purchased from the Riverpark Mitigation Bank. The credits purchased would offer high quality riparian/riverine resources and be a biologically superior alternative to the ruderal habitat found in the drainages on site.

BUOW were considered absent at the time of survey and have been documented as absent in prior survey efforts. A preconstruction survey to confirm absence is required by the MSHCP and impacts to BUOW are not anticipated. However, if BUOW are observed, then consultation with the Wildlife Agencies regarding an appropriate buffer from active burrows is required. The Wildlife Agencies may additionally require preparation and implementation of an approved BUOW Avoidance and Relocation Plan to ensure any project impacts to BUOW are avoided.

Impacts are limited to permanent changes to the 0.21 acre of roadside drainage ditch and erosional drainage ditch found in the project site. These impacts will be mitigated through the purchase of mitigation credits as a biologically superior alternative. Therefore, the mitigation strategy is considered biologically equivalent or superior to an avoidance alternative.

5 Limitations, Assumptions, and Use Reliance

A Western Riverside County MSHCP DBESP has been prepared in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The biological investigation is limited by the scope of work performed. In addition, general biological (or protocol) surveys do not guarantee that the organisms are not present and will not be discovered in the future within the site. In particular, mobile wildlife species could occupy the site on a transient basis or re-establish populations in the future. Additionally, plants may not be identifiable outside the normal blooming period, and it may not be possible to detect them during surveys. Plants could also become present if environmental conditions change, such as rain events that result in a dormant individual plant blooming. Our field studies were based on current industry practices, which change over time and may not be applicable in the future. No other guarantees or warranties, expressed or implied, are provided. The findings and opinions conveyed in this report are based on findings derived from site reconnaissance, delineation of jurisdictional areas, review of California Natural Diversity Database (CNDDB) RareFind5, and specified historical and literature sources. Standard data sources relied upon during the completion of this report, such as the CNDDB, may vary with regard to accuracy and completeness. In particular, the CNDDB is compiled from research and observations reported to CDFW that may or may not have been the result of comprehensive or site-specific field surveys. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources it has used. Additionally, pursuant to our contract, the data sources reviewed included only those that are practically reviewable without the need for extraordinary research and analysis.

6 References

California Department of Fish and Wildlife (CDFW)

_____. 2021a. California Natural Diversity Database, Rarefind V. 5.

_____. 2021b. Biogeographic Information and Observation System (BIOS). Available at: http://www.dfg.ca.gov/biogeodata/bios/

_____. 2021c. Special Animals List. Biogeographic Data Branch, California Natural Diversity Database. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline

_____. 2021d. Special Vascular Plants, Bryophytes, and Lichens List. Biogeographic Data Branch, California Natural Diversity Database. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline

California Native Plant Society (CNPS), Rare Plant Program. 2021. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39). Sacramento, CA. Available at: http://www.rareplants.cnps.org

Google Earth Pro. 2021. Available at: https://www.google.com/earth/

Helix Environmental Planning, Inc. 2018. Focused Burrowing Owl Survey for the ARCO Station (Redlands and Hemlock) Project. May 4, 2018. 8 pages.

Holland, Robert F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. California Department of Fish and Wildlife, Nongame Heritage Program. 156 pgs.

Jepson Herbarium. 2014. Jepson Online Interchange for California Floristics. University of California, Berkeley. Available at: http://ucjeps.berkeley.edu/interchange/

Riverside County. 2003. Final Western Riverside County Multiple Species Habitat Conservation Plan. Available at: http://www.rcip.org/

_____. 2021. RCA MSHCP Information Map Tool. Available at: http://wrcrca.maps.arcgis.com/

Sawyer, J. O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento, California.

United States Department of Agriculture, Natural Resources Conservation Service (USDA NRCS). 2021a. Web Soil Survey: Custom Soil Resource Report for Western Riverside Area, California. Retrieved from https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

_____.2021b. Official Soil Series Descriptions. Available at: https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/class/data/?cid=nrcs142p2_053587

United States Geological Survey (USGS). 1979. Sunnymead, CA 7.5-Minute Topographic Quadrangle Map.

Appendix A

MSHCP Consistency Analysis and Habitat Assessment

Redlands Boulevard and Hemlock Avenue Gas Station Project

MSHCP Consistency Analysis and Habitat Assessment

prepared for

A & S Engineering
28405 Sand Canyon Road, Suite B
Canyon Country, California 91387
Contact: Ahmad Ghaderi

prepared by

Rincon Consultants, Inc.
2215 Faraday Avenue, Suite A
Carlsbad, California 92008

September 2021

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

Table of Contents

Figures

Appendices

Executive Summary

This Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Consistency Analysis and Habitat Assessment Report was prepared for the Redlands Boulevard and Hemlock Avenue Gas Station Project (project) given the project's location within the MSHCP Plan Area. The report was completed to document existing site conditions and to determine potential impacts to sensitive biological resources covered by the MSHCP. The project site consists of approximately 7.53 acres and is located in the city of Moreno Valley, Riverside County, California, on a vacant lot southwest of the intersection of Redlands Boulevard and Hemlock Avenue. Rincon Consultants, Inc. (Rincon) understands that the majority of the project site is currently proposed for the construction of a gas station with a convenience store and service restaurant, and that the southern portion of the project site will be left undeveloped.

The Western Riverside County Regional Conservation Authority (RCA) MSHCP information tool was queried using the parcel information for the project site to determine potential MSHCP sensitive species survey and conservation requirements for the project. The proposed project does not occur within a survey area for amphibians, mammals, Criteria Area or Narrow Endemic Plant Species, but it does occur within a survey area for burrowing owl (*Athene cunicularia*) (BUOW). In addition, this MSHCP Consistency Analysis also includes assessments for riparian/riverine habitat, riparian/riverine species and vernal pool/fairy shrimp habitat as well as the urban/wildlands interface.

The project site consists of vacant land which has been subject to periodic mechanical disturbance (Google Earth Pro 2021) and is dominated by annual, ruderal vegetative species.

The project site contains potentially suitable nesting habitat for BUOW. However, no BUOW sign was detected within the study area. The study area is defined as the 7.53-acre project site and an additional 500-foot buffer for the BUOW habitat assessment. A BUOW habitat assessment and focused BUOW surveys of the study area were previously conducted by Helix Environmental Planning, Inc. (Helix) in November 2017 and April 2018, respectively. Potentially suitable burrows were detected, however BUOW or sign thereof was not observed.

The project site contains riparian/riverine resources, but does not contain habitat for riparian/riverine/vernal pool species. Project implementation would result in permanent impacts to 0.21 acre of riparian/riverine area. A Determination of Biologically Equivalent or Superior Preservation (DBESP) is therefore required. The project does not propose any impacts to urban/wildlands interfaces. With implementation of an approved DBESP, the project would be consistent with the MSHCP.

1 Introduction

This report documents the findings of an MSHCP Consistency Analysis and Habitat Assessment prepared to demonstrate compliance with the Western Riverside County MSHCP. This assessment describes existing site conditions and includes a discussion of potential impacts to sensitive biological resources covered by the MSHCP for the 7.53-acre Redlands Boulevard and Hemlock Avenue Gas Station Project (project), located in the city of Moreno Valley (city), Riverside County, California (Figure 1). An MSHCP-required BUOW habitat assessment and focused BUOW surveys of the study area were previously conducted by Helix in November 2017 and April 2018, respectively (Helix 2018). Potentially suitable burrows were detected, however BUOW or sign thereof was not observed. This MSHCP Consistency Analysis and Habitat Assessment contains the results of an update habitat assessment for BUOW and riparian/riverine resources, and includes an analysis of potential project-related impacts to the study area. The study area includes the 7.53-acre project site and an additional 500-foot buffer for the BUOW habitat assessment. The study area therefore comprises 51.1 acres.

1.1 Project Location

The project site consists of 7.53 acres which is located southwest of the intersection of Redlands Boulevard and Hemlock Avenue within the city (Figure 2). The site encompasses Assessor's Parcel Number (APN) 488-310-012 and adjacent public road right-of-way and is located within Township 3 South, Range 3 West, and Section 2, San Bernardino baseline and meridian of the United States (U.S.) Geological Survey (USGS) *Sunnymead, California* 7.5-minute topographic quadrangle (Figure 3).

1.2 Project Description

The project would include the development of a gas station with 11 fueling stations (16 total dispensers) and a 5,123 square foot food mart/retail store. Of the 16 dispensers, 14 of the fueling stations would be gasoline dispensers and would be underneath a 5,581 square foot canopy. The remaining two fueling stations would be diesel dispensers underneath a 3,120 square foot canopy. An 18 x 12.5 x six-foot trash enclosure would also be constructed. The project would provide a total of 18 parking spaces in a surface lot with two stalls for electric vehicle parking. Additional improvements include curb and sidewalk improvements, landscaping, and storm drain improvements. Access to the project site would be provided from two driveways off Redlands Boulevard and Hemlock Avenue. Of the 7.53-acre site, only approximately 2.84 acres would be developed; the remaining 4.27 acres would remain undeveloped.

The project would also modify an existing roadside drainage channel along the west side of Redlands Boulevard. These modifications include removal of two existing 24-inch reinforced concrete pipes (RCPs) with headwalls that outlet into the roadside drainage channel near the intersection of Redlands Boulevard and Hemlock Avenue, replacing the roadside drainage channel with an underground 54-inch RCP, and removal of an existing concrete box culvert that currently conveys flows under Spruce Avenue. The proposed 54-inch RCP would then outlet into an existing concrete channel south of Spruce Avenue and west of Redlands Boulevard.

Figure 1 Regional Location

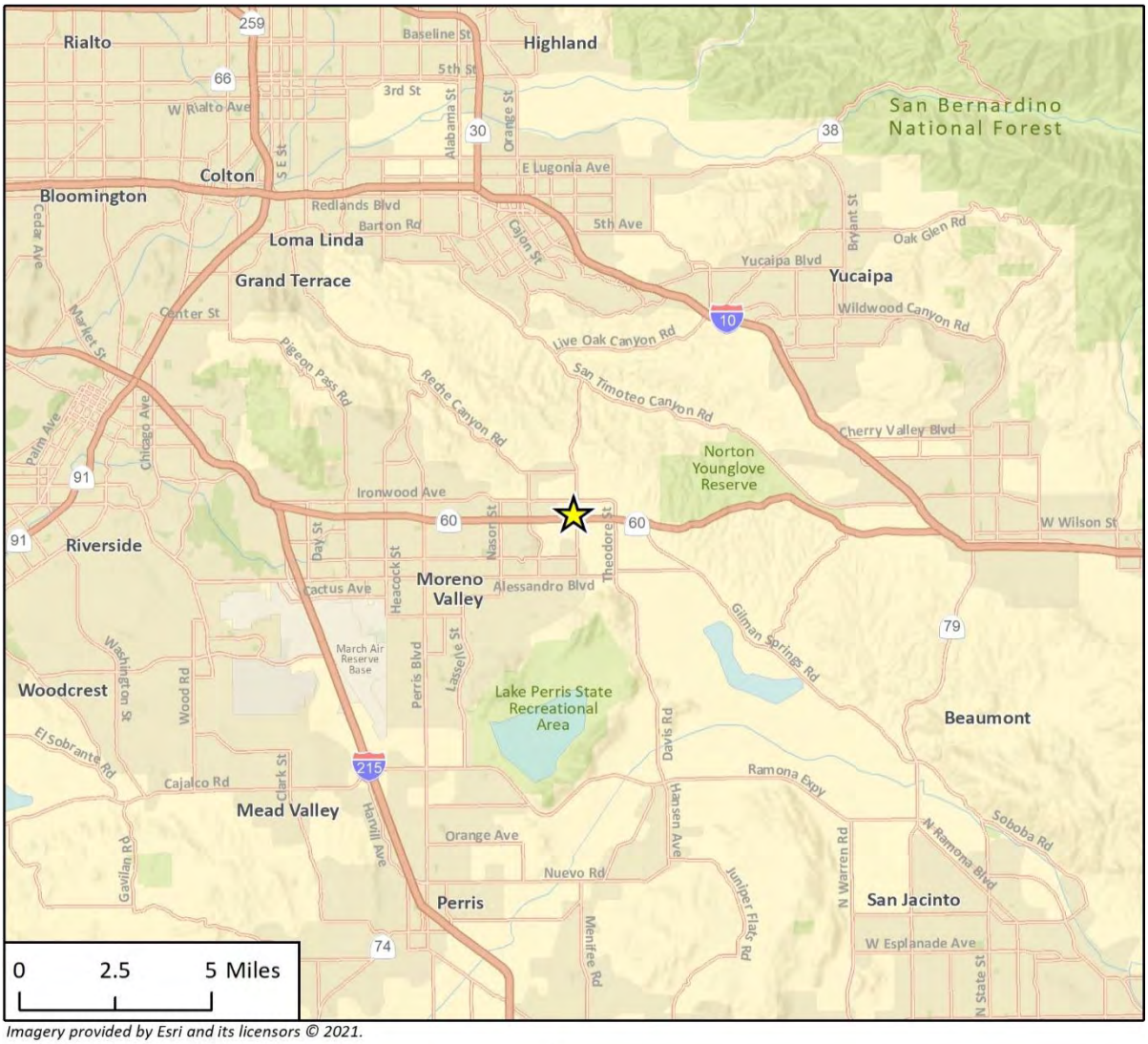
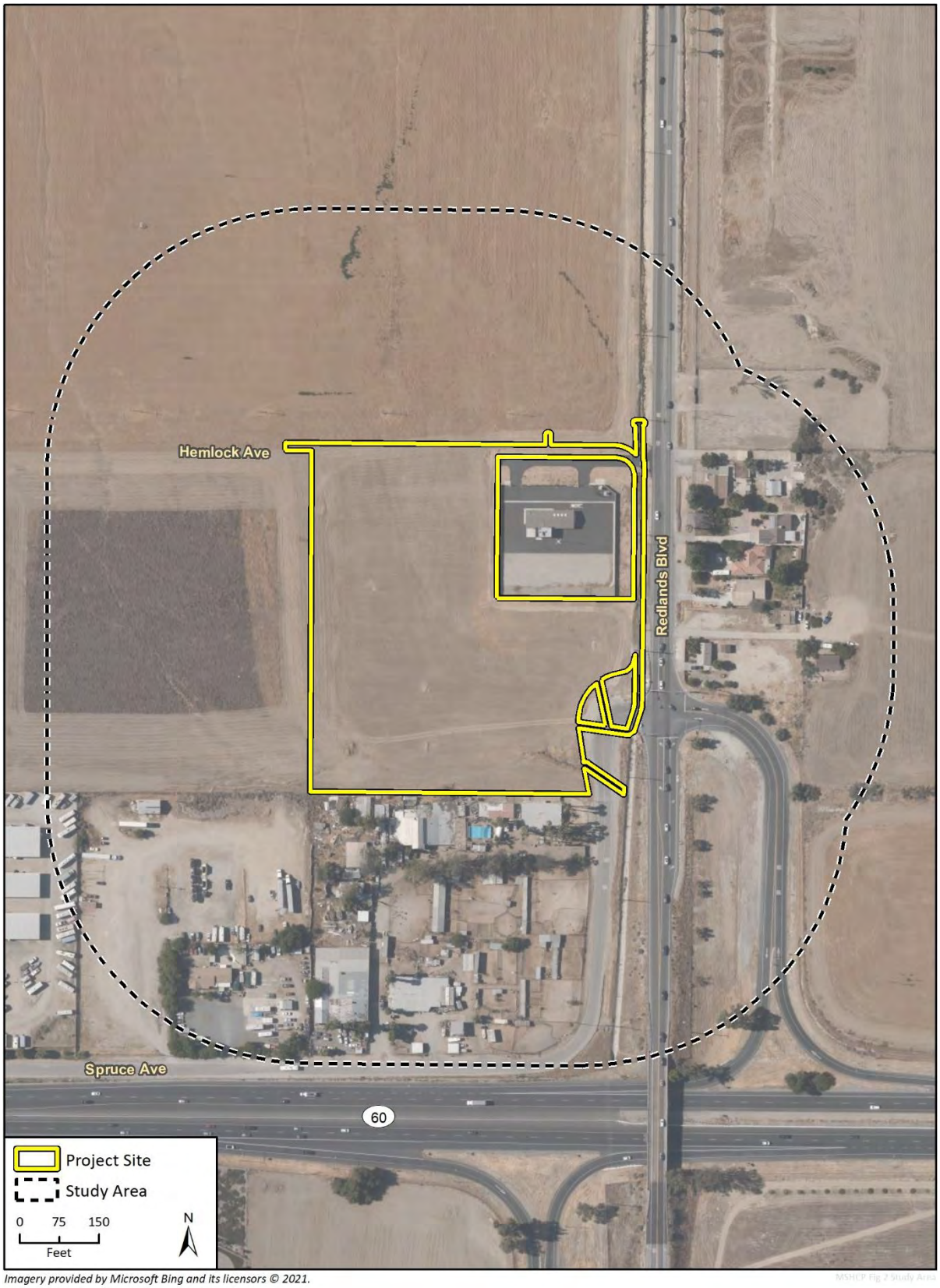
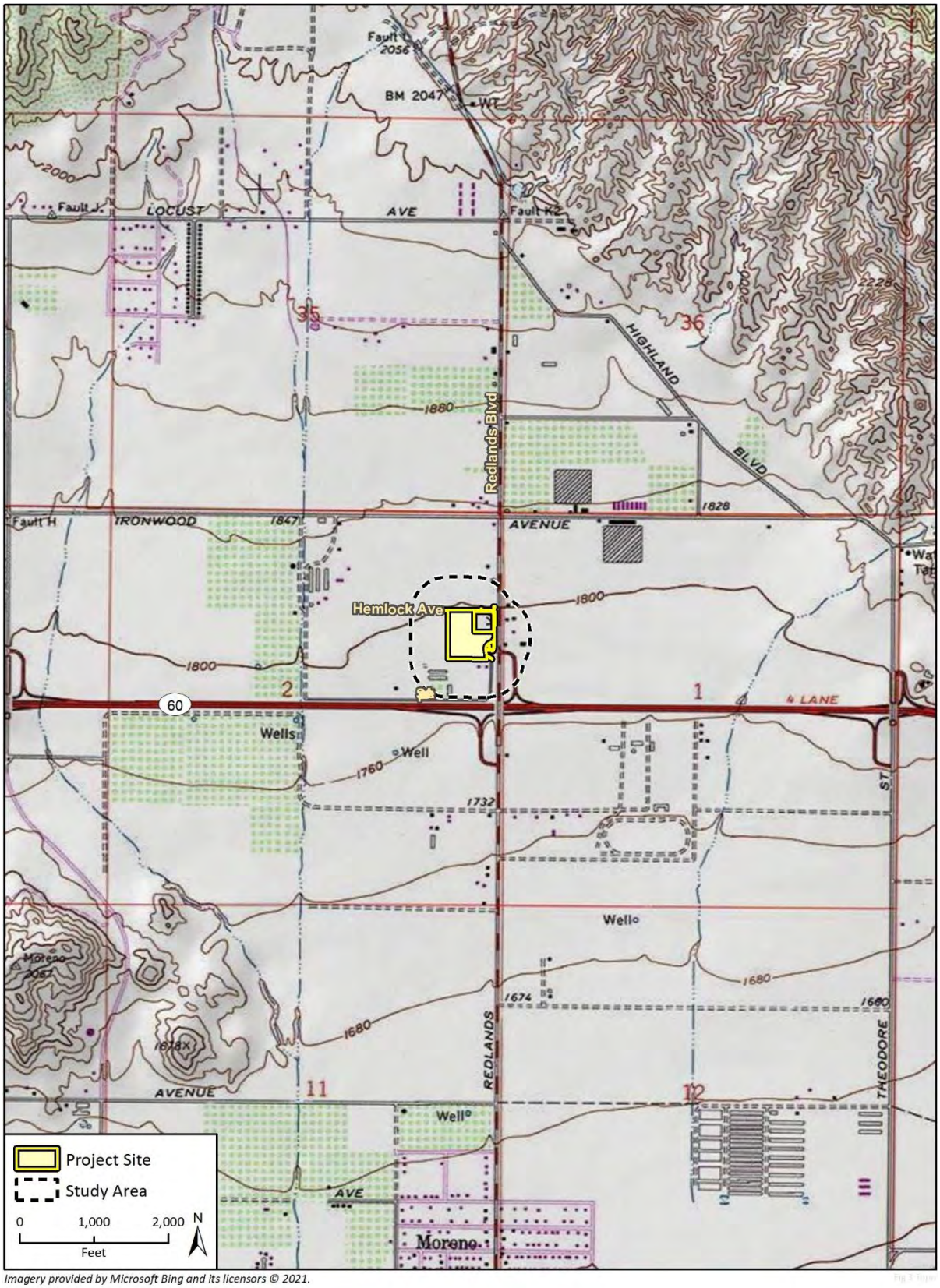


Figure 2 Project Location



Imagery provided by Microsoft Bing and its licensors © 2021.

Figure 3 Topographic Map of Project Site



Imagery provided by Microsoft Bing and its licensors © 2021.

Construction of the project would start in January 2022 and is estimated to be completed in December 2022 for a total construction period of 12 months, although the project construction schedule would be adjusted as necessary depending on agency permitting efforts. Construction activities would include site preparation, grading, building construction, paving, and architectural coating (e.g., painting). During grading, approximately 300 cubic yards of soil would be exported. All construction would occur within the current conceptual limits of the project.

2 Methodology

2.1 Western Riverside County MSHCP Consistency Analysis

The proposed project was analyzed to determine consistency with the requirements set forth in the MSHCP. The RCA MSHCP Information Map Tool (Riverside County 2021) was queried using the parcel information for the project site to determine potential MSHCP sensitive species survey and conservation requirements for the project. According to the RCA MSHCP Information Map Tool, the MSHCP identifies this area as requiring a habitat assessment and potential focused surveys for BUOW. Helix previously conducted a BUOW habitat assessment in November 2017 and focused surveys in April 2018.

To ensure consistency with the requirements set forth in the MSHCP (Riverside County 2003), the study area was assessed, and geographic information systems (GIS) software was used to map the site in relation to MSHCP areas, including criteria cells, conservation areas, and wildlife movement corridors and linkages; study areas for plant, bird, mammal, and amphibian species; Criteria Area Species Survey Area (CASSA); and the Narrow Endemic Plant Survey Area (NEPSA).

The MSHCP also requires an assessment of the potentially significant project effects on riparian/riverine areas and vernal pools, if applicable. According to the MSHCP, the documentation for the assessment shall include mapping and a description of the functions and values of the mapped areas with respect to the species listed in Section 6.1.2, Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools. An assessment of potential indirect impacts to existing or proposed MSHCP conservation areas that may exist on or adjacent to the site through an urban/wildlands interface analysis must also be included.

2.2 Literature Review

Prior to the field visit, a literature review was conducted to establish the environmental and regulatory setting of the proposed project. The background and literature review included review of the U.S. Department of Agriculture Natural Resources Conservation Service (USDA NRCS) Web Soil Survey: *Custom Soil Resource Report for Western Riverside Area, California* (2021a), *Sunnymead, California* USGS 7.5-minute topographic quadrangle (USGS 1979), literature detailing the habitat requirements of subject species, aerial photographs (Google Earth Pro 2021) and topographic maps. The MSHCP, species accounts, and other reference materials were reviewed for habitat assessment requirements as well as habitat suitability elements for special-status species. The primary objective of the habitat assessment was to evaluate the study area's potential to support special-status species as well as to determine the applicability of other MSHCP requirements as they pertain to the proposed project.

The California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB; CDFW 2021a), Biogeographic Information and Observation System (BIOS; CDFW 2021b) and U.S. Fish and Wildlife Service (USFWS) Critical Habitat Portal (USFWS 2021a) were reviewed to determine if any special-status wildlife, plant or vegetation communities were previously recorded within five miles of the study area. The *National Wetlands Inventory* (NWI; USFWS 2021b) was reviewed to determine if any wetland and/or non-wetland waters had been previously documented

and mapped on or in the vicinity of the study area. Other resources reviewed included the California Native Plant Society (CNPS) online *Inventory of Rare and Endangered Plants of California* (2021), CDFW *Special Animals List* (2021c), and CDFW *Special Vascular Plants, Bryophytes, and Lichens List* (2021d).

2.3 Field Reconnaissance Survey

A field reconnaissance survey of the study area was conducted to document existing site conditions and the potential presence of sensitive biological resources, including sensitive plant and wildlife species, sensitive plant communities, jurisdictional waters and wetlands, and habitat for nesting birds. Rincon biologist Christian Nordal conducted the reconnaissance survey on March 22, 2021 from 0730 - 0900. The biologist surveyed the study area on foot and visually inspected the area with the aid of binoculars (8 x 36) as necessary.

Identification of potentially jurisdictional aquatic resources during the reconnaissance survey included potential wetlands and non-wetland waters that may constitute waters of the U.S., waters of the State, streambeds, and/or riparian/riverine or vernal pool resources. During the survey, the biologist noted general site characteristics, documented vegetation, and took representative photographs. Survey conditions included a temperature of 56 degrees Fahrenheit (°F), clear skies, and winds of 0-3 miles per hour (mph).

2.3.1 Vegetation Mapping

Vegetation communities observed on site were mapped on a site-specific aerial photograph. All accessible portions of the study area were covered on foot. Vegetation was generally classified using the systems provided in the *Preliminary Descriptions of the Terrestrial Communities of California* (Holland 1986), and modified using *A Manual of California Vegetation, Second Edition* (MCV) (Sawyer et al. 2009) as necessary to reflect the existing site conditions.

2.3.2 Flora

All plant species observed in the study area were noted, and plants that could not be identified in the field were identified later using taxonomic keys. The reconnaissance survey included a directed search for sensitive plants that would have been apparent at the time of the survey. Floral nomenclature for native and non-native plants follows Baldwin et al. (2012) as updated by The Jepson Online Interchange for California Floristics (Jepson Herbarium 2014). For ornamental plants, nomenclature follows the PLANTS Database (USDA 2021b), and for special-status plants follows Baldwin et al. (2012) and CNPS (CNPS 2021).

2.3.3 Fauna

Animal species observed directly or detected from calls, tracks, scat, nests, or other signs in the study area were noted. The survey was performed during the day; therefore, the identification of nocturnal animals was limited to signs (if present). Zoological nomenclature for birds is in accordance with the American Ornithologists' Union Checklist (2021) and for mammals, Wilson & Reeder (2005).

2.3.4 Riparian/Riverine Habitat Assessment

MSHCP Section 6.1.2, Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools, describes the process through which protection of riparian/riverine areas, vernal pools, and fairy shrimp species will occur within the MSHCP Area. Protection of these resources is important for a number of MSHCP conservation objectives. An assessment of a project's potentially significant effects on riparian/riverine areas, vernal pools, and fairy shrimp habitat is required. Guidelines for determining whether or not these resources exist on site are described as follows:

- **Riparian/Riverine Areas** are described by the MSHCP as "lands which contain habitat dominated by trees, shrubs, persistent emergent, or emergent mosses and lichens which occur close to or which depend upon soil moisture from a nearby fresh water source or areas with fresh water flow during all or a portion of the year." Riparian/riverine areas under the MSHCP also include drainage areas that are vegetated or have upland (non-riparian/riverine) vegetation that drain directly into an area that is described for conservation under the MSHCP (or areas already conserved).
- **Vernal Pools** are described by the MSHCP as "seasonal wetlands that occur in depression areas that have wetland indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetland indictors of hydrology and /or vegetation during the drier portion of the growing season."
- **Listed Fairy Shrimp Habitat** is described in the MSHCP as habitat for Riverside fairy shrimp (*Streptocephalus woottoni*), vernal pool fairy shrimp (*Branchinecta lynchi*), or Santa Rosa Plateau fairy shrimp (*Linderiella santarosae*), and includes ephemeral pools, artificially created habitat, and/or other features determined appropriate by a qualified biologist.

In addition, Section 6.1.2 of the MSHCP states:

> With the exception of wetlands created for the purpose of providing wetlands habitat or resulting from human actions to create open waters or from the alteration of natural stream courses, areas demonstrating characteristics as described above which are artificially created are not included in these definitions.

If found, riparian/riverine habitat and vernal pools within the study area were identified, mapped, and recorded during the field reconnaissance survey.

2.3.5 BUOW Habitat Assessment

The BUOW habitat assessment was conducted on March 22, 2021 between the hours of 0730 - 0900. Rincon biologist Christian Nordal walked the entire study area (i.e., the project site and 500-foot buffer, where accessible) to identify the presence or absence of suitable BUOW habitat. Areas of particular interest included all topographic relief areas characterized by low growing vegetation, grasslands, shrub lands with low density shrub cover, earthen berms, and any large debris piles. Access to adjacent residential properties to the north was not granted. Therefore, these areas were surveyed with binoculars to the maximum extent feasible from the edge of the project site.

2.4 Jurisdictional Waters and Wetlands Delineation

Rincon biologists Jared Reed and Christian Nordal subsequently conducted a formal jurisdictional delineation on April 19, 2021 of potential wetlands and non-wetland waters that may constitute

waters of the U.S., waters of the State, streambeds, and/or riparian/riverine or vernal pool resources on and adjacent to the project site. Biologist Christian Nordal conducted a subsequent jurisdictional delineation field survey of an additional portion of the roadside drainage channel on May 27, 2021.

3 Existing Conditions

This section provides a brief discussion of the existing conditions observed on site. Site photographs are located in Appendix B. The study area is located in arid western Riverside County, which is characterized by long, hot, dry summers and short, relatively wet winters. Average temperatures range from 64 to 94°F during the summer and 40 to 70°F during the winter. The average annual precipitation in the region is 13 inches (Weather Currents 2021).

3.1 Land Use

The project site is a single vacant parcel and adjacent public road right-of-way that appeared to be a fallow/abandoned agricultural field. Surrounding land uses include residences and commercial uses to the south and vacant land to the west and north. Redlands Boulevard and Spruce Avenue border the project site to the east. In addition, the Redlands and Hemlock Booster Station is adjacent to the project site's northeastern boundary. State Route (SR) 60 is approximately 560 feet south of the project site.

3.2 Watershed and Drainages

The study area is within the approximate 2,840-square mile Santa Ana River Watershed. The Santa Ana River Watershed is the largest watershed drainage south of the Sierra Nevada Mountains and is located in a highly urbanized setting. The Santa Ana River spans San Bernardino, Riverside, and Orange counties and is about 100 miles long with more than 50 tributaries.

The jurisdictional delineation identified the presence of two potentially jurisdictional features in the east portion of the project site; a roadside drainage channel and an agricultural drainage ditch. The roadside drainage channel conveys flows along the east edge of the project site and west of Redlands Boulevard in an open, soft-bottomed channel. The channel bed is comprised of a mix of cobbles, gravel, and weirs and contains debris. This channel also contains steep banks that are densely vegetated with mostly non-native grass species. Flows are collected by a single box culvert under Spruce Avenue and are conveyed through a concrete channel south of Spruce Avenue under SR 60, where flows are again conveyed through an earthen channel. The channel continues to convey flows in a southward direction along the west side of Redlands Boulevard until it eventually conveys flows into an underground storm drain system at Dracaea Avenue. According to City of Moreno Valley Planning staff via email communication, this storm drain system eventually conveys flows into downstream waters.

The agricultural drainage ditch is a small feature in the southeast portion of the project site that becomes incised where sheet flows from the west converge in a single area. Evidence of water flow west and upstream of the incised feature is obscured from disking activities, and is weak in the incised feature itself due to dense non-native grass and ruderal vegetation.

3.3 Topography and Soils

The project site consists of vacant land that has been graded and periodically disturbed by mechanical disking. The site is relatively level with elevations on site ranging from 1,792 feet above

mean sea level (msl) at the northern end and 1,780 feet above msl at the southern end.

The USDA NRCS Web Soil Survey identifies two soil map units in the project site (Figure 4) (USDA NRCS 2021a). These soil units are from the USDA NRCS Soil Survey of the Western Riverside Area, California, which was conducted on a broader scale than this study and did not necessarily include on site observations. The physical characteristics of the soil units, as described below, are general and not necessarily indicative of characteristics currently present within the study area. The soils on the site have been disturbed and likely no longer resemble the mapped soil types. None of these soils are considered hydric. The descriptions of the soil map units (USDA NRCS 2021c) are presented below.

3.3.1 San Emigdio Soils

Two soil types of the San Emigdio series occur on site: San Emigdio fine sandy loam, 2 to 8 percent slopes, eroded (SeC2) and San Emigdio loam, 2 to 8 percent slopes (SgC). The San Emigdio series consists of very deep, well drained soils that form in dominantly sedimentary alluvium. They are found on fans and floodplains and typically have low slopes. They are used for growing citrus fruit, alfalfa, and dryland grain and uncultivated areas are typically annual grasses and forbs (USDA NRCS 2021c). Soils on site have been tilled in the past for agricultural purposes.

3.4 Vegetation Communities

Three vegetation communities/land cover types occur within the study area: *Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance wild oats and annual brome grasslands, Developed, and Disturbed areas (Figure 5). A list of plant species observed within the project site is included as Appendix C.

3.4.1 Annual Brome Grassland

Annual brome (*Bromus* spp.) grasslands are annual non-native grasslands with more than 60% of the herbaceous layer consisting of *Bromus* species. The entire project site consists of land that is regularly disturbed by tilling, resulting in annual brome grassland as the only habitat on site. Species diversity is limited, with only annual grassland species observed including red brome (*Bromus rubens*), ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum*), Rancher's fiddleneck (*Amsinckia menziesii*), and short-pod mustard (*Hirschfeldia incana*). Annual brome grassland comprises 28.3 acres in the study area.

3.4.2 Developed

Developed areas within the study area are comprised of residences and commercial centers, as well as associated ornamental vegetation and the Redlands and Hemlock booster station. Developed areas comprise 19.7 acres in the study area.

3.4.3 Disturbed

Disturbed areas within the study area are comprised of very little grassy and ruderal vegetation and contain bare ground that has been mechanically disturbed. Disturbed areas comprise 3.1 acres in the study area.

Figure 4 USDA Soils Map

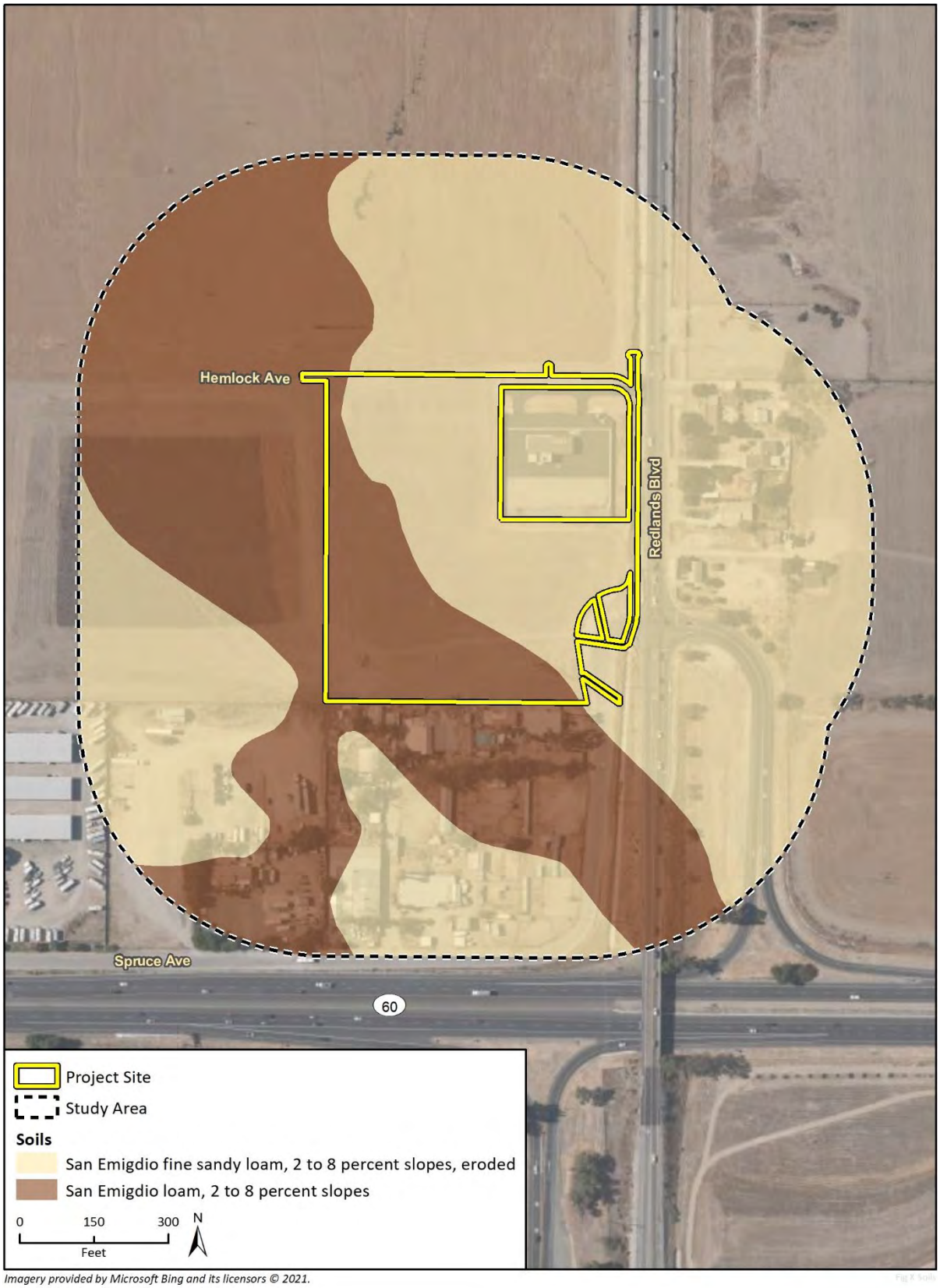
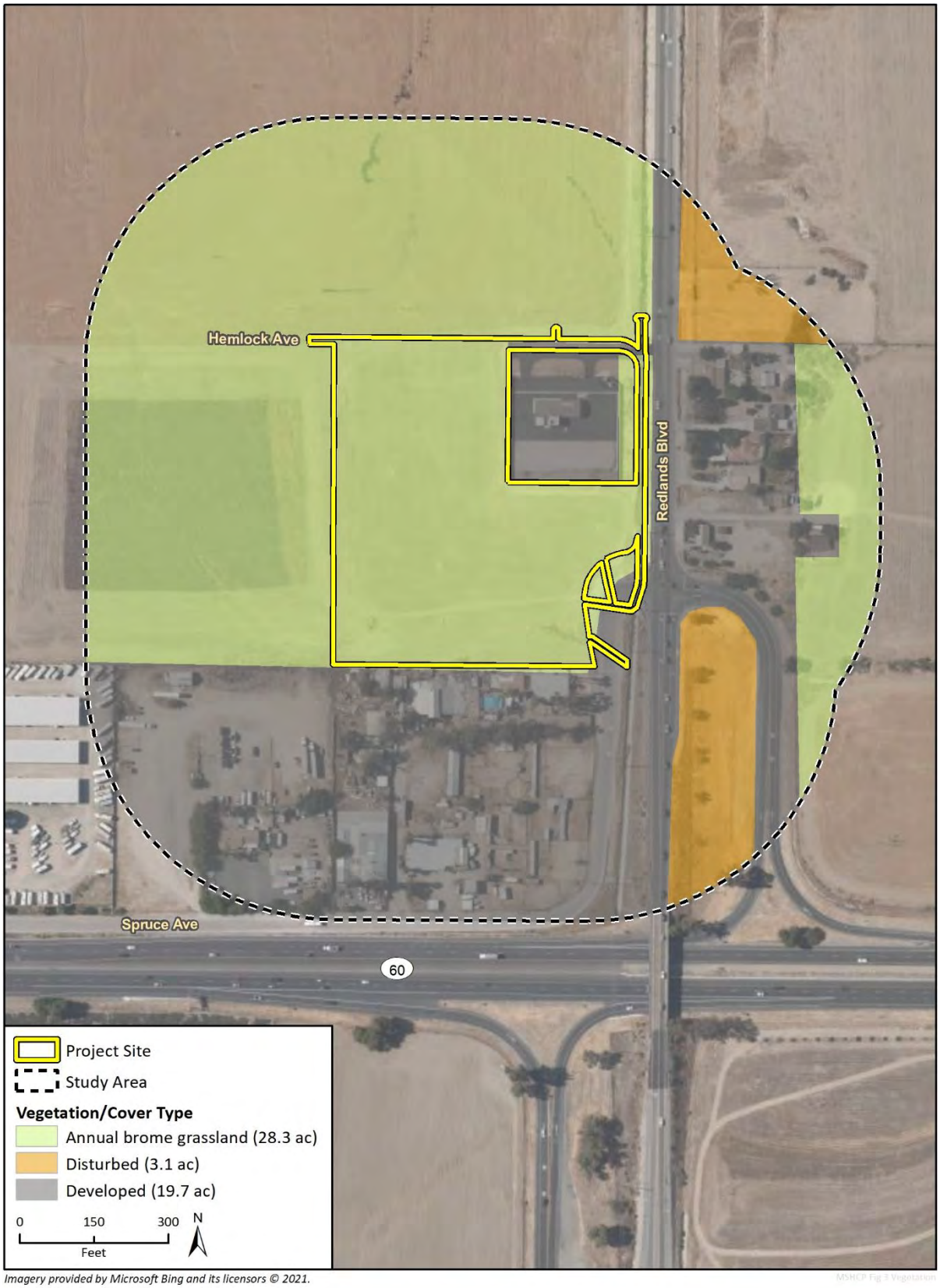


Figure 5 Vegetation Communities and Land Cover Types



Imagery provided by Microsoft Bing and its licensors © 2021.

3.5 General Wildlife

The study area provides limited habitat for wildlife species that commonly occur within urban communities in Riverside County. Common urban-adapted avian species such as American kestrel (*Falco sparverius*), Bewick's wren (*Thryomanes bewickii*), American crow (*Corvus brachyrhynchos*), mourning dove (*Zenaida macroura*), lesser goldfinch (*Spinus psaltria*), and Anna's hummingbird (*Calypte anna*) were observed in the study area during the survey. Numerous small mammal burrows likely belonging to California ground squirrels (*Otospermophilus beecheyi)* and an individual California ground squirrel were observed throughout the site. Sensitive species with potential to occur within the site are discussed in Section 4.0.

4 Western Riverside County MSHCP Consistency Analysis

4.1 MSHCP Requirements

The MSHCP establishes habitat assessment requirements for certain species of plants, birds, mammals, and amphibians. The study area is located within the Reche Canyon/Badlands Area Plan. It is not located within a Cell Group or Criteria Cell, but it is within the San Timoteo Habitat Management Unit. The study area does not occur within any required amphibian and mammal habitat assessment areas, CASSA or NEPSA, but it does occur within a BUOW survey area (Appendix A).

This habitat assessment addresses the potential for sensitive biological resources to occur within the study area. The habitat assessment addresses the presence/absence of riparian/riverine areas and vernal pools in the study area, includes an urban/wildlands interface analysis, and identifies any migratory corridors and linkages located on or in the vicinity of the study area.

4.2 Habitat Assessment

4.2.1 Riparian/Riverine, Vernal Pool, and Fairy Shrimp Habitat

Section 6.1.2 of the MSHCP describes the process to protect species associated with riparian/riverine areas and vernal pools. As defined in the MSHCP, riparian/riverine areas are lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or depend on a nearby freshwater source or areas that contain a freshwater flow during all or a portion of the year. Riparian/riverine areas under the MSHCP also include drainage areas that are vegetated or have upland (non-riparian/riverine) vegetation that drain directly into an area that is described for conservation under the MSHCP (or areas already conserved). These areas may support one or more species listed in Section 6.1.2 of the MSHCP. Vernal pools are seasonal wetlands that occur in depressions, typically have wetland indicators that represent all three parameters (soils, vegetation, and hydrology), and are defined based on vernal pool indicator plant species during the wetter portion of the growing season but normally lack wetland indicators associated with vegetation and/or hydrology during the drier portion of the growing season.

Based upon the findings of Rincon's reconnaissance survey and jurisdictional delineation, there are two features on the project site. The first is a roadside drainage channel that borders the western edge of Redlands Boulevard. This feature is regularly weed abated and contains an unlined substrate until Spruce Avenue, where the rest of the channel is concrete-lined running south until flows enter a culvert under SR 60. Vegetative species associated with the unlined portion of the roadside drainage channel include ripgut brome, slender wild oat (*Avena barbata*), wall barley, short-pod mustard, common sunflower (*Helianthus annuus*), arroyo lupine (*Lupinus succulentus*), red-stem filaree (*Erodium cicutarium*), sourclover (*Melilotus indicus*), brittlebush (*Encelia farinosa*), hairy vetch (*Vicia villosa*), and stinknet (*Oncosiphon pilulifer*).

The second feature is an erosional feature that is part of a larger discontinued wash that originates from the Box Springs Mountains and flows southeastward over much of the Moreno Valley. This

feature does not receive enough water long enough for it to have different soils or vegetation from the rest of the project site but does connect directly to a culvert under Spruce Avenue where it empties into the roadside drainage channel that borders Redlands Boulevard. Evidence of water flow west and upstream of the incised feature is obscured from disking activities and is weak in the incised feature itself due to dense non-native grass and ruderal vegetation. Vegetative species associated with this erosional feature includes ripgut brome, wall barley, slender wild oat, Russian thistle (*Salsola tragus*), sisymbrium (*Sisymbrium* spp.), and buffalo gourd (*Cucurbita foetidissima*).

These drainage features do not comprise U.S. Army Corps of Engineers (USACE)-jurisdictional waters of the U.S. under the Clean Water Act (CWA) as they are roadside ditches and erosional features and thus would not be regulated by USACE per the 2008 Rapanos Guidance but may qualify as Santa Ana Regional Water Quality Control Board (RWQCB)-jurisdictional waters of the State under the Porter-Cologne Water Quality Control Act and as CDFW-jurisdictional streambeds under California Fish and Game Section 1602. Approximately 620 linear feet and 0.09 acre of potential RWQCB-jurisdictional non-wetland waters of the State and 620 linear feet and 0.25 acre of potential CDFW-jurisdictional streambeds was determined to be present on the project site.

The two drainage features on the project site are considered riverine (Figure 6). These features do not contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or depend on a nearby freshwater source. The two features contain upland, non-riparian/riverine vegetative species and do not contain habitat for MSHCP Section 6.1.2 wildlife species. The features do contain a freshwater flow during a portion of the year, and they drain directly into an area that is described for conservation under the MSHCP or areas already conserved as they eventually convey flows via an underground storm drain system into downstream waters.

The riparian/riverine area in the roadside drainage channel is 0.21 acre and 520 linear feet. The riparian/riverine area in the erosional drainage ditch is 0.04 acre and 100 linear feet. The project site therefore comprises a total of 0.25 acre and 620 linear feet of riparian/riverine area.

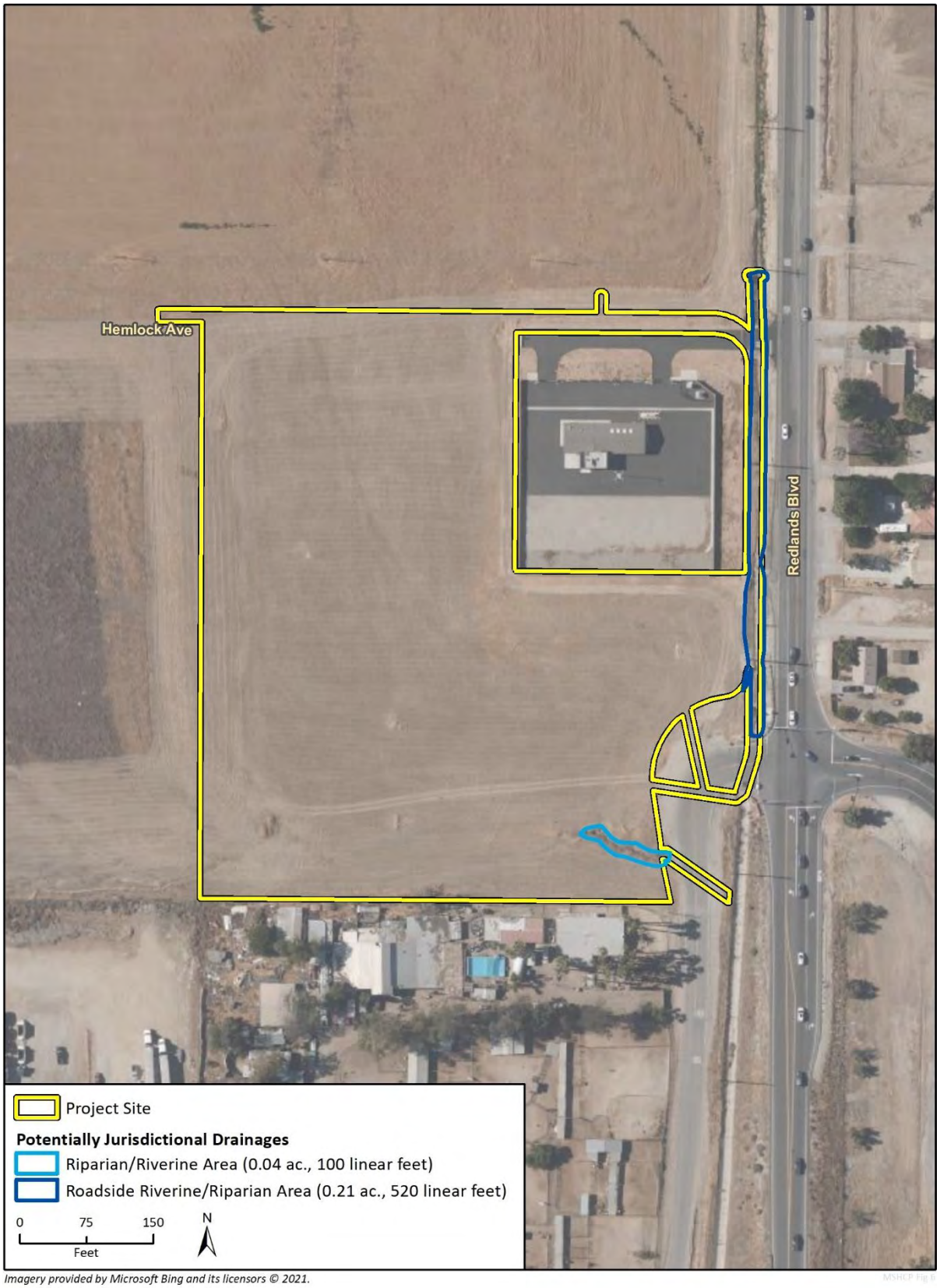
No pooling or signs of pooling water were observed on site and plant species composition does not differ throughout the site, indicating it does not receive sufficient flow or retention to act as vernal pool habitat. Therefore, no vernal pools are on site.

4.2.2 BUOW Habitat Assessment

BUOW are small crepuscular (active primarily during dusk and dawn) owls that typically modify and use burrows made by fossorial (adapted for burrowing or digging) mammals, such as California ground squirrels or American badgers (*Taxidea taxus*). BUOW use a variety of natural and modified habitats for nesting and foraging, typically characterized by low growing vegetation. BUOW habitat includes, but is not limited to, native and non-native grassland, interstitial grassland within shrub lands, shrub lands with low density shrub cover, golf-courses, drainage ditches, unpaved airfields, pastureland, dairies, fallow fields, and agricultural use areas. They also often utilize manmade structures, such as earthen berms; cement culverts; cement, asphalt, rock, or wood debris piles; or openings beneath cement or asphalt pavement. Reasons for their decline include habitat destruction, insecticide poisoning, rodenticide (particularly squirrel eradication), and shooting.

The BUOW habitat assessment occurred concurrently with the March 22, 2021 field survey. This assessment involved walking through potentially suitable habitat within the study area to achieve 100 percent visual coverage of the ground surface. Areas of particular interest included all

Figure 6 MSHCP 6.1.2 Riparian/Riverine Resources



topographic relief, areas characterized by low growing vegetation, grasslands, shrub lands with low density shrub cover, earthen berms, and any large debris piles. Suitable surrogate burrow sites (California ground squirrel) were detected throughout the study area and the species has been historically documented approximately five miles west of the project site in 2007 (CDFW 2021b). Focused protocol surveys were conducted in April 2018 by Helix and results of the protocol surveys were that the entire site provides suitable habitat, but no BUOW sign or individuals were observed using the site.

The MSHCP requires pre-construction surveys for BUOW to be conducted in all areas of suitable habitat. Since the entire site consists of suitable habitat, a preconstruction survey for BUOW by a qualified biologist will be required within 30 days prior to site disturbance.

4.3 Riparian/Riverine Impacts and Mitigation

Project implementation would permanently impact 0.21 acre of riparian/riverine area in the roadside drainage channel and less than 0.01 acre of riparian/riverine area in the erosional feature (Figure 7). Total permanent impacts to riparian/riverine area are therefore 0.21 acre. No temporary impacts to riparian/riverine resources are anticipated, as the entirety of the roadside drainage channel would be converted to an underground storm drain and impacts to the erosional feature would be limited to the culvert under Spruce Avenue.

Compensatory mitigation for permanent impacts to riparian/riverine area would involve either purchase of establishment/re-establishment credits at a minimum 1:1 mitigation to impact ratio and/or rehabilitation credits at a 2:1 mitigation to impact ratio from the Riverpark Mitigation Bank, depending on availability of mitigation credits. To compensate for the permanent loss of 0.21 acre of riparian/riverine resources in the project site, the project applicant shall therefore either purchase 0.21 acre of establishment/re-establishment credits and/or 0.42 acre of rehabilitation credits from the Riverpark Mitigation Bank. A combination of re-establishment and rehabilitation credits may also be utilized as necessary and as approved by the Wildlife Agencies (CDFW and USFWS). This compensatory mitigation shall be implemented prior to ground disturbance associated with project construction activities. In accordance with Section 6.1.2 of the MSHCP, a Determination of Biologically Equivalent or Superior Preservation (DBESP) will be prepared and will describe the project impacts and proposed mitigation in more detail.

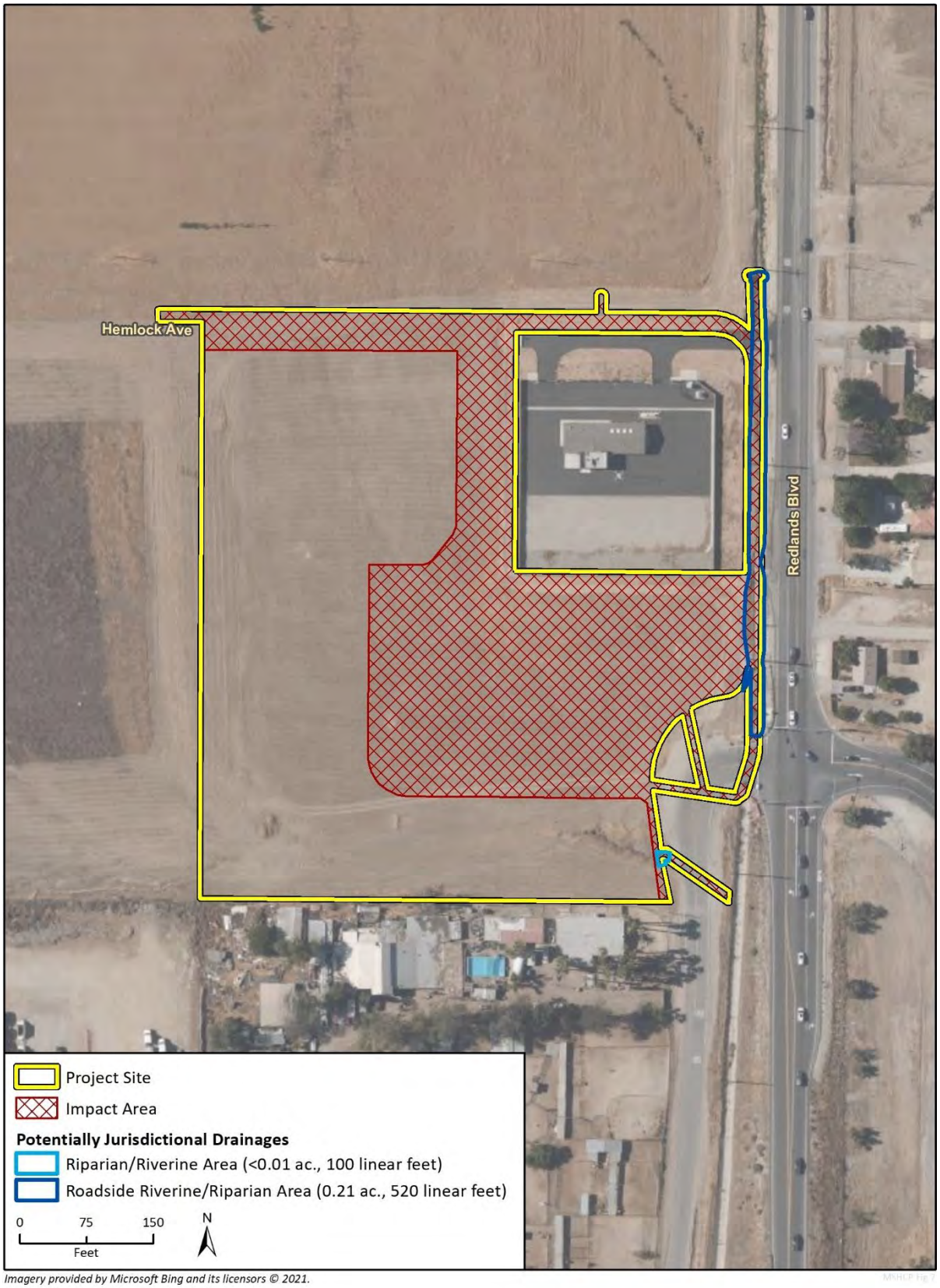
4.4 Urban/Wildlands Interface Guidelines

According to Section 6.1.4 of the MSHCP, the Urban/Wildlands Interface Guidelines are intended to address indirect effects associated with locating development in proximity to the MSHCP Conservation Area. The study area is not near a conservation area (the closest is located approximately 0.77 mile northeast of the study area); therefore, the Urban/Wildlife Interface Guidelines are not applicable. The study area is also separated from the nearest conservation area by residential and agricultural areas. The study area is isolated from urban/wildlands interfaces and the proposed project does not propose any impacts to these resources; therefore, no further actions related to urban/wildlands interface guidelines are required pursuant to the MSHCP.

4.5 MSHCP Consistency

BUOW and vernal pools were not observed in the study area. However, riparian/riverine features

Figure 7 Impacts to Riparian/Riverine Resources



are present within the project site. Project implementation would impact a portion of these riparian/riverine features, therefore a DBESP describing proposed mitigation for these impacts will be prepared. As described above, a specified number and type of credits as approved by the City and Wildlife Agencies will be purchased from the Riverpark Mitigation Bank to compensate for the loss of riparian/riverine area.

As described above, a preconstruction survey for BUOW by a qualified biologist will be required within 30 days prior to site disturbance. If BUOW are not observed, no further mitigation is required. However, if BUOW are observed, then consultation with the Wildlife Agencies regarding an appropriate buffer from active burrows is required. The Wildlife Agencies may additionally require preparation and implementation of an approved BUOW Avoidance and Relocation Plan to ensure any project impacts to BUOW are avoided.

The project, therefore, would ensure that impacts to riparian/riverine resources are adequately mitigated, impacts to BUOW are avoided, and would not result in any direct or indirect impacts to MSHCP conservation areas. The project is therefore consistent with the MSHCP.

5 Limitations, Assumptions, and Use Reliance

An MSHCP consistency analysis and habitat assessment has been performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The biological investigation is limited by the scope of work performed. In addition, general biological (or protocol) surveys do not guarantee that the organisms are not present and will not be discovered in the future within the site. In particular, mobile wildlife species could occupy the site on a transient basis or re-establish populations in the future. Additionally, plants may not be identifiable outside the normal blooming period and it may not be possible to detect them during surveys. Plants could also become present if environmental conditions change, such as rain events, and dormant individual blooms. Our field studies were based on current industry practices, which change over time and may not be applicable in the future. No other guarantees or warranties, expressed or implied, are provided. The findings and opinions conveyed in this report are based on findings derived from site reconnaissance, review of CNDDB RareFind5, and specified historical and literature sources. Standard data sources relied upon during the completion of this report, such as the CNDDB, may vary with regard to accuracy and completeness. In particular, the CNDDB is compiled from research and observations reported to CDFW that may or may not have been the result of comprehensive or site-specific field surveys. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources it has used. Additionally, pursuant to our contract, the data sources reviewed included only those that are practically reviewable without the need for extraordinary research and analysis.

6 References

American Ornithologists' Union. 2021. Check-list of North American Birds (online). American Ornithological Society. http://checklist.aou.org/taxa

Baldwin, B.G., et al. (eds.). 2012. The Jepson Manual: Vascular Plants of California. 2d ed. University of California Press, Berkeley, CA

California Department of Fish and Wildlife (CDFW)

_____. 2021a. California Natural Diversity Database, Rarefind V. 5.

_____. 2021b. Biogeographic Information and Observation System (BIOS). Available at: http://www.dfg.ca.gov/biogeodata/bios/

_____. 2021c. Special Animals List. Biogeographic Data Branch, California Natural Diversity Database. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline

_____. 2021d. Special Vascular Plants, Bryophytes, and Lichens List. Biogeographic Data Branch, California Natural Diversity Database. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline

California Native Plant Society (CNPS), Rare Plant Program. 2021. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39). Sacramento, CA. Available at: http://www.rareplants.cnps.org

Google Earth Pro. 2021. Available at: https://www.google.com/earth/

Helix Environmental Planning, Inc. 2018. Focused Burrowing Owl Survey for the ARCO Station (Redlands and Hemlock) Project. May 4, 2018. 8 pages.

Holland, Robert F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. California Department of Fish and Wildlife, Nongame Heritage Program. 156 pgs.

Jepson Herbarium. 2014. Jepson Online Interchange for California Floristics. University of California, Berkeley. Available at: http://ucjeps.berkeley.edu/interchange/

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X. Available at: http://wetland-plants.usace.army.mil/

_____. 2016. National Wetland Plant List Indicator Rating Definitions. U.S. Army Corps of Engineers Engineer Research and Development Center. Published July 2012. ERDC/CRREL TN-12-1

Riverside County. 2003. Final Western Riverside County Multiple Species Habitat Conservation Plan. Available at: http://www.rcip.org/

_____. 2021. RCA MSHCP Information Map Tool. Available at: http://wrcrca.maps.arcgis.com/

Sawyer, J. O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento, California.

United States Department of Agriculture, Natural Resources Conservation Service (USDA NRCS). 2021a. Web Soil Survey: Custom Soil Resource Report for Western Riverside Area,

California. Retrieved from https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

_____.2021b. PLANTS Database. Available at: https://plants.sc.egov.usda.gov/java/

_____.2021c. Official Soil Series Descriptions. Available at: https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/class/data/?cid=nrcs142p2_053587

United States Fish and Wildlife Service (USFWS). 2021a. Critical Habitat Portal. Available at: http://ecos.fws.gov/crithab/

_____. 2021b. National Wetlands Inventory. Available at: https://www.fws.gov/wetlands/

United States Geological Survey (USGS). 1979. *Sunnymead, CA* 7.5-Minute Topographic Quadrangle Map.

Weather Currents. 2021. Available at: http://weathercurrents.com/Moreno Valley

Wilson, D. E., and D. M. Reeder (eds.). 2005. Mammal species of the World: a taxonomic and geographic reference

7 Certification and List of Preparers

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: September 9, 2021 Signed: 

Jared Reed, Senior Biologist

RINCON CONSULTANTS, INC.

Primary Authors

- Christian Nordal, Associate Biologist
- Jared Reed, Senior Biologist/Project Manager

Technical Review

- Sherri Miller, Principal Biologist

Graphics

- Tracy Popiel, GIS Analyst
- Michael Glietz, GIS Analyst

Field Reconnaissance Survey

- Christian Nordal, Associate Biologist

Jurisdictional Wetlands and Waters Delineation

- Jared Reed, Senior Biologist/Project Manager
- Christian Nordal, Associate Biologist

Appendix A

The Western Riverside County RCA MSHCP Information Map Tool

Parcel

APN	488310012
Site Address	0
	0
Tract	0
Acreage	6.76
Old APN	Previous APN 488310004
Roughstep	2
HMU	SAN TIMOTEO
AP Subunit	
Cellgroup	Not in a Cellgroup
Criteria Cell	Not in a Criteria Cell
	Conservation Description

SURVEY AREAS

Amphibian	Not in an amphibian survey area
Owls	Burrowing Owl
Criteria Area Species	Not in a criteria area species survey area
Mammals	Not in a mammal survey area
Narrow Endemic Plants	Not in a narrow endemic plant survey area
Invertebrate	Not in an invertebrate survey area

This page intentionally left blank.

Appendix B

Site Photographs

Photograph 1. Facing north west of Redlands Boulevard looking at the roadside drainage ditch.

Photograph 2. Facing west from the Hemlock Avenue/Redlands Boulevard intersection.

Photograph 3. Representative ground squirrel burrows found throughout the study area.

Photograph 4. Facing south at annual brome grassland from northern project site boundary.

Photograph 5. Facing south and downstream at roadside drainage ditch.

Photograph 6. Downstream, southeast-facing view of erosional feature toward Spruce Ave.

Photograph 7. Showing where the erosional drainage feature meets the culvert under Spruce Avenue.

Appendix C

Observed Species List

Observed Species List

Scientific Name[1]	Common Name	Indicator Status[2]: Arid West Region
Amsinckia menziesii	Rancher's fiddleneck	NL (UPL)
Avena barbata	slender wild oat	NL (UPL)
Bromus diandrus	ripgut brome	NL (UPL)
Bromus rubens	red brome	NL (UPL)
Cucurbita foetidissima	buffalo gourd	NL (UPL)
Encelia farinosa	brittlebush	NL (UPL)
Erodium cicutarium	red-stem filaree	NL (UPL)
Helianthus annuus	common sunflower	FACU
Hirschfeldia incana	short-pod mustard	NL (UPL)
Hordeum murinum	wall barley	FACU
Malva parviflora	cheeseweed	NL (UPL)
Melilotus indicus	sourclover	FACU
Lupinus succulentus	arroyo lupine	NL (UPL)
Oncosiphon piluliferum	stinknet	FACU
Salsola tragus	Russian thistle	FACU
Sisymbrium ssp.	sisymbrium	NL (UPL)
Vicia villosa	hairy vetch	NL (UPL)

[1] Scientific Name as listed in the State of California 2016 Wetland Plant List for listed species (Lichvar et al. 2016), or from Jepson eFlora for taxa not currently included in the State of California 2016 Wetland Plant List

[2] Indicator Status Codes (Lichvar et al. 2012):

FACU Plants that typically occur in xeric or mesic non-wetland habitats but may frequently occur in standing water or saturated soils.

NL (UPL) Species is not listed and therefore treated as an upland plant in this region

Scientific Name	Common Name
Birds	
Calypte anna	Anna's hummingbird
Corvus corax	common raven
Corvus brachyrhynchos	American crow
Charadrius vociferus	killdeer
Falco sparverius	American kestrel
Hirundo rustica	Barn swallow
Mimus polyglottos	Northern mockingbird
Spinus psaltria	Lesser goldfinch
Streptopelia decaocto	Eurasian collared-dove
Sturnus vulgaris	European starling
Thryomanes bewickii	Bewick's wren
Tyrannus verticalis	Western kingbird
Tyrannus vociferans	Cassin's kingbird
Zenaida macroura	Mourning dove
Mammals	

Otospermophilus beecheyi	California ground squirrel

Appendix B

Jurisdictional Waters and Wetlands Delineation

Redlands Boulevard and Hemlock Avenue Gas Station Project

Jurisdictional Waters and Wetlands Delineation

prepared for

A & S Engineering
28405 Sand Canyon Road, Suite B
Canyon Country, California 91387
Contact: Ahmad Ghaderi

prepared by

Rincon Consultants, Inc.
2215 Faraday Avenue, Suite A
Carlsbad, California 92008

September 2021

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

Table of Contents

Tables

Figures

Appendices

Executive Summary

Rincon Consultants, Inc. conducted a jurisdictional waters and wetlands delineation for the Redlands Boulevard and Hemlock Avenue Gas Station project, located in the city of Moreno Valley, Riverside County, California. The site is specifically located west of Redlands Boulevard and Spruce Avenue and south of Hemlock Avenue. The project would include the development of a gas station with 11 fueling stations (16 total dispensers) and a 5,123 square foot food mart/retail store. The project site is comprised of a single vacant parcel, Assessor's Parcel Number 488-310-012, and additional public road right-of-way located in a valley, that appeared to be a fallow/abandoned agricultural field. The project site consists of vacant land that has been graded and periodically disturbed by mechanical disking. Non-native and some native plant species have revegetated the project site, indicating that the area has been left fallow for many years. Despite the revegetation that has occurred, the project site is substantially disturbed due to prior agricultural activities. Surrounding land uses include residences and commercial uses to the south and vacant land to the west and north. In addition, the Redlands and Hemlock Booster Station is adjacent to the project site's northeastern boundary. State Route 60 is approximately 560 feet south of the project site.

The entire project site is comprised of annual brome grassland. No riparian vegetation is present on the project site. Two soil types of the San Emigdio series occur on site: San Emigdio fine sandy loam, 2 to 8 percent slopes, eroded and San Emigdio loam, 2 to 8 percent slopes. Neither of these soil types are considered hydric soils.

Two drainage features were identified during the jurisdictional delineation: a roadside drainage channel along the west side of Redlands Boulevard in the east portion of the project site and an erosional drainage ditch in the southeast portion of the project site. A single box culvert near the Redlands Boulevard and Spruce Avenue intersection collects and conveys flows under Spruce Avenue into a concrete channel between Redlands Boulevard and Spruce Avenue. A single storm drain intake collects and conveys flows in the erosional drainage ditch under Spruce Avenue and outlets flows into the concrete channel.

Approximately 620 linear feet and 0.12 acre of potential Santa Ana Regional Water Quality Control Board-jurisdictional non-wetland waters of the State and 620 linear feet and 0.41 acre of potential California Department of Fish and Wildlife-jurisdictional streambed was determined to be present on and adjacent to the project site. The two drainage features are not expected to be regulated as "Waters of the United States" by the United States Army Corps of Engineers due to the promulgation of the 2008 Rapanos Guidance. The two drainages features are, however, considered "riparian/riverine" habitat under Section 6.1.2 of the Western Riverside Multiple Species Habitat Conservation Plan. No vernal pools are present on or adjacent to the project site.

Project implementation would permanently impact a total of 536 linear feet and 0.1 acre of potential non-wetland waters of the State and 536 linear feet and 0.3 acre of potential streambed.

Introduction

Rincon Consultants, Inc. (Rincon) conducted a jurisdictional waters and wetlands delineation for the Redlands Boulevard and Hemlock Avenue Gas Station project, located in the city of Moreno Valley (City), Riverside County, California. The delineation was conducted to determine the location and extent of waters and wetlands within the 7.53-acre project site that are potentially subject to the jurisdiction of the United States (U.S.) Army Corps of Engineers (USACE), Santa Ana Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), and the limits of potential riparian/riverine and vernal pool habitat as defined by Section 6.1.2 of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP).

Any proposed development in areas identified as jurisdictional waters and/or wetlands may be subject to the permit requirements of the USACE, under Section 404 of the Clean Water Act (CWA), RWQCB, under Section 401 of the CWA and State Porter-Cologne Water Quality Act (Porter-Cologne Act), a Streambed Alteration Agreement (SAA) from the CDFW pursuant to Section 1600 et. seq. of the California Fish and Game Code (CFGC), or areas identified as riparian/riverine or vernal pools are subject to the regulations in Section 6.1.2 of the MSHCP. Actual jurisdictional areas are determined by the state and federal authorities at the time that permits are requested. In the case of this project, actual riparian/riverine areas or vernal pools are determined by the City as a Permittee under the MSHCP and the CDFW and U.S. Fish and Wildlife Service (USFWS; together referred to as the Wildlife Agencies).

Project Location

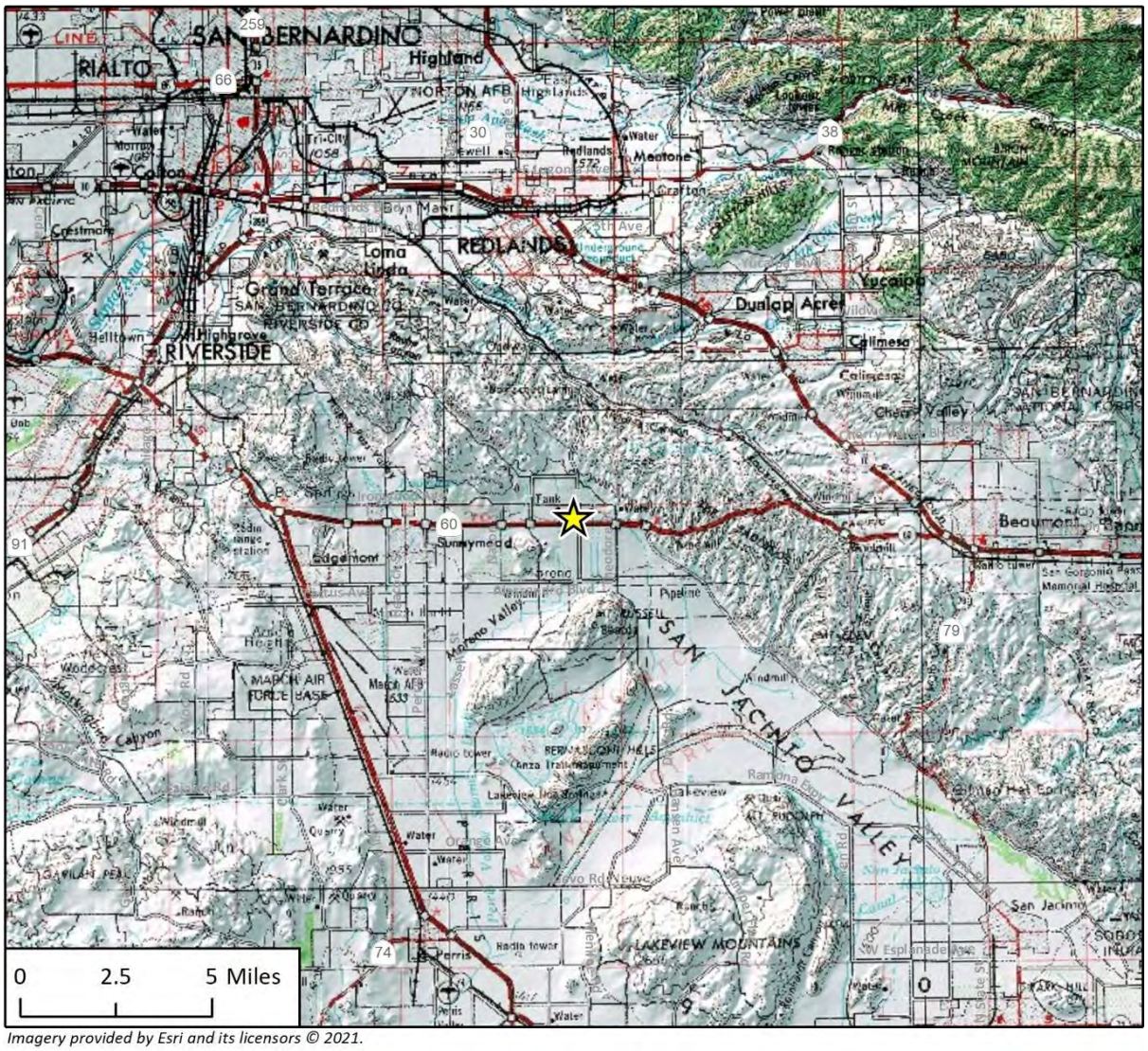
The project site is generally located in Moreno Valley, south of the Badlands (Figure 1). The site is specifically located west of Redlands Boulevard and Spruce Avenue and south of Hemlock Avenue (Figure 2). It is depicted on the Sunnymead, California, U.S. Geological Survey (USGS) 7.5-minute topographic map, within Section 2, Township 3 South, Range 3 West, San Bernardino baseline and meridian (Figure 1). The center point latitude and longitude coordinates for the project site are 33.941664°N and -117.157976°W.

Project Description

The project would include the development of a gas station with 11 fueling stations (16 total dispensers) and a 5,123 square foot food mart/retail store. Of the 16 dispensers, 14 of the fueling stations would be gasoline dispensers and would be underneath a 5,581 square foot canopy. The remaining two fueling stations would be diesel dispensers underneath a 3,120 square foot canopy. An 18 x 12.5 x six foot trash enclosure would also be constructed. The project would provide a total of 18 parking spaces in a surface lot with two stalls for electric vehicle parking. Additional improvements include curb and sidewalk improvements, landscaping, and storm drain improvements. Access to the project site would be provided from two driveways off Redlands Boulevard and Hemlock Avenue. Of the 7.53-acre site, only approximately 2.84 acres would be developed; the remaining 4.27 acres would remain undeveloped.

The project would also modify an existing roadside drainage channel along the west side of Redlands Boulevard. These modifications include removal of two existing 24-inch reinforced concrete pipes (RCPs) with headwalls that outlet into the roadside drainage channel near the

Figure 1 Regional Location Map with USGS Map



Imagery provided by Esri and its licensors © 2021.

Project Location

N

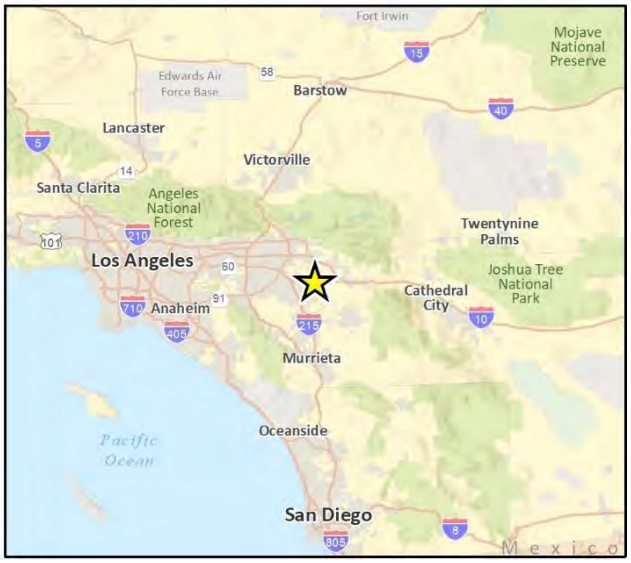
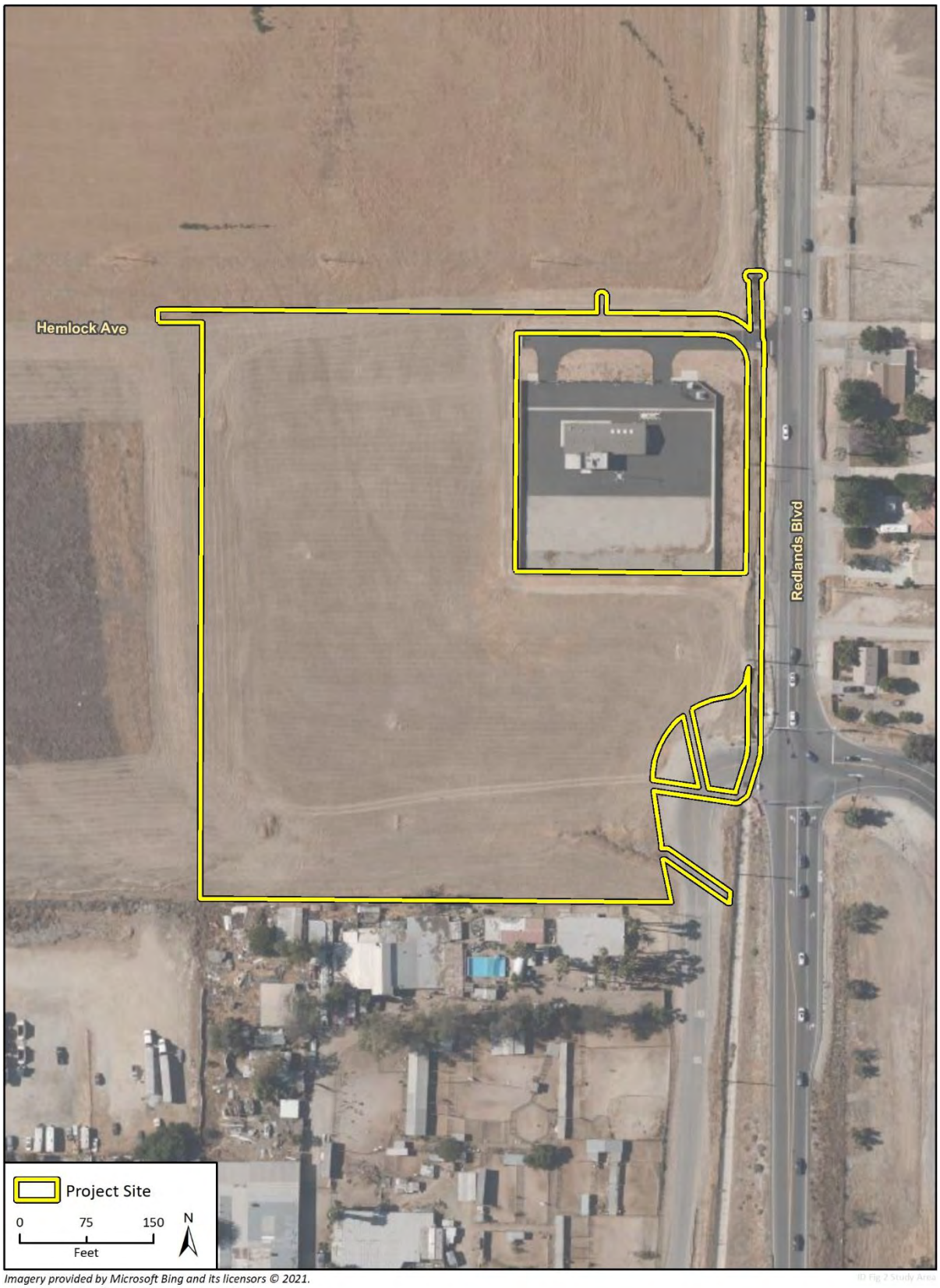


Figure 2 Project Location



intersection of Redlands Boulevard and Hemlock Avenue, replacing the roadside drainage channel with an underground 54-inch RCP, and removal of an existing concrete box culvert that currently conveys flows under Spruce Avenue. The proposed 54-inch RCP would then outlet into an existing concrete channel south of Spruce Avenue and west of Redlands Boulevard.

Construction of the project would start in January 2022 and is estimated to be completed in December 2022 for a total construction period of 12 months, although the project construction schedule would be adjusted as necessary depending on agency permitting efforts. Construction activities would include site preparation, grading, building construction, paving, and architectural coating (e.g., painting). During grading, approximately 300 cubic yards of soil would be exported. All construction would occur within the current conceptual limits of the project.

Environmental Setting

The project site includes a single vacant parcel, Assessor's Parcel Number (APN) 488-310-012, and proposed improvement areas along the west side of Redlands Boulevard and along Hemlock Avenue. The project site is located in a valley that appeared to be a fallow/abandoned agricultural field. The site is relatively level with elevations on site ranging from 1,792 feet above mean sea level (msl) at the northern end and 1,780 feet above msl at the southern end. The project site consists of vacant land that has been graded and periodically disturbed by mechanical disking, and a roadside drainage channel with associated stormwater conveyance infrastructure. Non-native and some native plant species have revegetated the project site, indicating that the area has been left fallow for many years. Despite the revegetation that has occurred, the project site is substantially disturbed due to prior agricultural activities. Surrounding land uses include residences and commercial uses to the south and vacant land to the west and north. In addition, the Redlands and Hemlock Booster Station is adjacent to the project site's northeastern boundary. State Route (SR) 60 is approximately 560 feet south of the project site.

The project site is located in arid western Riverside County, which is characterized by long, hot, dry summers and short, relatively wet winters. Average temperatures range from 64 to 94°F during the summer and 40 to 70°F during the winter. The average annual precipitation in the region is 13 inches (Weather Currents 2021).

The project site is within the approximate 2,840-square mile Santa Ana River Watershed. The Santa Ana River Watershed is the largest watershed drainage south of the Sierra Nevada Mountains and is located in a highly urbanized setting. The Santa Ana River spans San Bernardino, Riverside, and Orange counties and is about 100 miles long with more than 50 tributaries.

The jurisdictional delineation identified the presence of two potentially jurisdictional features on the project site; a roadside drainage channel and an agricultural drainage ditch. The roadside drainage channel conveys flows in the east portion of the project site and along the west side of Redlands Boulevard in an open, soft-bottomed channel. The channel bed is comprised of a mix of cobbles, gravel, and weirs and contains debris. This channel also contains steep banks that are densely vegetated with mostly non-native grass species. Flows are collected by a single concrete box culvert under Spruce Avenue and are conveyed through a concrete channel south of Spruce Avenue under SR 60, where flows are again conveyed through an earthen channel. The channel continues to convey flows in a southward direction along the west side of Redlands Boulevard until it eventually conveys flows into an underground storm drain system at Dracaea Avenue. According to City Planning staff via email communication, this storm drain system eventually conveys flows into downstream waters.

The agricultural drainage ditch is a small feature in the southeast portion of the project site that becomes incised where sheet flows from the west converge in a single area. Evidence of water flow west and upstream of the incised feature is obscured from disking activities and is weak in the incised feature itself due to dense non-native grass and ruderal vegetation. Discussion of the vegetation, hydrology, and soils characteristics associated with these two drainage features is provided below.

Methodology

Within the limits of the project site, waters and wetlands potentially subject to USACE jurisdiction were delineated in accordance with the following:

- *Wetlands Delineation Manual* (Environmental Laboratory 1987);
- *Regulatory Guidance Letter No. 05-05: Ordinary High Water Mark Identification* (USACE 2005);
- *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008a);
- *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b)
- *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell vs. United States* (U.S. Environmental Protection Agency [USEPA] and USACE 2008); and
- *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2010)

RWQCB jurisdiction was determined in accordance with the previously listed methodologies to identify waters of the U.S. and thus, mirrors the jurisdictional limits of federal jurisdiction pursuant to Section 401 of the CWA. Procedures for defining RWQCB jurisdiction pursuant to the State Water Resources Control Board's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* was approved on April 2, 2019 and formally implemented on May 28, 2020. CDFW jurisdiction was delineated in accordance with Section 1602(a) of the California Fish and Game Code. Appendix A presents a discussion of pertinent regulations and definitions pertaining to this jurisdictional delineation.

MSHCP Section 6.1.2, Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools, describes the process through which protection of riparian/riverine areas, vernal pools, and fairy shrimp species will occur within the MSHCP Area. Protection of these resources is important for a number of MSHCP conservation objectives. An assessment of a project's potentially significant effects on riparian/riverine areas, vernal pools, and fairy shrimp habitat is required. Guidelines for determining whether or not these resources exist on site are described as follows:

- **Riparian/Riverine Areas** are described by the MSHCP as "lands which contain habitat dominated by trees, shrubs, persistent emergent, or emergent mosses and lichens which occur close to or which depend upon soil moisture from a nearby fresh water source or areas with fresh water flow during all or a portion of the year." Riparian/riverine areas under the MSHCP also include drainage areas that are vegetated or have upland (non-riparian/riverine) vegetation that drain directly into an area that is described for conservation under the MSHCP (or areas already conserved).
- **Vernal Pools** are described by the MSHCP as "seasonal wetlands that occur in depression areas that have wetland indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetland indictors of hydrology and /or vegetation during the drier portion of the growing season."
- **Listed Fairy Shrimp Habitat** is described in the MSHCP as habitat for Riverside fairy shrimp (*Streptocephalus woottoni*), vernal pool fairy shrimp (*Branchinecta lynchi*), or Santa Rosa

> Plateau fairy shrimp (*Linderiella santarosae*), and includes ephemeral pools, artificially created habitat, and/or other features determined appropriate by a qualified biologist.

In addition, Section 6.1.2 of the MSHCP states:

> With the exception of wetlands created for the purpose of providing wetlands habitat or resulting from human actions to create open waters or from the alteration of natural stream courses, areas demonstrating characteristics as described above which are artificially created are not included in these definitions.

If found, riparian/riverine habitat and vernal pools within the study area were identified, mapped, and recorded during the field reconnaissance survey.

Literature Review

Prior to the field survey, Rincon reviewed aerial photographs of the site, regional and site specific topographic maps, the U.S. Department of Agriculture Natural Resources Conservation Service (USDA NRCS) Web Soil Survey: *Custom Soil Resource Report for Western Riverside Area, California* (2021a), and other available background information to better characterize the nature and extent of potentially jurisdictional waters and wetlands. The USFWS National Wetlands Inventory was also reviewed to determine if any wetlands had been previously documented and mapped on or in the vicinity of the project site.

Field Survey

Rincon Senior Biologist Jared Reed and Biologist Christian Nordal conducted a jurisdictional delineation field survey within the project site on April 19, 2021. Biologist Christian Nordal conducted a subsequent jurisdictional delineation field survey of an additional portion of the roadside drainage channel on May 27, 2021. All potentially jurisdictional features within and adjacent to the site were inspected to record existing conditions and determine jurisdictional limits.

Drainage features, riparian/riverine habitat, width measurements, and wetland sample points were mapped using a Geode GNS2 GPS unit with sub-meter accuracy and plotted on aerial photographs. Width measurements for USACE jurisdiction were determined based on the lateral extent of the OHWM. CDFW jurisdictional limits were measured laterally from bank to bank at the top of the channel, or to the outer drip-line of associated riparian vegetation, if present. The data were subsequently transferred to Rincon's Geographic Information System (GIS) database and used in combination with recent, high resolution aerial photographs and topographic datasets to map the extent of streams in and adjacent to the project site. Wetland sample points were taken at representative locations to determine the presence/absence of wetland indicators, such as hydrophytic vegetation, hydric soils, and wetland hydrology. Soil test pits confirmed the soil conditions from the sample point. Soils data was collected using a shovel and Munsell color chart.

Vegetation Mapping

Vegetation communities observed on site were mapped on a site-specific aerial photograph. All accessible portions of the jurisdictional delineation survey area were covered on foot. Vegetation was generally classified using the systems provided in the *Preliminary Descriptions of the Terrestrial*

Communities of California (Holland 1986), and modified using *A Manual of California Vegetation, Second Edition* (MCV) (Sawyer et al. 2009) as necessary to reflect the existing site conditions.

Delineation Results

A description of the major vegetation units observed, soil types encountered, and a discussion of local hydrology in the survey area are presented below. Three sampling points were assessed within drainage features in the project survey area. The results of collected data are summarized in Table 1. Data from these sample points were entered on standardized Wetland Determination Data Forms, which are presented in Appendix B. Field conditions of the drainage features are shown in Appendix C.

Vegetation

One vegetation community occurs within the project site: *Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance wild oats and annual brome grasslands, and one land cover type occurs within the project site: Developed (Figure 3).

Annual brome (*Bromus* spp.) grasslands are annual non-native grasslands with more than 60% of the herbaceous layer consisting of *Bromus* species. The entire project site consists of land that is regularly disturbed by tilling, resulting in annual brome grassland as the only habitat on site. Species diversity is limited, with only annual grassland species observed including, but not limited to, red brome (*Bromus rubens*), ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum*), Rancher's fiddleneck (*Amsinckia menziesii*), and short-pod mustard (*Hirschfeldia incana*). Annual brome grassland comprises 7.36 acres in the project site and was observed in both drainage features. Hydrophytic vegetation was not present in either drainage feature.

Developed areas within the project site are comprised of paved roads. Developed areas comprise 0.17 acre in the project site.

Hydrology

Roadside Drainage Channel

The roadside drainage channel in the east portion of the project site and along the west side of Redlands Boulevard originates from road runoff near the intersection of Redlands Boulevard and Highland Boulevard and conveys flows through a combination of an earthen channel and storm drain culverts. It conveys flows for approximately two miles and into an underground storm drain system near the intersection of Redlands Boulevard and Dracaea Avenue. According to City Planning staff, this storm drain system eventually outlets to downstream waters.

Hydrology within the roadside drainage channel is supplied primarily by storm flows and urban runoff from upstream of the site as well as sheet flow from the adjacent uplands. The drainage contained evidence of flow, including channel incision, scouring, water marks, and sediment and drift deposits. This channel appeared to be an ephemeral water body due to its overall dry condition, and storm flows appeared to last for only a short time following precipitation.

Erosional Drainage Ditch

The second feature is an erosional drainage ditch that is part of a larger discontinued wash that originates from the Box Springs Mountains and flows southeastward over much of the Moreno

Table 1 Summary of Hydrophytic Vegetation, Hydric Soils, and Wetlands Hydrology Wetlands Indicator Status by Soil Test Pit Location

Sampling Point	Plant Species Scientific Name	Plant Species Common Name	Absolute Percent Cover	Wetland Indicator Status[1]	Passed Dominance Test	Passed Prevalence Index[2]	Meets Hydrophytic Vegetation Criterion	Meets Hydric Soils Criterion	Meets Wetlands Hydrology Criterion
1	*Bromus diandrus*	ripgut brome	20	NL (UPL)	No	N/A	No	No	Yes
	Hordeum murinum	wall barley	15	FACU					
	Avena barbata	slender wild oat	5	NL (UPL)					
	Helianthus annuus	common sunflower	2	FACU					
	Hirschfeldia incana	short-pod mustard	1	NL (UPL)					
2	*Bromus diandrus*	ripgut brome	40	NL (UPL)	No	N/A	No	No	Yes
	Hirschfeldia incana	short-pod mustard	10	NL (UPL)					
	Avena barbata	slender wild oat	8	NL (UPL)					
	Erodium cicutarium	red-stem filaree	5	NL (UPL)					
	Melilotus indicus	sourclover	2	FACU					
3	*Bromus diandrus*	ripgut brome	80	NL (UPL)	No	N/A	No	No	No
	Hordeum murinum	wall barley	10	FACU					
	Avena barbata	slender wild oat	2	NL (UPL)					

[1] OBL=obligate wetland species; FACW=facultative wetland species; FAC=facultative species; FACU=facultative upland species; UPL=obligate upland species (See Appendix B for a detailed description of each indicator status).

[2]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Figure 3 Vegetation Communities

Imagery provided by Microsoft Bing and its licensors © 2021.

Valley. The erosional drainage ditch is a small feature in the southeast portion of the project site that becomes incised where sheet flows converge in a single area. This feature does not receive enough water long enough for it to have different soils or vegetation from the rest of the project site but does connect directly to a storm drain under Spruce Avenue where it empties into the roadside drainage channel that borders Redlands Boulevard. Evidence of water flow west and upstream of the incised feature is obscured from disking activities and is weak in the incised feature itself due to the presence of dense non-native grass and ruderal vegetation. This channel appeared to be an ephemeral water body due to its overall dry condition, and storm flows appeared to last for only a short time following precipitation.

Soils

Soil Survey

The USDA NRCS Web Soil Survey identifies two soil map units in the project site (Figure 4) (USDA NRCS 2021a). These soil units are from the USDA NRCS Soil Survey of the Western Riverside Area, California, which was conducted on a broader scale than this study and did not necessarily include on site observations. The physical characteristics of the soil units, as described below, are general and not necessarily indicative of characteristics currently present within the project site. The soils on the site have been disturbed and likely no longer resemble the mapped soil types. None of these soils are considered hydric. The descriptions of the soil map units (USDA NRCS 2021b) are presented below.

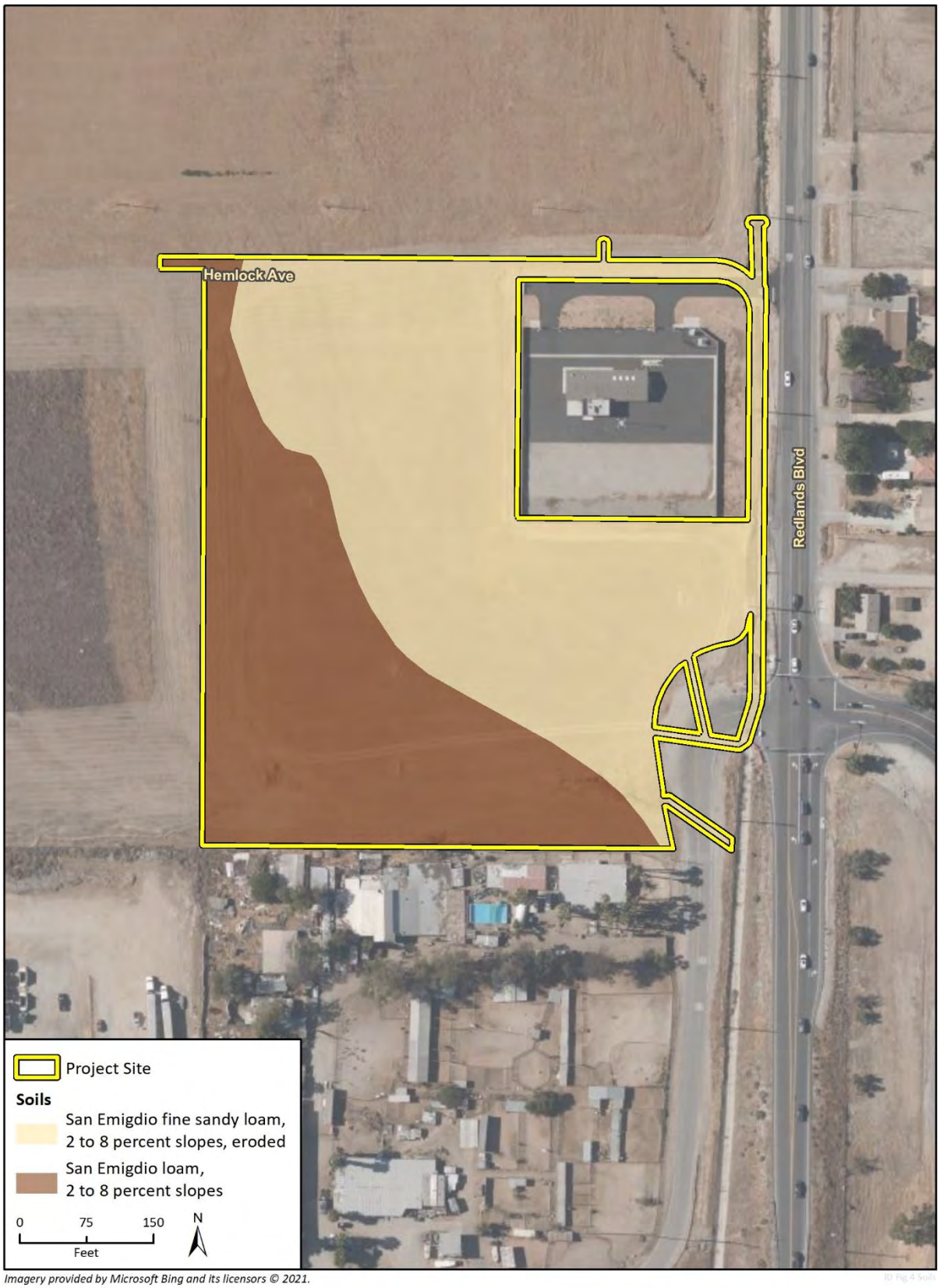
San Emigdio Soils

Two soil types of the San Emigdio series occur on site: San Emigdio fine sandy loam, 2 to 8 percent slopes, eroded (SeC2) and San Emigdio loam, 2 to 8 percent slopes (SgC). The San Emigdio series consists of very deep, well drained soils that form in dominantly sedimentary alluvium. They are found on fans and floodplains and typically have low slopes. They are used for growing citrus fruit, alfalfa, and dryland grain and uncultivated areas are typically annual grasses and forbs (USDA NRCS 2021b). Soils on site have been tilled in the past for agricultural purposes.

Sample Points

Based on soil pit data (Appendix B) from the field survey, no hydric soils indicators are present within either the roadside drainage channel or the erosional drainage ditch. The roadside drainage channel bed is comprised of a mix of cobbles, gravel, and weirs and contains debris. This channel may drain water too rapidly for hydric soils indicators to develop within the soil profile. The channel bed of the erosional drainage ditch is comprised of sandy loam and is densely vegetated with ripgut brome, wall barley, slender wild oat, and Russian thistle (*Salsola tragus*). The problematic hydric soils analysis of the Arid West Supplement is not applicable since sustained hydrology has not been observed.

Figure 4 USDA Soils Map



Imagery provided by Microsoft Bing and its licensors © 2021.

Assessment of Jurisdictional Waters and Wetlands

Based upon the findings of Rincon's jurisdictional delineation, the roadside drainage channel and the erosional drainage ditch contain an OHWM and bed, bank and channel features, although riparian habitat is not present. The erosional drainage ditch conveys flows into the roadside drainage channel through a storm drain under Spruce Avenue and the roadside channel eventually conveys flows into an underground storm drain system near Dracaea Avenue. This storm drain system eventually outlets into downstream waters. No wetlands are present in either feature due to the lack of hydrophytic vegetation and hydric soils in both features. Wetland hydrology was observed in the roadside drainage channel but was not observed in the erosional drainage ditch.

Table 2, below, summarizes the total acreage of potential jurisdictional non-wetland waters onsite per regulatory agency. Figure 5 depicts the location and extent of potential RWQCB and CDFW jurisdiction within the project site, respectively.

Table 2 RWQCB and CDFW Jurisdictional Area

Drainage	RWQCB Non-wetland Waters of the State (linear ft.)	CDFW Jurisdictional Streambed (linear ft.)
Roadside Drainage Channel	0.07 (520)	0.21 (520)
Erosional Drainage Ditch	0.02 (100)	0.04 (100)
Total	**0.09 (620)**	**0.25 (620)**

Approximately 620 linear feet and 0.09 acre of potential RWQCB-jurisdictional non-wetland waters of the State and 620 linear feet and 0.25 acre of potential CDFW-jurisdictional streambeds was determined to be present on and adjacent to the project site. It is noted that the regulatory agencies make the final jurisdictional determination.

USACE and RWQCB Jurisdiction

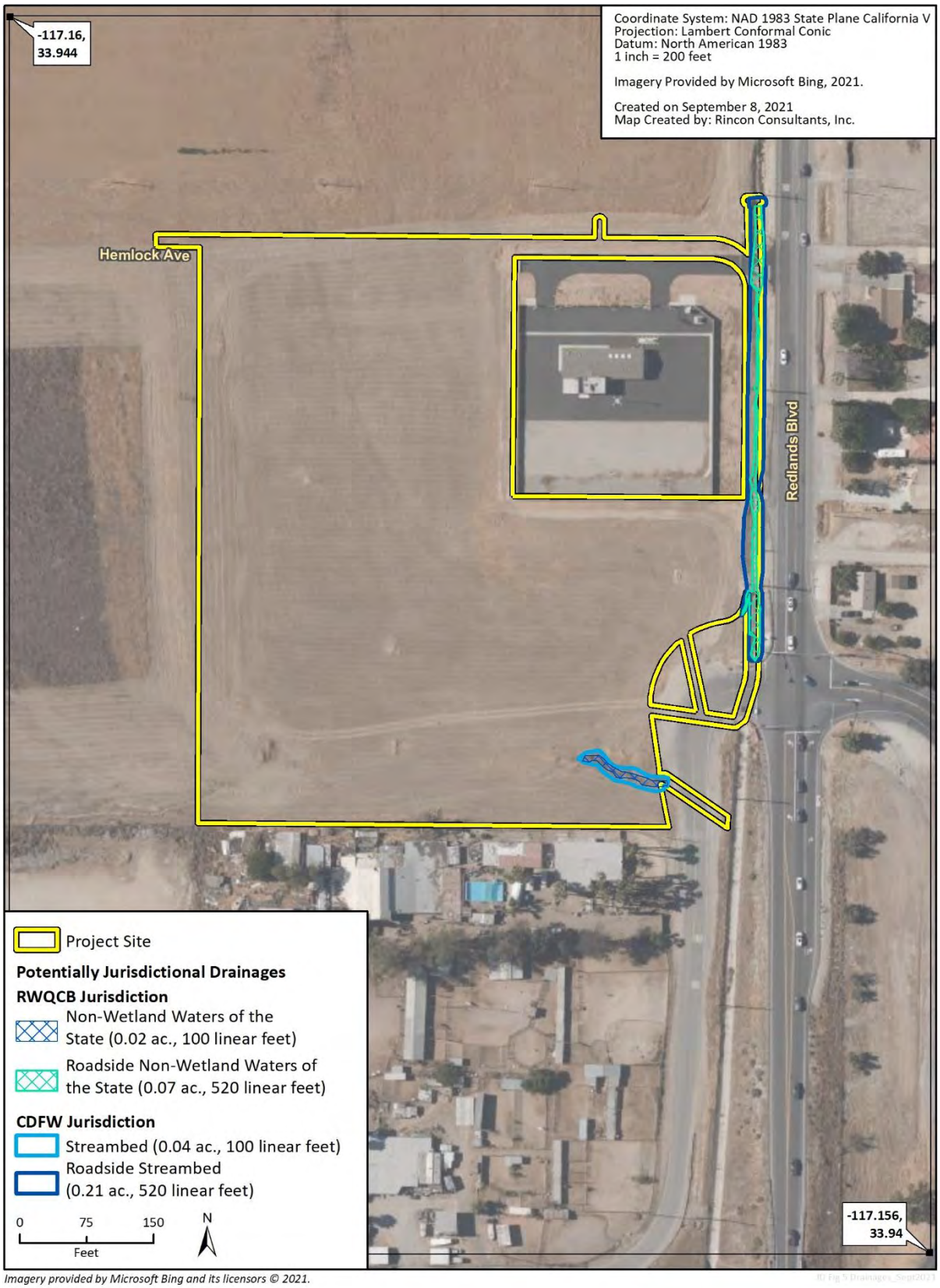
The two drainage features on the project site are ephemeral, roadside drainage channels and erosional ditches, do not contribute a "significant nexus" to downstream navigable "Waters of the U.S.", and do not otherwise exhibit an interstate commerce connection. The two drainage features therefore would not be regulated by USACE per the 2008 Rapanos guidance (USEPA and USACE 2008).

Waters not subject to CWA regulation, however, are often still regulated by the RWQCB as "Waters of the State" under the Porter-Cologne Act and as CDFW-jurisdictional streambeds under CFGC 1602 (see Appendix B).

The roadside drainage channel contains 0.07 acre and 520 linear feet of potential non-wetland waters subject to the jurisdiction of the RWQCB. The channel's measured OHWM ranges from two feet to 14 feet, averaging approximately eight feet.

The erosional drainage ditch contains 0.02 acre and 100 linear feet of potential non-wetland waters subject to the jurisdiction of the RWQCB. The ditch's measured OHWM ranges from five feet to nine

Figure 5 Jurisdictional Delineation Results



Imagery provided by Microsoft Bing and its licensors © 2021.

feet, averaging approximately seven feet.

A total of 0.09 acre of potential non-wetland waters subject to the jurisdiction of the RWQCB are therefore present in and immediately adjacent to the project site.

No hydric soils indicators were observed within either drainage feature. Both features are considered non-wetland waters because they lack hydrophytic vegetation.

CDFW Jurisdiction

The roadside drainage channel contains 0.21 acre and 520 linear feet of potential streambed subject to the jurisdiction of CDFW. This represents the furthest extent of potential jurisdictional area within the channel. The channel's measured width of bank to bank ranges from 12 feet to 24 feet, averaging approximately 18 feet. No riparian vegetation is associated with this feature.

The erosional drainage ditch contains 0.04 acre and 100 linear feet of potential streambed subject to the jurisdiction of CDFW. This represents the furthest extent of potential jurisdictional area within the ditch. The ditch's measured width of bank to bank ranges from 12 feet to 16 feet, averaging approximately 14 feet. No riparian vegetation is associated with this feature.

Local Jurisdiction

The two drainage features on and immediately adjacent to the project site are riverine. These features do not contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or depend on a nearby freshwater source. The two features contain upland, non-riparian/riverine vegetative species and do not contain habitat for MSHCP Section 6.1.2 wildlife species. The features do contain a freshwater flow during a portion of the year, and they eventually drain into an area that is described for conservation under the MSHCP or areas already conserved via an underground storm drain system. The riparian/riverine area associated with the two drainage features is coterminous with potential CDFW jurisdiction.

No pooling or signs of pooling water were observed on site and plant species composition does not differ throughout the site, indicating it does not receive sufficient flow or retention to act as vernal pool habitat. Therefore, no vernal pools are on site.

Project Impacts

The project will result in permanent impacts to potentially jurisdictional waters, though no temporary impacts are expected. Project implementation would fill the roadside drainage channel on the project site, install a 54-inch RCP in place of the roadside drainage channel, remove the existing 24-inch RCPs with associated headwalls near the intersection of Redlands Boulevard and Hemlock Avenue, and remove the existing concrete box culvert under Spruce Avenue. Please refer to Appendix D for the Preliminary Grading Plan. Refer to Figure 6 and Table 3 for a summary of jurisdictional impacts.

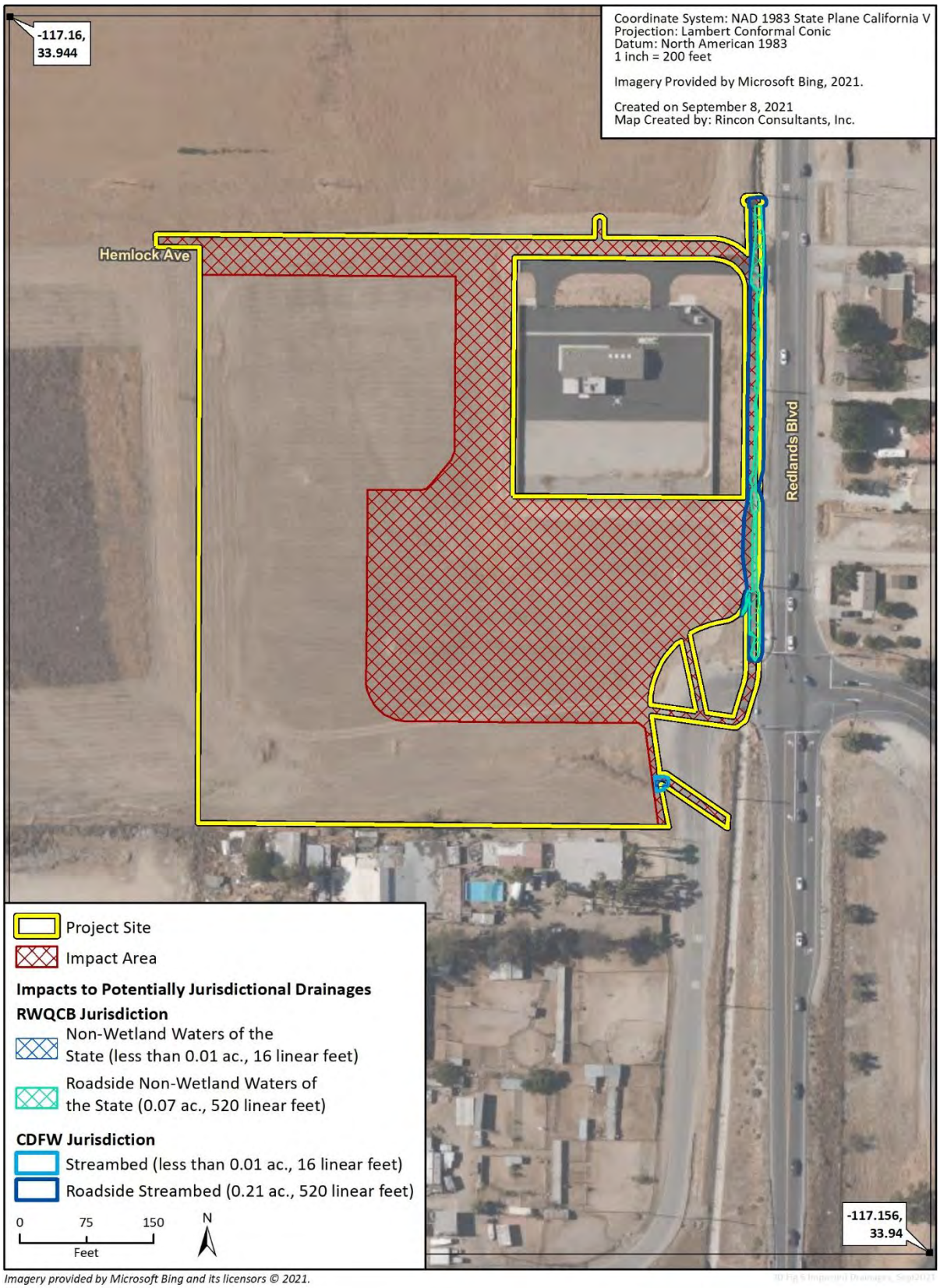
Table 3 Anticipated Permanent Impacts to Potentially Jurisdictional Areas

Drainage	RWQCB Non-wetland Waters of the State (linear ft.)	CDFW Jurisdictional Streambed (linear ft.)
Roadside Drainage Channel	0.07 acre (520)	0.21 acre (520)
Erosional Drainage Ditch	Less than 0.01 acre (16)	Less than 0.01 acre (16)
Total	0.07 acre (536)	0.21 acre (536)

The project would permanently impact approximately 0.07 acre and 536 linear feet of potential non-wetland waters of the State. No wetland waters of the State were observed; thus, no impacts to wetland waters would occur. Approximately 0.21 acre and 536 linear feet of permanent impacts to potential CDFW-jurisdictional streambed are anticipated. The project is not anticipated to result in temporary impacts.

Project implementation may be subject to the permit requirements of the RWQCB under the Porter-Cologne Act and an SAA from the CDFW pursuant to Section 1600 et. seq. of the CFGC. Rincon recommends coordinating with the USACE, RWQCB, and CDFW to confirm presence or absence of jurisdiction and if permitting is necessary.

Figure 6 Impacts to Potentially Jurisdictional Waters



Imagery provided by Microsoft Bing and its licensors © 2021.

References

Brady, Roland H. III, Kris Vyverberg. 2013. Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants. California Energy Commission. Publication Number: CEC-500-2014-013. Sacramento, CA.

California, State of. 2006. *Fish and Game Code.* http://www.leginfo.ca.gov/calaw.html

California Department of Fish and Game (CDFG). 1994. A Field Guide to Lake and Streambed Alteration Agreements Sections 1600-1607 California Fish and Game Code. Environmental Services Division. January 1994

California Regional Water Quality Control Board – Santa Ana Region. 1995, updated 2019. Water Quality Control Plan (Basin Plan) for the Santa Ana River Basin. Riverside, CA. https://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/index.html (Accessed May 2021).

California State Water Resources Control Board (SWRCB). 2019. *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*. April 2, 2019.

____. 2021. Porter-Cologne Water Quality Control Act. Water Code Division 7 and Related Sections (As amended, including Statutes 2020). March 2021. https://www.waterboards.ca.gov/laws_regulations/docs/portercologne.pdf (Accessed May 2021)

Google Earth Pro. Redlands Boulevard, Moreno Valley, CA. Accessed April 2021.

Holland, R. F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. California Department of Fish and Game. Nongame-Heritage Program, Sacramento, CA.

Lichvar, R.W. et al. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1–17. Published 28 April 2016.

Microsoft Bing, Redlands Boulevard, Moreno Valley, CA. Accessed April 2021.

Munsell® Color. 2000. *Munsell®* Soil Color Charts. Gretagmacbeth, New York.

Reed, P.B., Jr. 1988. *National List of Plant Species That Occur in Wetlands, California (Region 0).*

Riverside, County of. 2003. Final Western Riverside County Multiple Species Habitat Conservation Plan. Available at: http://www.rcip.org/

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento, CA.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions. Available online. (Accessed April 2021).

United States Army Corps of Engineers (USACE). Environmental Laboratory. 1987. *Corps of Engineers Wetland Delineation Manual,* Technical Report Y-87-1, U.S. Army Engineers Waterways Experiment Station, Vicksburg, Miss.

____. 2005. *Regulatory Guidance Letter No. 05-05: Ordinary High Water Mark Identification*. U.S. Army Corps of Engineers. Washington, D.C.

____. 2008a. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0).* Technical Report ERDC/EL TR-08-28. U.S. Army Engineer Research and Development Center. Vicksburg, Mississippi.

____. 2008b. *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States.* Technical Report ERDC/CRREL TR-08-12. U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory. Hanover, New Hampshire.

____. 2010. *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*. Technical Report ERDC/CRREL TN-10-1. U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory. Hanover, New Hampshire.

____. 2016. State of California 2016 Wetland Plant List. http://rsgisias.crrel.usace.army.mil/NWPL/ (accessed April 2021).

United States Department of Agriculture, Natural Resources Conservation Service (USDA NRCS). 2021a. Web Soil Survey: Custom Soil Resource Report for Western Riverside Area, California. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. (Accessed April 2021).

____. 2021b. *State Soils Data Access (SDA) Hydric Soils List: California*. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1316619.html. (Accessed April 2021).

United States Environmental Protection Agency and USACE. *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell vs. United States*. December 2, 2008.

United States Fish and Wildlife Service. *National Wetlands Inventory.* http://wetlands.fws.gov.

United States Geological Survey (USGS). 2021a. *Sunnymead, California* 7.5-minute topographic quadrangle, accessed via the National Map. April 2021.

____.2021b. National Hydrography Dataset. Accessed via the National Map. April 2021.

Weather Currents. 2021. Available at: http://weathercurrents.com/Moreno Valley

Appendix A

Regulatory Framework

Regulatory Framework

The following is a brief summary of the regulatory context under which biological resources are managed at the federal, State, and local levels. A number of federal and State statutes provide a regulatory structure which guide the protection of jurisdictional features. Agencies with the responsibility for protection of jurisdictional features within the project site include:

- United States Army Corps of Engineers (non-wetland waters and wetlands of the United States)
- Regional Water Quality Control Board (waters of the State)
- California Department Fish and Wildlife (riparian areas, streambeds, and lakes)

United States Army Corps of Engineers Jurisdiction

The United States Army Corps of Engineers (USACE), under provisions of Section 404 of the Clean Water Act (CWA) and USACE implementing regulations, has jurisdiction over the placement of dredged or fill material into "waters of the United States." Congress enacted the CWA "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." In practice, the boundaries of certain waters subject to USACE jurisdiction under Section 404 have not been fully defined. Previous regulations codified in 1986 defined "waters of the United States" as traditional navigable waters, interstate waters, all other waters that could affect interstate or foreign commerce, impoundments of waters of the United States, tributaries, the territorial seas, and adjacent wetlands.

The United States Supreme Court has issued three decisions that provide context in determining the scope of "waters of the United States" covered by the CWA. In *United States v. Riverside Bayview Homes*, the Court, in a unanimous opinion, deferred to the Corps' ecological judgment that adjacent wetlands are "inseparably bound up" with the waters to which they are adjacent, and upheld the inclusion of adjacent wetlands in the regulatory definition of "waters of the United States. In *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC), the Supreme Court held that the use of "isolated" non-navigable intrastate ponds by migratory birds was not by itself a sufficient basis for the exercise of federal regulatory authority under the CWA. The majority opinion in SWANCC introduced the concept that it was a "significant nexus" that informed the Court's reading of CWA jurisdiction over waters that are not navigable in fact. In *Rapanos v. United States*, (Rapanos), the Court agreed that the term "waters of the United States" encompasses some waters that are not navigable in the traditional sense. Justice Kennedy's concurring opinion indicated that the critical factor in determining the CWA's coverage is whether a water has a "significant nexus" to downstream traditional navigable waters such that the water is important to protecting the chemical, physical, or biological integrity of the navigable water. Whether a significant nexus exists in any given situation had to be decided on a case-by-case basis, depending on site-specific circumstances.

USACE jurisdictional limits are typically identified by the ordinary high water mark (OHWM) or the landward edge of adjacent wetlands (where present). The OHWM is the "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 area" (33 CFR 328.3).

Wetland Waters of the U.S.

The USACE defines wetlands as "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" (33 CFR 328.3). The USACE's delineation procedures identify wetlands in the field based on indicators of three wetland parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. The following is a discussion of each of these parameters.

Hydrophytic Vegetation

Hydrophytic vegetation dominates areas where frequency and duration of inundation or soil saturation exerts a controlling influence on the plant species present. Plant species are assigned wetland indicator status according to the probability of their occurring in wetlands. More than fifty percent of the dominant plant species must have a wetland indicator status to meet the hydrophytic vegetation criterion. The USACE published the National Wetland Plant List (USACE 2018), which separates vascular plants into the following four basic categories based on plant species frequency of occurrence in wetlands:

- **Obligate Wetland (OBL).** Almost always occur in wetlands
- **Facultative Wetland (FACW).** Usually occur in wetlands, but occasionally found in non-wetlands
- **Facultative (FAC).** Occur in wetlands or non-wetlands
- **Facultative Upland (FACU).** Usually occur in non-wetlands, but may occur in wetlands
- **Obligate Upland (UPL).** Almost never occur in wetlands

The USACE considers OBL, FACW and FAC species to be indicators of wetlands. An area is considered to have hydrophytic vegetation when greater than 50 percent of the dominant species in each vegetative stratum (tree, shrub, and herb) fall within these categories. Any species not appearing on the United States Fish and Wildlife Service's list is assumed to be an upland species, almost never occurring in wetlands. In addition, an area needs to contain at least 5% vegetative cover to be considered as a vegetated wetland.

Hydric Soils

Hydric soils are saturated or inundated for a sufficient duration during the growing season to develop anaerobic or reducing conditions that favor the growth and regeneration of hydrophytic vegetation. Field indicators of wetland soils include observations of ponding, inundation, saturation, dark (low chroma) soil colors, bright mottles (concentrations of oxidized minerals such as iron), gleying (indicates reducing conditions by a blue-grey color), or accumulation of organic material. Additional supporting information includes documentation of soil as hydric or reference to wet conditions in the local soils survey, both of which must be verified in the field.

Wetland Hydrology

Wetland hydrology is inundation or soil saturation with a frequency and duration long enough to cause the development of hydric soils and plant communities dominated by hydrophytic vegetation. If direct observation of wetland hydrology is not possible (as in seasonal wetlands), or records of wetland hydrology are not available (such as stream gauges), assessment of wetland hydrology is frequently supported by field indicators, such as water marks, drift lines, sediment deposits, or drainage patterns in wetlands.

Regional Water Quality Control Board Jurisdiction

The State Water Resources Control Board (SWRCB) and local Regional Water Quality Control Board (RWQCB) have jurisdiction over "waters of the State," which are defined as any surface water or groundwater, including saline waters, within the boundaries of the state.

The SWRCB or local RWQCB have not established regulations for field determinations of waters of the state except for wetlands currently. The RWQCB are affected by or shares USACE jurisdiction unless isolated conditions or ephemeral waters are present. Each local RWQCB may delineate their jurisdictions of waters of the state differently based on current interpretations of jurisdiction.

Procedures for defining RWQCB jurisdiction pursuant to the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* went into effect May 28, 2020. The SWRCB define an area as wetland if, under normal circumstances:

(i) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both;

(ii) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and

(iii) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

The SWRCB's *Implementation Guidance for the Wetland Definition and Procedures for Discharges of Dredge and Fill Material to Waters of the State* (2020), states that waters of the U.S. and waters of the State should be delineated using the standard USACE delineation procedures, taking into consideration that the methods shall be modified only to allow for the fact that a lack of vegetation does not preclude an area from meeting the definition of a wetland.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of water. The Porter-Cologne Act applies to surface waters, wetlands, and ground water and to both point and nonpoint sources of pollution. Pursuant to the Porter-Cologne Act (California Water Code section 13000 et seq.), the policy of the State is as follows:

- The quality of all the waters of the State shall be protected
- All activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason
- The State must be prepared to exercise its full power and jurisdiction to protect the quality of water in the State from degradation

The Porter-Cologne Act established nine RWQCB (based on hydrogeologic barriers) and the SWRCB, which are charged with implementing its provisions and which have primary responsibility for protecting water quality in California. The SWRCB provides program guidance and oversight, allocates funds, and reviews RWQCB decisions. In addition, the SWRCB allocates rights to the use of surface water. The RWQCBs have primary responsibility for individual permitting, inspection, and enforcement actions within each of nine hydrologic regions. The SWRCB and RWQCB have numerous nonpoint source related responsibilities, including monitoring and assessment, planning, financial assistance, and management.

California Department of Fish and Wildlife Jurisdiction

The California Department of Fish and Wildlife (CDFW) has not defined the term "stream" for the purposes of implementing its regulatory program under Section 1602, and the agency has not promulgated regulations directing how jurisdictional streambeds may be identified, or how their limits should be delineated. Considering this, four sources of information were reviewed and considered in determining the appropriate limits of CDFW jurisdiction within the site, as discussed below. The principles presented in these materials were used to guide the delineation of on-site streams, with consideration given to the relevance (i.e., jurisdiction, applicability) of each source to the project and resources at hand.

- **The plain language of Section 1602 of CFGC** establishes the following general concepts:
  - References "river," "stream," and "lake"
  - References "natural flow"
  - References "bed," "bank," and "channel"
- **Applicable court decisions**, in particular *Rutherford v. State of California* (188 Cal App. 3d 1276 (1987), which interpreted Section 1602's use of "stream" to be as defined in common law. The Court indicated that a "stream" is commonly understood to:
  - Have a source and a terminus
  - Have banks and a channel
  - Convey flow at least periodically, but need not flow continuously and may at times appear outwardly dry
  - Represent the depression between the banks worn by the regular and usual flow of the water
  - Include the area between the opposing banks measured from the foot of the banks from the top of the water at its ordinary stage, including intervening sand bars
  - Include the land that is covered by the water in its ordinary low stage
  - Include lands below the OHWM
- **CDFW regulations** defining "stream" for other purposes, including sport fishing (14 CCR 1.72) and streambed alterations associated with cannabis production (14 CCR 722(c)(21)), which indicate that a stream:
  - Flows at least periodically or intermittently
  - Flows through a bed or channel having banks
  - Supports fish or aquatic life
  - Can be dry for a period of time
  - Includes watercourses where surface or subsurface flow supports or has supported riparian vegetation
- **Guidance documents**, including A Field Guide to Lake and Streambed Alteration Agreements (CDFG 1994) and Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants (Brady and Vyverberg 2013), which suggest the following:
  - A stream may flow perennially or episodically

- A stream is defined by the course in which water currently flows, or has flowed during the historic hydrologic course regime (approximately the last 200 years)
- Width of a stream course can reasonably be identified by physical or biological indicators
- A stream may have one or more channels (single thread vs. compound form)
- Features such as braided channels, low-flow channels, active channels, banks associated with secondary channels, floodplains, islands, and stream-associated vegetation, are interconnected parts of the watercourse
- Canals, aqueducts, irrigation ditches, and other means of water conveyance can be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife
- Biologic components of a stream may include aquatic and riparian vegetation, all aquatic animals including fish, amphibians, reptiles, invertebrates, and terrestrial species which derive benefits from the stream system
- The lateral extent of a stream can be measured in different ways depending on the particular situation and the type of fish or wildlife resource at risk

The tenets listed above, among others, are applied in desert environments. Coastal drainages are delineated predominately based on the following factors:

- Areas that exhibited evidence of hydrologic activity, such as scour, formation of banks, and/or deposition of sediment or material
- Areas where the vegetation community was adapted to the presence of elevated soil moisture levels (i.e., contained mostly hydrophytic species)

Appendix B

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Redlands Blvd and Hemlock Ave Gas Station | City/County: Moreno Valley/Riverside | Sampling Date: 4/19/2021

Applicant/Owner: A&S Engineering, Inc. | State: CA | Sampling Point: 1

Investigator(s): Jared Reed and Christian Nordal | Section, Township, Range: S2 T3S R4W

Landform (hillslope, terrace, etc.): roadside drainage channel | Local relief (concave, convex, none): concave | Slope (%): 10

Subregion (LRR): C | Lat: 33.942000° N | Long: -117.156887° W | Datum: WGS 84

Soil Map Unit Name: San Emigdio fine sandy loam, 2 to 8 percent slopes, eroded | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: Sample point located in upstream portion of assessed area in roadside drainage channel along west side of Redlands Blvd.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*		n/a*	
2.		n/a*	
3.		n/a*	
4.		n/a*	
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. *N/A*		n/a*	
2.		n/a*	
3.		n/a*	
4.		n/a*	
5.		n/a*	
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 10'x10')			
1. *Bromus diandrus*	20	yes	NL (UPL)
2. *Hordeum murinum*	15	yes	FACU
3. *Avena barbata*	5	no	NL (UPL)
4. *Helianthus annuus*	2	no	FACU
5. *Hirschfeldia incana*	1	no	NL (UPL)
6.		n/a*	
7.		n/a*	
8.		n/a*	
50% = 21.5, 20% = 8.6	43	= Total Cover	
Woody Vine Stratum (Plot size: N/A)			
1. *N/A*		n/a*	-
2.			-
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 57		% Cover of Biotic Crust 0	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Vegetation coverage comprised of upland non-native grass and ruderal species on banks. Channel bed is largely unvegetated.

Project Site: Redlands Blvd and Hemlock Ave Gas Station

SOIL Sampling Point: 1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
4	10 YR 6/4	100						Cobbly & gravelly substrates
6	10 YR 5/4	100						Cobbly & gravelly substrates
8	10 YR 5/4	100					Sandy loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: No hydric soil indicators observed. Soils have sandy loam texture with cobbly and gravelly substrates.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Redlands Blvd and Hemlock Ave Gas Station | City/County: Moreno Valley/Riverside | Sampling Date: 4/19/2021

Applicant/Owner: A&S Engineering, Inc. | State: CA | Sampling Point: 2

Investigator(s): Jared Reed and Christian Nordal | Section, Township, Range: S2 T3S R4W

Landform (hillslope, terrace, etc.): roadside drainage channel | Local relief (concave, convex, none): concave | Slope (%): 10

Subregion (LRR): C | Lat: 33.941598° N | Long: -117.156870° W | Datum: WGS 84

Soil Map Unit Name: San Emigdio fine sandy loam, 2 to 8 percent slopes, eroded | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: Sample point located in upstream portion of assessed area in roadside drainage channel along west side of Redlands Blvd.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*		n/a*	
2.		n/a*	
3.		n/a*	
4.		n/a*	
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. *N/A*		n/a*	
2.		n/a*	
3.		n/a*	
4.		n/a*	
5.		n/a*	
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 10'x10')			
1. *Bromus diandrus*	40	yes	NL (UPL)
2. *Hirschfeldia incana*	10	no	NL (UPL)
3. *Avena barbata*	8	no	NL (UPL)
4. *Erodium cicutarium*	5	no	NL (UPL)
5. *Melilotus indicus*	2	no	FACU
6.		n/a*	
7.		n/a*	
8.		n/a*	
50% = 32.5, 20% = 13	65	= Total Cover	
Woody Vine Stratum (Plot size: N/A)			
1. *N/A*		n/a*	-
2.			-
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 35		% Cover of Biotic Crust 0	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Vegetation coverage comprised of upland non-native grass and ruderal species on banks. Channel bed is largely unvegetated.

Project Site: Redlands Blvd and Hemlock Ave Gas Station

SOIL Sampling Point: 2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
3	10 YR 6/6	100					Sand	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: No hydric soil indicators observed. Soils have sandy loam texture. Unable to dig deeper than 3" due to compacted substrates.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Redlands Blvd and Hemlock Ave Gas Station | City/County: Moreno Valley/Riverside | Sampling Date: 4/19/2021

Applicant/Owner: A&S Engineering, Inc. | State: CA | Sampling Point: 3

Investigator(s): Jared Reed and Christian Nordal | Section, Township, Range: S2 T3S R4W

Landform (hillslope, terrace, etc.): incised erosional ditch | Local relief (concave, convex, none): concave | Slope (%): 5

Subregion (LRR): C | Lat: 33.941192° | Long: -117.157533° | Datum: WGS 84

Soil Map Unit Name: San Emigdio loam, 2 to 8 percent slopes | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: Concentrated sheet flows have created an incised erosional feature. Flows are collected by a single storm drain under Spruce Ave and outlet into roadside drainage channel adjacent to Redlands Blvd.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*		n/a*	
2.		n/a*	
3.		n/a*	
4.		n/a*	
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. *N/A*		n/a*	
2.		n/a*	
3.		n/a*	
4.		n/a*	
5.		n/a*	
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 10'x10')			
1. *Bromus diandrus*	80	yes	NL (UPL)
2. *Hordeum murinum*	10	no	FACU
3. *Avena barbata*	2	no	NL (UPL)
4.		n/a*	
5.		n/a*	
6.		n/a*	
7.		n/a*	
8.		n/a*	
50% = 46, 20% = 18.4	92	= Total Cover	
Woody Vine Stratum (Plot size:)			
1. *N/A*		n/a*	-
2.			-
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 8	% Cover of Biotic Crust 0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Vegetation coverage comprised of upland non-native grassland.

Project Site: Redlands Blvd and Hemlock Ave Gas Station

SOIL Sampling Point: 3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
4	10 YR 6/3	100					Sandy loam	
6	10 YR 5/6	100					Sandy loam	
8	10 YR 6/4	100					Sandy loam	
10	10YR/6/4	100					Sandy loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: No hydric soil indicators observed. Soils have sandy loam texture.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: Heavy invasion of annual non-native grass species. Weak evidence of hydrology.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project/Site: Redlands Blvd / Hemlock Ave City/County: Moreno Valley / Riverside Date: 4/19/21 Time: 10:00am
Applicant/Owner: JFE Engineering, Inc. State: CA Data Point: 1
Investigator(s): J. Reed & C. Nordal NWI Classification: N/A
Photo File Numbers 1 & 2 Projection Coordinates: 33.942000°N, 117.156881°W Datum: WGS84
Stream Un-named ephemeral roadside ditch
Are climatic/hydrologic conditions on the site typical for this time of year? Yes *(If no, explain in remarks.)*
Do normal conditions exist on the site? Yes Is the site significantly disturbed? No

Potential anthropogenic influences on the channel system

Road surface runoff, side culvert outlets, debris

Brief Site Description

Drainage is an ephemeral roadside ditch along west side of Redlands Blvd. Conveys flow to culvert under Spruce St.

USACE Jurisdiction

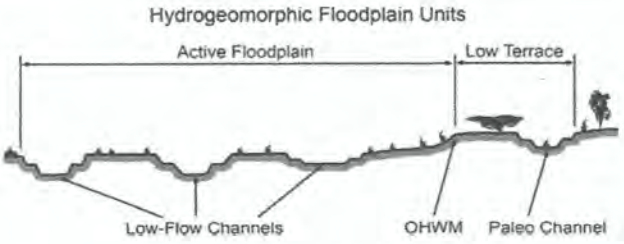
Tributary to waters (Y/N) N Stream Order

Checklist of Resources (if available)

- [X] Aerial photography
  - Dates: 2021
- [X] Topographic maps
  - Scale: 1:24,000
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineations(s) for the site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  - Gage number:
  - Period of record:
- [ ] Clinometer/level
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a. Record the floodplain unit and GPS position.
   b. Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c. Identify any indicators present at the location
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [ ] Digitized on computer
   - [X] GPS
   - [ ] Other:



Millimeters (mm)	Inches (in)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
0.157	4	Pebble	
0.079	2.00	Granule	
0.039	1.00	Very coarse sand	
0.020	0.50	Coarse sand	
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	
1/8 0.0025	0.0625	Very fine sand	
1/16 0.0012	0.031	Coarse silt	
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud

Cross section drawing

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

OHWM

GPS Point: 33.941726°N, 117.156889°W.

Indicators:

- √ Change in average sediment texture
- √ Change in vegetation species
- √ Change in vegetation Cover
- ___ Break in bank slope
- ___ Other: _____
- ___ Other: _____

Comments:

Confined channel with relatively steep banks. OHWM ~6' wide.

Floodplain Unit √ Low-Flow Channel ___ Active Floodplain ___ Low Terrace

GPS point: 33.941726°N, 117.156889°W

Characteristics of the floodplain unit:

Average sediment texture: Cobbly Sand

Total veg cover: 5 % Tree: 0 % Shrub: 0 % Herb: 100 %

Community successional stage:

- ___ NA
- X Early (herbaceous & seedlings)
- ___ Mid (herbaceous, shrubs, saplings)
- ___ Late (herbaceous, shrubs, mature trees)

Indicators:

- ___ Mudcracks
- ___ Ripples
- X Drift and/or debris
- X Presence of bed and bank
- ___ Benches
- ___ Soil Development
- ___ Surface relief
- ___ Other: _____
- ___ Other: _____
- ___ Other: _____

Comments:

Floodplain Unit ___ Low-Flow Channel X Active Floodplain ___ Low Terrace

GPS point: 33.941985°N, 117.156881°W

Characteristics of the floodplain unit:

Average sediment texture: Gravel

Total veg cover: 80 % Tree: 0 % Shrub: 0 % Herb: 80 %

Community successional stage:

- ___ NA
- X Early (herbaceous & seedlings)
- ___ Mid (herbaceous, shrubs, saplings)
- ___ Late (herbaceous, shrubs, mature trees)

Indicators:

- ___ Mudcracks
- ___ Ripples
- ___ Drift and/or debris
- ___ Presence of bed and bank
- ___ Benches
- ___ Soil Development
- X Surface relief
- ___ Other: _____
- ___ Other: _____
- ___ Other: _____

Comments:

Active floodplain limits are limited to top of bank due to confined channel and steep banks.

Floodplain Unit ___ Low-Flow Channel ___ Active Floodplain ___ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: ____ % Tree: ____ % Shrub: ____ % Herb: ____ %

Community successional stage:

- ___ NA
- ___ Early (herbaceous & seedlings)
- ___ Mid (herbaceous, shrubs, saplings)
- ___ Late (herbaceous, shrubs, mature trees)

Indicators:

- ___ Mudcracks
- ___ Ripples
- ___ Drift and/or debris
- ___ Presence of bed and bank
- ___ Benches
- ___ Soil Development
- ___ Surface relief
- ___ Other: _____
- ___ Other: _____
- ___ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project/Site: Redlands Blvd & Hemlock Ave Gas Station City/County: Moreno Valley / Riverside Date: 4/19/21 Time: 11:15
Applicant/Owner: State: CA Data Point: 2
Investigator(s): J. Reed & Cerda NWI Classification: N/A
Photo File Numbers 5-6 Projection Coordinates: 33.9411379N, 117.1572089W Datum:
Stream Un-named ephemeral agricultural drainage ditch
Are climatic/hydrologic conditions on the site typical for this time of year? Yes *(If no, explain in remarks.)*
Do normal conditions exist on the site? Yes Is the site significantly disturbed? No

Potential anthropogenic influences on the channel system

Agricultural uses (disking). Flows collected by single culvert under Spruce St. Connects w/ roadside drainage under east of Spruce St.

Brief Site Description

Incised ephemeral agricultural ditch. Non-native grassland invasion.

USACE Jurisdiction

Tributary to waters (Y/N) N Stream Order 1

Checklist of Resources (if available)

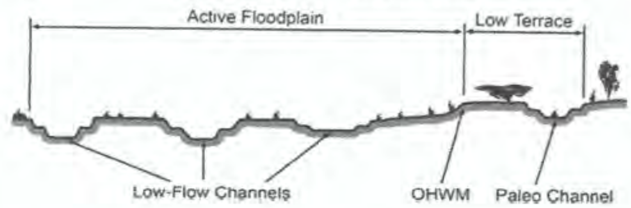
- √ Aerial photography
- Dates: 2021
- √ Topographic maps
- Scale: 1:24,000
- ? Geologic maps
- √ Vegetation maps
- √ Soils maps
- ___ Rainfall/precipitation maps
- ___ Existing delineations(s) for the site
- √ Global positioning system (GPS)
- ___ Other studies
- ___ Stream gage data
- Gage number:
- Period of record:
- ___ Clinometer/level
- ___ History of recent effective discharges
- ___ Results of flood frequency analysis
- ___ Most recent shift-adjusted rating
- ___ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a. Record the floodplain unit and GPS position.
   b. Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c. Identify any indicators present at the location
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:

___ Mapping on aerial photograph X GPS
___ Digitized on computer ___ Other:

Hydrogeomorphic Floodplain Units



Millimeters (mm)		Inches (in)	Wentworth size class	
			Boulder	Gravel
	10.08	256		
			Cobble	
	2.56	64		
			Pebble	
	0.157	4		
			Granule	
	0.079	2.00		
			Very coarse sand	Sand
	0.039	1.00		
			Coarse sand	
	0.020	0.50		
			Medium sand	
1/2	0.0098	0.25		
			Fine sand	
1/4	0.005	0.125		
			Very fine sand	
1/8	0.0025	0.0625		
			Coarse silt	Silt
1/16	0.0012	0.031		
			Medium silt	
1/32	0.00061	0.0156		
			Fine silt	
1/64	0.00031	0.0078		
			Very fine silt	
1/128	0.00015	0.0039		
			Clay	Mud

Cross section drawing

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

OHWM

GPS Point: 33.9411°N, -117.1576°W

Indicators:

___Change in average sediment texture
___Change in vegetation species
___Change in vegetation Cover

___Break in bank slope
✓Other: Erosion has created incised ditch
___Other:

Comments:

Floodplain Unit X Low-Flow Channel ___Active Floodplain ___Low Terrace

GPS point: 33.9411°N, -117.1576°W

Characteristics of the floodplain unit:

Average sediment texture: Sandy loam

Total veg cover: 92 % Tree: 0 % Shrub: 0 % Herb: 92 %

Community successional stage:

___NA ___Mid (herbaceous, shrubs, saplings)
X Early (herbaceous & seedlings) ___Late (herbaceous, shrubs, mature trees)

Indicators:

___Mudcracks ___Benches ___Other:
___Ripples ___Soil Development ___Other:
___Drift and/or debris ___Surface relief ___Other:
X Presence of bed and bank

Comments:

Lack of adequate hydrology has allowed invasion of non-native grass species similar to adjacent upland area. Confined riverine feature has narrow active floodplain.

Floodplain Unit ___Low-Flow Channel X Active Floodplain ___Low Terrace

GPS point: 33.9421°N, -117.1575°W

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 90 %

Community successional stage:

___NA ___Mid (herbaceous, shrubs, saplings)
X Early (herbaceous & seedlings) ___Late (herbaceous, shrubs, mature trees)

Indicators:

___Mudcracks ___Benches ___Other:
___Ripples ___Soil Development ___Other:
___Drift and/or debris ___Surface relief ___Other:
X Presence of bed and bank

Comments:

Floodplain Unit ___Low-Flow Channel ___Active Floodplain ___Low Terrace

GPS point:

Characteristics of the floodplain unit:

Average sediment texture:

Total veg cover: ___% Tree: ___% Shrub: ___% Herb: ___%

Community successional stage:

___NA ___Mid (herbaceous, shrubs, saplings)
___Early (herbaceous & seedlings) ___Late (herbaceous, shrubs, mature trees)

Indicators:

___Mudcracks ___Benches ___Other:
___Ripples ___Soil Development ___Other:
___Drift and/or debris ___Surface relief ___Other:
___Presence of bed and bank

Comments:

Appendix C

Site Photographs

Photograph 1. View north and upstream of the roadside drainage channel showing dry channel bed and annual grassland vegetation with arroyo lupine (*Lupinus succulentus*).

Photograph 2. View south and downstream of the roadside drainage channel toward Redlands Boulevard and Spruce Avenue intersection.

Photograph 3. View north and upstream of the roadside drainage channel showing the low-flow channel to the left of a terrace, steep banks, and a drop weir structure in the channel bed in the background.

Photograph 4. View south and downstream of the roadside drainage channel showing the single box culvert under Spruce Avenue near the Redlands Boulevard and Spruce Avenue intersection.

Photograph 5. Southwest-facing view showing lack of water flow evidence west of erosional drainage ditch and dense annual brome grassland.

Photograph 6. East-facing view toward Spruce Avenue and Redlands Boulevard intersection showing weak water flow evidence and dense annual grasses in the erosional drainage ditch.

Photograph 7. Southwest-facing and upstream view of erosional drainage ditch in dense annual brome grassland.

Photograph 8. Showing single storm drain intake under Spruce Avenue and Russian thistle in the channel bed at the downstream east end of the erosional drainage ditch.

Appendix D

Preliminary Grading Plan

IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

CONCEPTUAL GRADING PLAN FOR A.P.N. 488-310-012

LEGAL DESCRIPTION

LOT 1 IN BLOCK 30 OF MAP NO. 1 OF BEAR VALLEY AND ALESSANDRO DEVELOPMENT CO., IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 11 PAGE 10 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAN BERNARDINO COUNTY, CALIFORNIA, TOGETHER WITH THOSE PORTIONS OF HEMLOCK AVENUE AND REDLANDS BOULEVARD WITHIN SAID BLOCK LYING EASTERLY OF THE NORTHERLY PROLONGATION OF THE WEST LINE OF SAID LOT AND NORTHERLY OF THE EASTERLY PROLONGATION OF THE SOUTH LINE OF SAID LOT.

EXCEPT THOSE PORTIONS OF LOT 1 AND OF REDLANDS BOULEVARD IN SAID BLOCK DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE SOUTH LINE OF SAID LOT 1, WITH THE WEST LINE OF REDLANDS BOULEVARD, 120 FEET WIDE AS SHOWN ON SAID MAP; THENCE ALONG SAID SOUTH LINE SOUTH 89°51'40" WEST, 83.78 FEET; THENCE NORTH 9°26'38" WEST, 122.31 FEET; THENCE NORTHERLY 182.01 FEET ALONG A TANGENT CURVE, CONCAVE SOUTHEASTERLY WITH A RADIUS OF 105 FEET, THROUGH AND ANGLE OF 99°18'57" TO A POINT ON SAID WEST LINE OF REDLANDS BOULEVARD, DISTANT ALONG SAID WEST LINE NORTH 0°07'41" WEST 243.28 FEET FROM THE POINT OF BEGINNING; THENCE NORTH 89°52'19" EAST 60.00 FEET TO THE CENTER LINE OF SAID REDLANDS BOULEVARD; THENCE SOUTH 0° 07'41" EAST 243.28 FEET ON SAID CENTERLINE; THENCE SOUTH 89°52'19" WEST 60.00 FEET TO THE POINT OF BEGINNING.

ALSO EXCEPT THEREFROM, THAT PORTION OF SAID LAND, DESCRIBED AS FOLLOWS:

COMMENCING AT THE CENTERLINE INTERSECTION OF HEMLOCK AVENUE AND REDLANDS BOULEVARD AS SHOWN ON PARCEL MAP NO. 9355, FILED IN BOOK 47, PAGE 39 OF PARCEL MAPS, RECORDS OF SAID RIVERSIDE COUNTY;

THENCE SOUTH 89°52'19" WEST, ALONG SAID CENTERLINE OF HEMLOCK AVENUE, A DISTANCE OF 60.00 FEET TO THE INTERSECTION WITH WITH THE NORTHERLY PROLONGATION OF THE WESTERLY RIGHT OF WAY OF SAID REDLANDS BOULEVARD AND THE TRUE POINT OF BEGINNING;

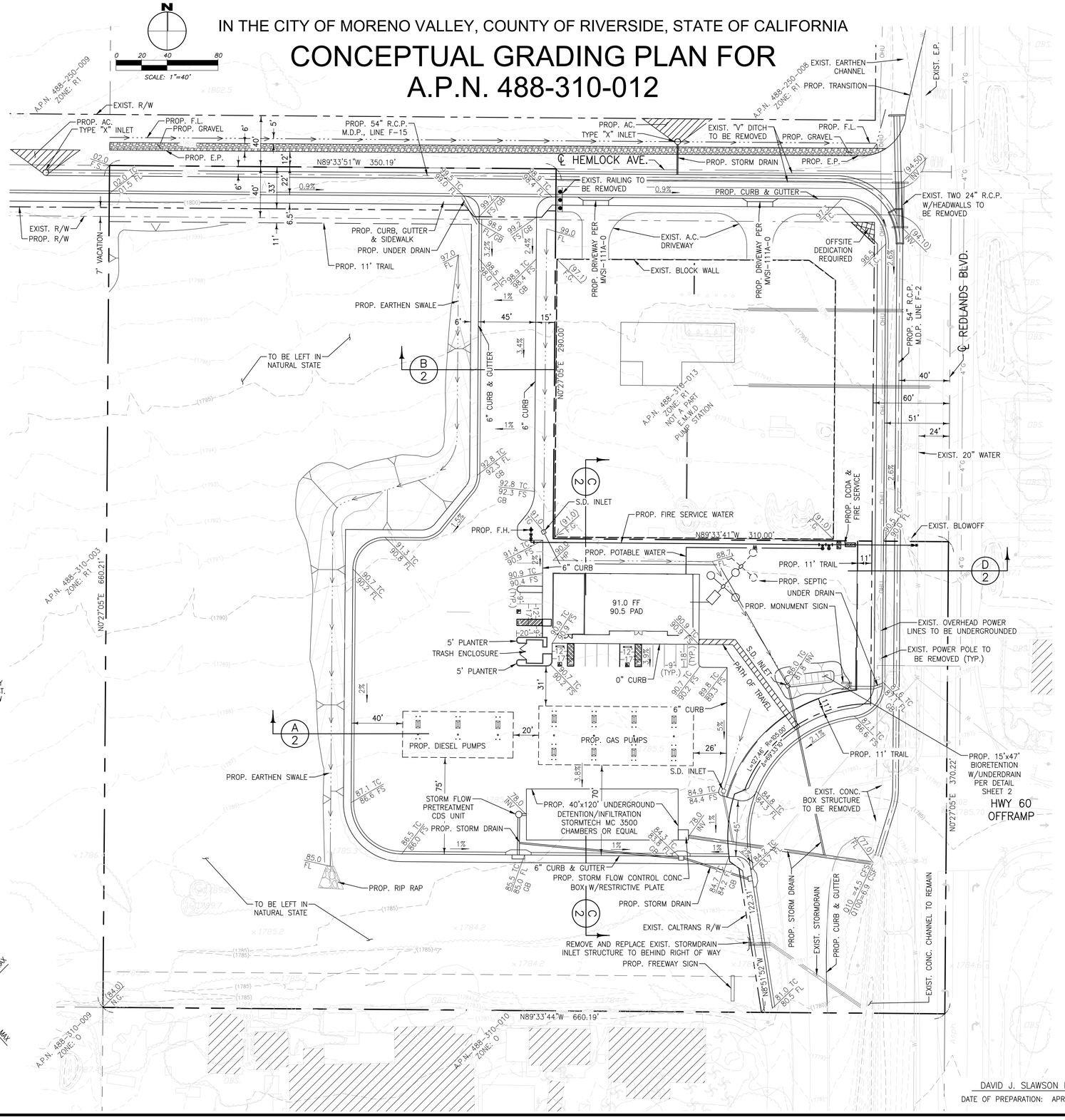
THENCE SOUTH 0°07'41" EAST, ALONG SAID PROLONGATION AND WESTERLY RIGHT OF WAY, A DISTANCE OF 290.00 FEET;

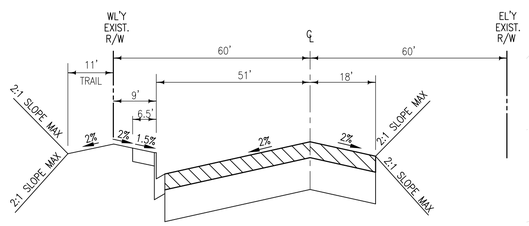
THENCE LEAVING SAID RIGHT OF WAY, AND PARALLEL WITH SAID CENTERLINE OF HEMLOCK AVENUE SOUTH 89°52'19" WEST, A DISTANCE OF 250.00 FEET;

THENCE PARALLEL WITH SAID WESTERLY RIGHT OF WAY, NORTH 0°07'41" WEST, A DISTANCE OF 290.00 FEET TO SAID CENTERLINE OF HEMLOCK AVENUE;

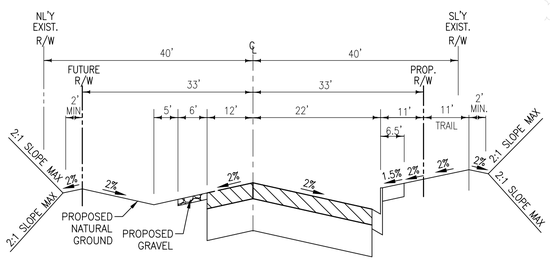
THENCE NORTH 89°52'19" EAST, ALONG SAID CENTERLINE OF HEMLOCK AVENUE, A DISTANCE OF 250.00 FEET TO THE TRUE POINT OF BEGINNING.

A.P.N. 488-310-012

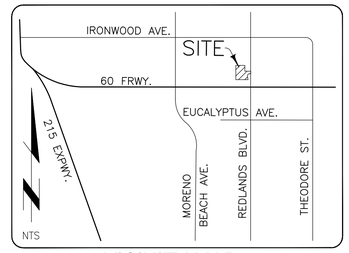




REDLANDS BLVD.
TYPICAL SECTION
N.T.S.



HEMLOCK AVE.
TYPICAL SECTION
N.T.S.



VICINITY MAP
N.T.S.

GENERAL NOTES

OWNER/APPLICANT

ANTHEM ENERGY, LLC
2640 CAMINO DEL SOL
FULLERTON, CA 92833
PHONE: (909) 562-6388
CONTACT: CHANDRESH RAVALIYA

ENGINEER

WINCHESTER ASSOCIATES, INC.
DAVID J. SLAWSON
23640 TOWER STREET, SUITE 3
PO BOX 280
MORENO VALLEY, CA. 92556-0280
PHONE: (951) 924-5425

ASSESSOR'S PARCEL No.

488-310-012

LAND USE AND ZONING

CURRENT GENERAL PLAN	R1
CURRENT ZONING	R1
PROPOSED ZONING	CC
EXISTING USE	OS
PROPOSED LAND USE	GAS / COMMERCIAL

AREA AND DENSITY

GROSS ACREAGE	7.11 ACRES
NET ACREAGE	6.67 ACRES

FLOOD HAZARD

THE SUBJECT TRACT IS WITHIN THE 500 YEAR FLOOD PLAIN, ZONE X. FEMA FLOOD INSURANCE PANEL NO. 065074 0030 B.

THOMAS BROTHERS GUIDE

PAGE 718 F-2, E-2

TOPOGRAPHY

OBTAINED FROM AERIAL SURVEY CONDUCTED INLAND AERIAL SURVEYS, INC. ON 5-4-2016.

SCHOOL

MORENO VALLEY UNIFIED SCHOOL DISTRICT

PUBLIC UTILITIES

WATER
EASTERN MUNICIPAL WATER DISTRICT (951) 928-3777
2270 TRUMBLE RD., PERRIS, CA 92572

ELECTRICITY
MORENO VALLEY ELECTRIC UTILITY (951) 413-3500
14331 FREDERICK ST., SUITE 2
MORENO VALLEY, CA 92553

GAS
SOUTHERN CALIFORNIA GAS COMPANY (800) 427-2200
4495 HOWARD AVE., RIVERSIDE, CA 91756

TELEPHONE
VERIZON (951) 748-6656

SEWER
PRIVATE SEPTIC SYSTEM

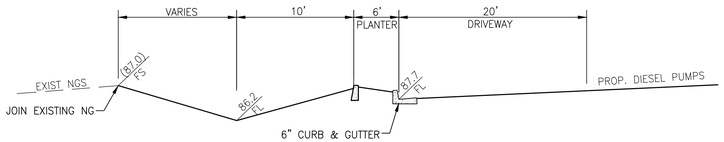
EARTHWORK ESTIMATE (RAW)

EXCAVATION	20,000 C.Y.
EMBANKMENT	16,000 C.Y.

PREPARED BY:

Winchester Associates, Inc.
ENGINEERING • LAND SURVEYING
23640 TOWER ST., SUITE 3
PO BOX 280
MORENO VALLEY, CA 92556-0280 PH:(951)924-5425
DAVID J. SLAWSON PLS 4724

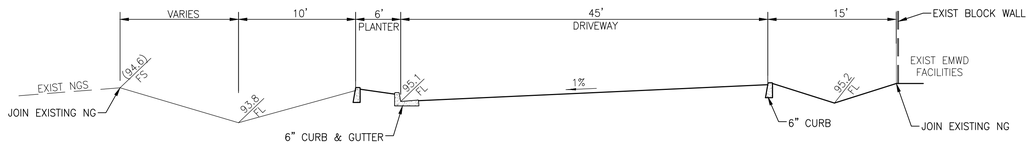
DATE OF PREPARATION: APRIL 16, 2021



SECTION A

NTS

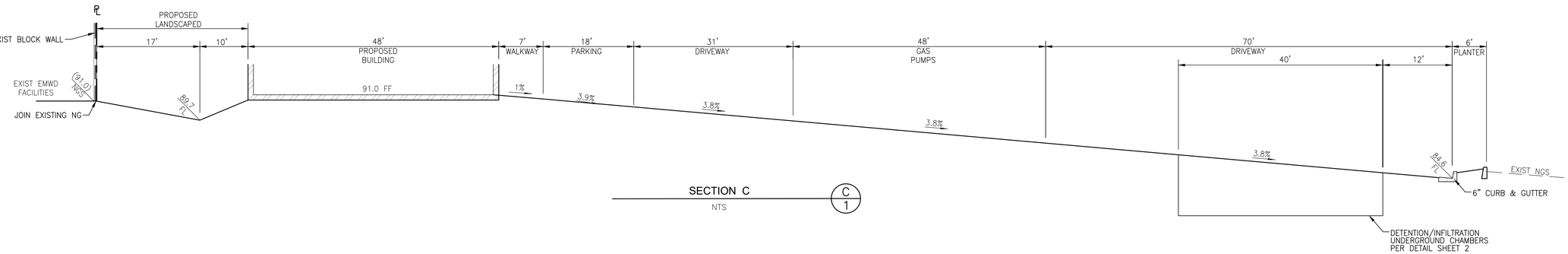
A
1



SECTION B

NTS

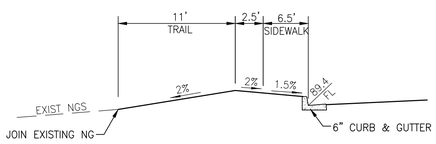
B
1



SECTION C

NTS

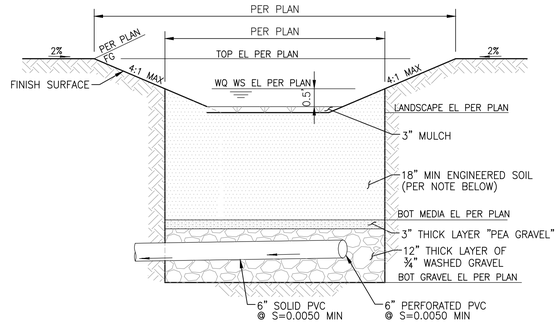
C
1



SECTION D

NTS

D
1



BIORETENTION FACILITY DETAIL (TYP)

NTS

BIORETENTION CLEAN-OUTS:

INSTALL 6" CLEAN-OUTS EVERY 50 FT OF UNDERDRAIN LATERAL, AT THE COLLECTOR DRAIN LINE CONNECTION, AND AT ANY BENDS.

EACH CLEAN-OUT SHALL BE EXTENDED 6" ABOVE THE MEDIA AND SHALL HAVE A LOCKABLE SCREW CAP.

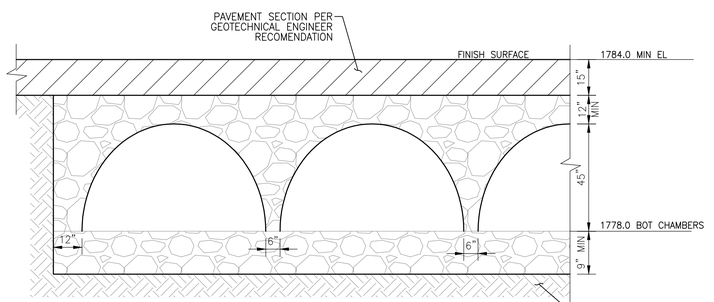
INSPECT MONTHLY, OR AS NEEDED AFTER STORM EVENTS. MAINTAIN IF NEEDED.

ENGINEERED SOIL MEDIA NOTE:

ENGINEERED SOIL MEDIA SHALL COMPRISED OF: 15% ORGANIC COMPONENT (NITROGEN STABILIZED COMPOST) AND 85% MINERAL COMPONENT (SEE TABLE BELOW), BY VOLUME, DRUM MIXED PRIOR TO PLACEMENT.

MINERAL COMPONENT RANGE REQUIREMENTS:

PERCENTAGE RANGE	COMPONENT
70-80	SAND
15-20	SILT
5-10	CLAY



DETENTION/INFILTRATION UNDERGROUND CHAMBERS
STORMTECH MC-3500 CHAMBER OR EQUAL
DETAIL

NTS

PREPARED BY:

Winchester Associates, Inc.
ENGINEERING • LAND SURVEYING
23640 TOWER ST., SUITE 3
PO BOX 280
MORENO VALLEY, CA 92556-0280 PH:(951)924-5425

DAVID J. SLAWSON PLS 4724

DATE OF PREPARATION: APRIL 16, 2021

IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

CONCEPTUAL GRADING PLAN FOR A.P.N. 488-310-012

(FUTURE ALTERNATIVE ACCESS EXHIBIT)

LEGAL DESCRIPTION

LOT 1 IN BLOCK 30 OF MAP NO. 1 OF BEAR VALLEY AND ALESSANDRO DEVELOPMENT CO., IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 11 PAGE 10 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAN BERNARDINO COUNTY, CALIFORNIA, TOGETHER WITH THOSE PORTIONS OF HEMLOCK AVENUE AND REDLANDS BOULEVARD WITHIN SAID BLOCK LYING EASTERLY OF THE NORTHERLY PROLONGATION OF THE WEST LINE OF SAID LOT AND NORTHERLY OF THE EASTERLY PROLONGATION OF THE SOUTH LINE OF SAID LOT.

EXCEPT THOSE PORTIONS OF LOT 1 AND OF REDLANDS BOULEVARD IN SAID BLOCK DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE SOUTH LINE OF SAID LOT 1, WITH THE WEST LINE OF REDLANDS BOULEVARD, 120 FEET WIDE AS SHOWN ON SAID MAP; THENCE ALONG SAID SOUTH LINE SOUTH 89°51'40" WEST, 83.78 FEET; THENCE NORTH 9°26'38" WEST, 122.31 FEET; THENCE NORTHERLY 182.01 FEET ALONG A TANGENT CURVE, CONCAVE SOUTHEASTERLY WITH A RADIUS OF 105 FEET, THROUGH AND ANGLE OF 99°18'57" TO A POINT ON SAID WEST LINE OF REDLANDS BOULEVARD, DISTANT ALONG SAID WEST LINE NORTH 0°07'41" WEST 243.28 FEET FROM THE POINT OF BEGINNING; THENCE NORTH 89°52'19" EAST 60.00 FEET TO THE CENTER LINE OF SAID REDLANDS BOULEVARD; THENCE SOUTH 0° 07'41" EAST 243.28 FEET ON SAID CENTERLINE; THENCE SOUTH 89°52'19" WEST 60.00 FEET TO THE POINT OF BEGINNING.

ALSO EXCEPT THEREFROM, THAT PORTION OF SAID LAND, DESCRIBED AS FOLLOWS:

COMMENCING AT THE CENTERLINE INTERSECTION OF HEMLOCK AVENUE AND REDLANDS BOULEVARD AS SHOWN ON PARCEL MAP NO. 9355, FILED IN BOOK 47, PAGE 39 OF PARCEL MAPS, RECORDS OF SAID RIVERSIDE COUNTY;

THENCE SOUTH 89°52'19" WEST, ALONG SAID CENTERLINE OF HEMLOCK AVENUE, A DISTANCE OF 60.00 FEET TO THE INTERSECTION WITH THE NORTHERLY PROLONGATION OF THE WESTERLY RIGHT OF WAY OF SAID REDLANDS BOULEVARD AND THE TRUE POINT OF BEGINNING;

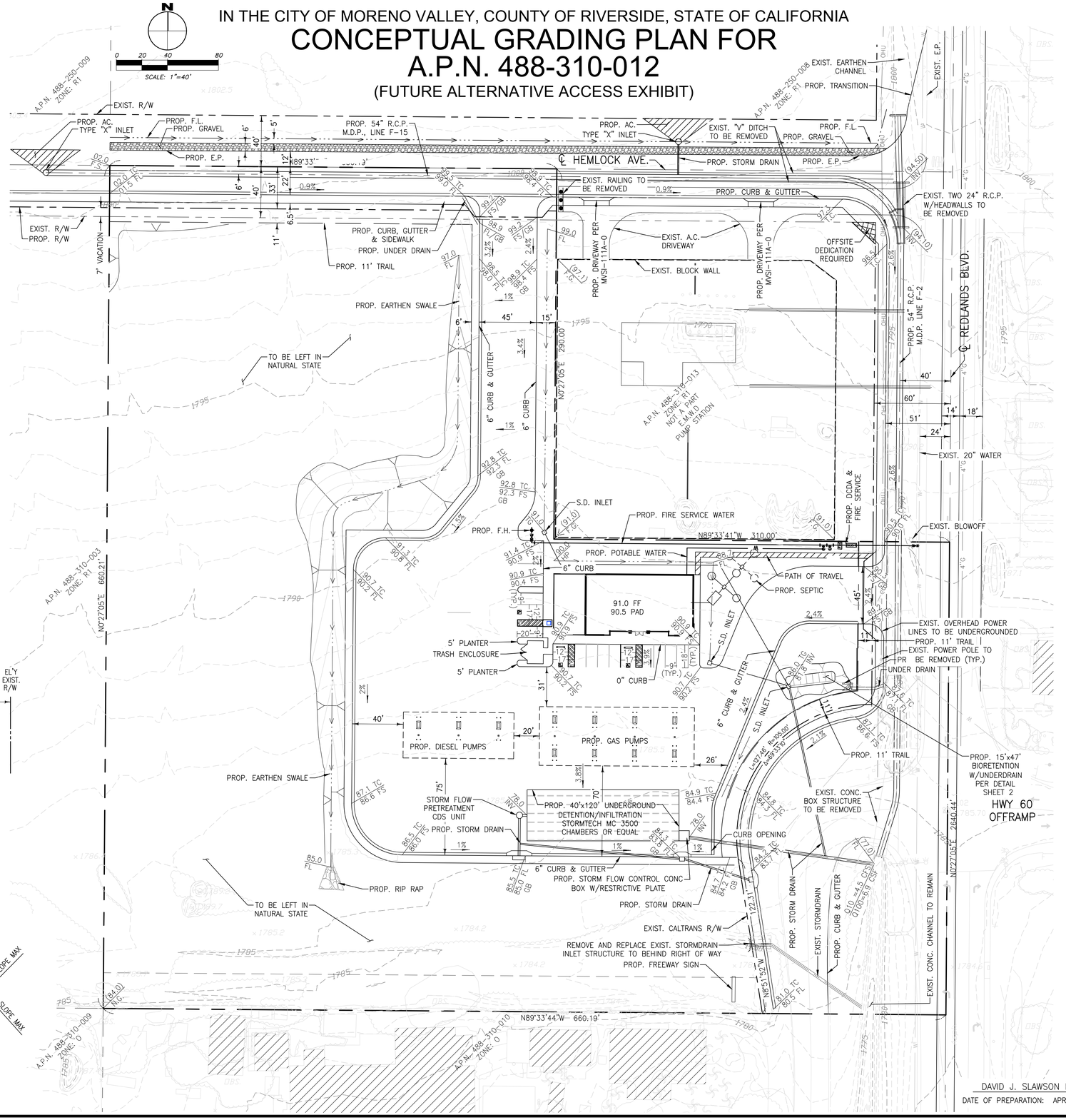
THENCE SOUTH 0°07'41" EAST, ALONG SAID PROLONGATION AND WESTERLY RIGHT OF WAY, A DISTANCE OF 290.00 FEET;

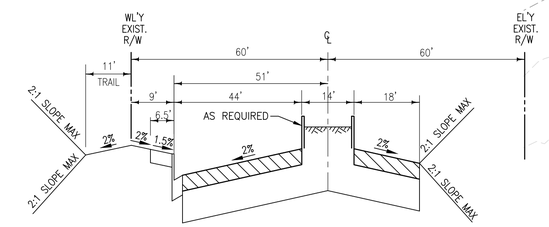
THENCE LEAVING SAID RIGHT OF WAY, AND PARALLEL WITH SAID CENTERLINE OF HEMLOCK AVENUE SOUTH 89°52'19" WEST, A DISTANCE OF 250.00 FEET;

THENCE PARALLEL WITH SAID WESTERLY RIGHT OF WAY, NORTH 0°07'41" WEST, A DISTANCE OF 290.00 FEET TO SAID CENTERLINE OF HEMLOCK AVENUE;

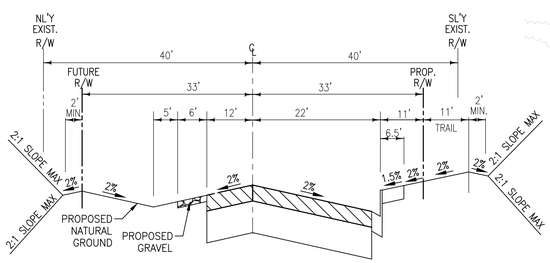
THENCE NORTH 89°52'19" EAST, ALONG SAID CENTERLINE OF HEMLOCK AVENUE, A DISTANCE OF 250.00 FEET TO THE TRUE POINT OF BEGINNING.

A.P.N. 488-310-012

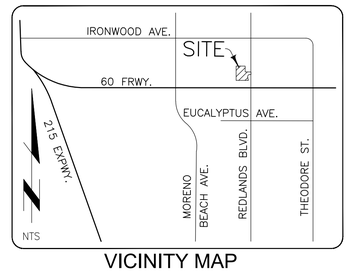




REDLANDS BLVD.
TYPICAL SECTION
N.T.S.



HEMLOCK AVE.
TYPICAL SECTION
N.T.S.



VICINITY MAP
N.T.S.

GENERAL NOTES

OWNER/APPLICANT

ANTHEM ENERGY, LLC
2640 CAMINO DEL SOL
FULLERTON, CA 92833
PHONE: (909) 562-6388
CONTACT: CHANDRESH RAVALIYA

ENGINEER

WINCHESTER ASSOCIATES, INC.
DAVID J. SLAWSON
23640 TOWER STREET, SUITE 3
PO BOX 280
MORENO VALLEY, CA. 92556-0280
PHONE: (951) 924-5425

ASSESSOR'S PARCEL No.

488-310-012

LAND USE AND ZONING

CURRENT GENERAL PLAN	R1
CURRENT ZONING	R1
PROPOSED ZONING	CC
EXISTING USE	OS
PROPOSED LAND USE	GAS / COMMERCIAL

AREA AND DENSITY

GROSS ACREAGE	7.11 ACRES
NET ACREAGE	6.67 ACRES

FLOOD HAZARD

THE SUBJECT TRACT IS WITHIN THE 500 YEAR FLOOD PLAIN, ZONE X. FEMA FLOOD INSURANCE PANEL NO. 065074 0030 B.

THOMAS BROTHERS GUIDE

PAGE 718 F-2, E-2

TOPOGRAPHY

OBTAINED FROM AERIAL SURVEY CONDUCTED INLAND AERIAL SURVEYS, INC. ON 5-4-2016.

SCHOOL

MORENO VALLEY UNIFIED SCHOOL DISTRICT

PUBLIC UTILITIES

WATER
EASTERN MUNICIPAL WATER DISTRICT (951) 928-3777
2270 TRUMBLE RD., PERRIS, CA 92572

ELECTRICITY
MORENO VALLEY ELECTRIC UTILITY (951) 413-3500
14331 FREDERICK ST., SUITE 2
MORENO VALLEY, CA 92553

GAS
SOUTHERN CALIFORNIA GAS COMPANY (800) 427-2200
4495 HOWARD AVE., RIVERSIDE, CA 91756

TELEPHONE
VERIZON (951) 748-6656

SEWER
PRIVATE SEPTIC SYSTEM

EARTHWORK ESTIMATE (RAW)

EXCAVATION	20,000 C.Y.
EMBANKMENT	16,000 C.Y.

PREPARED BY:

Winchester Associates, Inc.
ENGINEERING • LAND SURVEYING
23640 TOWER ST., SUITE 3
PO BOX 280
MORENO VALLEY, CA 92556-0280 PH:(951)924-5425

DAVID J. SLAWSON PLS 4724
DATE OF PREPARATION: APRIL 16, 2021