Appendix C:
Biological Resources Reports

C.1 - Habitat Assessment and MSHCP Consistency Analysis

Habitat Assessment and MSHCP Consistency Analysis
Beaumont Avenue Recharge Facility and Pipeline
City of Beaumont and Cherry Valley
Riverside County, California

Assessor's Parcel Nos: 404-010-015, 405-060-013, 404-010-012
Total Area Surveyed: 57.2 Acres
Beaumont, California USGS 7.5-minuteTopographic Quadrangle
Sections 28 and 33, Township 2 South, Range 1 West

Prepared for:

San Gorgonio Pass Water Agency
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Surveys Conducted By: Dale Hameister and Kelly Rios
Surveys Conducted On: June 20, 2012, December 20, 2012
Report Author: Dale Hameister, Biologist
Report Date: June 6, 2013

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SECTION 1: SUMMARY

This report contains the results of a habitat assessment and Western Riverside County Multiple Species Habitat Conservation Plan Consistency Analysis conducted by Michael Brandman Associates for the Beaumont Avenue Recharge Facility and Pipeline Project.

The project site encompasses a recharge facility at the southwest corner of Beaumont Avenue and Brookside Avenue, a pipeline that extends north from the proposed recharge facility to Brookside Avenue and then east to Beaumont Avenue, north within Beaumont Avenue to Orchard Street, and then west within Orchard Street to approximately Mountain View Channel, and then into the proposed service connection facility located south of Orchard Street and immediately west of Mountain View Channel. Additionally, excess soil from the pipeline construction will be deposited at any of the following three locations: the recharge facility, the service connection site, and the offsite triangular parcel located south of Brookside Avenue, north of Noble Creek, and east of the Mountain View Channel.

The proposed project (i.e., the recharge facility, pipeline, service connection site, and offsite triangular parcel) is located in an area that is covered by the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The MSHCP is a comprehensive, multi-jurisdictional habitat conservation plan (HCP) focusing on conservation of species and their associated habitats in western Riverside County. The SGPWA, project applicant and lead agency, is not a signatory or a Participating Special Entity to the MSHCP, and therefore, SGPWA discretionary approvals, such as those associated with the proposed Beaumont Avenue Recharge Facility and Pipeline Project, are not covered under the MSHCP. Therefore, the SGPWA discretionary approvals are not required to be consistent with the Western Riverside County MSHCP, and a MSHCP Consistency Analysis is not required for the SGPWA discretionary approvals. Although the SGPWA discretionary approvals are not required to be consistent with the MSHCP, SGPWA has chosen to conduct this MSHCP Consistency Analysis to determine potential impacts associated with the SGPWA discretionary approvals.

In addition to the SGPWA discretionary approvals, the implementation of the proposed pipeline component of the project will require encroachment permits from the Riverside County Flood Control and Water Conservation District (RCFCWCD), the Riverside County Transportation Department (RCTD), and the City of Beaumont (City). The encroachment permits from the RCFCWCD and the City are considered discretionary while the encroachment permit from the RCTD is ministerial. The discretionary permits that are issued by signatories of the MSHCP require a MSHCP Consistency Analysis. Both the RCFCWCD and the City are signatories of the MSHCP, and therefore, the portion of the project related to these encroachment permits are required to be addressed in a MSHCP Consistency Analysis.

For the RCFCWCD, the required encroachment permit is for the portion of the proposed pipeline that extends under the Noble Creek and Mountain View Channel (MVC) concrete culverts at Beaumont Avenue and Orchard Street. For the City, the required encroachment permit is for the portion of the proposed pipeline that extends north from the proposed recharge basin onto the Brookside Avenue right-of-way which is approximately 16 feet and then extends approximately 180 feet east to Beaumont Avenue. No other portions of the Beaumont Avenue Recharge Facility and Pipeline project are required to be consistent with the MSHCP.

The portions of the proposed pipeline that is covered by the MSHCP and under the jurisdiction of the RCFCWCD is located within developed areas because the proposed pipeline would extend under Beaumont Avenue and Orchard Street. No vegetation is present that would provide habitat for plant or wildlife species. In addition, the portion of the proposed pipeline that is covered by the MSHCP and under the jurisdiction of the City includes a small amount of ruderal vegetation (approximately ten linear feet) and developed area because the pipeline would extend under Brookside Avenue. The ruderal vegetation is not suitable for sensitive species. The developed area has no vegetation that is present and does not provide habitat for plant or wildlife species.

As stated previously, although the majority of the proposed project is not required to be consistent with the MSHCP, a MSHCP Consistency Analysis has been prepared for the entire project.

The proposed project area falls within a burrowing owl (*Athene cunicularia*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), and narrow endemic plant species, Marvin's onion (*Allium marvinii*) and many-stemmed dudleya (*Dudleya multicaulis*) MSHCP habitat assessment area. The project sites do not contain suitable foraging habitat for burrowing owl because the undeveloped portions of the project sites have tall mustard and fiddleneck during their nesting season, the spring, and early summer months. No burrowing owl or burrowing owl sign was observed during the site visit. There is suitable burrowing owl habitat within the upper terraces of Noble Creek, which is north of the proposed recharge basin and south of the offsite triangular parcel. This suitable habitat is within 500 feet of both the proposed recharge basin and the offsite triangular parcel. Therefore, a 30-day pre-construction burrowing owl survey is recommended prior to any construction to ensure that burrowing owl have not moved onto the recharge basin site or the offsite triangular parcel, or are occupying the portions of Noble Creek immediately adjacent to these sites.

The portion of the project area (i.e., within the proposed recharge basin site) that is not required to be consistent with the MSHCP contains suitable habitat for Los Angeles pocket mouse due to the presence of remnant Riversidean alluvial fan sage scrub (RAFSS) and a trapping survey for Los Angeles pocket mouse was conducted. Trapping occurred on the proposed recharge basin, within Noble Creek (off the project site) due to the presence of RAFSS, and within the offsite triangular parcel due to the presence of Riversidean sage scrub (RSS). In the trapping survey areas, there was confirmation that the habitat was occupied by Los Angeles pocket mouse in the remnant RAFSS on

the proposed recharge basin site, RAFSS within Noble Creek, and RSS on the offsite triangular parcel.

The project area does not contain suitable habitat for Marvin's onion or many-stemmed dudleya, and no further plant surveys are recommended. The project sites does not contain riparian habitat, although the Riversidean alluvial fan sage scrub associated with Noble Creek is adjacent to the project site and would be considered riverine habitat under the MSHCP. This channel is under the jurisdiction of the California Department of Fish and Wildlife (CDFW)[1] and U.S. Army Corps of Engineers (USACE). Regulatory permits will be required, if impacted. Therefore, a jurisdictional delineation was prepared to determine the extent of impacts, if any. No impacts to RAFSS within Noble Creek will occur with project implementation; however, there is a remnant RAFSS that is located within the proposed recharge basin and south and east of Noble Creek. This area encompasses approximately 0.05 acre, and it was evaluated under the CEQA Guidelines. The proposed project will not result in the loss of riparian/riverine habitat as defined under the MSHCP. There will be no impacts to USACE or CDFW jurisdictional drainage features. No vernal pools, vernal pool habitat, or fairy shrimp habitat occurs on the project sites.

Based on the results of the MSHCP Consistency Analysis, the portion of the project that is required to be consistent with the MSHCP is, in fact, consistent with the MSHCP. In an area that is not required to be consistent with the MSHCP, there is RAFSS habitat (approximately 0.05 acre) that will be directly impacted; however, based on an evaluation under CEQA guidelines, the impact to this habitat which is considered low quality habitat will not reduce the population of the LAPM to a less than self-sustaining level, and therefore, would result in a less than significant impact on the habitat and the LAPM.

[1] Effective January 1, 2013, the California Department of Fish and Game was renamed to the California Department of Fish and Wildlife.

SECTION 2: INTRODUCTION

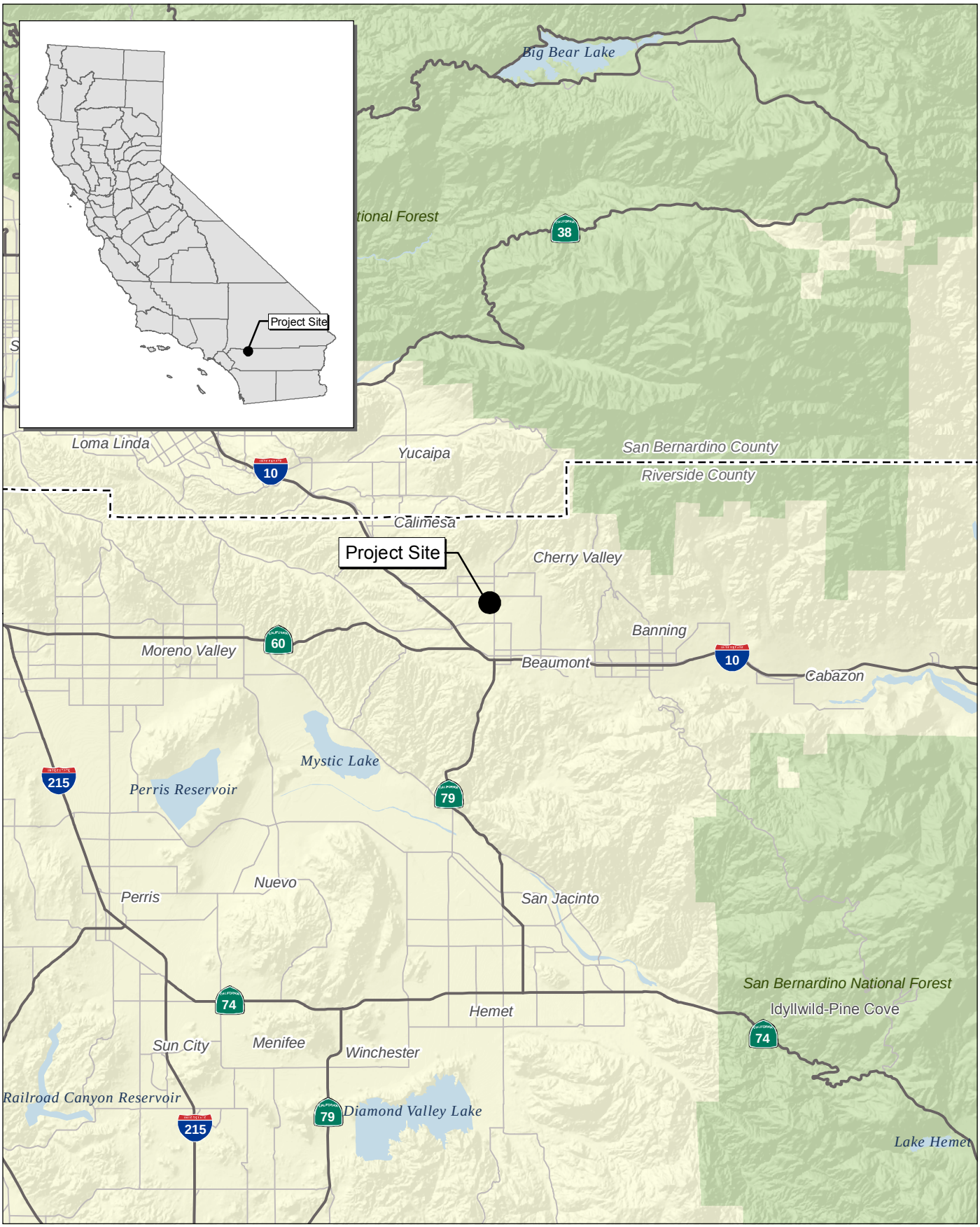
At the request of the San Gorgonio Pass Water Agency (SGPWA), Michael Brandman Associates (MBA) conducted a habitat assessment for burrowing owl (BUOW), Los Angeles pocket mouse (LAPM), and narrow endemic plant (NEP) species, and a Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Consistency Analysis for a 57.2-acre survey area located in the City of Beaumont and the Cherry Valley area, an unincorporated portion of Riverside County.

2.1 - Project Location

The project site is generally located north of Interstate (I)-10, south of State Route (SR)-38, and east of SR-79 in both the City of Beaumont and the Cherry Valley area, an unincorporated portion of Riverside (Exhibit 1).

The recharge facility site is owned by SGPWA (Assessor's Parcel Number [APN] 404-010-015) and is located within Section 33, Township 2 South, and Range 1 West of the Beaumont U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle. The pipeline location within Brookside Avenue is owned by the City of Beaumont while the portion of the pipeline locations along Beaumont Avenue and Orchard Street are owned by the County of Riverside. The entire pipeline is within Sections 33 and 28, Township 2 South, and Range 1 West. The service connection facility is owned by SGPWA (APN 405-060-013) and within Section 28, Township 2 South, Range 1 West. Finally, the offsite triangular parcel is owned by SGPWA (APN 404-010-012) and within Sections 28 and 33, Township 2 South, Range 1 West (Exhibit 2).

The project site encompasses a recharge facility at the southwest corner of Beaumont Avenue and Brookside Avenue, a pipeline that extends north from the proposed recharge facility to Brookside Avenue and then east to Beaumont Avenue, north within Beaumont Avenue to Orchard Street, and then west within Orchard Street to approximately Mountain View Channel, and then into the proposed service connection facility located south of Orchard Street and immediately west of Mountain View Channel. Additionally, excess soil from the pipeline construction will be deposited at any of the following three locations: the recharge facility, the service connection site, and the offsite triangular parcel located south of Brookside Avenue, north of Noble Creek, and east of the Mountain View Channel (Exhibit 3). Exhibit 4 depicts the site plan of the proposed recharge facility.



Source: Census 2000 Data, The CaSIL, MBA GIS 2013.

Michael Brandman Associates

NORTH

5 2.5 0 5

Miles

Exhibit 1
Regional Location Map

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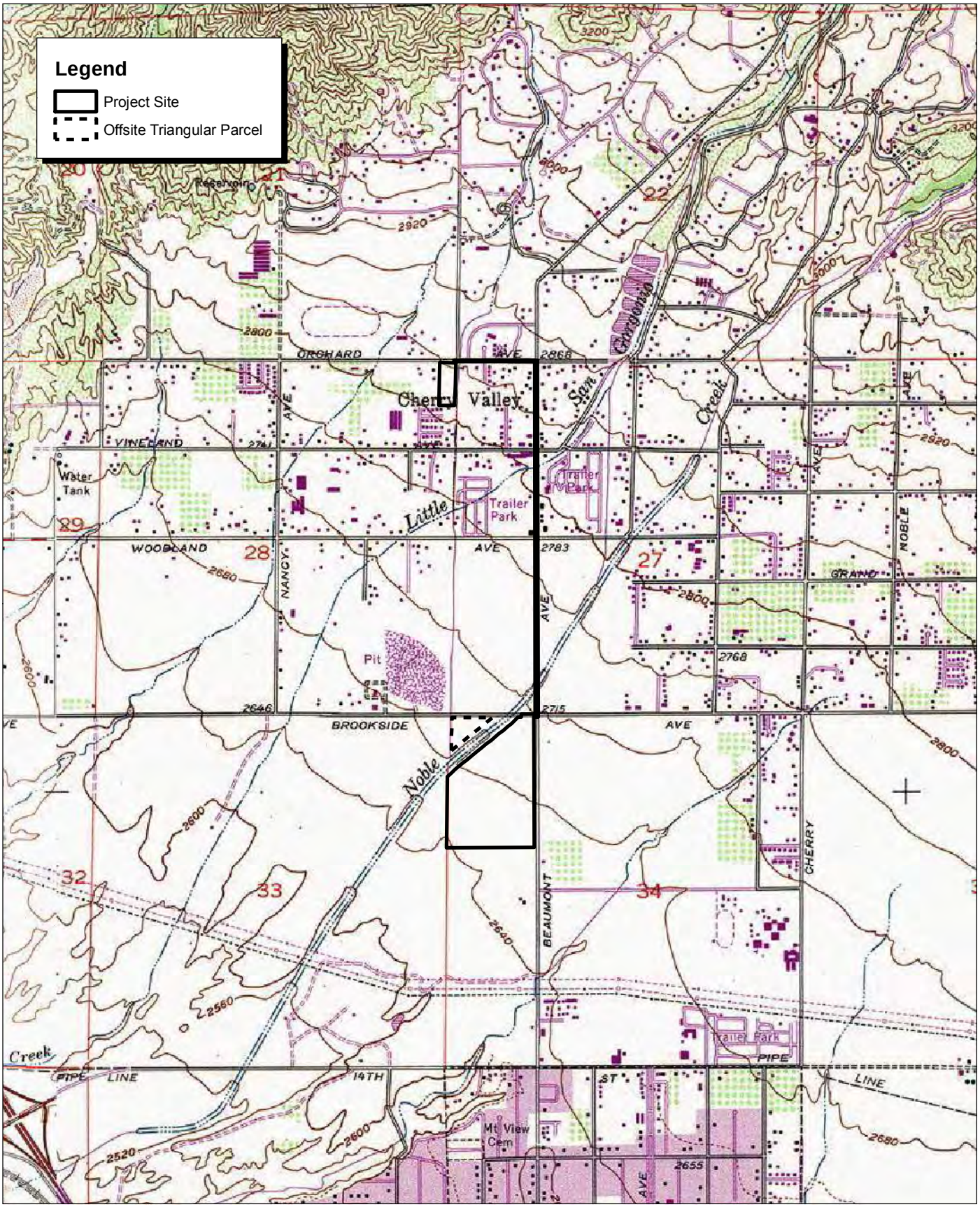
SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE
MSHCP CONSISTENCY ANALYSIS



Source: TOPO! USGS Beaumont, CA (1996) 7.5' DRG.

NORTH

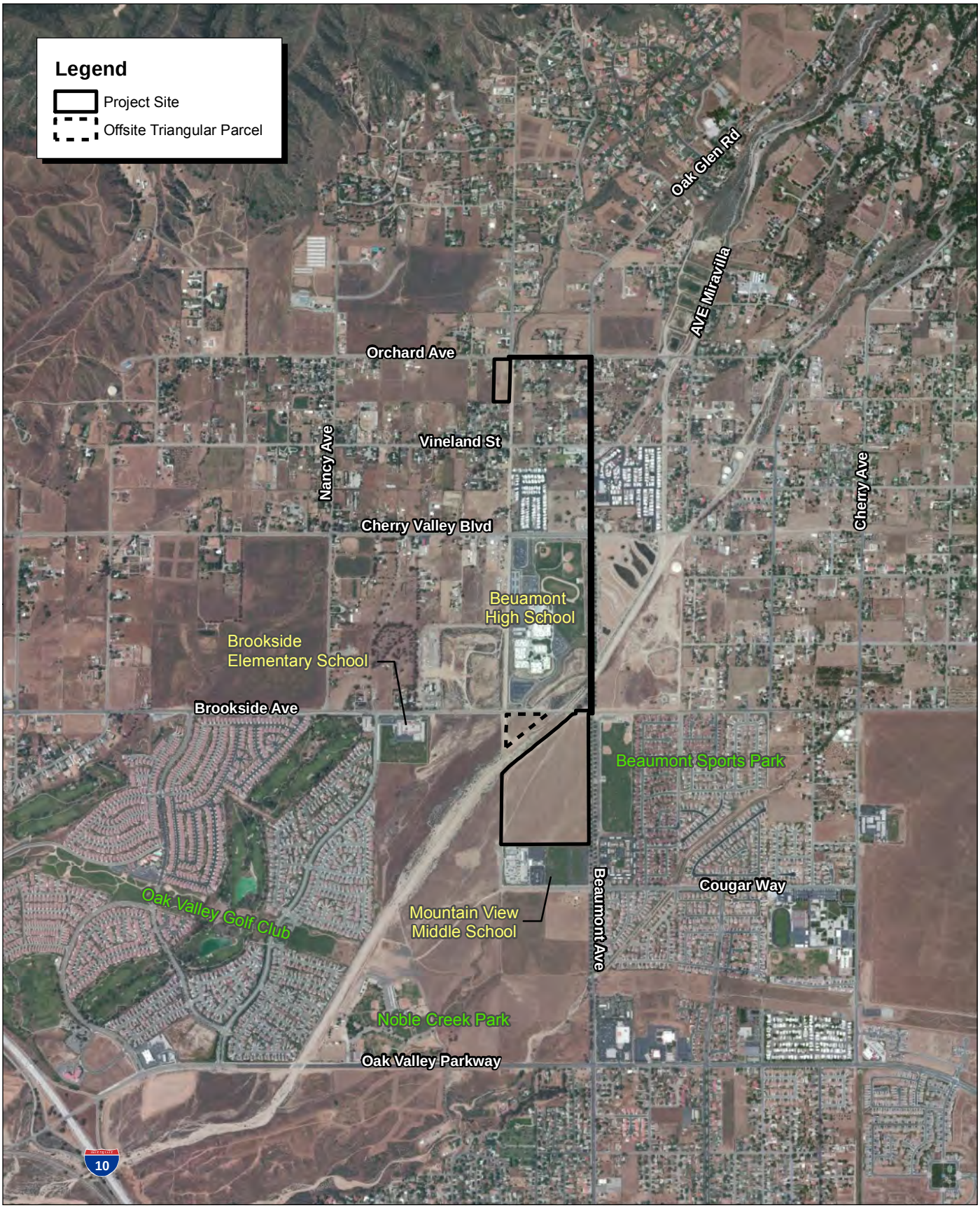
2,000 1,000 0 2,000 Feet

Michael Brandman Associates

31780004 • 06/2013 | 2_local_topo.mxd

Exhibit 2
Local Vicinity Map
Topographic Base

SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE
MSHCP CONSISTENCY ANALYSIS



Source: ESRI Aerial Imagery. MBA Field Survey and GIS Data, 2013.

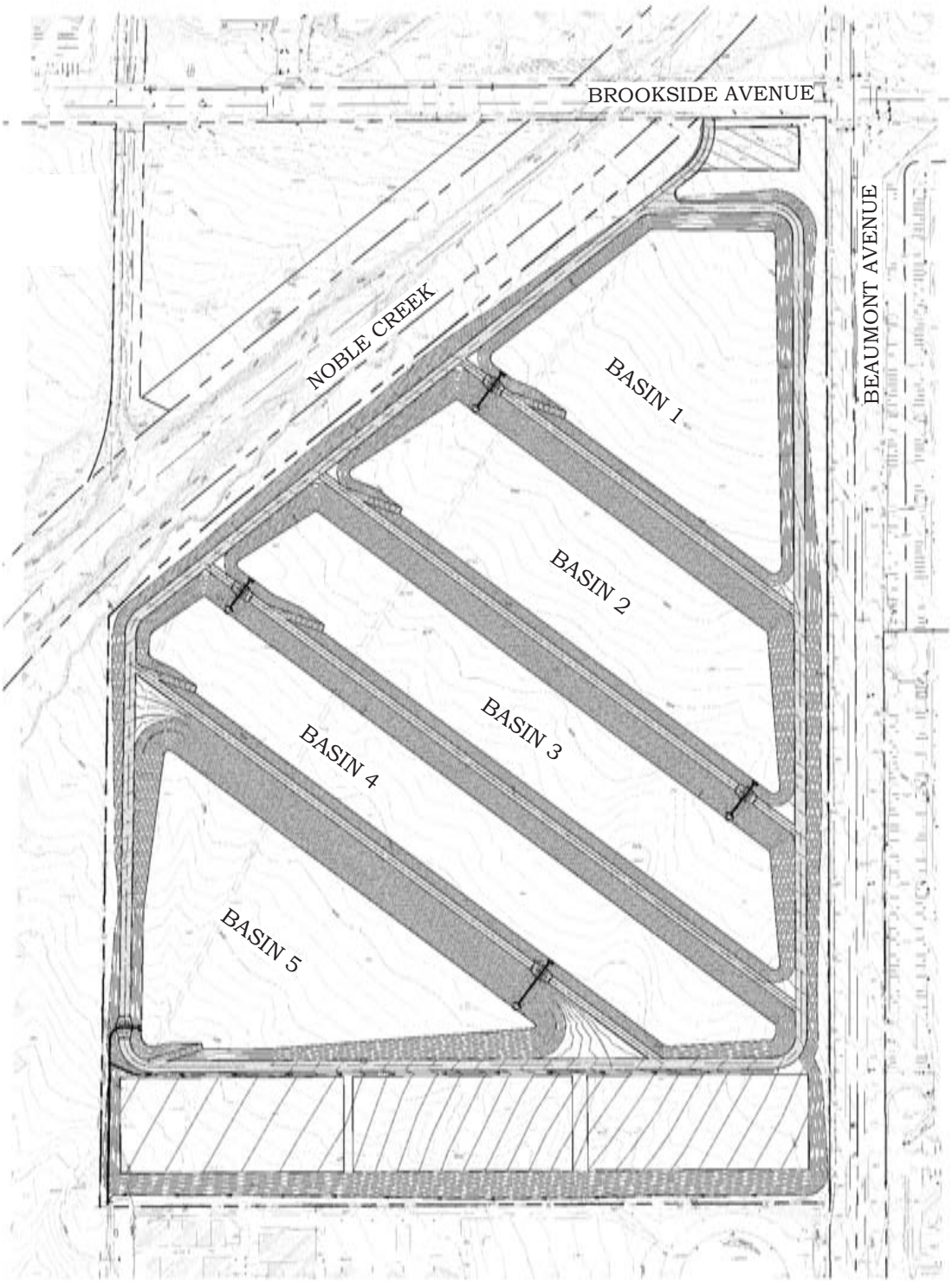
NORTH

2,000 1,000 0 2,000

Feet

Michael Brandman Associates

Exhibit 3
Local Vicinity Map
Aerial Base



NORTH

Michael Brandman Associates

Exhibit 4
Site Plan

2.2 - Project Description

2.2.1 - Recharge Facility

The recharge facility is proposed to consist of a series of five tiered basins, each separated by berms. The facility would have raised embankments along its perimeter so that a portion of the basins will be above the current ground elevation and a portion of the basins will be below the current ground elevation. A maximum 3:1 slope would be used for the interior basin portions of the facility, while 3:1 cut/fill slopes would be used for the exterior perimeter of the facility. The raised embankments would extend a maximum of approximately 9.5 feet above the surrounding grade along the majority of Beaumont Avenue.

The recharge facility has been designed for an infiltration rate of two feet per day and to accommodate a flow rate of 20 cubic feet per second (cfs). Each uncovered basin would be unlined to allow for percolation and groundwater replenishment. The floor of the basin in the northeast portion of the facility would be approximately 40 to 45 feet higher in elevation than the floor of the basin in the southwest portion of the facility. Emergency spillways would be placed on the embankments of each basin and directed into the adjacent basin. The southernmost basin would have a spillway draining to the west and an emergency outflow swale to the south that would convey the emergency runoff south to Mountain View Avenue. The proposed recharge facility site would include an onsite polyvinyl chloride (PVC) pipe distribution system.

Each basin would have a maximum ponding depth of 5.5 feet and a minimum freeboard of 1.5 feet from water surface to the basin rim. Maintenance roads would be provided along both the perimeter of the facility and between each of the basins. The perimeter maintenance road would be 20 feet wide, while the roads between the basins will be 15 feet and the ramps to the floor of the basins will be 12 feet. These roads would be engineered to prevent erosion and would be slightly angled towards the basins to allow for drainage into the basins. Site access is proposed along Brookside Avenue and from Mountain View Avenue on the south.

Periodic maintenance activities of the recharge facility would be required once the basins are operational. If the recharge basins continue to infiltrate at an acceptable rate, the time between maintenance activities would be extended. It is anticipated that each recharge basin may require servicing on an annual basis. Maintenance activities would involve temporarily taking an individual basin out of commission, allowing the basin to thoroughly dry over several weeks, re-grading and ripping the basin bottom with a dozer, and, if necessary, re-grading and tracking the basin slopes, although this final step is not expected to be regularly required. Each basin would take approximately one day to grade, rip, and track. Since SGPWA has plans to temporarily take the pipeline offline every year to perform mandatory annual maintenance activities, it is also possible that the recharge facility would be shut down during this period, with each basin being serviced during the shut down period.

2.2.2 - Pipeline

A 24-inch pipeline is proposed to extend east from the recharge facility along Brookside Avenue for approximately 180 linear feet, north from Beaumont Avenue for approximately 5,600 linear feet, and west along Orchard Street for approximately 1,400 feet toward the service connection facility. The pipeline is planned to be located within the southern side of Brookside Avenue (eastbound travel lane), within the western side of the Beaumont Avenue centerline (southbound traffic lane) and the southern side of the Orchard Street centerline (eastbound traffic lane). The pipeline would transfer State Water Project (SWP) water from the service connection site to the recharge facility for groundwater recharge. The pipeline has been designed to convey a flow rate of 20 cfs.

2.2.3 - Service Connection

The service connection facility would convey SWP water from the existing 36-inch East Branch Extension/Noble Creek pipeline located at the intersection of Orchard Street and Mountain View Avenue to the pipeline and ultimately downstream to the recharge facility. A pipe outlet, not to exceed 24-inch diameter, would be extended from the service connection facility to the 24-inch pipeline along Orchard Street. While up to half of the service connection site could be disturbed during construction of the project, the service connection facility itself would disturb a smaller, approximately 120-foot by 110-foot portion (0.3 acre) representing less than 10 percent of the overall site. The service connection site would consist of a precast concrete control building and various below- and above-grade pipelines and ancillary infrastructure. Site access would be provided by a driveway from Orchard Street.

2.2.4 - Offsite Triangular Parcel

The offsite triangular parcel located northwest of the recharge facility site on the north side of Noble Creek could potentially be used, along with two other locations, as a staging area during construction of the project. Additionally, this parcel could potentially be used for depositing excess excavated soil as a result of excavation of the pipeline.

SECTION 3: METHODS

3.1 - Western Riverside County MSHCP Consistency Analysis

The proposed project (i.e., the recharge facility, pipeline, service connection site, and offsite triangular parcel) is located in an area that is covered by the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The MSHCP is a comprehensive, multi-jurisdictional habitat conservation plan (HCP) focusing on conservation of species and their associated habitats in western Riverside County. The SGPWA, project applicant and lead agency, is not a signatory or a Participating Special Entity to the MSHCP, and therefore, SGPWA discretionary approvals, such as those associated with the proposed Beaumont Avenue Recharge Facility and Pipeline Project, are not covered under the MSHCP. Therefore, the SGPWA discretionary approvals are not required to be consistent with the Western Riverside County MSHCP, and a MSHCP Consistency Analysis is not required for the SGPWA discretionary approvals. Although the SGPWA discretionary approvals are not required to be consistent with the MSHCP, SGPWA has chosen to conduct this MSHCP Consistency Analysis to determine potential impacts associated with the SGPWA discretionary approvals.

In addition to the SGPWA discretionary approvals, the implementation of the proposed pipeline component of the project will require encroachment permits from the Riverside County Flood Control and Water Conservation District (RCFCWCD), the Riverside County Transportation Department (RCTD), and the City of Beaumont (City). The encroachment permits from the RCFCWCD and the City are considered discretionary while the encroachment permit from the RCTD is ministerial. The discretionary permits that are issued by signatories of the MSHCP require a MSHCP Consistency Analysis. Both the RCFCWCD and the City are signatories of the MSHCP, and therefore, the portion of the project related to these encroachment permits are required to be addressed in a MSHCP Consistency Analysis.

For the RCFCWCD, the required encroachment permit is for the portion of the proposed pipeline that extends under the Noble Creek and Mountain View Channel (MVC) concrete culverts at Beaumont Avenue and Orchard Street. For the City, the required encroachment permit is for the portion of the proposed pipeline that extends north from the proposed recharge basin onto the Brookside Avenue right-of-way which is approximately 16 feet and then extends approximately 180 feet east to Beaumont Avenue. No other portions of the Beaumont Avenue Recharge Facility and Pipeline project are required to be consistent with the MSHCP.

The portions of the proposed pipeline that is covered by the MSHCP and under the jurisdiction of the RCFCWCD is located within developed areas because the proposed pipeline would extend under Beaumont Avenue and Orchard Street. No vegetation is present that would provide habitat for plant or wildlife species. In addition, the portion of the proposed pipeline that is covered by the MSHCP

and under the jurisdiction of the City includes a small amount of ruderal vegetation (approximately ten linear feet) and developed area because the pipeline would extend under Brookside Avenue. The ruderal vegetation is not suitable for sensitive species. The developed area has no vegetation that is present and does not provide habitat for plant or wildlife species.

As stated previously, although the majority of the proposed project is not required to be consistent with the MSHCP, a MSHCP Consistency Analysis has been prepared for the entire project.

The project site was reviewed to determine consistency with the Western Riverside County MSHCP. Geographic Information System (GIS) software was used to map the project sites in relation to MSHCP areas including Criteria Cells, core habitat, wildlife movement corridors, and areas proposed for conservation. The Riverside County Integrated Project (RCIP) Conservation Summary Report Generator was queried to determine habitat assessment and potential survey requirements for the project sites (Appendix A).

The MSHCP also requires that an assessment be completed, of the potentially significant effects of the project on riparian/riverine areas, and vernal pools. 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.

3.2 - Literature Review

Prior to the field visit, a literature review was conducted of the environmental setting of the project site. Literature reviewed includes the United States Department of Agriculture (USDA 1971) Soil Survey for the project site, the California Natural Diversity Database (CNDDB 2012), and literature detailing the habitat requirements of the burrowing owl (BUOW), Los Angeles Pocket Mouse (LAPM), and narrow endemic plant (NEP) species.

The nearest recorded locations of the BUOW, LAPM, and NEP species were determined through a 7-mile radius query of the CNDDB (2013). The CNDDB ArcGIS database was used, together with ArcGIS software, to locate the nearest occurrence and determine the distance from the project sites.

3.3 - Plant Communities

Plant communities were mapped using 7.5-minute US Geologic Service (USGS) topographic base maps and aerial photography. The plant communities within the project sites were classified according to California Department of Fish and Wildlife's (CDFW) List of Terrestrial Natural Communities (2003) and cross-referenced to descriptions provided in Holland's Preliminary Descriptions of the Terrestrial Natural Communities of California (1986). The CDFW does not

currently have a narrative description of the vegetation communities; therefore, the descriptions provided are according to Holland.

3.4 - Riparian/Riverine Habitat and Jurisdictional Areas

Aerial photography was reviewed prior to conducting general surveys. The photographs were used to locate and inspect any potential natural drainage features and water bodies that may be considered riparian/riverine habitat or under the jurisdiction of either U.S. Army Corps of Engineers (USACE) and/or CDFW. In general, surface drainage features indicated as blue-line streams on USGS maps that are observed or expected to exhibit evidence of flow are considered potentially riparian/riverine habitat and subject to state and federal regulatory authority as "waters."

Under the MSHCP, riparian/riverine habitat is defined as lands which contain habitat dominated by trees, shrubs, persistent emergents, 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. For the project site, fresh water flowing during a portion of the year was interpreted as channels displaying an ordinary high water mark and connecting to a more substantial water feature. In portions where channels were dry washes with associated alluvial fan habitat, they were classified as riverine habitat.

3.5 - Field Investigation

MBA biologist Dale Hameister assessed the project area on June 20, 2012 from 1045 to 1400 hours and December 20, 2012 from 1430 to 1700 hours. The entire project site was assessed to determine the extent of plant communities, to assess the presence of suitable habitat for BUOW, LAPM, and NEP species, and to assess the presence of vernal pools, suitable vernal pool habitat, jurisdictional features habitat, and riparian/riverine habitat. Parameters assessed included soil conditions, presence of indicator species, slope, aspect and hydrology.

3.6 - Focused Surveys

3.6.1 - Los Angeles Pocket Mouse

A focused trapping effort for LAPM was conducted according to established United States Fish and Wildlife Service (USFWS) protocols for Pacific pocket mouse (*Perognathus longimembris longimembris*), a similar species. Kelly Rios (USFWS permit number TE-018909-04, Scientific Collecting permit number 801077-05) conducted the trapping survey. A total of 5 trap-lines were executed for the focused survey effort. The current protocol requires five consecutive nights of trapping conducted when the animal is active aboveground at night, and preferably during a new moon phase. MBA conducted the trapping effort on five consecutive nights beginning July 29 and concluded the morning of August 3, 2012.

A total of 113 traps, approximately 10 meters apart, were set in the drainage feature, on the adjoining benches, and in the previously trapped area known to be occupied by LAPM based on previous surveys conducted by MBA biologists (MBA 2008). Five nights of trapping were conducted, for a total of 565 trap nights. Traps were placed in suitable habitat areas within the drainage and on the benches of the project site, concentrating on areas containing sandy soils and suitable vegetation, and located near potential LAPM burrows.

The traps were left in the same place throughout the trapping survey. At sunset, each trap was baited with a mixture of birdseed placed at the back of the traps. The traps were inspected and the animals were released at dawn each morning. Any trap that was not triggered was set in the closed position to prevent accidental capture of animals during daylight hours. All animals were identified and released at the point of capture.

3.7 - Plants

Common plant species observed during the field survey were identified by visual characteristics and morphology in the field and recorded in a field notebook. Unusual and less familiar plants were identified offsite using taxonomical guides. A list of all species observed on the project site was compiled from the survey data (Appendix B). Taxonomic nomenclature used in this study follows the California Native Plant Society (CNPS 2009). In this report, scientific names are provided immediately following common names of plant species (first reference only).

3.8 - Wildlife

Wildlife species detected during field surveys by sight, calls, tracks, scat, or other sign were recorded during surveys in a field notebook. Field guides were used to assist with identification of species during surveys and included the Sibley Field Guide to Birds of Western North America (2003) for birds and Burt and Grossenheider (1980) for mammals. Although common names of wildlife species are fairly well standardized, scientific names are used in this report and are provided in Appendix B for reference.

SECTION 4: EXISTING CONDITIONS

4.1 - Environmental Setting

The survey area has a constant gradient with elevations higher in the northern portion of the study area compared to the southern portion of the study area. Elevations range from 2,530 to 2,680 feet above mean sea level. The Beaumont, California USGS 7.5-minute topographic quadrangle depicts Noble Creek as a blue-line stream between the proposed recharge facility and the offsite triangular parcel as well as crossing under Brookside Avenue and Beaumont Avenue. The project survey area contains developed land as well as undeveloped land consisting of four major plant communities: ruderal, Riversidean sage scrub (RSS), Riversidean alluvial fan sage scrub (RAFSS), and disturbed. Existing land uses surrounding the project areas are as follows:

Recharge Basin Site - The Mountain View Middle School is to the south, Noble Creek to the north, undeveloped land to the west, and Beaumont Avenue as well as the Beaumont Sports Park to the east.

Pipeline Alignment - Land uses adjacent to the proposed pipeline generally consist of residential and commercial uses, although specific uses such as Beaumont High School and the Beaumont-Cherry Valley Water District's Recharge Facility and the City of Beaumont Recreational Park also occur in the vicinity of the alignment.

Service Connection Site - Low density single-family residential uses are located to the north, west, and south. To the east is the Mountain View Channel and further east are single-family residential uses.

Offsite Triangular Parcel - Beaumont High School is located to the north, the Mountain View Channel is located to the west and further west is undeveloped land and the Brookside Elementary School, and Noble Creek is located to the south and east.

4.2 - Soils

Exhibit 5 depicts soils that are mapped within the survey area (USDA 1971). The four soil series located within the project site include Gorgonio, Greenfield, Hanford, and Tujunga.

The Gorgonio and Hanford series are somewhat excessively-drained to excessively-drained soils on alluvial fans. These soils developed in alluvium consisting mainly of granitic materials. In a typical profile of the Gorgonio series, the surface layer is loamy fine sand about 15 inches thick followed by stratified gravelly loamy sand and gravelly loamy fine sand to a depth of more than 60 inches. Gorgonio series mapping units include Gorgonio loamy sand and Gorgonio gravelly loamy fine sand. The Hanford profile consists of coarse sandy loam in the upper 18 inches and stratified coarse sandy loam and loamy sand below. The Hanford series mapping units include Hanford coarse sandy loam.

Source: ESRI Aerial Imagery. USDA Riverside County Soil Series Data.

NORTH

1,000 500 0 1,000

Feet

Michael Brandman Associates

Exhibit 5
Soils Map

31780004 • 06/2013 | 5_Soils_Map.mxd

SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE
MSHCP CONSISTENCY ANALYSIS

The Greenfield series consists of deep, well-drained soils that formed in moderately coarse and coarse textured alluvium derived from granitic and mixed rock sources. Greenfield soils are on alluvial fans and terraces and have slopes of 0 to 30 percent. The Greenfield series mapping unit is Hanford coarse sandy loam.

The Tujunga series consists of excessively drained soils on alluvial fans and flood plains. These soils also developed in alluvium from predominately granitic materials. In a typical profile, the surface layer is light-gray loamy sand about 10 inches thick. Below this layer are light-gray fine sand and sand. The Tujunga series mapping units include Tujunga loamy sand and Tujunga gravelly loamy sand. None of these soils listed above are designated as sensitive under the MSHCP.

4.3 - Plant Communities

The proposed project sites collectively consist of approximately 57.2 acres, which includes the recharge facility, pipeline, service connection, and the offsite triangular parcel. Following are the plant communities found within the project sites and the acreages are provided in Table 1.

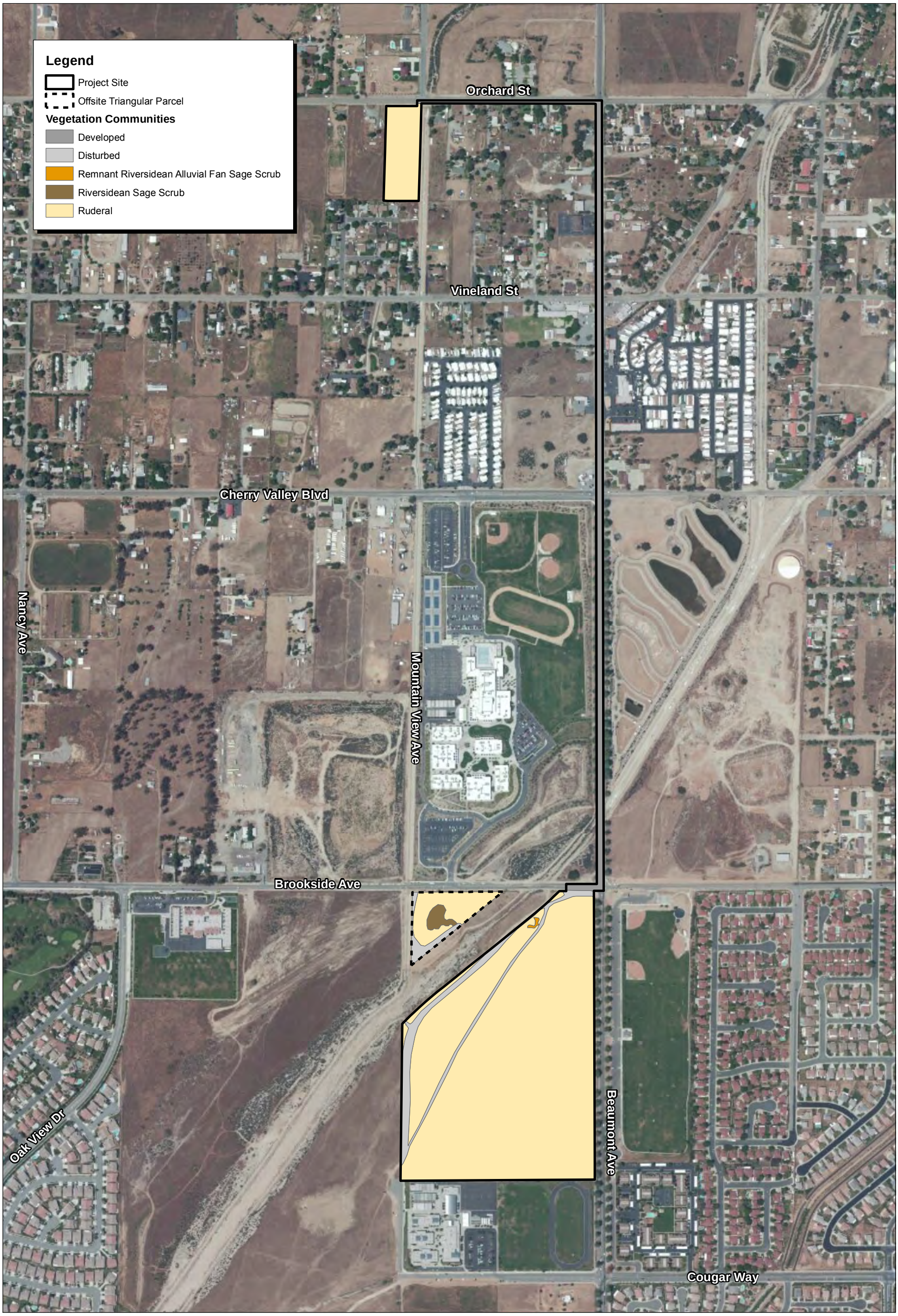
4.3.1 - Ruderal

Ruderal vegetation consists mainly of non-native herb species often in association with annual grasses and occasional native annual forbs. These forbs and grasses begin to germinate with the fall rains, grow during the winter and spring, and wither in the early summer. The dominant plant species within the ruderal habitat consists of red-stemmed filaree (*Erodium cicutarium*), dove weed (*Eremocarpus setigerus*), bromes (*Bromus* sp.), and wild oats (*Avena fatua*). The survey area contains approximately 49.9 acres of ruderal vegetation.

4.3.2 - Riversidean Sage Scrub

RSS is a natural plant community that is widespread throughout Riverside County. RSS vegetation typically consists of low-growing, drought deciduous, and evergreen shrubs that occur on steep and/or gentle sloping topography. This community is often found on xeric sites with severely drained soils, or clays that release stored soil moisture slowly. Stands of RSS range from fairly open to dense, are typically dominated by California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*), and are often found intergraded with chaparral, grassland, and ruderal-type plant communities (Holland 1986).

The RSS community (Exhibit 6) is dominated almost entirely by California buckwheat. A small patch of this low-growing scrub habitat occurs within the triangular parcel west of Noble Creek, south of Brookside Avenue. The survey area contains approximately 0.4 acre of RSS.



Source: ESRI Aerial Imagery. MBA Field Survey and GIS Data, 2013.

NORTH

600 300 0 600

Feet

Michael Brandman Associates

31780004 • 06/2013 | 6_Vegetation_Communities.mxd

Exhibit 6
Vegetation Communities

SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE
MSHCP CONSISTENCY ANALYSIS

4.3.3 - Riversidean Alluvial Fan Sage Scrub

RAFSS is a subtype of coastal sage scrub that occurs on sandy, rocky alluvium deposited by streams that experience infrequent episodes of flooding. RAFSS is composed of an assortment of drought-deciduous sub-shrubs and large, evergreen, woody shrubs that are adapted to the periodic and intense episodes of flooding and erosion that occurs along the alluvial fans. Scalebroom (*Lepidospartum squamatum*) has a high fidelity to alluvial substrates and is found throughout RAFSS. Other species commonly occurring in RAFSS include California buckwheat, hairy yerba santa (*Eriodictyon trichocalyx*), sugarbush (*Rhus ovata*), Whipple's yucca (*Hesperoyucca whipplei*), and mulefat (*Baccharis salicifolia*).

There is RAFSS that is located immediately north of the proposed recharge basin within Noble Creek; however, there is no RAFSS habitat that is located in the northern portion of the proposed recharge basin. The dominant plants observed in the RAFSS habitat within Noble Creek include scalebroom, California buckwheat, and California croton (*Croton californicus*).

4.3.4 - Remnant Riversidean Alluvial Fan Sage Scrub

Remnant RAFSS is a subtype of RAFSS found in areas where scalebroom is found but the possibility of periodic flooding is no longer possible due to disturbance or development. There is a small area in the north portion of the proposed basin development that contains remnant RAFSS. The area contains some scattered scalebroom in an area surrounded by ruderal vegetation. The survey area contains approximately 0.05 acre (rounded to 0.1 acre) of low quality remnant RAFSS.

4.3.5 - Developed

Developed habitat includes any form of human disturbance, especially in cases of permanent removal of natural communities. By definition, Developed areas include areas covered in pavement or asphalt, such as buildings, roads, and sidewalks. The proposed pipeline alignment is within Brookside Avenue, Beaumont Avenue, and Orchard Avenue, and these areas are defined as Developed. The pipeline will be placed in a trench beneath the existing roadbed. In addition, the pipeline will extend under the Noble Creek and Mountain View Channel (MVC) concrete culverts at Beaumont Avenue and Orchard Street. The project survey area contains approximately 3.3 acres of Developed areas.

4.3.6 - Disturbed

Disturbed habitat includes areas in which the vegetative cover comprises less than 10 percent of the surface area (disregarding natural rock outcrops). These areas often contain evidence of soil surface disturbance and compaction from previous legal human activity. Also, where the vegetative cover is greater than 10 percent, there is often soil surface compaction associated with the disturbed nature of the site. There are areas of dirt roads within the basins area and areas along Brookside Avenue that contains mostly bare soil. There is also an area of stockpiled soil within the triangular parcel west of the project site. The survey area contains approximately 3.5 acres of disturbed area.

Table 1: Project Survey Area Plant Communities

Plant Community	Total Survey Area (acres)				
	Recharge Basin Site	Pipeline	Service Connection Site	Offsite Triangular Parcel	Total Survey Area
Ruderal	44.0	0.0	3.5	2.4	49.9
Riversidean Sage Scrub	0.0	0.0	0.0	0.4	0.4
Riversidean Alluvial Fan Sage Scrub	0.0	0.0	0.0	0.0	0.0
Remnant Riversidean Alluvial Fan Sage Scrub	0.1	0.0	0.0	0.0	0.1
Developed	0.0	3.3	0.0	0.0	3.3
Disturbed	2.9	0.0	0.0	0.6	3.5
Total	**47.0**	**3.3**	**3.5**	**3.4**	**57.2**

Source: Michael Brandman Associates, 2013.

Based on a review of the proposed project components including the recharge facility, pipeline, service connection facility, and the offsite triangular parcel, the potential impacts on the ruderal RAFSS, developed, and disturbed plant communities that would result from the direct removal during construction activities is shown in Table 2

Table 2: Plant Communities Impacts Within Project Survey Area

Plant Community	Area of Impact (acres)					
	Total Survey Area[1]	Recharge Basin Site	Pipeline	Service Connection Site	Offsite Triangular Parcel	Total Area of Impact
Ruderal	49.9	44.0	0.0	1.8	2.4	48.2
Riversidean Sage Scrub	0.4	0.0	0.0	0.0	0.0	0.0
Riversidean Alluvial Fan Sage Scrub	0.0	0.0	0.0	0.0	0.0	0.0
Remnant Riversidean Alluvial Fan Sage Scrub	0.1	0.1	0.0	0.0	0.0	0.1
Developed	3.3	0.0	3.3	0.0	0.0	3.3
Disturbed	3.5	2.9	0.0	0.0	0.6	3.5
Total	**57.2**	**47.0**	**3.3**	**1.8**	**3.0**	**55.1**

Notes:
[1] The total survey area includes the 47.0-acre recharge facility site, the 3.3-acre pipeline site, the 3.5-acre service connection site, and 3.4-acre office triangular parcel.
Source: Michael Brandman Associates, 2013.

4.4 - Jurisdictional Waters

A jurisdictional delineation has been completed to determine the acreage of USACE and CDFW jurisdictional waters. Three drainage features were evaluated as part of the jurisdictional delineation (MBA 2013a). The jurisdictional delineation determined that two named jurisdictional features, Noble Creek and the Mountain View Channel (MVC) are under regulatory jurisdiction. One smaller unnamed feature was also identified during the delineation, but was determined to be within an off-site location and will not be impacted by project installation (Exhibit 7).

The project is adjacent to Noble Creek, a drainage feature that conveys flows from northeast to southwest. This drainage feature flows to San Timoteo Canyon and ultimately to the Santa Ana River, is connected to a Traditional Navigable Water of the United States.

A summary of the onsite USACE jurisdictional features, including length, average width, and acreage are summarized in Table 3. The rationale for the jurisdictional assessment is provided in Sections 4.1, Non-Relatively Permanent Waters (Noble Creek) and Section 4.2, Non-Relatively Permanent Waters (Mountain View Channel) within the Delineation of Jurisdictional Waters and Wetlands (MBA 2013a).

Table 3: USACE Jurisdictional Features

Hydro-geomorphic feature	Type	Length (linear feet)	Average Width (linear feet)	Area (acres)
Noble Creek	Channelized soft-bottom drainage	4,560	55	5.8
Mountain View Channel	Channelized concrete lined drainage	5,985	6	0.8
Source: Michael Brandman Associates, 2013a.				

CDFW jurisdictional features are summarized in Table 4. The rationale for the jurisdictional assessment is provided in Sections 4.1, Non-Relatively Permanent Waters (Noble Creek) and Section 4.2, Non-Relatively Permanent Waters (Mountain View Channel) within the Delineation of Jurisdictional Waters and Wetlands (MBA 2013a).

Source: ESRI Aerial Imagery. MBA Field Survey and GIS Data, 2013.

NORTH

600 300 0 600

Feet

Michael Brandman Associates

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Exhibit 7
Drainage Location Map

SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE
MSHCP CONSISTENCY ANALYSIS

Table 4: CDFW Jurisdictional Features

Hydro-geomorphic feature	Type	Length (linear feet)	Average Width (linear feet)	Area (acres)
Noble Creek	Channelized soft-bottom drainage	4,560	150	16.4
Mountain View Channel	Channelized concrete lined drainage	5,985	22	4.0
Source: Michael Brandman Associates, 2013a.				

The project has been designed to avoid all impacts to jurisdictional areas as well as areas considered riverine/riparian under the MSHCP.

4.5 - Nesting Birds

The project sites contain plant communities that provide suitable nesting habitat for a number of avian species. The Riversidean Sage Scrub and Riversidean Alluvial Fan Sage Scrub habitat provide suitable nesting habitat for a number of shrub nesting species such as wrentit (*Chamaea fasciata*) and California towhee (*Pipilo crissalis*). The Ruderal vegetation community may provide suitable habitat for ground nesting birds such as western meadowlark (*Sturnella neglecta*) or killdeer (*Charadrius vociferus*).

SECTION 5: WESTERN RIVERSIDE COUNTY MSHCP CONSISTENCY ANALYSIS

5.1 - MSHCP Requirements

The proposed project sites are located in the Pass Area Plan and are not within an MSHCP Criteria Cell (Exhibit 8). The MSHCP establishes additional habitat assessment requirements for specific plant, bird, mammal, and amphibian species that were not adequately surveyed during the preparation of the MSHCP. The project is within the MSHCP's habitat assessment area for BUOW, LAPM, and NEP species (Marvin's onion and many-stemmed dudleya); each of which is assessed in Section 5.2, Habitat Assessment below (Exhibit 9).

5.1.1 - Urban/Wildlands Interface Guidelines

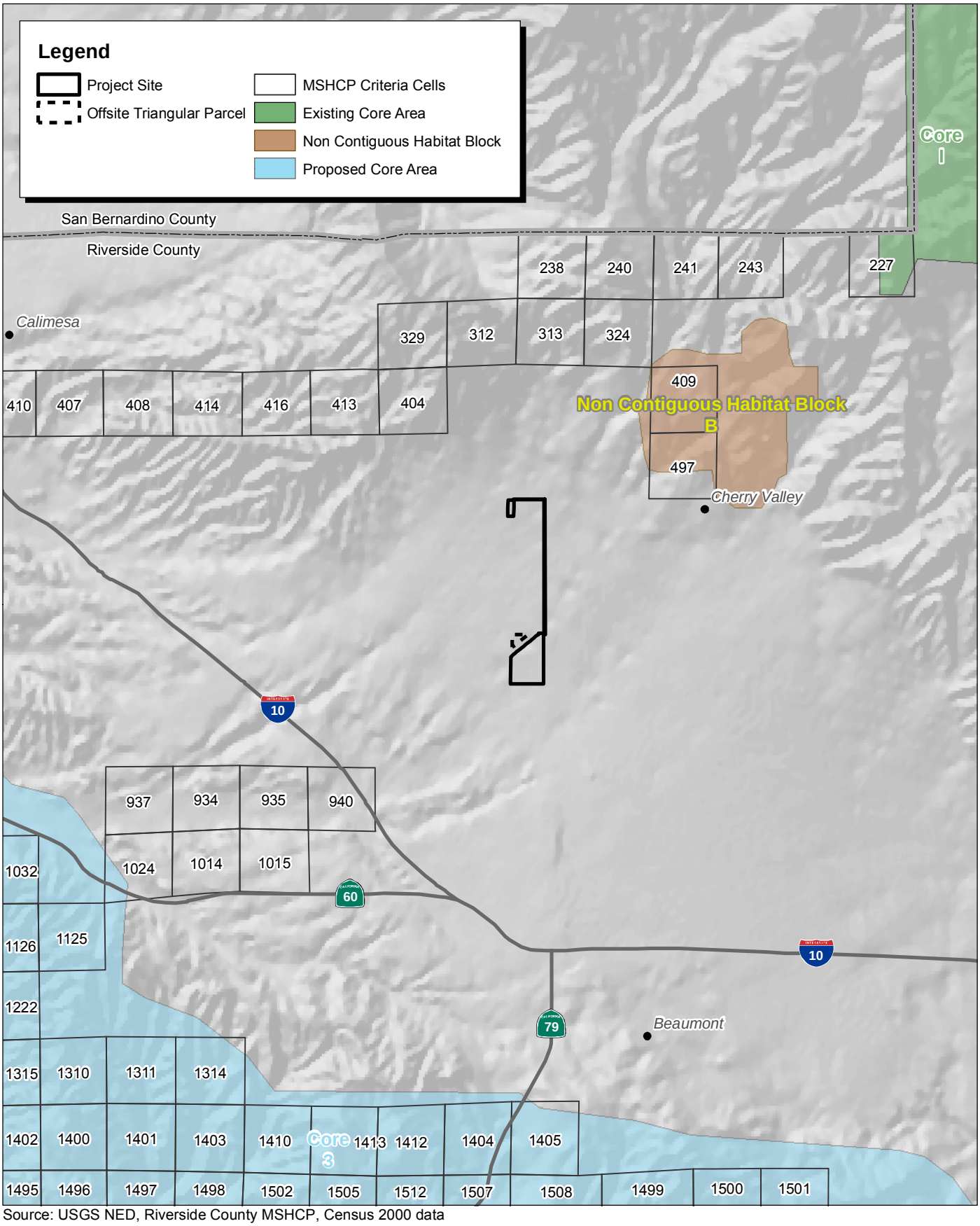
According to the MSHCP, the Urban/Wildlands Interface Guidelines are intended to address indirect effects associated with locating development in proximity to the MSHCP Conservation Area (MSHCP, p 6-42). The project site is not adjacent to MSHCP conservation areas and compliance with the Urban/Wildlife Interface Guidelines is not required.

5.2 - Habitat Assessment

5.2.1 - Burrowing Owl

Portions of the project site are included in the MSHCP habitat assessment area for BUOW. The BUOW is a state species of concern due to their decline in the state of California in the past 30 years. It occurs in short-grass prairies, grasslands, lowland scrub, agricultural lands (particularly rangelands), prairies, coastal dunes, and desert floors. The BUOW may also use golf courses; cemeteries; road allowances within cities, airports, vacant lots in residential areas, and university campuses; fairgrounds; abandoned buildings; and irrigation ditches. The presence of recently excavated burrows is the primary habitat requirement for nesting. They may also use pipes, culverts, and nest boxes where burrows are scarce. One burrow is typically selected for use as the nest; however, satellite burrows are usually found within the immediate vicinity of the nest burrow within the defended territory of the owl. Although open areas with short vegetation are critical for nesting, there is some evidence that BUOW prefer a vegetation mosaic with nesting habitat interspersed within taller vegetation for hunting. However, the primary requirement for suitable BUOW foraging habitat appears to be low vegetation cover that allows visibility and access to prey.

There is one record of BUOW occurrence from 1921 (CNDDB 2012), which occurred in the general vicinity (7-miles) of the project site. The recorded occurrence is located in the Badlands area near Gilman Hot Springs Road approximately 6.5 miles southeast of the project area. No BUOW were observed within the survey area.



Source: USGS NED, Riverside County MSHCP, Census 2000 data

NORTH

1 0.5 0 1 Miles

Michael Brandman Associates

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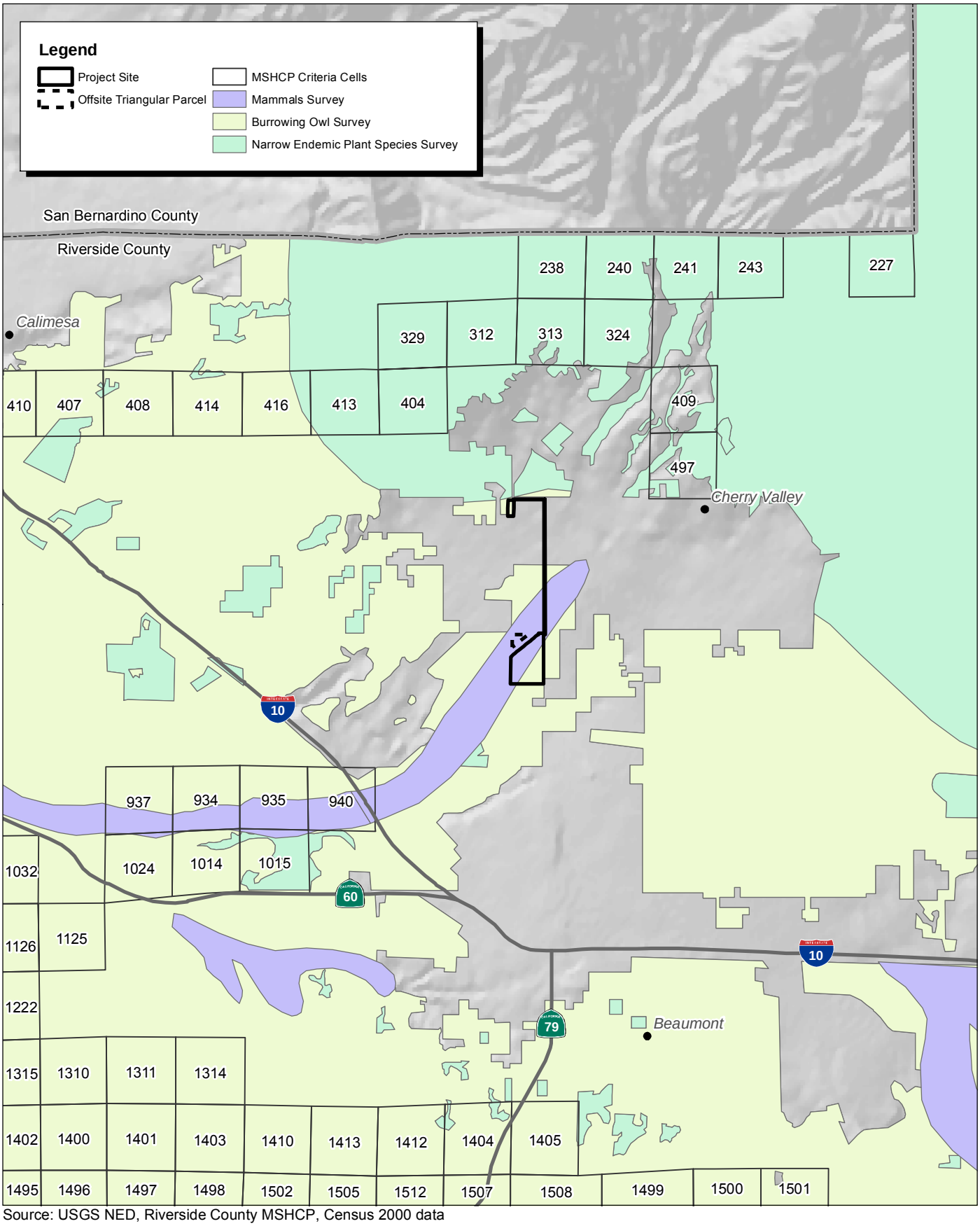
Exhibit 8
MSHCP Map

SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE
MSHCP CONSISTENCY ANALYSIS



Source: USGS NED, Riverside County MSHCP, Census 2000 data

Michael Brandman Associates

NORTH

1 0.5 0 1 Miles

Exhibit 9
MSHCP Species Survey Map

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SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE
MSHCP CONSISTENCY ANALYSIS

There were suitable California ground squirrel and desert cottontail burrows located on the project sites and adjacent to the site, predominantly within the upper terraces of Noble Creek. During the spring, the proposed recharge facility, service connection, and offsite triangular parcel sites do not provide suitable habitat for BUOW due to the presence of tall growing mustard and fiddleneck. Dense vegetative cover does not provide suitable foraging habitat for this species.

5.2.2 - Los Angeles Pocket Mouse

LAPM is a California Special Concern (CSC) species as designated by the CDFW. LAPM prefers fine, sandy soils for burrowing and occurs in sparsely vegetated, lower elevation grassland and coastal sage scrub. Evidence indicates that pocket mice avoid dense grass cover because of difficulty locomoting and finding seeds. This species can be found along the benches of sandy washes, as it provides the necessary habitat components.

Portions of the survey area provides suitable LAPM habitat, particularly on the first and second terraces of Noble Creek. These benches are sparsely vegetated with RAFSS and ruderal vegetation and occur with sandy soils. The California Natural Diversity Database (CNDDB 2013) has a record for LAPM occurrence approximately 2.3 miles northeast of the project site. Due to the presence of suitable habitat for LAPM and a nearby historical record, a focused survey was conducted and the results are discussed below (MBA 2013b).

5.2.3 - Narrow Endemic Plant Species

Marvin's Onion

Marvin's onion is designated as a 1B.1 species, which means the California Native Plant Society (CNPS) considers it seriously endangered in California. It occurs in openings in clay soils in chaparral. Marvin's onion is a bulbiferous herb, which blooms from April to May and is threatened by loss of habitat from development. Marvin's onion is known only from two occurrences; one located in the San Bernardino National Forest on the east side of Water Canyon, and the other generally located east of Beaumont. The occurrence east of Beaumont was observed in 1921 and the specific locale was not provided. The project sites do not provide suitable habitat for Marvin's onion due to the absence of clay soils; the entire site is composed of well-drained alluvium material. Marvin's onion was not observed within the survey area.

Many-stemmed Dudleya

Many-stemmed dudleya is designated as a List 1B.2 species, which means the CNPS considers it fairly endangered in California. It is often associated with clay soils in barrens, rocky places, or thinly vegetated openings in chaparral, coastal sage scrub, and southern needlegrass grasslands. The majority of populations are associated with coastal sage scrub or open coastal sage scrub. It is a perennial herb that blooms from April to July. It is known from less than 15 occurrences in Riverside County and is seriously threatened by development, road construction, grazing, and recreation. The many-stemmed dudleya was not observed within the survey area. The remnant RAFSS that is located

on the proposed recharge basin and the RSS that is located on the offsite triangular parcel are a type of coastal sage scrub. However, the remnant RAFSS habitat is of low quality and the RSS is proposed to be avoided. Since the RAFSS habitat is of low quality and the RSS habitat is proposed to be avoided, the implementation of the proposed project would have a less than significant impact on the many-stemmed dudleya. Therefore, the implementation of the proposed project is expected to have less than significant impacts on the many-stemmed dudleya.

5.2.4 - Riparian/Riverine Habitat

There are no riparian plant species present within Noble Creek, and no riparian habitat is present within the project area. There is a small patch of willow riparian in the unnamed drainage west of Mountain View Middle School, but is located in an off-site location and will not be impacted by project construction.

The RAFSS habitat that is located within Noble Creek could be considered riverine habitat; however, this RAFSS habitat is located outside of the project sites. This habitat is located north of the proposed recharge basin and south of the offsite triangular parcel. The remnant 0.1-acre RAFSS habitat that is located in the proposed recharge facility site and is south and east of Noble Creek is not considered riverine habitat because there is no longer an active drainage associated with this 0.1-acre area. Riverine habitat needs an active drainage for the long-term conservation of riparian and riverine species. Moisture within a drainage feature provides the necessary element to support riparian and riverine habitat and species. Therefore, the proposed project will result in no impact on riverine habitat from the removal of the 0.1-acre of RAFSS habitat.

5.2.5 - Riparian/Riverine Species

Since the proposed project will not impact riparian/riverine habitat, the riparian/riverine species listed in Section 6.1.2 of the MSHCP would not be expected to occur on the project site. Therefore, focused surveys for riparian/riverine species will not be required.

5.2.6 - Vernal Pools/Fairy Shrimp Habitat

No depressions or areas where water would pool were observed on the project site. No vernal pools occur on the project site. Further, there are no ponded areas or depressions onsite that could support fairy shrimp habitat.

5.3 - Focused Surveys

5.3.1 - Los Angeles Pocket Mouse

The trapping survey resulted in several LAPM being captured on the proposed recharge basin site and the offsite triangular parcel as well as within Noble Creek and an offsite area located southwest of the proposed recharge basin. A total of 33 LAPM captures were recorded on Transects 2 to 5 during this survey (Table 5). No LAPM were caught along Transect 1 in the offsite drainage southwest of the

proposed recharge basin and southwest of Mountain View Middle School. LAPM were captured along the length of Transects 3 to 5. However, they were only trapped in Transect 2 along the portion of the transect that intersected the isolated RAFSS plant community and not in the ruderal vegetation.

Based on the survey results, LAPM are only found within suitable habitat within the project survey area, which includes all RSS and RAFSS habitat, as well as a small buffer area surrounding these vegetation communities (i.e., in the areas of Transects 3 through 5), which is often associated with an ecotone, a transitional area between two vegetation communities that has elements of both vegetation communities. This buffer area around the RAFSS within Noble Creek is located immediately north of the northern boundary of the proposed recharge basin site (MBA 2013b).

Two mammal species in total were trapped and included LAPM and deer mouse (*Peromyscus maniculatus*).

Table 5: 2012 Focused Trapping Results for the Beaumont Avenue Recharge Facility and Pipeline Project Site

Night #	Los Angeles Pocket Mouse	Deer Mouse
1	5	10
2	7	6
3	7	5
4	7	6
5	7	5
Total	**33**	**32**

The existing remnant RAFSS habitat south and east of Noble Creek and in the recharge facility site, the RSS in the offsite triangular parcel, and the RAFSS located immediately north of the proposed recharge basin are areas with LAPM as well as suitable LAPM habitat.

The portions of the proposed pipeline that are required to be consistent with the MSHCP do not have suitable LAPM habitat. These portions of the project include the underground crossing of the Noble Creek concrete box culvert, underground crossing of the Mountain View channel concrete box culvert, and an approximately 10 linear feet extending through ruderal habitat from the northeastern portion of the recharge basin site onto Brookside Avenue.

The remaining portions of the proposed project, including the proposed recharge facility site, are not required to be consistent with the MSHCP as discussed in Section 3.1, above. Therefore, the impact assessment of the remnant RAFSS as well as the LAPM that occupy this remnant RAFSS habitat is evaluated in accordance with the California Environmental Quality Act. Since the LAPM is not a

federal or state listed threatened or endangered species, but is designated as a California Species of Concern, this evaluation determines if the impact on the LAPM would reduce the population of the LAPM to a less than self-sustaining level. Based on the nominal amount of RAFSS habitat that is on the proposed recharge facility site (i.e., 0.05 acre) as well as the low quality of the habitat, the direct loss of LAPM from project implementation would not reduce the population of the LAPM to a less than self-sustaining level and therefore, is considered a less than significant impact. While the loss of a few individuals is considered an adverse impact, the small isolated patch of low quality remnant RAFSS is not suitable for the long-term conservation of the species.

The RAFSS that is located north of the proposed recharge facility, is associated with the active Noble Creek drainage channel. This RAFSS habitat will be avoided because it is located north of the proposed recharge basin site. In addition, 0.4 acre of Riversidean Sage Scrub habitat, located in the offsite triangular parcel, will be avoided and not be used for depositing soil from the pipeline construction or be used for construction staging.

Although the high quality occupied RAFSS habitat is located immediately north of the proposed recharge basin and the 0.4 acre of high quality occupied habitat within the offsite triangular parcel will be avoided, indirect impacts to the LAPM may occur during construction and operational activities. Best management practices are proposed to be implemented during construction and operational activities so that the LAPM are not accidentally impacted.

5.4 - Stephens' Kangaroo Rat (SKR) HCP

The project site contains low-quality habitat for Stephens' kangaroo rate (SKR); and the site is located outside of the boundaries of the Stephens' kangaroo rat HCP Fee Area.

SECTION 6: RECOMMENDATIONS

6.1 - Burrowing Owl

The project site does not contain suitable habitat for BUOW. There is suitable habitat within the adjacent Noble Creek Channel and several suitable burrows within the creek's upper terraces, which will be avoided during project construction. However, due to the close proximity of the creek to the project site, a pre-construction survey is required within 30-days of any vegetation removal or ground disturbing activities to ensure that no nesting BUOW occur within the project site.

If BUOW are observed in the project site during the pre-construction survey, they will be passively relocated in accordance with the requirements under the MSHCP. If BUOW are occupying a burrow between March and August, it will be considered an active nest, unless otherwise determined and passive relocation will be delayed until September, or until the nestlings have fledged the nest.

6.2 - Los Angeles Pocket Mouse

A 0.05 acre remnant RAFSS habitat is located in the proposed recharge facility site and LAPM was found to occupy this area. Based on the evaluation above, the remnant RAFSS habitat and the associated LAPM will not be significantly impacted.

The high quality occupied RAFSS habitat that is located immediately north of the proposed recharge basin and the 0.4 acres of high quality occupied habitat within the offsite triangular parcel will be avoided during project construction and operational activities. Due to their proximity to project activities, indirect impacts to the LAPM may occur and a result, best management practices are proposed to be implemented during construction and operational activities so that the LAPM are not accidentally impacted.

The portions of the proposed project that are required to be consistent with the MSHCP are considered consistent with the MSHCP.

6.3 - Jurisdictional Waters

A JD has been prepared to determine the acreage of impact to jurisdictional waters (MBA 2013a). No impacts to jurisdictional waters are anticipated.

6.4 - Riparian/Riverine Habitat

No riparian/riverine habitat is located on the project sites. Therefore, riparian/riverine habitat will not be impacted with project implementation.

6.5 - Nesting Birds

Due to the presence of suitable nesting habitat, a 30-day pre-construction nesting bird survey is required prior to any vegetation removal or ground disturbing activities to e that no nesting birds protected under the Migratory Bird Treaty Act occur within the project site

If nesting birds are present within the project footprint, they must be avoided until the nesting activity is complete, as determined by a qualified biologist. This survey should occur each year prior to the construction of the berms, and may coincide with the BUOW clearance survey recommended above.

In the event that nesting birds are observed during the pre-construction survey, a buffer area will be established around the nest to reduce the potential for nest failure. The buffer area will be no less than 200 feet around any active nest and will be established by a qualified biological monitor based on the avian species and type of disturbance in the area. Construction activities may occur within the buffer area at the discretion of the monitor. All construction related activities with the potential to cause a nest to fail would be prohibited from the area until the nestlings have fledged.

A biological monitor will be present during all vegetation removal and ground disturbing activities. The nest monitoring will continue during construction activities until there is no longer any nesting activities.

6.6 - Stephens' Kangaroo Rat (SKR) HCP

The project site is located outside the Fee Area for Stephens' kangaroo rat (SKR).

SECTION 7: CONCLUSIONS

A habitat assessment and MSHCP consistency analysis was conducted for the Beaumont Avenue Recharge Facility and Pipeline Project in the City of Beaumont, Riverside County. A portion of the proposed project is required to be consistent with the MSHCP. A majority of the proposed project is not required to be consistent with the MSHCP. Although not required, the entire proposed project was evaluated for consistency with the MSHCP. The project sites are located in the Pass Area Plan and is not within a Criteria Cell of the MSHCP.

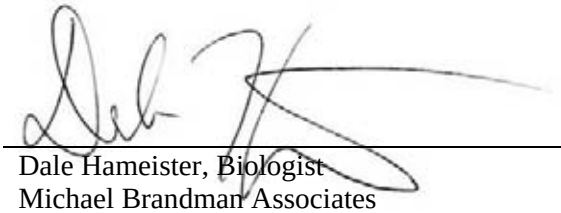
The site contains suitable LAPM habitat and trapping surveys confirmed the presence of this species on the project site. The occupied 0.05 acre remnant RAFSS located on the proposed recharge facility is located in a portion of the project site that is not required to be consistent with the MSHCP. A CEQA evaluation was conducted and the loss of the 0.05 acre RAFSS habitat and associated LAPM were determined to result in a less than significant impact.

No suitable habitat exists for NEP species (Marvin's onion and many-stemmed dudleya) and no focused plant surveys are recommended. The proposed recharge facility and offsite triangular parcel are adjacent to jurisdictional waters and a formal JD has been completed. The project sites do not contain riparian/riverine habitat. There are no vernal pools, vernal pool habitat, or fairy shrimp habitat on the project site.

Based on the results of the MSHCP Consistency Analysis, a BUOW and nesting bird 30-day preconstruction survey are required to be consistent under the Western Riverside County MSHCP. The project will result in the direct impact on RAFSS habitat and LAPM. Since this portion of the proposed project is not covered by the MSHCP because this portion is part of a discretionary action that will be taken by SGPWA who is not a signatory to the MSHCP, payment of the MSHCP fee is not required. An assessment of the potential impacts to the RAFSS habitat and LAPM was conducted in accordance with the CEQA.

SECTION 8: CERTIFICATION

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

Date: June 6, 2013 Signed: 

Dale Hameister, Biologist
Michael Brandman Associates
San Bernardino, California

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Appendix A:
RCIP Conservation Summary Report

Riverside County Transporation and Land Management Agency - TLMA

Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)

APN	Cell	Cell Group	Acres	Area Plan	Sub Unit
404010012	Not A Part	Independent	3.44	The Pass	Not a Part
406080032	Not A Valid Parcel Number				

HABITAT ASSESSMENTS

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

APN	Amphibia Species	Burrowing Owl	Criteria Area Species	Mammalian Species	Narrow Endemic Plant Species	Special Linkage Area
404010012	NO	**YES**	NO	**YES**	**YES**	NO

Burrowing Owl

Burrowing owl.

Mammalian Species

2) L.A. pocket mouse.

Narrow Endemic Plant Species

8) Marvin's Onion, Many-stemmed dudleya

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

Background

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

For more information concerning the MSHCP, contact your local city or the County of Riverside for the unincorporated areas. Additionally, the Western Riverside County Regional Conservation Authority (RCA),

which oversees all the cities and County implementation of the MSHCP, can be reached at:

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

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

www.wrc-rca.org

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Appendix B:
Floral and Faunal Compendia

Flora Compendium

Pinaceae		**Pine Family**
Cedrus	*deodara*	deodar cedar
Adoxaceae		**Honeysuckle Family**
Sambucus	*mexicana*	blue elderberry
Amaranthaceae		**Amaranth Family**
Amaranthus	*albus*	tumbling pigweed
Anacardiaceae		**Sumac or Cashew Family**
Schinus	*molle*	Peruvian pepper tree
Asteraceae		**Sunflower Family**
Ambrosia	*artemisiifolia*	common ragweed
Baccharis	*salicifolia*	mule fat
Conyza	*canadensis*	horseweed
Helianthus	*annuus*	common sunflower
Heterotheca	*grandiflora*	telegraphweed
Lactuca	*serriola*	prickly lettuce
Lepidospartum	*squamatum*	California broomsage
Senecio	*flaccidus var. douglasii*	Douglas' groundsel
Boraginaceae		**Borage Family**
Amsinckia	*menziesii var. intermedia*	common fiddleneck
Brassicaceae		**Mustard Family**
Hirschfeldia	*incana*	short-podded mustard
Chenopodiaceae		**Goosefoot Family**
Chenopodium	*album*	lamb's quarters
Salsola	*tragus*	Russian thistle
Euphorbiaceae		**Spurge Family**
Croton	*californicus*	California croton
Croton	*setigerus*	dove weed
Fabaceae		**Legume Family**
Lotus	*humistratus*	foothill birds-foot trefoil
Melilotus	*alba*	annual white sweetclover
Melilotus	*officinalis*	yellow sweet clover
Fagaceae		**Oak Family**
Quercus	*agrifolia*	coast live oak
Lamiaceae		**Mint Family**
Marrubium	*vulgare*	horehound
Malvaceae		**Mallow Family**
Malva	*parviflora*	cheeseweed
Onagraceae		**Evening Primrose Family**
Epilobium	*ciliatum*	fringed willow herb

Flora Compendium

Polemoniaceae		**Phlox Family**
Eriastrum	*sapphirinum*	sapphire woollystar
Polygonaceae		**Buckwheat Family**
Eriogonum	*fasciculatum*	California buckwheat
Eriogonum	*gracile*	slender woolly buckwheat
Salicaceae		**Willow Family**
Salix	*laevigata*	red willow
Simaroubaceae		**Quassia Family**
Ailanthus	*altissima*	tree of heaven
Solanaceae		**Nightshade Family**
Datura	*wrightii*	jimson weed
Arecaceae		**Palm Family**
Washingtonia	*robusta*	Mexican fan palm
Poaceae		**Grass Family**
Avena	*fatua*	wild oat
Bromus	*diandrus*	ripgut brome
Bromus	*madritensis*	compact brome
Hordeum	*murinum ssp. leporinum*	leporinum barley
Polypogon	*monspeliensis*	annual rabbitsfoot grass
Vulpia	*myuros*	rat-tail fescue

Fauna Compendium

Phrynosomatidae		**Lizards**
Uta	*stansburiana*	side-blotched lizard
Accipitridae		**Hawks**
Buteo	*jamaicensis*	red-tailed hawk
Columbidae		**Pigeons/Doves**
Zenaida	*macroura*	mourning dove
Corvidae		**Jays/Crows**
Corvus	*brachyrhynchos*	American crow
Hirundinidae		**Swallows**
Stelgidopteryx	*serripennis*	northern rough-winged swallow
Icteridae		**New world blackbirds**
Sturnella	*neglecta*	western meadowlark
Leporidae		**Hares and Rabbits**
Lepus	*californicus*	black-tailed jackrabbit
Sylvilagus	*audubonii*	desert cottontail
Sciuridae		**Squirrels**
Spermophilus	*beecheyi*	California ground squirrel
Muridae		**Mice, Rats, and Voles**
Peromyscus	*maniculatus*	deer mouse
Heteromyidae		**Pocket Mice and Kangaroo Rats**
Perognathus	*longimembris brevinasus*	Los Angeles pocket mouse
Canidae		**Wolves and Foxes**
Canis	*latrans*	coyote

Appendix C:
Site Photographs

Photograph 1: Looking northwest within the recharge site showing ruderal vegetation in the foreground and landscaping deodar cedars in the background along Beaumont Avenue.

Photograph 2: Looking northwest showing RAFSS community within Noble Creek.

Source: Michael Brandman Associates, 2013.

Photograph 3: Looking south showing remnant RAFSS in the foreground and ruderal vegetation in the background within the recharge site.

Photograph 4: Looking northwest showing unvegetated streambed with riparian scrub in the background within the unnamed drainage east of Mountain View Middle School.

Source: Michael Brandman Associates, 2013.

Photograph 5: Looking east showing RSS in the triangular parcel west of Noble Creek.

Photograph 6: Looking northwest disturbed area in the triangular parcel west of Noble Creek.

Source: Michael Brandman Associates, 2013.

Photograph 7: Looking southwest showing ruderal vegetation within the connection site.

Photograph 8: Looking south showing the pipeline route within the existing road along Beaumont Avenue.

Source: Michael Brandman Associates, 2013.

Appendix D:
Regulatory Background

REGULATORY BACKGROUND

Special status species are native species that have been afforded special legal or management protection because of concern for their continued existence. There are several categories of protection at both federal and state levels, depending on the magnitude of threat to continued existence and existing knowledge of population levels.

Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) administers the federal Endangered Species Act (FESA) that provides a process for listing species as either threatened or endangered, and methods of protecting listed species. The FESA defines as "endangered" any plant or animal species that is in danger of extinction throughout all or a significant portion of its range. A "threatened" species is a species that is likely to become endangered in the foreseeable future. A "proposed" species is one that has been officially proposed by USFWS for addition to the federal threatened and endangered species list.

Section 9 of the FESA prohibits "take" of threatened or endangered species. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. The presence of any federally threatened or endangered species that are in a project area generally imposes severe constraints on development, particularly if development would result in "take" of the species or its habitat. Under the regulations of the FESA, the USFWS may authorize "take" when it is incidental to, but not the purpose of, an otherwise lawful act.

California Endangered Species Act

The California Department of Fish and Game (CDFG) administers the California Endangered Species Act (CESA). The State of California considers an endangered species as one whose prospects of survival and reproduction are in immediate jeopardy. A threatened species is considered as one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management. A rare species is one that is considered present in such small numbers throughout its range that it may become endangered if its present environment worsens. State threatened and endangered species are fully protected against take, as defined above.

Section 3503 and 3511 of California Fish and Game Code

The CDFG administers the California Fish and Game Code. There are particular sections of the Code that are applicable to natural resource management. For example, section 3503 of the Code states it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3511 of the Code lists fully protected bird species, where the CDFG is unable to authorize the issuance of permits

or licenses to take these species. Pertinent species that are state fully protected include golden eagle (*Aquila chrysaetos*) and white-tailed kite (*Elanus leucurus*).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) makes it unlawful to pursue, capture, kill, or possess or attempt to do the same to any migratory bird or part, nest, or egg of any such bird listed in wildlife protection treaties between the United States, Great Britain, Mexico, Japan, and the countries of the former Soviet Union.

Section 404 of the Federal Clean Water Act

Section 404 of the federal Clean Water Act, which is administered by the U.S. Army Corps of Engineers (USACE), regulates the discharge of dredge and fill material into waters of the United States (U.S.). USACE has established a series of nationwide permits that authorize certain activities in waters of the U.S., provided that a proposed activity can demonstrate compliance with standard conditions. Normally, USACE requires an individual permit for an activity that will affect an area equal to or in excess of 0.5 acre of waters of the U.S. Projects that result in impacts to less than 0.5 acre can normally be conducted pursuant to one of the nationwide permits, if consistent with the standard permit conditions. Use of any nationwide permit is contingent on the activities having no impacts to endangered species.

Section 1600 of the California Fish and Game Code

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California are subject to the regulatory authority of the CDFG pursuant to sections 1600 through 1603 of the Code, requiring preparation of a Streambed Alteration Agreement. Under the Code, a stream is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Included are watercourses with surface or subsurface flows that support or have supported riparian vegetation. CDFG also has jurisdiction within altered or artificial waterways based on the value of those waterways to fish and wildlife, and also has jurisdiction over dry washes that carry water ephemerally during storm events.

Section 401 of the Clean Water Act

Section 401 of the Clean Water Act requires that "any applicant for a federal permit for activities that involve a discharge to waters of the State, shall provide the federal permitting agency a certification from the State in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the federal Clean Water Act." Therefore, before the USACE will issue a

Section 404 permit, applicants must apply for and receive a Section 401 water quality certification from the Regional Water Quality Control Board (RWQCB).

Porter Cologne Act

The RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, with any region that could affect the water of the state" (water code 13260(a)), pursuant to provisions of the State Porter-Cologne Water Quality Act. "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (water code 13050 (e)).

Western Riverside County MSHCP

The MSHCP is a comprehensive, multi-jurisdictional HCP focusing on conservation of species and their associated habitats in western Riverside County. The goal of the MSHCP is to maintain biological and ecological diversity within a rapidly urbanizing region.

The approval of the MSHCP and execution of the Implementing Agreement (IA) by the wildlife agencies allows signatories of the IA to issue "take" authorizations for all species covered by the MSHCP, including state- and federal-listed species as well as other identified sensitive species and/or their habitats. Each city or local jurisdiction will impose a Development Mitigation Fee for projects within their jurisdiction. With payment of the mitigation fee to the County and compliance with the survey requirements of the MSHCP where required, full mitigation in compliance with the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), CESA, and FESA will be granted. The Development Mitigation Fee varies according to project size and project description. The fee for residential development ranges from approximately $800 per unit to $1,600 per unit depending on development density (County Ordinance 810.2). Payment of the mitigation fee and compliance with the requirements of Section 6.0 of the MSHCP are intended to provide full mitigation under CEQA, NEPA, CESA, and FESA for impacts to the species and habitats covered by the MSHCP pursuant to agreements with the USFWS, the CDFG, and/or any other appropriate participating regulatory agencies and as set forth in the IA for the MSHCP.

C.2 - Focused Los Angeles Pocket Mouse Survey Report

Focused Los Angeles Pocket Mouse Survey Report
Beaumont Avenue Recharge Facility and Pipeline
City of Beaumont, Riverside County, California

Prepared for:

San Gorgonio Pass Water Agency
1210 Beaumont Avenue
Beaumont, CA 92223
951.845.2577

Contact: Jeff Davis, P.E.
General Manager

Prepared by:

Michael Brandman Associates
220 Commerce, Suite 200
Irvine, CA 62602
714.508.4100
Contact: Kelly Rios, Senior Project Manager

Surveys Conducted By: Kelly Rios
Surveys Conducted: July 29 through August 3, 2012
Report Date: June 6, 2013

Table of Contents

List of Tables

List of Exhibits

SECTION 1: INTRODUCTION

1.1 - Survey Purpose

This report contains the findings of Michael Brandman Associates' (MBA) focused survey for Los Angeles pocket mouse (*Perognathus longimembris brevinasus*) (LAPM). The trapping survey for the Beaumont Avenue Recharge Facility and Pipeline project site, herein referred to as project site or site, is located in the City of Beaumont, Riverside County, California. MBA biologist Kelly Rios conducted a live-trapping effort for the LAPM, a California Department of Fish and Game (CDFG) Species of Special Concern. This report describes the existing conditions of the project site and results of the trapping effort.

The results of this survey will also be evaluated and incorporated into other relevant documents including as needed, the Environmental Impact Report (EIR), and the Habitat Assessment and Multiple Species Habitat Conservation Plan (MSHCP) Consistency Analysis.

1.2 - Project Site Location

The proposed project is located in both the City of Beaumont and the Cherry Valley area, an unincorporated portion of Riverside County (Exhibit 1). The project site encompasses a recharge facility at the southwest corner of Beaumont Avenue and Brookside Avenue, a pipeline that extends north from the proposed recharge facility to Brookside Avenue and then east to Beaumont Avenue, north within Beaumont Avenue to Orchard Street, and then west within Orchard Street to approximately Mountain View Channel, and then into the proposed service connection facility located south of Orchard Street and immediately west of Mountain View Channel. Additionally, excess soil from the pipeline construction will be deposited at any of the following three locations: the recharge facility, the service connection site, and the offsite triangular parcel located south of Brookside Avenue, north of Noble Creek, and east of the Mountain View Channel (Exhibit 2).

The recharge facility site is owned by SGPWA (Assessor's Parcel Number [APN] 404-010-015) and is located within Section 33, Township 2 South, and Range 1 West of the Beaumont U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle. The pipeline location within Brookside Avenue is owned by the City of Beaumont while the portion of the pipeline locations along Beaumont Avenue and Orchard Street are owned by the County of Riverside. The entire pipeline is within Sections 33 and 28, Township 2 South, and Range 1 West. The service connection facility is owned by SGPWA (APN 405-060-013) and within Section 28, Township 2 South, Range 1 West. Finally, the offsite triangular parcel is owned by SGPWA (APN 404-010-012) and within Sections 28 and 33, Township 2 South, Range 1 West (Exhibit 2).

The majority of the pipeline would be installed underground in the unincorporated Cherry Valley area of Riverside County, although the southernmost portion of the pipeline that connects to the recharge facility would be located in the City of Beaumont. The pipeline is proposed to extend from the recharge basin along the southern side of Brookside Avenue to Beaumont Avenue. At Beaumont Avenue, the pipeline is proposed to traverse in a north/south direction along Beaumont Avenue from Brookside Avenue to Orchard Street and in an east/west direction along Orchard Street from Beaumont Avenue to the service connection facility. The pipeline would be located in Sections 28 and 33, Township 2 South, Range 1 West of the Beaumont USGS 7.5-minute topographic quadrangle (Exhibit 2).

The service connection site consists of approximately 3.5 acres within the unincorporated Cherry Valley area of Riverside County and is located south of Orchard Street and immediately west of Mountain View Channel. Construction of the service connection facility would disturb roughly 1.8, or approximately half the 3.5-acre site, while operations of the facility will disturb approximately 0.3 acre of the northeast portion of the site. The service connection site is owned by SGPWA (APN 405-060-013) and is located within Section 28, Township 2 South, Range 1 West of the Beaumont USGS 7.5-minute topographic quadrangle (Exhibit 2).

The approximately 3.4-acre offsite triangular parcel that could potentially be used for a staging area and/or for depositing excess excavated soil from pipeline construction is located south of Brookside Avenue, north of Noble Creek, and east of the Mountain View Channel. This offsite parcel is owned by SGPWA (APN 404-010-012) and is located within Section 34, Township 2 South, Range 1 West of the Beaumont USGS 7.5-minute topographic quadrangle (Exhibit 2).

1.3 - Project Description

1.3.1 - Recharge Facility

The recharge facility is proposed to consist of a series of five tiered basins, each separated by berms. The facility would have raised embankments along its perimeter so that a portion of the basins will be above the current ground elevation and a portion of the basins will be below the current ground elevation. A maximum 3:1 slope would be used for the interior basin portions of the facility, while 3:1 cut/fill slopes would be used for the exterior perimeter of the facility. The raised embankments would extend a maximum of approximately 9.5 feet above the surrounding grade along the majority of Beaumont Avenue.

The recharge facility has been designed for an infiltration rate of two feet per day and to accommodate a flow rate of 20 cubic feet per second (cfs). Each uncovered basin would be unlined to allow for percolation and groundwater replenishment. The floor of the basin in the northeast portion of the facility would be approximately 40 to 45 feet higher in elevation than the floor of the basin in the southwest portion of the facility. Emergency spillways would be placed on the

embankments of each basin and directed into the adjacent basin. The southernmost basin would have a spillway draining to the west and an emergency outflow swale to the south that would convey the emergency runoff south to Mountain View Avenue. The proposed recharge facility site would include an onsite polyvinyl chloride (PVC) pipe distribution system..

Each basin would have a maximum ponding depth of 5.5 feet and a minimum freeboard of 1.5 feet from water surface to the basin rim. Maintenance roads would be provided along both the perimeter of the facility and between each of the basins. The perimeter maintenance road would be 20 feet wide, while the roads between the basins will be 15 feet and the ramps to the floor of the basins will be 12 feet. These roads would be engineered to prevent erosion and would be slightly angled towards the basins to allow for drainage into the basins. Site access is proposed along Brookside Avenue and from Mountain View Avenue on the south.

Periodic maintenance activities of the recharge facility would be required once the basins are operational. If the recharge basins continue to infiltrate at an acceptable rate, the time between maintenance activities would be extended. It is anticipated that each recharge basin may require servicing on an annual basis. Maintenance activities would involve temporarily taking an individual basin out of commission, allowing the basin to thoroughly dry over several weeks, re-grading and ripping the basin bottom with a dozer, and, if necessary, re-grading and tracking the basin slopes, although this final step is not expected to be regularly required. Each basin would take approximately one day to grade, rip, and track. Since SGPWA has plans to temporarily take the pipeline offline every year to perform mandatory annual maintenance activities, it is also possible that the recharge facility would be shut down during this period, with each basin being serviced during the shut down period.

1.3.2 - Pipeline

A 24-inch pipeline is proposed to extend east from the recharge facility along Brookside Avenue for approximately 180 linear feet, north from Beaumont Avenue for approximately 5,600 linear feet, and west along Orchard Street for approximately 1,400 feet toward the service connection facility. The pipeline is planned to be located within the southern side of Brookside Avenue (eastbound travel lane), within the western side of the Beaumont Avenue centerline (southbound traffic lane) and the southern side of the Orchard Street centerline (eastbound traffic lane). The pipeline would transfer State Water Project (SWP) water from the service connection site to the recharge facility for groundwater recharge. The pipeline has been designed to convey a flow rate of 20 cfs.

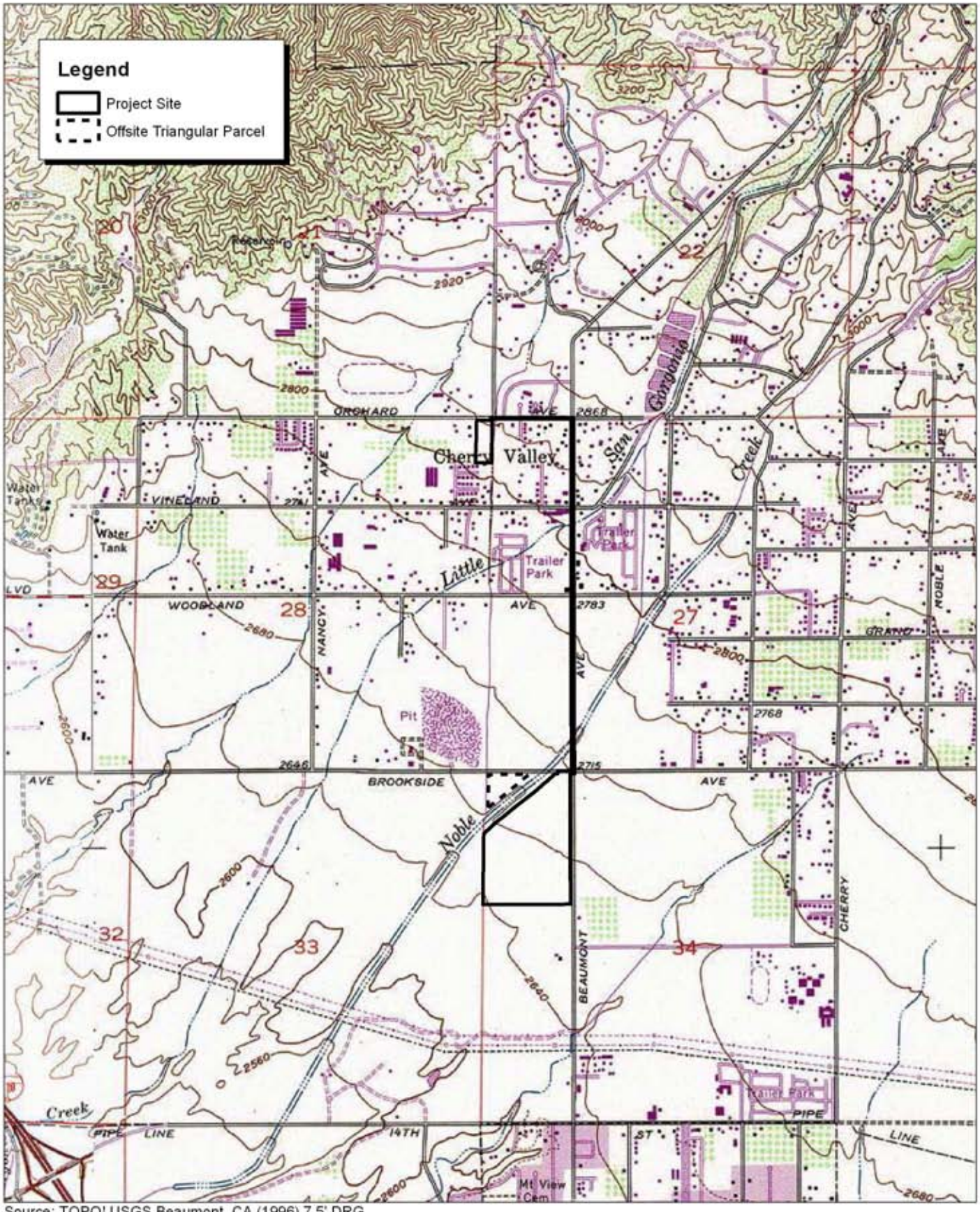
1.3.3 - Service Connection

The service connection facility would convey SWP water from the existing 36-inch East Branch Extension/Noble Creek pipeline located at the intersection of Orchard Street and Mountain View Avenue to the pipeline and ultimately downstream to the recharge facility. A pipe outlet, not to exceed 24-inch diameter, would be extended from the service connection facility to the 24-inch

pipeline along Orchard Street. While up to half of the service connection site could be disturbed during construction of the project, the service connection facility itself would disturb a smaller, approximately 120-foot by 110-foot portion (0.3 acre) representing less than 10 percent of the overall site. The service connection site would consist of a precast concrete control building and various below- and above-grade pipelines and ancillary infrastructure. Site access would be provided by a driveway from Orchard Street.

1.3.4 - Offsite Triangular Parcel

The offsite triangular parcel located northwest of the recharge facility site on the north side of Noble Creek could potentially be used, along with three other locations, as a staging area during construction of the project. Additionally, this parcel could potentially be used for depositing excess excavated soil as a result of excavation of the pipeline.



Source: TOPO! USGS Beaumont, CA (1996) 7.5' DRG.

Exhibit 1
Local Vicinity Map
Topographic Base

NORTH

2,000 1,000 0 2,000 Feet

Michael Brandman Associates

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SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE
LOS ANGELES POCKET MOUSE SURVEY

Source: ESRI Aerial Imagery. MBA Field Survey and GIS Data, 2013.

Exhibit 2
Local Vicinity Map
Aerial Base

NORTH

2,000 1,000 0 2,000 Feet

Michael Brandman Associates

31780004 • 06/2013 | 2_local_aerial.mxd

SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE
LOS ANGELES POCKET MOUSE SURVEY

SECTION 2: METHODS

2.1 - Literature Review

A literature review was conducted prior to trapping. This included a review of standard field guides and texts on sensitive and non-sensitive biological resources, as well as the following sources:

- List of sensitive biological resources provided by the California Natural Diversity Database (CNDDB 2012);
- Biological resources reports for the project site; and
- General texts and other documents identifying potential resources on the site.

2.2 - Focused Surveys

A focused trapping effort for LAPM was conducted according to established United States Fish and Wildlife Service (USFWS) protocols for Pacific pocket mouse (*Perognathus longimembris longimembris*), a similar species. Kelly Rios (USFWS permit # TE-018909-04, Scientific Collecting permit # 801077-05) conducted the trapping survey. A total of 5 transects were executed for the focused survey effort. The current protocol requires five consecutive nights of trapping conducted when the animal is active aboveground at night, and preferably during a new moon phase. MBA conducted the trapping effort on five consecutive nights beginning July 29 and concluded the morning of August 3, 2012.

A total of 113 traps, set approximately 10 meters apart, were set in the drainage feature, within the adjoining benches, and in the previously trapped area known to be occupied by LAPM based on previous surveys conducted by MBA biologists Kelly Rios and Dale Hameister. Five nights of trapping were conducted, for a total of 565 trap nights. Traps were placed in suitable habitat areas within the drainage and on the benches located north of the proposed recharge basin site, concentrating on areas containing sandy soils and suitable vegetation, and located near potential LAPM burrows (Exhibit 3).

The traps were left in the same place throughout the trapping survey. At sunset, each trap was baited with a mixture of birdseed placed at the back of the traps. The traps were inspected and the animals were released at dawn each morning. Any trap that was not triggered was set in the closed position to prevent accidental capture of animals during daylight hours. All animals were identified and released at the point of capture.

The habitat conditions of trap locations were recorded in a field notebook. Weather conditions at the time of the baiting and releasing of the animals were also noted.

Source: ESRI Aerial Imagery. MBA Field Survey and GIS Data, 2013.

Michael Brandman Associates

NORTH

500 250 0 500

Feet

Exhibit 3
LAPM Trap Lines

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SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE
LOS ANGELES POCKET MOUSE SURVEY

SECTION 3: EXISTING CONDITIONS

3.1 - Weather Conditions

Weather conditions during the trapping survey included morning temperatures in the upper 60s and low 70s degrees Fahrenheit (°F) and an evening temperature in the mid 80s °F. Skies were clear. The moon was in its full moon phase, which occurred on August 2, 2012.

3.2 - Soils and Topography

The soil series located within the project site include Gorgonio loamy sand, Gorgonio gravelly loamy fine sand, Hanford coarse sandy loam, and Tujunga loamy sand. None of these soils are listed as sensitive by the MSHCP.

The Gorgonio and Hanford series are somewhat excessively drained to excessively drained soils on alluvial fans. These soils developed in alluvium consisting mainly of granitic materials.

The Tujunga series consists of very deep, somewhat excessively drained soils formed in alluvium weathered mostly from granitic sources Tujunga soils are on alluvial fans and flood plains.

3.3 - Plant Communities within the Transects

Transect 1 was located in a drainage that feeds into Noble Creek, west of the terminus of Cougar Way, south of Transects 2 to 5. Transect 1 contained scattered riparian plants along the eastern end that belong to a mulefat scrub plant community. The western end of the transect was barren containing very little vegetation.

Transects 2 to 5 were located in the vacant lot southwest of Brookside Avenue and Beaumont Avenue, east of Noble Creek. Transect 2 occurred within a disturbed, disked lot containing non-native grasses. Transect 2 intersected native vegetation remnant of Riversidean alluvial fan sage scrub (RAFSS) plant community and consisted of scalebroom (*Lepidospartum squamatum*) in 2 small isolated patches in the disked lot. Transect 3 occurred within the bank of Noble Creek and consisted of non-native grasses and scattered native California buckwheat (*Eriogonum fasisculatum*). Transect 4 was located on a bench within Noble Creek and ran parallel to Transect 3. The dominant plant occurring within this transect was California buckwheat. Transect 5 occurred on the west side of Noble Creek within an isolated patch of California buckwheat. Dirt roads surrounded the patch of California buckwheat and Transect 5 in all directions. Additional non-native species observed along the transects include western ragweed (*Ambrosia psilostachya*) and Russian thistle (*Salsola tragus*).

3.4 - Mulefat Scrub

A tall, herbaceous riparian scrub strongly dominated by mulefat (*Baccharis salicifolia*). This early seral community is maintained by frequent flooding. Absent this, most stands would succeed to cottonwood or sycamore dominated riparian forests or woodlands.

3.5 - Riversidean Alluvial Fan Sage Scrub

Riversidean alluvial fan sage scrub has been described as a variant of coastal sage scrub; it is also referred to as alluvial fan scrub, alluvial fan sage scrub, or cismontane alluvial scrub. RAFSS is considered a distinct and rare plant community found primarily on alluvial fans and flood plains along the southern bases of the Transverse Ranges and portions of the Peninsular Ranges in southern California (CNDDB 2012). This relatively open vegetation type is adapted to periodic flooding and erosion and is comprised of an assortment of drought-deciduous shrubs and larger evergreen woody shrubs characteristic of both coastal sage scrub and chaparral communities. Three phases of RAFSS have been described: pioneer, intermediate, and mature. The phases are thought to correspond to factors such as flood scour, distance from flood channel, time since last catastrophic flood, and substrate features (USFWS 2000). RAFSS vegetation includes plant species that are often associated with coastal sage scrub, chaparral, or desert transition communities. Common plant species in RAFSS include scalebroom, California buckwheat, wooly yerba santa (*Eriodictyon crassifolium*), hairy yerba santa (*Eriodictyon trichocalyx*), Our Lord's candle (*Yucca whipplei*), sugar bush (*Rhus ovata*), lemonade berry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), mulefat (*Baccharis salicifolia*), showy penstemon (*Penstemon spectabilis*), brittlebush (*Enceila farinosa*), prickly pear and cholla (*Opuntia* spp.), white sage (*Salvia apiana*), annual forbs, and native and non-native grasses.

3.6 - Wildlife

Wildlife activity was low to moderate, with most of the wildlife represented by trapped mammal species. Wildlife observations were based on calls, songs, scat, tracks, burrows, and actual sightings of animals. Birds, reptiles, and mammal species were observed mainly on the slopes of the drainage features and adjacent golf course. Common avian species observed during the surveys include house finch (*Carpodacus mexicanus*), and American crows (*Corvus brachyrhynchos*). Other common wildlife species observed during the survey include reptilian species such as side-blotched lizard (*Uta stansburiana*), and mammalian species including desert cottontail (*Sylvilagus audubonii*) and California ground squirrel (*Spermophilus beecheyi*).

3.7 - Sensitive Biological Resources

The following is a discussion of the sensitive mammal species that have the potential to be trapped on the project site.

3.7.1 - Los Angeles Pocket Mouse

The LAPM is one of two pocket mice found in this area of Riverside County (Williams 1986). Both the LAPM and the northwestern San Diego pocket mouse (*Chaetodippus fallax fallax*) occupy similar habitats, but the northwestern San Diego pocket mouse has a wider habitat range extending south into San Diego County. The habitat of the LAPM is described as being confined to lower elevation grasslands and coastal sage scrub habitats, in areas with soils composed of fine sands (Williams 1986). It occurs in open sandy soils within the valley and foothills of southwestern California (Hall 1981). LAPM is nocturnally active and forages in open ground and underneath shrubs. Pocket mice, in general, dig burrows in loose soil.

Suitable habitat for LAPM occurs within the major drainages and on the adjoining banks of the project site. These ephemeral swales are characterized by sparse to moderately dense upland scrub, and contain sandy friable soils and small undercut and terrace features that provide suitable habitat for LAPM.

3.7.2 - San Diego Desert Woodrat

The desert woodrat (*Neotoma lepida*) is a relatively wide-ranging species extending along the coast of California from south of San Francisco through to the border of Baja California. This species also occurs in the Central Valley and the deserts of southern California, extending along the desert side of the Sierra Nevada into southeastern Oregon. The coastal race of the desert woodrat, the San Diego desert woodrat (*Neotoma lepida intermedia*), prefers scrub habitats such as coastal sage scrub, chaparral, and alluvial fan sage scrub.

SECTION 4: FOCUSED TRAPPING SURVEY RESULTS

Table 1 summarizes the results of the 2012 survey. A total of 33 LAPM captures were recorded on Transects 2 to 5 during this survey. No LAPM were caught along Transect 1. LAPM were captured along the length of Transects 3 to 5. However, they were only trapped in Transect 2 along the portion of the transect that intersected the isolated RAFSS plant community and not in the non-native grasses.

Two mammal species in total were trapped and included LAPM and deer mouse (*Peromyscus maniculatus*).

Table 1: 2012 Focused Trapping Results for the Beaumont Avenue Recharge Facility and Pipeline Project Site

Night #	Los Angeles Pocket Mouse	Deer Mouse
1	5	10
2	7	6
3	7	5
4	7	6
5	7	5
Total	**33**	**32**

SECTION 5: CONCLUSIONS AND RECOMMENDATIONS

This survey effort was conducted within the drainage feature and on the benches of the drainage feature that contain suitable LAPM habitat. LAPM were captured 33 times as part of the 2012 trapping effort and the entire northern site containing Transects 2 to 5 are presumed to be occupied However, the southern site consisting of Transect 1 is presumed to be unoccupied by LAPM.

SECTION 6: CERTIFICATION

I certify that the information in this survey report and attached exhibits fully and accurately represent my work.

Date: June 6, 2013 Signed: 

Kelly Rios, Senior Project Manager
Permit Number TE-018909-4

SECTION 7: REFERENCES

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C.3 - Delineation of Jurisdictional Waters and Wetlands

Delineation of Jurisdictional Waters and Wetlands
Beaumont Avenue Recharge Facility and Pipeline
City of Beaumont, Riverside County, California

Portions of Assessor's Parcel Nos: 404-010-015, 405-060-013, 404-010-012
Total Area Surveyed: 57.2 Acres
City of Beaumont, and Cherry Valley, Riverside County, California
Beaumont, California USGS 7.5-minute Topographic Quadrangle
Sections 28 and 33, Township 2 South , Range 1 West

Prepared for:

San Gorgonio Pass Water Agency
1210 Beaumont Avenue
Beaumont, California 92223

Contact: Jeff Davis, General Manager

Prepared by:

Michael Brandman Associates
621 E. Carnegie Drive, Suite 100
San Bernardino, California 92408

Contact: Michael Houlihan, AICP, Project Manager

Survey Date(s): June 20, 2012 and December 20, 2012
Report Author: Dale Hameister, Biologist
Report Date: April 4, 2013

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SECTION 1: SUMMARY

Applicant Name:
San Gorgonio Pass Water Agency
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Contact: Jeff Davis, General Manager

Agent Name:
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San Bernardino, CA 92408
Contact: Mike Houlihan, Project Manager
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Surveyor: Dale Hameister
Email: dhameister@brandman.com

1.1 - Introduction

At the request of San Gorgonio Pass Water Agency (SGPWA), Michael Brandman Associates (MBA) conducted a Delineation of Jurisdictional Waters and Wetlands for a proposed recharge project (hereafter referred to as the "project site") located in the City of Beaumont and the unincorporated community of Cherry Valley, Riverside County, California, on June 20, 2012.

The project site encompasses a recharge facility at the southwest corner of Beaumont Avenue and Brookside Avenue, a pipeline that extends north from the proposed recharge facility to Brookside Avenue and then east to Beaumont Avenue, north within Beaumont Avenue to Orchard Street, and then west within Orchard Street to approximately Mountain View Channel, and then into the proposed service connection facility located south of Orchard Street and immediately west of Mountain View Channel. Additionally, excess soil from the pipeline construction will be deposited at any of the following three locations: the recharge facility, the service connection site, and the offsite triangular parcel located south of Brookside Avenue, north of Noble Creek, and east of the Mountain View Channel.

The proposed recharge facility encompasses approximately 47 acres. The pipeline alignment encompasses approximately 3.3 acres. The service connection facility encompasses approximately 3.5 acres and the offsite triangular parcel encompasses approximately 3.4 acres. The portions of the proposed project were surveyed as part of this Jurisdictional Delineation. Due to the close proximity of Noble Creek to the proposed recharge facility and the offsite triangular parcel, Noble Creek was evaluated as part of the delineation. In addition, due to the close proximity of the Mountain View Channel (MVC) to the service connection site, the MVC was evaluated as part of the delineation. Furthermore, an area south west of the intersection of Mountain View Avenue and Cougar Way (southwest of the Mountain View Middle School) was also part of the delineation.

This delineation identifies and evaluates the jurisdiction of subject features within or adjacent to the project sites.

1.2 - Project Purpose

The project purpose is determined by defining the applicant's goals for the project. The basic project purpose for the proposed project is groundwater recharge that will allow for managed groundwater recharge of the Beaumont Basin (Basin) aquifer. The project is needed because the Beaumont Basin has been subject to significant overdraft.

1.3 - Subject Features

The survey area contains three potentially jurisdictional drainage features that were evaluated to determine their jurisdictional limits as regulated by the U.S. Army Corps of Engineers (USACE), the Santa Ana Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Wildlife (CDFW). The three features include Noble Creek, Mountain View Channel (MVC), and an unnamed feature. The portion of Noble Creek that was surveyed is an artificially constructed, soft-bottom feature, designed to convey flows from a mostly undeveloped mountainous region north of the project site. The MVC is an artificially created concrete-lined feature that generally conveys nuisance flows from adjacent residential development. The unnamed feature is a soft bottom swale that conveys urban run-off from an adjacent school.

Both the MVC and Noble Creek are non-relatively permanent waters (non-RPWs). The MVC flows due south to its confluence with Noble Creek, approximately 3.1 miles south of the project site. Noble Creek flows from the northeast to the southwest, converging with San Timoteo Creek, which is a relatively permanent water (RPW). San Timoteo Creek flows into the Santa Ana River (RPW), 21.7 river miles northwest of the project site, and ultimately discharges to the Pacific Ocean, a Traditional Navigable Water (TNW), 84.9 river miles southwest of the site. No jurisdictional wetlands were determined to occupy any portion of the area that was evaluated.

SECTION 2: JURISDICTIONAL METHODOLOGY

2.1 - Methodology Statement

This Delineation of Jurisdictional Waters and Wetlands was conducted in accordance with regulations set forth in 33 Code of Federal Regulations (CFR) Part 328 and the USACE guidance documents referenced below:

- USACE Wetlands Research Program Technical Report Y-87-1 (on-line edition), Wetlands Delineation Manual, Environmental Laboratory, 1987 (Wetland Manual)
- USFWS Classification of Wetlands and Deepwater Habitats of the United States, Lexis M. Cowardin, U.S. Department of Interior, Fish and Wildlife Service, FWS/OBS-79/31, December 1979, updated 1992 (Cowardin)
- USACE Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest, 2001 (Arid Southwest Guidelines)
- USACE Minimum Standards for Acceptance of Preliminary Wetlands Delineations, November 30, 2001 (Minimum Standards)
- USACE Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, December 2006 (Arid West Supplement)
- USACE Jurisdictional Determination Form Instructional Guidebook, May 30, 2007 (JD Form Guidebook)
- Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States* and *Carabell v. United States* (June 5, 2007) (Rapanos Guidance)
- USACE, A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the United States, August 2008 (OHWM Manual)

2.2 - Pre-Survey Investigation

Prior to the field visit, a 200-scale (1 inch = 200 feet) aerial photograph of the study area was procured and compared with the Beaumont, California, United States Geological Survey (USGS) 7.5-minute topographic quadrangle map to identify potential drainage features within the study area as indicated from topographic changes or visible drainage patterns. The National Wetland Inventory was also reviewed to determine whether any wetland areas had been documented within the vicinity of the project sites. The United States Department of Agriculture (USDA) Soil Survey Map was reviewed to identify the soil series that occur on the sites.

2.3 - Field Investigation

Field surveys have been conducted in the study area during the past several years and additional field surveys were determined necessary.

A survey of the study area was conducted on June 20, 2012 by MBA Senior Regulatory Specialist Paul Mead and MBA Regulatory Specialist / Biologist Dale Hameister. The study area was surveyed an additional time on December 20, 2012 by Dale Hameister.

The delineation work was conducted in accordance with procedures and criteria set forth in the Wetland Manual and the Arid West Supplement, which define jurisdictional wetlands as features typically containing three parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. Data was collected using a Trimble GeoXH global positioning system (GPS) unit with an accuracy of >1 feet. Potential drainage features and wetlands were also mapped on recent aerial photographs. Other tools used included a 30-meter tape measure, a shovel, a Munsell color chart, and a digital camera.

The survey was conducted on foot; all potentially jurisdictional features within the study area and immediate vicinity were systematically inspected to record existing conditions and to determine the jurisdictional limits of waters and wetlands. The study area was carefully assessed for surface flow indicators (presence of hydrophytic vegetation, staining, cracked soil, ponding, etc.). The apparent flow regimes and corresponding hydrogeomorphic features were subsequently identified.

Measurements were entered into Geographical Information System (GIS) Arcview software to identify the location and dimensions of potentially jurisdictional areas. The Arcview application was then used to compute federal and state jurisdiction in acres. Acreage computations were verified using a 200-scale aerial photograph and field data.

2.3.1 - Field Conditions During Field Investigation

During the June 20, 2012 survey, field conditions were sunny and warm (78 degrees Fahrenheit) with winds approximately 5 to 10 miles per hour (mph). During the surveys, surface water was not present in Noble Creek. The Palmer Drought Severity Index (PDSI) indicated severe drought for June 20, 2012 when the field assessment was conducted.

During the December 20, 2012 survey, the temperature was cold (48 degrees Fahrenheit) and the sky was clear with winds from 8 to 15 mph.

SECTION 3: ENVIRONMENTAL SETTING

3.1 - Location of the Properties

The project is linear and is located in both the City of Beaumont and the unincorporated community of Cherry Valley, Riverside County. The project site is generally located north of Interstate (I) 10, south of State Route (SR) 38, and east of SR-79 (Exhibit 1).

The recharge facility site is owned by SGPWA (Assessor's Parcel Number [APN] 404-010-015) and is located within Section 33, Township 2 South, and Range 1 West of the Beaumont U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle. The pipeline location within Brookside Avenue is owned by the City of Beaumont while the portion of the pipeline locations along Beaumont Avenue and Orchard Street are owned by the County of Riverside. The entire pipeline is within Sections 33 and 28, Township 2 South, and Range 1 West. The service connection facility is owned by SGPWA (APN 405-060-013) and within Section 28, Township 2 South, Range 1 West. Finally, the offsite triangular parcel is owned by SGPWA (APN 404-010-012) and within Sections 28 and 33, Township 2 South, Range 1 West (Exhibit 2).

The project site encompasses a recharge facility at the southwest corner of Beaumont Avenue and Brookside Avenue, a pipeline that extends north from the proposed recharge facility to Brookside Avenue and then east to Beaumont Avenue, north within Beaumont Avenue to Orchard Street, and then west within Orchard Street to approximately Mountain View Channel, and then into the proposed service connection facility located south of Orchard Street and immediately west of Mountain View Channel. Additionally, excess soil from the pipeline construction will be deposited at any of the following three locations: the recharge facility, the service connection site, and the offsite triangular parcel located south of Brookside Avenue, north of Noble Creek, and east of the Mountain View Channel (Exhibit 3).

3.1.1 - Directions to the Properties

To access the recharge facility site, take I-10 highway to the San Timoteo Canyon Road exit; turn right at 14th Street/Oak Valley Parkway, and after approximately 1.5 miles turn left at Beaumont Avenue. Drive for 1.0 mile. The project will be located in the open tract to the left (southwest of the intersection of Brookside and Beaumont Avenues).

To access the connection facility, take I-10 to Cherry Valley Boulevard, head east for 2.7 miles to Naney Avenue. Proceed north (left) on Naney Avenue for 0.5 mile to Orchard Street. Turn east on Orchard Street for 0.5 mile to the intersection with Mountain View Road and the MVC.

To access the offsite triangular parcel, take I-10 highway to the San Timoteo Canyon Road exit; turn right at 14th Street/Oak Valley Parkway, and after approximately 1.5 miles turn left at Beaumont

Avenue. Drive for 1.0 mile and turn left at Brookside Avenue. The offsite triangular parcel is located on the left after crossing the Noble Creek bridge.

3.1.2 - Assessor Parcel Numbers

The project includes the following APNs: 404-010-015, 405-060-013, 404-010-012.

3.2 - Land Uses

3.2.1 - Recharge Site

The recharge site has a constant gradient with elevations higher in the northern portion of the site compared to the southern portion of the site. The site is comprised of undeveloped land that is dominated by non-native ruderal vegetation. To the south of the site is Mountain View Middle School. Beaumont Avenue and Brookside Avenue are to the east and north. Noble Creek is northwest of the recharge site. Noble Creek is presently the primary flood control conveyance for the Noble Creek Hydrologic Sub Area (Hydrologic Sub Area [HSA] 801.69).

3.2.2 - Service Connection Site

The proposed service connection site is presently vacant land. Some rubbish piles (construction debris) are present in the south-central portion of the property. Historically, the site was joined with the adjacent property immediately to the west, and it was used for farming. The larger property was subdivided some time between 1967 and 1980. The site was never built upon.

3.2.3 - Offsite Triangular Parcel

The offsite triangular parcel primarily consists of ruderal vegetation with some disturbed and Riversidean Sage Scrub. Beaumont High School is located to the north, the Mountain View Channel is located to the west and further west is undeveloped land and the Brookside Elementary School, and Noble Creek is located to the south and east.

3.2.4 - Activities Relating to Interstate or Foreign Commerce

None of the jurisdictional features investigated are presently used for recreation or other use by interstate or foreign travelers or used in relation to interstate or foreign commerce. Onsite resources are not used for sale of fish or shellfish. Similarly, the land is not currently used for industry or other activities operating in interstate or foreign commerce. At present, no nexus to commerce is evident.

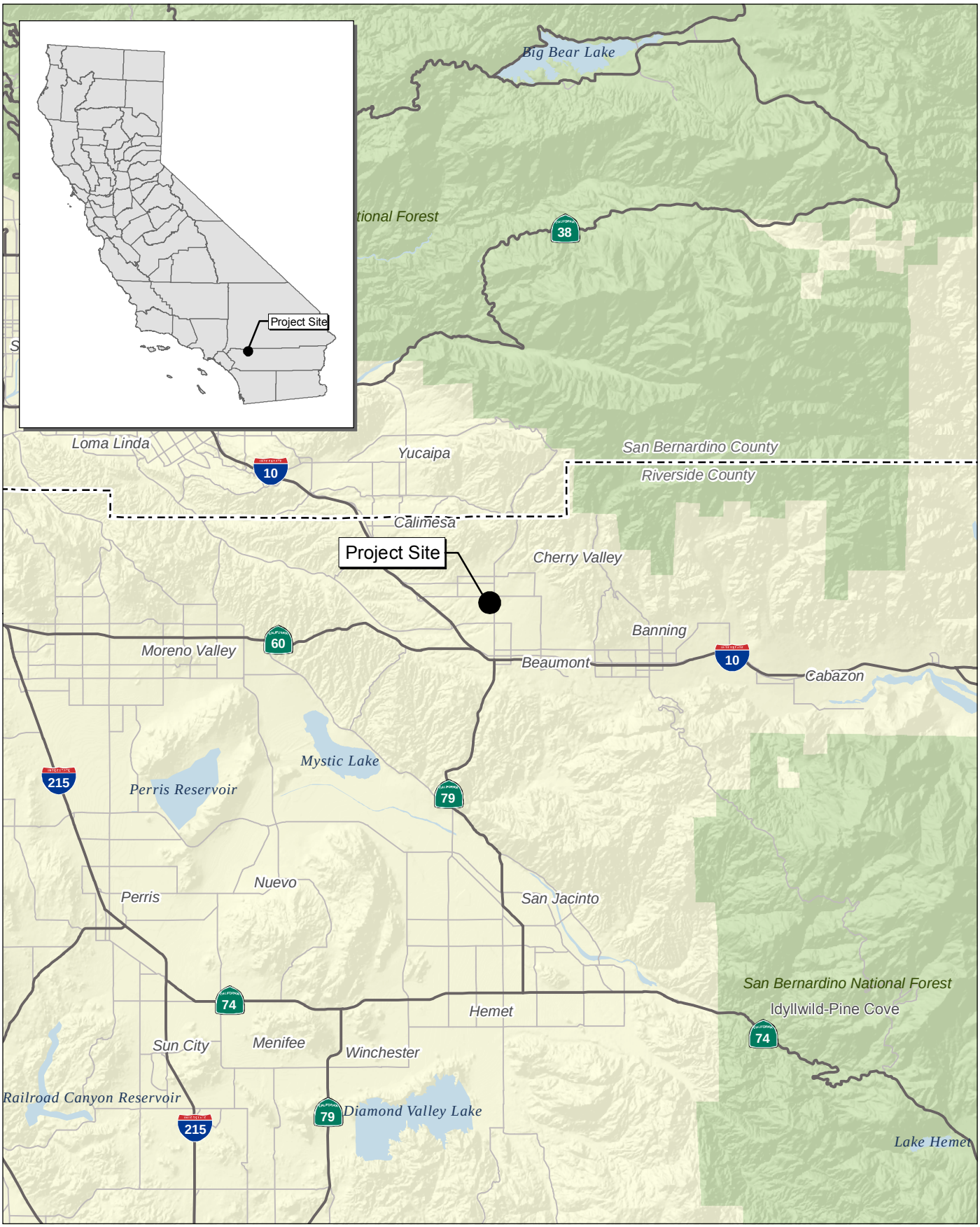
3.3 - Topography

The study area is located within the San Gorgonio Pass, between the San Bernardino Mountains to the north and the San Jacinto Mountains to the south.

The recharge facility site, service connection site, and the offsite triangular parcel have constant gradients with elevations higher in the northern portions of these sites compared to the southern

portions of these site. The study area has elevations that range from 2,530 to 2,680 feet above mean sea level. The recharge facility site and the offsite triangular parcel are located adjacent to Noble Creek. The service connection site is located adjacent to MVC. The Beaumont, California USGS 7.5 minute topographic quadrangle depicts Noble Creek as a blue-line stream within the survey area. The recharge facility contains undeveloped land consisting of three major plant communities: ruderal, remnant RAFSS, and disturbed areas consisting of dirt roads.

The service connection site is dominated by ruderal non-native vegetation. The offsite triangular parcel includes ruderal non-native vegetation, Riversidean sage scrub, and disturbed areas consisting of dirt roads.



Source: Census 2000 Data, The CaSIL, MBA GIS 2013.

NORTH

5 2.5 0 5

Miles

Michael Brandman Associates

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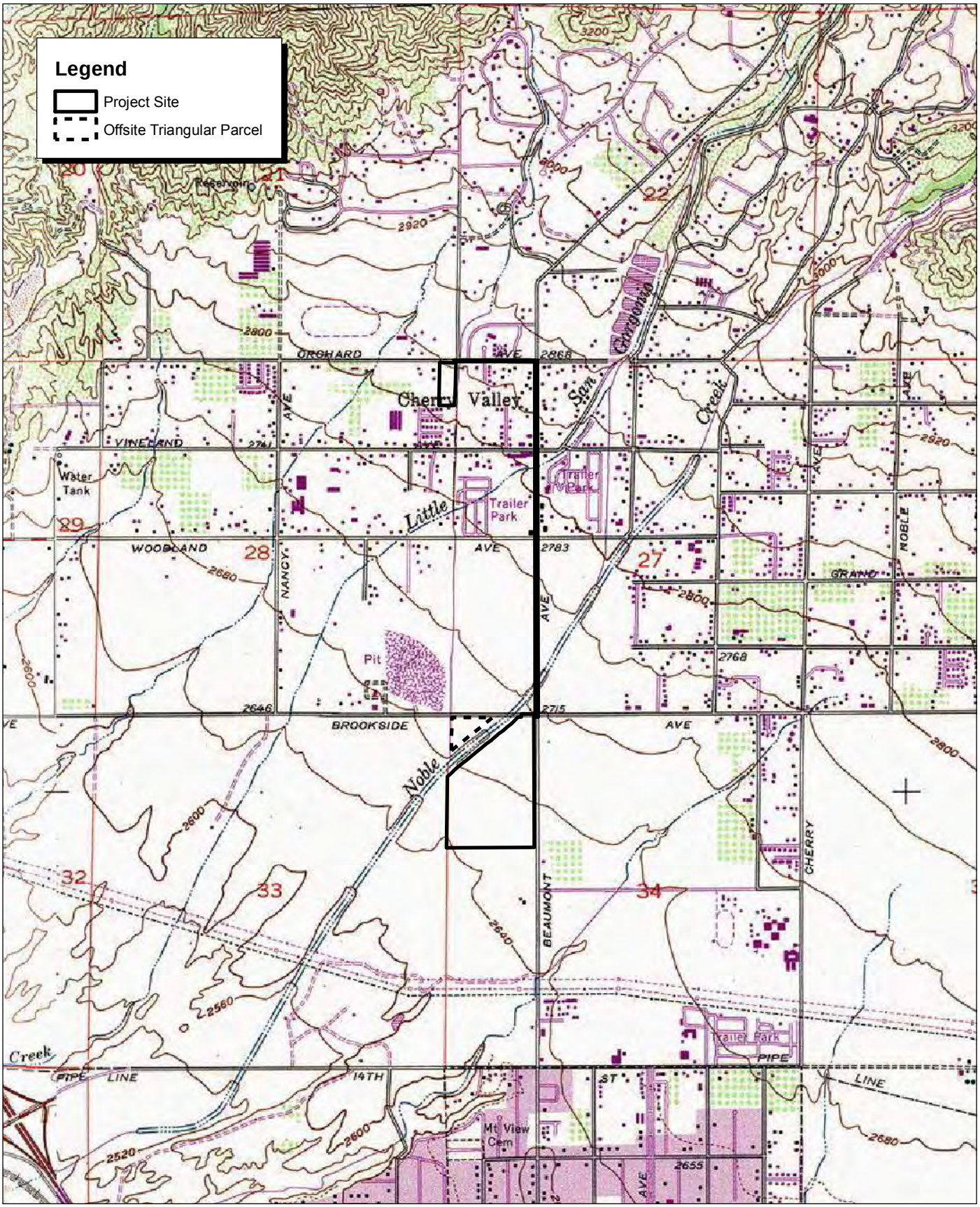
Exhibit 1
Regional Location Map

SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS



Source: TOPO! USGS Beaumont, CA (1996) 7.5' DRG.

NORTH

2,000 1,000 0 2,000 Feet

Michael Brandman Associates

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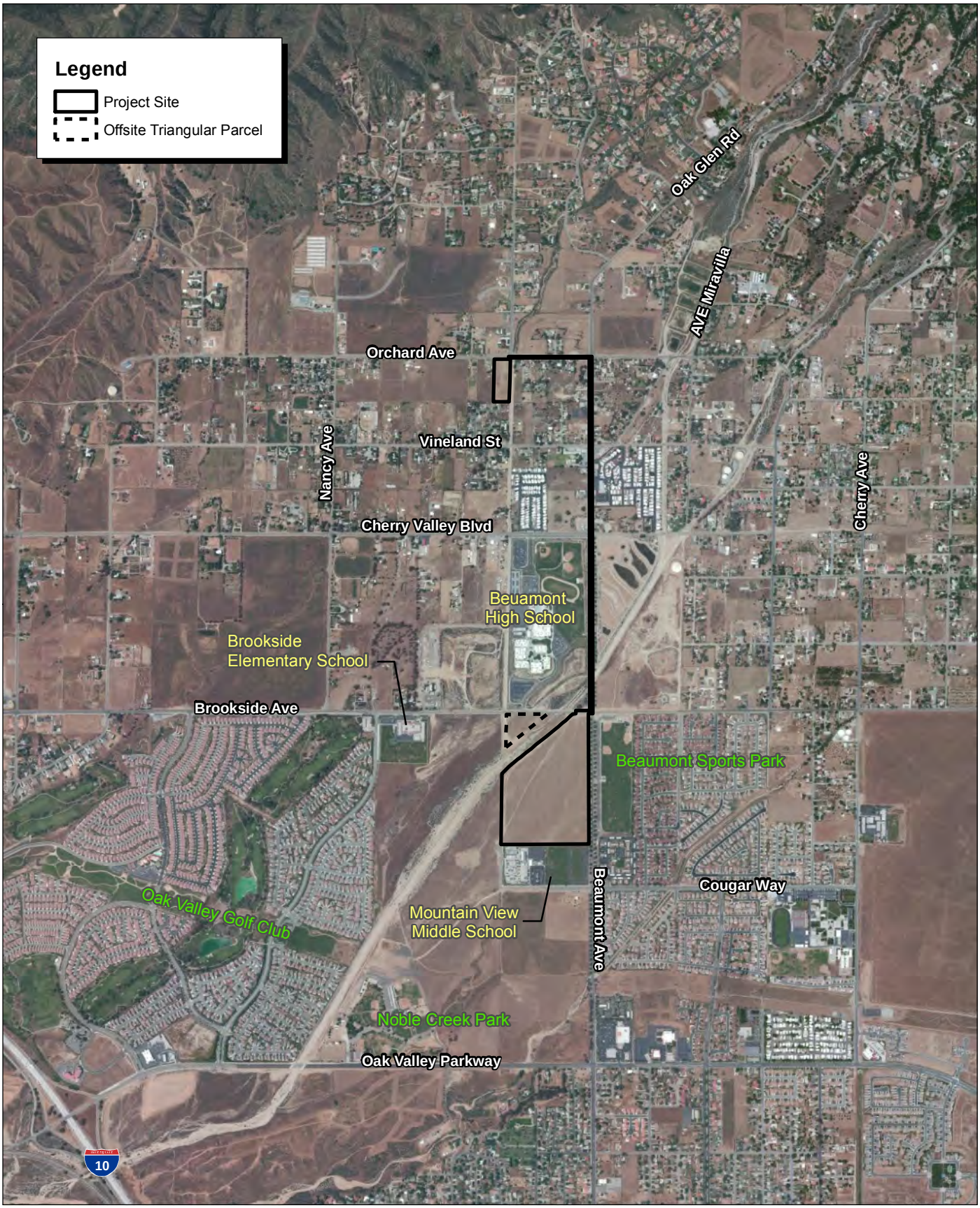
Exhibit 2
Local Vicinity Map
Topographic Base

SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS



Source: ESRI Aerial Imagery. MBA Field Survey and GIS Data, 2013.

Exhibit 3
Local Vicinity Map
Aerial Base

NORTH

2,000 1,000 0 2,000 Feet

Michael Brandman Associates

31780004 • 06/2013 | 3_local_aerial.mxd

SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS

3.4 - Hydrology

3.4.1 - Pertinent Hydrogeomorphic Features

The jurisdictional assessment of the site conducted in June 2012 by MBA documented one channel, Noble Creek. The additional jurisdictional evaluation conducted in December 2012 included the MVC, which enters Noble Creek, and a small unnamed drainage that originates west of the Mountain View Avenue and Cougar Way intersection.

Neither Noble Creek nor the MVC constitute either traditional navigable water (TNW), relatively permanent waters (RPWs) or wetlands. Both features are best described as ephemeral, non-relatively permanent waters (non-RPW), with downstream connectivity to San Timoteo Creek (RPW), the Santa Ana River (RPW), and ultimately, to the Pacific Ocean (TNW) (Exhibit 4).

The small ephemeral drainage is considered an erosional feature in an otherwise upland area and is caused by excessive urban run-off associated with the adjacent school. This drainage flows west into Noble Creek.

3.4.2 - Watershed Description

The study area is located within the Santa Ana River watershed. The Santa Ana River drains approximately 1,680 square miles and is identified by the USGS cataloging unit number 18070202. More specifically, the study area receives flows from the Little San Gorgonio Creek and Noble Creek drainage systems which comprise a drainage area of approximately 9,330 acres (14.578 square miles) extending north from the project site to Cedar Mountain. The San Gorgonio/Noble drainage area includes most of the Noble Creek Hydrologic Sub Area (HSA 801.69) as well as the northwestern portion of the Beaumont Hydrologic Sub Area (HSA 801.62), which form the eastern section of San Timoteo Hydrologic Area within the Santa Ana River watershed (Exhibit 5).

Table 1: Watershed Information

Hydrologic Information	Description	Acres	Square Miles	Percent of Watershed
Hydrologic (Cataloging) Unit	Santa Ana River (18070202)	1,075,200	1,680	100
Hydrologic Area	San Timoteo	72,033	113	6.70
Hydrologic Sub-Area	Beaumont (801.62)	29,339	45.842	2.72
Hydrologic Sub-Area	Noble Creek Valley (801.69)	10,128	15.825	0.942
Noble Creek:	San Gorgonio/Noble Creek Drainage Area	9,330	14.578	0.868
Mountain View Channel (at intersection of Orchard and Mountain View Avenue)	San Gorgonio/Noble Creek Drainage Area	688	1.075	0.00064
Source: Michael Brandman Associates, 2013.				

Source: ESRI Aerial Imagery. MBA Field Survey and GIS Data, 2013.

NORTH

2,000 1,000 0 2,000

Feet

Michael Brandman Associates

Exhibit 4
Drainage Area

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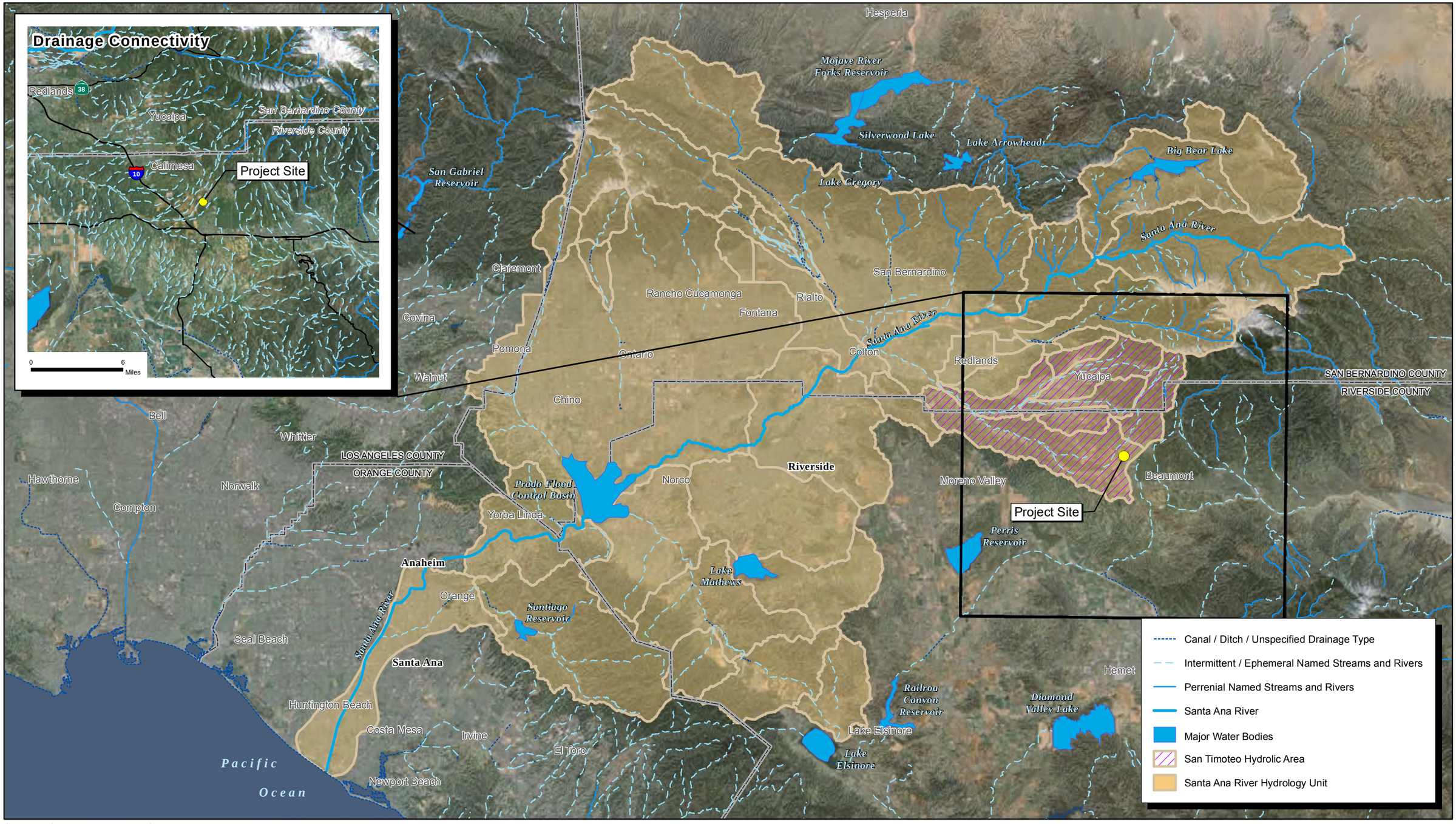
SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS



Source: ESRI World Imagery, ESRI (2008).

NORTH

6.5 3.25 0 6.5
Miles

Michael Brandman Associates

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Exhibit 5
Watershed / Drainage Map

SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS

Table 2: Distance to Downstream Resources

Project Waters (Drainage)	Distance to Nearest RPW (San Timoteo Creek)		Distance to Downstream RPW (Santa Ana River)[1]		Distance to TNW (Pacific Ocean)	
	River Miles	Aerial Miles	River Miles	Aerial Miles	River Miles	Aerial Miles
Noble Creek (Portion Adjacent to Project Sites)	3.08	2.92	21.73	18.73	84.93	59.78
Mountain View Channel (Confluence with Noble Creek)	4.14	3.98	22.79	19.79	85.99	60.84
Unnamed Drainage Feature	3.48	3.28	22.16	19.14	85.38	60.18

Notes:
[1] Measurement is to the junction of San Timoteo Creek and the Santa Ana River (Reach 5) in San Bernardino. It is not known whether portions of the Santa Ana River (including the Prado Dam basin or features therein) are properly considered traditionally navigable waters. (Prado Dam is located 53.83 river miles and 37.74 aerial miles from the project site.)
Source: Michael Brandman Associates, 2013.

Table 3: Beneficial Uses

Beneficial Uses	Little San Gorgonio/ Noble Creek	San Timoteo Creek (Reach 3)	Santa Ana River (Reach 5)	Santa Ana River Salt Marsh	Pacific Ocean
Municipal/Domestic Water Supply (MUN)	Yes	—	Yes	—	—
Agricultural Supply (AGR)	—	—	Yes	—	—
Industrial Service Supply (IND)	—	—	—	—	Yes
Industrial Process Supply (PROC)	—	—	—	—	—
Groundwater Recharge (GWR)	Yes	Yes	Yes	—	—
Navigation (NAV)	—	—	—	—	Yes
Hydropower Generation (POW)	—	—	—	—	—
Water Contact Recreation (REC 1)	Yes	Yes	Yes	Yes	Yes
Non-Contact Water Recreation (REC 2)	Yes	Yes	Yes	Yes	Yes

Table 3 (cont.): Beneficial Uses

Beneficial Uses	Little San Gorgonio/ Noble Creek	San Timoteo Creek (Reach 3)	Santa Ana River (Reach 5)	Santa Ana River Salt Marsh	Pacific Ocean
Commercial and Sports fishing (COMM)	—	—	—	—	Yes
Warm Freshwater Habitat (WARM)	—	Yes	Yes	—	—
Limited Warm Freshwater Habitat (LWRM)	—	—	—	—	—
Cold Freshwater Habitat (COLD)	Yes	—	—	—	—
Preservation of Biological Habitats of Special Significance (BIOL)	—	—	—	Yes	—
Wildlife Habitat (WILD)	Yes	Yes	Yes	Yes	Yes
Rare, Threatened or Endangered Species (RARE)	—	—	Yes	Yes	Yes
Spawning, Reproduction, and Development (SPWN)	—	—	—	—	Yes
Marine Habitat (MAR)	—	—	—	Yes	Yes
Shellfish Harvesting (SHEL)	—	—	—	—	Yes
Estuarine Habitat (EST)	—	—	—	Yes	—

Notes:
Yes = Present or Potential Beneficial Uses — = No Present or Potential Beneficial Uses
Source: Michael Brandman Associates, 2013.

3.4.3 - Drainage Patterns

Sources of water supplying the study area include storm water runoff from upstream portions of Noble Creek, and storm water runoff and nuisance flows conveyed to the study area via Little San Gorgonio Creek and MVC. From the study area, runoff from Noble Creek flows southwest for 3.1 river miles before it enters San Timoteo Creek. San Timoteo Creek flows into the Santa Ana River (RPW) 21.7 river miles northwest of the confluence with Noble Creek, and ultimately discharges to the Pacific Ocean, a TNW, approximately 84.9 river miles southwest of the project site.

3.4.4 - Federal Emergency Management Agency Flood Map

The Federal Emergency Management Agency (FEMA) determined 100-year floodplain extends down the Noble Creek Channel and is contained within Noble Creek. The 100-year floodplain is located on the offsite triangular parcel. The recharge facility site and the service connection site are located outside of the 100-year floodplain.

3.5 - Seasonal Climate Variation

The Beaumont area is subject to both seasonal and annual variations in temperature and precipitation. Average annual maximum temperatures are 74.5 degrees Fahrenheit (°F), and annual minimum temperatures are 45.3°F. Average annual precipitation is greatest in January, February, and March and least in June, July, and August, with the annual precipitation averaging 15.8 inches.

3.6 - Soils

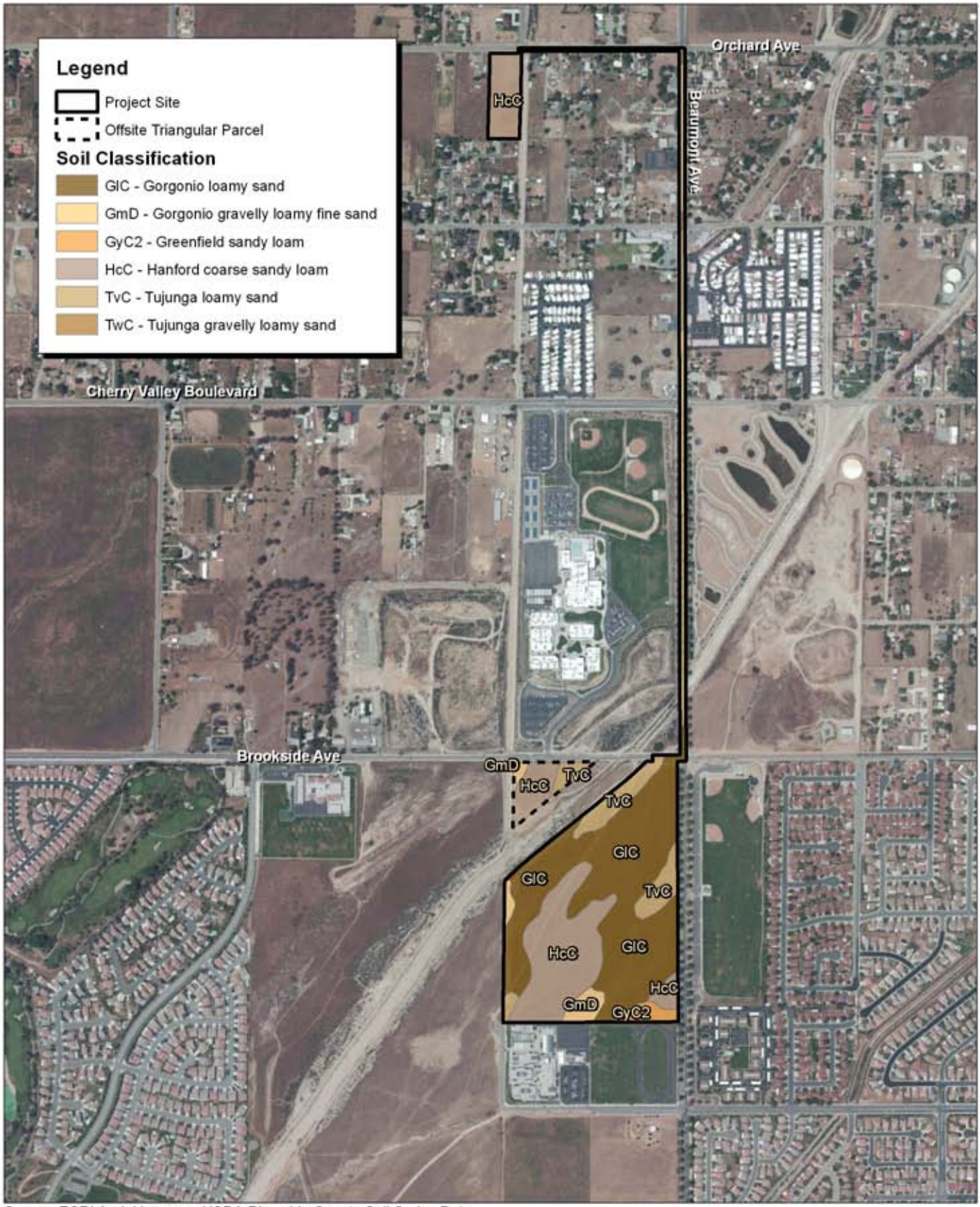
The study area includes Gorgonio, Greenfield, Hanford, and Tujunga soil series (USDA 1971).

The Gorgonio and Hanford series are somewhat excessively-drained to excessively-drained soils on alluvial fans. These soils developed in alluvium consisting mainly of granitic materials. In a typical profile of the Gorgonio series, the surface layer is loamy fine sand about 15 inches thick followed by stratified gravelly loamy sand and gravelly loamy fine sand to a depth of more than 60 inches. Gorgonio series mapping units include Gorgonio loamy sand and Gorgonio gravelly loamy fine sand. The Hanford profile consists of coarse sandy loam in the upper 18 inches and stratified coarse sandy loam and loamy sand below. The Hanford series mapping units include Hanford coarse sandy loam.

The Greenfield series consists of deep, well-drained soils that formed in moderately coarse and coarse textured alluvium derived from granitic and mixed rock sources. Greenfield soils are on alluvial fans and terraces and have slopes of 0 to 30 percent. The Greenfield series mapping unit is Hanford coarse sandy loam.

The Tujunga series consists of excessively drained soils on alluvial fans and flood plains. These soils also developed in alluvium from predominately granitic materials. In a typical profile, the surface layer is light-gray loamy sand about 10 inches thick. Below this layer are light-gray fine sand and sand. The Tujunga series mapping units include Tujunga loamy sand and Tujunga gravelly loamy sand.

According to the Natural Resources Conservation District inventory, of the soil mapping units within the study area, only Tujunga loamy sandy is listed as a hydric soil when it occurs in riverwash within drainageways. Although the other mapping units within the study area are not listed as hydric, other mapping units within the same series are listed as hydric when they occur within channels in Riverside and Western Riverside County.



Source: ESRI Aerial Imagery. USDA Riverside County Soil Series Data.

Michael Brandman Associates

NORTH

1,000 500 0 1,000 Feet

Exhibit 6
Soils Map

31780004 • 06/2013 | 6_Soils_Map.mxd

SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS

3.7 - Vegetation

Based on a biological report completed for the study area (MBA 2013), the majority of the proposed recharge facility includes non-native ruderal vegetation and disturbed areas. The adjacent Noble Creek channel includes unvegetated streambed, surrounded by Riversidean Alluvial Fan Sage Scrub (RAFSS). A small quantity of Riversidean Sage Scrub (RSS) is located within the offsite triangular parcel south of Brookside Avenue and west of Noble Creek.

The service connection facility site contains undeveloped land dominated by ruderal non-native vegetation. It is located adjacent to a concrete section of MVC to the east and residential parcels to the south.

3.8 - Coastal Zone Evaluation

The project site is not within the coastal zone as defined by the California Coastal Act. As such, a Coastal Zone Management Act consistency determination is not required.

3.9 - Critical Habitat

There is no designated Critical Habitat mapped as occurring in the vicinity of the study area.

3.10 - Biological Resource Documents

Biological resources are described in the Habitat Assessment and MSCHP Consistency Analysis, prepared by MBA, March 2013.

3.11 - Cultural / Historic Resource Documents

Cultural resources are described in the Cultural Resource Addendum Survey of the Beaumont Avenue Recharge Facility and Pipeline Project, San Gorgonio Pass Water Agency, County of Riverside and City of Beaumont, California, March 2013.

SECTION 4: JURISDICTIONAL DELINEATION RESULTS

This jurisdictional delineation involves two named jurisdictional features, Noble Creek and the MVC, and one smaller unnamed feature (Exhibit 7 and 8).

A summary of the onsite jurisdictional features, including length, average width, and acreage are summarized in Table 4. The rationale for the jurisdictional assessment is provided in Sections 4.1, Non-Relatively Permanent Waters (Noble Creek), Section 4.2, Non-Relatively Permanent Waters (Mountain View Channel), and Section 4.3, Non-Relatively Permanent Waters (Unnamed Drainage).

Table 4: USACE Jurisdictional Features

Hydro-geomorphic feature	Type	Length (linear feet)	Average Width (linear feet)	Area (acres)
Noble Creek	Channelized soft-bottom drainage	2,000	25	0.95
Mountain View Channel	Channelized concrete lined drainage	90	9	0.01
Unnamed Drainage	Erosional Feature in an otherwise upland area	1,526	4	0.18
Source: Michael Brandman Associates, 2013.				

CDFW jurisdictional features are summarized in Table 5. The rationale for the jurisdictional assessment is provided in Sections 4.1, Non-Relatively Permanent Waters (Noble Creek), Section 4.2, Non-Relatively Permanent Waters (Mountain View Channel), and Section 4.3, Non-Relatively Permanent Waters (Unnamed Drainage).

Table 5: CDFW Jurisdictional Features

Hydro-geomorphic feature	Type	Length (linear feet)	Average Width (linear feet)	Area (acres)
Noble Creek	Channelized soft-bottom drainage	2,000	106	4.47
Mountain View Channel	Channelized concrete lined drainage	90	9	0.01
Unnamed Drainage	Erosional Feature in an otherwise upland area	1,526	5	0.48
Source: Michael Brandman Associates, 2013.				

Width measurements were taken at representative locations along the length of the creek (Exhibit 7 and Exhibit 8). In addition, representative photographs were taken throughout the study area (Appendix D).

Source: ESRI Aerial Imagery. MBA Field Survey and GIS Data, 2013.

NORTH

600 300 0 600

Feet

Michael Brandman Associates

31780004 • 06/2013 | 7_CDFW_jurisdiction_map.mxd

Exhibit 7
CDFW Jurisdictional Map

SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS

Source: ESRI Aerial Imagery. MBA Field Survey and GIS Data, 2013.

NORTH

600 300 0 600

Feet

Michael Brandman Associates

31780004 • 06/2013 | 8_USACE_jurisdictional_map.mxd

Exhibit 8
USACE Jurisdictional Map

SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS

4.1 - Non-Relatively Permanent Waters (Noble Creek)

The Noble Creek channel is an ephemeral wash that runs from northeast to southwest within the study area. The onsite portion of the Creek receives flows from the Little San Gorgonio and Noble Creek systems extending north to the slopes of Cedar Mountain (Exhibit 5). Noble Creek has downstream surface connectivity to San Timoteo Creek (RPW), the Santa Ana River (RPW) and the Pacific Ocean (TNW). The relevant reach of Noble Creek is adjacent to the recharge facility site, extending south from the Beaumont Avenue Bridge to the junction with an unnamed drainage west of Mountianview Middle School.

The adjacent portion of Noble Creek is presently a portion of a channelized system running 5,580 linear feet within a 150-foot-wide flood control easement managed by the Riverside County Flood Control District (RCFCD) (PBS&J 2006). The average width of the channel is 80 feet at the toe of the slope and 100 feet at the top of the bank (Exhibit 7). The northern half of the channel extending to the Mountain View Channel is defined by large earthen levees on both sides. The levee walls have 2:1 side slopes between 10 to 12 feet high.

Presently, stream geomorphology defines the active flood plain as the area within the toe of the levee slopes. A low flow area (measuring 2 to 6 feet in width, and less than 1 foot deep) meanders in a general southwesterly direction within the active channel. During summer months, most low flows appear to originate as nuisance flows either from the MVC or from other storm-drain outlets along the channel length. Because of the highly permeable, well draining soils (gravelly loamy sand, and course sandy loam), most nuisance flows entering the channel percolates quickly.

The channel itself is largely unvegetated, presumably a result of maintenance activities by the RCFCD, though possibly resulting from increased scour within the artificially channelized system during high flow periods. The well-draining soils may also contribute to poor growing conditions.

Vegetation around the drainage (near the tow of the slope) is limited or absent and includes a dominance of red brome (*Bromus madritensis*). California buckwheat (*Eriogonum fasciculatum*), and some ruderal vegetation including sparse presence of tree tobacco (*Nicotiana glauca*, FAC) and saltcedar (*Tamarix ramosissima*, FAC).

USDA Soils Maps/Surveys indicate the presence of soils, which have been identified as potentially hydric (Tujunga series), though no hydric soils were identified within the channel during the site survey(s).

During field reconnaissance, no active flows were present within the drainage, though some low-flow areas adjacent to storm drain outlets and the MVC were moist, indicating periodic nuisance flows are not uncommon.

4.1.1 - Noble Creek Significant Nexus Evaluation

Noble Creek is an ephemeral wash that maintains continuous flows only during and immediately after substantial precipitation. Using current USACE terminology, Noble Creek is defined as a non-navigable tributary and non-relatively permanent water (non-RPW). The non-RPW designation is assigned to features lacking continuous flows for more than a few months out of the year.

The drainage is likely jurisdictional because it has a significant nexus with a TNW (Pacific Ocean). A significant nexus is shown by evaluating specific hydrological and ecological factors.

Hydrological Factors

Noble Creek has direct connectivity to a relatively permanent water (RPW, San Timoteo Creek) located 3.1 river miles to the southwest. Similarly, the onsite portion of Noble Creek is 84.9 miles from the nearest currently accepted TNW (Pacific Ocean). The distance to the Santa Ana River is 21.7 river miles and 18.7 aerial miles.

Prado Lake, just northwest of Prado Dam, is being considered (by the USACE) as a potential TNW. Prado Dam is 53.8 river miles and 37.7 aerial miles from the study area.

The study area lies within the Santa Ana River watershed, which is approximately 1,680 square miles in area. The relevant reach receives flows from the Little San Gorgonio and Noble Creek drainage systems, encompassing a drainage area of approximately 9,330 acres, or 14.578 square miles (Exhibit 5), within the Beaumont and Noble Creek hydrologic sub-areas. The drainage area encompasses the majority of the Noble Creek HSA.

Based on the PBS&J technical memorandum, it has been observed that Noble Creek channel in this reach seldom carries significant flows and only very rarely do flows reach the crossing at I-15, approximately 1.5 miles downstream from the study area. Using the rational method, it is estimated that the relevant reach supports a capacity of approximately 310 cubic feet per second (cfs) (based on the 2 year 6 hour isopluvial data) and 665 cfs (based on the 100 year 6 hour isopluvial data). In calculating Q values, impervious cover was assumed to be 15 percent. The coefficient of runoff was not adjusted for soil type.

Peak Flow = Q = CIA	Units = cubic feet per second (cfs)
Peak Flow (Q) = 1.008CIA	Where 1.008 is the conversion factor to change acres and inches/hr (input units) into cfs (output units)
C = Coefficient of Runoff	Where C = 0.858i3 - 0.78i2 + 0.774i +0.04

Table 6: Isopluvial Runoff Data - Rational Method

Isopluvial	Isopluvial Value (0.1 inch for 6 hours)	Rainfall Intensity (inches/hour ([I])	Peak Flow (cubic feet per second ([Q])	$Q_{(Year)}$
2Yr 6Hr	14.0	0.23	310	$Q_{(2)}$
5Yr 6Hr	18.0	0.30	399	$Q_{(5)}$
10Yr 6Hr	20.0	0.33	488	$Q_{(10)}$
25Yr 6Hr	24.0	0.40	532	$Q_{(25)}$
50Yr 6Hr	27.5	0.46	610	$Q_{(50)}$
100Yr 6Hr	30.0	0.50	665	$Q_{(100)}$
Source: PBS&J. 2006.				

Ecological Factors

There are no 303(d) listed waterbodies within the Beaumont HSA. Noble Creek receives nuisance flows from several small residential developments and commercial development within its drainage area. As the majority of the nuisance flows are channeled to Noble Creek through created storm drain systems, it is likely that the first flush of these storm flows are treated for pollutants prior to entering Noble Creek. However, during large storm events, it is likely that a substantial amount of pollutants, sediment, and debris would be conveyed downstream from surrounding and upstream developments. The relevant reach of Noble Creek is not vegetated and does not provide habitat for aquatic biota; however, the downstream receiving water, San Timoteo Creek, does have the potential to support aquatic biota. Additionally, based on preliminary studies for the recharge project, the relevant reach has a high infiltration capability. Water infiltration would contribute to maintenance of downstream water quality and would limit the potential for flooding.

The Santa Ana River Basin Plan (State Water Resources Control Board - Region 8) has identified a number of beneficial uses for Noble Creek including potential groundwater recharge and benefits to municipal/domestic water supply.

Noble Creek Significant Nexus Determination

Table 7 summarizes factors contributing to a significant nexus determination.

Table 7: Summary of Significant Nexus Factors

Factors	More than Speculative or Insubstantial Effect
Hydrological Factors	
Volume, duration, and frequency of flow, including consideration of certain characteristics of the tributary, including historic records of flow, flood predictions, gauge data, and personal observations (OHWM, shelving, water staining, sediment sorting and scouring).	Yes
Proximity to the TNW. If a tributary is too far from the TNW, its remoteness is more likely to make the impact on the TNW speculative.	No
Contextual hydrological factors, including (1) size of the watershed, (2) average annual rainfall, and (3) average annual snow pack.	Yes
The presence of tributary or wetland within the flood plain. It should be noted, however, that a significant nexus determination cannot be based solely on presence of the water body within or outside the flood plain.	No
Ecological Factors	
The ability of the tributary and its adjacent wetlands (if any) to carry pollutants and flood waters to TNW.	Yes
The ability of the tributary and its adjacent wetlands (if any) to provide aquatic habitat that supports biota of a TNW.	No
The ability of adjacent wetlands to trap and filter pollutants or store flood water.	No
The ability to maintain water quality.	Yes
Source: Michael Brandman Associates, 2013.	

Based on the summarization of factors in Table 7, the relevant reach has more than a speculative or insubstantial effect for at least half of the factors. The watershed size combined with the high runoff of the soils, its ability to carry pollutants and floodwaters to a TNW and its ability to maintain water quality suggest that the relevant reach would have more than a speculative effect on the downstream TNW. Therefore, it is likely that Noble Creek will be found to have a significant nexus to a downstream TNW and should therefore be regulated under CWA jurisdiction by the USACE. The USACE and Environmental Protection Agency (EPA) will make a final significant nexus determination.

4.1.2 - Noble Creek - USACE Jurisdiction

Subject to a Significant Nexus Determination by the USACE and EPA, Noble Creek is under the jurisdiction of the USACE. Noble Creek within the study area contains 0.95 acres of waters of the U.S. within 2,000 linear feet within the study area.

4.1.3 - Noble Creek - RWQCB Jurisdiction

Because Noble Creek is considered a water of the U.S., according to the above discussion, the drainage should be subject to RWQCB jurisdiction under the Clean Water Act (CWA) Section 401.

If the USACE/EPA were to not assert CWA jurisdiction, the RWQCB may independently assert jurisdiction under California's Porter Cologne Water Quality Act. Under Porter Cologne, "waters of the state" means any surface water or groundwater, including saline waters, within the boundaries of the state (13050[e]). These waters may include isolated and other features, which are found to be outside federal jurisdiction. Typically, the USACE will notify the RWQCB when it makes a determination of non-jurisdiction (for waters of the U.S.). The RWQCB then has discretion to assert independent state jurisdiction under the Porter Cologne Act. The portion of the survey area within Noble Creek and not within the project sites includes 0.95 acres of waters of the State with 2,000 linear feet associated with Noble Creek.

4.1.4 - Noble Creek - CDFW Jurisdictional Conclusions

The CDFW will assert jurisdiction over lakes and streambeds and associated riparian vegetation, regardless of their connectivity (or lack of connectivity) to downstream navigable waters. The Fish and Game Code (FGC), beginning with Section 1600, however, requires CDFW to make a "specific and detailed" determination that fish and wildlife resources are present and would be "substantially adversely" affected by project activities. Although no aquatic resources are present in the drainage, Noble Creek maintains a bed and bank and is considered to be subject to CDFW jurisdiction. CDFW does; however, make all final Section 1600 jurisdictional determinations. The portion of the survey area within Noble Creek and not within the project sites includes 4.47 acres of CDFW jurisdictional streambed.

4.2 - Non-Relatively Permanent Waters (Mountain View Channel)

The MVC is an ephemeral wash that flows 1.1 miles due south from the proposed service connection site to the proposed Noble Creek recharge area. Noble Creek is the receiving water for the MVC. Noble Creek has downstream surface connectivity to San Timoteo Creek (nearest RPW), the Santa Ana River (RPW) and the Pacific Ocean (TNW) (Exhibit 5).

The relevant reach of the MVC begins at the confluence of two tributaries 0.5 river mile northeast of Orchard Street, just south of the intersection of Rancho Drive and Eucalyptus Lane. The relevant reach ends at the confluence with Noble Creek (total length = 1.6 river miles). The relevant reach is estimated to be a third-order stream.

At the Orchard Street crossing, at the proposed service connection site, the MVC transitions from a natural, soft-bottomed feature to a concrete-lined conveyance, with an average width of 6 feet at the

toe and 22 feet at the top of bank. At the confluence with Noble Creek, rip-rap has been installed extending into the Noble Creek Channel for energy dissipation purposes.

Most of the relevant reach of the MVC is concrete-lined and therefore lacks vegetation or any discernable aquatic-biotic resources.

The MVC drains an area of approximately 688 acres north of Orchard Street with an estimated 2-year return (Q) of 41 cfs and a 100-year return of 87 cfs. South of Orchard Street the MVC probably receives significant storm and nuisance flows from existing development immediately east and west of the drainage. Q values at the confluence with Noble Creek are probably significantly higher, which is due to storm drain inlets along the length of the channel between Orchard Street and Noble Creek.

During field reconnaissance, no active flows were present within the drainage, though there were signs of recent nuisance flows at the confluence with Noble Creek, indicating periodic nuisance flows are not uncommon.

MVC is an ephemeral wash that maintains continuous flows only during and immediately after substantial precipitation. Using current USACE terminology, MVC is defined as a non-navigable tributary and non-relatively permanent water (non-RPW). The non-RPW designation is assigned to features lacking continuous flows for more than a few months out of the year.

The drainage may be found to be jurisdictional based on a fact-specific analysis that it has a significant nexus with a TNW (Pacific Ocean) through Noble Creek. Mountain View Channel - USACE Jurisdiction

Subject to a Significant Nexus Determination by the USACE and EPA, MVC is under the jurisdiction of the USACE. The portion of the study area that is within the MVC and not within the project sites includes 0.01 acre of waters of the U.S. within 90 linear feet.

4.2.1 - Mountain View Channel - RWQCB Jurisdiction

Because MVC is considered a water of the U.S. (according to the above discussion), the drainage should be subject to RWQCB jurisdiction under CWA Section 401.

If the USACE/EPA were to not assert CWA jurisdiction, the RWQCB may independently assert jurisdiction under California's Porter Cologne Water Quality Act. Under Porter Cologne, "waters of the state" means any surface water or groundwater, including saline waters, within the boundaries of the State (Section 13050[e]). These waters may include isolated and other features, which are found to be outside federal jurisdiction. Typically, the USACE will notify the RWQCB when it makes a determination of non-jurisdiction (for waters of the U.S.). The RWQCB then has discretion to assert independent state jurisdiction under the Porter Cologne Act. The portion of the study area that is

within the MVC and not within the project sites includes 0.01 acre of waters of the State within 90 linear feet.

4.2.2 - Mountain View Channel - CDFW Jurisdictional Conclusions

The CDFW will assert jurisdiction over lakes and streambeds and associated riparian vegetation, regardless of their connectivity (or lack of connectivity) to downstream navigable waters. The FGC, beginning with Section 1600, however, does require CDFW to make a "specific and detailed" determination that fish and wildlife resources are present and would be "substantially adversely" affected by project activities. Although no aquatic resources are present in the drainage, MVC maintains a bed and bank and is considered to be subject to CDFW jurisdiction. CDFW does, however, make all final Section 1600 jurisdictional determinations. The portion of the study area that is within Noble Creek and not on the project sites includes 0.01 acres of CDFW jurisdictional streambed.

4.3 - Non-Relatively Permanent Waters (Unnamed Drainage)

The unnamed drainage was examined during the jurisdictional delineation and is included in the jurisdictional evaluation, but is well outside of the project sites and will not be impacted by project activities (Exhibit 7).

The unnamed drainage is a small, unnamed feature entering Noble Creek southwest of the proposed recharge facility and extends west for approximately 1,500 feet between the Mountain View Avenue and Cougar Way intersection and Noble Creek. The drainage is a small ephemeral drainage measuring 5 to 25 feet in width and extending west-southwest 1,526 linear feet to Noble Creek. Nuisance waters from Mountain View Avenue, Cougar Way and Mountain View Middle School are the source of the drainage.

The drainage is shallow, supporting a variety of ruderal upland species for the majority of the drainage. There is a small patch of willow riparian scrub at the beginning of the drainage adjacent to Cougar Way. No aquatic-biota was determined to be present.

Within the OHWM of the feature, the drainage was determined to include 0.18 acre of potential jurisdictional area under USACE jurisdiction. This drainage also contains 0.48 acres subject to the jurisdiction of the CDFW.

The drainage does have indirect connectivity to downstream navigable waters (via Noble Creek, San Timoteo Creek, Santa Ana River, Prado Dam, and Pacific Ocean).

Since the unnamed drainage is not located on or in the immediate vicinity of the project sites, no federal nexus evaluation for this unnamed drainage is provided.

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Appendix A:
Regulatory Compliance

REGULATORY COMPLIANCE

Regulatory permitting for dredge and fill activities involves a compliance framework requiring interaction with federal, state and local agencies, often involving a diverse number of statutes and regulations.

FEDERAL STATUTES AND REGULATIONS - USACE

Clean Water Act Section 404

Pursuant to Section 404 of the Clean Water Act, the USACE regulates the discharge of dredged or fill material into waters of the U.S. Regulated activities include but are not limited to, grading, placing of riprap for erosion control, pouring concrete, laying sod, and stockpiling excavated material. In general, any activity, which proposes to carry out an activity, which will temporarily or permanently affect areas delineated as waters of the US, including wetlands, typically requires prior authorization from the USACE, pursuant to Section 404 of the Clean Water Act (CWA). Successful applications will put forth projects with a valid purpose, which generally comply with the avoidance, minimization and mitigation ("no net loss") goals of the USACE.

Nationwide Permits v. Individual Permits

Nationwide permits (NWPs) are a type of general permit issued by the Chief of Engineers and are designed to expedite the regulatory process for those types of projects/activities expected to have minimal impacts on jurisdictional areas.

The nationwide permitting program is reauthorized every five years. The current NWP program became effective on March 19, 2007 and includes 49 different nationwide permit categories including "Linear Transportation Projects" (NWP 14), "Residential Developments" (NWP 29), "Commercial and Institutional Developments" (NWP 39) and "Stormwater Management Facilities" (NWP 43) among others. Each NWP establishes thresholds, which trigger the need for submitting a pre-construction notification (PCN) to the USACE and which set upper limits to accepted impacts based on the total acreage and/or linear feet of impacts, which result from project. Exceeding these limits will require processing an Individual Permit (IP), which may involve a significantly longer processing time.

Federal Jurisdiction over Waters and Wetlands

The USACE will assert jurisdiction over waters that are presently used or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. The definition of "Waters of the U.S.," are set forth in the Code of Federal Regulations (CFR) 328.3. The term "waters of the United States" means:

1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters, which are subject to the ebb and flow of the tide;
2) All interstate waters including interstate wetlands;
3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
    i) Which are or could be used by interstate or foreign travelers for recreational or other purposes;
    ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; and
    iii) Which are used or could be used for industrial purpose by industries in interstate commerce.
4) All impoundments of waters otherwise defined as waters of the United States under the definition;
5) Tributaries of waters identified in paragraphs (a) (1)-(4) of this section;
6) The territorial seas;
7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1)-(6) of this section. (Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition) are not waters of the United States), and
8) Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA.

Subsequent to the U.S. Supreme Court decision in *Rapanos, et al v. United States* (2006) the Environmental Protection Agency (EPA) and the USACE (the agencies) issued a joint memorandum (*Clean Water Act Jurisdiction Following Rapanos v. United States*, (June 5, 2007)), which integrates the *Rapanos* standards with the process presented in 33 CFR 328.3(a).

Pursuant to the memorandum, federal jurisdiction will be asserted over the following categories of water bodies:

- (TNWs): TNW, including territorial seas;
- Wetlands adjacent to TNWs;

- (RPWS): Non- navigable tributaries of TNWs with relatively permanent water flow that are flow directly or indirectly to TNWs. "Relatively permanent" means water flowing for at least three months of the year. (Usually, perennial streams and some intermittent streams); and
- Wetlands directly abutting RPWs that flow directly or indirectly into TNWs.

In addition, the agencies will assert jurisdiction over the following categories of water bodies only if, based on fact-specific analysis, the water body is determined to have a significant nexus with a TNW:

- (Non-RPWs): Non-navigable tributaries that do not have relatively permanent water flow that flow directly or indirectly into TNWs (Usually ephemeral and some intermittent streams);
- Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs; and
- Wetlands adjacent to, but not directly abutting RPWs that flow directly or indirectly into TNWs.

"A significant nexus exists if the tributary, in combination with all of its adjacent wetlands has more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a TNW."

The agencies will not assert jurisdiction over the following geomorphic features:

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

The agencies now require that all determinations for non-navigable waters, isolated-waters and/or wetlands be evaluated by the USACE and EPA before making a final jurisdictional determination.

In the absence of wetlands, the lateral extent of federal jurisdiction over non-tidal waters of the U.S. is defined by the ordinary high water mark (OHWM). The OHWM is defined in 33 CFR 328.3, as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

In June 2001, the USACE South Pacific Division issued Guidelines for Jurisdictional Delineations for Waters of the United States in the Arid Southwest. The purpose of this document was to aid delineators in assessing the physical characteristics of dry land drainage systems in the Arid West. With respect to jurisdictional determinations, the factors for determining waters of the U.S. include

evaluating the flow regime geomorphic feature, and general indicators of flow. These methods are consistent with the criteria set forth in 328.3(a) and 328.3(e), but are also subject to guidance set forth in the Rapanos guidance, including "significant nexus determinations," as appropriate.

Subject to Rapanos limitations, Federal Jurisdiction will extend to "adjacent" wetlands. "Adjacent" means "bordering contiguous or neighboring." According to the USACE Wetlands Delineation Manual, Technical *Report*, (1987) three criteria must be satisfied to classify an area as a jurisdictional wetland:

1. A predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation);
2. Soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils); and
3. Permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology).

The USACE has established regional guidance to address specific regional variations in wetlands determinations. These regional guidance documents supplement the 1987 manual. The Interim Regional Supplement for the Arid West was published in December 2006. Similarly Draft guidance for Western Mountains, Valleys and Coast Regions" was published in April 2007. In performing its delineations, MBA applies these supplemental guidance as appropriate.

Resulting from the 2001 US Supreme Court in *Solid Waste Agency of North Cook County v. USACE* (SWANCC) case, federal jurisdiction will not reach wholly intra-state wetlands, which are not "adjacent" to a jurisdictional stream course. Similarly, as previously established, the Rapanos decision may further limit jurisdiction, on a case-specific basis, where a significant nexus determination is required.

Primary General Conditions (GC) of 404 Permits

GC # 4: Compliance with the Migratory Bird Treaty Act

The MBTA protects all common wild birds found in the US except the house sparrow, starling, feral pigeon, and resident game birds such as pheasant, grouse, quail, and wild turkey. Resident game birds are managed separately by each state. The MBTA makes it unlawful for anyone to kill, capture, collect, possess, buy, sell, trade, ship, import, or export any migratory bird including feathers, parts, nests, or eggs.

> The primary responsibility for complying with the Migratory Bird Treaty Act (MBTA) is that of the project proponent (permittee) and is independent of Department of the Army permitting processes (404). It should be noted, however, that the nationwide permitting program (General Condition 4) does require that

breeding areas for migratory birds in waters of the United States must be avoided to the maximum extent practicable.

GC # 17: Compliance with Federal Endangered Species Act

In administering the Section 404 permitting program, the USACE is required to abide by Section 7(a)(2) of the Federal Endangered Species Act (ESA), which requires federal agencies to consult with the United States Fish and Wildlife Service (USFWS) "to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat." As a result, the presence of federally listed species must be determined prior to submittal of the Section 404 application. In the nationwide permitting program, compliance with the ESA is set forth in general condition (GC 17)

The USFWS administers the Federal Endangered Species Act. The ESA provides a process for listing species as either threatened or endangered, and methods of protecting listed species. The ESA defines as "endangered" any plant or animal species that is in danger of extinction throughout all or a significant portion of its known geographic range. A "threatened" species is a species that is likely to become endangered. A "proposed" species is one that has been officially proposed by the USFWS for addition to the federal threatened and endangered species list.

Section 9 of the ESA prohibits "take" of threatened or endangered species. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. Take can include disturbance to habitats used by a threatened or endangered species during any portion of its life history. The presence of any federally threatened or endangered species in a project area generally imposes severe constraints on development, particularly if development would result in take of the species or its habitat. Under the regulations of the ESA, the USFWS may authorize take when it is incidental to, but not the purpose of, an otherwise lawful act.

GC # 18: Compliance with National Historic Preservation Act

In processing a Section 404 permit, the USACE is required to comply with section 106 of the National Historic Preservation Act (NHPA). Section 106 consultation is triggered when historic or archaeological *sites* are potentially affected by the proposed project. In the nationwide permitting program, compliance with the NHPA is set forth in general condition (GC 18). The USACE will initiate section 106 consultation with the appropriate state agency (SHPO in California) with federal oversight (ACHP). The process usually requires one month from the date the USACE triggers consultation with the state agency.

GC # 21: Compliance with Section 401 of the Clean Water Act

In connection with notification to the USACE under Section 404 of the Clean Water Act (CWA), pursuant to 33 CFR Part 330, a written request for Section 401 water quality certification must be submitted to the RWQCB to ensure that no degradation of water quality will result from the proposed

project. Subject to CWA section 401(a)(1), the USACE cannot issue a section 404 dredge/fill permit until such time as a CWA section 401 Water Quality Certification (WQC) has been approved by the applicable RWQCB. In the nationwide permitting program, compliance with the Section 401 is set forth in general condition (GC 21).

In order to meet the requirements of the RWQCB for issuance of a 401-water quality certification, the project proponent must provide assurances that the project will not adversely affect the water quality of receiving water bodies. A written request for 401 water quality certification must be prepared and submitted to the RWQCB for review. The request will include a detailed project description, a description of *proposed* impacts, identification and discussion of beneficial uses of affected receiving waters (as described within the appropriate Basin Plan), a water quality plan identifying project-specific Best Management practices (BMPs), discussion of other approvals and certifications being obtained, a conceptual restoration plan, and a completed notification form.

CEQA Compliance: Pursuant to Title 23, Section 3856(f) of the California Code of Regulations (CCR), the *Regional* Water Quality Control Board (RWQCB) may not issue a Clean Water Act (Section 401) Water Quality Certification (WQC) for a project before being provided with (and having had ample time to review) a copy of the final CEQA documentation prepared for the project. Upon formal request for certification, water quality certification should be forthcoming within 90-120 days of completion of the CEQA process.

Fee Structure: Subject to California Code of Regulations (CCR), Title 23, Section 3833, a section 401 application must be accompanied by an initial deposit of not less than $500.00. If the initial deposit does not cover the agency's application review costs, the RWQCB may require an additional (one-time) amount using the calculus set forth in section 2200(e), Title 23, of the California Code of Regulations.

GC # 22: Compliance with the Coastal Zone Management Act

In administering the Section 404 permitting program, the USACE is required to abide by Section 307(c)(1) of the Coastal Zone Management Act (CZMA). This requirement is set forth in General Condition No. 22 of the NWP (2007) program and detailed in 33 CFR 330.4(d). This condition requires the USACE to provide a consistency determination and receive state agreement prior to the authorization of activities affecting land, water, or natural resources within the coastal zone.

The California "Coastal zone" means that land and water area within the State extending seaward to the state's outer limit of jurisdiction, including all offshore islands, and extending inland generally 1,000 yards from the mean high tide line of the sea. In significant coastal estuarine, habitat, and recreational areas it extends inland to the first major ridgeline paralleling the sea or five miles from the mean high tide line of the sea, whichever is less, and in developed urban areas the zone generally extends inland less than 1,000 yards. The coastal zone does not include the area of jurisdiction of the

San Francisco Bay Conservation and Development Commission, established pursuant to Title 7.2 (commencing with Section 66600) of the Government Code, nor any area contiguous thereto, *including* any river, stream, tributary, creek, or flood control or drainage channel flowing into such area.

State Statues and Regulations - RWQCB

The State of California has concurrent jurisdiction with the Federal government over Section 401 Water Quality Certification over jurisdictional waters and wetlands of the United States. Where isolated waters and wetlands (not subject to federal jurisdiction) are involved, the State will exert independent jurisdiction via the Porter Cologne Water Quality Act.

Porter-Cologne Water Quality Act

Section 13260(a) of the California Water Code ("Water Code" or "Porter Cologne") requires that any person discharging waste or proposing to discharge waste within any region, other than to a community sewer system, which could affect the quality of the waters of the State, file a report of waste discharge (ROWD). The discharge of dredged or fill material may constitute a discharge of waste that could affect the quality of waters of the State (Defined in Water Code Section 13050(e)).

Typically, the State of California relies upon its authority under section 401 of the Federal Clean Water Act (CWA (33 U.S.C. Section 1341) to regulate discharges of dredged or fill material to California waters that are also within the jurisdiction of the USACE. Given the water quality certification (WQC) process employed under section 401, waste discharge requirements under Porter Cologne are typically waived for those projects requiring a water quality certification. In 2001 the U.S. Supreme decision in *Sold Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* , 531 U.S. 159 (2001) ("*SWANCC*") invalidated the Army Corp's use of the "Migratory Bird Rule" to establish federal jurisdiction over isolated waters. Since 2001, the State of California has reasserted its authority under state law to assert jurisdiction over isolated waters for water quality purposes by requiring a ROWD.

Regulation of Isolated Waters

Dredging, filling, or excavation of "isolated" waters constitutes a discharge of waste to waters of the State, and prospective dischargers are required to submit a report of waste discharge to the RWQCB and comply with other requirements of the State Porter Cologne Water Quality Act (Water Code).

Scope of Regulation: With respect to isolated waters, discharges and/or dredging of wetlands, active channels or beds of waterbodies are regulated. Discharges to riparian or areas in proximity to a waterbody are regulated when such activity will directly or indirectly result a change to water quality. Such changes may include discharge of stormwater pollutants and runoff; change in the nature of vegetation that could affect water quality (e.g., affecting pollutant removal, stream shading or bank stability); or change to the hydrological or geomorphic characteristics of the waterbody.

Application of Regulation: Whenever the USACE issues a jurisdictional disclaimer (concurs with a finding of no federal jurisdiction), the respective RWQCB is notified of the disclaimer. Typically, the RWQCB will issue a letter notifying the project proponent that a ROWD must be filed. A ROWD must be submitted in one of two forms, depending on the anticipated impacts.

(1) General Waste Discharge Requirement (GWDR): The GWDR program is substantively set forth in SWRCB Water Quality Order No. 2004-0004-DWQ. GWDRs are generally prescribed for a category of discharges (either temporary or permanent) involving earth, rock, or similar solid materials if the discharge will not be greater than 0.2 acres and 400 linear feet (for fill or excavation) or 50 cubic yards (for dredging). The type of projects that may be covered under these General WDRs include land development, detention basins, disposal of dredged material, bank stabilization, revetment, channelization, and other similar projects. GWDRs do not apply to discharges that adversely impact, either directly or through habitat modification, any plants or animals identified as candidate, sensitive, or special status species in local or regional plans, or by the CDFW (including NCCPs), or USFWS (including HCPs). Similarly, GWDRs do not apply to discharges impacting significant historical, archaeological or paleontological resources.

Requirements: The GWDR typically requires submittal of the following items: (1) A Notice of Intent (NOI), (2) Any CEQA documents that have been prepared for the project, (3) A fee pursuant to Title 23, section 2200 of the CCR, (4) A Mitigation Plan demonstrating that the discharger will sequentially avoid, minimize, and compensate for the adverse impacts to the affected water bodies, and beneficial uses (as set forth in the applicable Basin Plan), and (5) Any other relevant information requested by the SWRCB or RWQCB. A copy of the application must be submitted to both the applicable RWQCB and to the SWANC-ROWD, Water Quality Certification Unit in Sacramento.

Timing: Pursuant to the requirements of the California Permit Streamlining Act, RWQCB has 30 days to deem the application complete. Upon receipt of a complete submittal, the RWQCB has 45 days in which to issue a Notice of Applicability (NOA) (authorizing the activity) or a Notice of Exclusion (NOE) (denying authorization. The discharge activity is operationally authorized if no NOE is issued within the 45-day evaluation period, provided that the proposed activity is not a prohibited activity.

(2) Individual Waste Discharge Requirements (IWDR): Projects not qualifying for the GWDRs will need to satisfy individual waste discharge requirements, typically requiring submittal of 401 Water Quality Certification forms and supporting documentation as set forth by the respective RWQCB. Such submittals are subject to fees as set forth in California Code of Regulations Title 23 Section 2200(a)(2). Pursuant to the Water Code, the project proponent is required to file with the appropriate Regional Water Quality Control Board (RWQCB) a Report of Waste Discharge describing the proposed discharge at least 140 days before it occurs (Water Code Sections 13260, 13264).

STATE STATUTES AND REGULATIONS - CDFW

Section 1600/1602 of the California Fish and Game Code

In the public interest of protection and conservation of fish and wildlife resources of the state (Section 1600), Fish and Game Code Section 1602 requires any person, state or local governmental agency, or public utility to notify the CDFW before beginning any activity that will do one or more of the following: (1) substantially obstruct or divert the natural flow of a river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. CDFW's jurisdiction includes ephemeral, intermittent, and perennial watercourses, including dry washes, characterized by:

1 The presence of hydrophytic vegetation.
2. The location of definable bed and banks.
3. The presence of existing fish or wildlife resources.

Furthermore, CDFW jurisdiction is often extended to habitats adjacent to watercourses, such as oak woodlands in canyon bottoms or willow woodlands that function as part of the riparian system. Historic court cases have further extended CDFW jurisdiction to include watercourses that seemingly disappear, but re-emerge elsewhere. Under the CDFW definition, a watercourse need not exhibit evidence of an OHWM to be claimed as jurisdictional. However, CDFW does not regulate isolated wetlands; that is, those that are not associated with a river, stream, or lake.

CDFW Regulated Activities

The CDFW regulates activities that involve diversions, obstruction, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife resources. When a project requires such activities, a Section 1602 Streambed Alteration Notification will be prepared and submitted to the CDFW for review. The request will include a detailed project description, a description of proposed impacts, a conceptual mitigation plan, and completed notification forms. Typically, CDFW will be able to complete the agreement within 60-90 days of the completion of the CEQA process.

CEQA Compliance: CDFW must also comply with the California Environmental Quality Act (CEQA) (Pub. Resources Code, Section 21000, et seq.) before it may issue a final Lake or Streambed Alteration Agreement. Issuance of a final Lake or Streambed Alteration Agreement occurs after the Department receives a draft Lake or Streambed Alteration Agreement from the applicant and the Department signs it. In many instances, the Department will receive a signed draft Lake or Streambed Alteration Agreement from an applicant before the lead agency has fully complied with CEQA. In those instances, the Department must wait for the lead agency to fully comply with CEQA before it may sign the draft Lake or Streambed Alteration Agreement, thereby making it final.

Fee Structure: Pursuant to California Code of Regulations (CCR), Title 14 Section 699.3, CDFW assesses a fee to cover the cost of reviewing Section 1602 applications. The fee calculus is based on the sum cost of the proposed activities within the streambed or riparian community.

Sensitive Plant and Wildlife Species

Sensitive species are native species that have been accorded special legal or management protection because of concern for their continued existence. There are several categories of protection at both federal and state levels, depending on the magnitude of threat to continued existence and existing knowledge of population levels.

California Endangered Species Act

The CDFW administers the California Endangered Species Act (CESA). The State of California considers an "endangered" species one whose prospects of survival and reproduction are in immediate jeopardy. A "threatened" species is one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management. A "rare" species is one present in such small numbers throughout its portion of its known geographic range that it may become endangered if its present environment worsens. The rare species designation applies to California native plants. State threatened and endangered species are fully protected against take, as defined above. The term "species of special concern" is an informal designation used by CDFW for some declining wildlife species that are not state candidates for listing. This designation does not provide legal protection under CESA, but signifies that these species are recognized as sensitive by CDFW.

California Native Plant Society

The CNPS is a California resource conservation organization that has developed and inventory of California's sensitive plant species (Tibor 2001). This inventory summarizes information on the distribution, rarity, and endangerment of California's vascular plants. The inventory is divided into four lists based on the rarity of the species. In addition, the CNPS provides an inventory of plant communities that are considered sensitive by the state and federal resource agencies, academic institutions, and various conservation groups. Determination of the level of sensitivity is based on the number and size of remaining occurrences as well as recognized threats.

Section 3503 and 3511 of the California Fish and Game Code

The CDFW administers the California Fish and Game Code. Code 3503 makes it illegal to destroy any birds' nest or any birds' eggs that are protected under the MBTA. Code 3503.5 further protects all birds in the orders *Falconiformes* and *Strigiformes* (birds of prey, such as hawks and owls) and their eggs and nests from any form of take. Section 3511 of the Code lists fully protected bird species, where the CDFW is unable to authorize the issuance of permits or licenses to take these species.

Appendix B:
Jurisdictional Wetlands and Significant Nexus Determination

CRITERIA FOR WETLAND DETERMINATIONS

USACE

As defined in 33 CFR part 328.3(a)(7) and as established by current case law, the USACE will currently assert jurisdiction over wetlands adjacent to waters of the U.S., except for those wetlands adjacent to other wetlands.

The term "wetlands" means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence or vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR part 328.3(b)).

Typically, the term "adjacent" means bordering, contiguous, or neighboring. Wetlands separated from other waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes, and the like are also adjacent (33 CFR part 328.3(c)). Similarly, the wetland must be adjacent to either a navigable in-fact water way or tributary thereof. Where "adjacency" cannot be established, the wetlands will be determined to be an "isolated" non-jurisdictional feature unless an independent nexus to interstate or foreign commerce can be established pursuant to 33 CFR part 328.3(a)(3). (Also, see SWANCC v. US, 2001).

Based on the standards established in *Rapanos v. U.S.*, the USACE will not assert jurisdiction over wetlands where: (1) the wetlands are adjacent to non-navigable tributaries that lack relatively permanent flows, or (2) wetlands are adjacent to but not abutting non-navigable tributaries with relatively permanent water, unless in both cases the relevant portion (reach) of the drainage, together with all of its wetlands, have a significant nexus to a TNW.

According to the USACE Wetlands Delineation Manual, Technical Report (1987), three criteria must be satisfied to classify an area as a jurisdictional wetland:

1. Hydrophytic Vegetation: A predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation);
2. Hydric Soils: Soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils), and
3. Wetland Hydrology: Permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology).

The USACE has established regional guidance to address specific regional variations in wetlands determinations. These regional guidance documents supplement the 1987 manual, The Interim Regional Supplement for the Arid West, which was published in December 2006. Similarly, Draft

guidance for Western Mountains, Valleys and Coast Regions" was published in April 2007. In performing its delineations, MBA applies this supplemental guidance as appropriate.

As established in both the USACE 87 Manual and the "Arid West" regional guidance, the following criteria apply.

Hydrophytic Vegetation

Hydrophytic vegetation is defined as plant life growing in water, soil, or substrate that is at least periodically deficient in oxygen because of excessive water content. The USFWS has published the National List of Vascular Plant Species That Occur in Wetlands, (1996 National Summary, hereafter NLVPS) and divided plants into 5 groups based on their "wetland indicator status:"

1. Obligate wetland plants (OBL) that occur almost always in wetlands under natural conditions;
2. Facultative wetland plants (FACW) that usually occur in wetlands but occasionally are found in upland areas;
3. Facultative plants (FAC) that are equally likely to occur in wetlands as well as upland;
4. Facultative upland plants (FACU) that usually occur in upland areas but occasionally are found in wetlands; and
5. Upland plants (UPL) that occur almost always in upland areas under natural conditions.

Plus (+) and minus (-) values, used in identifying indicator status in the NLVPS are not applied when evaluating plants in the arid west region. In the arid west, an area is deemed to have hydrophytic vegetation when it (1) passes the dominance test; (2) has a prevalence index ≤ 3; (3) morphological adaptations are present; or (4) the area is a "problem area." (See Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, December 2006.)

Dominance Test: An area has hydrophytic vegetation when, under normal circumstances, more than 50 percent of the composition of dominant plant species (using the 50/20 rule) from all strata are obligate wetland (OBL), facultative wetland (FACW) and/or facultative species (FAC). If the plant community passes the dominance test, then the vegetation is hydrophytic and no further vegetation analysis is required. If the plant community fails the dominance test, and indicators of hydric soil and/or wetland are absent then hydrophytic vegetation is absent unless the site meets requirements for a problematic wetland situation.

Prevalence Test: In areas failing the dominance test yet having indicators of hydric soil and wetland hydrology, the vegetation must be re-evaluated using the "prevalence index" (PI). The prevalence index takes into account all plant species in the community, not just a few dominants. The index is a weighted-average wetland indicator status of all plant species in the sampling plot, where each indicator status category is a given a numeric code (OBL =1, FACW =2, FAC = 3, FACU = 4, and

UPL = 5) and weighting is by abundance (percent cover). The sum of the weighted indicator values are then divided by the sum of the percent cover values for each indicator type. Where the PI value is ≤3, the area is considered positive for hydrophytic vegetation. Generally, the index is a more comprehensive analysis of the hydrophytic status of the community than one based on just a few dominant species. The index is particularly useful: (1) in communities only one or two dominants; (2) in highly diverse communities where many species may be present at roughly equal coverage; and (3) when strata differ greatly in total plant cover. The prevalence index is used on sites where indicators of hydric soil and wetland hydrology are present but the vegetation initially fails the dominance test.

Morphological Adaptations: In areas failing both the dominance test and prevalence test, yet having indicators of hydric soil and wetland hydrology, hydrophytic vegetation will still be deemed present when the morphological adaptations are present. In the arid west the most common morphological adaptations are adventitious roots and shallow root systems developed on or near the soil surface on FACU species. If more than 50 percent of the FACU species have morphological adaptations, then these species are classified as FAC species and the dominance test and/or prevalence index are recalculated. The vegetation is hydrophytic if either test is positive.

Hydric Soils

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part. "Long enough" generally means 1 week during the growing season and soils that are saturated for this period usually support hydrophytic vegetation. The criteria for establishing the presence of hydric soils vary among different types of soils and between normal circumstances, disturbed areas, and problem areas. Due to their wetness during the growing season, hydric soils usually develop certain morphological properties that can be readily observed in the field. Prolonged anaerobic soil conditions typically lower the soil redox potential, causing a chemical reduction of some soil components, mainly iron oxides and manganese oxides. This reduction is typically reflected by the presence of iron or manganese concretions, gleying, or mottling. Other field indicators of hydric soils include the presence of sulfidic material, an aquic or peraquic moisture regime, or a spodic horizon. (All organic soils, with the exception of Folists, are classified as hydric soils.)

Wetland Hydrology

Wetland hydrology is permanent or periodic inundation, or soil saturation for a significant period during the growing season. Numerous factors influence the wetness of an area, including precipitation, stratigraphy, topography, soil permeability, and plant cover. At certain times of the year in most wetlands, and in certain types of wetlands at most times, wetland hydrology is quite evident, since surface water or saturated soils may be observed. Yet, in many instances, especially along the uppermost boundary of wetlands, hydrology is not readily apparent. Despite this limitation, hydrologic indicators can be useful for confirming that a site with hydrophytic vegetation and hydric

soils still exhibits wetland hydrology. While hydrologic indicators are sometimes diagnostic of the presence of wetlands, they are generally either operationally impracticable (e.g. in the case of recorded data) or technically inaccurate (e.g., in the case of some field indicators) for delineating wetland boundaries.

The following hydrologic indicators, while not necessarily indicative of hydrologic events during the growing season or in wetlands alone, do provide evidence that inundation or soil saturation has occurred at some time: visual observation of inundation, visual observation of soil saturation, oxidized channels (rhizospheres) associated with living roots and rhizomes, water marks, drift lines, waterborne sediment deposits, water-stained leaves, surface scoured areas, morphological plant adaptations, and hydric soil characteristics.

Problem Areas and Atypical Situations

In the arid west some wetlands may periodically lack indicators of hydrophytic vegetation, hydric soils or wetland hydrology due to normal (natural) seasonal or annual variability. Similarly, indicators in some areas may be affected by atypical situations brought about by recent human activities or unusual natural events. The Arid West Regional Guidance sets forth a number of procedures to identify and analyze problems areas. Examples of problem areas and atypical situations may include:

Problematic Vegetation:

- Temporal Shifts in Vegetation: plant communities in playas, venal pools, seepas, and springs change in response to seasonal climatic fluctuations. These changes may result from:
  - Seasonal shifts in plant communities between normal wet/dry season
  - Drought Conditions lasting more than one growing season.
- Sparse and Patchy Vegetation: A seasonal pond must have at least 5 percent plant cover to be considered vegetated. To be considered jurisdictional, unvegetated areas may be considered as other waters of the U.S. if they exhibit Ordinary High Water (OHW) indicators as set forth in 33 CFR 328.3
- Riparian Areas: Where there is high variability in wetland vegetation indicator status between the different strata. (Usually the tree stratum has wetter indicator status than other strata.)
- Areas Affected by Grazing:
  - Managed Plant Communities: horticulture, tilling/disking.
- Areas Affected by Fires, Floods and Other Natural Disturbances:
  - Vigor and Stress Response to Wetland Conditions: horticulture is either robust or impeded by hydric soils, and/or wetland hydrology.

Problematic Hydric Soils:

- Moderately to Very Strong Alkaline Soils: Redox concentrations and depletions are not always evident in soils with pH of 7.9 or higher.
- Volcanic Ash: Soils of volcanic origin are high in silica content and low in redoximorphic minerals such as iron, manganese, and sulfur.
- Vegetated Sand and Gravel Bars within Flood Plains: Flood plains may lack hydric soil indicators because seasonal flooding deposits new layers of soil material or the deposited material may lack redoximorphic minerals.
- Recently Developed Wetlands: may include mitigation sites, wetland management areas, unintentionally produced wetlands (flood irrigation, leaking water pipes, etc).
- Seasonally Ponded Soils: depressional wetlands, usually with perched systems above a restrictive soil layer (hardpan or clay) where the saturation depth or saline conditions prohibit hydric soil indicators.
- Soils with Relict or Induced hydric Soil Indicators: in some areas redoximorphic features in hydric soils were formed in the recent or distant past when conditions were substantially wetter than at present. Hydric soil indicators may persist in low land areas which were historically flooded (such as in California's Central Valley) even though the area has been drained for agricultural purposes. Alternatively, hydric soils indicators in upland areas may have formed historically from flood irrigation or like agricultural activities that no longer persist.

Problematic Wetland Hydrology:

- Site Visits During the Dry Season: Hydrophytic vegetation may be absent or diminished during the dry-season (when evapo-transpiration exceeds precipitation). When possible the site should be visited (or re-visited) during the normal wet season.

- Periods with Below Normal Rainfall: Rainfall in the 3-month period prior to the site visit should be compared to historical averages from the National Water and Climate Center (NRCS). Rainfall should be between the high and low 30 percent probability values.

- Drought Years: Areas subject to drought conditions particularly lasting several years may affect wetland hydrology indicators. The Palmer Drought Severity Index (PDSI)—known operationally as the Palmer Drought Index (PDI))—attempts to measure the duration and intensity of the long-term drought-inducing circulation patterns. Long-term drought is cumulative, so the intensity of drought during the current month is dependent on the current weather patterns plus the cumulative patterns of previous months. Since weather patterns can change almost literally overnight from a long-term drought pattern to a long-term wet pattern, the PDSI (PDI) can respond fairly rapidly. PDSI values range between -6 and +6 with negative values indicating dry periods and positive values indicating wet periods:
  - (-4 to -6) - Extreme Drought;
  - (-3) - Severe Drought;

- (-2) - Moderate Drought; and
- (-1) - Mild Drought.

- Years with Unusually Low Winter Snowpack: the hydrology of areas with water-sheds in adjacent mountain regions may be affected by annual variability in the liquid equivalent of the snow pack.
- Reference Sites: If indicators of hydric soil and hydrophytic vegetation are present on a site that lacks wetland hydrology indicators, the site may be considered to be a wetland if the landscape setting, topography, soils, and vegetation are substantially the same as those on nearby reference areas.
- Hydrology Tools: A collection of methods can be used to determine whether wetland hydrology is present on a potential wetland site that lacks indicators due to disturbances or other reasons (particularly in agricultural areas).
- Long-term Hydrological Monitoring: Areas may be monitored over long periods of time.

California Department of Fish & Game:

The California Wildlife Protection Act as codified in the Fish & Game code defines "wetlands" as "lands which may be covered periodically or permanently with shallow water and which include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, fens, and vernal pools." (Fish & Game Code Section 2785(g))

Significant Nexus Determination:

A significant nexus determination is required when the following water bodies are present: (1) Non-navigable tributaries that do not have relatively permanent water flow that flow directly or indirectly into TNWs (usually ephemeral and some intermittent streams); (2) Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs; or (3) Wetlands adjacent to, but not directly abutting RPWs that flow directly or indirectly into TNWs.

The determination begins by first identifying the relative reach of the applicable tributary. With respect to "significant nexus determinations," the "relevant reach" will include all tributary waters of the same order. Typically this will include the tributary and all adjacent wetlands reaching downstream from the project site to the confluence with the next tributary, and upstream to any a similar confluence.

To have a significant nexus a tributary and its adjacent wetlands must have more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. A significant nexus determination requires evaluation of hydrological and ecological factors, which may contribute

to the maintenance of water quality, aquatic life, commerce, navigation, recreation, and public health in the TNW.

- Hydrological Factors:
  - Volume, duration, and frequency of flow: including consideration of certain characteristics of the tributary, including historic records of flow, flood predictions, gauge data and personal observations (OHWM, Shelving, water staining, sediment sorting and scouring);
  - Proximity to the TNW: If a tributary is too far from the TNW it's remoteness is more likely to make the impact on the TNW speculative;
  - Contextual hydrological factors: including (1) size of the watershed, (2) average annual rainfall, and (3) average annual snow pack, and
  - The presence of tributary or wetland within the flood plain: It should be noted, however that a significant nexus determination cannot be based solely on presence of the water body within or outside the flood plain.
- Ecological Factors:
  - The ability of the tributary and its adjacent wetlands (if any) to carry pollutants and flood waters to TNW;
  - The Ability of the tributary and its adjacent wetlands (if any) to provide aquatic habitat that supports biota of a TNW;
  - The ability of adjacent wetlands to trap and filter pollutants or store flood water, and
  - The ability to maintain water quality.

Coastal Zone

Jurisdictional assessments in the California coastal zone must also evaluate potential wetland areas using the criteria established in the California Coastal Act and set forth in the California Code of Regulations.

The California "Coastal zone" means that land and water area within the State extending seaward to the state's outer limit of jurisdiction, including all offshore islands, and extending inland generally 1,000 yards from the mean high tide line of the sea. In significant coastal estuarine, habitat, and recreational areas it extends inland to the first major ridgeline paralleling the sea or five miles from the mean high tide line of the sea, whichever is less, and in developed urban areas the zone generally extends inland less than 1,000 yards. The coastal zone does not include the area of jurisdiction of the San Francisco Bay Conservation and Development Commission, established pursuant to Title 7.2 (commencing with Section 66600) of the Government Code, nor any area contiguous thereto, including any river, stream, tributary, creek, or flood control or drainage channel flowing into such area.

The California Coast Act section 30121 defines the term "wetland" as, "Lands within the coastal zone which be covered periodically or permanently with shallow water and includes saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mud flats, and fens."

The Coastal Act is administered in the State by the California Coastal Commission (CCC). Coastal Commission regulations (California Code of Regulations Title 14 (14CCR)) establish a "one parameter definition" that only requires evidence of a single parameter to establish wetland conditions:

> Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentration of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some during each year and their location within, or adjacent to vegetated wetland or deepwater habitats. (14 CCR 13577)

The Commission's one parameter definition is similar to the USFWS wetlands classification system, which states that wetlands must have one or more of the following three attributes: (1) at least periodically the land supports predominantly hydrophytes; (2) the substrate is predominantly un-drained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year.

San Francisco Bay Conservation And Development Commission Jurisdiction

Within the area of San Francisco Bay Conservation and Development Commission (BCDC) CCC jurisdictional criteria does not apply, however USACE wetland determination criteria will apply.

It is also noted that the primary State law governing the BCDC, the McAteer-Petris Act, does not define wetlands but does outline the BCDC's jurisdiction respective of wetlands.

> Managed wetlands consisting of all areas, which have been diked off from the bay and have been maintained during the three years immediately preceding the effective date of the amendment of this section during the 1969 Regular Session of the Legislature as a duck hunting preserve, game refuge or for agriculture. (Gov. Code Section 66610(b))

Appendix C:
Glossary of Terms

Glossary of Terms

Term	Source	Page	Definition
Abutting	6	69	Wetlands that are not separated from the tributary by an upland feature such as a berm or dike.
Adjacent	7	N/A	Bordering, contiguous, or neighboring. Wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like are "adjacent wetlands."
Aerial Miles	6	53	The straight line (linear) distance between water bodies.
Aggradation	10	69	An increase in the channel bed elevation through deposition of sediment.
Arroyo	10	69	Entrenched ephemeral streams with vertical walls that form in desert environments.
Assemblage	10	69	A collection of individual plant species.
Avulsion	10	69	The rapid diversion of flow from one channel into another due to blockage of the channel by sediment or debris.
Best Management Practices (BMPs)	4	11196	Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.
Calcrete	10	69	Conglomerate consisting of surficial sand and gravel cemented into a hard mass by calcium carbonate.
Caliche rubble	10	69	Fragments of a sedimentary rock formed by evaporation and precipitation of calcite ($CaCO_3$) in soil, sediments, or preexisting rock.
Clean Water Act (CWA) of 1972	NA	NA	Also known as the Federal Water Pollution Control Act (FWPCA) 33U.S.C.A Sections 1251 to 1387 (alternatively cited as Sections 101 - 607). The primary goal as defined in Section 1251(a) is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Jurisdiction to regulate "waters of the United States," vested under this Act include: Section 303 (Water Quality Standards and implementation Plans), Section 311 (Spill Program and Oil Pollution Act), Section 401 (State Water Quality Certification), Section 402 (National Pollutant Discharge Elimination System - NPDES), Section 404 (Permits for dredge or fill material).
Clean Water Act (CWA) Section 303	NA	NA	Section 303 Water Quality Standards Program: Under this program, State and authorized Indian Tribes establish water quality standards for navigable waters to "protect the public health or welfare" and "enhance the quality of water," "taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agriculture, industrial, and other purposes, and also taking into consideration their use and value for navigation."
Clean Water Act (CWA) Section 311	NA	NA	Section 311 Spill Program and the Oil Production Act (OPA): Under this program, the CWA addresses pollution from both oil and hazardous substance releases. Together with the Oil

Term	Source	Page	Definition
			Pollution Act, it provides EPA and the U.S. Coast Guard with the authority to establish a program for preventing, preparing for, and responding to, spills that occur in navigable waters of the United States.
Clean Water Act (CWA) Section 401	NA	NA	Section 401 State Water-Quality Certification: Provides that no Federal permit or license for activities that might result in a discharge to navigable waters may be issued unless a CWA Section 401 water quality certification is obtained from or waived by States or authorized Tribes.
Clean Water Act (CWA) Section 402	NA	NA	Section 402 National Pollutant Discharge Elimination Program (NPDES): This program established a permitting system to regulate point source discharges of pollutants (other than dredged or fill material) into waters of the United States.
Clean Water Act (CWA) Section 404	NA	NA	Section 404 Dredged and Fill Material Permit Program: This program established a permitting system to regulate discharges of dredged or fill material into waters of the United States.
Clonal Species	10	69	A group of genetically identical individuals growing in a given location, all originating vegetatively (not sexually) from a single ancestor
Compensatory Mitigation	4	11196	The restoration, establishment (creation), enhancement, or reservation of aquatic resources for the purpose of compensating for unavoidable adverse impacts that remain after all appropriate and practicable avoidance and minimization has been achieved.
Currently Serviceable	4	11196	Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.
Debris Flow	10	69	A moving mass of rock fragments, soil, and mud where more than 50 percent of the particles are larger than sand-sized.
Desert pavement	10	69	Tightly interlocking gravel at the surface formed after years of surface exposure in the absence of active streamflow over the surface
Desert varnish	10	69	A thin, dark, shiny film, composed of iron oxide with traces of manganese oxide and silica, formed on the surface of pebbles, boulders, and rock outcrops in desert regions after long exposure.
Discharge	4	11196	The term “discharge’’ means any discharge of dredged or fill material and any activity that causes or results in such a discharge.
Diurnal Tide Level	9	NA	The arithmetic mean of mean higher high water and mean lower low water.
Divide	10	69	High ground that forms the boundary of a watershed.
Drift	10	70	Organic debris oriented to flow direction(s) (larger than small twigs).
Effective discharge	10	70	Discharge that is capable of carrying a large proportion of sediment over time.
Enhancement	4	11196	The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or

Term	Source	Page	Definition
			improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.
Ephemeral Stream	4	11196	An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.
Establishment (Creation)	4	11196	The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.
Facultative Plants (FAC)	1	14	Plants with a similar likelihood (estimated probability of 33 percent to 67 percent) of occurring in both wetlands and non-wetlands.
Facultative Wetland Plants (FACW)	1	14	Plants that occur usually (estimated probability >67 percent to 99 percent) in wetlands, but also occur (estimated probability 1 percent to 33 percent) in non-wetlands.
Facultative Upland Plants (FACU)	1	14	Plants that occur sometimes (estimated probability 1 percent to <33 percent) in wetlands, but occur more often (estimated probability >67 percent to 99 percent) in non-wetlands.
Flashy discharge pattern	10	70	Periods of no flow or low-magnitude, high-frequency events separated by short-duration, high-magnitude, low-frequency events.
Floodplain	10	70	That portion of a drainage basin (see watershed), adjacent to the channel, that is covered by sediments deposited during overbank flood flow.
Great Diurnal Range (GT)	9	NA	The difference in height between mean higher high water and mean lower low water.
Greenwich High Water Interval (HWI)	9	NA	The average interval (in hours) between the moon's transit over the Greenwich meridian and the following high water at a location.
Greenwich Low Water Interval (LWI)	9	NA	The average interval (in hours) between the moon's transit over the Greenwich meridian and the following low water at a location.
Headcut	10	70	An abrupt vertical drop in the bed of a stream channel that is an active erosion feature.
Herbaceous	10	70	Pertaining to plants with little or no woody tissue.
High tide line (HTL)	7	N/A	The term "high tide line" means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable

Term	Source	Page	Definition
			means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.
Historic Property	4	11196	Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization, which meet the National Register criteria (36 CFR part 60).
Hydraulic parameters	10	70	Slope, roughness, channel geometry, discharge, velocity, turbulence, fluid properties, sediment size, etc.
Hydraulic roughness	10	70	Channel boundary characteristic contributing to energy losses, commonly described by Manning's roughness coefficient (n).
Hydric soil	10	70	A soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.
Hydrological Units	8	1-3	As prescribed by the USGS, refers to the four levels of subdivisions, used for the collection and organization of hydrological data. The hierarchy of hydrological units include: (1) Regions (2) Subregions (3) Accounting Units, and (4) Cataloging Units. The identifying codes associated with these units are "hydrological unit codes."
Hydrological Units - "Regions"	8	3	The first level of USGS hydrological classification, which divides the Nation into 21 Major geographic areas. These geographic areas (hydrologic areas based on surface topography) contain either the drainage area of a major river, or the combined drainage areas of a series of rivers. Most of California is located within region "18." Notable exceptions include the Tahoe basin ("Great Basin Region 16") and the Colorado River ("Lower Colorado Region 15"). All smaller hydrological units with the region begin with the region number (18).
Hydrological Units - "Subregions"	8	3	The second level of USGS hydrological classification, divides the 21 regions into 222 subregions (nationally). A subregion includes the area drained by a river system a reach of a river and its tributaries in that reach, a closed basin(s), or a group of streams forming a coastal drainage area. Within Region 18, the state of California includes 10 sub-regions.
Hydrological Units - "Accounting Units"	8	3	The third level of USGS hydrological classification, subdivides many of the subregions in accounting units. These 352 hydrologic accounting units nest within, or are equivalent to, the subregions. The accounting units are used by the

Term	Source	Page	Definition
			Geological Survey for designing and managing the National Water Data Network. Within Region 18, the state of California includes 16 Accounting Units.
Hydrological Units - "Cataloging Units"	8	3	The fourth level of USGS hydrological classification is the cataloging unit, the smallest element in the hierarchy of hydrologic units. A cataloging unit is a geographic area representing part of all of a surface drainage basin, a combination of drainage basins, or a distinct hydrological feature. There are 2,150 cataloging units in the United States. Within Region 18, the state of California includes 135 cataloging units.
Hydrologic regime	10	70	Characteristic pattern of precipitation, runoff, infiltration, and evaporation affecting a water body.
Hydromesic	10	70	Physiographic class; soil retains water for long periods of time, will drain.
Hyper-concentrated flow	10	71	Suspension flow with large suspended sediment concentrations (i.e., greater than 1 to 3 percent).
Independent utility	4	11196	A test to determine what constitutes a single and complete project in the USACE regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.
Intermittent stream	4	11196	An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.
Litter	10	71	Organic debris oriented to flow direction(s) (small twigs and leaves).
Loss of Waters of the United States	4	11196	Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a water body, or change the use of a water body. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an Nationwide Permit (NWP); it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of

Term	Source	Page	Definition
			waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.
Mean Diurnal High Water Inequality (DLQ)	9	NA	The difference in height of the two low waters of each tidal day for a mixed or semidiurnal tide.
Mean Diurnal High Water Inequality (DHQ)	9	NA	The difference in height of the two high waters of each tidal day for a mixed or semidiurnal tide.
Mean Lower Low Water (MLLW)	9	NA	The average of the lower low water height of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, comparison of simultaneous observations with a control tide station is made in order to derive the equivalent datum of the National Tidal Datum Epoch.
Mean Low Water (MLW)	9	NA	The average of all the low water heights observed over the National Tidal Datum Epoch. For stations with shorter series, comparison of simultaneous observations with a control tide station is made in order to derive the equivalent data of the National Tidal Datum Epoch.
Mean Higher High Water (MHHW)	9	NA	The average of the higher high water height of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, comparison of simultaneous observations with a control tide station is made in order to derive the equivalent data of the National Tidal Datum Epoch.
Mean High Water (MHW)	9	NA	The average of all the high water heights observed over the National Tidal Datum Epoch. For stations with shorter series, comparison of simultaneous observations with a control tide station is made in order to derive the equivalent data of the National Tidal Datum Epoch.
Mean Range of Tide (MN)	9	NA	The difference in height between mean high water and mean low water.
Mean Sea Level (MSL)	9	NA	The arithmetic mean of hourly heights observed over the National Tidal Datum Epoch. Shorter series are specified in the name; e.g. monthly mean sea level and yearly mean sea level.
Mean Tide Level (MTL)	9	NA	The arithmetic mean of mean high water and mean low water.
Non-tidal wetland	4	11196	A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).
National Tidal Datum Epoch	9	NA	The specific 19-year period adopted by the National Ocean Service as the official time segment over which tide observations are taken and reduced to obtain mean values (e.g., mean lower low water, etc.) for tidal data. It is necessary for standardization because of periodic and apparent secular trends in sea level. The present NTDE is 1983 through 2001 and is

Term	Source	Page	Definition
			actively considered for revision every 20-25 years. Tidal data in certain regions with anomalous sea level changes (Alaska, Gulf of Mexico) are calculated on a Modified 5-Year Epoch.
Obligate Wetland Plants (OBL)	1	14	Plants that occur almost always (estimated probability >99 percent) in wetlands under natural conditions, but which may also occur rarely (estimated probability <1 percent) in non-wetlands.
Obligate Upland Plants (UPL)	1	14	Plants that occur rarely (estimated probability <1 percent) in wetlands, but occur almost always (estimated probability >99 percent) in non-wetlands under natural conditions.
Open Water	4	11196	For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of ``open waters'' include rivers, streams, lakes, and ponds.
Ordinary High Water Mark	7	N/A	The term *"ordinary high water mark"* means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.
Ordinary High Water Mark	4	11196	An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).
Perennial Stream	4	11197	A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.
Pioneer Species	10	71	A species that colonizes a previously uncolonized area.
Practicable	4	11197	Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.
Pre-construction notification	4	11197	A request submitted by the project proponent to the USACE for confirmation that a particular activity is authorized by a NWP. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a NWP, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by a NWP.

Term	Source	Page	Definition
Preservation	4	11197	The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.
Rating curve	10	71	A curve that illustrates the relationship between depth (stage) and the amount of flow (discharge) in a channel.
Reach	10	71	Segment of a stream channel.
Re-establishment	4	11197	The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area.
Rehabilitation	4	11197	The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.
Relatively Permanent Water (RPW)	5,	5,69	In the context of CWA jurisdiction post-*Rapanos*, a water body is "relatively permanent" if it flows year-round or its flow is continuous at least "seasonally," (typically 3 months). Wetlands adjacent to a "relatively permanent" tributary are also jurisdictional if those wetlands directly abut such a tributary.
Relevant Reach	6	40	With respect to "significant nexus determinations," the "relevant reach" will include all tributary waters of the same order. Typically this will include the tributary and all adjacent wetlands reaching downstream from the project site to the confluence with the next tributary or upstream to a similar confluence.
Restoration	4	11197	The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.
Riffle and pool complex	4	11197	Riffle and pool complexes are special aquatic sites under CWA Section 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. Pools are characterized by a slower stream velocity, a streaming flow, a smooth surface, and a finer substrate.
Riparian area	4	11197	Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional

Term	Source	Page	Definition
			between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects water bodies with their adjacent uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 20, in the NWP.)
River Miles	6	53	The flowing distance between the water bodies in question. Typically not a straight line; rather, the measurement is based on how far the water will travel from water body A to water body B. For example, the water in a meandering tributary will flow further than water flowing in a channelized tributary provided the two water bodies are the same distance apart in the landscape.
Ruderals	10	71	Disturbance-adapted herbaceous plant.
Scour	10	71	Soil and debris movement.
Sheetflood	10	71	Sheet of unconfined floodwater moving down a slope; a relatively low-frequency, high-magnitude event.
Sheetflow	10	71	Overland flow occurring in a continuous sheet; a relatively high-frequency, low-magnitude event.
Shellfish seeding	4	11197	The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.
Shift-adjusted rating curve	10	71	A curve that reflects changes (shifts) in the rating for a gage. Ratings may change due to erosion or deposition within the streambed or growth of riparian vegetation.
Significant Nexus	5	40	In the context of CWA jurisdiction post-*Rapanos*, a water body is considered to have a "significant nexus" with a traditional navigable water if its flow characteristics and functions in combination with the ecological and hydrological functions performed by all wetlands adjacent to such a tributary, affect the chemical, physical, and biological integrity of a downstream traditional navigable water.
Single and complete project	4	11197	The term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete project must have independent utility (see definition). For linear projects, a "single and complete project" is all crossings of a single water of the United States (i.e., a single water body) at a specific location. For linear projects crossing a single water body several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate water bodies, and crossings of such features cannot be considered separately.
Station Datum	9	NA	A fixed base elevation at a tide station to which all water level

Term	Source	Page	Definition
			measurements are referred. The datum is unique to each station and is established at a lower elevation than the water is ever expected to reach. It is referenced to the primary bench mark at the station and is held constant regardless of changes to the water level gauge or tide staff. The datum of tabulation is most often at the zero of the first tide staff installed.
Stormwater management	4	11197	Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.
Stormwater management facilities	4	11197	Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.
Stream bed	4	11197	The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the streambed, but outside of the ordinary high water marks, are not considered part of the streambed.
Stream channelization	4	11197	The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.
Stream Order	NA	NA	A method of numbering streams as part of a drainage basin network. The smallest unbranched mapped tributary is called first order, the stream receiving the tributary is called second order, and so on.
Stream power	10	71	The rate of doing work, or a measure of the energy available for moving rock, sediment, or woody or other debris in a stream channel, as determined by discharge, water surface slope, and the specific weight of water.
Structure	4	11197	An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.
Succession	10	41	Changes in the composition or structure of an ecological community.
Tidal waters	7	N/A	The term "tidal waters" means those waters that rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by hydrologic, wind, or other effects.

Term	Source	Page	Definition
Tidal wetland	7	N/A	A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channel-ward of the high tide line, which is defined at 33 CFR 328.3(d).
Traditional Navigable Waters (TNW)	6	68	A "traditional navigable water" includes all the "navigable waters of the United States," defines in 33 CFR Section 329, and by numerous decisions of the Federal courts, plus all other waters that are navigable-in-fact. Pursuant to 33 CFR Section 329: Navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events that impede or destroy navigable capacity. The USACE is currently drafting new regulations defining TNWs.
Transmission loss	10	72	Loss of discharge due to infiltration of flow into the channel bed and banks.
Tributary	6	69	A "tributary," as defined in the *Rapanos* guidance document, means a natural, man-altered, or man-made water body that carries directly or indirectly into a traditional navigable water. For the purposes of determining significant nexus with a traditional navigable water, a "tributary" is the entire reach of the stream that is of the same order (i.e., from the point of confluence, where two lower order streams meet to form the tributary, downstream to the point such tributary enters a higher order stream).
Upland Plants (UPL)	1	14	Plants that occur rarely (estimated probability <1 percent) in wetlands, but occur almost always (estimated probability >99 percent) in non-wetlands under natural conditions.
Vegetated shallows	4	11197	Vegetated shallows are special aquatic sites under CWA Section 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as sea grasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.
Wash	10	72	Broad gravelly dry bed of an intermittent stream.
Waterbody	4	11197	For purposes of the NWPs, a waterbody is a jurisdictional water of the United States that, during a year with normal patterns of precipitation, has water flowing or standing above ground to the extent that an ordinary high water mark (OHWM) or other indicators of jurisdiction can be determined, as well as any wetland area (see 33 CFR 328.3(b)). If a jurisdictional wetland is adjacent—meaning bordering, contiguous, or neighboring—to

Term	Source	Page	Definition
			a jurisdictional waterbody displaying an OHWM or other indicators of jurisdiction, that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "waterbodies" include streams, rivers, lakes, ponds, and wetlands.
Watershed (Drainage basin)	10	72	An area of land that drains to a single outlet and is separated from other watersheds by a divide.
Waters of The United States	7	N/A	The term "waters of the United States" means: (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) All interstate waters including interstate wetlands; (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) Which are used or could be used for industrial purpose by industries in interstate commerce; (4) All impoundments of waters otherwise defined as waters of the United States under the definition; (5) Tributaries of waters identified in paragraphs (a)(1)-(4) of this section; (6) The territorial seas; (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a)(1)-(6) of this section, (Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA [other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition] are not waters of the United States.) and (8) Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with the EPA.
Wetlands	1,2,7	N/A	The term "wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. The criteria for determining wetlands is set forth in the USACE Wetlands Delineation Manual (1987) and relevant Regional Supplements (Arid West, December 2006)
Xeric	10	72	Relating or adapted to an extremely dry habitat.

Term	Source	Page	Definition

Sources:
1. USACE Wetlands Delineation Manual, January 1987
2. USACE Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest, June 2001
3. USACE Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, December 2006
4. FEDERAL REGISTER: Department of Defense; Department of the Army, Corps of Engineers, Re-issuance of Nationwide Permits; Notice, March 12, 2007
5. EPA/USACE Joint Memorandum: Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States and Carabell v. United States, (June 5, 2007)
6. USACE Jurisdictional Delineation Form Instructional Guidebook, May 30, 2007
7. Code of Federal Regulations (CFR): 33 CFR 328.3 Definitions of Waters of the United States and/or 33 CPR 329 Definitions of Navigable Waters of the United States.
8. USGS Hydrologic Unit Maps, U.S. Geological Survey Water-Supply Paper 2294 (1994), by Paul R. Seaber, F. Paul Kapinos, and George L Knapp.
9. Center for Operational Oceanographic Products and Services.

USACE, A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the United States, August 2008

Appendix D:
Site Photographs

Photograph 1: Looking south (downstream) from Beaumont Avenue showing Noble Creek.

Photograph 2: Looking northwest showing RAFSS community within Noble Creek.

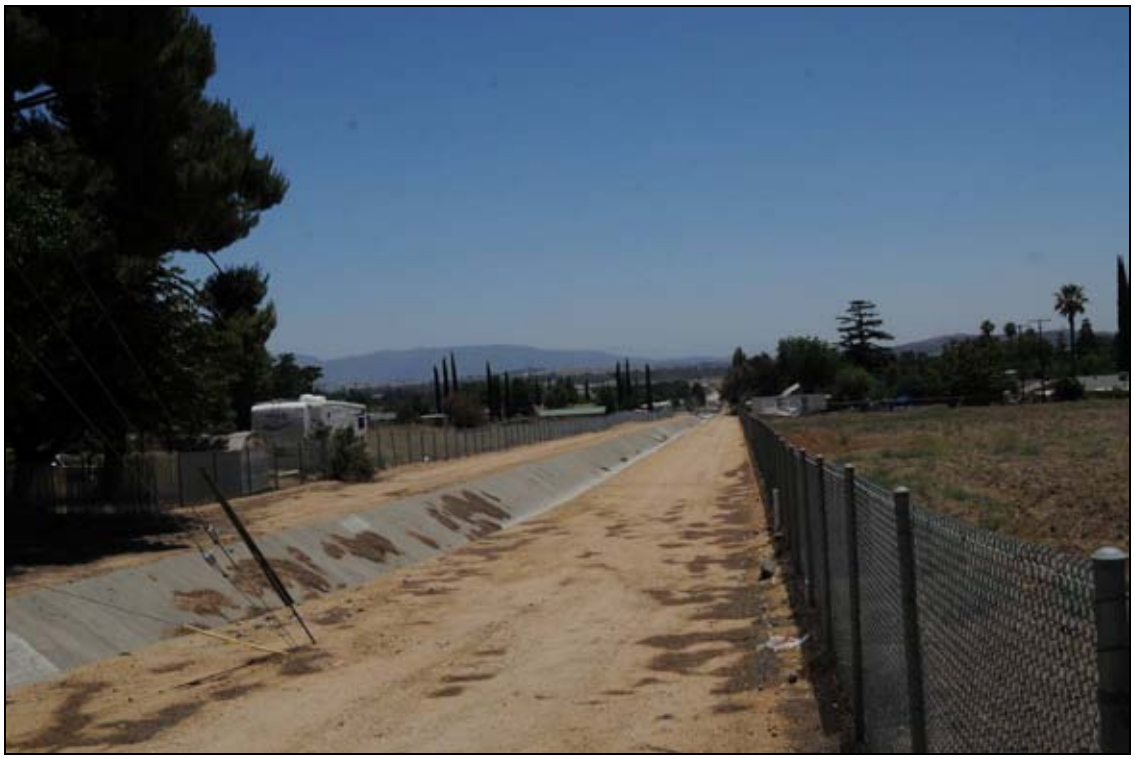
Source: Michael Brandman Associates, 2013.

Photograph 3: Looking northeast from Brookside Avenue, showing Noble Creek with the Beaumont Avenue bridge in the background.

Photograph 4: Looking south showing the concrete section of Mountain View Channel, north of Noble Creek.

Source: Michael Brandman Associates, 2013.

Photograph 5: Looking northwest, showing the unnamed drainage east of Mountain View Middle School.



Photograph 6: Looking south, showing the concrete section of Mountain View Channel east of the connection site.

Source: Michael Brandman Associates, 2013.

Appendix E:
OHWM Data Sheet

Project: Beaumont Ave Recharge Facility	**Date:** 6/20/2013	**Time:** 11:00 am
Project Number: 3178.0004	**Town:** Beaumont	**State:** CA
Stream: Drainage 1	**Photo begin file#:**	**Photo end file#:**
Investigator(s): Dale Hameister		

Y ☒ N ☐ Do normal circumstances exist on the site?	**Location Details:**
Y ☐ N ☒ Is the site significantly disturbed?	**Projection:** N/A **Datum:** N/A
Type: N/A	**Coordinates:** °N / °W

Notes:

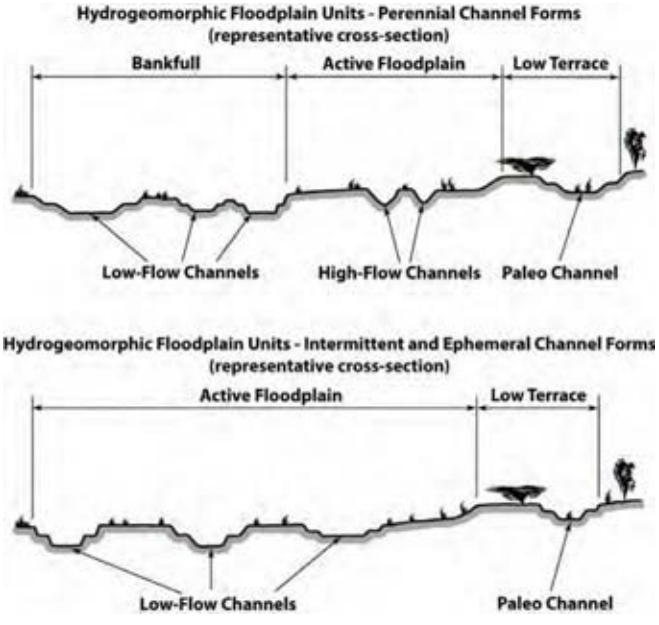
Brief site description:

Checklist of resources (if available):

- ☒ Aerial Photography
  - Dates:
- ☐ Topographic maps
  - Scale:
- ☐ Geologic Maps
- ☒ Vegetation maps
- ☒ Soil Maps
- ☒ Rainfall/precipitation maps
- ☐ Existing Delineation(s) for 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

The dominant Wentworth size class that imparts a characteristic texture to each of a channel cross-section is recorded in the average sediment texture filed under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	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



☒	Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.
☒	Locate the low-flow channel (lowest part of the channel). Record observations. Characteristics of the low-flow channel: Average sediment texture: Course Sand Total veg cover: _____ % Tree: 5 % Shrub: 20 % Herb: _____% Community successional stage: ☐ NA ☐ Mid (herbaceous, shrubs, saplings) ☐ Early (herbaceous & seedlings) ☐ Late (herbaceous, shrubs, mature trees) Dominant species present: _____ Other: ☐ _____ ☐ _____ ☐ _____ ☐ _____
☐	Walk away from the low-flow channel along cross-section. Record characteristics of the lowflow/ active floodplain boundary. Characteristics used to delineate the low-flow/active floodplain boundary: ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb ☐ Change in overall vegetation maturity ☐ Change in dominant species present ☐ Other ☐ Presence of bed and bank ☐ Drift and/or debris ☐ Other: _____ ☐ Other: _____
☐	Continue walking the channel cross-section. Record observations below. Characteristics of the active floodplain: 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) Dominant species present: _____ Other: ☐ _____ ☐ _____ ☐ _____ ☐ _____

☐ **Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.**

Characteristics used to delineate the active floodplain/ low terrace boundary:

- ☐ Change in average sediment texture
- ☐ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- ☐ Change in overall vegetation maturity
- ☐ Change in dominant species present
- ☐ Other ☐ Presence of bed and bank
  - ☐ Drift and/or debris
  - ☐ Other: _____
  - ☐ Other: _____

☐ **Walk the active floodplain/low terrace boundary both upstream and downstream of the crosssection to verify that the indicators used to identify the transition are consistently associated the transition in both directions.**

Consistency of indicators used to delineate the active floodplain/low terrace boundary:

- Y ☐ N ☒ Change in average sediment texture
- Y ☐ N ☒ Change in total veg cover ☐ Tree ☐ Shrub ☐ Herb
- Y ☐ N ☒ Change in overall vegetation maturity
- Y ☒ N ☐ Change in dominant species present
- Y ☐ N ☐ Other: Y ☒ N ☐ Presence of bed and bank
  - Y ☐ N ☒ Drift and/or debris
  - Y ☐ N ☐ Other: _____
  - Y ☐ N ☐ Other: _____

☐ **If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.**

☐ **Continue walking the channel cross-section. Record characteristics of the low terrace.**

Characteristics of the low terrace:

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)

Dominant species present: _____

Other:

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

☐ **If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.**

Active floodplain/low terrace boundary acquired via:

- ☐ Mapping on aerial photograph ☐ GPS
- ☐ Digitized on computer ☐ Other: _____

Appendix F:
Wetland Data Sheet

WETLAND DETERMINATION DATA FORM - Arid West Region

Project Site: **Beaumont Ave Recharge Project** City/County: **Beaumont** Sampling Date: **6/20/2012**

Applicant/Owner: **San Gorgonio Pass Water Agency** State: **CA** Sampling Point: **1 Noble Creek**

Investigator(s): **Dale Hameister** Section, Township, Range: **Sec 33 and 34, T 2 , R 1 W**

Landform (hillslope, terrace,etc): Local relief (concave, conves, none): Slope (%)

Subregion (LRR): Lat: **33.961148** Long: **-116.979136** Datum:

Soil Map Unit Name: NWI Classification:

Are Climatic / hydrological conditions on the site typical 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 ☑
Wetland Hydrology Present?	Yes ☑	No ☐

Is the Sampled Area within a Wetland? Yes ☐ No ☑

Remarks:

LOCATON: Confluence of Elder and Church Channel. Area is within the OHWM of the channel. NORMAL CIRCUMSTANCES are not present because sedimentation in Plunge Creek has resulted in sedimentation and ponding in the Elder and Church Channels. Because the Cou

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. **Eriogonum faciculatum**	30	Yes	UPL
2. **Lepidospartum squamatum**	5	No	UPL
3. **Nicotiana glauca**	5	No	FAC
4.			
5.			
Total Cover:	40		
Herb Stratum			
1. **Bromus rubens**	10	Yes	UPL
2. **Hirsfeldia incanum**	5	Yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	15		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum: % Cover of Biotic Crust:

Dominance Test worksheet:

Number of Dominant Species That are OBL FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **0.0%** (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	50	x 5 =	250
Column Totals:	55 (A)		265 (B)

Prevalence Index = B/A = **4.82**

Hydrophytic Vegetation Indicatore:

- ☐ 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]Indicator if hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ☐ No ☐

Remarks:

SOIL

Sampling Point: **1 Noble Creek**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type	Redox Features Loc	Redox Features %	Texture	Remarks
								sand	No Organic Streaking.

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

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 Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☑ **No** ☐

Remarks

The epipedon is composed of sand down to 18". Though dark bands are slightly visible and may indicate the slight presence of loam (Soboba stony loamy sand), no organic streaking is present. Sample taken in sandy area within the OHWM, immediately adjacent

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation on Aerial Imagery (B7)
- ☐ Water-stained Leaves (B8)
- ☐ Biotic Crust (B10)
- ☐ Aquatic Invertebrates (B11)
- ☐ Crayfish Burows (B12)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C2)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soil (C6)
- ☐ Muck Surface (C7)
- ☐ Saturation on Aerial Imagery (C8)
- ☐ Shallow Aquitard (D4)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more is required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B9)
- ☐ Dry Season Water Table (C3)
- ☐ Salt Depostis (C5)
- ☐ Mud Casts (C9)
- ☐ FAC-Neutral Test (D7)

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 guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix G:
Jurisdictional Determination Form

ATTACHMENT

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD):

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION" (USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: County: City:

Center Coordinates of site (lat/long in degree decimal format)

LAT: LON:

Universal Transverse Mercator:

Name of nearest waterbody:

Identify (estimate) amount of waters in the review area:

	Linear Feet	Width (ft)	Acres
Non-wetland waters:			
Cowardin Class:			
Stream Flow:			
Wetlands (Acres):			
Cowardin Class:			

Name of any water bodies on the site that have been identified as Section 10 Waters:

Tidal:

Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:

☒ Field Determination. Date(s)

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply

- checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of applicant/consultant

☒ Data sheets prepared/submitted by or on behalf of the applicant /consultant

- ☐ Office concurs with data sheets/delineation report
- ☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by Corps.

☐ Corps navigable waters' study:

☐ U.S. Geological Survey map(s)

- ☐ USGS NHD data.
- ☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s)

Scale: Quad Name:

☒ USDA Natural Resource Conservation Service Soil Survey

Citation:

☐ National wetlands inventory map(s):

Citation:

☐ State/Local wetland inventory map(s)

☒ FEMA/FIRM maps:

☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)

☒ Photographs: ☐ Aerial (Name & Date):

☐ Other (Name & Date):

☐ Previous Determination(s). File Number:

Date of Response Letter:

☐ Other Information (please specify)

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Signature and date of Regulatory Project Manager (REQUIRED)	Signature and date of person requesting preliminary JD (REQUIRED, unless obtaining the signature is impracticable)