DELINEATION OF WATERS AND WETLANDS AT THE CONFLUENCE OF BALLONA CREEK AND CENTINELA CREEK

February 2016

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1.0 INTRODUCTION

This delineation of waters and wetlands summarizes the findings of: (1) U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the Clean Water Act (CWA), (2) Regional Water Quality Control Board's (RWQCB) legal authority in accordance with Section 401 of the CWA and as defined within Section 13050(e) (et seq.) of the California Water Code (CWC) via the Porter-Cologne Water Quality Control Act (Porter-Cologne), and (3) California Department of Fish and Wildlife (CDFW) jurisdiction pursuant to Section 1600 (et seq.) of the California Fish and Game Code (CFG Code) at the confluence of Ballona Creek and Centinela Creek.

The study area can be found on the Venice United States Geological Survey 7.5-Minute Topographic Quadrangle Map (USGS 1987) (Figure 1). It abuts the 90 Freeway and extends south to the confluence of Ballona Creek and Centinela Creek, and is surrounded by commercial and residential endeavors (Figure 2). The intended use of this report is to disclose and evaluate special aquatic resource areas[1] within the "study area." For the purposes of this document, the "study area" is defined as confluence of Ballona and Centinela creeks; and their surrounding localized watershed. This document presents NOREAS's Inc. (NOREAS) best effort at estimating potential special aquatic resource area boundaries using the most up-to-date regulations, written policies, and guidance from the USACE, RWQCB, and CDFW. However, only the USACE, RWQCB, and CDFW can make a final determination of special aquatic resource area boundaries and jurisdiction.

The study area supports special aquatic resource areas (i.e., Ballona Creek and Centinela Creek) which consist of two concrete lined flood control channels that total 6.92 acres. Historically, Ballona Creek and Centinela Creek changed courses on numerous occasions, due to heavy floods, across a large alluvial plain in Los Angeles County. Although Los Angeles County is typically a dry area, receiving an average of rainfall of 15 inches per year, the surrounding mountain ranges receive upwards of 40 inches of rain per year. Gravity then takes over and water from headwater elevations flow through the Ballona and Centinela creeks. This creates flash flooding during the winter months when precipitation in the area is most common. The nature of these dramatic flows historically led to the damage of property and infrastructure. To that end, the Los Angeles County Flood Control District elected to construct various flood control projects to tame the aforementioned natural drainages (e.g., Ballona Creek and Centinela Creek) which resulted in hundreds of thousands of cubic yards of earth, concrete, and reinforced steel being installed to protection lives and property in the County at the confluence of Ballona and Centinela creeks.

The flood control facility which is now named Ballona Creek is characterized as a wide, flat-bottom channel with concrete-lined side slopes (i.e., roughly 30 degree banks) that are approximately 60 feet tall. The flood control facility entitled Centinela Creek is also a wide flat-bottom channel with concrete-lined side slopes as well that are approximately 60 ft. tall. These engineered water conveyance facilities are artificial waterways, which have been designed deliberately not to have the attributes of natural waterways and minimize their potential to contain fish, aquatic insects, and riparian vegetation to maximize water conveyance during flood events; and to minimize maintenance costs for the County.

[1] For the purposes of this document, special aquatic resource areas are being defined as the potential limits of: USACE jurisdiction pursuant to Section 404 of the CWA, the RWQCB's legal authority in accordance with Section 401 of the CWA and Porter-Cologne, and CDFW's jurisdiction pursuant to Section 1600 (et seq.) of the CFG Code.

Ballona Creek and Centinela Creek have a defined concrete lined bed and banks, and evidence of a past or present ordinary high-water mark is a function of the limits of graffiti, and other anthropogenic undertakings as well as water-line stains. Ballona Creek and Centinela Creek are typical of many other concrete lined flood control structures that drain upland areas, and received water from local headwaters; they consists of non-native plant communities, some native plants, debris, and backfill material during discrete times of the year.

Summary of USACE Jurisdiction Pursuant to Section 404 of the CWA

The USACE regulates the discharge of fill[2] to Waters of the United States (WoUS[3]) through Section 404 of the CWA. The study area consists of 6.92-acres of WoUS, which includes 0.33 acres of USACE-defined wetlands (Figure 3). There are no proposed permanent losses or temporary impacts to WoUS; or the USACE-defined wetlands detected within them.

Summary of RWQCB Jurisdiction Pursuant to Section 401 of the CWA and Porter-Cologne

The RWQCB administers the CWA Section 401 Water Quality Certification (WQC) Program and Porter-Cologne. Total CWA Section 401 jurisdiction within the study area includes 6.92-acres (Figure 3). There are no proposed permanent losses or temporary disturbance to CWA Section 401 jurisdiction.

Summary of CDFW Jurisdiction Pursuant to Section 1600 (et seq.) of the CFG Code

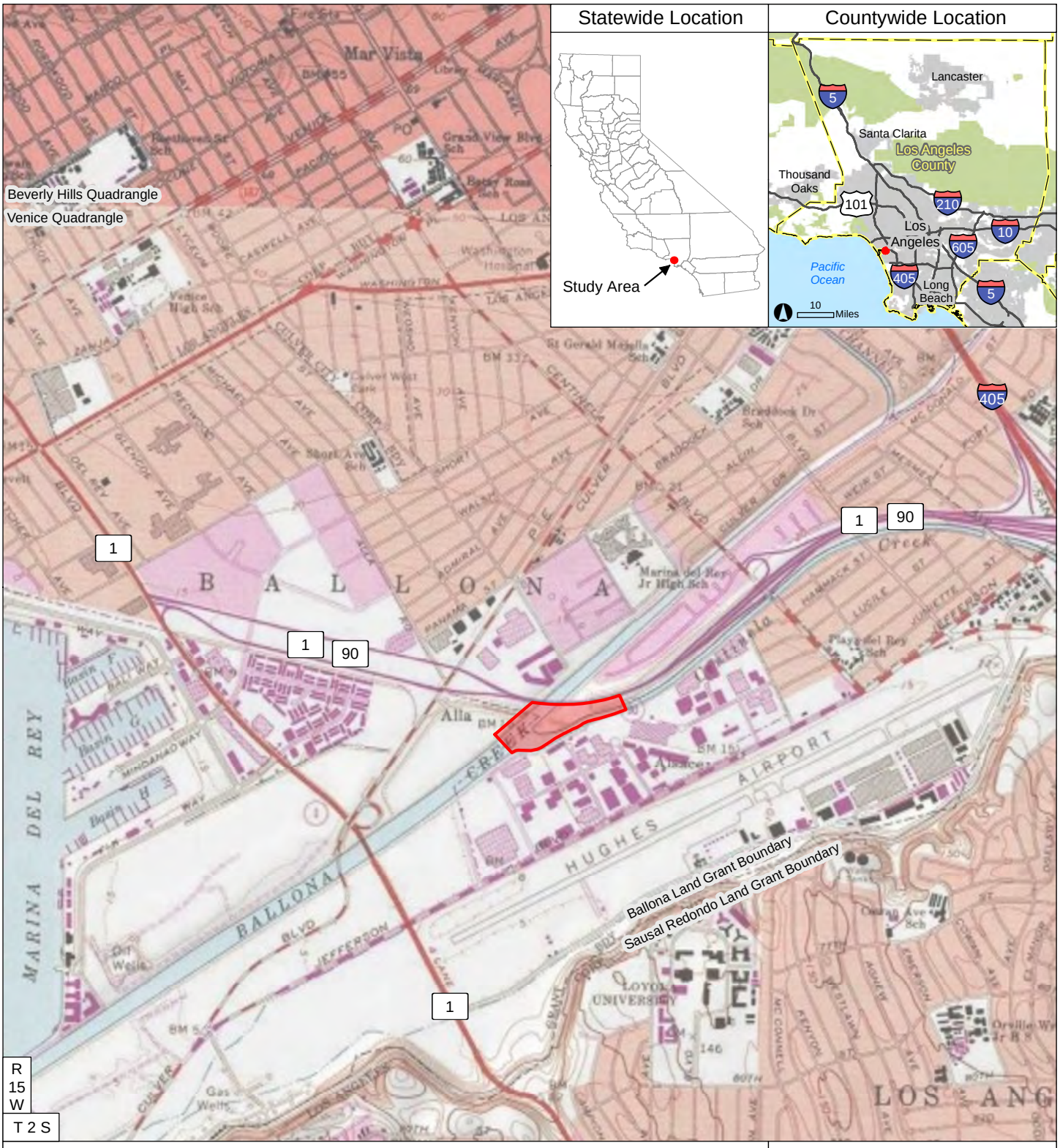
Pursuant to Section 1600 (et seq.) of the CFG Code, the CDFW regulates substantial diversions, obstructions, or changes to the flow or bed, channel or bank, of any river, stream, or lake that supports fish or wildlife. Total CFG Code Section 1600 (et seq.) jurisdiction within the study area is 6.92-acres (Figure 3). There are no proposed substantial diversions, obstructions, or changes to the flow or bed, bank or channel; substantially change, or use any material from the bed, channel, or bank; nor deposition or disposal of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any (i.e., no permanent losses and no temporary impacts) Waters of the State (WoS).

Required Permits

There is no presumption of impact or adverse effects to WouS or Wos; therefore CWA Section 404 permitting, 401 WQC, and a CDFW Streambed Alteration Notification for losses or disturbances of special aquatic resource areas are not anticipated.

[2] As defined at 33 Code of Federal Regulations (CFR) part 328 the term fill material means material placed in WoUS where the material has the effect of: Replacing any portion of a WoUS with dry land; or changing the bottom elevation of any portion of a water of the United States. Examples of fill material include, but are not limited to: rock, sand, soil, clay, plastics, construction debris, wood chips, overburden from mining or other excavation activities, and materials used to create any structure or infrastructure in WoUS. The term fill material does NOT include trash or garbage..

[3] The term WoUS is defined as: (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 WoUS (5) Tributaries of WoUS identified above (6) The territorial seas and (7) Wetlands adjacent to waters (other than waters that are themselves wetlands).



Study Area

Interstate or State Highway (inset)

County Boundary (inset)

Water Body (inset)

Urban Area (inset)

Park or National Forest (inset)

0 1,000 2,000 Feet

1 inch = 2,000 feet

Data Sources:
- Bureau of Land Management Cadastral GIS 2015
- ESRI US Topo Maps accessed Feb 2016
- Los Angeles County GIS 2015

Map Prepared: 2-24-16

Prepared by:

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The Study Area is located in Los Angeles County on the Venice USGS 7.5-minute quadrangle map; San Bernardino Base & Meridian Township 2 South, Range 15 West, in an unsectioned portion of the Ballona Land Grant. Center coordinate (WGS 1984): Latitude 33.97994, Longitude -118.423557.

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Figure 1. Regional Location

Study Area (16.2 acres)

0 500 1,000 Feet

1 inch = 1,000 feet

Data Sources:
- Bing accessed Feb 2016, imagery date range: Nov 2014 - Jan 2015
- Los Angeles County GIS 2015

Map Prepared: 2-24-16

Prepared by:

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Figure 2. Site Vicinity

2.0 JURISDICTIONAL DELINEATION

2.1 Review of USACE Jurisdiction Pursuant to Section 404 of the Clean Water Act

Waters of the United States

The USACE regulates the discharge of dredged and/or fill material into WoUS pursuant to Section 404 of the CWA. The USACE has authority to permit the discharge of dredged or fill material in WoUS pursuant to Section 404 of the CWA and to permit work and the placement of structures in navigable WoUS pursuant to the Rivers and Harbors Act of 1899 (RHA).

Ordinary High Water Mark

In the absence of wetlands, the limits of USACE jurisdiction in non-tidal waters, including intermittent streams, extend to the ordinary high water mark (OHWM). The OHWM is defined as "that line on the shore established by the fluctuation 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" (33 Code of Federal Regulations [CFR] 328.3[e]). In 2005, the USACE issued a Regulatory Guidance Letter (05-05) and added the following additional indicators of an OHWM: wracking; vegetation matted down, bent, or absent, sediment sorting, leaf litter disturbed or washed away, scour, deposition, multiple observed flow events, bed and banks, water staining, and changes in plant communities (USACE 2005).

USACE-Defined Wetlands

Wetlands are defined at 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support a dominance of vegetation typically adapted for life in saturated soil conditions." The method set forth in the USACE Wetland Manual generally requires that, in order to be considered a wetland, the vegetation, soils, and hydrology of an area must exhibit at least minimal hydric characteristics (EL 1987, USACE 2008b). Although the manual provides great detail in methods and allows for varying atypical or problematic conditions, a wetland should normally meet each of the following three criteria:

1. More than 50% of the dominant plant species at the site must be typical of wetlands (i.e., rated as facultative or wetter in the National List of Plant Species that Occur in Wetlands [Lichvar 2012]);
2. Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., a gleyed color or mottles with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions). Such soils, known as "hydric soils," have characteristics that indicate they were developed in conditions where soil oxygen is limited by the presence of saturated soil for long periods during the growing season; and
3. Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for at least 5% of the growing season during a normal rainfall year (Note: for most of low-lying southern California, 5% of the growing season is equivalent to approximately 18 days).

Additional USACE Terminology

The following definitions are from the Rapanos Guidance Memoranda (USACE 2007b, 2008a):

Adjacent," as defined in USACE and Environmental Protection Agency (EPA) regulations, means "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.' Wetlands that are not separated from a tributary by upland features, such as a berm or dike, are considered "abutting."

A "tributary," as defined in the Rapanos guidance memoranda, means a natural, man-altered, or man-made water body that carries flow directly or indirectly into a Traditional Navigable Water (TNW). For 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 where the tributary enters a higher order stream).

A water body is considered to have a "significant nexus" with a TNW if its flow characteristics and functions, in combination with the ecologic and hydrologic functions performed by all wetlands adjacent to such a tributary, affect the chemical, physical, and biological integrity of a downstream TNW. A "TNW" includes all of the "navigable waters of the United States," defined in 33 CFR § 329 and by numerous decisions of the Federal courts, plus all other waters that are navigable-in-fact.

In the context of CWA jurisdiction post-Rapanos, a water body is "relatively permanent" if its flow is year-round or its flow is continuous at least "seasonally," (e.g., typically 3 months). Wetlands adjacent to a "relatively permanent" tributary are also jurisdictional if those wetlands directly abut such a tributary (USACE 2007b).

2.2 Review of RWQCB Jurisdiction Pursuant to Section 401 of the Clean Water Act and Porter-Cologne

The RWQCB regulates fills to WoUS under the Section 401 WQC Program, which in most instances, mirrors CWA Section 404 jurisdiction. In the absence of CWA Section 404 jurisdiction over isolated Waters, or WoS, RWQCB jurisdiction over WoS is extended through the Porter-Cologne Act. WoS are defined within Section 13050(e) of the CWC and include any surface water or groundwater, including saline waters, within the boundaries of the State. Porter-Cologne provides a comprehensive framework to protect water quality in California. It requires that any entity who plans to discharge waste where it might adversely affect WoS must first notify the RWQCB, which may impose requirements to protect water quality.

The Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers (SWANCC) decision created "gaps" relating to isolated waters that are no longer subject to the CWA. In response, the State Water Regional Control Board (SWRCB) issued a 2004 Memorandum (SWRCB 2004), stating that RWQCBs should consider setting a higher regulatory priority on discharges to "isolated waters" than to similar discharges to federally-protected waters of similar value. The 2004 Memorandum further stated that "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 (WDR) to the RWQCB and comply with other requirements of Porter-Cologne. Among the procedures

recommended in the Memorandum was that the RWQCB refer to the same regulatory considerations generally applied to the issuance of Section 401 permits when issuing a WDR (SWRCB 2004).

According to the SWRCB, the SWANCC decision did not affect the authority of the state to regulate discharges to isolated, non-navigable waters of the state and had no impact upon the RWQCB's authority to act under state law (SWRCB 2001). Simply because RWQCBs often opted to regulate discharges in the past through Section 401 in lieu of, or in addition to, issuing WDRs does not preclude RWQCBs from issuing WDRs in the absence of Section 401 certification (SWRCB 2001). The State's position is that these general WDRs will continue to apply to certain discharges to non-federal waters.

2.3 Review of CDFW Jurisdiction Pursuant to Section 1600 (et seq.) of the California Fish and Game Code

Pursuant to Division 2, Chapter 6, Sections 1600-1602 et seq. of the CFGC, CDFW regulates any proposed activity that may substantially modify, divert, obstruct, or any activity that causes changes to the flow or bed, channel, or bank of any river, stream, or lake which supports fish or wildlife.

According to the California Code of Regulations, a "stream" (including creeks and rivers) is defined as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or have supported riparian vegetation." CDFW's definition of "lake" includes "natural lakes or man-made reservoirs." CDFW jurisdiction within altered or artificial waterways is based upon the value of those waterways to fish and wildlife.

For clarification, the CDFW Legal Advisor prepared the following opinion (ESD-CDFG 1994):

- Natural waterways that have been subsequently modified and which have the potential to contain fish, aquatic insects, and riparian vegetation will be treated like natural waterways;
- Artificial waterways that have acquired the physical attributes of natural stream courses and which have been viewed by the community as natural stream courses, should be treated (by CDFW) as natural waterways; and
- Artificial waterways without the attributes of natural waterways should generally not be subject to Fish and Game Code provisions.

3.0 METHODS

3.1 Literature Review

For the purposes of this document, the "study area" is defined as the confluence of Ballona Creek and Centinela Creek immediately south of the 90 Freeway (Figure 2). Prior to conducting fieldwork, the following information was reviewed to determine watershed characteristics, locations, and types of aquatic resources that may be present within the study area:

- Venice Topographic Map 7.5 -minute USGS Map (USGS 1987);
- Color aerial photographs (Bing Maps 2016);
- Google Earth version 5.2.1.1588 (January 2016);
- Natural Resource Conservation Service, Soil Survey Geographic Database (SSURGO) (USDA-NRCS 2016a);
- Natural Resource Conservation Service, Watershed Boundary Dataset (USDA-NRCS 2016b);
- Environmental Protection Agency Enviromapper for Water (EPA 2016);
- Federal Emergency Management Agency (FEMA 2016);
- National Wetlands Inventory (NWI) (USFWS 2016);
- Del Rey Pointe Project Biological Technical Report (NOREAS 2015a);
- Del Rey Pointe Project Delineation of Waters and Wetlands (NOREAS 2015b); and
- California Department of Water Resources Weather Station #99 (CIMIS 2016).

3.2 Procedures and Field Data Collection Techniques

3.2.1 Clean Water Act Procedures and Other Data Collection Methods

A routine field determination was conducted within the study area for USACE-defined WoUS and wetlands and WoS using methods derived from the USACE Wetland Delineation Manual (EL 1987), Arid West Regional Supplement (USACE 2008b), Mapping Episodic Stream Activity (MESA) Field Guide (Brady et al. 2013) and other published guidelines. The study area was surveyed in January and February of 2016 in order to determine the presence/absence and boundaries of potential special aquatic resources (i.e., WoS, WoUS, wetlands, and sensitive riparian vegetation communities) that were identified in the literature review as well as through field observations.

Areas that were determined to have an OHWM and/or defined bed/bank and suspected of being WoS, WoUS, or wetlands were further analyzed for a dominance of hydrophytic vegetation, hydric soils, and hydrology as described below. The evaluation process for USACE-defined wetlands considered vegetation, soils, and hydrological parameters, in that order, of suspected features. Representative photographs are included in Appendix A. Potential WoS, USACE-defined wetlands, and WoUS were delineated in the field with a handheld Global Positioning System (GPS) receiver.

Vegetation

Plants observed were identified to the taxonomic level sufficient to determine their wetland indicator status based on the National List of Plant Species that occurs in the Arid West Region National List of

Plant Species that Occur in Wetlands (EL 1987, Lichvar 2012, and Table 1). Plants of uncertain identity were subsequently identified from taxonomic keys (Baldwin et al. 2012). Scientific and common species names were recorded according to Baldwin et al. (2012) and Lichvar (2012).

Table 1. Summary of Wetland Indicator Status

Category	Probability
Obligate Wetland (OBL)	Almost always occur in wetlands
Facultative Wetland (FACW)	Usually occur in wetlands, but may occur in non-wetlands,
Facultative (FAC)	Occur in wetlands or non-wetlands
Facultative Upland (FACU)	Usually occur in non-wetlands, but may occur in wetlands
Obligate Upland (UPL)	Almost never occur in wetlands
No Indicator (NI)	Wetland indicator status not assigned. Species is assumed to be upland.

The wetland vegetation criterion was considered to be met if the Dominance Test using the 50/20 rule was satisfied (e.g., any species that contributed to a cumulative total of 50% of the total dominant coverage plus any other species comprising at least 20% coverage) (USACE 2008b). Absolute, rather than relative vegetation cover was used in determining dominant species coverage.

Vegetation Communities

Vegetation communities were determined for each wetland or water conveyance feature detected within the study area. Evaluations of vegetation communities were primarily limited to regions present within the OHWM and/or bed/bank; plus the outer limits of associated riparian vegetation. Vegetation communities were identified according to the percent cover of dominant plant species observed within each community. Vegetation classifications were based on a visual estimation of characteristic dominant flora within a type following Holland (1986) and/or Sawyer et al. (2009).

Soils

Soil texture, matrix, redoximorphic features[4] (e.g., mottles), and any presence of subsoil layers impervious to water infiltration were documented from hand-excavated soil pits. Soils were examined for positive hydric soil indicators such as low chroma, mottles (e.g., iron or manganese concretions), histic epipedons, organic layers, gleization, sulfidic odor, or other primary hydic soil indicators listed on an Arid West Wetland Determination Data Form. Soil color and characteristics were determined from moist soil peds using Munsell Soil Color Charts (Munsell Color 2000). Soils were evaluated to a depth of approximately 16-20 inches, where possible. GPS position data were collected at each soil pit and detailed within study area figures. Where necessary, paired upland and wetland soil pits were evaluated to delineate the wetland/upland boundary. Hydric soil assessments were predominately based upon the guidance provided in the Arid West Regional Supplement (USACE 2008b). General soil information for the study area was obtained from the Soil Survey for Los Angeles County (USDA-NRCS 2016a).

Hydrology

Hydrology was evaluated in areas suspected of seasonal inundation and/or saturation to the surface during the growing season, provided that the soil and vegetation parameters were met as defined in the 1987 Wetlands Delineation Manual. Recent precipitation data were analyzed to evaluate the frequency

[4] Redoximorphic features are considered spots or blotches of different colors or shades of color interspersed within the dominant color in a soil layer - usually resulting from the presence of periodic reducing soil conditions.

and amount of rainfall events within the study area and on surrounding lands as well. Hydrological information was also determined for features by signatures on aerial photographs as well as field analysis of the presence/absence of primary or secondary hydrological indicators (e.g., surface water, saturation, sediment or drift deposits, watermarks, soil cracks, oxidized root channels, and biotic or salt crusts) as defined within the Arid West Data Form and MESA Field Guide.

Interstate or Foreign Commerce Connection

Areas that were identified as special aquatic resources were further evaluated to determine if they had an Interstate or Foreign Commerce Connection. Areas that met the USACE's three technical criteria for wetlands and that had an Interstate or Foreign Commerce Connection were determined to be WoUS subject to USACE jurisdiction (USACE 2008b). Areas that were not vegetated, but contained an OHWM and hydrological connection to a TNW, were also considered to be subject to USACE jurisdiction due to their Interstate Commerce Connection.

Currently, the following are assumed to have an Interstate or Foreign Commerce Connection (33 CFR 328.3 et seq.):

- Navigable waters;
- Wetlands adjacent to navigable waters;
- Non-navigable tributaries of navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months); and
- Wetlands that directly abut such tributaries.

3.2.2 Porter-Cologne Procedures and Data Collection Techniques

Any potential feature that was deemed not to be within the jurisdiction of the CWA, but had potential jurisdiction as a WoS pursuant to Porter-Cologne (e.g., isolated surface or ground waters and/or wetlands), was assessed in the field by utilizing field delineation methods described above for CWA jurisdiction. The only exception was that jurisdiction was not excluded based on a lack of interstate or foreign commerce connection, a negative significant nexus analysis for non-Relatively Permanent Waters (RPW), or for isolated waters and/or wetlands.

3.2.3 CDFW Procedures and Data Collection Methods

Suspected CDFW jurisdictional features were assessed in the field for the presence of definable streambeds (i.e., having a bed, bank, and channel) and any associated riparian habitat. Streambeds and suspected riparian habitats were evaluated using the CFG Code Section 1600 et seq., direction described in *A Field Guide to Lake and Streambed Alteration Agreements Sections 1600-1607* (ESD-CDFG 1994) and the recommendations detailed within the MESA Field Guide (Brady et al. 2013). Accordingly, CDFW jurisdiction is presumed to extend to the following features:

- Natural waterways that have been subsequently modified and which have the potential to contain fish, aquatic insects, and riparian vegetation will be treated like natural waterways.

- Artificial waterways that have acquired the physical attributes of natural stream courses and which have been viewed by the community as natural stream courses, should be treated as natural waterways.
- Artificial waterways without the attributes of natural waterways should generally not be subject to Fish and Game Code provisions.

Furthermore, consistency with MESA recommendations within this report involves three main steps:

1. Using high-resolution aerial imagery to recognize stream forms and processes and to gather additional information on a particular features physical characteristics;

2. Documenting on-the-ground indicators of fluvial activity and inactivity; and

3. Mapping watercourse features in the field.

To that end, total CDFW jurisdiction limits were delineated for each feature within the study area containing a defined bed, bank, and channel. The dimensions (i.e., linear length, width, and area) of each feature were determined based on the top-of-bank limits. If adjacent bank, floodplain, and/or terrace areas were vegetated with riparian species associated with the feature, then the feature plus any associated riparian vegetation was mapped and included as part of CDFW jurisdiction.

4.0 SURVEY RESULTS

Representative photographs are included as Appendix A to illustrate the range of conditions observed.

4.1 Soils

One soil type occurs within the study area; Urban land-Delhi (Figure 4). This soil type is not classified as hydric.

4.2 Hydrology

The watershed encompassing the study area is the Ballona Creek Watershed (Hydrologic Unit Code [HUC] 1807010403), which drains an 81,978-acre watershed through a series of low elevation washes, creeks (USDA-NRCS 2015; Figure 5). The study area includes the confluence of Ballona Creek and Centinela Creek. Ballona Creek continues approximately 2.2 miles southwest before draining into the Pacific Ocean adjacent to the entrance of Marina Del Rey Harbor. The FEMA (2016) flood zone is depicted in Figure 6. In addition to two substantial concrete lined flood control facilities (i.e., named water conveyance features), the study area also includes freshwater emergent wetland and riverine vegetation that have been identified by USFWS (Figure 7).

The regional climate within the vicinity of the study area consists of warm and dry summer months with relatively cool and wetter winters. Seasonal rainfall occurs predominantly in the winter and spring months (November – April). Precipitation data for the Santa Monica, California region (CIMIS Weather Station No. 99), located approximately 5 miles northwest of the study area, is detailed below:

- Seasonal precipitation prior to the field surveys measured 8.82 inches (February 2015 – February 2016); and
- Average annual precipitation within the region is 13.23 inches (U.S. Climate Data 2016).

4.3 Determination of USACE Jurisdiction Subject to Section 404 of the CWA

The study area supports special aquatic resource areas (i.e., Ballona Creek and Centinela Creek) which consist of two concrete lined flood control channels that total 6.92 acres. Historically, Ballona Creek and Centinela Creek changed courses on numerous occasions, due to heavy floods, across a large alluvial plain in Los Angeles County. Although Los Angeles County is typically a dry area, receiving an average of rainfall of 15 inches per year, the surrounding mountain ranges receive upwards of 40 inches of rain per year. Gravity then takes over and water from headwater elevations flow through the Ballona and Centinela creeks. This creates flash flooding during the winter months when precipitation in the area is most common. The nature of these dramatic flows historically led to the damage of property and infrastructure. To that end, the Los Angeles County Flood Control District elected to construct various flood control projects to tame the aforementioned natural drainages (i.e., Ballona Creek and Centinela Creek) which resulted in hundreds of thousands of cubic yards of earth, concrete, and reinforced steel being installed to protection lives and property in the County at the confluence of Ballona and Centinela creeks.

The flood control facility which is now named Ballona Creek is characterized as a wide (roughly 180 feet), flat-bottom channel with concrete-lined side slopes (i.e., roughly 30 degree banks) that are approximately 60 feet tall. The flood control facility entitled Centinela Creek is roughly 75 feet wide

with a flat-bottom channel with concrete-lined side slopes as well (i.e., roughly 30 degree banks) that are approximately 60 ft. tall. These engineered water conveyance facilities are artificial waterways, which have been designed deliberately not to have the attributes of natural waterways and minimize their potential to contain fish, aquatic insects, and riparian vegetation to maximize water conveyance during flood events; and to minimize maintenance costs for the County.

Ballona Creek and Centinela Creek have a defined concrete lined bed and banks, and evidence of a past or present ordinary high-water marks are a function of the limits of graffiti and other anthropogenic undertakings in addition to water-line stains. Nonetheless, the aforementioned engineered flood control facilities are considered WoUS (Figure 3). Ballona Creek and Centinela Creek are assumed to retain flowing water for more than 30 days out of the frost free growing season; and at the confluence of the two creeks, densely packed 2-3 foot high "tussock-like" mounds have formed by seashore paspalum (*Paspalum vaginatum*). Seashore paspalum is a FACW hydrophyte plant species. Furthermore, wetland hydrology (e.g., flowing water) was also observed and therefore this discrete location was considered a USACE jurisdictional wetlands (Figure 3). The study area consists of 0.33-acres of USACE-defined wetlands. However, it is likely that the above referenced USACE-defined wetlands get "blown out" (removed) from flash flood events.

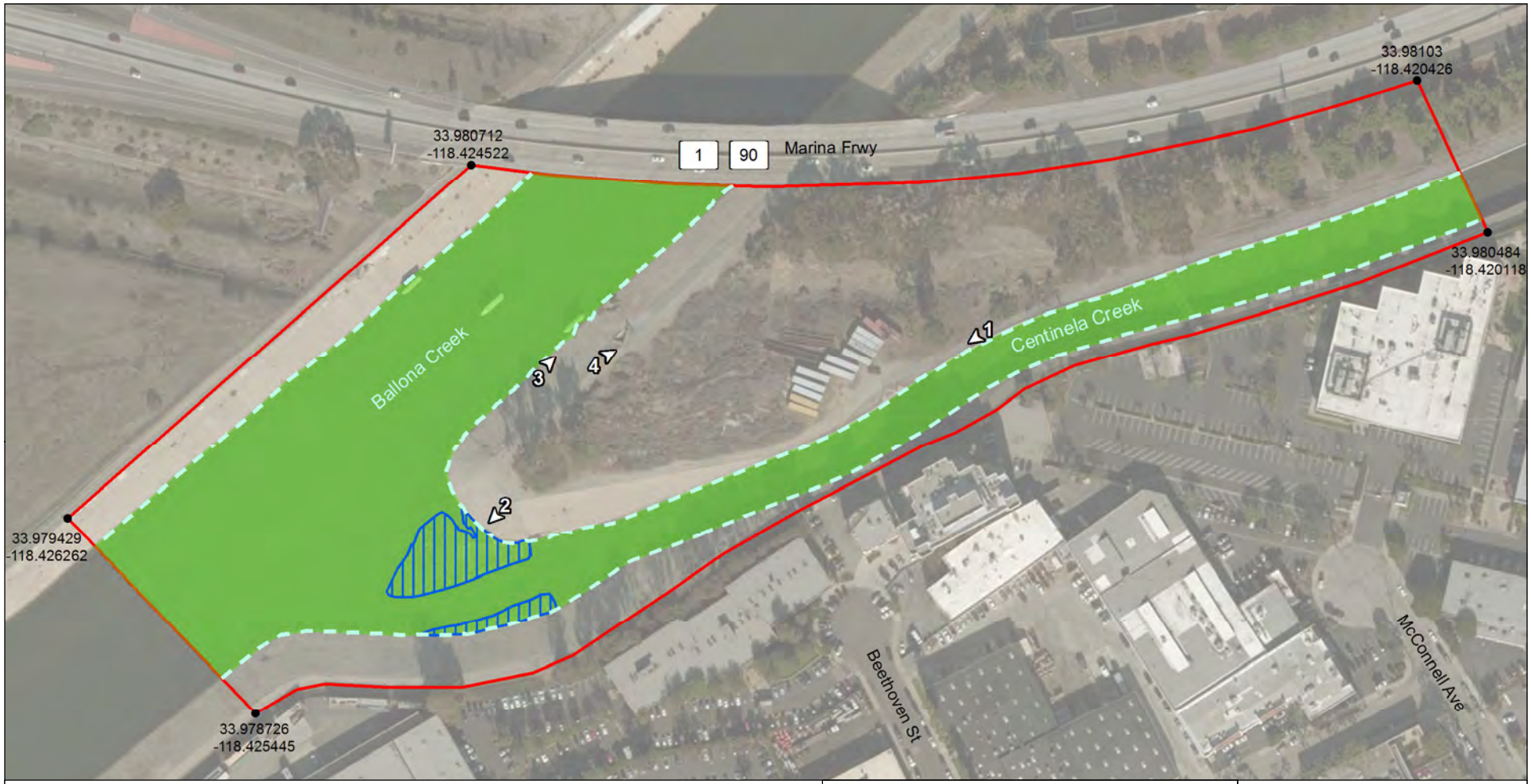
Ballona Creek and Centinela Creek are typical of concrete lined flood control structures that drain large upland areas, receive water from local headwaters; and support non-native plant communities. A large upland is situated between the confluence of Ballona Creek and Centinela Creek occurring approximately 20 to 25 ft. higher in elevation from the ordinary high water mark (OHWM) / concrete lined bed and bank of these waterways. This upland area is mostly derived of various fill materials and is used by the County as a stock pile area. No features identified as blue line hydrologic features on USGS topographic maps, nor hydrophytes, hydric soils or physical evidence of a well-defined OHWM were detected in the uplands.

4.4 Determination of RWQCB Jurisdiction Subject to Section 401 of the CWA and Porter-Cologne

RWQCB jurisdiction subject to Section 401 of the CWA within the study area is 6.92-acres. As such, Ballona Creek and Centinela Creek are subject to CWA Section 401 compliance.

4.5 Determination of CDFW Jurisdiction Subject to Section 1600 of the CFG CODE

Within the study area, Ballona Creek and Centinela Creek – both constructed flood control facilities have a defined bed, bank, channel and provide ecological functions and values; albeit of low quality and limited duration, to local and migrating wildlife. Therefore, Ballona Creek and Centinela Creek are also subject to CDFW jurisdiction pursuant to Section 1600 (et seq.) of the CFG Code. Total CFG Code Section 1600 (et seq.) jurisdiction within the study area is 6.92-acres. Nonetheless, it should be noted that the Los Angeles County Flood Control District elected to construct these facilities to tame the aforementioned natural drainages (i.e., Ballona Creek and Centinela Creek). Accordingly, these engineered water conveyance facilities are artificial waterways, which have been designed deliberately not to have the attributes of natural waterways and minimize their potential to contain fish, aquatic insects, and riparian vegetation to maximize water conveyance during flood events; and to minimize maintenance costs for the County.



Study Area

Photograph Location, Number and Direction

Waters of the U.S. and State

Waters of the U.S. and State
Acres: 6.92
Approximate Length: 2,391 feet
Average Width: 126 feet
Center coordinate: 33.979806, -118424114

USACE-Defined Wetland
(within Waters of the U.S.) [0.33 acre]

Ordinary High Water Mark (OHWM)

Photograph Locations

Number	Direction	Latitude	Longitude
1	SW	33.980092	-118.422338
2	SW	33.979438	-118.424418
3	NE	33.980000	-118.424178
4	NE	33.980030	-118.423919

0 100 200 Feet

1 inch = 200 feet

Data Sources:
- Bing accessed Feb 2016, imagery date range: Nov 2014 - Jan 2015
- Los Angeles County GIS 2015

Delineated by: B. Helm, Map by: E. Serra
Map Prepared: 2-24-16

Prepared by:
NOREAS
Environmental Engineering and Science

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Figure 3. Waters of the U.S. and State

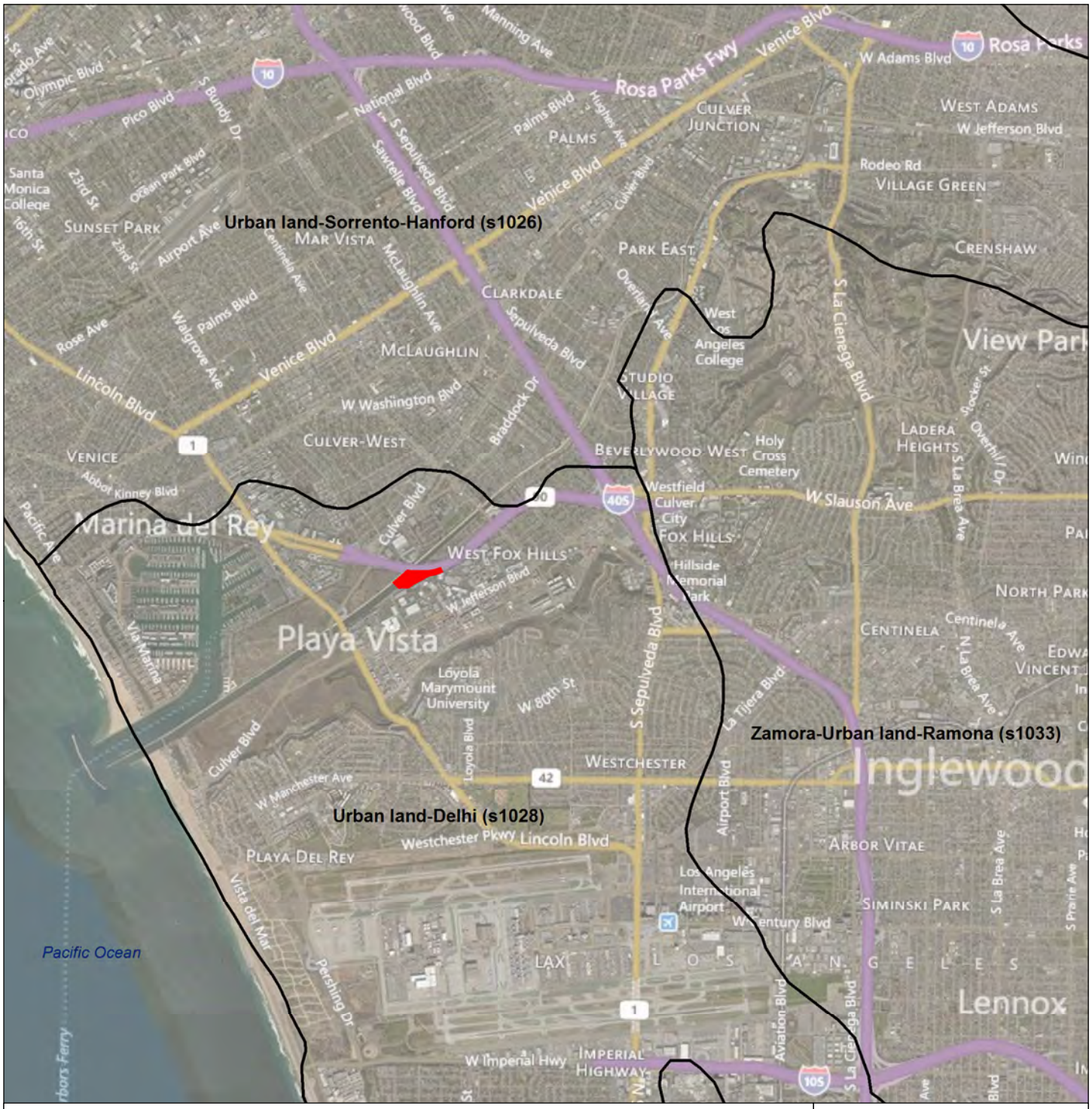

Figure 4. Soils

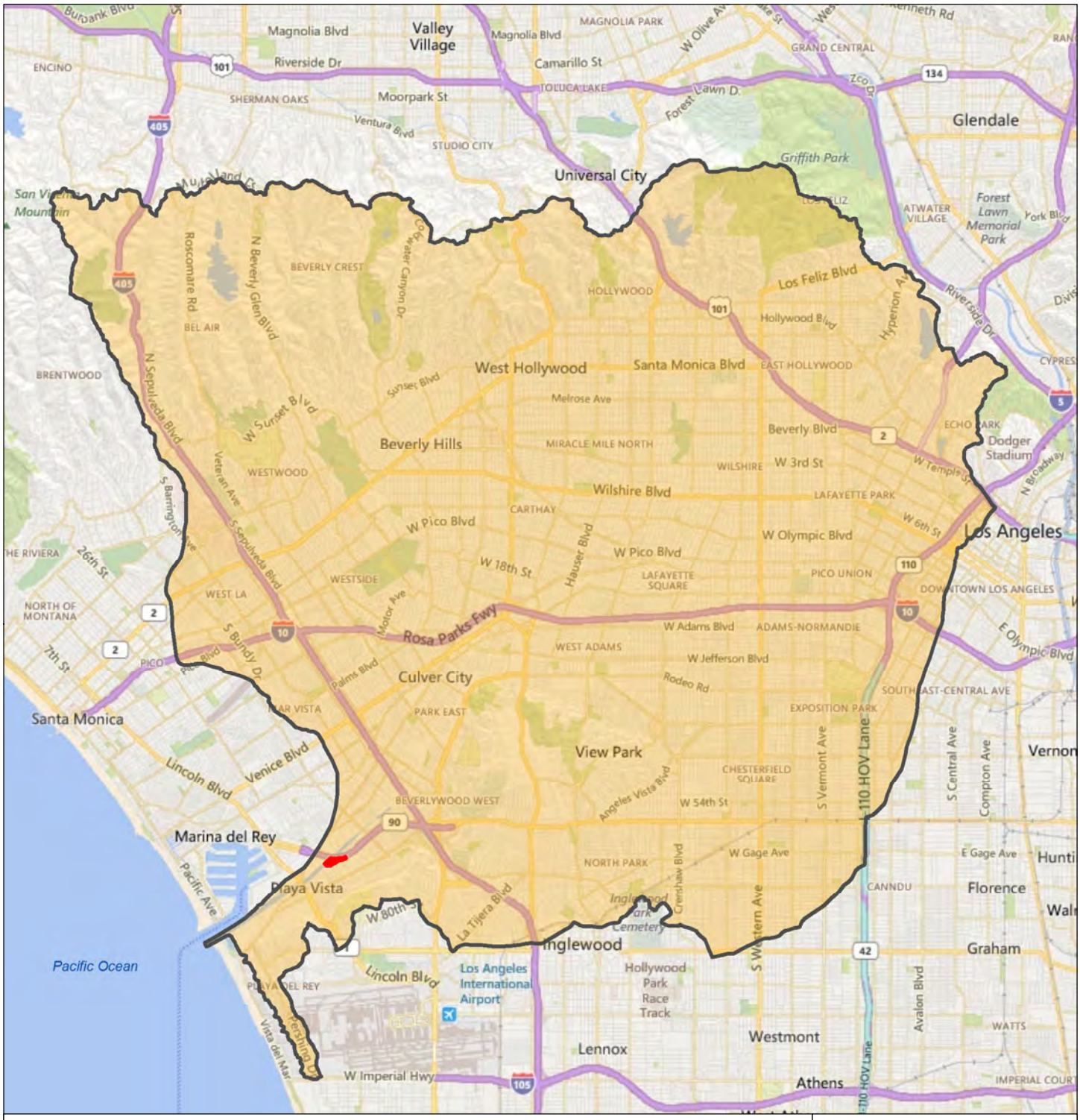

Figure 5. Regional Watershed Map

Study Area

FEMA Floodplain Zones

100-year Flood Zone (1% Annual Chance of Flood)

0 100 200 Feet

1 inch = 300 feet

Data Sources:
- Bing accessed Feb 2016, imagery date range: Nov 2014 - Jan 2015
- FEMA National Flood Hazard Layer accessed Feb 2016
- Los Angeles County GIS 2015

Map Prepared: 2-24-16

Prepared by:

NOREAS
Environmental Engineering and Science

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Figure 6. FEMA 100-Year Flood Zone

Study Area

National Wetland Inventory (NWI)

Freshwater Emergent Wetland

Riverine

0 100 200 300 Feet

1 inch = 300 feet

Data Sources:
- Bing accessed Feb 2016, imagery date range: Nov 2014 - Jan 2015
- Los Angeles County GIS 2015
- US Fish and Wildlife Service National Wetland Inventory geodatabase accessed Feb 2016, data date: Oct 2015

Map Prepared: 2-24-16

Prepared by:

NOREAS
Environmental Engineering and Science

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Figure 7. National Wetland Inventory

5.0 IMPACTS

Tables 3 and 4 below include the permanent losses and temporary impacts to WoUS and WoS.

5.1 Impacts to WoUS

Temporary impacts and permanent losses to WoUS are presented in Table 3.

Table 3. WoUS Temporary Impacts and Permanent Losses

Feature Name	Temporary Impacts to USACE-Wetland (acres)	Temporary Impacts to WoUS (acres)	Permanent Losses of USACE-Wetland (acres)	Permanent Losses of WoUS (acres)
Feature 1	0.0	0.0	0.0	0.0
Feature 2	0.0	0.0	0.0	0.0
Total	**0.0**	**0.0**	**0.0**	**0.0**

5.2 Impacts to WoS

Temporary impacts and permanent losses to WoS are provided within Table 4.

Table 4. WoS Temporary Impacts and Permanent Losses

Feature Name	Temporary Impacts to WoS (acres)	Permanent Losses of WoS (acres)
Feature 1	0.0	0.0
Feature 2	0.0	0.0
Total	0.0	0.0

6.0 PROPOSED RECOMMENDATIONS AND MEASURES TO OFFSET ADVERSE IMPACTS TO SPECIAL AQUATIC RESOURCE AREAS

The following measures are recommended as a means of avoiding and minimizing adverse effects to protected aquatic and semi-aquatic resources that have the potential to occur within study area limits and on adjacent lands:

- Prior to undertaking ground-disturbing activities within or immediately adjacent to any special aquatic resource areas, the applicant should consult with the appropriate responsible resource agency to verify results and complete any necessary discretionary permits/authorizations if total avoidance of special aquatic resource areas is not possible.

The services performed and documented in this report have been conducted in a manner consistent with the level of care and skill ordinarily exercised by other professional consultants under similar circumstances. No other representations are either expressed or implied and no warranty or guarantee is included or intended in this report. Opinions relating to presence, absence, or potential for occurrence of biological resources are based on limited data and actual conditions may vary from those encountered at the times and locations where the data were obtained despite due professional care.

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APPENDIX A

PHOTOGRAPH LOG

	Photograph 1 Facing South West.
	Photograph 2 Facing South West.

	Photograph 3 Facing North East
	Photograph 4 Facing North East.