

California High-Speed Rail Authority

# ***Burbank to Los Angeles Project Section***

## **Aquatic Resources Impact Memorandum**

**May 2020**



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## ACRONYMS AND ABBREVIATIONS

Authority	California High-Speed Rail Authority
BC	Burbank Channel
cfs	cubic feet per second
CWA	Clean Water Act
EIR	environmental impact report
EIS	environmental impact statement
Fed. Reg.	Federal Register
FEMA	Federal Emergency Management Agency
FRA	Federal Railroad Administration
HSR	high-speed rail
LAUS	Los Angeles Union Station
LC	Lockheed Channel
Metrolink	Southern California Railroad Authority
MOU	memorandum of understanding
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NWI	National Wetland Inventory
NWP	Nationwide Permit
RSA	resource study area
U.S.	United States
U.S.C.	U.S. Code
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service

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## 1 INTRODUCTION

This Aquatic Resources Impact Memorandum was prepared to support the permitting effort associated with the Burbank to Los Angeles Project Section of the California High-Speed Rail (HSR) Project, which would run between the proposed Burbank Airport Station and the existing Los Angeles Union Station (LAUS). The memorandum presents a summary of impacts associated with the proposed water crossings and channel modifications subject to United States (U.S.) Army Corps of Engineers (USACE) jurisdiction under Section 404 of the Clean Water Act (CWA), as well as supporting information for covering such impacts under Nationwide Permits 12 and 14, where applicable.

The California High-Speed Rail Authority (Authority) is currently evaluating one Build Alternative for the Burbank to Los Angeles Project Section, which is approximately 14 miles long. The HSR Build Alternative includes one alignment option, which would be below-grade for approximately 1 mile traveling south from the proposed underground Burbank Airport Station. The proposed alignment would emerge at the surface near Sparks Street and travel south to the existing LAUS. Further information regarding the project alignment options previously considered can be found in the Authority's *Supplemental Alternatives Analysis for the Burbank to Los Angeles Project Section* (Authority 2016). Where the alignment is at the surface, the project footprint would be primarily located within the existing railroad right-of-way, which is typically 70 to 100 feet wide, and would include both northbound and southbound electrified tracks for high-speed trains. The HSR Build Alternative would include new and upgraded track, system facilities, grade separations, drainage, communication towers, security fencing, and other necessary facilities to introduce HSR service. The aquatic resource study area (RSA) is defined as the proposed limit of disturbance, which includes the project footprint plus a 250-foot extension in all directions. The HSR alignment for the project section would require crossing and/or modifying watercourses or waterbodies that are subject to USACE jurisdiction, as described herein and depicted on Figure 1-1. The HSR Build Alternative includes project components that would cross and/or alter the Burbank Western Channel (BC), Lockheed Channel (LC), Verdugo Wash, and the Los Angeles River. These proposed project components include the following, from north to south:

1. Realignment of portions of the existing LC
2. Reconfiguration of the LC and BC confluence
3. Replacement of a clear-span bridge with a wider clear-span bridge over Verdugo Wash
4. A utility realignment along San Fernando Road that would cross over Verdugo Wash
5. A new electrification system and utilization of the Southern California Regional Rail Authority (Metrolink) tracks on the existing Downey Bridge over the Los Angeles River
6. A new roadway bridge over the Los Angeles River to grade-separate Main Street
7. Construction of an additional track on the existing Mission Tower Bridge, which crosses over the Los Angeles River

Of these seven proposed project components, three are anticipated to result in fill within nonwetland waters of the U.S., including the LC and BC modifications (temporary fill), as well as the new Main Street Roadway Bridge (permanent fill).

It should also be noted that an existing railroad bridge over Arroyo Seco has no proposed changes to the structure but is within the RSA. The Arroyo Seco railroad bridge would continue to support existing freight rail operations and could potentially be used by Metrolink when HSR begins operating in the corridor. However, the HSR system would not utilize this bridge as it would not be electrified.



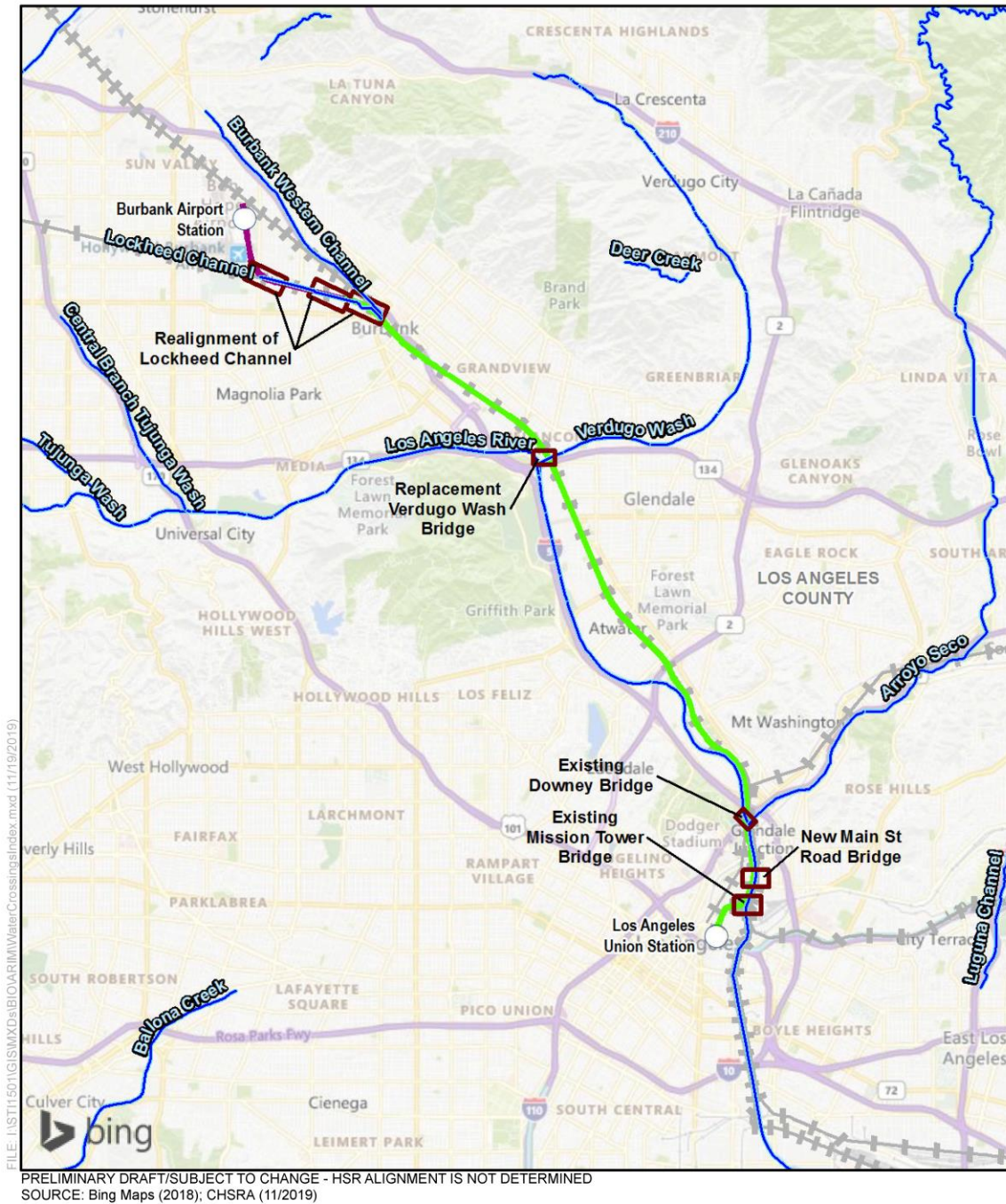


Figure 1-1 Overview



## **2 PURPOSE**

### **2.1 United States Army Corps of Engineers Pre-Consultation: Clean Water Act Nationwide Permit Versus Individual Permit**

Under Section 404 of the CWA, the USACE and the U.S. Environmental Protection Agency (USEPA) regulate the discharge of dredged and fill materials into waters of the U.S. Project sponsors must obtain a permit from the USACE for discharges of dredged or fill materials into USACE jurisdictional waters. The USACE regulatory process involves two types of permits: general permits for actions that are similar in nature and will have only minor effects on waters of the U.S., and standard permits for more significant actions.

General permits are issued on a nationwide, regional, or state basis for particular categories of activities. Nationwide Permits (NWP) are a type of general permit issued by the Chief of Engineers that are designed to regulate with little, if any, delay or paperwork certain activities in waters of the U.S. that have no more than minimal adverse environmental impacts (Code of Federal Regulations Title 33, Part 330.1(b)). The NWP program is designed to provide timely authorizations for the regulated public while protecting the nation's aquatic resources, provided that all general and regional conditions are met. The USACE undertakes a National Environmental Policy Act (NEPA) review of these NWPs; therefore, further NEPA review by the USACE is not required for single projects that are authorized pursuant to one or more NWP.

An Individual Permit is a type of standard permit and is required for potentially significant impacts to waters of the U.S. Individual permit applications are reviewed by the USACE under a public-interest review process, which includes an in-depth evaluation of compliance with the environmental criteria set forth in the CWA Section 404(b)(1) Guidelines and USACE NEPA regulations. Processing individual permits usually involves a pre-application consultation, formal permit application review, and decision-making procedures.

This document is intended to be used as part of pre-consultation with the USACE to verify that the proposed project impacts to waters of the U.S. can be authorized under the NWP program.

### **2.2 Checkpoint Process/Clean Water Act Section 404(b)(1) Analysis Component of Memorandum of Understanding Not Required**

The Federal Railroad Administration (FRA), the Authority, the USACE, and the USEPA have entered into a memorandum of understanding (MOU) regarding compliance with their respective regulations. The goal of this MOU is to facilitate compliance with NEPA (U.S. Code [U.S.C.] Title 42, Section 4321 et seq.), CWA Section 404 (33 U.S.C. Section 1344) (hereinafter "Section 404"), and Rivers and Harbors Act Section 14 (33 U.S.C. Section 408) (hereinafter referred to as "Section 408") processes for the project-level (Tier 2) Environmental Impact Statements (EIS) for the nine sections of the California HSR System. The integration of these processes is intended to expedite decision-making while improving the overall quality of those decisions. The purpose of the MOU is to foster agreement among the Signatory Agencies and to make it possible for the USACE to more efficiently adopt the Tier 2 EISs.

Tier 2 environmental reviews covered by the MOU will advance and expand upon the Tier 1 decisions of the Authority and FRA, which have already been made. The USACE has agreed to participate as a cooperating agency under NEPA in the Tier 2 environmental processes, including the development of both the Draft and Final Environmental Impact Report (EIR)/EISs. The Tier 2 EIR/EISs will evaluate the selected corridors and stations in site-specific detail through further consultation with the USEPA and USACE regarding the Section 404 and Section 408 permitting processes, to support decision-making for any necessary USACE (1) Section 404 permit decisions to discharge dredged or fill material into waters of the U.S. and (2) Section 408 permit

decisions for alterations/modifications to existing USACE projects.<sup>1</sup> In November 2016, the USACE provided confirmation that Verdugo Wash, the Los Angeles River, BC, and LC are USACE facilities subject to Section 408 compliance. In July 2018, the USACE issued a Preliminary Jurisdictional Determination for the project section, which provides concurrence regarding the extent of all mapped jurisdictional features presented herein.

The MOU specifies the various procedures for participation and also includes provisions for the participating agencies to withdraw from application of the checkpoint process. Portions of the MOU would not be applicable in the event that the proposed project impacts to waters of the U.S. can be authorized under the NWP program, including the CWA Section 404(b)(1) Alternatives Analysis and public interest review portions of the Checkpoint C process.

## 2.3 Engineering information—Design Phasing

The Burbank to Los Angeles Project Section may be constructed as a design/build project. Therefore, the impact calculations presented herein are based on preliminary designs and are thus subject to change as the project advances through the NEPA process.

The Authority has pledged to integrate programmatic impact avoidance and minimization features consistent with the *2005 Statewide Program EIR/EIS* and *2012 Partially Revised Final Program EIR* into the Burbank to Los Angeles Project Section. Impact avoidance and minimization features that will avoid or minimize impacts to aquatic resources are incorporated into the project design and construction plans.

## 3 REGULATORY FRAMEWORK

All impacts to USACE jurisdictional waters associated with the proposed Burbank to Los Angeles Project Section would be permitted under USACE NWPs 12 and 14, where applicable. The following section provides specific text from the Federal Register (Fed. Reg.) pertaining to the USACE NWP program (82 Fed. Reg. 1860).

Section 404(e) of the CWA provides the statutory authority for the Secretary of the Army, after notice and opportunity for public hearing, to issue general permits on a nationwide basis for any category of activities involving discharges of dredged or fill material into waters of the U.S. The NWP program is designed to provide timely authorizations for the regulated public while protecting the nation's aquatic resources. Further information regarding the different types of permits issued by the USACE is contained in Section 2.1 of this memorandum.

The USACE revises and reissues NWPs on five-year intervals to authorize specific activities under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act of 1899 that will result in no more than minimal individual and cumulative adverse environmental effects. There are currently 52 NWPs. The USACE published a Final Rule to reissue 50 of the 2012 NWPs and issue 2 additional NWPs on January 6, 2017 (82 Fed. Reg. 1860). The reissued NWPs, including NWPs 12 and 14, became effective on March 19, 2017.

### 3.1 Nationwide Permit Terms and Conditions

The USACE issued a Final Rule to reissue NWPs 12 and 14 in 2017 with only minor clarifying language added to the 2012 versions of these NWPs. It should be noted that in addition to the NWP General Conditions, all project components in the Burbank to Los Angeles Project Section must also adhere to the USACE Los Angeles District Regional Conditions, which contain further specifications regarding allowed uses of NWPs 12 and 14 in special aquatic areas, as well as

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<sup>1</sup> Section 408 authorizes the Secretary of the Army to approve modifications to existing USACE constructed public works projects. On June 21, 2016, the USACE reissued Engineer Circular 1165-2-216, *Policy and Procedural Guidance for Processing Requests to Alter U.S. Army Corps of Engineers Civil Works Projects Pursuant to 33 U.S.C. 408*. This guidance provides the requirements and procedures for an overall review process that can be tailored to the scope, scale, and complexity of individual proposed alterations, and provides infrastructure-specific considerations for dams, levees, floodwalls, flood risk management channels, and navigation projects. The MOU applies to modifications of USACE projects under the authority of Section 408 regardless of approval level.

further pre-construction notification requirements (USACE 2017a). The following sections provide specific text from NWP 12 and 14.<sup>2</sup>

### **3.1.1 Nationwide Permit 12 for Utility Line Activities**

NWP 12 for Utility Line Activities covers activities required for the construction, maintenance, repair, and removal of utility lines and associated facilities in waters of the U.S., provided the activity does not result in the loss of greater than 0.5 acre of waters of the U.S. for each single and complete project.

This NWP authorizes discharges of dredged or fill material into waters of the U.S. and structures or work in navigable waters of the U.S. (i.e., Section 10 waters) for crossings of those waters associated with the construction, maintenance, or repair of utility lines, including outfall and intake structures. There must be no change in the preconstruction contours of waters of the U.S. A “utility line” is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and internet, radio, and television communication. The term “utility line” does not include activities that drain a water of the U.S., such as drainage tile or French drains, but it does apply to pipes conveying drainage from another area.

Material resulting from trench excavation may be temporarily sidecast into waters of the U.S. for no more than three months, provided the material is not placed in such a manner that it is dispersed by currents or other forces. The district engineer may extend the period of temporary side casting for no more than a total of 180 days, where appropriate. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. The trench cannot be constructed or backfilled in such a manner as to drain waters of the U.S. (e.g., backfilling with extensive gravel layers, creating a French drain effect). Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line crossing of each waterbody.

NWP 12 would be used, if necessary, as a general permit for the utility realignment along San Fernando Road, which would cross over Verdugo Wash.

#### **3.1.1.1 Nationwide Permit 12 Notification**

The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if any of the following criteria are met:

1. The activity involves mechanized land clearing in a forested wetland for utility line right-of-way
2. A Section 10 permit is required
3. The utility line in waters of the U.S., excluding overhead lines, exceeds 500 feet
4. The utility line is placed within a jurisdictional area (i.e., waters of the U.S.) and runs parallel to or along a stream bed that is within that jurisdictional area
5. Discharges would result in the loss of greater than 0.1 acre of waters of the U.S.
6. Permanent access roads are constructed above grade in waters of the U.S. for a distance of more than 500 feet
7. Permanent access roads are constructed in waters of the U.S. with impervious materials (General Condition 32)

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<sup>2</sup> 82 Fed. Reg. 1860. *2017 Nationwide Permits, Conditions, and Definitions*, USACE, January 2017.

### **3.1.2 Nationwide Permit 14 for Linear Transportation Projects**

NWP 14 for Linear Transportation Projects authorizes discharges of dredged or fill material into waters of the U.S. and structures or work in navigable waters of the U.S. It also covers activities required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the U.S. For linear transportation projects in nontidal waters, the discharge cannot cause the loss of greater than 0.5 acre of waters of the U.S. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 0.33 acre of waters of the U.S. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that would not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize nonlinear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

NWP 14 would be used as a general permit for impacts to waters of the U.S. associated with the new roadway bridge over the Los Angeles River, which would grade-separate Main Street.

#### **3.1.2.1 Nationwide Permit 14 Notification**

The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the loss of waters of the U.S. exceeds 0.1 acre; or (2) there is a discharge in a special aquatic site, including wetlands (General Condition 31).

#### **3.1.2.2 Definition of a Single and Complete Linear Project**

A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership, or other association of owners/developers, that includes all crossings of a single water of the U.S. (i.e., a single waterbody) at a specific location. For linear projects crossing a single waterbody or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. Likewise, portions of a larger project may proceed under the authority of the NWPs while the District Engineer evaluates an individual permit application for other portions of the same project, but only if the portions of the project qualifying for NWP authorization would have independent utility and are able to function or meet their purpose independent of the total project (Code of Federal Regulations Title 33, 330.6(d)). However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately. In addition, if the siting of a project within one jurisdictional feature requires the impact of another jurisdictional feature due to proximity, the impacts are considered cumulatively under one single and complete project.

For the purposes of this analysis, the BC and LC modifications are considered together as one project component, while each water crossing is considered a single and complete project based on the distances between each crossing, as provided in Table 3-1.

**Table 3-1 Distance Between Water Crossings and Channel Realignments**

Project Component	Distance along the Alignment from Previous Project Component <sup>1</sup>	Distance from Previous Potential Jurisdictional Waters Impact <sup>1</sup>
Burbank/Lockheed Channel Modifications	–	–
Verdugo Wash Crossing	3.48	–
Downey Bridge	6.11	–
Main Street Roadway Bridge	0.87	10.46
Mission Tower Bridge	0.44	–

Source: Calculations generated using ESRI ArcGIS version 10.4

<sup>1</sup> Distance is given in miles, from north to south.

## 4 EXISTING CONDITIONS

The RSA is located on the U.S. Geological Survey *Burbank, Hollywood, and Los Angeles, California* 7.5-minute series topographical quadrangles (Figure 4-1). The RSA passes through mostly urban settings consisting of residential, industrialized warehouse, and commercial business uses that run along the existing transportation facilities. Elevations within the RSA range from approximately 300 feet (above sea level) near LAUS and the low-lying areas along the Los Angeles River to approximately 500 feet in the northern part of the RSA in the City of Burbank. The topography is relatively flat throughout the length of the RSA. The Los Angeles River, which flows into the Pacific Ocean, runs parallel to the proposed alignment throughout the RSA. Three drainages within the RSA, including BC, Verdugo Wash, and Arroyo Seco, are tributaries to the Los Angeles River and are mainly concrete-lined channels, as is much of the Los Angeles River. No Section 10 navigable waters of the U.S. are present in the RSA.<sup>3</sup>

The RSA is located within the Los Angeles River Hydrologic Unit, which drains a watershed of approximately 530,000 acres (824 square miles), as shown on Figure 4-2. Flows within the Los Angeles River Hydrologic Unit travel south to the Pacific Ocean in the City of Long Beach.

The Los Angeles River and most of its tributaries in the urbanized portions of the Los Angeles basin have been channelized. The river is considered a flood damage reduction channel rather than a meandering natural river system; nearly all of its banks are hardened, and the river bottom is lined with concrete for approximately 37 of its 51 miles. Soils identified within the RSA are shown on Figure 4-3. Table 4-1 provides an inventory of potential waters of the U.S. and their associated subtypes within the RSA, as stated in the Authority's *Aquatic Resources Delineation Report* (Authority 2019).

<sup>3</sup> Based on the findings presented in the July 6, 2010, letter from the USEPA Region IX Administrator to Colonel Mark Toy, P.E., the Los Angeles River has been designated a traditional navigable water from its origins at the confluence of Arroyo Calabasas and Bell Creek to San Pedro Bay at the Pacific Ocean, a distance of approximately 51 miles. However, the portion of the river within the RSA is not subject to Section 10 jurisdiction because it does not have tidal influence and is not a designated "navigable water of the U.S." under Section 10 (USACE 2017b).



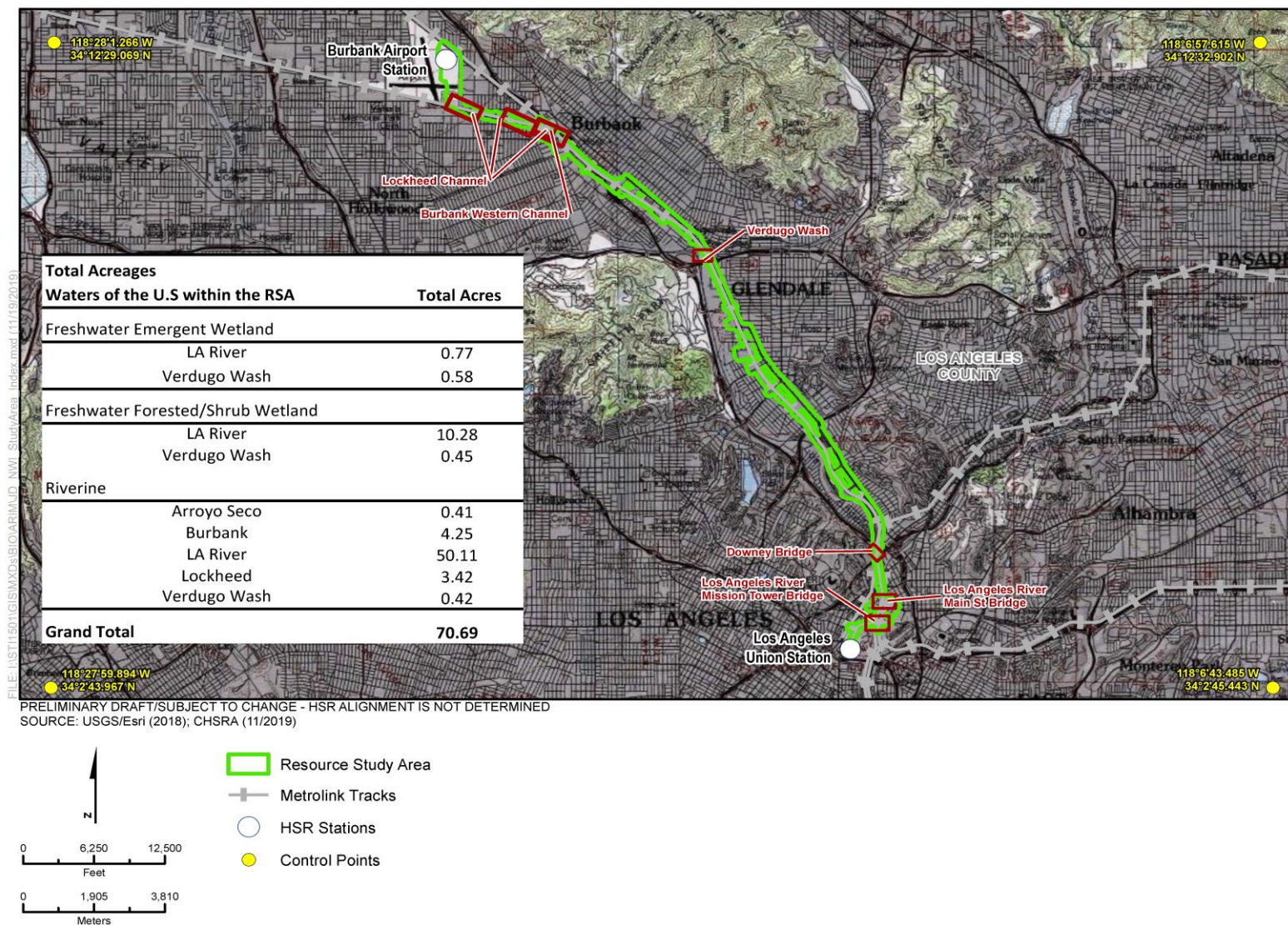


Figure 4-1 Potential Waters of the U.S. and Their Subtypes Within the Resource Study Area



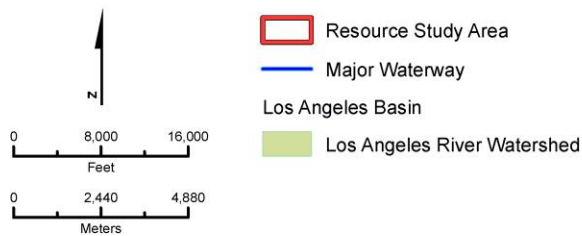
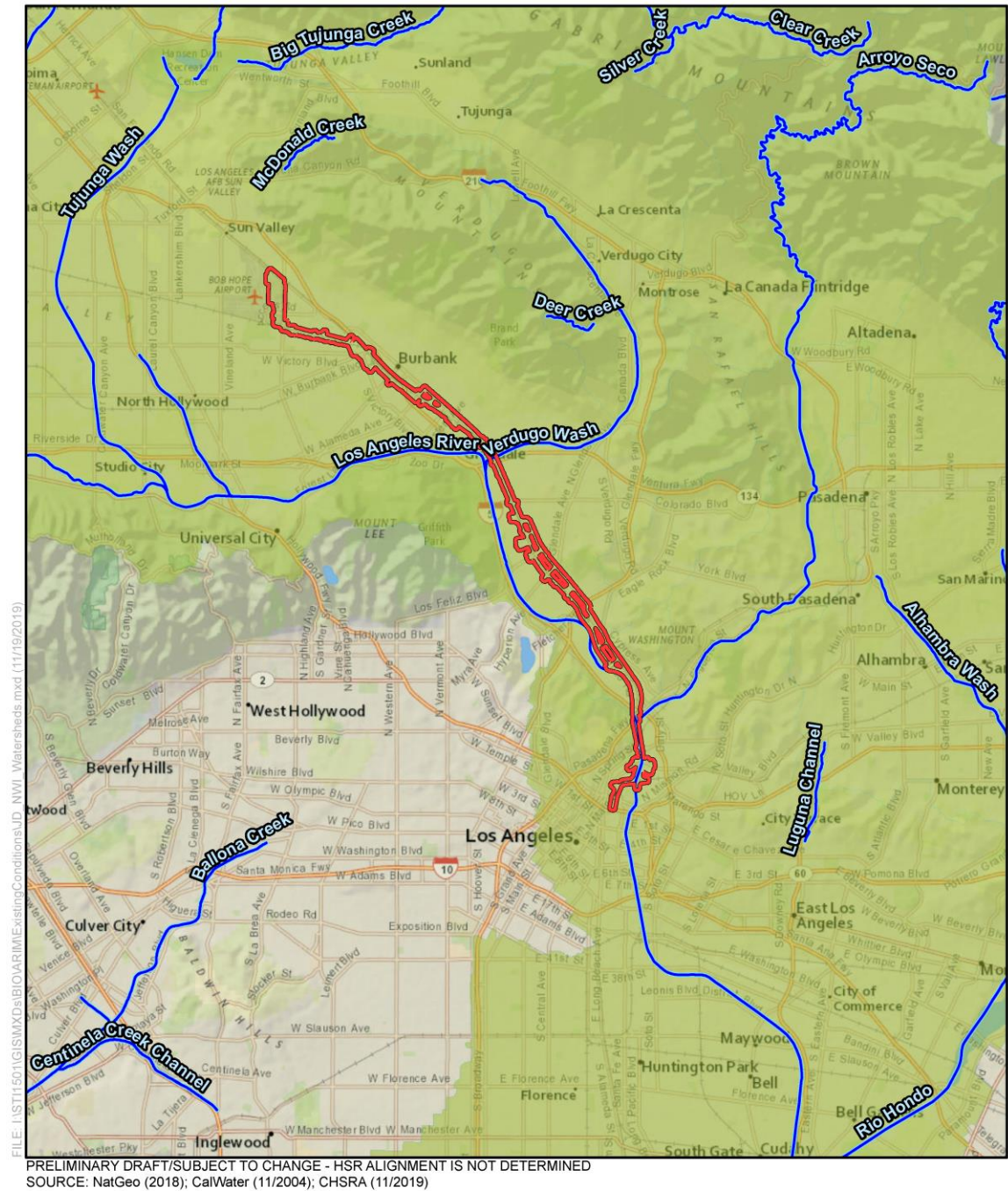
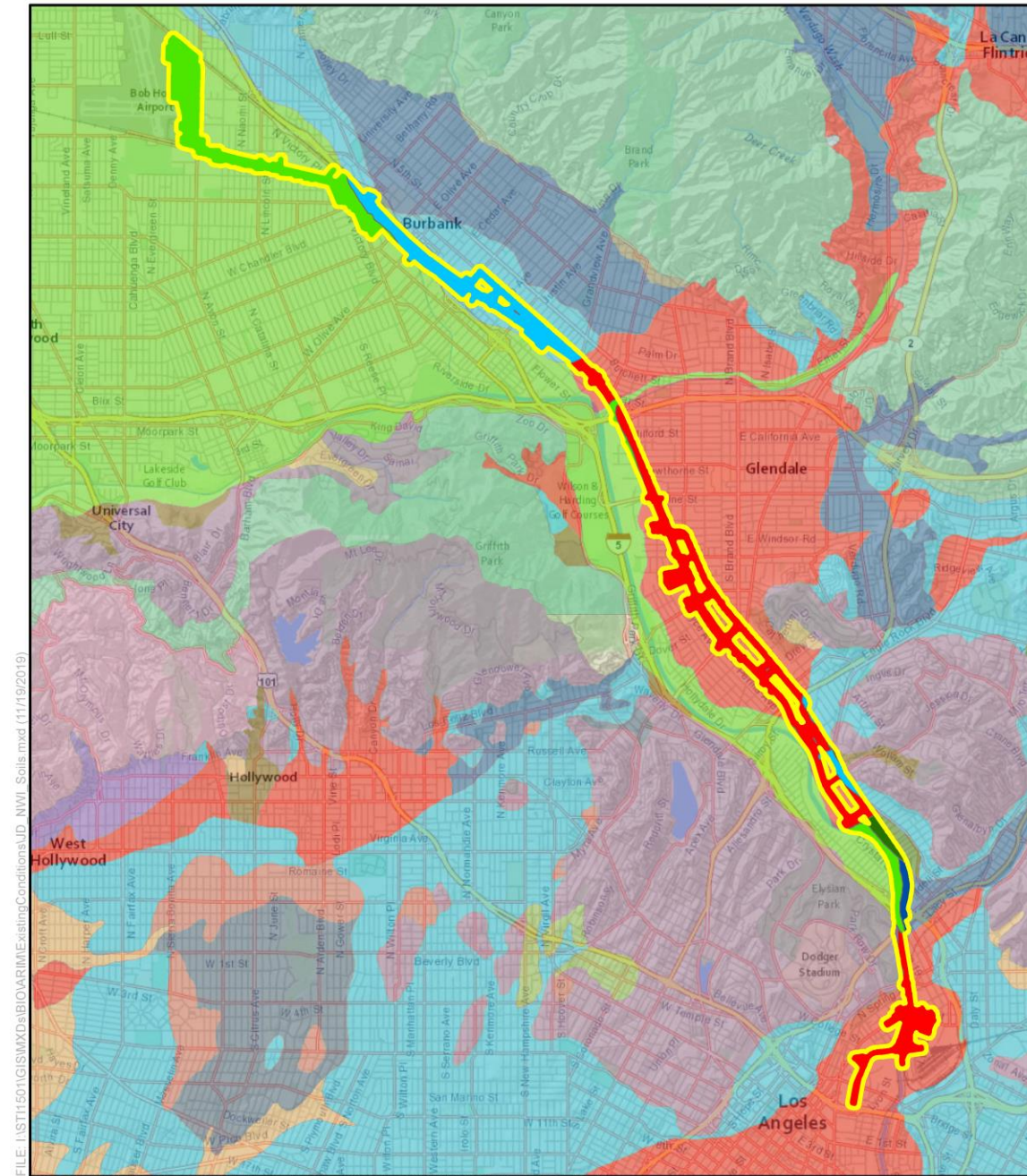


Figure 4-2 Watersheds





PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
SOURCE: NatGeo (2018); CalWater (11/2004); CHSRA (11/2019); LA County (2014)

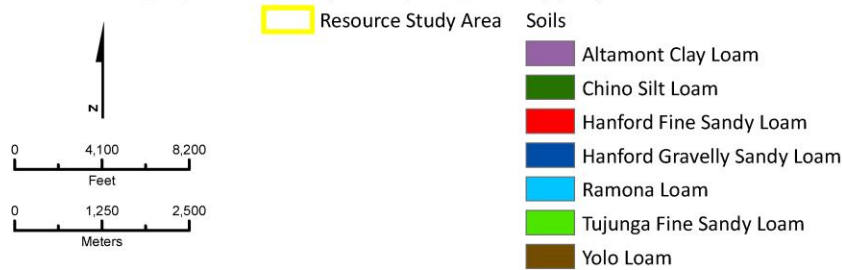


Figure 4-3 Soils

**Table 4-1 Summary of Potential Waters of the U.S. Within the Resource Study Area**

Waters Type	Acreage
<b>Freshwater Emergent Wetland</b>	
Los Angeles River	0.77
Verdugo Wash	0.58
<b>Freshwater Forested/Shrub Wetland</b>	
Los Angeles River	10.28
Verdugo Wash	0.45
<b>Riverine</b>	
Los Angeles River	50.11
Verdugo Wash	0.42
Arroyo Seco	0.41
Lockheed Channel	3.42
Burbank Western Channel	4.25
<b>Total Acreage</b>	<b>70.69</b>

Source: Calculations generated using ESRI ArcGIS version 10.4 from data gathered during field surveys and aerial photograph interpretation  
RSA = resource study area U.S. = United States

The Los Angeles River has been modified substantially for flood control purposes. With the exception of portions of a 7-mile area in the Glendale Narrows, the entire river within the RSA has been lined with concrete. The upper reaches of the river carry urban runoff and flood flows from the San Fernando Valley. Below the Sepulveda Basin, flows are dominated by tertiary-treated effluent from several municipal wastewater treatment plants. Because the watershed is highly urbanized, urban runoff and illegal dumping are major contributors to impaired water in the Los Angeles River and its tributaries (Verdugo Wash, etc.).

The following subsections summarize the existing conditions at each proposed water crossing and channel realignment location within the RSA, as described in the Authority's *Aquatic Resources Delineation Report* (Authority 2019), *Water Crossings Technical Report* (Authority 2018g), and *Floodplain, Hydrology, and Hydraulics Technical Report* (Authority 2018f).

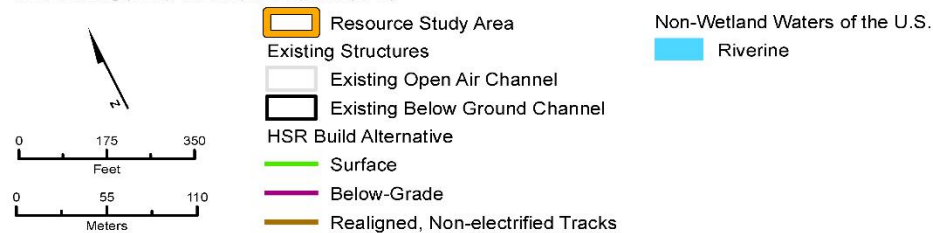
#### 4.1 Burbank and Lockheed Channels

The HSR Build Alternative for the Burbank to Los Angeles Project Section involves multiple modifications of two concrete-lined features: LC and BC. Both of these features are within the RSA near the proposed Burbank Airport Station. At their nearest locations within the RSA, LC is 0.54 mile south of the Proposed Burbank Airport Station and BC is 2.14 miles southeast of the proposed station. The Authority proposes to realign portions of LC and modify the BC/LC confluence in order to accommodate the proposed HSR alignment in the area. The following subsections summarize the existing conditions for each of these channels. Delineated aquatic resources within the LC and BC RSA are shown on Figure 4-4 and Figure 4-5.





PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
SOURCE: Bing (2018); CHSRA (11/2019); NWI (2017)



**Figure 4-4 Aquatic Resources Within the Lockheed Channel Resource Study Area**

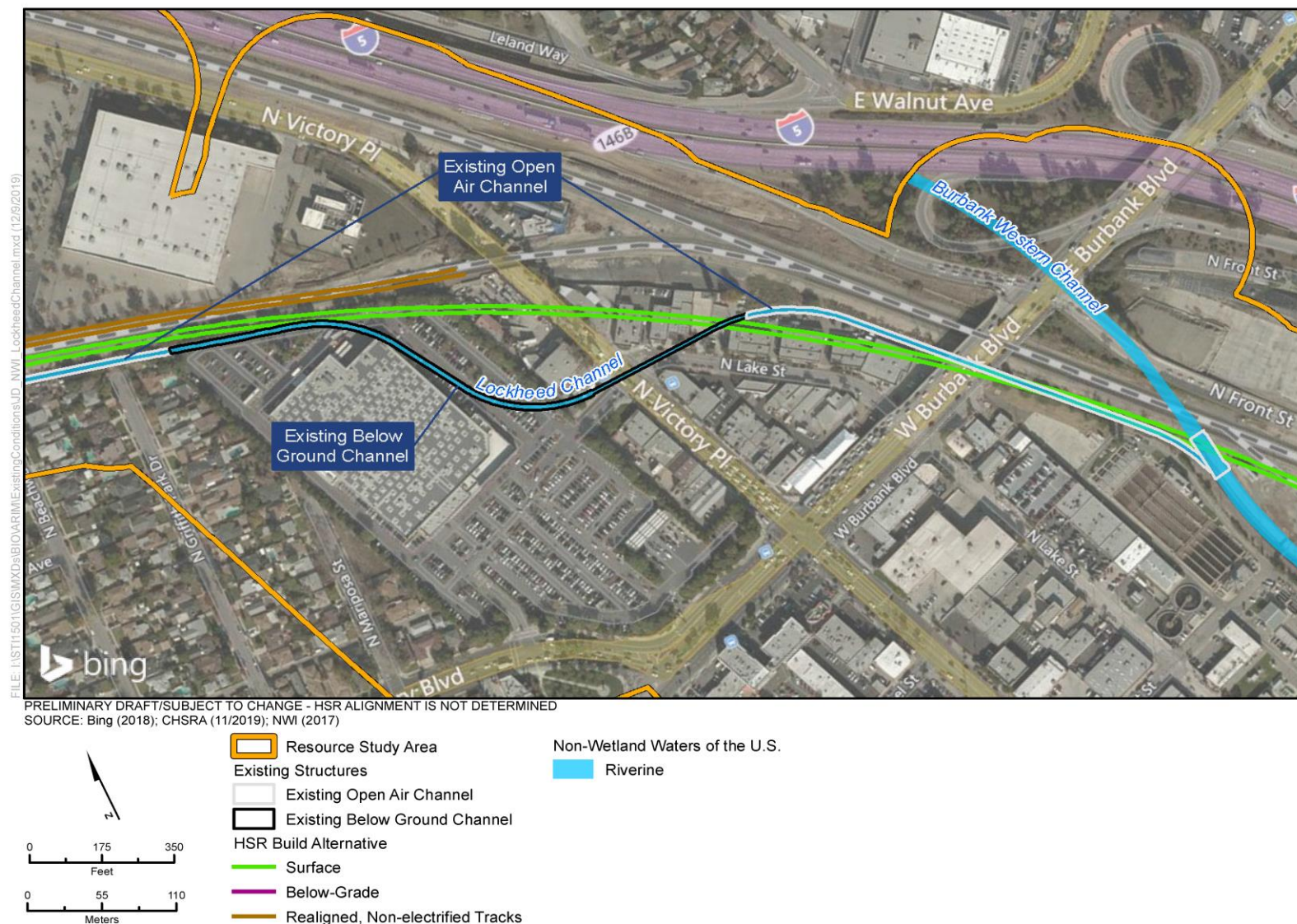
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**Figure 4-4 Aquatic Resources Within the Lockheed Channel Resource Study Area**  
(Sheet 2 of 2)





**Figure 4-5 Aquatic Resources Within the Lockheed Channel and Burbank Western Channel Confluence Resource Study Area**



#### 4.1.1 Lockheed Channel

LC within the RSA exists as an open, concrete-lined, trapezoidal channel with reaches along the stretch of the channel existing as underground, closed, concrete-lined boxed culverts. The channel enters the RSA east of N Hollywood Way, just north of Vanowen Street, and proceeds east for approximately 490 feet, at which point it becomes an underground, closed, concrete-lined boxed culvert for approximately 761 feet, trending southeast. The channel then daylights into an open, trapezoidal, concrete-lined channel for approximately 1,881 feet, at which point it transitions again into an underground, closed, concrete-lined culvert beginning at N Buena Vista Street and running for approximately 1,035 feet. LC then daylights again as an open, trapezoidal, concrete-lined channel and continues for approximately 3,015 linear feet in a southeast direction. At this point, the channel re-enters an underground, closed, concrete-lined culvert and runs approximately 1,508 feet, then reemerges into an open, trapezoidal, concrete-lined channel for approximately 1,221 feet before reaching the confluence with BC (described below).

LC is devoid of vegetation within the RSA, although some open reaches of the channel have tree branches as well as native and nonnative herbaceous vegetation overhanging each side. The entire reach of LC within the RSA consists of approximately 3.42 acres of USACE jurisdictional nonwetland waters of the U.S. classified as Riverine by the U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory (NWI) maps (USFWS 2017).

#### 4.1.2 Burbank Western Channel

BC, north of its confluence with LC, is an open, rectangular, concrete-lined channel with reaches along the stretch of the channel existing as underground, closed, concrete-lined boxed culverts. The channel enters the RSA south of N San Fernando Road, northeast of Interstate 5, and proceeds in a southeasterly direction along Leland Way for approximately 1,779 feet. At this point, it becomes an underground, closed, concrete-lined boxed culvert for approximately 1,918 feet until it reaches a confluence with LC. From the point of the confluence, the channel exists as an open, rectangular, concrete-lined channel that continues approximately 3,741 feet southeast to where it exits the RSA. Beyond the RSA boundary, the concrete-lined channel discharges into the Los Angeles River.

BC is devoid of vegetation within the RSA. The entire reach of BC within the RSA consists of approximately 4.25 acres of USACE jurisdictional nonwetland waters of the U.S. classified as Riverine by the USFWS NWI (USFWS 2017).

### 4.2 Verdugo Wash

The HSR Build Alternative for the Burbank to Los Angeles Project Section involves replacing an existing clear-span bridge with a wider clear-span bridge that crosses Verdugo Wash just east and upstream of its confluence with the Los Angeles River. This subsection summarizes the existing conditions in the vicinity of the Verdugo Wash water crossing.

The current Federal Emergency Management Agency (FEMA) *Flood Insurance Study, Los Angeles County, California and Incorporated Areas* (FEMA 2016) does not include any information for the area within the City of Glendale; therefore, no base floodplains or regulatory floodways are indicated on the FEMA maps for the area around the Verdugo Wash water crossing.

The Los Angeles County Flood Control District oversees the operation and maintenance of Verdugo Wash. The *USACE Operation, Maintenance, Repair, Replacement, and Rehabilitation Manual* (1999; Operation Manual) includes design flow rate information along with a typical cross-section for major drainage facilities built by USACE in Los Angeles County. At the location of the proposed water crossing of Verdugo Wash, the channel is 86 feet wide, rectangular, and concrete lined. The design flow rate based on the USACE Operation Manual is 42,900 cubic feet per second (cfs). The upstream section is relatively clear from sediment and vegetation, while the downstream section has accumulated sediment deposits that have become colonized with vegetation. Aquatic resources within the RSA at this location include 0.45 acre of Freshwater Forested/Shrub Wetland, 0.58 acre of Freshwater Emergent Wetland, and 0.42 acre of nonwetland Riverine waters of the U.S. (NWI 2017). Delineated aquatic resources in the vicinity of the Verdugo Wash water crossing within the RSA are depicted on Figure 4-6.



Figure 4-6 Aquatic Resources in the Vicinity of the Verdugo Wash Resource Study Area

### 4.3 Los Angeles River

The HSR Build Alternative for the Burbank to Los Angeles Project Section includes four project components that cross the Los Angeles River:

- A new electrification system and utilization of Metrolink tracks located on the existing Downey Bridge
- A new roadway bridge to grade-separate Main Street
- Construction of an additional track on the existing Mission Tower Bridge

The distances between these crossings are shown in Table 3-1. The following subsections summarize the existing conditions in the vicinity of the existing and proposed Los Angeles River water crossings.

#### 4.3.1 Downey Bridge

The Los Angeles River was originally designed to contain and convey 104,000 cfs based on the USACE Operation Manual (USACE 1999). The USACE prepared a hydrology and hydraulics study as part of the *Los Angeles River Ecosystem Restoration Integrated Feasibility Report: Final Feasibility Report and EIR/EIS* (USACE 2015). This study referenced data from the *Los Angeles County Drainage Area Review Feasibility Report* (USACE 1992), discussing the then-current hydraulic capacity of the Los Angeles River. The study showed that the design flow rate (104,000 cfs) was equivalent to the 83-year storm event. The study also identified the 100-year flow rate in the river as 109,000 cfs at the existing Downey Bridge location.

At the existing Downey Bridge, the Los Angeles River is approximately 200 feet wide, rectangular with concrete lining, and mapped by the NWI as nonwetland Riverine waters. Delineated aquatic resources in the vicinity of the Downey Bridge RSA are depicted on Figure 4-7.

#### 4.3.2 Main Street Roadway Bridge

To accommodate HSR operations, a new Main Street roadway bridge is proposed to cross over the railroad corridor and the Los Angeles River. The existing Main Street roadway bridge would remain, as it is protected as a historical structure, but would be closed to public access.

At the location of the proposed Main Street grade separation crossing of the Los Angeles River, the channel is approximately 280 feet wide, trapezoidal with concrete lining and a trapezoidal low-flow channel in the center; and mapped by the NWI as nonwetland Riverine waters. The flow rate at this section of the Los Angeles River is also 104,000 cfs based on the USACE Operation Manual (USACE 1999). Delineated aquatic resources in the vicinity of the proposed Main Street Bridge RSA are depicted on Figure 4-8.

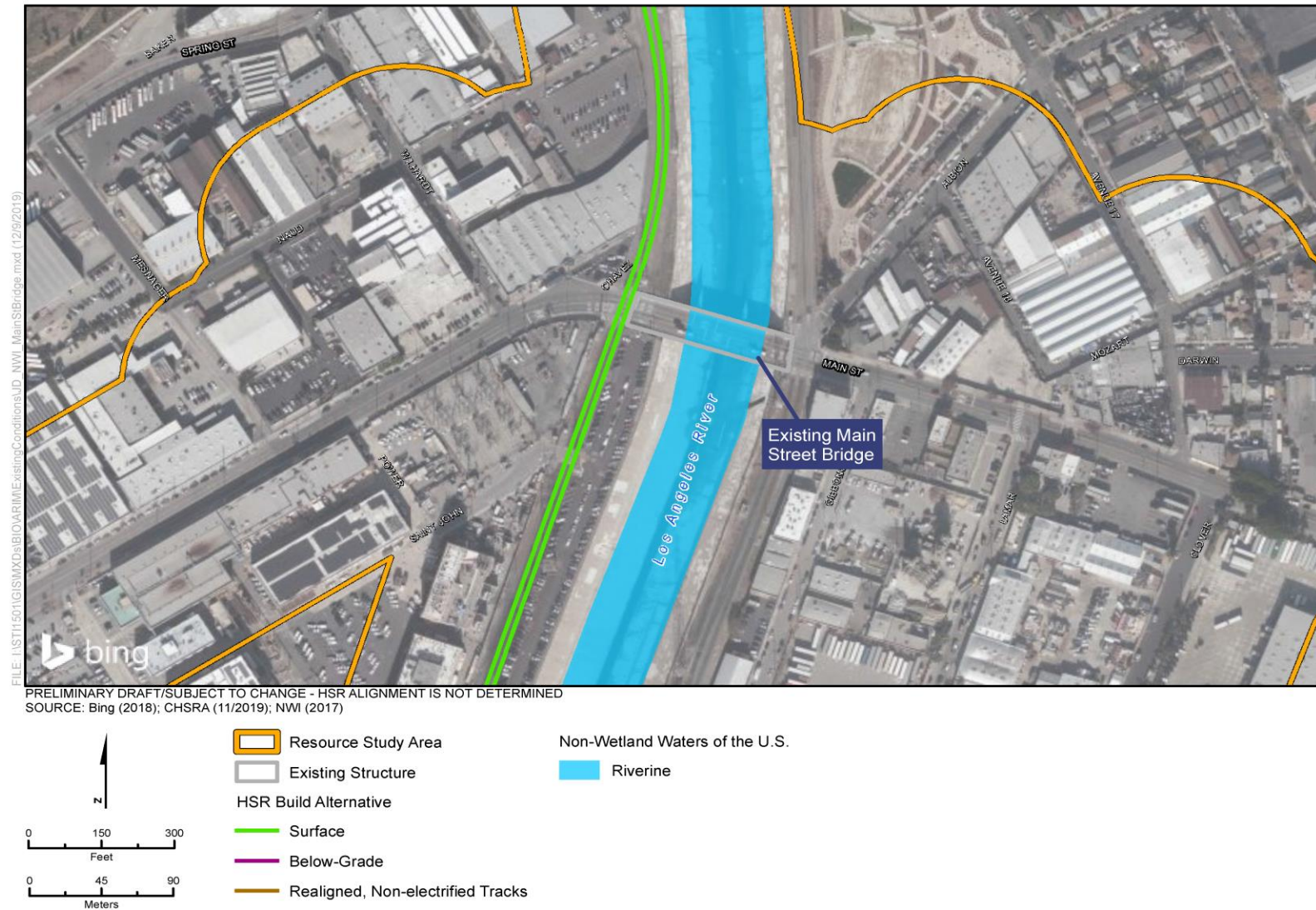
#### 4.3.3 Mission Tower Bridge

The HSR Build Alternative includes plans to utilize and add an additional track to the existing Metrolink Mission Tower Bridge that crosses the Los Angeles River. At the location of the existing Mission Tower Bridge, the Los Angeles River is trapezoidal with concrete lining, has a trapezoidal low-flow channel in the center, and is mapped by the NWI as nonwetland Riverine waters. The flow rate at this section of the Los Angeles River is 104,000 cfs (USACE 1999). Delineated aquatic resources in the vicinity of the Mission Tower Bridge RSA are depicted on Figure 4-9.



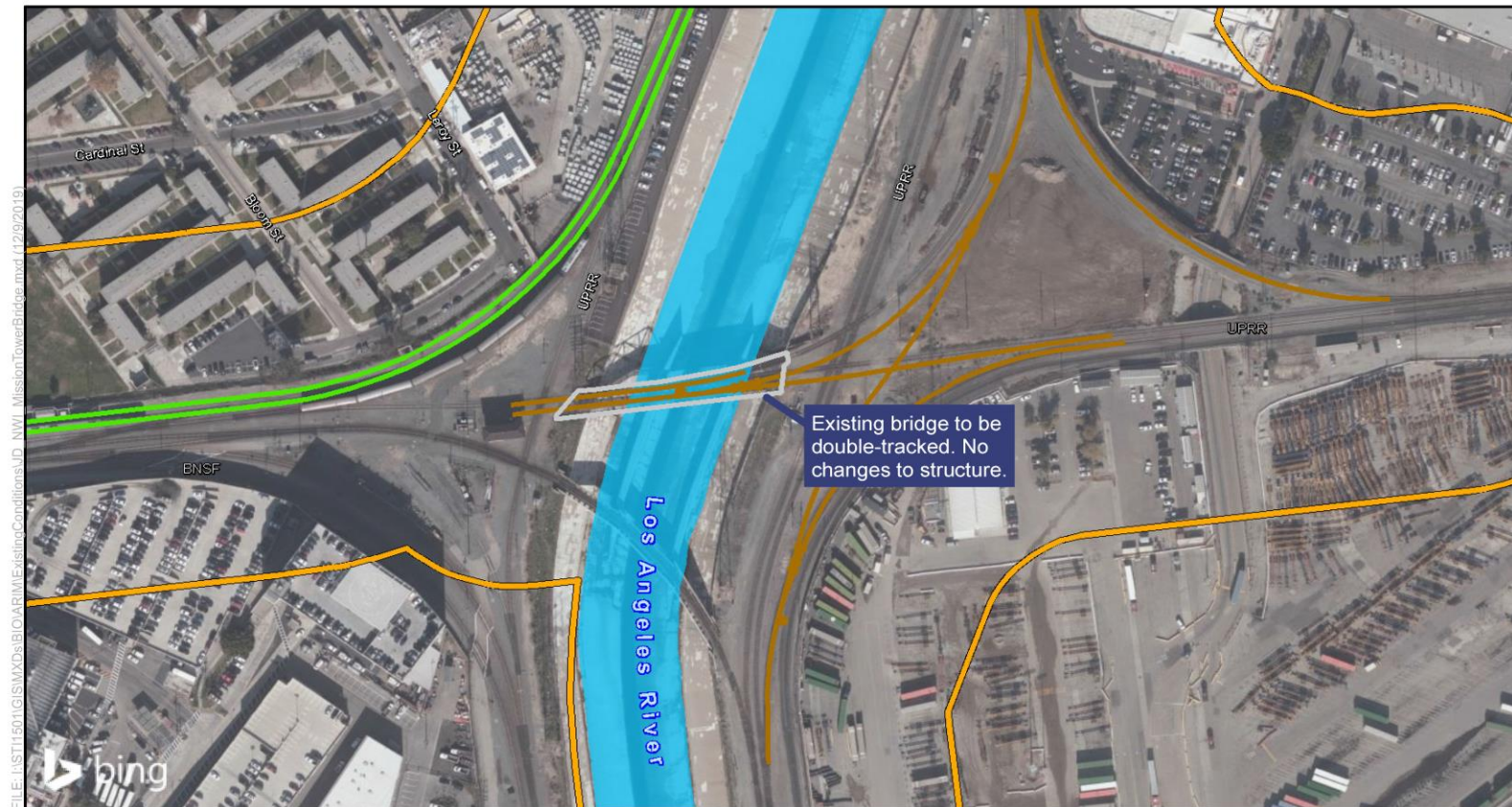


Figure 4-7 Aquatic Resources in the Vicinity of the Downey Bridge Resource Study Area

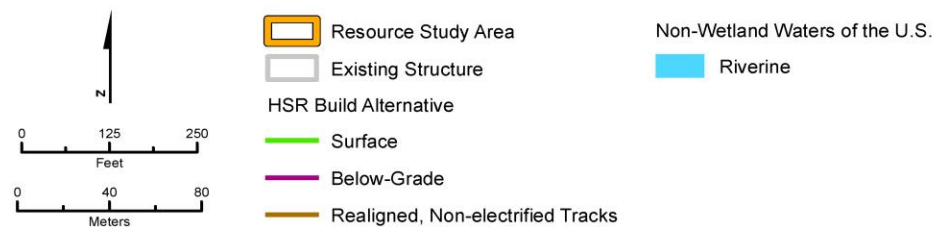


**Figure 4-8 Aquatic Resources in the Vicinity of the Proposed Main Street Bridge Resource Study Area**





PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
SOURCE: Bing (2018); CHSRA (11/2019); NWI (2017)



**Figure 4-9 Aquatic Resources in the Vicinity of the Mission Tower Bridge Resource Study Area**



## 5 IMPACTS

For the purposes of this analysis, impacts were calculated using geographic information system engineering shapefile polygons, USFWS NWI shapefiles, and measurements taken during field surveys. Biologists conducted reconnaissance-level field surveys on February 25, March 24, August 9 and 22, September 13 and 27, October 4, and November 3 and 15, 2016. These field surveys verified the extent of potential biological and aquatic resources existing within the RSA. A field verification survey of delineated aquatic resources was also conducted with USACE personnel on February 14, 2018. The following subsections contain detailed descriptions of the proposed permanent and temporary fills within delineated waters of the U.S. associated with each proposed water crossing and channel modification. A summary of proposed permanent and temporary impacts associated with each project component is contained in Table 5-1.

**Table 5-1 Summary of Proposed Crossings and Impacts to Aquatic Resources**

Project Component	Potential Impact <sup>1</sup> (acres)	Impact Type	Proposed Project Design Features
Lockheed Channel	2.05	Temporary Fill	Realign channel
Burbank Western Channel	0.23	Temporary Fill	Reconfigure confluence with new Lockheed Channel alignment
Verdugo Wash Crossing	0.00	None	New, wider clear-span rail bridge
Downey Bridge	0.00	None	Add overhead catenary system to existing rail bridge; no changes to structure
Main Street Roadway Bridge	0.028	Permanent Fill	New roadway bridge for Main Street grade separation; three columns with pier wall in Los Angeles River
Mission Tower Bridge	0.00	None	Existing rail bridge to be double-tracked for Metrolink service; no changes to structure

Source: Calculations generated using ESRI ArcGIS Version 10.4

<sup>1</sup> As discussed in Section 5.3 of this memorandum, the Authority anticipates additional temporary discharges of fill material associated with the construction of temporary surface water diversions, dewatering, access roads, and falsework, as well as the temporary staging of materials. Such activities would not result in losses of waters of the U.S., as any temporary fills would be removed after construction and work sites would be returned to pre-project contours and revegetated, as applicable, in accordance with the provisions set forth in NWPs 12 and 14, the Authority's standard mitigation policies, the requirements of the USACE, and any potential mitigation that may be developed specific to the Burbank to Los Angeles Project Section in the Draft EIR/EIS.

Authority = California High-Speed Rail Authority

EIR/EIS = Environmental Impact Report/Environmental Impact Statement

NWP = Nationwide Permit

### 5.1 Project Components with No Anticipated Fill

#### 5.1.1 Verdugo Wash Crossings

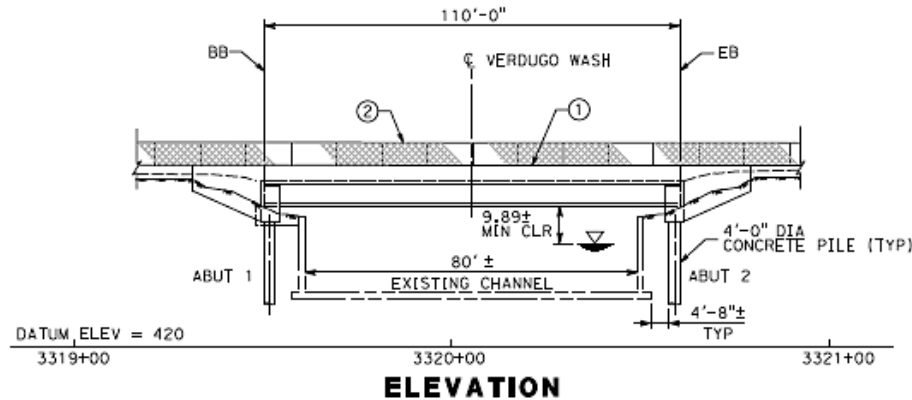
Figure 5-1 identifies the proposed project design features in the vicinity of the Verdugo Wash RSA. The following subsections provide details for each proposed project component in the vicinity of Verdugo Wash.

##### 5.1.1.1 Verdugo Wash Bridge Replacement

There are no proposed impacts to waters of the U.S. associated with this project component. Piles would be installed approximately 5 feet behind the channel walls, 110 feet away from each other, as shown on Figure 5-2. The cross-section of the water crossing structure would remain unchanged from the current condition. Figure 5-3 provides a cross-section of the proposed track profile, including the overhead catenary system on the HSR side of the crossing structure.

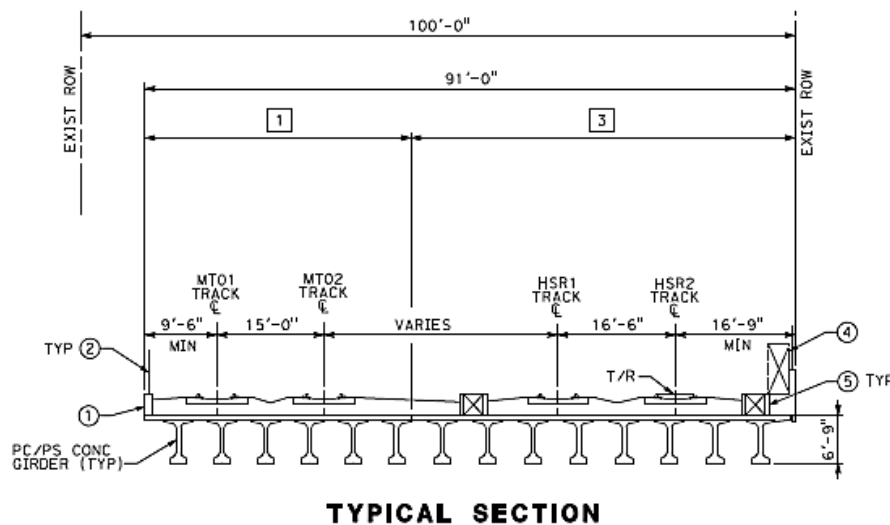


Figure 5-1 High-Speed Rail Build Alternative Project Design Features for the Verdugo Wash Water Crossing



Source: Burbank to Los Angeles, At-Grade Shared Alignment PEPD, Verdugo Wash (Authority 2018e)

**Figure 5-2 Elevation View of Proposed Water Crossing Structure at Verdugo Wash**



Source: Burbank to Los Angeles, At-Grade Shared Alignment PEPD, Verdugo Wash (Authority 2018e)

**Figure 5-3 Typical Section of Proposed Track Profile at Verdugo Wash**

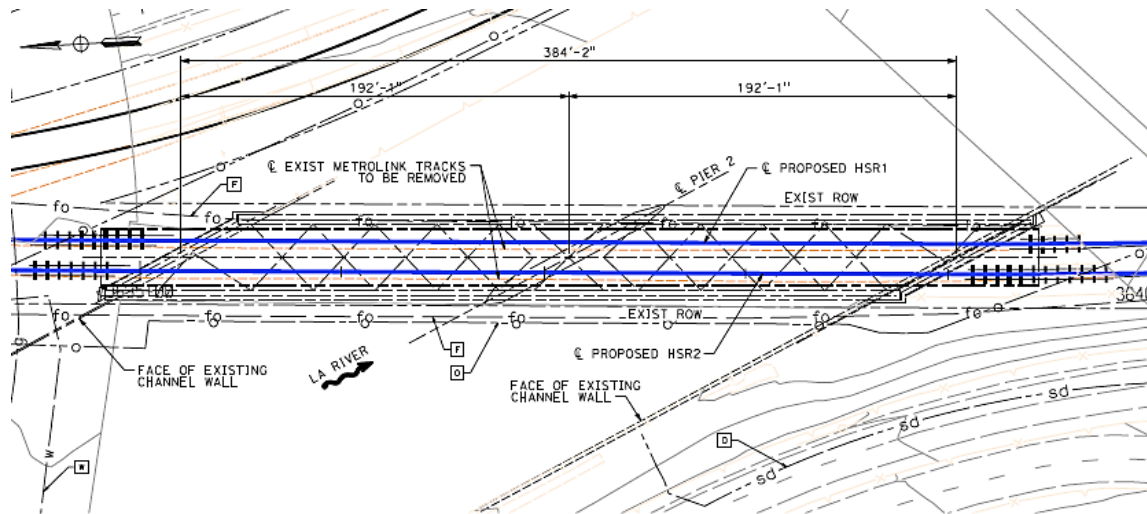
### 5.1.1.2 Utility Realignment over Verdugo Wash

There are no proposed impacts to waters of the U.S. associated with this proposed project component, as currently designed. As previously discussed, the proposed improvements would involve the replacement of the existing bridge to support HSR operations. The proposed bridge replacement would require the relocation of multiple utilities, including an overhead electrical line to be raised and oil and fiber lines to be relocated along San Fernando Road. The existing bridge and proposed improvements both clear-span Verdugo Wash and would not require modifications to the existing channel.

### 5.1.2 Downey Bridge

There are no proposed impacts to waters of the U.S. associated with this project component. The proposed water crossing structure identified in the *California High-Speed Train Engineering Plans, Burbank to Los Angeles, At-Grade Shared Alignment, Preliminary Engineering for Project Definition (PEPD), Downey Bridge – LA River Overpass* (Authority 2018b) shows the HSR

alignment crossing the Los Angeles River between Figueroa Street and Arroyo Seco Parkway on an existing Metrolink track (Figure 5-4). The proposed alignment would utilize the existing Downey Bridge by adding the overhead catenary system to support HSR operations (Figure 4-7). No modifications within the channel or floodplain would occur, and the current capacity of the channel would not be reduced.



Source: Burbank to Los Angeles, At-Grade Shared Alignment PEPD, Downey Bridge – LA River Overpass (Authority 2018b)

**Figure 5-4 Plan View of Existing Downey Bridge Water Crossing at the Los Angeles River**

### 5.1.3 Mission Tower Bridge

There are no proposed impacts to waters of the U.S. associated with this project component. As previously discussed and portrayed on Figure 4-9<sup>Error! Reference source not found.</sup>, the proposed improvement would involve the construction of an additional Metrolink track on the existing Mission Tower Bridge, which crosses over the Los Angeles River. The proposed trackwork at the existing Mission Tower Bridge would not result in any modifications within the channel or floodplain, and the current capacity of the channel would not be reduced.

## 5.2 Anticipated Permanent Fill

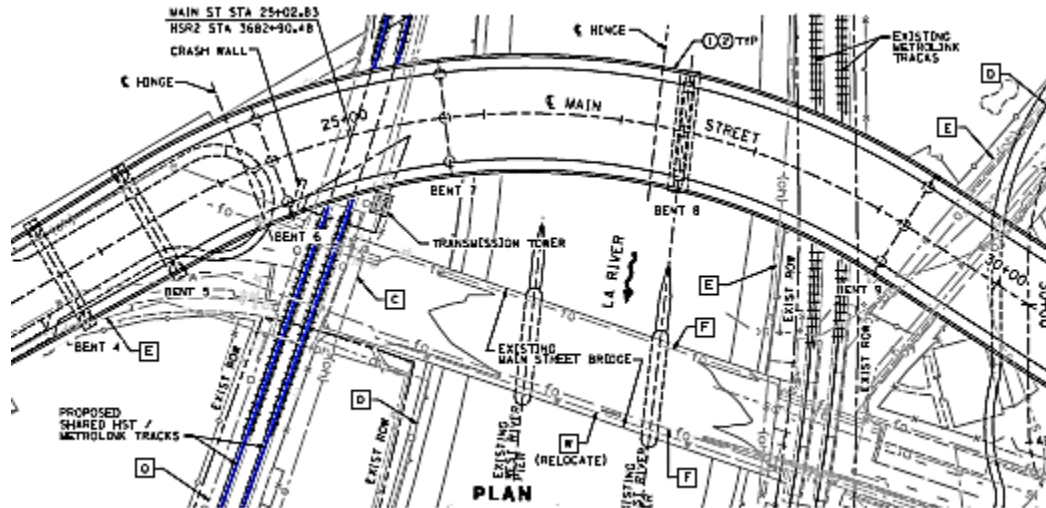
The proposed HSR alignment for the project section would result in the discharge of less than 0.5 acre of permanent fill<sup>4</sup> into waters of the U.S. at one location. The following subsection contains a brief description of the proposed Main Street Roadway Bridge and the associated permanent fill calculation.

<sup>4</sup> Pursuant to Code of Federal Regulations Title 33, Part 323.2(e)(1)-(2), the term "fill material" means material placed in waters of the U.S. where the material has the effect of: (i) replacing any portion of a water of the U.S. with dry land; or (ii) changing the bottom elevation of any portion of a water of the U.S. Examples of such 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 the waters of the U.S. In this circumstance, permanent fill would consist of the permanent placement of concrete piers/piles, bridge abutments, and rock revetment. The final categorization of impacts is subject to USACE concurrence.



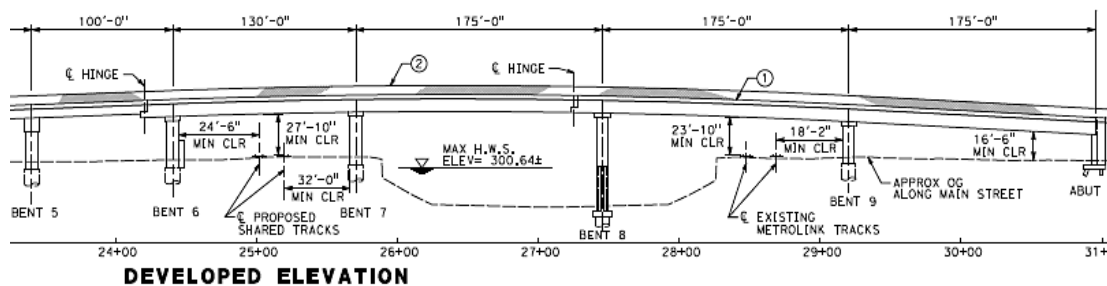
## 5.2.1 Main Street Roadway Bridge

The proposed water crossing structure identified in the *California High-Speed Train Engineering Plans, Burbank to Los Angeles, At-Grade Shared Alignment PEPD, Grade Separation—Main Street Overpass* (Authority 2018c) would include a new Main Street Bridge over the Los Angeles River. The existing Main Street Bridge would remain in place. The proposed configuration of the Main Street grade separation over the Los Angeles River is illustrated on Figure 5-5. The proposed Main Street Bridge would have one row of three 8-foot-diameter columns (10-foot-diameter bases) with a pier wall located within the Los Angeles River and another row of three 8-foot-diameter columns located on the west side of the concrete channel, as shown on Figure 5-6. A typical cross-section for the support structure within the Los Angeles River is illustrated on Figure 5-7.



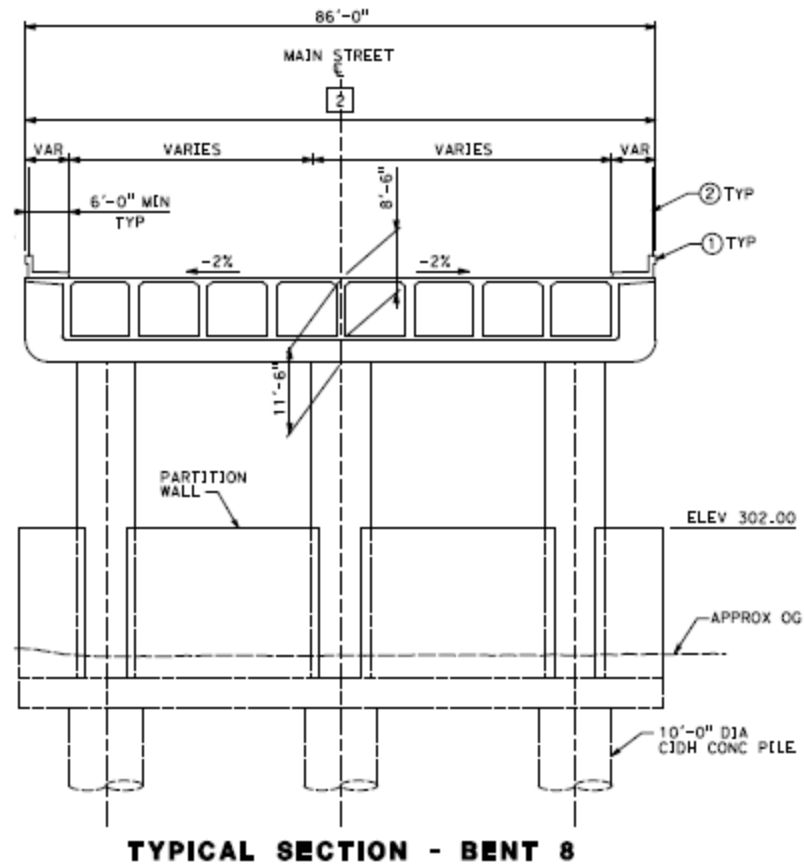
Source: Burbank to Los Angeles, At-Grade Shared Alignment PEPD, Grade Separation—Main Street Overpass (Authority 2018c)

**Figure 5-5 Plan View of Proposed Main Street Water Crossing Structure at the Los Angeles River**



Source: Burbank to Los Angeles, At-Grade Shared Alignment PEPD, Grade Separation—Main Street Overpass (Authority 2018c)

**Figure 5-6 Elevation View of Main Street Water Crossing Structure at the Los Angeles River**

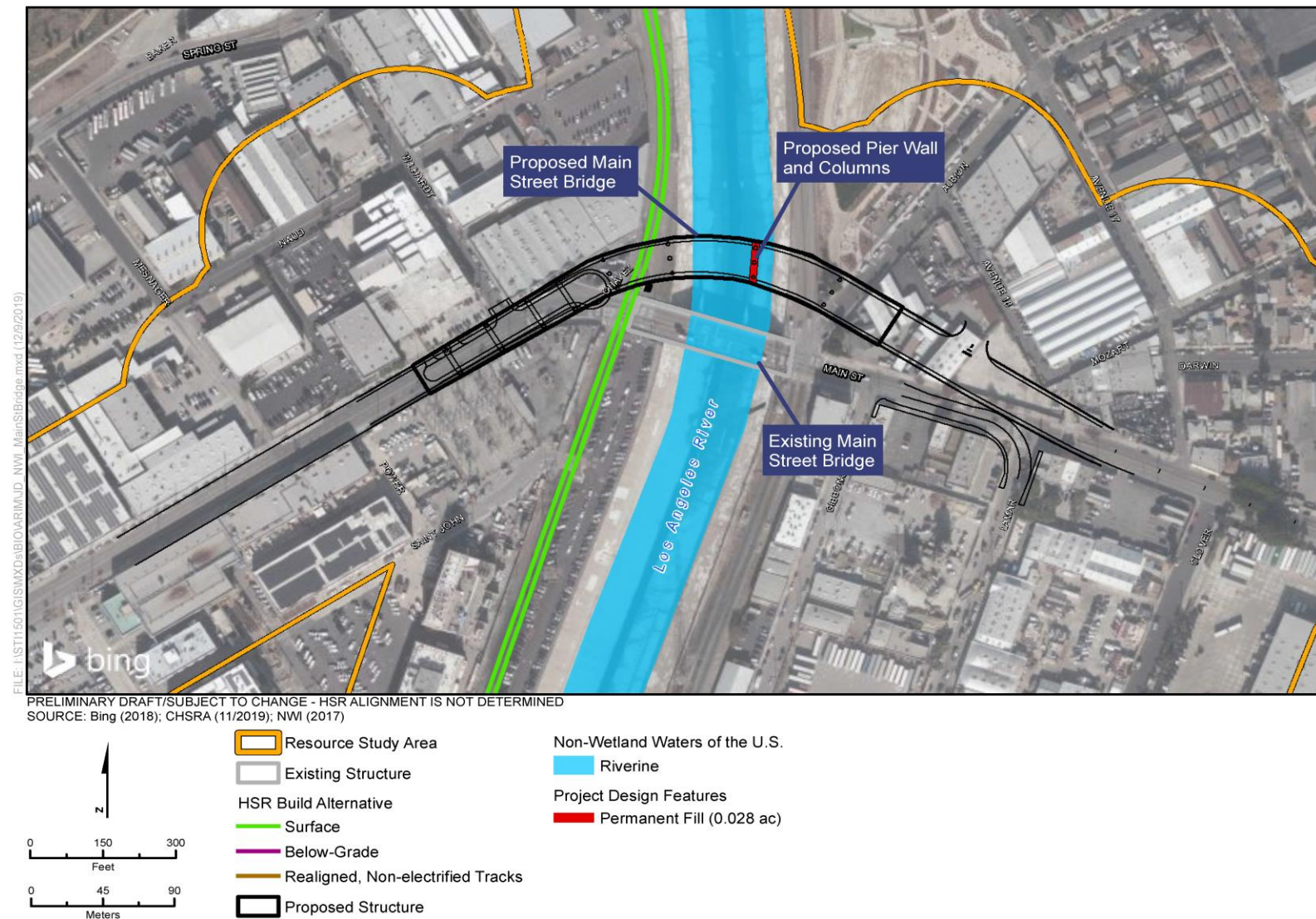


Source: Burbank to Los Angeles, At-Grade Shared Alignment PEPD, Grade Separation—Main Street Overpass (Authority 2018c)

**Figure 5-7 Typical Section of Main Street Water Crossing Structure at the Los Angeles River**

This project component would result in 0.028 acre of new permanent fill (e.g., concrete columns, pier wall) within waters of the U.S., as shown on Figure 5-8. Such impacts to waters of the U.S. would be within the allowable parameters of NWP 14.





**Figure 5-8 Permanent Fill Associated with the Proposed Main Street Water Crossing Structure at the Los Angeles River**

### 5.3 Anticipated Temporary Fill

In order to construct the crossings and channel modifications, the Authority anticipates the temporary discharge of fill material associated with the construction of temporary surface water diversions, dewatering, access roads, and falsework, as well as the temporary staging of materials. Such activities would temporarily affect up to approximately 2 acres of nonwetland (Riverine) Waters of the U.S. within channelized, concrete-lined portions of the Los Angeles River and Verdugo Wash. Temporary effects associated with construction access would not result in the permanent loss of Waters of the U.S. Potential temporary fills within jurisdictional waters associated with bridge construction activities (e.g., dewatering or water diversions) would be further defined during the regulatory permitting processes with CDFW, SWRCB, and USACE, as applicable. Such activities would be carried out in accordance with the provisions set forth in NWP 12 and 14, the Authority's standard mitigation policies, the requirements of the USACE, and any potential mitigation that may be developed specific to the Burbank to Los Angeles Project Section in the Draft EIR/EIS. Examples of such mitigation measures include:

- Return degraded habitat to pre-existing conditions
- Enhance existing habitats by increasing one or more functions through activities such as native plantings or nonnative vegetation eradication

#### 5.3.1 Burbank and Lockheed Channels

The proposed BC and LC modifications would involve the removal or filling of portions of the existing LC and the reconfiguration of the BC/LC confluence. However, the construction of a realigned channel would replace the existing channel and associated nonwetland waters of the U.S. Based on discussions with the USACE that took place on November 17, 2016, the realignment of an underground or open, concrete-lined storm drain would be considered a temporary impact. The following subsections summarize the temporary impacts associated with each proposed channel modification.

##### 5.3.1.1 Lockheed Channel

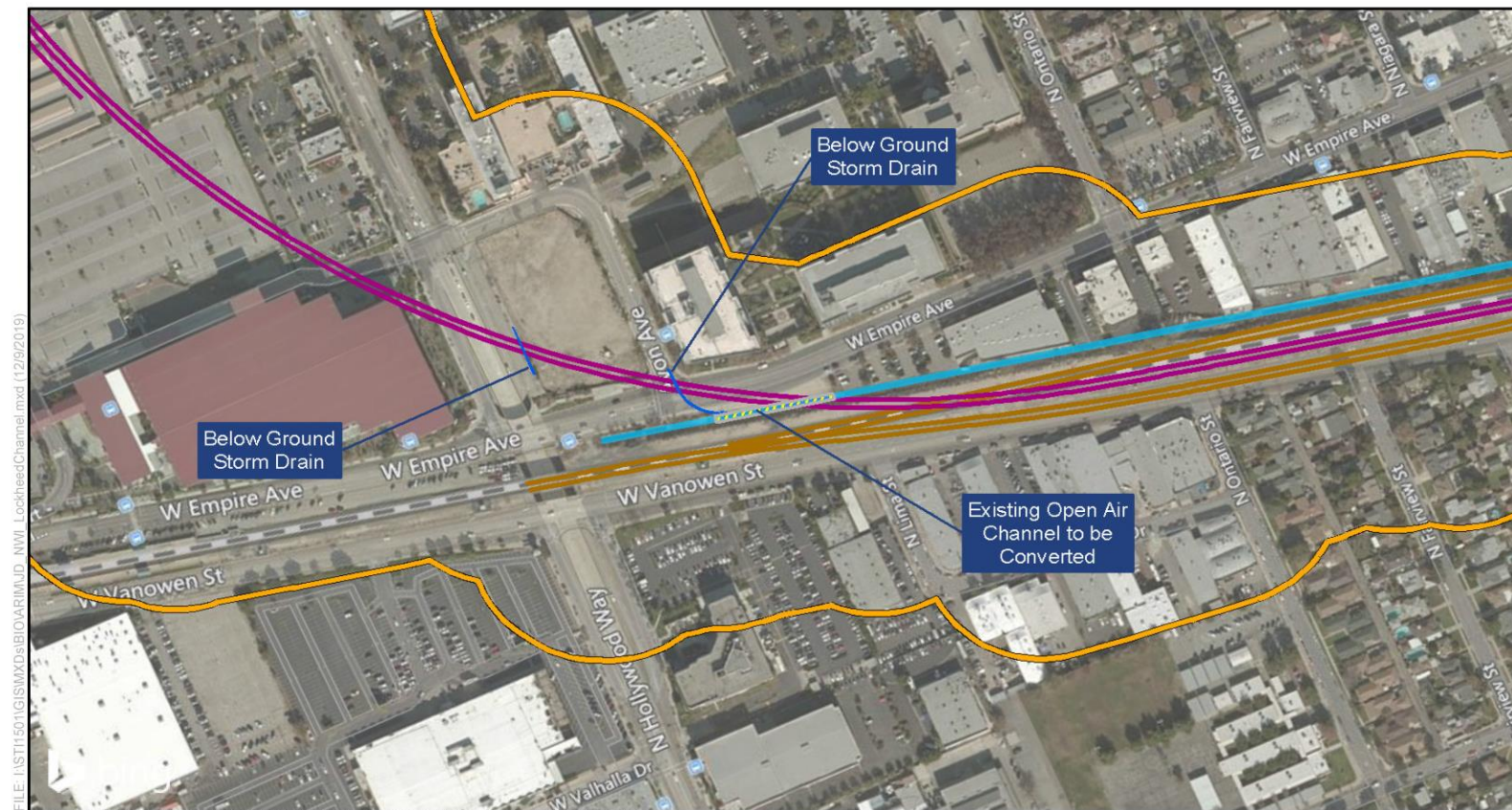
The HSR Build Alternative would result in temporary impacts to USACE nonwetland waters of the U.S. associated with the realignment of LC.

A portion of LC that currently exists as an open storm channel east of N Hollywood Way and north of W Vanowen Street would be converted to a covered box culvert. This portion of LC would be supported above the proposed below-grade HSR alignment at this location and would tie into existing underground portions of LC.

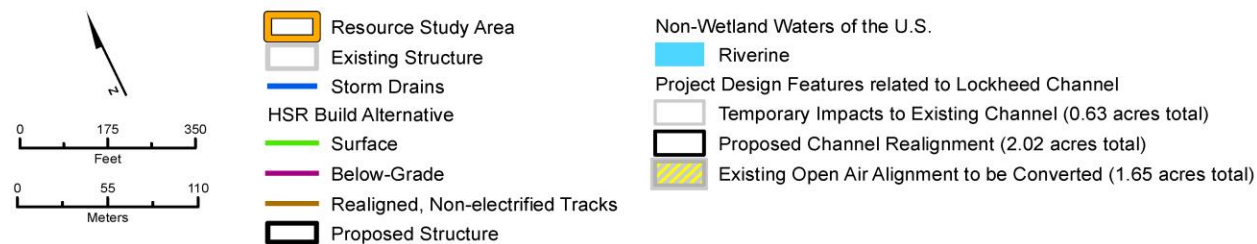
A portion of LC that currently crosses under the existing railroad right-of-way and transitions to an open storm drain just east of N Lincoln Street would be realigned as an underground box culvert. The proposed underground channel realignment would run on the north side of the existing railroad alignment between N Lincoln Street and Burbank Costco, at which point the underground channel would be aligned to run south on the west side of N Victory Place, then transition to run east on the north side of W Burbank Boulevard, continue northeast parallel to W Burbank Boulevard, and head south paralleling the existing open, aboveground LC. This portion of LC would continue to parallel the final reach of the open LC until it reaches BC just south of the existing LC/BC confluence, at which point LC would tie into the open BC.

Because of this realignment, approximately 4,450 linear feet of the open LC would be abandoned and its transport of flow function would be replaced with the realigned underground channel. Several small municipal storm drains would also be extended to reach the realigned LC. The proposed realignments of LC, including portions that would be converted from an open/aboveground channel to an underground, boxed culvert, would be considered a temporary impact to USACE nonwetland waters of the U.S., as shown on Figure 5-9 through Figure 5-11. The existing LC drainage structure would either be removed or abandoned in place. The disposition of the existing channel would be the ultimate decision of the facility owner (the City of Burbank).



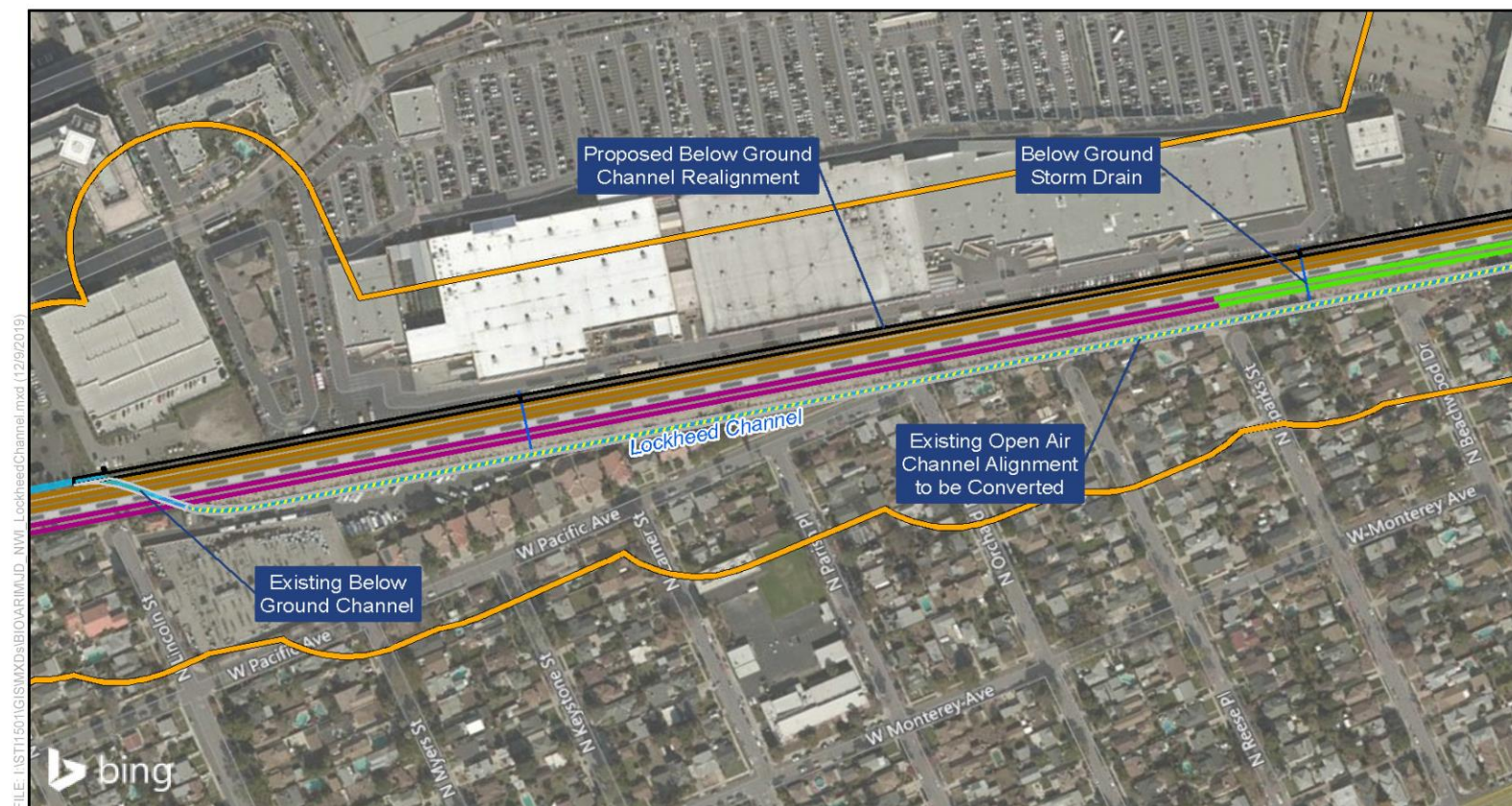


PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
SOURCE: Bing (2018); CHSRA (11/2019); NWI (2017)

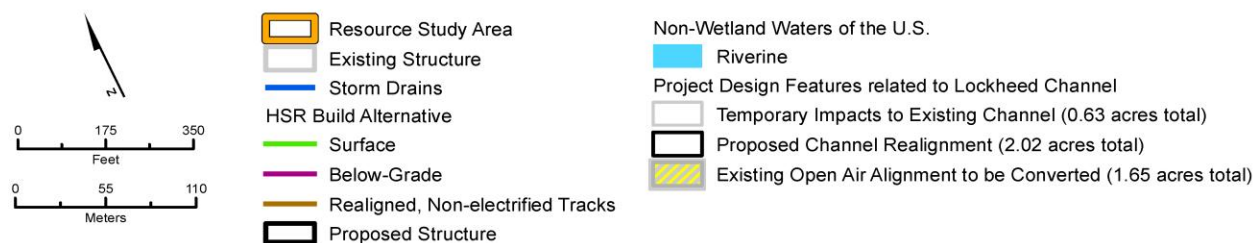


**Figure 5-9 Temporary Fill Associated with the Proposed Lockheed Channel Modifications (West)**



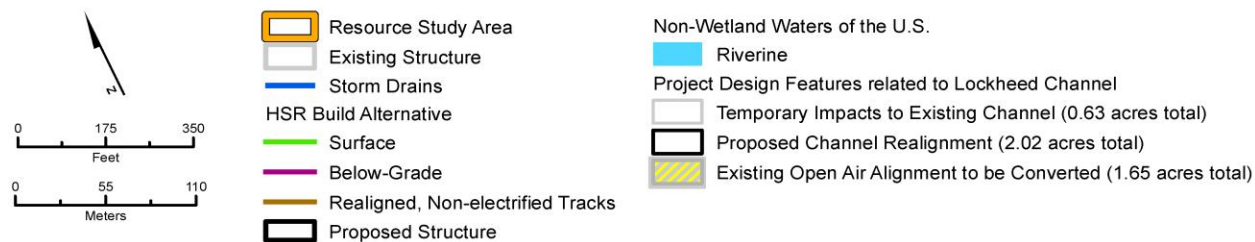


PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
SOURCE: Bing (2018); CHSRA (11/2019); NWI (2017)



**Figure 5-10 Temporary Fill Associated with the Proposed Lockheed Channel Modifications (Central)**





**Figure 5-11 Temporary Fill Associated with the Proposed Lockheed Channel Modifications (East)**



Collectively, 2.05 acre of temporary impacts to USACE jurisdictional nonwetland waters of the U.S. associated with LC would occur under the HSR Build Alternative. A total of 2.02 acres of new (realigned) channel would be constructed. A net gain of 0.015 acre of nonwetland aquatic resources would occur under the HSR Build Alternative due to the proposed Lockheed Channel realignment.

### **5.3.1.2 Burbank Western Channel**

The HSR Build Alternative would result in temporary impacts to USACE nonwetland waters of the U.S. associated with the reconfiguration of the BC/LC confluence. The existing BC/LC confluence would be modified by constructing a concrete channel wall where the existing LC meets BC. A portion of the eastern BC wall would be cut and removed to support the new LC alignment, south of the existing confluence. In addition, a cap would be placed over the existing BC/LC confluence, which would extend the underground portion of BC by approximately 87 feet. The proposed modifications to BC would be considered a temporary impact to USACE nonwetland waters of the U.S., as shown on Figure 5-11. Approximately 0.23 acre of BC would be temporarily affected during the reconfiguration of the BC/LC confluence.

## **5.4 Other High-Speed Rail Facilities**

All work conducted at each of the proposed water crossings and channel realignments would be associated with the construction of the HSR track alignment, and the construction of any ancillary or nonlinear facilities would not require the discharge of fill within waters of the U.S. Examples of such facilities may include staging/storage areas and utility substations. The construction of these ancillary facilities would not result in any modifications within existing channels, floodplains, or other waters of the U.S.

## **6 CONCLUSION**

No component of the Burbank to Los Angeles Project Section would cause the loss of greater than 0.5 acre of waters of the U.S. Furthermore, all impacts to waters of the U.S. associated with the project section water crossings and channel modifications would comply with the specifications set forth in NWP 14, as well as all NWP General and Regional Conditions. While current plans for the utility realignment crossing Verdugo Wash do not propose any impacts to waters of the U.S., NWP 12 could potentially be used as long as the activity does not result in the loss of greater than 0.5 acre of waters of the U.S.

Based on conversations with the USACE that took place in November 2016, each project component that will result in modifications to LC, BC, Verdugo Wash, and the Los Angeles River will also require compliance with Section 408.

## **7 LIST OF PREPARERS**

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**Bo Gould** has a B.A. in Environmental Studies and Science and 5 years of experience in Southern California biology. As a Biologist at LSA, Mr. Gould assisted with the preparation of this memorandum.

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