California High-Speed Rail Authority

Los Angeles to Anaheim Project Section

Aquatic Resources Impacts Memorandum

October 2025



CALIFORNIA High-Speed Rail Authority

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being or have been carried out by the State of California pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated July 22, 2024, and executed by the Federal Railroad Administration and the State of California.

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ACRONYMS AND ABBREVIATIONS

Term	Definition
Authority	California High-Speed Rail Authority
BNSF	BNSF Railway
cfs	cubic feet per second
CWA	Clean Water Act
Fed. Reg.	*Federal Register*
FRA	Federal Railroad Administration
HSR	High-Speed Rail
HUC-8	Hydrologic Unit Code–8
LMF	light maintenance facility
MOU	memorandum of understanding
NWI	National Wetlands Inventory
NWP	Nationwide Permit
PEPD	Preliminary Engineering for Project Definition
project section	Los Angeles to Anaheim Project Section
RSA	resource study area
U.S.C.	U.S. Code
USACE	U.S. Army Corps of Engineers

1 INTRODUCTION

This Aquatic Resources Impacts Memorandum was prepared in support of the California High-Speed Rail Authority's (Authority) permitting efforts for the California High-Speed Rail (HSR) Project, Los Angeles to Anaheim Project Section (project section). The memorandum presents a summary of impacts on aquatic resources potentially subject to U.S. Army Corps of Engineers (USACE) Clean Water Act (CWA) Section 404 jurisdiction, as well as supporting information for covering these impacts under USACE Nationwide Permit (NWP) 14, Linear Transportation Projects.

The project section would extend approximately 30 miles and travel through the cities of Los Angeles, Vernon, Bell, Commerce, Montebello, Pico Rivera, Santa Fe Springs, Norwalk, La Mirada, Buena Park, Fullerton, and Anaheim. The project's alignment would share the existing Los Angeles – San Diego – San Luis Obispo Rail Corridor with existing rail operations, including National Railroad Passenger Corporation (Amtrak) passenger trains, Metrolink commuter trains, and BNSF Railway (BNSF) freight trains. In addition to new tracks for HSR, the project section would include an HSR station in Anaheim, the Anaheim Regional Transportation Intermodal Center, as well as a maintenance of infrastructure siding, a light maintenance facility (LMF) with alternatives at 26th Street or 15th Street, and electric power utility improvements. Design options for one additional HSR station to be in either Norwalk/Santa Fe Springs or Fullerton are included in the project section.

There are two build alternatives for the project section, consisting of an alternative with the LMF at 26th Street (Shared Passenger Track Alternative A) and an alternative with the LMF at 15th Street (Shared Passenger Track Alternative B). A description of the Shared Passenger Track Alternatives and their locations can be found in Chapter 2, Project Description, of the *Los Angeles to Anaheim Project Section Draft Biological and Aquatic Resources Technical Report* (Authority 2025b).

Shared Passenger Track Alternative A proposes to introduce HSR service into the Los Angeles – San Diego – San Luis Obispo Rail Corridor from Los Angeles Union Station to Anaheim Regional Transportation Intermodal Center. The Shared Passenger Track Alternative A project footprint would primarily be within the existing railroad right-of-way, and include both a northbound and southbound electrified track for HSR. Shared Passenger Track Alternative A would include HSR stations in Los Angeles and Anaheim and could include one HSR station option (i.e., Fullerton or Norwalk/Santa Fe Springs). Shared Passenger Track Alternative A proposes an LMF between 26th Street and a BNSF spur on the south side of the BNSF Hobart Yard, also used by Amtrak, along the west bank of the Los Angeles River. Two HSR station options are proposed under Shared Passenger Track Alternative A: (1) Norwalk/Santa Fe Springs or (2) Fullerton.

Shared Passenger Track Alternative B would follow the same alignment and share most of the same project features and operational assumptions as Shared Passenger Track Alternative A, except it would include the 15th Street LMF, rather than the 26th Street LMF of Shared Passenger Track Alternative A. The 15th Street LMF has a northern boundary at approximately Seventh Street and continues adjacent to and west of the existing Amtrak Eighth Street yard to Washington Boulevard in the south. This technical memorandum focuses on analysis carried out for the Shared Passenger Track Alternatives exclusively within the project section between Los Angeles and Anaheim.

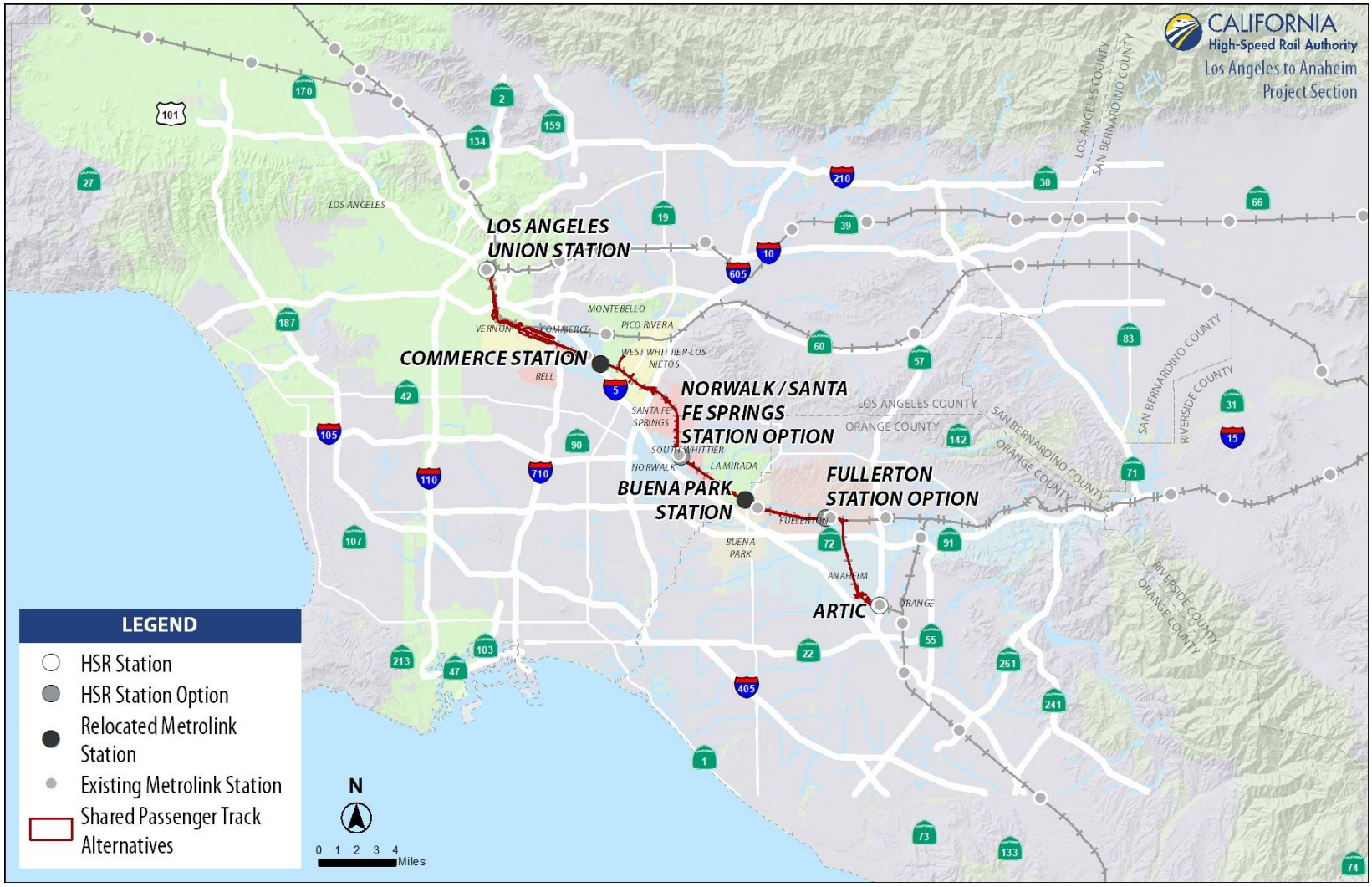
Figure 1-1 illustrates the project vicinity and Figure 1-2 depicts an overview of the project section. The Aquatic resource study area (RSA) (Figure 1-3) evaluated for the project section includes the project footprint plus an additional 250-foot buffer, for a total area of 3,612.73 acres.[1] In summary, the project section would cross nine named watercourses and one unnamed built watercourse (Feature 29) considered subject to USACE CWA Section 404 jurisdiction,[2] consisting of the

[1] The overall size of the Aquatic RSA is based on the project footprint dated August 2024 and includes both of the Shared Passenger Track Alternatives.
[2] No Rivers and Harbors Act Section 10 navigable waters of the U.S. were identified in the Aquatic RSA.

Los Angeles River, Rio Hondo, San Gabriel River, North Fork Coyote Creek, La Mirada Creek, Coyote Creek, Brea Creek, Feature 29, Fullerton Creek, and Carbon Creek. Of the ten proposed crossings, seven would result in a discharge of fill material within CWA Section 404 jurisdiction, and would therefore require authorization from USACE under CWA Section 404. The proposed in-channel project components for each of these seven crossings consist of the following:

1. Rio Hondo (Feature 5): bridge pier modification, in-kind access road and bike path improvements, and temporary access and staging
2. San Gabriel River (Feature 12): bridge pier and pier wall modifications, new pier wall, new storm drain outlet, and temporary access and staging
3. North Fork Coyote Creek (Feature 14): bridge pier modification and temporary access and staging
4. La Mirada Creek (Feature 19): bridge pier, headwall, and culvert modifications, and temporary access and staging
5. Coyote Creek (Feature 20): culvert and pier wall modifications, and temporary access and staging
6. Brea Creek (Feature 41): bridge pier modifications and temporary access and staging
7. Unnamed built watercourse (Feature 29): culvert modifications and temporary access

The project section also would cross the following watercourses: Los Angeles River, Fullerton Creek, and Carbon Creek. However, these three proposed crossings would not require in-channel work or other discharges of fill material and are therefore not discussed further in this memorandum. In addition, although the Santa Ana River falls within the southern terminus of the Aquatic RSA, there are no crossings or other discharges of fill material within the Santa Ana River proposed under the project section. Therefore, the Santa Ana River is also excluded from further discussion.



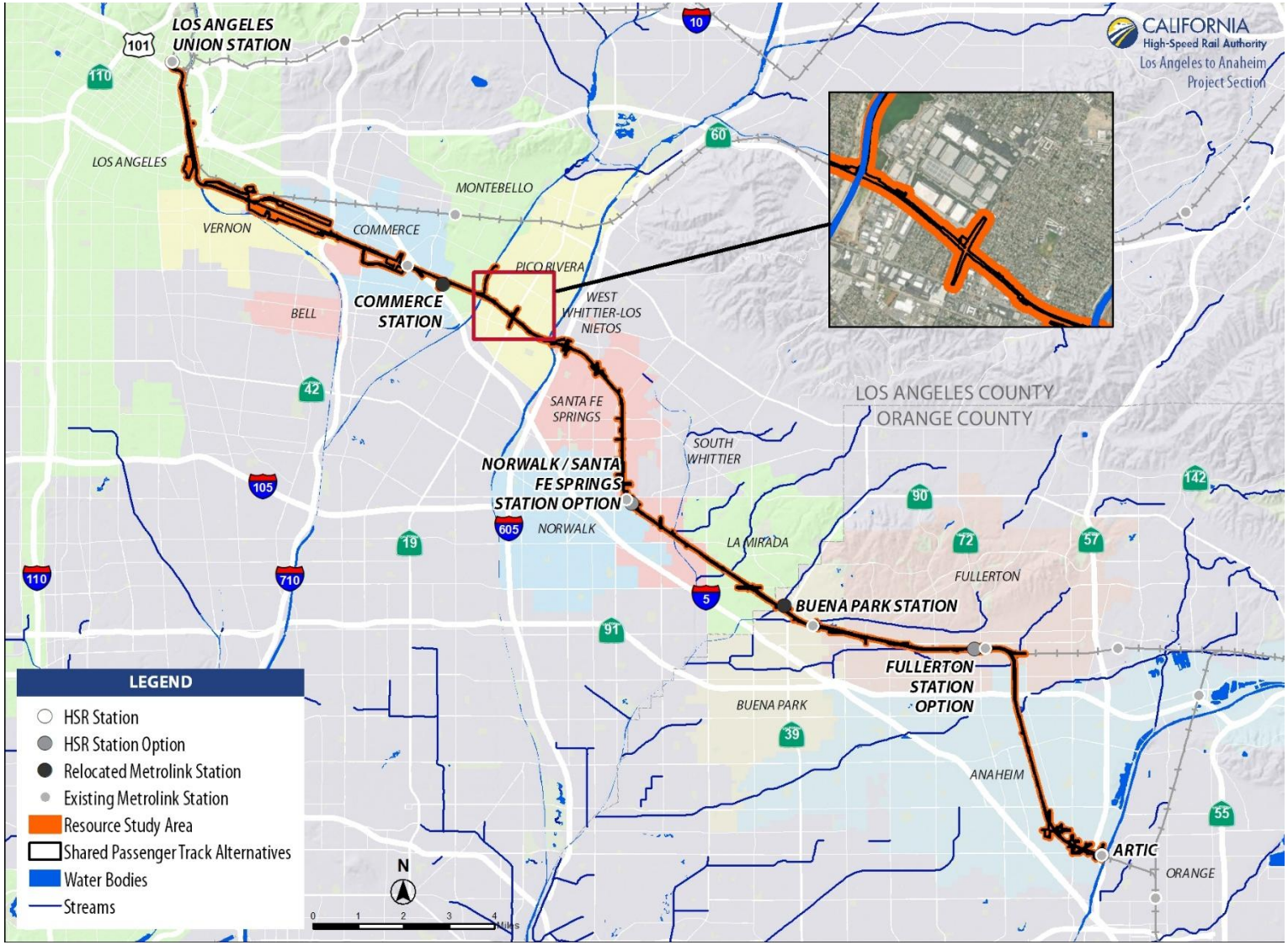
Sources: Authority 2023; USGS 2024a; ESRI 2024

Figure 1-1 Regional Vicinity



Source: Authority 2025c
Draft alignments, elements not to scale

Figure 1-2 Los Angeles to Anaheim Project Section



Sources: Authority 2023; USGS 2024a; ESRI 2024

Figure 1-3 Aquatic Resource Study Area

2 PURPOSE OF MEMORANDUM

2.1 U.S. Army Corps of Engineers Pre-Consultation – Clean Water Act Nationwide Permit Versus Individual Permit

Under Section 404 of the CWA, USACE, and the U.S. Environmental Protection Agency regulate the discharge of dredged and fill materials into the waters of the U.S. Applicants must obtain authorization from USACE for discharges of dredged or fill materials into wetlands and nonwetland waters of the U.S. The USACE authorization process involves two categories of permits: general permits for actions that are similar in nature and will likely result in only minor effects on waters of the U.S., and individual permits for more substantial effects not qualifying for general permits.

General permits are issued on a nationwide, statewide, or regional basis to streamline the authorization for categories of activities, and include NWPs, regional general permits, and programmatic general permits. Under the NWP program, qualifying projects are expected to result in minimal adverse effects on the aquatic environment, both individually and cumulatively. In order to qualify for the use of an NWP, applicants must comply with all of the terms, general conditions, and regional conditions of the NWP, including requirements for the submittal of a Pre-Construction Notification. A Pre-Construction Notification and subsequent receipt of USACE verification may be required for certain categories of activities or thresholds of impact before an applicant may begin work in waters of the U.S. In circumstances where a Pre-Construction Notification is not required for a proposed activity within waters of the U.S. (non-notifying NWPs), applicants are still responsible for compliance with all applicable terms and conditions of the applicable NWP.

A total of 57 NWP categories of activities are covered under the 2021 NWP program (USACE 2021a). Concurrent with this reinstatement of the NWP program, the Los Angeles District included five regional conditions that apply to specific NWPs in California to ensure proposed impacts on waters of the U.S. remain minimal within the Los Angeles District (USACE 2021b). These NWPs and regional conditions went into effect in two phases; the first phase for 16 NWPs became effective on March 15, 2021, and the second phase for the remaining 41 NWPs became effective on February 25, 2022. All of the 2021 NWPs will expire on March 14, 2026.

Projects not qualifying for a general permit may be authorized under an individual permit by means of a Standard Individual Permit or a Letter of Permission authorization (33 Code of Federal Regulations Part 325.5(b)(1)). The Standard Individual Permit evaluation process includes a public notice, public interest review, environmental documentation, and, if applicable, a Section 404(b)(1) Guidelines compliance analysis, whereas the Letter of Permission involves an abbreviated evaluation process, including coordination with federal and state resource agencies and a public interest evaluation.

This memorandum and associated materials are intended to be submitted to USACE in the pre-application coordination phase in order to receive confirmation on the proposed permitting strategy for the project section. Based on the Authority's findings and initial feedback from USACE, it is anticipated the project section would qualify for coverage under the NWP program (refer to Section 3.1, Nationwide Permit Terms and Conditions).

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

The Federal Railroad Administration (FRA), Authority, U.S. Environmental Protection Agency, and USACE have entered into a memorandum of understanding (MOU) regarding compliance with their respective regulations. The goal of this MOU is to facilitate compliance with the National Environmental Policy Act (U.S. Code [U.S.C.] Title 42, Section 4321 et seq.), CWA Section 404 (33 U.S.C. 1344) (hereinafter "Section 404"), and Rivers and Harbors Act Section 14 (33 U.S.C. 408) (hereinafter referred to as "Section 408") processes for the project-level (Tier 2) Environmental Impact Statements 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 USACE to more efficiently adopt the Tier 2 Environmental Impact Statements for which the FRA is the federal lead agency.

Tier 2 environmental reviews covered by the MOU will advance and expand on the Tier 1 decisions of the Authority and FRA, which have already been made. USACE has agreed to participate as a cooperating agency under the National Environmental Policy Act in the Tier 2 environmental processes, including the development of both the Draft and Final Environmental Impact Reports/Environmental Impact Statements. The Tier 2 Environmental Impact Reports/Environmental Impact Statements will evaluate the selected corridors and stations in site-specific detail through further consultation with the U.S. Environmental Protection Agency 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.[3]

In November 2015, USACE confirmed the proposed watercourse crossings in the project section would qualify for NWP 14, Linear Transportation Projects. Because the Authority has committed to meeting the stringent requirements of this program, including impact thresholds and mandatory mitigation measures, compliance with the CWA 404(b)(1) Guidelines is achieved on a programmatic basis rather than on the project level. Accordingly, the Authority is not required to identify a least environmentally damaging practicable alternative, and therefore this component of MOU Checkpoint C would not be needed for this project section.

In November 2016, USACE confirmed the Los Angeles River, Rio Hondo, San Gabriel River, North Fork Coyote Creek, Coyote Creek, and Santa Ana River are USACE facilities subject to Section 408 compliance. In accordance with MOU Checkpoint C, the Authority will initiate pre-application coordination with USACE regarding Section 408 review for the proposed alteration/modification of these watercourses, as well as to assist with identification of additional watercourses within the project section that may subject to Section 408. This component of MOU Checkpoint C culminates in a written response from USACE District Office(s) preliminarily recommending or not recommending Section 408 approval.

2.3 Engineering Information – Design Phasing

The proposed impacts on waters of the U.S. discussed in this memorandum (Chapter 5, Impacts) are calculated using ArcGIS (ESRI 2024) and are based on the plans and specifications described in the *Los Angeles to Anaheim Project Section Draft Final Preliminary Engineering for Project Definition (PEPD) Design Submittal: Water Crossings Technical Report* (Authority 2024b) and *Los Angeles to Anaheim Project Section Draft Final PEPD Design Submittal Advanced Planning Study* (Authority 2024a). Representative plan view and cross-sectional view figures for proposed crossings of major watercourses are provided in Section 5.2, Water Crossings Subject to Clean Water Act Section 404 Authorization. Submittal of a Pre-Construction Notification to USACE for authorization under NWPs will be based on these designs.

[3] 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.

3 REGULATORY FRAMEWORK

Pursuant to Section 404 of the CWA, USACE regulates the discharge (temporary or permanent) of dredged or fill material into waters of the U.S., including wetlands. A discharge of fill material includes, but is not limited to, grading, placing riprap for erosion control, pouring concrete, laying sod, or stockpiling excavated material in waters of the U.S. Activities that generally do not involve a regulated discharge (if performed in a manner that specifically avoids discharges) include driving pilings, performing certain drainage channel maintenance activities, building temporary mining and farm/forest roads, and excavating without stockpiling. The *Los Angeles to Anaheim Project Section Draft Aquatic Resources Delineation Report* (Authority 2025a) describes the laws, policies, and orders applicable to wetland and nonwetland aquatic resources and includes the Authority's preliminary jurisdictional delineation of potentially jurisdictional USACE wetlands and nonwetland waters of the U.S. The following section provides specific text from the *Federal Register* pertaining to the USACE 2021 NWP program (86 *Federal Register* [Fed. Reg.] 73522–73583).

3.1 Nationwide Permit Terms and Conditions

Based on the preliminary analysis of impacts on waters of the U.S. for the project section, it is anticipated that the project section would qualify for authorization under the USACE NWP program, specifically NWP 14, Linear Transportation Projects. The following section provides relevant language from NWP 14 for the final 2021 reinstated Nationwide Permit program (USACE 2021a). In addition, the section provides a summary of the project components that the Authority expects would qualify for the NWP.

3.1.1 Nationwide Permit 14, Linear Transportation Projects

NWP 14 covers activities required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, taxiways) in waters of the U.S. For linear transportation projects in nontidal waters, the discharge cannot cause the permanent loss of greater than 0.5 acre of waters of the U.S. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to build or protect the linear transportation project; such modifications must be in the immediate vicinity of the project (described below).

This NWP also authorizes temporary structures, fills, and work necessary to build 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 will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to preconstruction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

NWP 14 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.

Under the project, the Authority expects to qualify for NWP 14 at the seven separate water crossings resulting in a discharge of fill material within CWA Section 404 jurisdiction. The following section provides notification requirements for this NWP.

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 1/10 acre; or (2) there is a discharge in a special aquatic site, including wetlands (General Condition 32).

3.1.2 Single and Complete Linear Project

Pursuant to the USACE Regulatory operating regulations (33 Code of Federal Regulations Part 330.2, Definitions), “For linear projects, the ‘single and complete project’ (i.e., single and complete crossing) will apply to each crossing of a separate water of the United States (i.e., single waterbody) at that location; except that for linear projects crossing a single waterbody several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly-shaped wetland or lake, etc., are not separate waterbodies” (USACE 1986). This definition of single and complete project is also promulgated under the USACE NWP program (USACE 2021a). Refer to Section 5.3, Single and Complete Water Crossings, for the Authority’s rationale and preliminary determination regarding USACE authorization of each of the proposed water crossings under the NWP program as single and complete projects.

4 EXISTING CONDITIONS

4.1 Regional Location

The Aquatic RSA is within the Los Angeles basin, bounded by the Santa Monica Mountains and Puente Hills to the north, the Santa Ana Mountains and San Joaquin Hills to the east and south, and the Palos Verdes Peninsula along the coast. The project section falls within a heavily urbanized and industrialized portion of the Los Angeles basin, within the northernmost portion of the Peninsular Ranges Geomorphic Province. The RSA consists of flat, developed lands and includes a full range of urban land uses including commercial, industrial, recreational, and residential. Appendix B, U.S. Geological Survey Topographic Maps, of the *Los Angeles to Anaheim Project Section Draft Aquatic Resources Delineation Report* (Authority 2025a) provides U.S. Geological Survey topographic mapping for the project section. The predominant aquatic resources observed in the RSA consist of low-gradient streams that have been concrete lined or channelized and are surrounded by urban development. Elevation ranges from approximately 82 to 292 feet above mean sea level. In terms of ecology, the project section is in the Southern California/Northern Baja Coast (Level III) Ecoregion and, more specifically, the Los Angeles Plain (Level IV) Ecoregion (USGS 2011).

4.2 Watersheds

The Aquatic RSA lies within the watersheds of the Los Angeles River Basin (531,817 acres), San Gabriel River Basin (579,963 acres), Santa Ana River Basin (1,084,238 acres), and Seal Beach Basin (81,520 acres) (Figure 4-1). These watersheds are assigned the following U.S. Geological Survey Hydrologic Unit Code–8 (HUC-8) designations, respectively (USGS 2016):

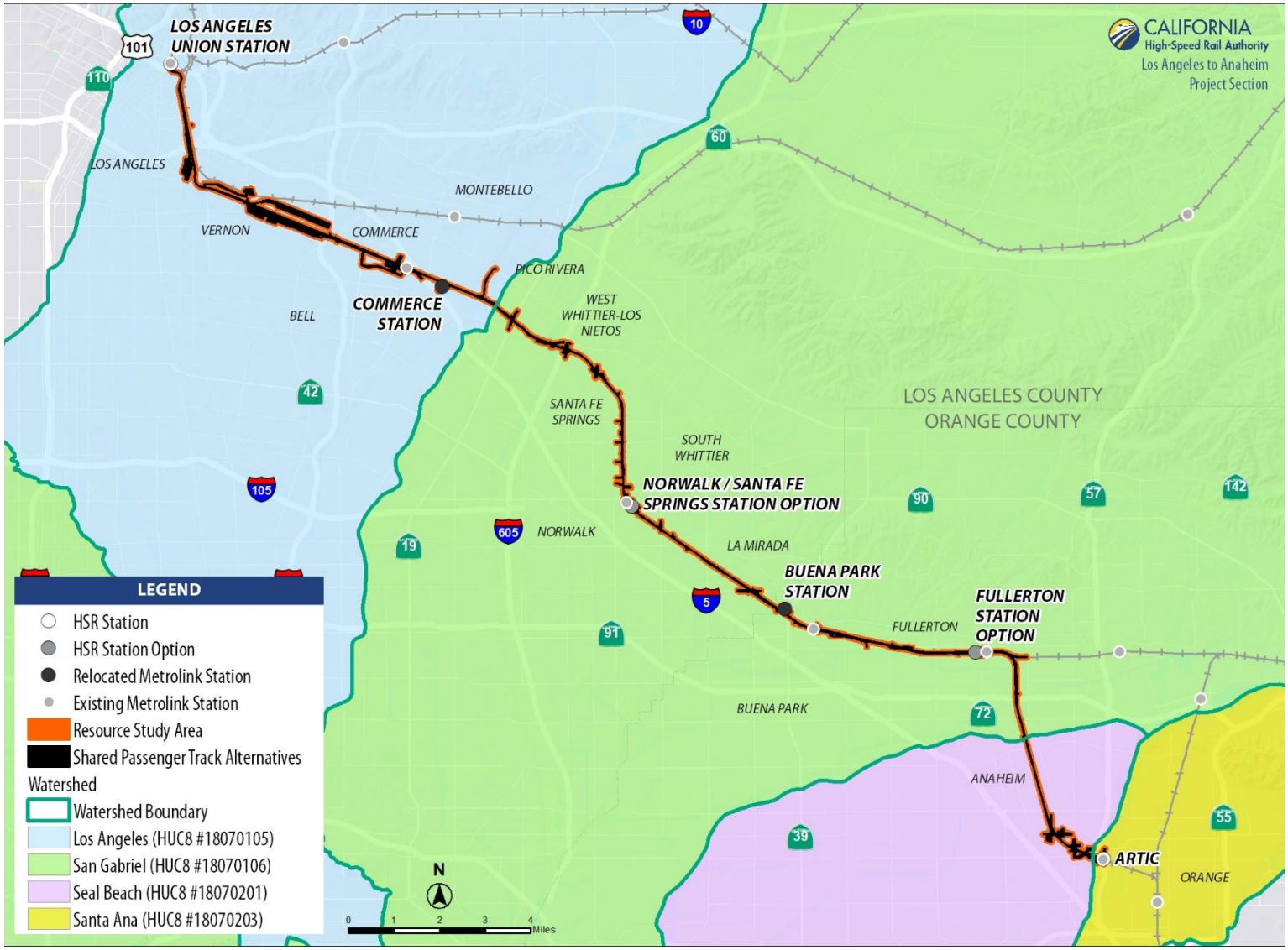
- Los Angeles River (HUC-8 18070105)
- San Gabriel River (HUC-8 18070106)
- Santa Ana River (HUC-8 18070203)
- Seal Beach (HUC-8 18070201)

Potentially jurisdictional watercourses in the Aquatic RSA (north to south) consist of the Los Angeles River, Rio Hondo, San Gabriel River, North Fork Coyote Creek, La Mirada Creek, Coyote Creek, Brea Creek, Fullerton Creek, Carbon Creek, and Santa Ana River. Potentially jurisdictional basins in the RSA include the eight Rio Hondo spreading grounds, the Lakeside Residential Community Pond, and the two Raymond Retarding basins. Table 4-1 summarizes the named water features within each HUC-8 watershed and total acreage of each HUC-8 watershed occurring within the RSA.

Table 4-1 Watersheds in the Aquatic Resource Study Area

Sub-basin (Hydrologic Unit Code–8)	Water Features within the Aquatic RSA	Watershed Area (acres)	Watershed within Aquatic RSA (acres)
Los Angeles River (18070105)	Los Angeles River, Rio Hondo, Rio Hondo spreading grounds	531,817	1,508.52
San Gabriel River (18070106)	San Gabriel River, North Fork Coyote Creek, La Mirada Creek, Coyote Creek, Brea Creek, Lakeside Residential Community Pond, Fullerton Creek, Carbon Creek, Raymond Retarding basins	579,963	1,655.21
Santa Ana River (18070203)	Santa Ana River	1,084,238	63.35
Seal Beach (18070201)	None	81,520	385.65
	Total	**2,277,538**	**3,612.73**

Sources: USGS 2024a, 2024b
RSA = resource study area



Sources: Authority 2024b; USGS 2024b; ESRI 2024

Figure 4-1 Watersheds

4.3 Soils

The Los Angeles basin of coastal Southern California is an alluvial lowland, situated south of the Santa Monica Mountains and the Elysian, Repetto, and Puente Hills, and west and northwest of the Santa Ana Mountains and San Joaquin Hills (Yerkes et al. 1965). Soils within Los Angeles County are mapped under the U.S. Department of Agriculture Natural Resources Conservation Service Web Soil Survey and the State Soil Geographic database (USDA/NRCS 2024a, 2016a), whereas more comprehensive soils maps are available for Orange County through the Soil Survey Geographic database (USDA/NRCS 2024b, 2016b).

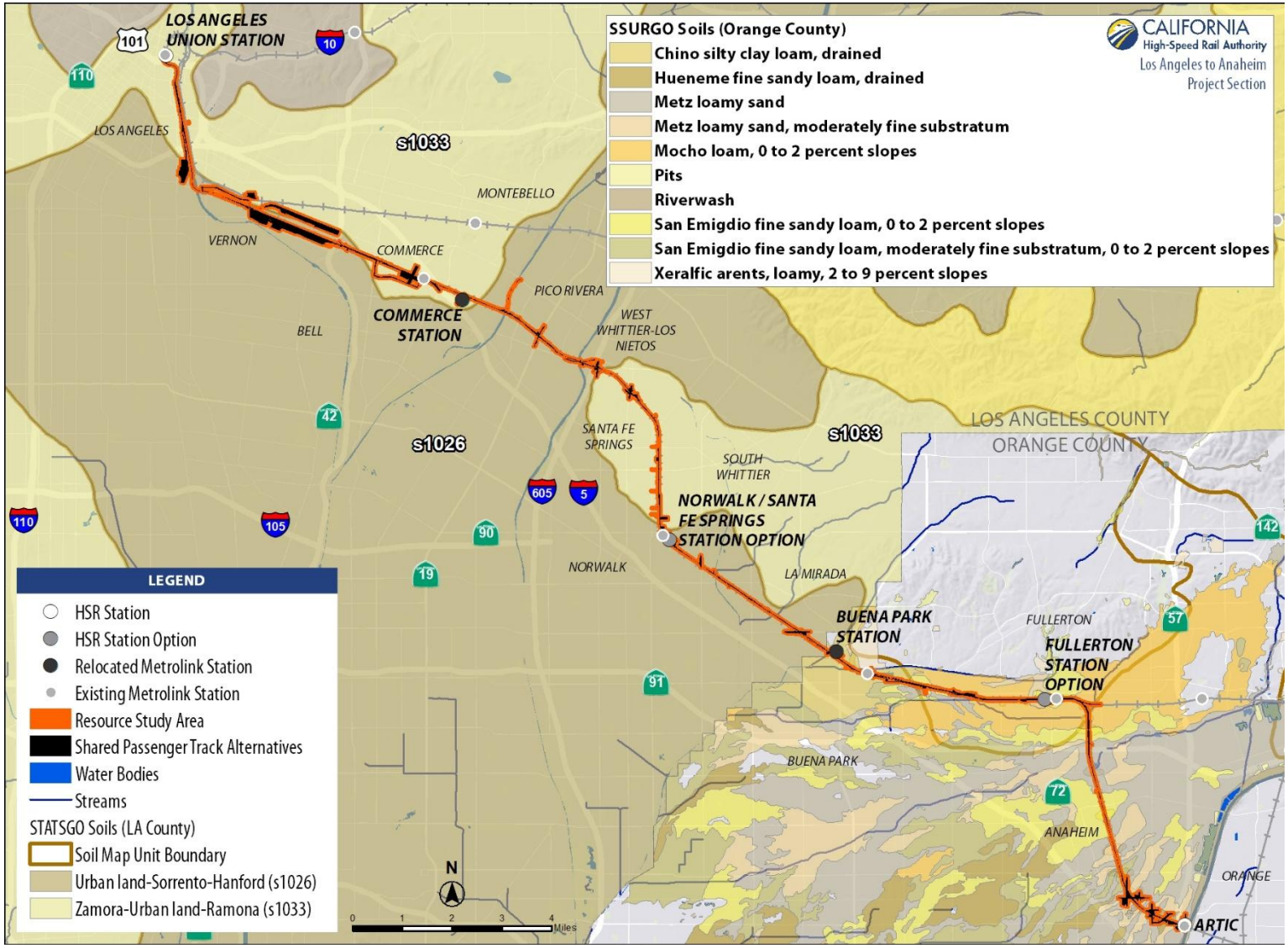
The following two State Soil Geographic database mapping units occur within the Los Angeles County portion of the Aquatic RSA:

- Zamora – Urban Land – Ramona
- Urban Land – Sorrento – Hanford

The following 10 Soil Survey Geographic database mapping units occur within the Orange County portion of the RSA:

- Chino silty clay loam, drained
- Hueneme fine sandy loam, drained
- Metz loamy sand
- Metz loamy sand, moderately fine substratum
- Mocho loam, 0 to 2 percent slopes
- Pits
- Riverwash
- San Emigdio fine sandy loam, moderately fine substratum, 0 to 2 percent slopes
- San Emigdio fine sandy loam, 0 to 2 percent slopes
- Xeralfic Arents, 2 to 9 percent slopes

Figure 4-2 illustrates the extent of the general soil map units within the RSA. Details on each soil series are included in the *Los Angeles to Anaheim Project Section Draft Aquatic Resources Delineation Report* (Authority 2024b).



Sources: Authority 2023; USDA/NRCS 2024a, 2024b; ESRI 2024

Figure 4-2 Soils

4.4 Aquatic Resources

4.4.1 Delineation Methodology

The following publicly available resources were reviewed prior to and following field investigations to obtain information on potential wetlands and nonwetland aquatic features that occur within the Aquatic RSA:

- U.S. Geological Survey 7.5-minute topographic quadrangles, including the Los Angeles, South Gate, Whittier, La Habra, Anaheim, and Orange quadrangles (USGS 2015, 2024a)
- National Wetlands Inventory (NWI) maps (USFWS 2016, 2024)
- National Hydrography Dataset (USGS 2016, 2024b)
- California Natural Diversity Database Biogeographic Information and Observation System (CDFW 2016, 2023)
- U.S. Department of Agriculture Natural Resources Conservation Service Soil Survey Map Units (USDA/NRCS 2011, 2016a, 2016b, 2024a, 2024b)
- Google Earth Pro aerial photographs (May 1994 to September 2024) (Google 2017, 2024) and ArcGIS 10 imagery (ESRI 2024)
- Climate and precipitation data (WRCC 2016a, 2016b, 2024a, 2024b)

Prior to field investigations, detailed land cover and preliminary wetlands and nonwetlands delineation maps were generated using ArcGIS 10 software based on interpretation of Google Earth Pro imagery series and soil survey data. A standard mapping scale of 1 inch = 200 feet (1:2,400) and a minimum standard mapping unit for wetlands of 0.001 acre were used.

Following the preliminary analysis, the RSA was visually assessed in ArcGIS (ESRI 2024) and Google Earth Pro across the same aerial imagery series to confirm the location and extent of aquatic features identified in the first step, and also identify the presence of additional aquatic features. Once this two-stage remote exercise was completed, the jurisdictional limits for potential wetland and nonwetland waters of the U.S. were mapped in ArcGIS (ESRI 2024) in preparation for field surveys.

Field verification surveys were conducted on June 22, 2015; October 8–9, 2015; February 25–26, 2016; March 2, 2016; March 17, 2016; and August 23, 2016. Maps prepared under the remote assessment were field-verified from areas where access was granted and from public right-of-way where access was not feasible. Field verification included assessment of wetland features and ordinary high-water mark measurements. Where feasible, a handheld global positioning system unit with sub-meter accuracy was used to map the extents of all observed aquatic resources. Representative photographs of all accessible features (including from public right-of-way) were taken to document physical characteristics. Characteristics of potential wetland features were recorded on USACE Wetland Determination Data Forms, Arid West Region (version 2.0) (USACE 2008:121–122), including landforms, vegetation, hydrology, and soil characteristics. Refer to the *Los Angeles to Anaheim Project Section Draft Aquatic Resources Delineation Report* (Authority 2025a) for a detailed description of wetland and nonwetland waters of the U.S. field delineation methods and results.

USACE Los Angeles District Regulatory staff Veronica Li and Miriam Yemane conducted a field verification of wetland and nonwetland aquatic resources within the RSA of the San Gabriel River on August 16, 2017. Results of the site visit are reflected in the figures and tables for the San Gabriel River.

The presence of potentially nonjurisdictional aquatic features was evaluated through remote assessment and field verification. Connectivity to relatively permanent waters or traditionally navigable waters was assessed through review of Google Earth Pro aerial imagery series, Los Angeles County Flood Control Department Storm Drain System maps (Los Angeles Department of Water and Power 2024), and Orange County Flood Control Department Drainage

Facilities maps (Orange County Public Works 2024). Where access was granted or observation from public right-of-way was feasible, field surveys were conducted to verify aerial imagery observations and note the presence/absence of ordinary high-water mark indicators. Based on this information, the following types of aquatic features occurring within the RSA were preliminarily determined to be nonjurisdictional under CWA Section 404:

- Ephemeral drainage ditches excavated wholly in and draining only uplands, exhibiting no discernable ordinary high-water mark or riparian vegetation (pursuant to 33 Code of Federal Regulations Part 328(b)(3))
- Settling basins excavated wholly in uplands and not connected to relatively permanent waters or traditionally navigable waters (pursuant to 33 Code of Federal Regulations Part 328(b)(5))

These select features are not referenced further in this report or depicted in the *Los Angeles to Anaheim Project Section Draft Aquatic Resources Delineation Report* (Authority 2025a).

A Preliminary Jurisdictional Determination application was submitted to USACE, consistent with requirements set forth in Regulatory Guidance Letter 16-01,[4] to obtain USACE concurrence on the extent of all mapped features presented in the Preliminary Jurisdictional Determination. On July 31, 2018, the USACE Los Angeles District issued a Preliminary Jurisdictional Determination for the project stating that upon review of the mapped aquatic resources, waters of the U.S. may be present in the project section in the locations identified by the Authority.

4.4.2 Delineation Findings

Aquatic resources considered jurisdictional wetland and nonwetland waters of the U.S. identified within the Aquatic RSA include freshwater emergent and freshwater forested/shrub wetland, and nonwetland riverine, built watercourse, and basin features.

Aerial imagery interpretation and field investigations in the 3,612.73-acre RSA identified a total of 99.04 acres of aquatic resources considered waters of the U.S. This acreage consists of 1.89 acres of wetlands (i.e., freshwater emergent wetland, freshwater forested/shrub wetland) and 97.15 acres of nonwetland waters of the U.S. (i.e., basin, built watercourse, and riverine), as presented in Table 4-2.[5]

Table 4-2 summarizes the waters of the U.S. identified in the RSA. Refer to the *Los Angeles to Anaheim Project Section Draft Aquatic Resources Delineation Report* (Authority 2025a) for definitions of waters of the U.S. resource classes and descriptions of aquatic resources identified.

[4] Regulatory Guidance Letter 16-01 (USACE October 2016).
[5] Aquatic resource acreages are based on the project footprint dated August 2024 and include both of the Shared Passenger Track Alternatives. There is no difference in aquatic resource acreages or aquatic resource impacts between the Shared Passenger Track Alternatives.

Table 4-2 Summary of Wetland and Nonwetland Waters of the U.S. Identified in the Aquatic Resource Study Area

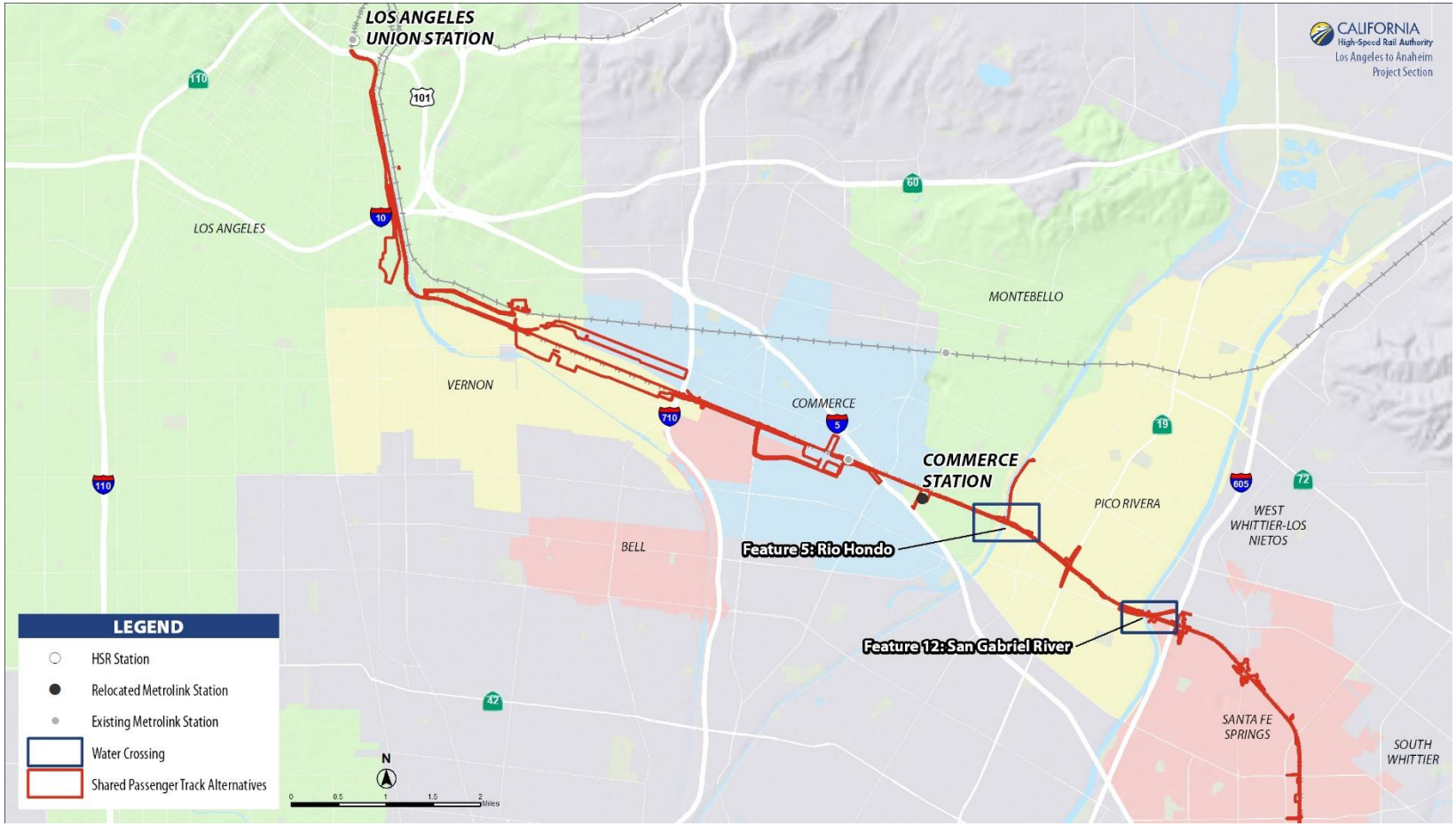
Wetland/Nonwetland Waters of the U.S.	Total Acreage in Resource Study Area
Wetlands	
Freshwater Emergent Wetland	1.83
Freshwater Forested/Shrub Wetland	0.06
Wetlands subtotal	*1.89*
Nonwetland Waters of the U.S.	
Basin	20.81
Built watercourse	0.43
Riverine	75.91
Nonwetland Waters of the U.S. subtotal	*97.15*
Total Wetland and Nonwetland Waters of the U.S.	**99.04**

Sources: Authority 2023; ESRI 2024

4.4.3 Water Crossings

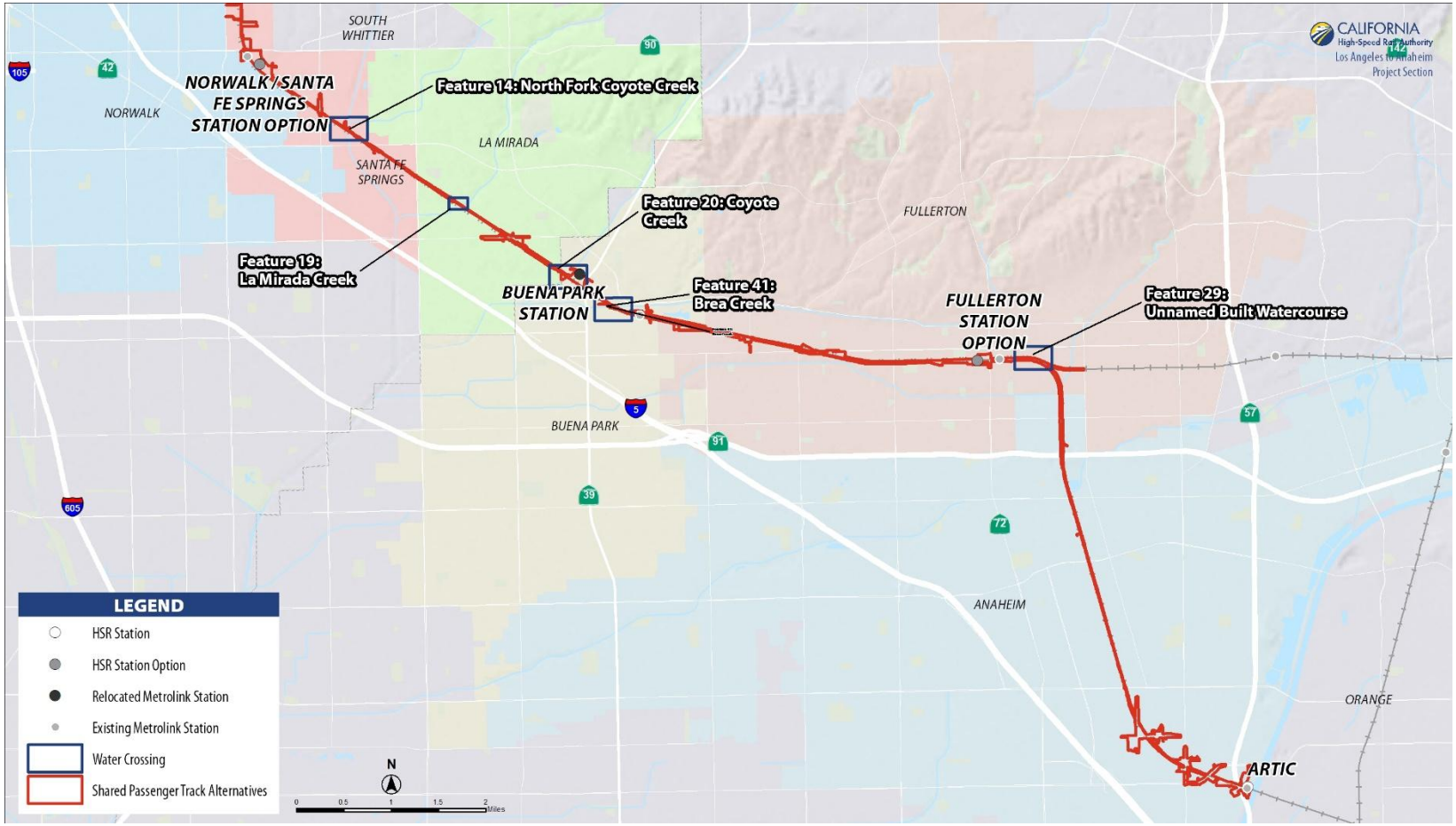
The following subsections summarize the existing conditions of the watercourses and aquatic resources within the Aquatic RSA that would be affected during construction of the project section (Figure 4-3, sheets 1 and 2) as a result of the discharge of fill material within CWA Section 404 jurisdiction (Authority 2024a, 2024b, 2025a). All proposed water crossings fall within or adjacent to existing BNSF and Metrolink rights-of-way.

Refer to the *Los Angeles to Anaheim Project Section Draft Aquatic Resources Delineation Report* (Authority 2025a) and the *Los Angeles to Anaheim Project Section Draft Biological and Aquatic Resources Technical Report* (Authority 2025b) for comprehensive descriptions of existing environmental conditions within the RSA, including vegetation, substrate, hydrology, habitats, and special-status species.



Sources: Authority 2023; ESRI 2024

Figure 4-3 Water Crossings Subject to Clean Water Act Section 404 Authorization, Sheet 1 of 2



Sources: Authority 2023; ESRI 2024

Figure 4-3 Water Crossings Subject to Clean Water Act Section 404 Authorization, Sheet 2 of 2

Crossing 1: Rio Hondo (Feature 5)

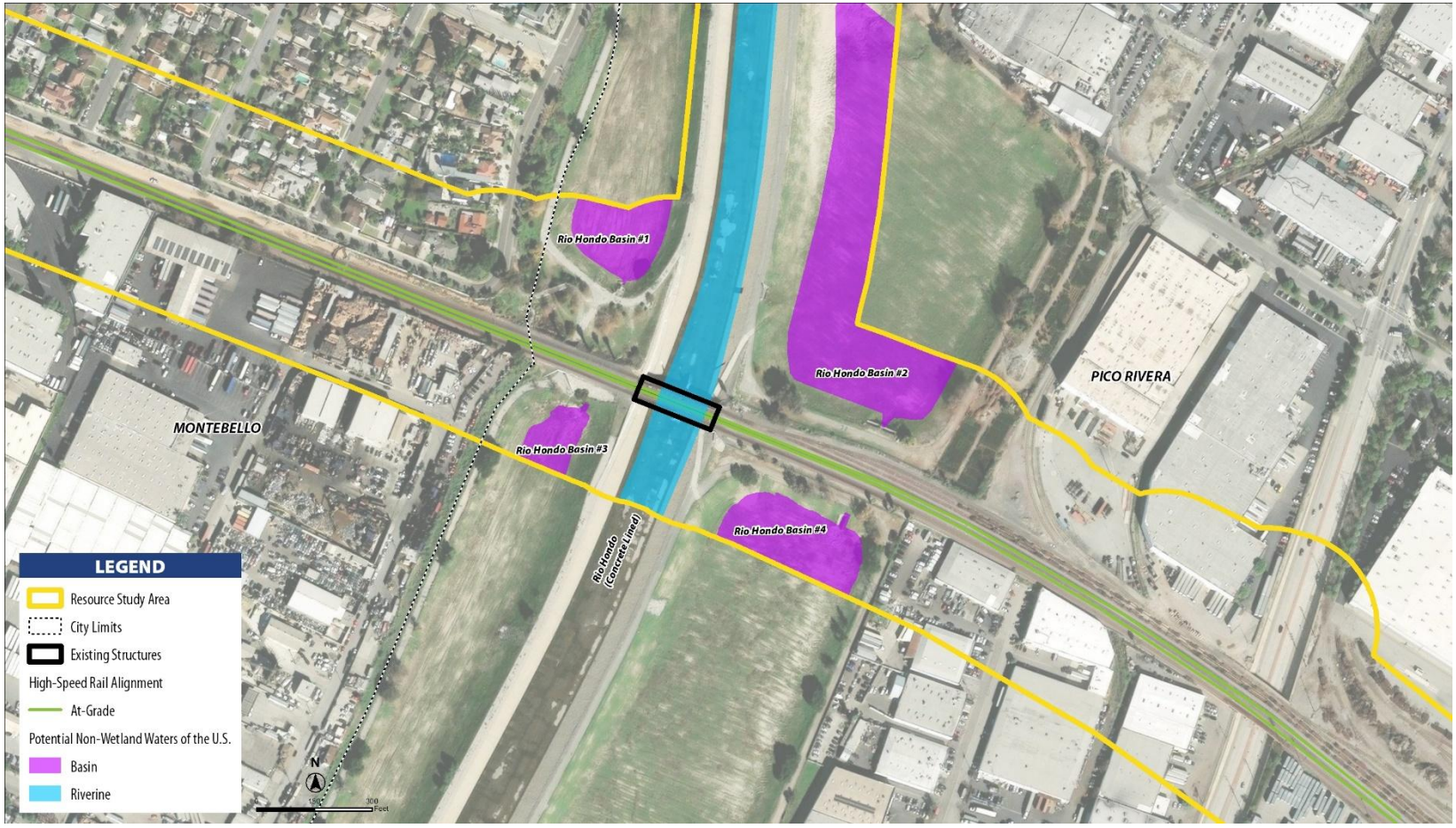
The reach of the Rio Hondo within the Aquatic RSA is crossed by an existing (three-track) railroad bridge and basins to the east and west, and is in Pico Rivera between the Montebello-Pico Rivera city boundary and Paramount Boulevard (Figure 4-4). At the proposed crossing, Rio Hondo is a 100- to 120-foot-wide trapezoidal channel with concrete-lined bed and grouted riprap banks. A bike/pedestrian path is located along the western bank and a (gated) county flood control maintenance access road runs along the eastern bank. The existing railroad tracks are carried over the channel on steel through girder bridges. Groundwater recharge basins (spreading grounds) are located on all four quadrants of the existing crossing. Beyond both bridge approaches, just outside of the channel banks, the tracks are supported on embankments between the basins. The Rio Hondo was built to contain and convey 51,650 cubic feet per second (cfs) based on the USACE *Operation, Maintenance, Repair, Replacement, and Rehabilitation Manual* (USACE 1999). The Los Angeles County Flood Control District operates and maintains the Rio Hondo Channel near the existing railroad and proposed crossing.

Within the RSA, the feature is 4,321 linear feet (10.30 acres) and is classified as riverine in the *Los Angeles to Anaheim Project Section Draft Aquatic Resources Delineation Report* (Authority 2025b).

Crossing 2: San Gabriel River (Feature 12)

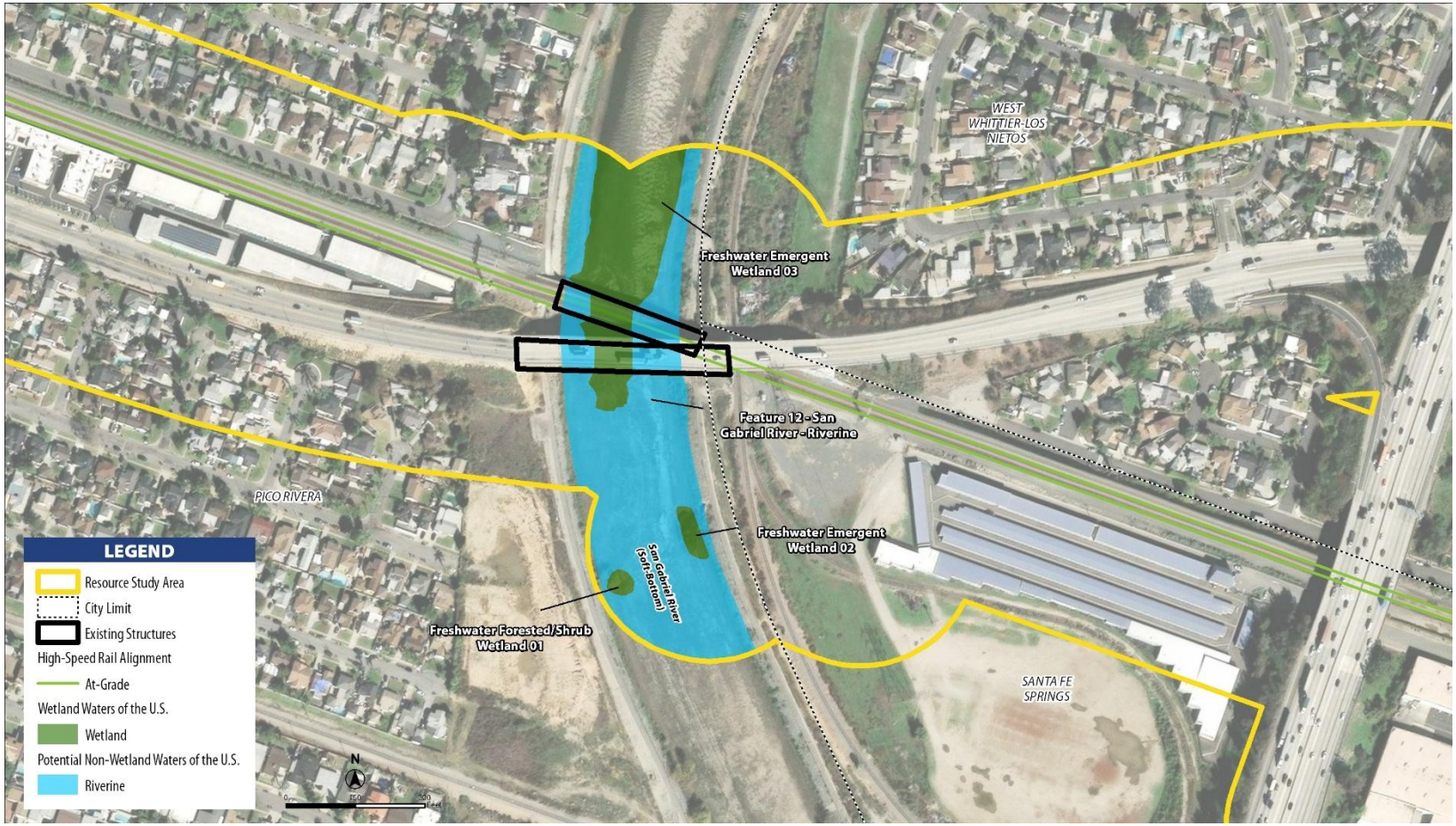
The reach of the San Gabriel River within the Aquatic RSA is crossed by an existing (three-track) railroad bridge and the Slauson Avenue overpass, and is just west of Interstate 605 in Pico Rivera (Figure 4-5). At the proposed crossing, the San Gabriel River is an approximately 240-foot-wide trapezoidal channel with an earthen bed, grouted riprap banks, and bike/pedestrian paths on both sides. The San Gabriel River was originally designed to contain and convey 14,700 cfs based on the USACE *Operation, Maintenance, Repair, Replacement, and Rehabilitation Manual* (1999). However, the existing USACE model used 5,000 cfs at this location, potentially because of sediment accretion within this reach of the river (Authority 2024b). The Los Angeles County Flood Control District operates and maintains the San Gabriel River near the existing railroad and proposed crossing.

Within the RSA, the feature is 1,083 linear feet (4.55 acres) and is classified as riverine and wetland in the *Los Angeles to Anaheim Project Section Draft Aquatic Resources Delineation Report* (Authority 2025b). Specifically, there are three mapped wetlands in the RSA: two emergent freshwater wetlands and a freshwater forested/shrub wetland. The larger emergent freshwater wetland (1.73 acres) (Freshwater Emergent Wetland 3) begins north of the railroad bridge and continues south just slightly downstream of the bridge. The second freshwater emergent wetland (0.10 acre) (Freshwater Emergent Wetland 2) is south of the bridge near the eastern bank. The freshwater forested/shrub wetland (0.06 acre) (Freshwater Forested/Shrub Wetland 1) is south of the bridge near the western bank.



Sources: Authority 2023; ESRI 2024

Figure 4-4 Aquatic Resources within the Rio Hondo Resource Study Area



Sources: Authority 2023; ESRI 2024

Figure 4-5 Aquatic Resources within the San Gabriel River Resource Study Area

Crossing 3: North Fork Coyote Creek (Feature 14)

The reach of North Fork Coyote Creek within the Aquatic RSA is crossed by an existing (three-track) railroad bridge, and is northwest of the Marquardt Avenue and Rosecrans Avenue intersection in Santa Fe Springs (Figure 4-6). The proposed crossing is immediately downstream of the Milan Creek confluence. At the proposed crossing, North Fork Coyote Creek is an approximately 85-foot-wide trapezoidal channel with a concrete-lined bed and bank, and a bike/pedestrian path is located along the top of the western bank. The three existing passenger/freight tracks cross the creek on a two-span structure that has a pier at the center of the creek. The existing pier wall extends beyond the northern edge of the existing bridge and supports a utility crossing over the channel. North Fork Coyote Creek was originally designed to contain and convey 21,000 cfs based on the USACE *Operation, Maintenance, Repair, Replacement, and Rehabilitation Manual* (1999). Milan Creek confluences with North Fork Coyote Creek just upstream of the proposed crossing and was assumed to contribute 1,000 cfs of flow during the design storm event. The Los Angeles County Flood Control District operates and maintains North Fork Coyote Creek near the existing railroad and proposed crossing.

Within the RSA, the feature is 1,062 linear feet (1.91 acres) and is classified as riverine in the *Los Angeles to Anaheim Project Section Draft Aquatic Resources Delineation Report* (Authority 2025b).

Crossing 4: La Mirada Creek (Feature 19)

The reach of La Mirada Creek within the Aquatic RSA is crossed by two existing railroad bridges and is east of Biola Avenue, west of Crosswood Avenue, and north and south of Stage Road in La Mirada (Figure 4-7). Immediately north of Stage Road, La Mirada Creek is an approximately 50-foot-wide concrete box channel, whereas immediately south of Stage Road the creek is an approximately 80-foot-wide trapezoidal channel composed of a combination of grouted riprap bed and bank and concrete bed and bank. The existing northernmost rail structure carries three tracks and the southern bridge supports a single track over La Mirada Creek, which is adjacent to the BNSF La Mirada Yard. La Mirada Creek's design flow rate is 6,790 cfs based on the Los Angeles County Flood Control District hydraulic calculations (Authority 2024b). The Los Angeles County Flood Control District operates and maintains La Mirada Creek near the existing railroad and proposed crossing.

Within the RSA, the feature is 294 linear feet (0.25 acre) and is classified as riverine in the *Los Angeles to Anaheim Project Section Draft Aquatic Resources Delineation Report* (Authority 2025b).

Crossing 5: Coyote Creek (Feature 20)

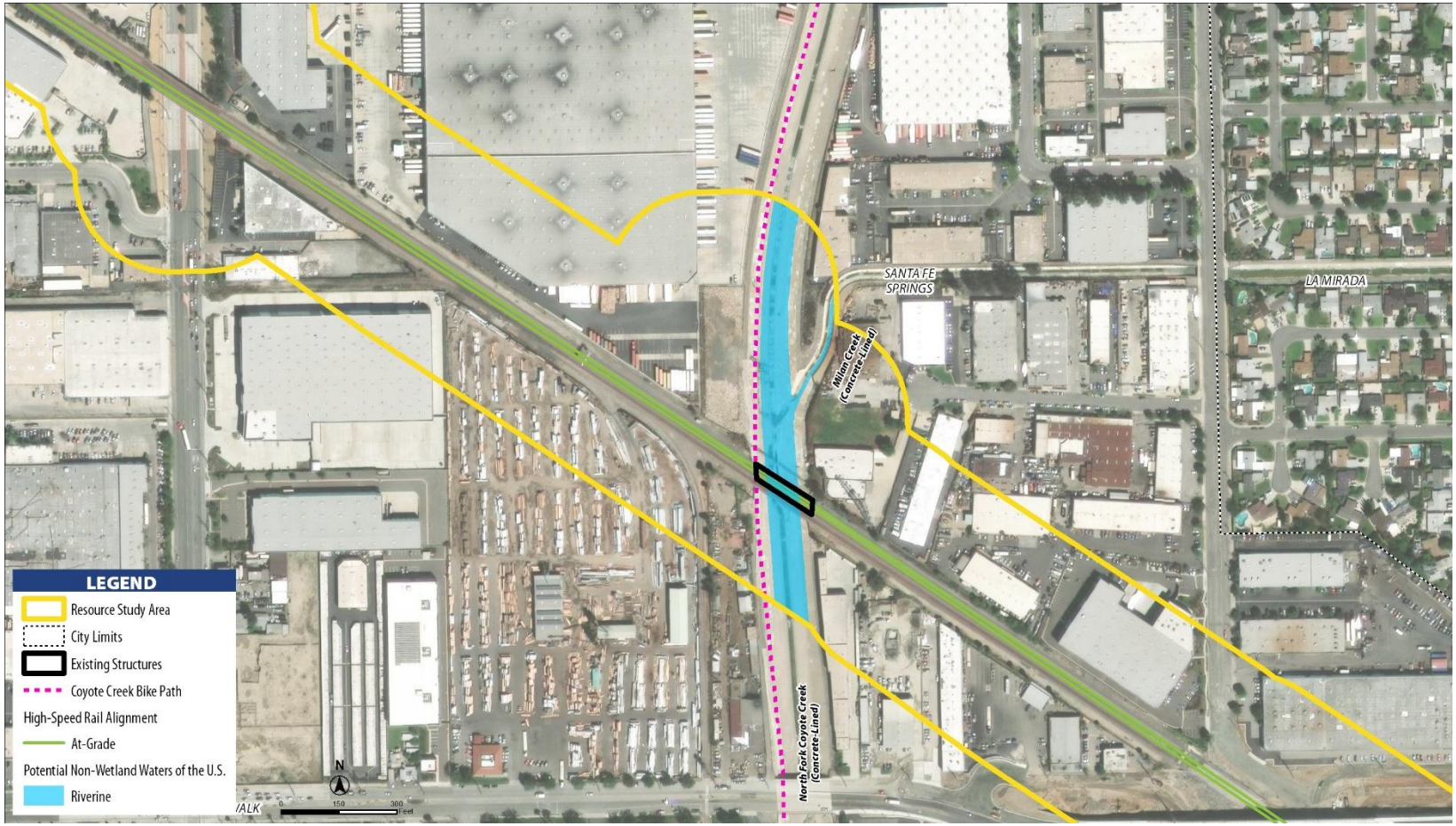
The reach of Coyote Creek within the Aquatic RSA is crossed by an existing (three-track) railroad bridge south of Stage Road in Buena Park (Figure 4-8). At the proposed crossing, this feature is an approximately 45-foot-wide reinforced concrete double-box culvert with an open rectangular concrete-lined channel upstream and downstream. Coyote Creek was originally designed to contain and convey 15,000 cfs based on the USACE *Operation, Maintenance, Repair, Replacement, and Rehabilitation Manual* (1999). The Orange County Flood Control District oversees the operation and maintenance of this section of Coyote Creek.

Within the RSA, the feature is 1,501 linear feet (1.57 acres) and is classified as riverine in the *Los Angeles to Anaheim Project Section Draft Aquatic Resources Delineation Report* (Authority 2025b).

Crossing 6: Brea Creek (Feature 41)

The reach of Brea Creek within the Aquatic RSA is crossed by an existing (three-track) railroad bridge, and is east of the Darlington Avenue and Franklin Street intersection in Buena Park (Figure 4-9). At the proposed crossing, Brea Creek is an approximately 50-foot-wide concrete box channel that transitions to an open rectangular concrete-lined channel upstream and downstream. The existing crossing is a three-span structure composed of precast/prestressed

concrete box girders, support by a cast-in-place reinforced concrete pier wall founded on a spread footing. Brea Creek was originally designed to contain and convey a 100-year flow rate of 7,390 cfs based on the Orange County Flood Control District 1998 design plans (Authority 2024b). The Orange County Flood Control District oversees the operation and maintenance of this section of Brea Creek. Within the RSA, the feature is 2,213 linear feet (2.38 acres) and is classified as riverine in the *Los Angeles to Anaheim Project Section Draft Aquatic Resources Delineation Report* (Authority 2025b).



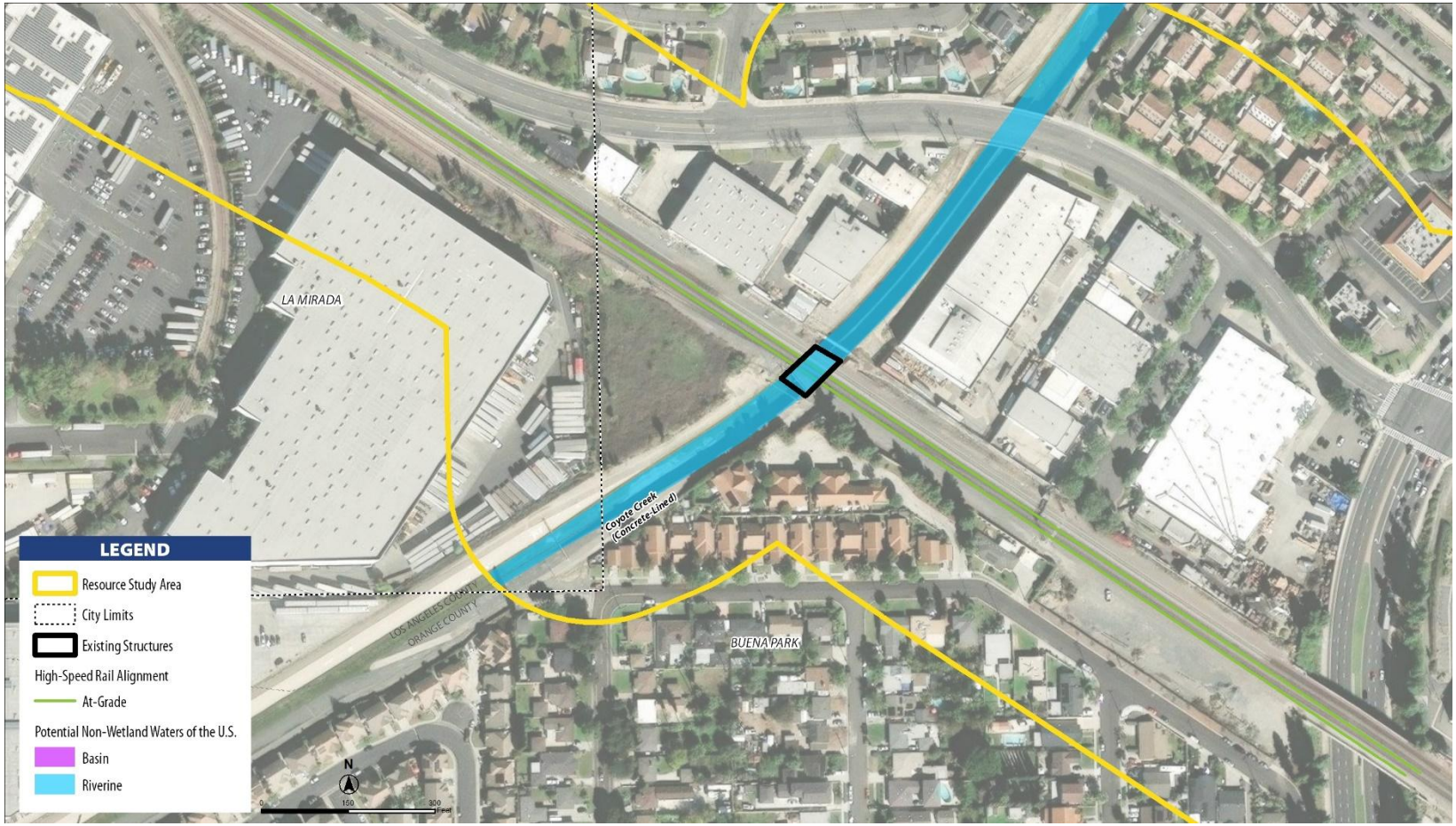
Sources: Authority 2023; ESRI 2024

Figure 4-6 Aquatic Resources within the North Fork Coyote Creek Resource Study Area



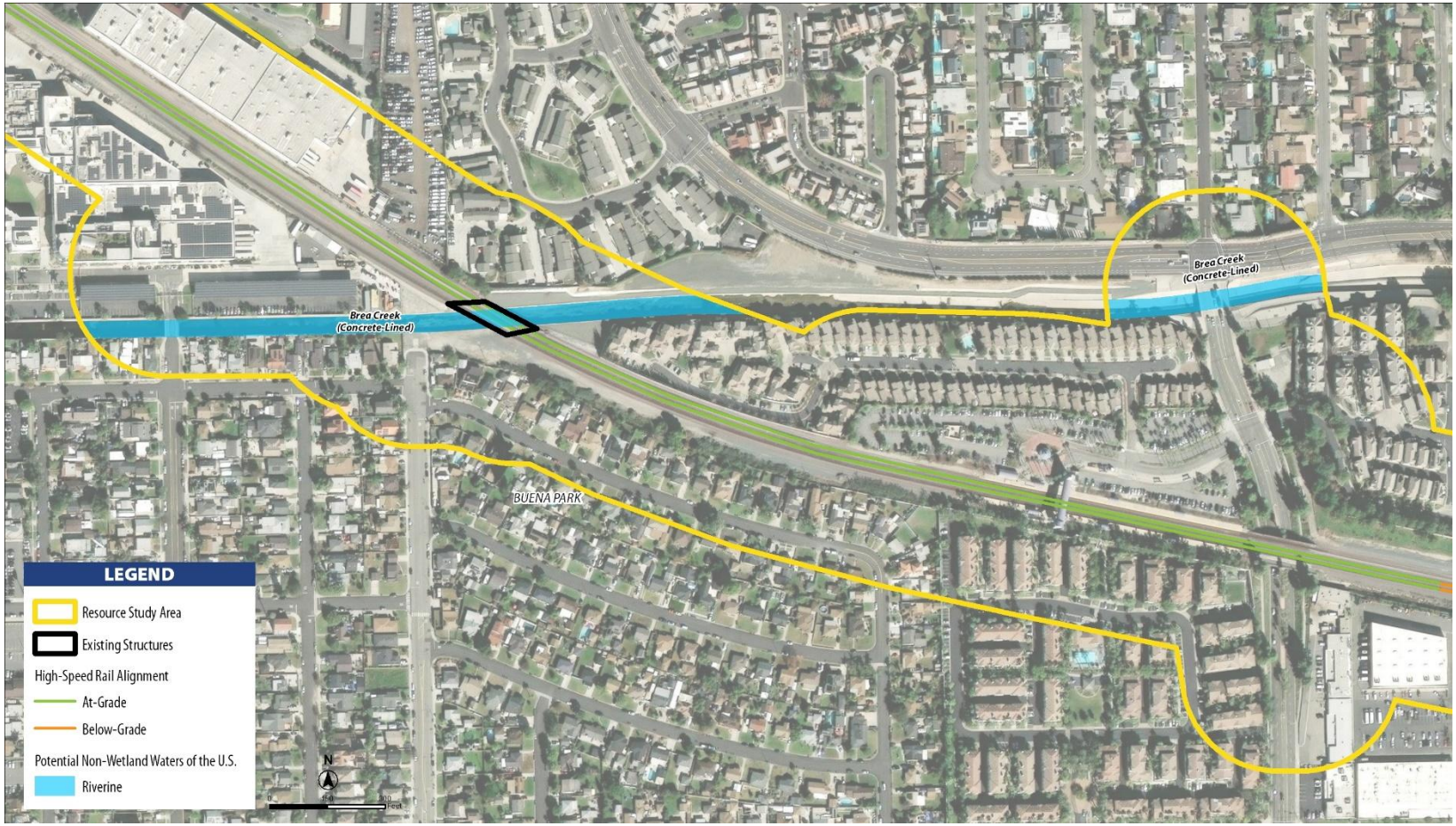
Sources: Authority 2023; ESRI 2024

Figure 4-7 Aquatic Resources within the La Mirada Creek Resource Study Area



Sources: Authority 2023; ESRI 2024

Figure 4-8 Aquatic Resources within the Coyote Creek South Resource Study Area



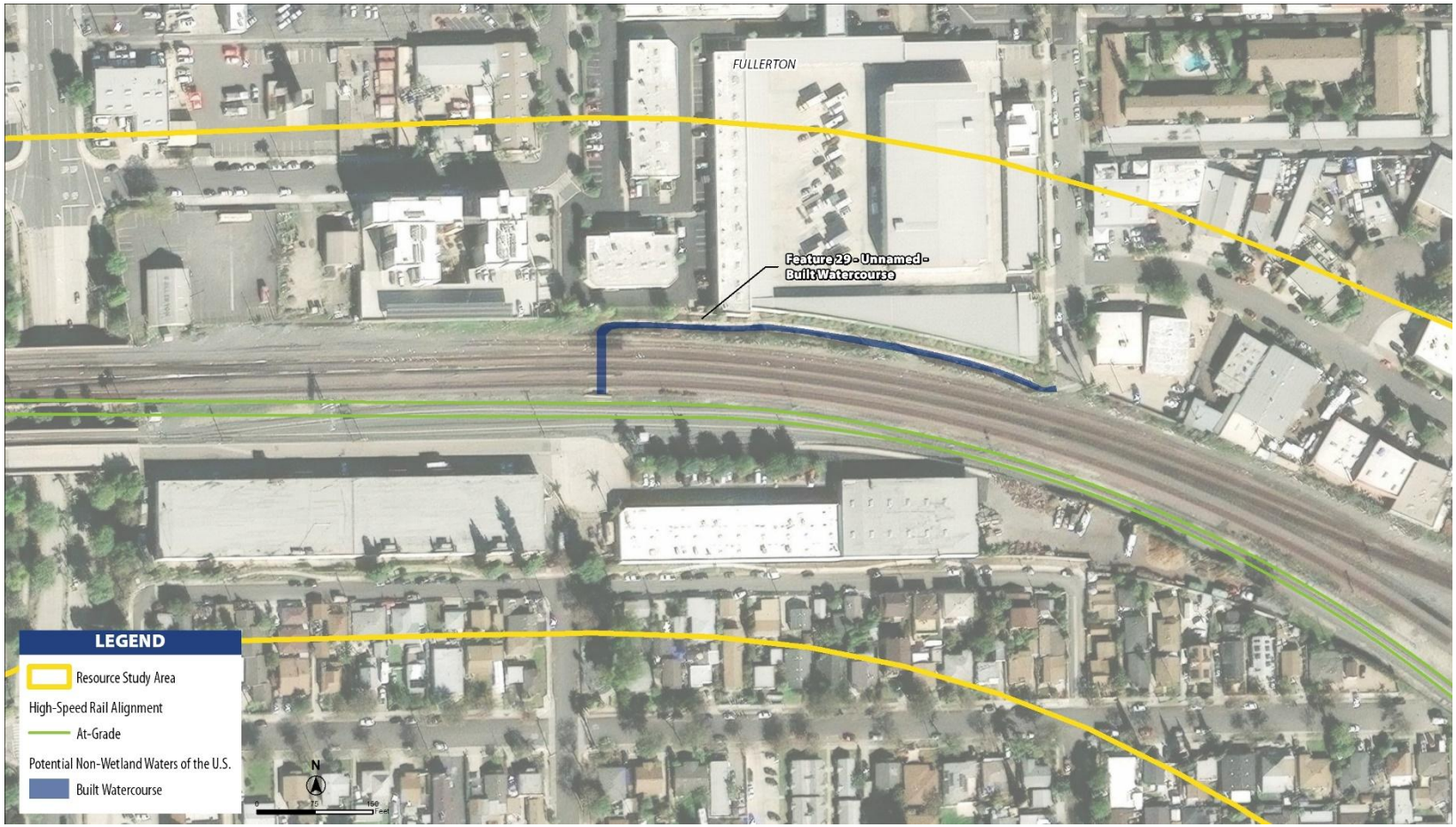
Sources: Authority 2023; ESRI 2024

Figure 4-9 Aquatic Resources within the Brea Creek Resource Study Area

Crossing 7: Unnamed Built Watercourse (Feature 29)

The portion of Feature 29 within the Aquatic RSA is north of E Walnut Avenue, east of S Lawrence Avenue, south of E Santa Fe Avenue, and west of S Balcom Avenue in Fullerton (Figure 4-10). Immediately north of the existing railroad tracks, this drainage feature runs westward and then turns south at a 90-degree angle and crosses underneath the railroad tracks. At the proposed crossing, this feature is an approximately 12-foot-wide reinforced concrete double-box culvert with an open rectangular concrete-lined channel upstream and downstream. The design flow rate of Feature 29 is unknown based on communications with the City of Fullerton. Conceptual plans for the Balcom Avenue Storm Drain were prepared in 2002 (Authority 2024b); however, it is unknown whether these plans were implemented. The City of Fullerton oversees the operation and maintenance of this feature.

Within the RSA, the feature is 687 linear feet (0.13 acre) and is classified as an unnamed built watercourse in the *Los Angeles to Anaheim Project Section Draft Aquatic Resources Delineation Report* (Authority 2025b).



Sources: Authority 2023; ESRI 2024

Figure 4-10 Aquatic Resources within Feature 29 Resource Study Area

5 IMPACTS

5.1 Permanent and Temporary Discharges of Fill

The *Los Angeles to Anaheim Project Section Draft Biological and Aquatic Resources Technical Report* (Authority 2025b) and *Los Angeles to Anaheim Project Section Draft Environmental Impact Report/Environmental Impact Statement* (Authority 2025c) analyze two build alternatives for the project section, consisting of an alternative with the LMF at 26th Street (Shared Passenger Track Alternative A) and an alternative with the LMF at 15th Street (Shared Passenger Track Alternative B). A description of the Shared Passenger Track Alternatives and their locations can be found in Chapter 2 of the *Los Angeles to Anaheim Project Section Draft Biological and Aquatic Resources Technical Report* (Authority 2025b).

Shared Passenger Track Alternative A (Preferred Alternative) proposes to introduce HSR service into the Los Angeles – San Diego – San Luis Obispo Rail Corridor from Los Angeles Union Station to Anaheim Regional Transportation Intermodal Center. The Shared Passenger Track Alternative A project footprint would primarily be within the existing railroad right-of-way, and include both a northbound and southbound electrified track for HSR. Shared Passenger Track Alternative A would include HSR stations in Los Angeles and Anaheim and could include one HSR station option (i.e., Norwalk/Santa Fe Springs or Fullerton). Shared Passenger Track Alternative A proposes an LMF between 26th Street and a BNSF spur on the south side of the BNSF Hobart Yard, also used by Amtrak, along the west bank of the Los Angeles River. Two HSR station options are proposed under Shared Passenger Track Alternative A: (1) Norwalk/ Santa Fe Springs and (2) Fullerton.

Shared Passenger Track Alternative B would follow the same alignment and share most of the same project features and operational assumptions as Shared Passenger Track Alternative A, except it would include the 15th Street LMF, rather than the 26th Street LMF of Shared Passenger Track Alternative A. The 15th Street LMF has a northern boundary at approximately Seventh Street and continues adjacent to and west of the existing Amtrak Eighth Street yard to Washington Boulevard in the south.

Construction of the project section would result in permanent and temporary direct impacts on aquatic resources considered wetland and nonwetland waters of the U.S. Aquatic resources identified within the Aquatic RSA consist of freshwater emergent and freshwater forested/shrub wetlands and (nonwetland) basin, built watercourse, and riverine features.[6]

In determining the potential direct effects on aquatic resources associated with construction of the project section, the following definitions were used:

- Construction impacts were considered temporary if they could be fully restored to predisturbance conditions following construction or replaced with like materials and no net addition of fill.
- Construction impacts were considered permanent when they would have lasting effects beyond the construction phase or could not be fully restored following construction.

Anticipated permanent and temporary impacts are presented both quantitatively (e.g., acreage, linear feet) and qualitatively.

Project construction activities that would result in permanent direct impacts on aquatic resources considered waters of the U.S. include modification of watercourse crossings, and construction and modification of stormwater drainage facilities. The following types of permanent structures (fill material) would be installed within aquatic resources: bridge supports (piers, footings), box culverts, retaining walls, and stormwater outlets. In addition, the following structures would be

[6] Aquatic resource acreages are based on the project footprint dated August 2024 and include both of the Shared Passenger Track Alternatives. There is no difference in aquatic resource acreages or aquatic resource impacts between the Shared Passenger Track Alternatives.

either replaced, modified, or relocated within aquatic resources: concrete channel bed, banks, or sidewalls, county maintenance roads, county access roads, and public bike paths.

Project construction activities and components that would result in temporary direct impacts on aquatic resources considered waters of the U.S. include staging and storage; construction laydown; access roads; surface water diversions; dewatering; demolition; falsework and scaffolding; relocation or upgrading of underground utilities; foot, vehicle, and machine traffic; and other work space that would not be occupied during operations.

Section 5.2 describes the permanent and temporary direct impacts on aquatic resources for each proposed water crossing that would be affected during construction of the project section as a result of the discharge of fill material within CWA Section 404 jurisdiction. Impacts were calculated using ArcGIS (ESRI 2024) and supplemented by aerial photograph interpretation and field surveys. Field surveys were conducted at the majority of the proposed crossings. However, because of access restrictions at two locations (Fullerton Creek and unnamed built watercourse Feature 29), surveys were conducted predominantly from the public right-of-way.

In summary, construction of the project section would result in less than 0.5 acre of permanent impacts within aquatic resources considered wetland and nonwetland waters of the U.S. at each single and complete project crossing. The crossing design figures are sourced from the *Draft Final PEPD Design Submittal: Water Crossings Technical Report* (Authority 2024a). The proposed direct impacts within waters of the U.S. are quantified for each crossing in Table 5-1 and depicted on Figure 5-1 through Figure 5-14.[7]

Refer to the *Los Angeles to Anaheim Project Section Draft Biological and Aquatic Resources Technical Report* (Authority 2025b) for a comprehensive description of impacts of the project section on aquatic resources during construction and operations phases, including permanent direct and indirect impacts and temporary direct and indirect impacts. It is anticipated that potential impacts on aquatic resources considered wetland and nonwetland waters of the U.S. will be avoided and minimized through the implementation of the Authority's proposed impact avoidance and minimization features for the project section. These proposed impact avoidance and minimization features are listed in Chapter 8 of the *Los Angeles to Anaheim Project Section Draft Biological and Aquatic Resources Technical Report* (Authority 2025b). Unavoidable impacts on wetland and nonwetland waters of the U.S. may be offset through a combination of on-site and off-site compensatory mitigation measures, following consultation with USACE, State Water Resources Control Board, and California Department of Fish and Wildlife.

[7] Aquatic resource acreages are based on the project footprint dated August 2024 and include both of the Shared Passenger Track Alternatives. There is no difference in aquatic resource acreages or aquatic resource impacts between the Shared Passenger Track Alternatives.

Table 5-1 Summary of Proposed Permanent and Temporary Direct Impacts on U.S. Army Corps of Engineers Wetlands and Nonwetland Waters of the U.S.[1]

Water Crossing	Aquatic Resource (North to South)	Description of Work	Permanent Impact		Temporary Impact		Total Impact	
			Linear Feet	Acreage	Linear Feet	Acreage	Linear Feet	Acreage
Crossing 1	Feature 5 (Rio Hondo): Riverine	Bridge pier modification, in-kind access road and bike path improvements, and temporary access/staging	59	0.03	93	0.24	152	0.27
Crossing 2	Feature 12 (San Gabriel River): Riverine	Bridge pier and pier wall modifications, new pier wall, new storm drain outlet, and temporary access/staging	106	0.02	256	0.64	362	0.22
	Feature 12 (San Gabriel River): Freshwater Emergent Wetlands 2 and 3	Bridge pier modifications, and temporary access/staging	55	0.01	164	0.29	216	0.30
Crossing 3	Feature 14 (North Fork Coyote Creek): Riverine	Bridge pier modification, and temporary access/staging	77	0.01	116	0.17	193	0.18
Crossing 4	Feature 19 (La Mirada Creek): Riverine	Bridge pier, headwall, and culvert modifications, and temporary access/staging	54	<0.01	18	0.03	72	0.03
Crossing 5	Feature 20 (Coyote Creek): Riverine	Culvert and pier wall modifications, and temporary access/staging	28	<0.01	69	0.06	97	0.06
Crossing 6	Feature 41 (Brea Creek): Riverine	Bridge pier modifications, and temporary access/staging	82	0.02	84	0.07	166	0.09
Crossing 7	Feature 29: Unnamed Built Watercourse	Culvert modifications and temporary access	--	--	80	0.02	80	0.02
		Grand Total[4]	**461**	**0.09**	**800**	**1.5**	**1,261**	**1.59**

Sources: Authority 2023; ESRI 2024

[1] Aquatic resource acreages are based on the project footprint dated August 2024 and include both the Shared Passenger Track Alternatives. There is no difference in aquatic resource acreages or aquatic resource impacts between the Shared Passenger Track Alternatives.

-- = no effect; < = less than

5.2 Water Crossings Subject to Clean Water Act Section 404 Authorization

The following discussion provides a summary of proposed construction-phase activities at the seven water crossings within the project section that are considered subject to CWA Section 404 authorization from USACE, as well as the anticipated direct impacts (permanent and temporary) on aquatic resources considered waters of the U.S. For a comprehensive description of proposed bridge and channel modifications, please refer to the *Los Angeles to Anaheim Project Section Draft Final PEPD Design Submittal: Water Crossings Technical Report* (Authority 2024b) and *Los Angeles to Anaheim Project Section Draft Final PEPD Design Submittal Advanced Planning Study* (Authority 2024a).

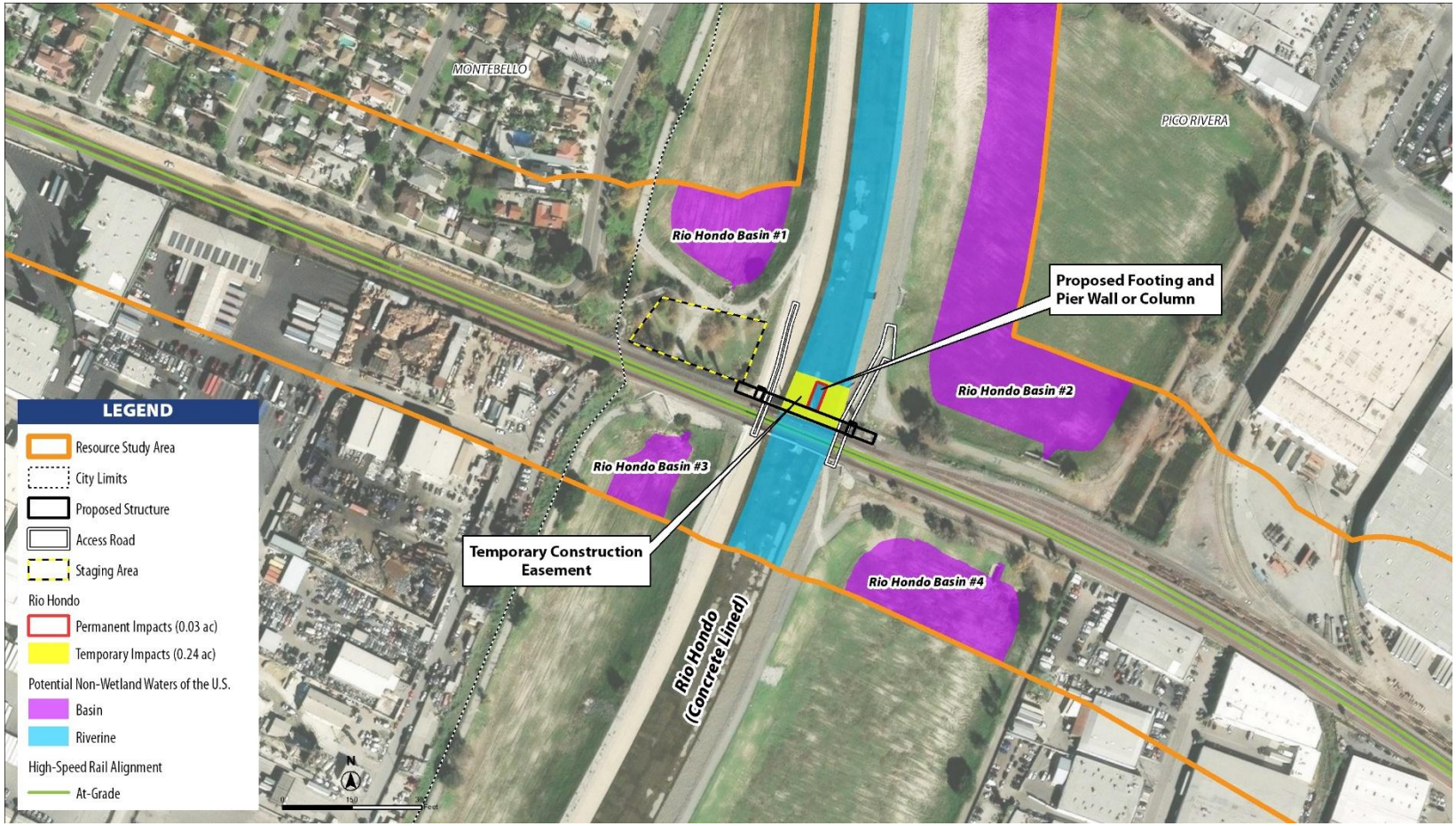
5.2.1 Crossing 1: Rio Hondo (Feature 5)

Under the project, the existing railroad bridge would be modified by removing a portion of the pier wall, including the existing debris nose (Figure 5-2, sheet 1). A bridge extension to support operations would be built with a pier wall in line with the existing pier wall and would include a debris nose. The proposed pier wall would be approximately 148 feet long, as depicted on Figure 5-2, sheets 1 and 2. The pier wall would remain along the centerline of the Rio Hondo Channel. The bridge extension would be parallel to and to the north of the existing structures and the existing bike path approaches would be regraded or relocated. The bridge extension would not intrude into the detention basins on either side of the channel.

The existing county flood control roads between the Rio Hondo and the spreading grounds Basin #1 (Feature 7) and between the Rio Hondo and Basin #2 (Feature 8) would be used for vehicle and equipment access. A temporary construction easement would run the width of the Rio Hondo north of the existing tracks and along the Rio Hondo for approximately 93 linear feet. A staging area would be situated north of the tracks and south of Basin #1 (Feature 7). The existing roads, temporary construction easement, and staging area would fall outside of waters of the U.S. Proposed project activities and construction would not intrude into the existing basins on either side of the channel.

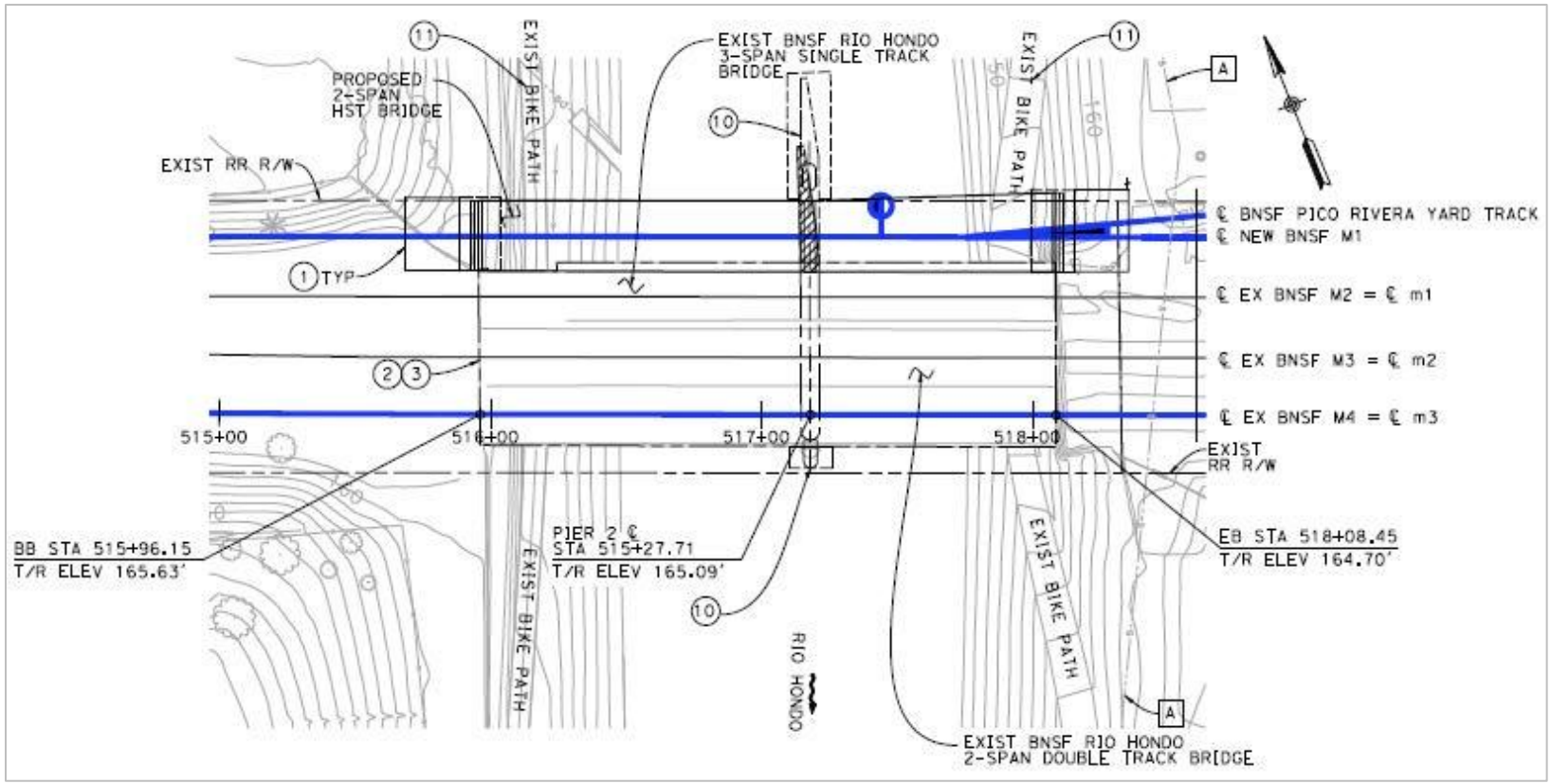
The reach of the Rio Hondo within the Aquatic RSA is a trapezoidal channel with a concrete bed and grouted riprap banks. The extension to the footing of the existing pier wall would constitute a permanent impact on aquatic resources considered waters of the U.S., pursuant to CWA Section 404. Specifically, this proposed crossing would result in 0.03 acre (59 linear feet) of permanent impacts within nonwetland waters of the U.S. An additional 0.24 acre (93 linear feet) of temporary impacts within nonwetland waters of the U.S. is associated with use of the Rio Hondo temporary construction easement area. The proposed impacts on waters of the U.S. are consistent with the terms and conditions of NWP 14.

Figure 5-1 depicts the project footprint associated with the Rio Hondo and Figure 5-2, sheets 1 through 3, illustrates the plan view, longitudinal view, and cross section design profiles, respectively.



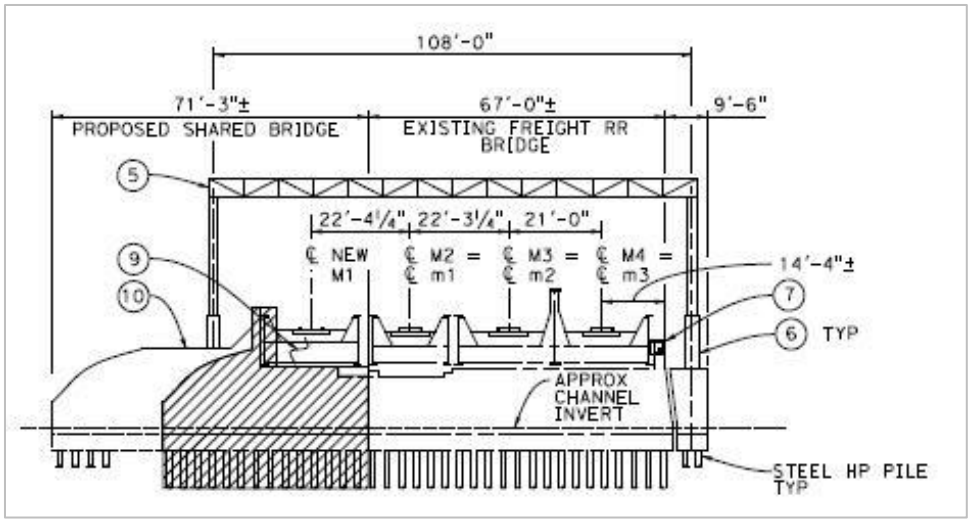
Sources: Authority 2023; ESRI 2024

Figure 5-1 Rio Hondo Crossing



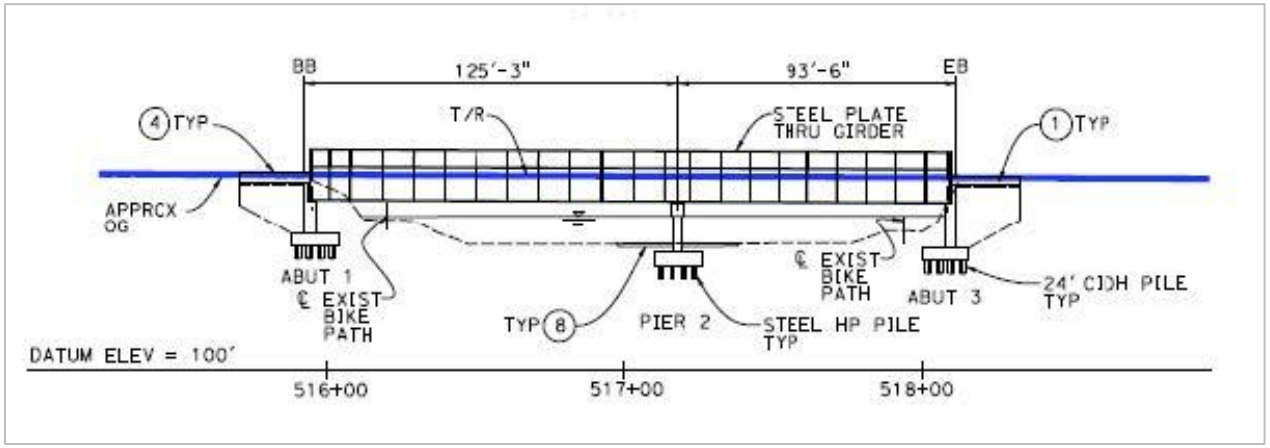
Sources: Authority 2024a, 2024b

Figure 5-2 Rio Hondo Crossing Plan View Design, Sheet 1 of 3



Sources: Authority 2024a, 2024b

Figure 5-2 Rio Hondo Crossing Longitudinal View Design, Sheet 2 of 3



Sources: Authority 2024a, 2024b

Figure 5-2 Rio Hondo Crossing Cross Section Design, Sheet 3 of 3

5.2.2 Crossing 2: San Gabriel River (Feature 12)

Under the project, a bridge extension would be built adjacent and south of the existing bridge, near where Slauson Avenue currently exists (Figure 5-4, sheet 1). In order to support the bridge extension, seven existing in-channel piers would be extended approximately 45 feet southward, and a new approximately 13-foot-long pier wall would be built adjacent to the existing structure, as depicted on Figure 5-4, sheets 1 and 2. In addition, one existing pier wall (pier 5) along the existing Slauson Avenue bridge would be modified to provide sufficient support for the modified rail structure (Figure 5-4, sheet 1). This pier wall would be outside of CWA Section 404 jurisdiction, defined at this location by the ordinary high-water mark. Lastly, a new 48-inch reinforced concrete storm drain outlet would be built on the eastern bank, approximately 335 feet south of Slauson Avenue crossing and approximately 40 feet south of an existing storm drain outlet.

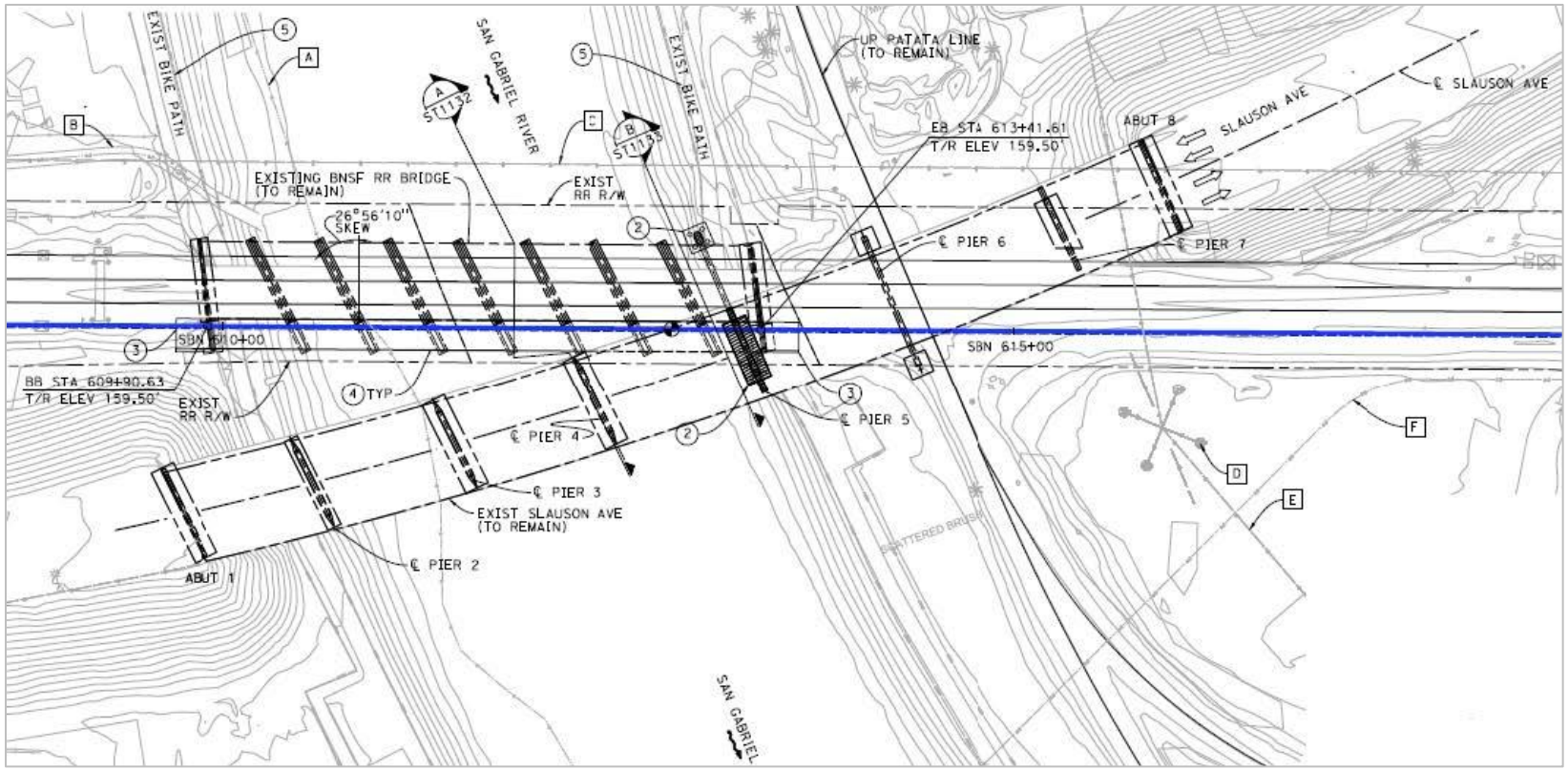
The reach of the San Gabriel River within the Aquatic RSA is earthen bottom with grouted riprap banks. The extension to the footings of the existing pier walls and the construction of the new pier wall would constitute a permanent impact on aquatic resources considered waters of the U.S., pursuant to CWA Section 404. Specifically, this proposed crossing would result in permanent impacts on 0.02 acre (106 linear feet) of nonwetland and 0.01 acre (55 linear feet) of freshwater emergent wetland waters of the U.S. (Freshwater Emergent Wetland 3). An additional 0.64 acre (256 linear feet) of nonwetland and 0.29 acre (164 linear feet) of wetland waters of the U.S. would be temporarily affected (Freshwater Emergent Wetlands 2 and 3), associated with use of the San Gabriel River temporary construction easement area, including a temporary access road.

The proposed impacts on waters of the U.S. are consistent with the terms and conditions of NWP 14. Figure 5-3 depicts the project footprint associated with the San Gabriel River and Figure 5-4, sheets 1 through 3, illustrates the plan view, longitudinal view, and cross section design profiles, respectively.



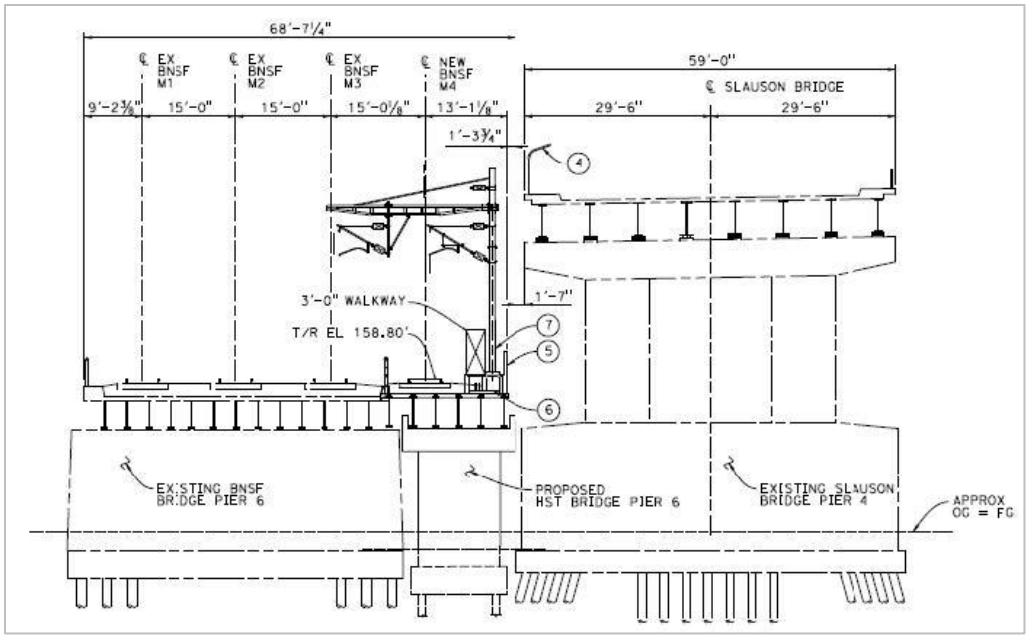
Sources: Authority 2023; ESRI 2024

Figure 5-3 San Gabriel River Crossing



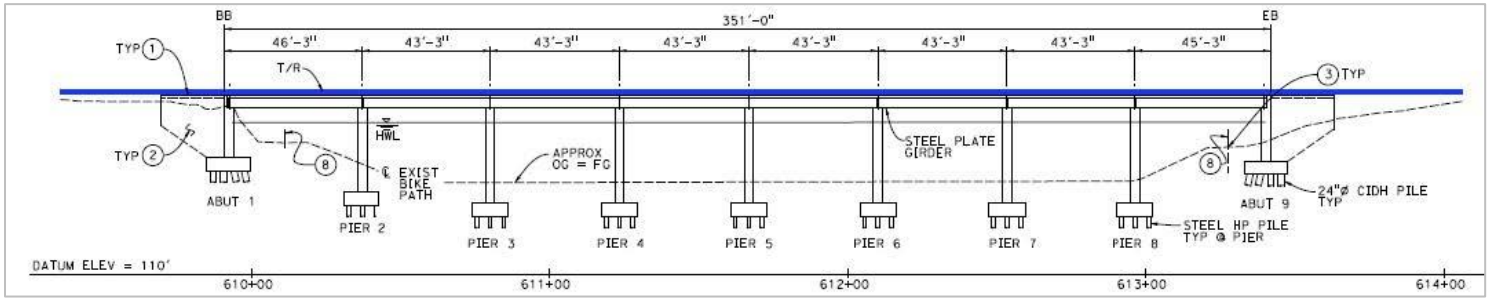
Sources: Authority 2024a, 2024b

Figure 5-4 San Gabriel River Crossing Plan View Design, Sheet 1 of 3



Sources: Authority 2024a, 2024b

Figure 5-4 San Gabriel River Crossing Longitudinal View Design, Sheet 2 of 3



Sources: Authority 2024a, 2024b

Figure 5-4 San Gabriel River Crossing Cross Section Design, Sheet 3 of 3

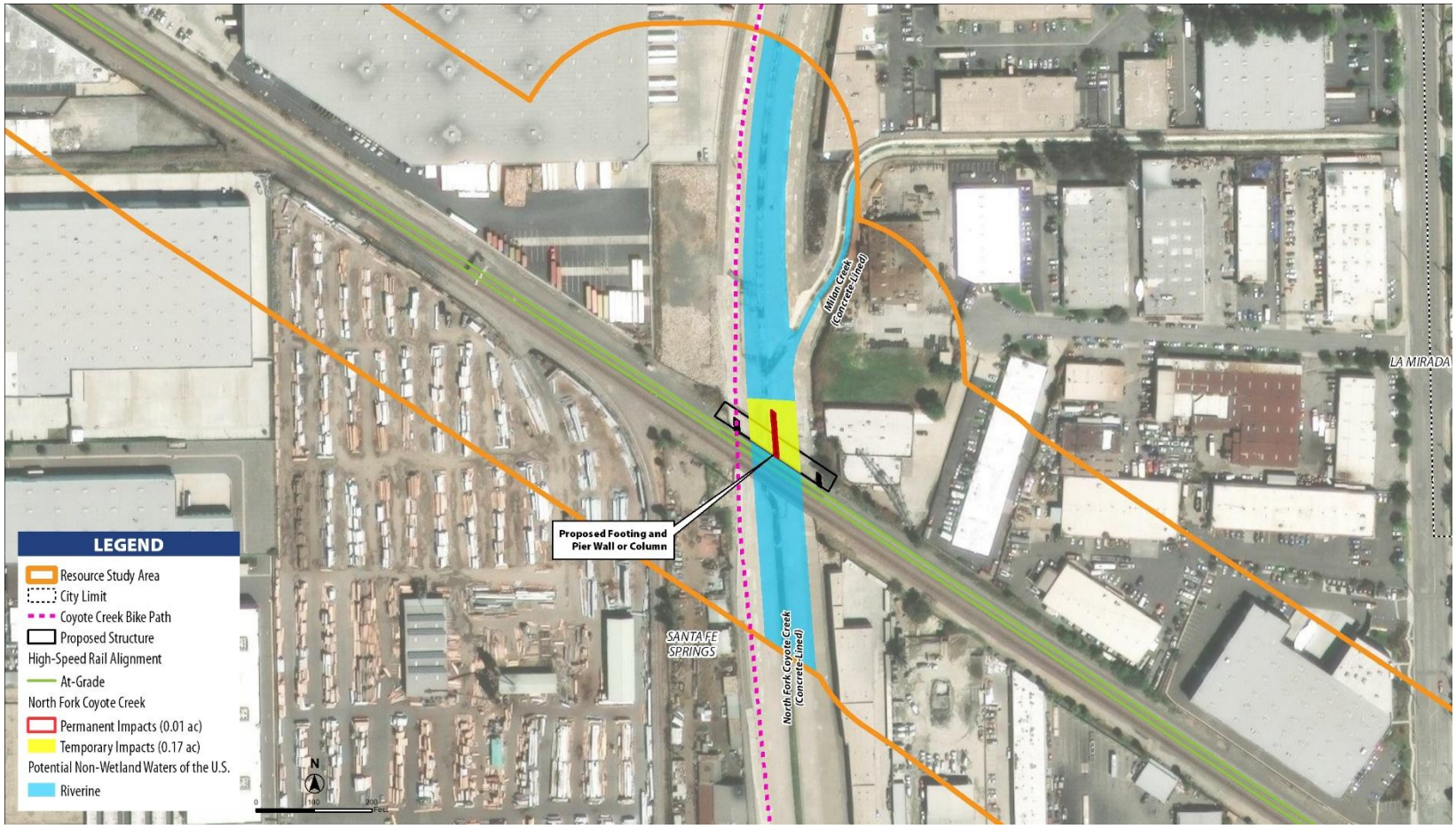
5.2.3 Crossing 3: North Fork Coyote Creek (Feature 14)

Under the project, the existing railroad bridge, center pier wall, and channel would be modified to support an approximately 20-foot-wide bridge extension adjacent to and north of the railroad bridge (Figure 5-6, sheet 1). The widening is not expected to require alterations to utilities located on the existing freight/passenger rail bridge center pier.

The reach of North Fork Coyote Creek within the Aquatic RSA is concrete lined. The extension to the footings of the existing pier wall and the channel modifications within North Fork Coyote Creek would constitute a permanent impact on aquatic resources considered waters of the U.S., pursuant to CWA Section 404. Specifically, this proposed crossing would result in 0.01 acre (77 linear feet) of permanent impacts on nonwetland waters of the U.S. An additional 0.17 acre (193 linear feet) of temporary impacts on nonwetland waters of the U.S. is associated with use of the North Fork Coyote Creek temporary construction easement area. The proposed impacts on waters of the U.S. are consistent with the terms and conditions of NWP 14. Figure 5-5 depicts the project footprint associated with North Fork Coyote Creek and Figure 5-6, Sheets 1 through 3 illustrate the plan view, longitudinal view, and cross section design profiles, respectively.

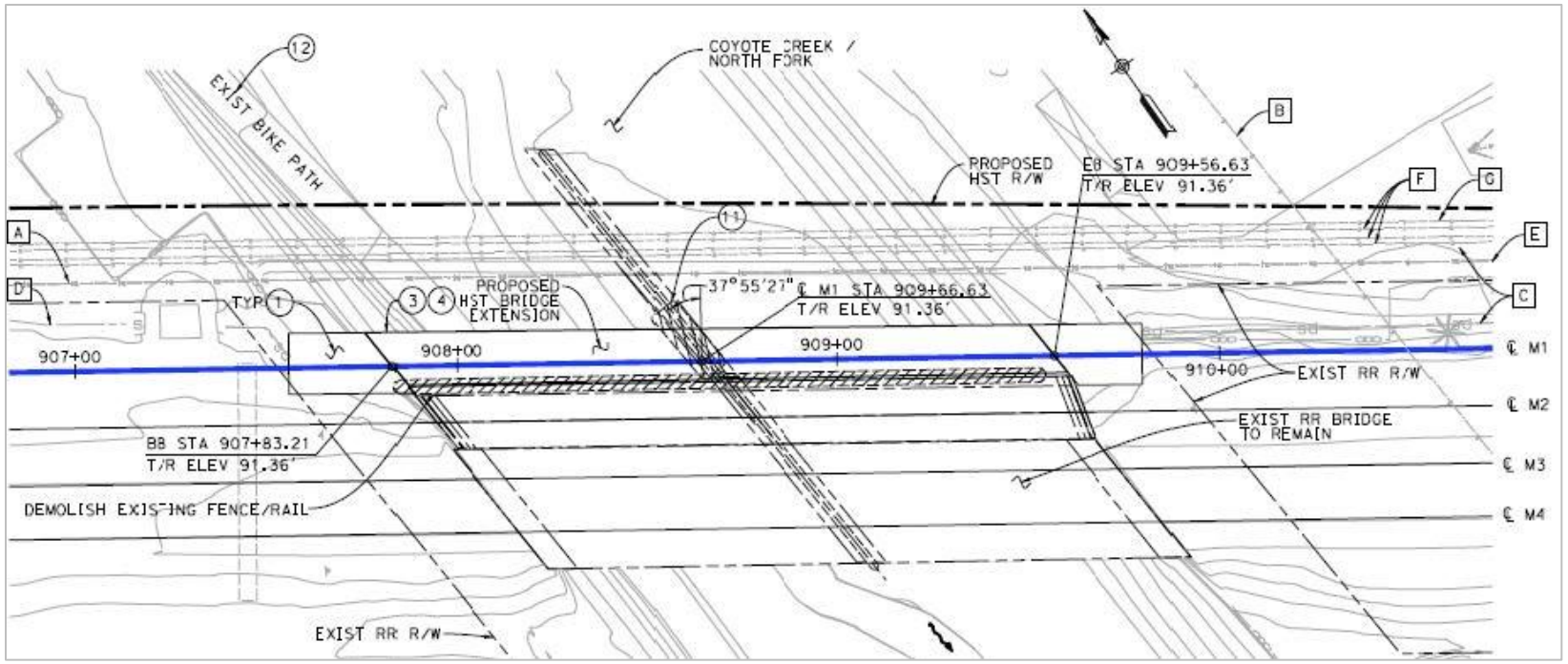
5.2.4 Crossing 4: La Mirada Creek (Feature 19)

Under the project, the existing railroad bridge, headwall, piers, and culvert would be modified to support an approximately 42-foot-wide bridge extension adjacent to and north of the railroad bridge (Figure 5-8, sheet 1). The portion of La Mirada Creek within the Aquatic RSA is concrete lined. The extension to the footings of the existing piers and channel modifications associated with the removal and reconstruction of the existing headwall and culvert would constitute a permanent impact on aquatic resources considered waters of the U.S., pursuant to CWA Section 404. This proposed crossing would result in less than 0.01 acre of permanent impacts on nonwetland waters of the U.S. An additional 0.03 acre (18 linear feet) of temporary impacts on nonwetland waters of the U.S. is associated with use of the La Mirada Creek temporary construction easement area. The proposed impacts on waters of the U.S. are consistent with the terms and conditions of NWP 14. Figure 5-7 depicts the project footprint associated with La Mirada Creek and Figure 5-8, sheets 1 through 3, illustrates the plan view, longitudinal view, and cross section design profiles, respectively.



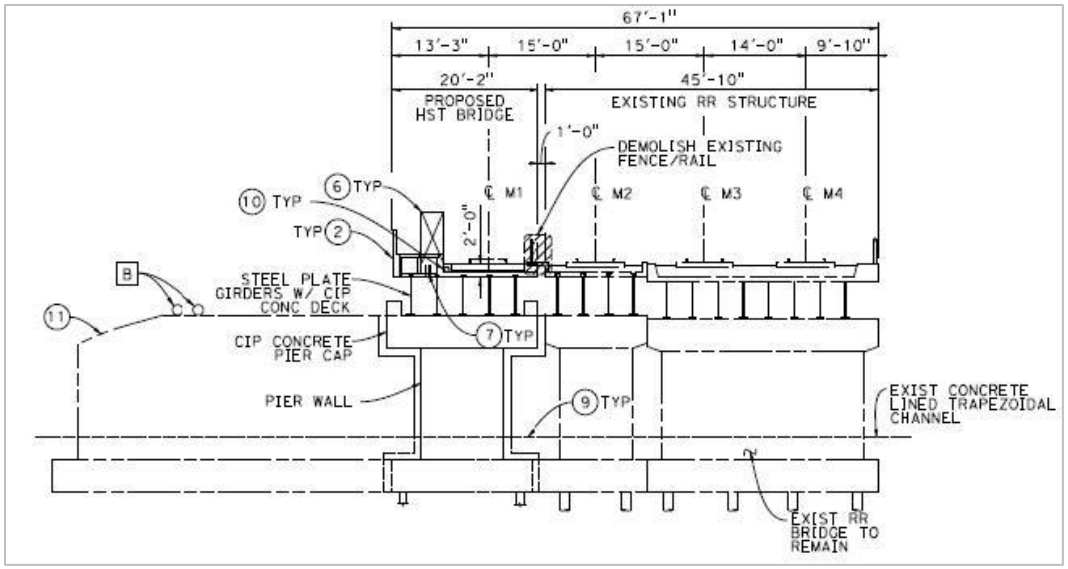
Sources: Authority 2023; ESRI 2024

Figure 5-5 North Fork Coyote Creek Crossing



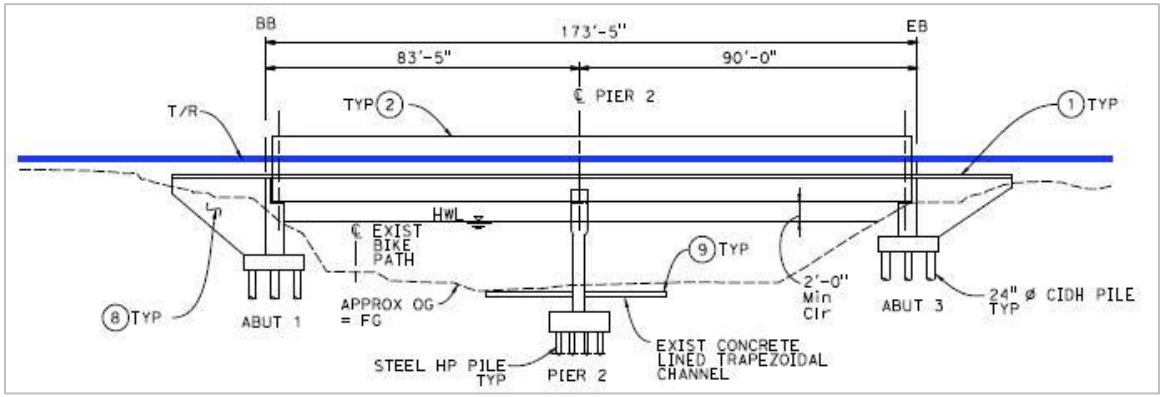
Sources: Authority 2024a, 2024b

Figure 5-6 North Fork Coyote Creek Crossing Plan View Design, Sheet 1 of 3



Sources: Authority 2024a, 2024b

Figure 5-6 North Fork Coyote Creek Crossing Longitudinal View Design, Sheet 2 of 3



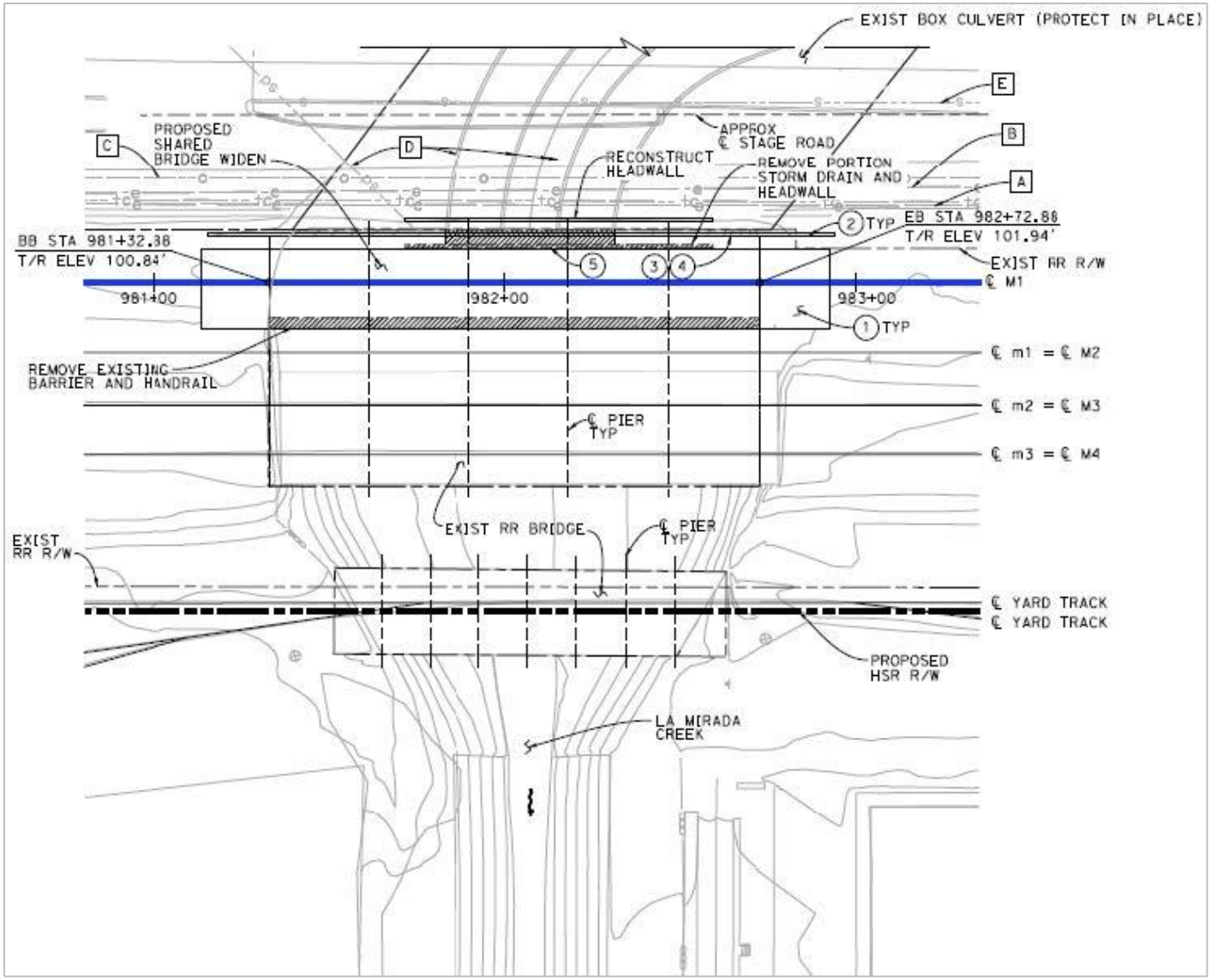
Sources: Authority 2024a, 2024b

Figure 5-6 North Fork Coyote Creek Crossing Cross Section Design, Sheet 3 of 3



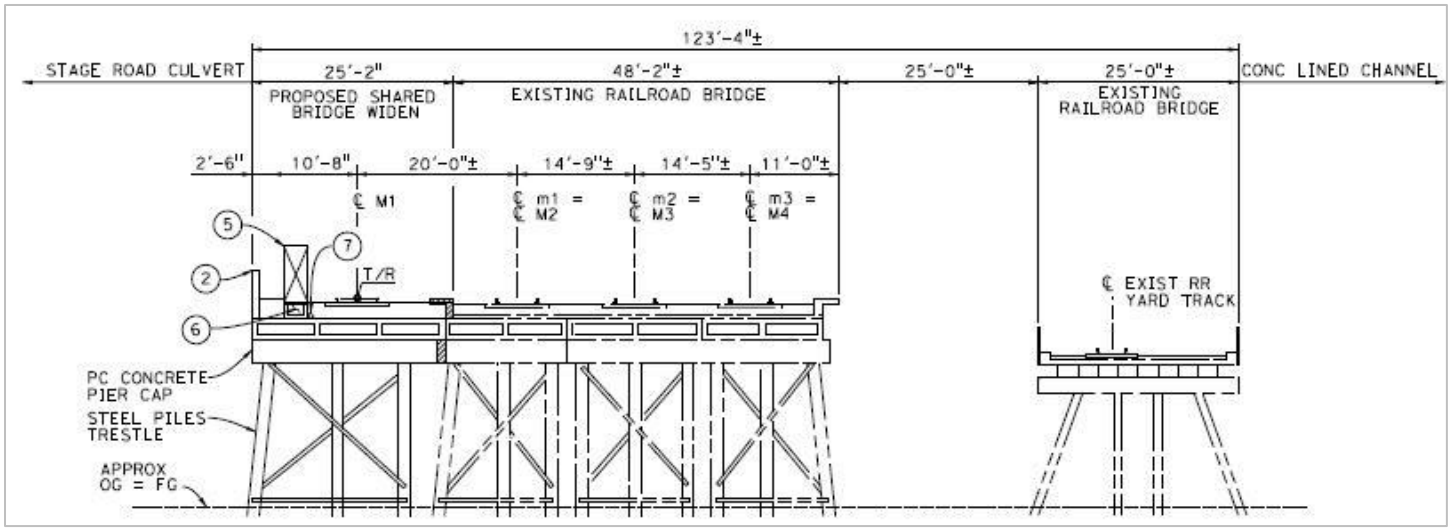
Sources: Authority 2023; ESRI 2024

Figure 5-7 La Mirada Creek Crossing



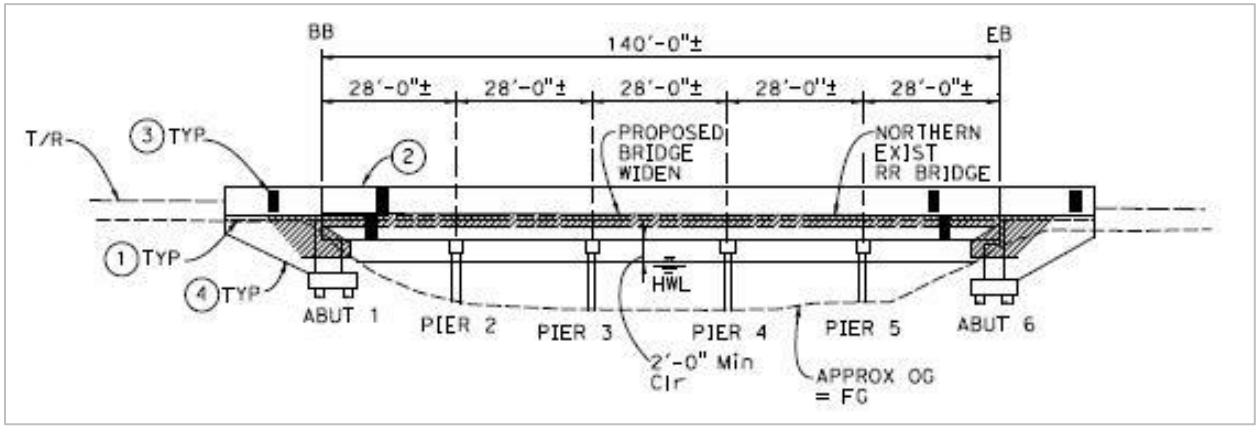
Sources: Authority 2024a, 2024b

Figure 5-8 La Mirada Creek Crossing Plan View Design, Sheet 1 of 3



Sources: Authority 2024a, 2024b

Figure 5-8 La Mirada Creek Crossing Longitudinal View Design, Sheet 2 of 3



Sources: Authority 2024a, 2024b

Figure 5-8 La Mirada Creek Crossing Cross Section Design, Sheet 3 of 3

5.2.5 Crossing 5: Coyote Creek (Feature 20)

Under the project, the existing double-box culvert would be extended both upstream and downstream within the channel to accommodate operations, as depicted on Figure 5-10, sheets 1 and 2. The box culvert extensions would replace a portion of the existing concrete creek lining, extending approximately 10 feet upstream and 21 feet downstream.

The majority of Coyote Creek within the Aquatic RSA is concrete lined; however, the railroad undercrossings are earthen bottom. The extension to the footings of the existing pier wall south of the Coyote Creek crossing would constitute a permanent impact on aquatic resources considered waters of the U.S., pursuant to CWA Section 404. Specifically, the proposed crossing would result in less than 0.01 acre (28 linear feet) of permanent impacts on nonwetland waters of the U.S. Based on the existing composition of substrate (concrete) within the channel, the “in-kind” channel modifications as well as use of the Coyote Creek temporary construction easement area would result in an additional 0.06 acre (69 linear feet) of temporary impacts on nonwetland waters of the U.S. The proposed impacts on waters of the U.S. are consistent with the terms and conditions of NWP 14. Figure 5-9 depicts the project footprint associated with Coyote Creek and Figure 5-10, sheets 1 through 3, illustrates the plan view, longitudinal view, and cross section design profiles, respectively.

5.2.6 Crossing 6: Brea Creek (Feature 41)

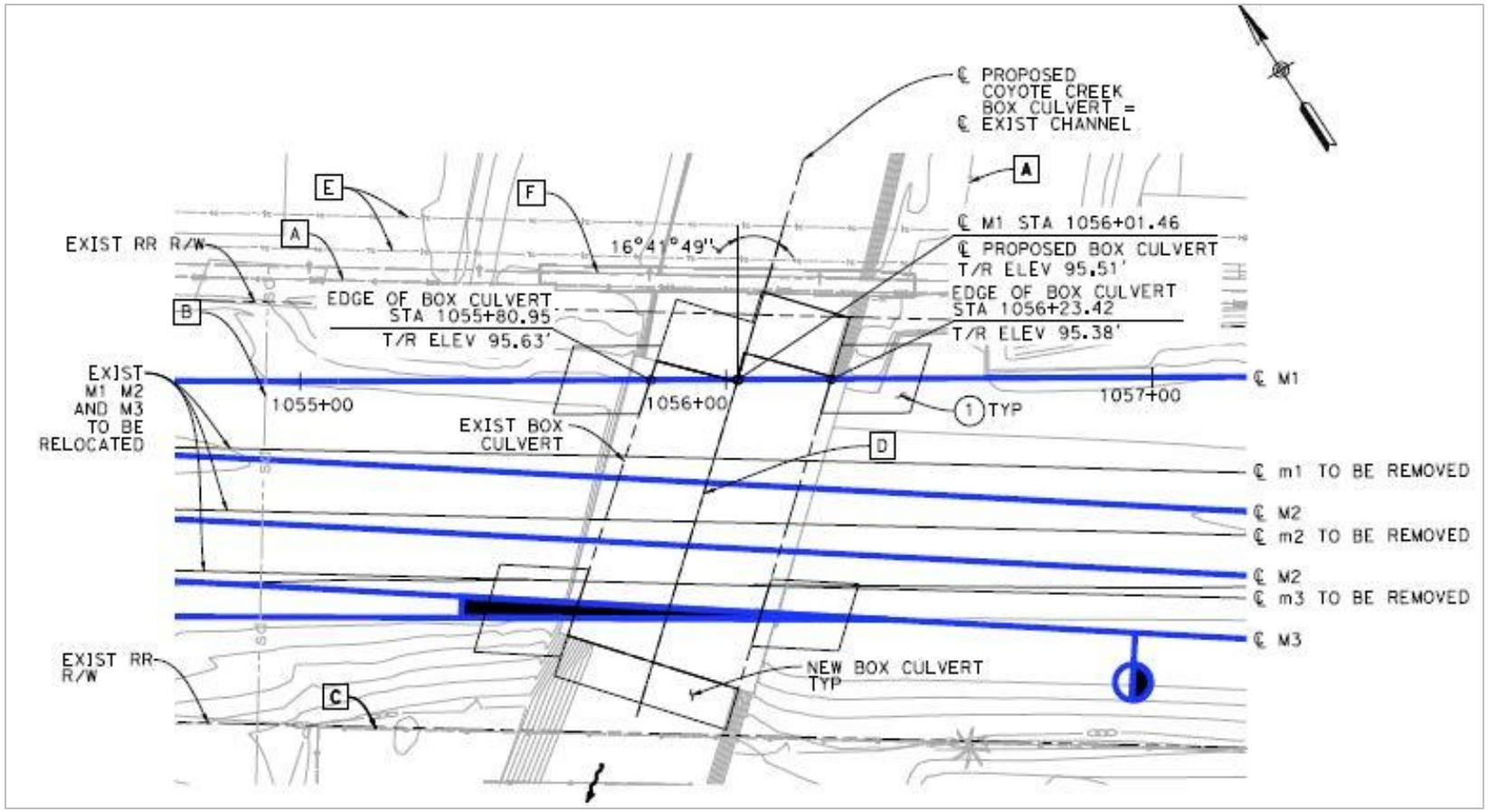
Under the project, the existing three-span railroad crossing would be widened by approximately 21 feet along the southern edge of the existing bridge, as depicted on Figure 5-12, sheets 1 and 2. The new bridge/extension would match the existing structure and have two pier walls within the channel (Figure 5-12, sheet 3). Based on the design plans, a low-flow channel exists along the centerline and would also need to be rerouted to support the proposed design.

The portion of Brea Creek within the Aquatic RSA is concrete lined. The extension of the two in-channel piers would constitute a permanent impact on aquatic resources considered waters of the U.S., pursuant to CWA Section 404. Specifically, the proposed action would result in 0.02 acre (82 linear feet) of permanent impacts on nonwetland waters of the U.S. An additional 0.07 acre (84 linear feet) of temporary impacts on nonwetland waters of the U.S. is associated with use of the Brea Creek temporary construction easement area. The proposed impacts on waters of the U.S are consistent with the terms and conditions of NWP 14. Figure 5-11 depicts the project footprint associated with Brea Creek and Figure 5-12, sheets 1 through 3, illustrates the plan view, longitudinal view, and cross section design profiles, respectively.



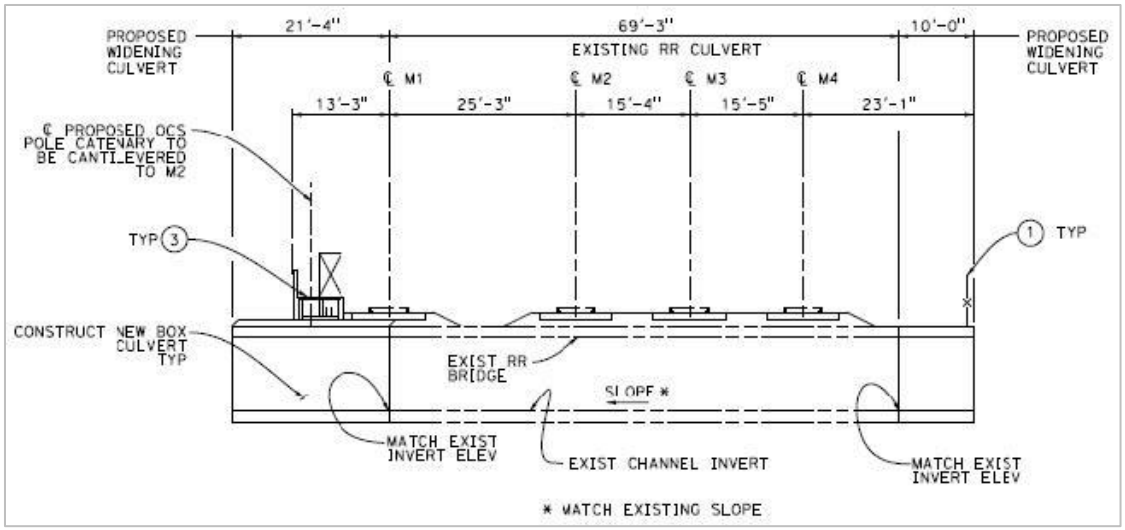
Sources: Authority 2023; ESRI 2024

Figure 5-9 Coyote Creek Crossing



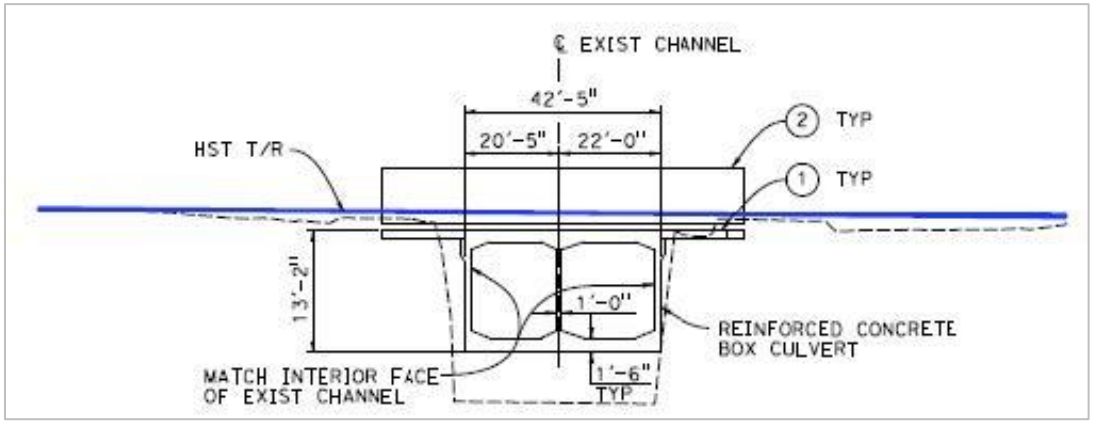
Sources: Authority 2024a, 2024b

Figure 5-10 Coyote Creek Crossing Plan View Design, Sheet 1 of 3



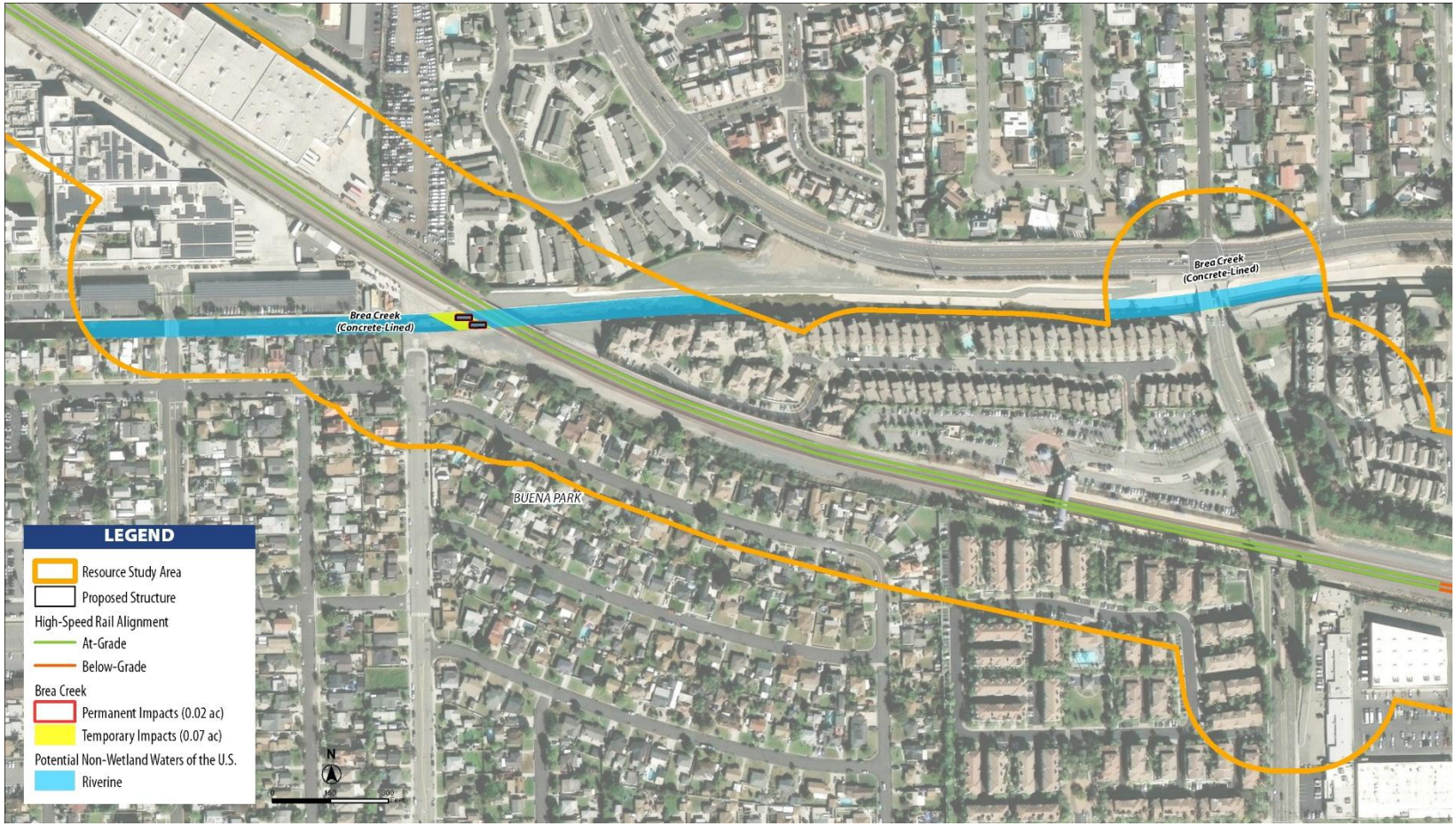
Sources: Authority 2024a, 2024b

Figure 5-10 Coyote Creek Crossing Longitudinal View Design, Sheet 2 of 3



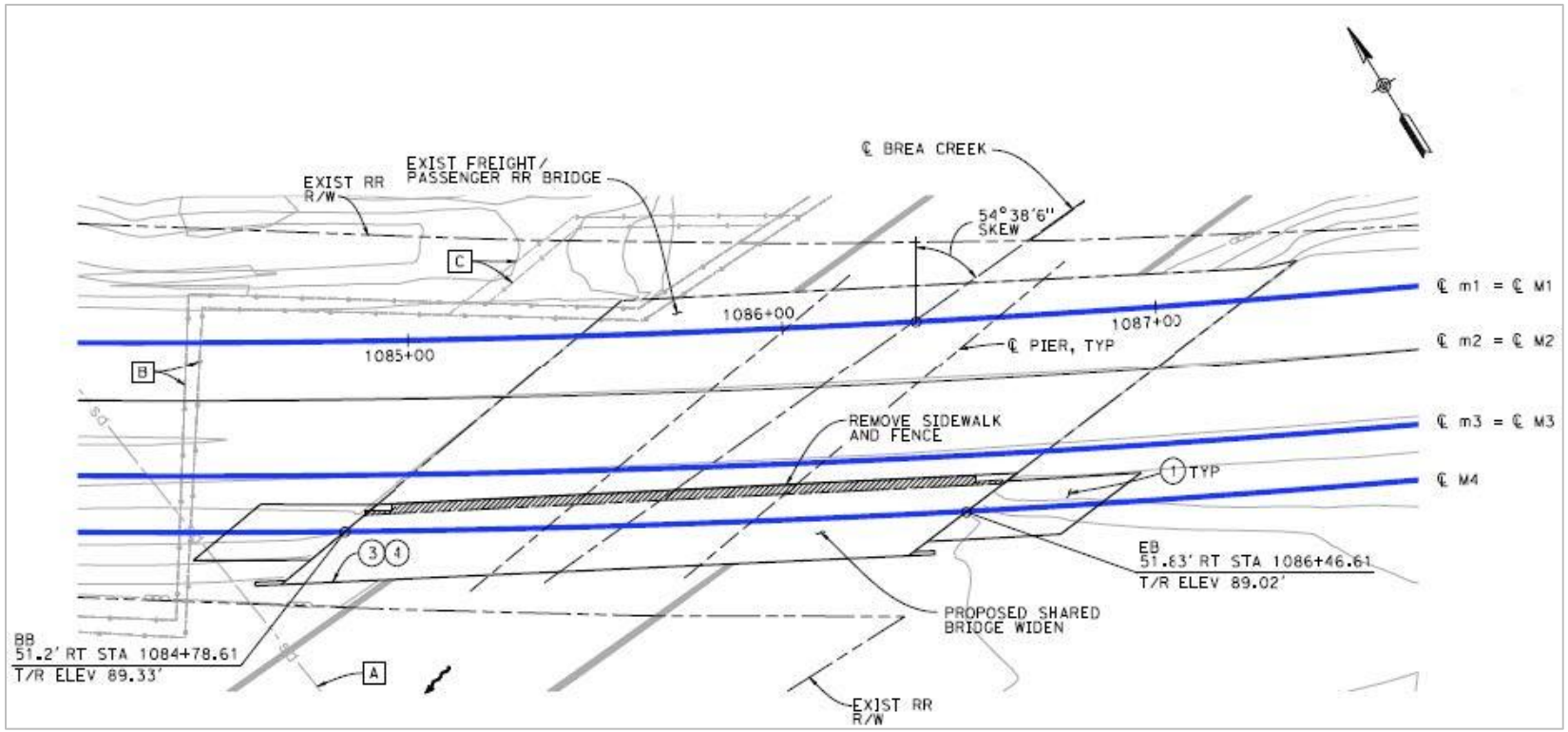
Sources: Authority 2024a, 2024b

Figure 5-10 Coyote Creek Crossing Cross Section Design, Sheet 3 of 3



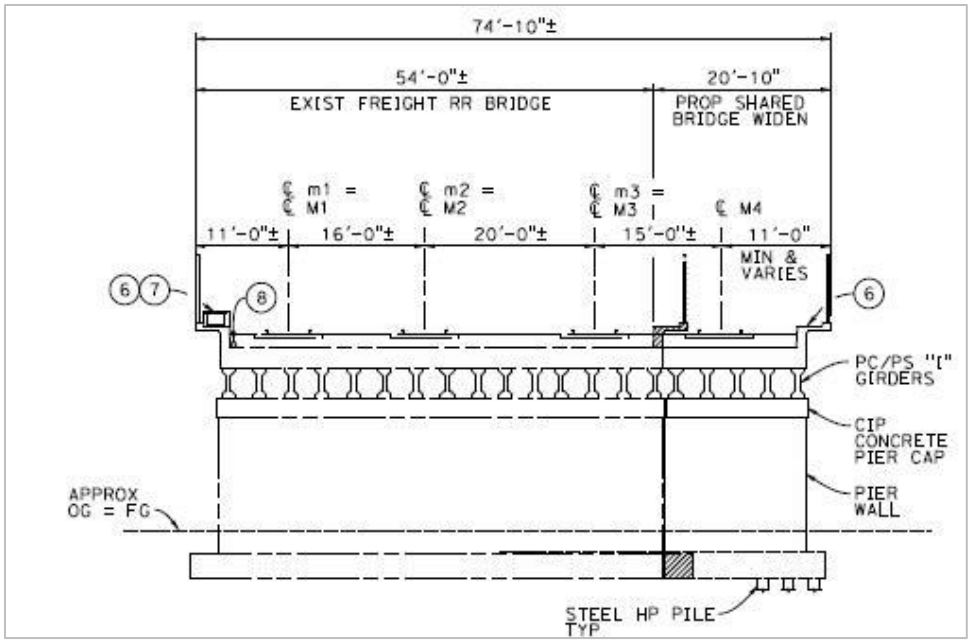
Sources: Authority 2023; ESRI 2024

Figure 5-11 Brea Creek Crossing



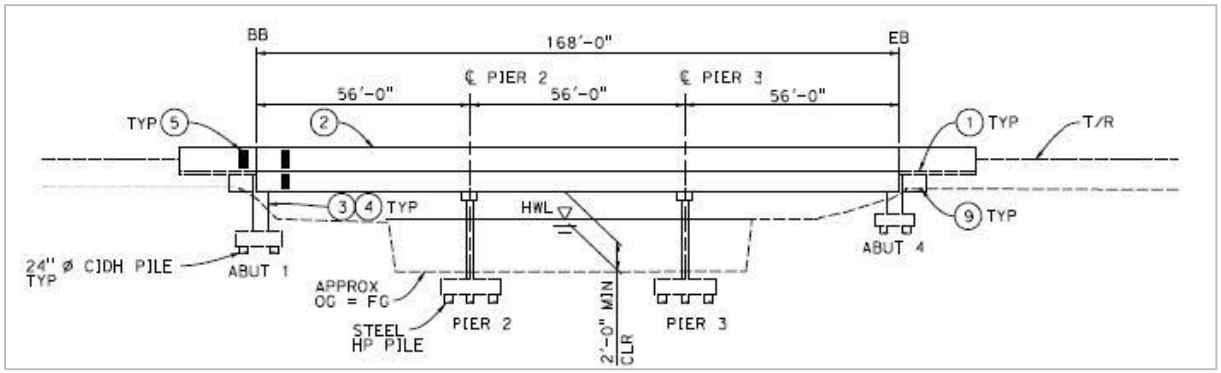
Sources: Authority 2024a, 2024b

Figure 5-12 Brea Creek Crossing Plan View Design, Sheet 1 of 3



Sources: Authority 2024a, 2024b

Figure 5-12 Brea Creek Crossing Longitudinal View Design, Sheet 2 of 3

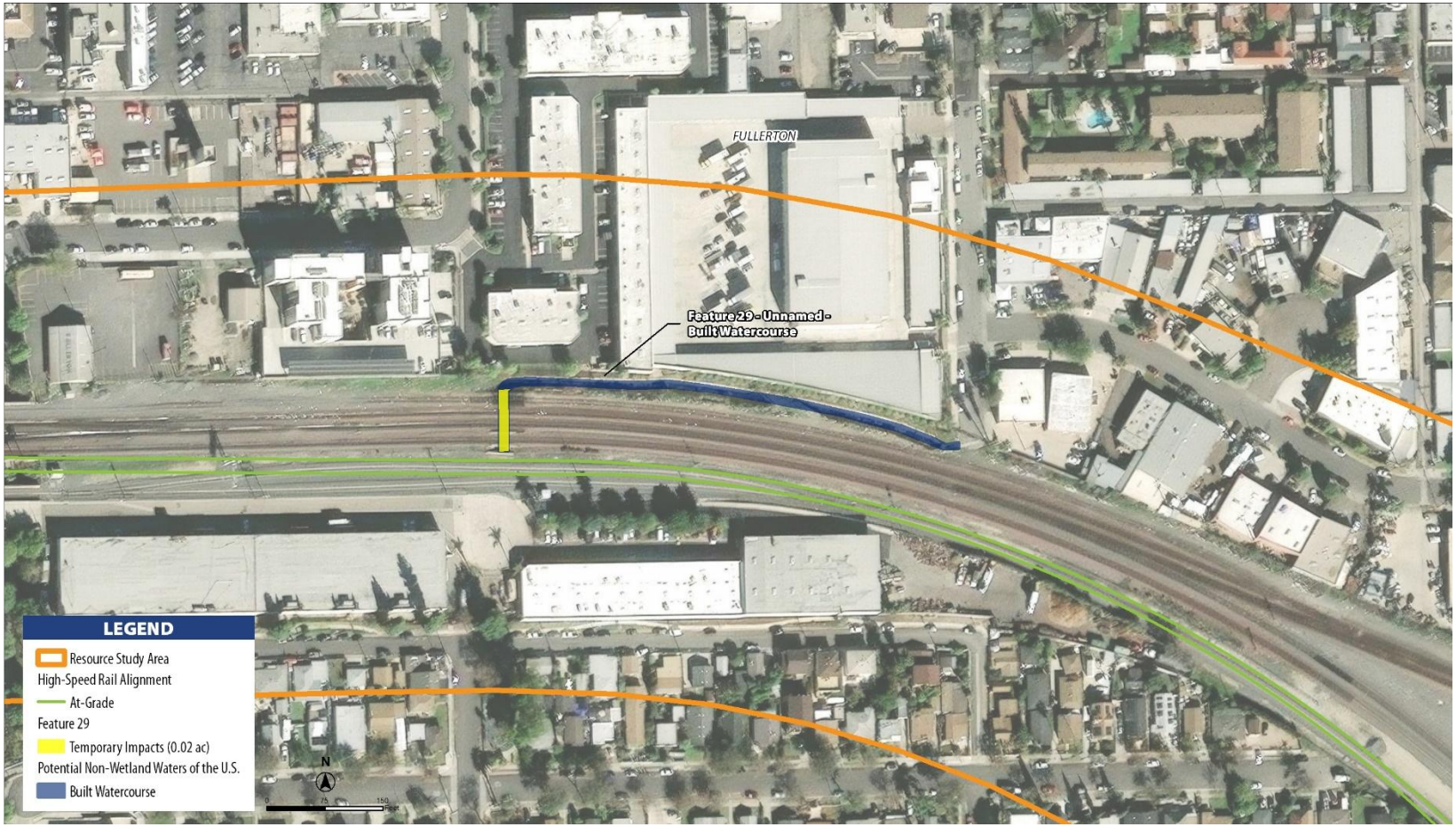


Sources: Authority 2024a, 2024b

Figure 5-12 Brea Creek Crossing Cross Section Design, Sheet 3 of 3

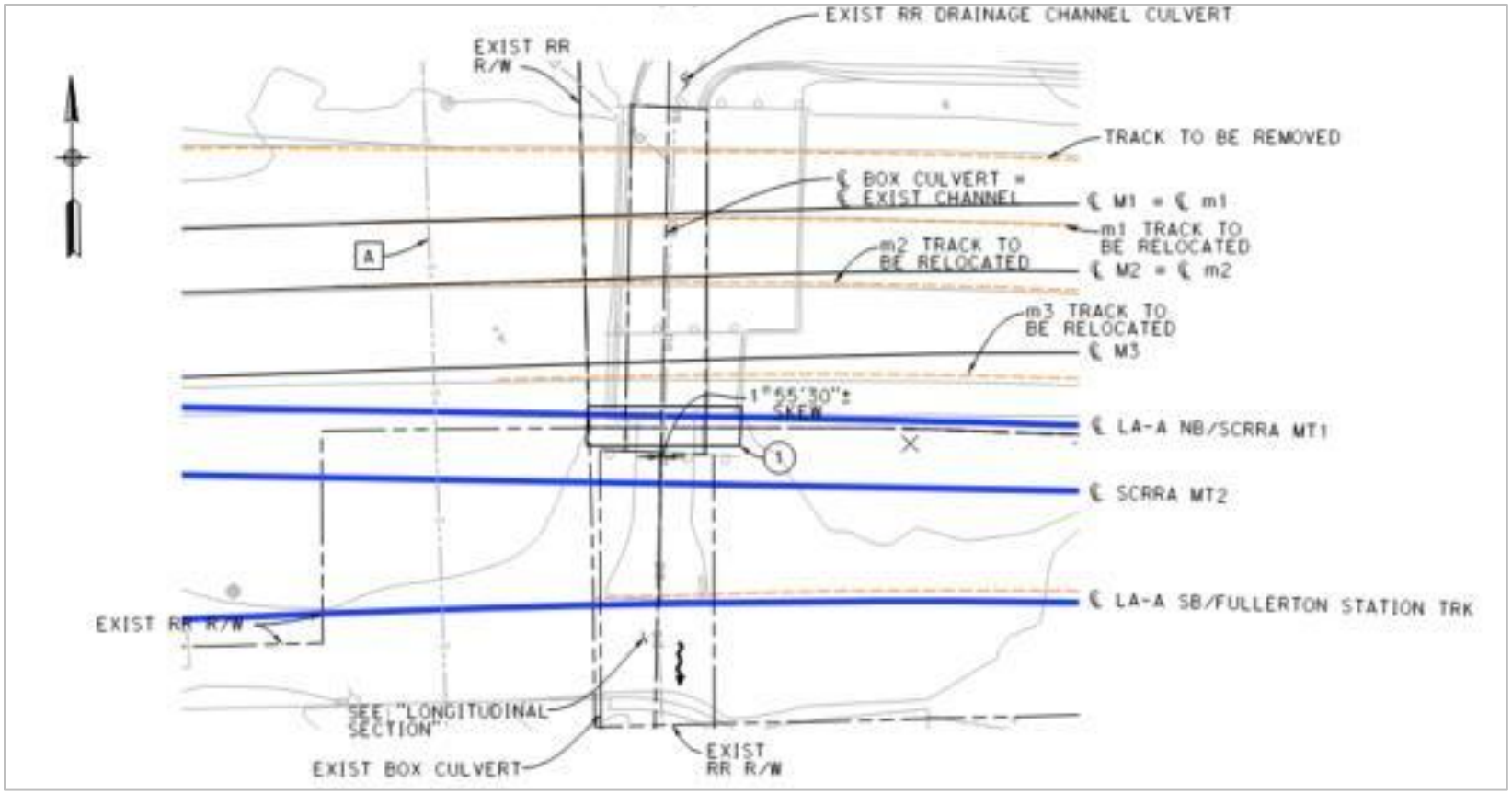
5.2.7 Crossing 7: Unnamed Built Watercourse (Feature 29)

Under the project, the existing rail bridge would be widened approximately 7 to 8 feet, as depicted on Figure 5-14, sheets 1 and 2. The track alignment presented was provided by BNSF and Southern California Regional Rail Authority as part of the Fullerton Interlocker Project; therefore, the design proposed in the PEPD may change based on further developments related to the Fullerton Interlocker Project. The affected portion of Feature 29 within the Aquatic RSA is concrete lined. Based on the existing composition of substrate (concrete) within the channel, the culvert extension and use of the temporary construction easement area within Feature 29 would result in 0.02 acre (80 linear feet) of temporary impacts on nonwetland waters of the U.S. The proposed impacts on waters of the U.S. are consistent with the terms and conditions of NWP 14. Figure 5-13 depicts the project footprint within the RSA associated with Feature 29 and Figure 5-14, sheets 1 through 3, illustrates the plan view, longitudinal view, and cross section design profiles, respectively.



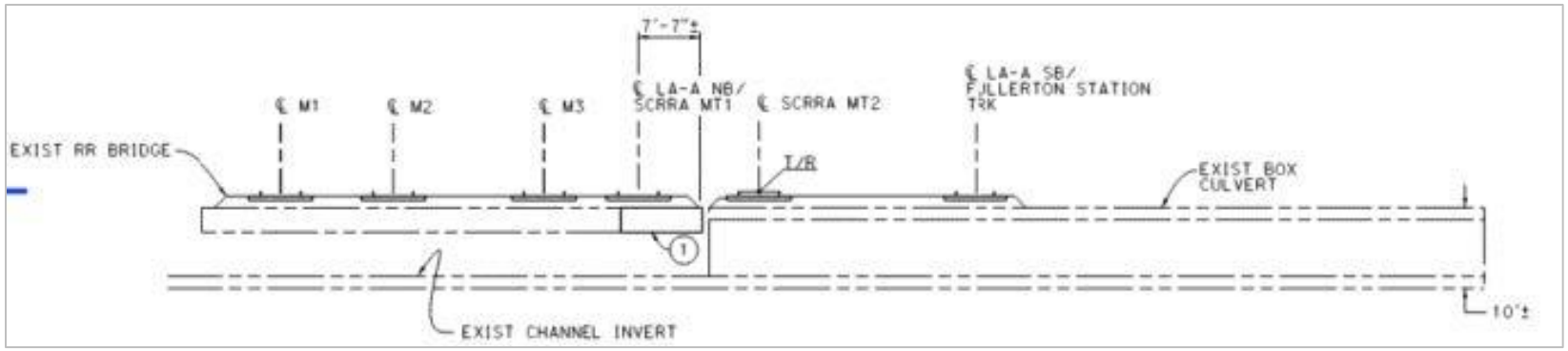
Sources: Authority 2023; ESRI 2024

Figure 5-13 Feature 29 Crossing



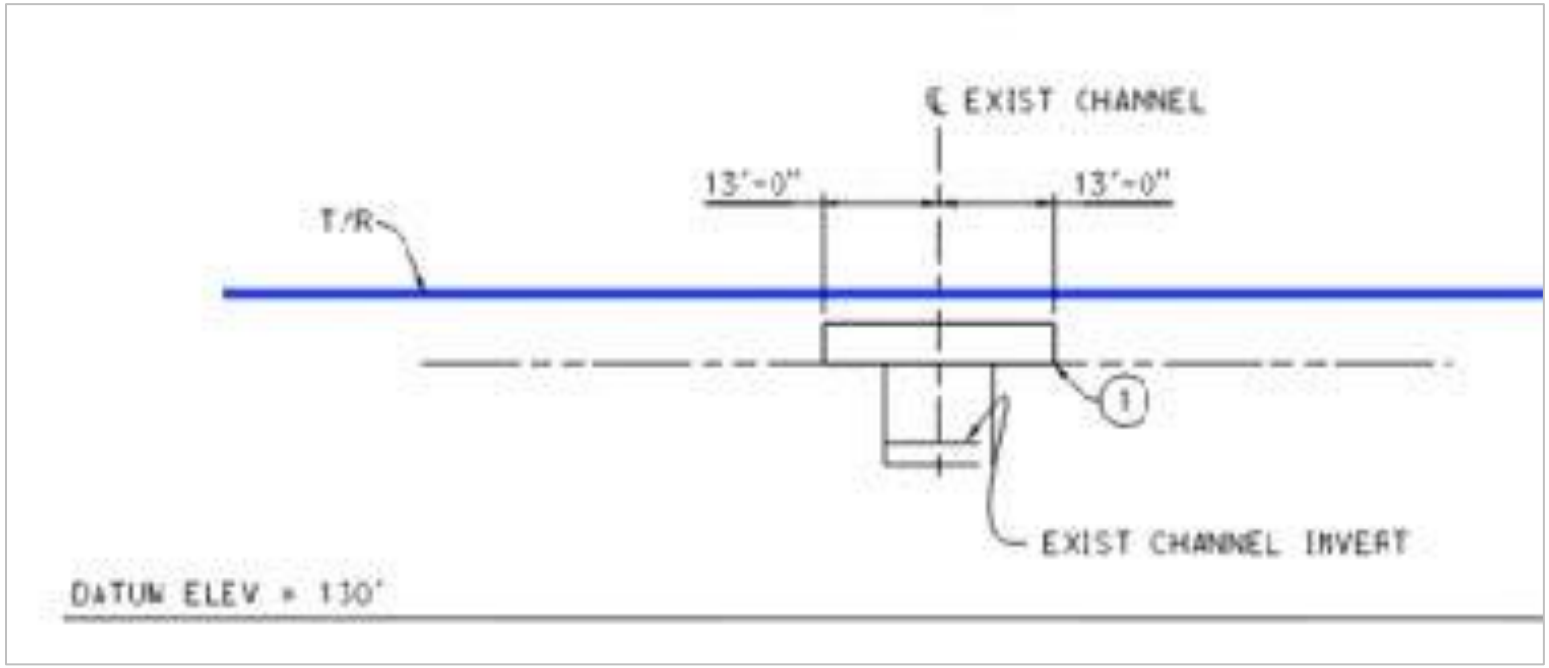
Sources: Authority 2024a, 2024b

Figure 5-14 Feature 29 Plan View Design, Sheet 1 of 3



Sources: Authority 2024a, 2024b

Figure 5-14 Feature 29 Longitudinal View Design, Sheet 2 of 3



Sources: Authority 2024a, 2024b

Figure 5-14 Feature 29 Cross Section Design, Sheet 3 of 3

5.3 Single and Complete Water Crossings

Based on the definition of single and complete linear projects (Section 3.1.2, Single and Complete Linear Project), the seven proposed water crossings in the project section that would require CWA Section 404 authorization from USACE are considered separate and distinct and do not constitute individual channels in a braided stream or river or individual arms of a large, irregularly shaped wetland or lake (Table 5-2).

Table 5-2 Distance between Water Crossings Proposed for Impact

Crossing	Distance Along the Alignment from Previous Crossing (in miles, from north to south)
Feature 5: Rio Hondo	--
Feature 12: San Gabriel River	1.8
Feature 14: North Fork Coyote Creek	5.7
Feature 19: La Mirada Creek	1.4
Feature 20: Coyote Creek	1.4
Feature 41: Brea Creek	0.6
Feature 29: unnamed built watercourse	4.4

Sources: Authority 2023; ESRI 2024

Based on this rationale, the project section would affect waters of the U.S. at seven separate and distinct locations. Accordingly, each of the proposed crossings is considered a single and complete project, subject to confirmation by USACE (Table 5-3).

Table 5-3 Single and Complete Projects for the Los Angeles to Anaheim Project Section[1]

Crossing	Permanent Impacts (Acres)[1]	Temporary Impacts (Acres)[1]	NWP(s) to cover each Single and Complete Project
Feature 5: Rio Hondo	0.03	0.24	NWP 14
Feature 12: San Gabriel River	0.02 (0.01)[2]	0.64 (0.29)[2]	NWP 14
Feature 14: North Fork Coyote Creek	0.01	0.17	NWP 14
Feature 19: La Mirada Creek	<0.01	0.03	NWP 14
Feature 20: Coyote Creek	<0.01	0.06	NWP 14
Feature 41: Brea Creek	0.02	0.07	NWP 14
Feature 29: unnamed built watercourse	--	0.02	NWP 14

Sources: Authority 2023; ESRI 2024

[1] Aquatic resource acreages are based on the project footprint dated August 2024 and include both the Shared Passenger Track Alternatives. There is no difference in aquatic resource acreages or aquatic resource impacts between the Shared Passenger Track Alternatives.

[2] Acreages in parentheses represent USACE-defined wetlands, not a subset of the total.

-- = no effect; NWP = Nationwide Permit; USACE = U.S. Army Corps of Engineers

5.4 Other High-Speed Rail Facilities

Work conducted at each of the proposed water crossings is associated with construction of the HSR track. The construction of ancillary or nonlinear support facilities would not require the discharge of fill within waters of the U.S., including the LMF at 26th Street (Shared Passenger Track Alternative A), the LMF at 15th Street (Shared Passenger Track Alternative B), and the two

HSR station options (Norwalk/Santa Fe Springs and Fullerton), as well as storage areas, utility substations, and electrical interconnections.

6 CONCLUSION

Aquatic features within the Aquatic RSA were reviewed to determine if they met the definition of waters of the U.S. pursuant to the Preliminary Jurisdictional Determination methodology (USACE 2016), *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (USACE and USEPA 2007), revised guidance (USACE and USEPA 2008), the *Revised Definition of "Waters of the United States"; Conforming* (USACE and USEPA 2023), and the preamble to the USACE Regulatory program operating regulations (USACE 1986).

A total of 99.04 acres of aquatic resources considered waters of the U.S. were identified within the RSA, consisting of 97.15 acres of nonwetland waters and 1.89 acres of wetlands. Waters of the U.S. resource types consist of freshwater emergent wetland, freshwater forested/shrub wetland, basins, built watercourses, and riverine features. No Rivers and Harbors Act Section 10 navigable waters of the U.S. were identified in the RSA (Authority 2025a).

Project construction activities that would result in permanent direct impacts on aquatic resources considered waters of the U.S. include modification of watercourse crossings, and construction and modification of stormwater drainage facilities. The following types of permanent structures (fill material) would be installed within aquatic resources: bridge supports (piers, footings), box culverts, retaining walls, and stormwater outlets. In addition, the following structures would be either replaced, modified, or relocated within aquatic resources: concrete channel bed, banks, or sidewalls, county maintenance roads, county access roads, and public bike paths.

For purposes of obtaining CWA Section 404 authorization under the NWP program, each of the seven proposed water crossings resulting in a discharge of fill material is considered a single and complete project based on the definition promulgated in the USACE Regulatory operating regulations (USACE 1986) and USACE NWP program (USACE 2021a), including the distance between each crossing. Each single and complete project would result in substantially less than 0.5 acre of permanent impacts on aquatic resources considered wetland and nonwetland waters of the U.S.

The information and results presented herein document the investigation, best professional judgment, and conclusions of the delineators and report preparers. It is correct and complete to the best of our knowledge.

7 LIST OF PREPARERS

Project Role	Name, Credential	Qualifications
ICF		
Lead author	John Markham, MPH, PWS Senior Wetland Ecologist/ Regulatory Specialist	MPH, Environmental Health Sciences, University of California, Los Angeles; BA, Biological Sciences, Colorado College 23 years of permitting, policy development, compensatory mitigation, and wetland and nonwetland waters delineation experience Co-author of *Los Angeles to Anaheim Project Section Aquatic Resources Delineation Report* and *Los Angeles to Anaheim Project Section Biological and Aquatic Resources Technical Report*
QAQC	Debra Einstein Leight Managing Director, Environmental Planning	24 years' experience BA, Environmental Analysis and Design, University of California, Irvine
Reviewer	Rebecca Payne Senior Regulatory Specialist	BS, Environmental Biology and Management, University of California, Davis Masters of Environmental Science and Management, University of California, Santa Barbara 17 years of experience
STV, Incorporated		
QA/QC Reviewer	Deborah Roberts	18 years' experience MS candidate, Regenerative Studies, California State Polytechnic University, Pomona

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U.S.C.	U.S. Code

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