5.9 Hydrology and Water Quality

Based on Appendix G of the *State CEQA Guidelines*, and comments received during the Notice of Preparation (NOP) public comment period, this section evaluates the Project's potential impacts to hydrology and water quality. Specifically, this DEIR section will evaluate the potential impacts related to water quality, groundwater, drainage, flooding, and inundation. Copies of comment letters received and notes regarding the oral comments from the Scoping Meeting are included in Appendix A of this EIR.

The analysis in this section is based, in part, on the *Preliminary Hydrology Calculations for Sycamore V, 6275 Lance Drive, Riverside California*, revised June 17, 2016 (TE(a)) and the *Project-Specific Preliminary Water Quality Management Plan*, June 7, 2016 (TE(b)), both prepared by Thienes Engineering, Inc. These reports are included in Appendix H of this DEIR.

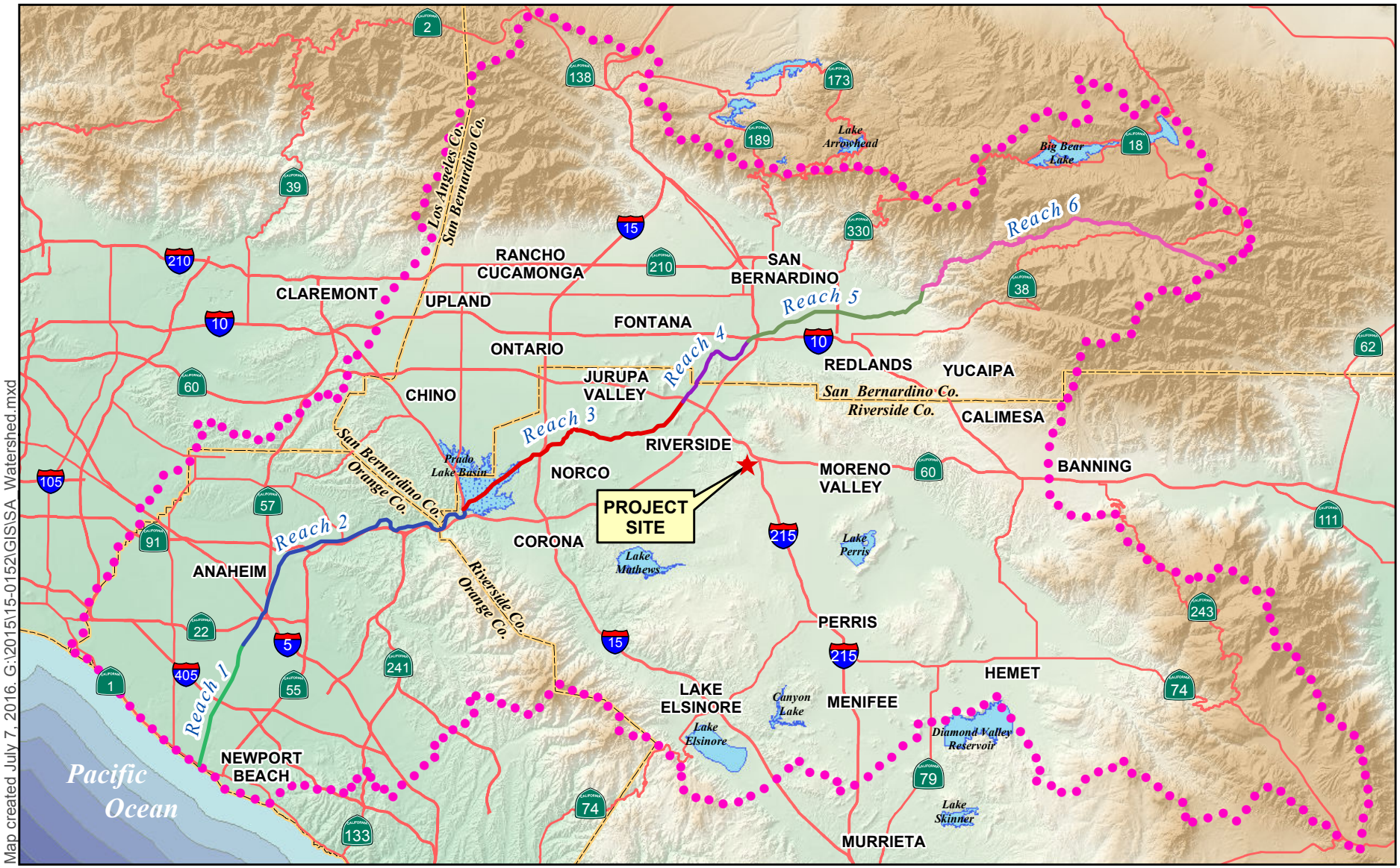
5.9.1 Setting

The following discussion describes the proximity of the Project to nearby water bodies, provides background information on water quality issues related to surface and groundwater in the Project area, describes the existing drainage condition, floodplains, and dam inundation areas in order to evaluate potential Project-related impacts.

Surface Water Resources and Existing Drainage Condition

California is divided into nine major watersheds and a Regional Water Quality Control Board (RWQCB or Regional Board) regulates water quality for each watershed. The Project site is located within the Santa Ana River Watershed region (Region 8), which is under the jurisdiction of the Santa Ana Regional Board. The Santa Ana River flows from the San Bernardino Mountains to the Pacific Ocean for over 100 miles. The Santa Ana River is the "receiving water" for more than 2,700 square miles covering portions of San Bernardino, Riverside, and Orange counties (GP 2025 FPEIR, p. 5.8-4). The Project site is located approximately six miles southeast of the Santa Ana River, which is the main drainage feature in this watershed (**Figure 5.9-1 – Santa Ana River Watershed**).

The Project is located within the Sycamore Canyon Business Park and is being implemented pursuant to the *Sycamore Canyon Business Park Specific Plan* (*SCBPSP*). The entire *SCBPSP* area drains southerly to Sycamore Canyon, which flows through the Canyon Crest Country Club, then Andulka Park where it joins the Tequesquite Arroyo through the Victoria Club. The runoff is conveyed via storm drains under State Route 91, daylights briefly through the Riverside Community College campus, and discharges in a storm drain channel called Tequesquite Arroyo, just southwest of Mt. Rubidoux in Reach 3 of the Santa Ana River (**Figure 5.9-2 – Project Site Connectivity to Santa Ana River)**.



Map created July 7, 2016. G:\2015\15-0152\GIS\SA Watershed.mxd

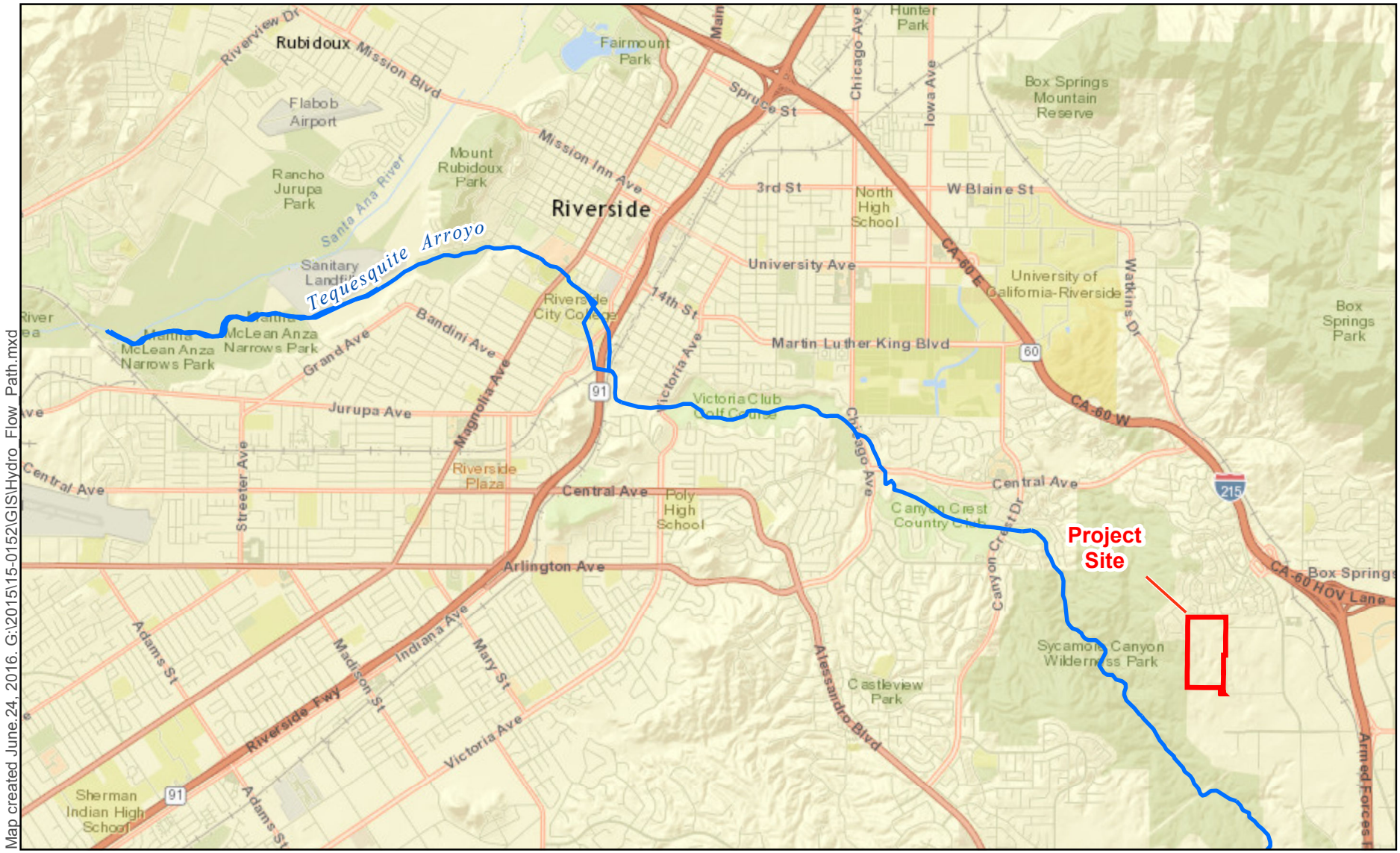
Sources: SAWPA, 2012; NED 2014; Riverside Co. GIS, 2016.

0 2 4 6 Miles

Figure 5.9-1 – Santa Ana River Watershed

Sycamore Canyon Business Park Buildings 1 and 2 DEIR

ALBERT A. WEBB ASSOCIATES



Map created June.24, 2016. G:\2015\15-0152\GIS\Hydro_Flow_Path.mxd

Sources: USGS Digital Line Graph;
ESRI World Street Map

0 2,000 4,000 6,000 Feet

Figure 5.9-2 - Project Site Connectivity to Santa Ana River

Sycamore Canyon Business Park Buildings 1 and 2 DEIR

ALBERT A. WEBB ASSOCIATES

With the exception of the concrete V-ditch and earthen check dam, the Project site is currently undeveloped as shown on **Figure 3-2 – Location Map**. The majority of the site (approximately 63 acres) surface drains southerly to a neighboring property. The most noticeable onsite drainage feature flows from north to south, roughly through the center of the property. As discussed in Section 5.4 – Biological Resources, this drainage feature contains two jurisdictional drainages. There is also an isolated (non-wetlands) pond.

An existing residential development northwest of the Project site known as Sycamore Highlands (15.95 acres) and several small off-site dirt areas adjacent to the westerly property line (3.8 acres total) also drain to the site and, in turn, contribute some runoff southerly to the neighboring property. The 100-year peak flow rate for these areas (82.55 acres total) is 130 cubic feet per second (cfs).

The northeast corner of the Project site (3.8 acres) currently surface drains to Dan Kipper Drive. The 100-year peak flow rate surface draining to Dan Kipper Drive from the Project site is approximately 6.9 cfs.

Two small drainage areas along the easterly property line (3.65 acres total) surface drain easterly to Lance Drive. The 100-year peak flow rate to Lance Drive from the Project site is approximately 5.4 cfs.

Lastly, a small area of the Project site along the westerly property line (2.0 acres) surface drains away from the site to the west. The 100-year peak flow rate for this area is approximately 3.0 cfs (TE(a), p. 5). The existing hydrology of the Project site is shown on **Figure 5.9-3 – Existing Condition Hydrology Map.**

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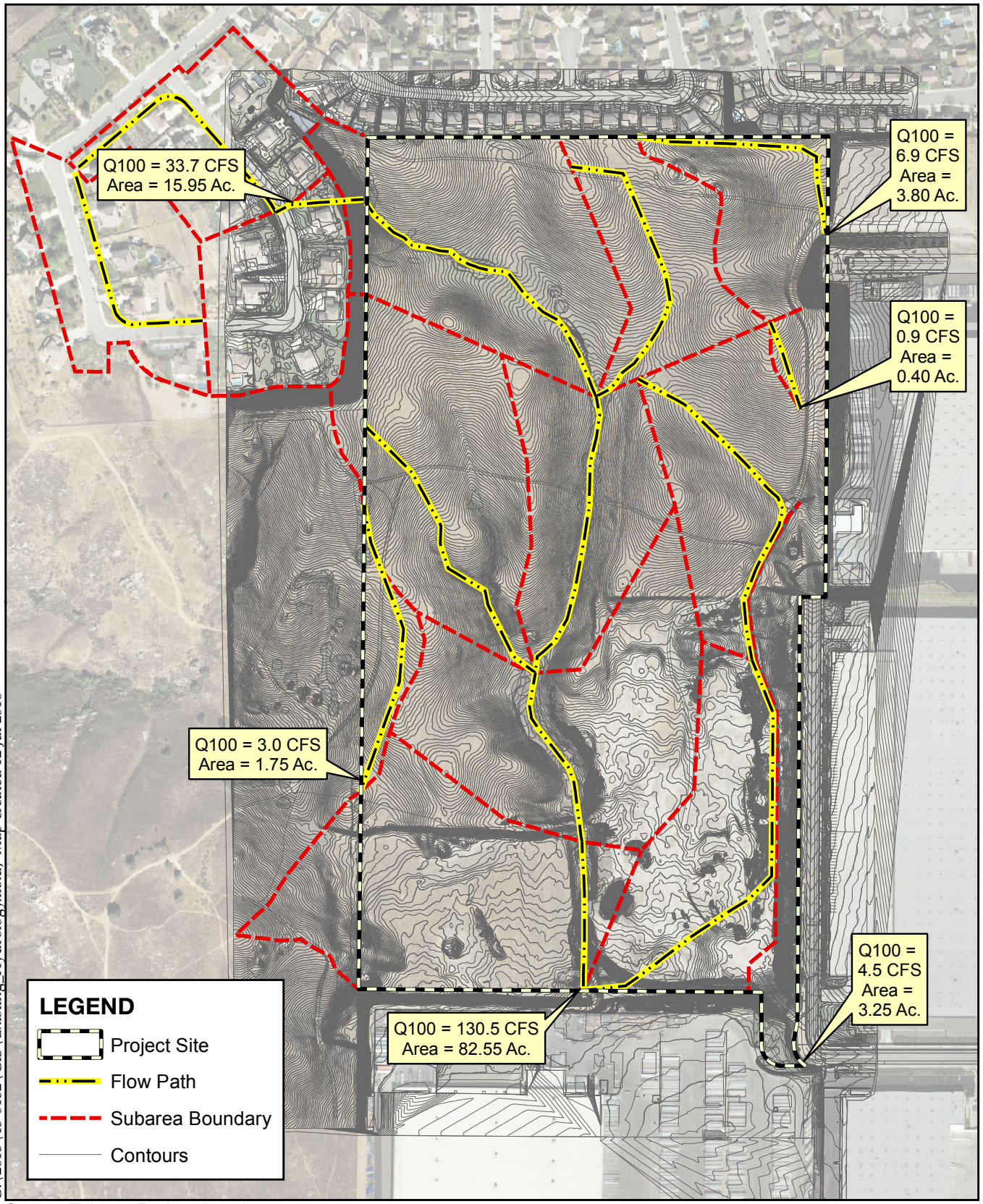

G:\2015\15-0152\GIS\Existing_Hydrology.mxd; Map created 12 Jul 2016

Source: Thienes Engineering, June 2016.

5.9-3 - Existing Condition Hydrology Map

Sycamore Canyon Business Park Buildings 1 and 2 DEIR

0 400 800 Feet

ALBERT A. WEBB ASSOCIATES

Groundwater Resources

Water supplies throughout the City of Riverside are predominately sustained by groundwater basins. Groundwater conditions in these basins are influenced by natural hydrologic conditions such as precipitation, groundwater seepage and surface water from the Santa Ana River and the six arroyos that traverse the City. In addition, local groundwater basins are actively recharged by various agencies with stormwater runoff, treated wastewater, and imported water. (GP 2025 FPEIR, pp. 5.8-4 – 5.8-5). Groundwater quality and water rights issues are managed by the Santa Ana RWQCB through waste discharge permits and well permitting (GP 2025, p. OS-57). Groundwater elevation levels, and basin management is generally overseen by the California Department of Water Resources (DWR).

Although the Project site is mostly granitic bedrock (CHJ(c)), the site overlies the Riverside South groundwater basin, from which the City's water utility, Riverside Public Utilities (RPU), extracts domestic water for its service area (GP 2025, Figure PF 1.1). Since 2009, RPU has met all of its water supply needs by utilizing groundwater sources located in the Bunker Hill Basin and Riverside North and South Basins,[1] and water quality from these sources met or surpassed all state and federal drinking water quality standards in 2015 (RPU 2015(a)). In past years when RPU has not been able to meet its water demand from pumping from these groundwater basins, RPU has purchased imported water from Western Municipal Water District (WMWD), which is the water utility that serves the Sycamore Canyon Business Park including the Project site (GP 2025 FPEIR, p. 5.16-10 and Figure 5.16-3). WMWD has responded to the Governor's executive orders to implement mandatory reductions in urban potable water use in light of the state's ongoing drought, which is entering its fifth year. Commercial water users are subject to mandatory drought restrictions, discussed further in Section 5.17 – Utilities.

The Riverside South Basin is adjudicated by the 1969 Orange County Judgment,[2] with the pumping rights of the basin further defined in the 1969 Western-San Bernardino Judgment.[3] As the major pumper of the basin, RPU prepared the Riverside Basin Groundwater Management Plan (GWMP) in 2011 through a stakeholder-based planning effort with DWR guidance (RPU, 2012). The GWMP is intended to help operate and manage the basin in a sustainable manner. RPU also updates an Urban Water Management Plan (UWMP) every five years that is also aimed to facilitate long-range planning for reliable water supplies (RPU, 2015).

According to the 2015 UWMP, the Riverside South Basin is projected to operate in a state of overdraft in the future. However, WMWD is responsible for replenishment of the basin should

[1] Riverside North and Riverside South basins are hydrologically connected but separated by the San Bernardino County/Riverside County line, per the 1969 Western-San Bernardino Judgment.
[2] Orange County Water District vs. City of Chino, et al., Case No. 117628 (i.e. the Orange County Judgment of April 17, 1969).
[3] Western Municipal Water District vs. East San Bernardino County Water District, et al., Case No. 78426 (i.e. the Western-San Bernardino Judgement of April 17, 1969) describes the groundwater pumping rights in the Colton, Riverside, and San Bernardino Area and is administered by the two-person Western-San Bernardino Watermaster.

extractions exceed the base period extraction amount, or by more than 20 percent in a single year, unless credits are available from previous years, as detailed in the Western-San Bernardino Judgment. RPU participates in independent groundwater level and quality monitoring in the Riverside basin, and all groundwater production is metered and reported to the Western-San Bernardino Watermaster (RPU, 2015).

Storm Drain System

The Riverside County Flood Control and Water Conservation District (RCFCWCD) is responsible for the regional flood control and drainage facilities. The City maintains local facilities that tie into the RCFCWCD regional system. Local drainage facilities, consisting mostly of underground closed conduits and storm drains located primarily in developed portions of the City collect stormwater and convey it to regional facilities, including the Santa Ana River (GP 2025 FPEIR, p. 5.8-4). There is an existing City storm drain in Lance Drive adjacent to the Project site. Because this facility does not have adequate capacity to accept Project runoff, the Project proposes construction of new off-site storm drain in Lance Avenue as described in Section 5.9.4 (Project Design Features). It should be noted that the Project site is not located within an existing RCFCWCD Master Drainage Plan area (GP 2025 FPEIR, Figure 5.16-1).

The *Sycamore Canyon Business Park Specific Plan* (*SCBPSP*) indicates that if necessary, adequate drainage-siltation basins will be built on the side canyons entering the arroyo so as to retard increased flow and retain debris originating in the industrial area. Such facilities shall be engineered, constructed and maintained through a Tax Assessment District and/or Redevelopment Agency Project.

On November 24, 1992, the City Council approved an amendment to the *SCBPSP* (SP-001-923) locating three drainage-siltation basins subject to conditions. Two of the facilities, Basins B and C are located entirely within Sycamore Canyon Wilderness Park and Basin A straddles the boundary with the SCBP (*SCBPSP,* p. 26).

On May 4, 1993, the City Council adopted Resolution No. 18232 to amend the SCBPSP and the Land Use and Open Space Elements of the Riverside General Plan (Case SP-001-923) to relocate the proposed drainage treatment marsh (i.e. Basin A) from a location partially within both the Sycamore Canyon Wilderness Park and the SCBP (Res No. 18232) to a site that is entirely within the Park.

On November 16, 1993, an election was held pursuant to the Mello Roos Community Facilities Act of 1982. The landowners who comprised the qualified voters of Community Facilities District (CFD) No. 92-1 (Sycamore Canyon Business Park), authorized formation of the CFD and the sale of City of Riverside Tax Bonds (2005 Series A). Bond proceeds are used to construct and acquire various public improvements needed within the Sycamore Canyon Business Park. One such improvement is Basin A, also known as “the marsh”. As described in

Section 5.9.4 (Project Design Features), stormwater runoff from the Project site that is not otherwise captured and infiltrated onsite will drain to the "marsh."

Flooding and Inundation

Flooding in the City mainly results from intense rainfall, which usually occurs in the winter. Flooding in the City could also result from dam failure. Most of the dams within the City and its Sphere of Influence fall under the jurisdiction of the California Department of Water Resources Division of Safety of Dams. Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps show that portions of the City fall within the 100-year flood zone. Flood hazard risks are greatest in the vicinity of channels, creeks, streams, and watercourses. This includes the Santa Ana River and several dams. (GP 2025 FPEIR, p. 5.8-5) The Project site, however, is not within a 100-year flood zone or dam inundation area (GP 2025, Figure PS-4).

Due to the City's distance from the ocean, there is no foreseeable risk of tsunami (tidal wave) inundation. Seiches are oscillations in enclosed bodies of water caused by seismic waves. Existing development is subject to hazards from seiches in reservoirs such as Lake Mathews and Lake Evans at Fairmount Park and other small water bodies. Mudflows associated with erosion may also occur in portions of the community. (GP 2025 FPEIR, p. 5.8-5) The Project site is not located near Lake Mathews or Lake Evans; not located in a coastal area, which are subject to tsunamis; and not located near the Santa Ana River, Lake Hills, Norco Hills, or Box Springs Mountain area or arroyos that are subject to significant mudflows (GP 2025 FPEIR, p. 5.8-24).

5.9.2 Related Regulations

Federal and State Regulations

Clean Water Act

The Clean Water Act (CWA) was designed to restore and maintain the chemical, physical, and biological integrity of the waters in the United States, so that all waters can be fishable and swimmable. The U.S. Environmental Protection Agency (EPA) has delegated responsibility for implementation of the CWA to the State Water Resources Control Board (SWRCB) and the nine RWQCBs, including water allocation and water quality protection programs, including the National Pollutant Discharge Elimination System (NPDES) program. The NPDES program is a set of permits designed to regulate various activities that generate pollutants with potential to impact water quality. The City is a co-permittee with the County of Riverside in the Municipal Separate Storm Sewer System (MS4) NPDES permit, and is therefore required to mandate that all new development projects and substantial redevelopment projects incorporate Best Management Practices (BMPs) for construction and operation as identified in the Santa Ana Regional Drainage Area Management Plan (SAR-DAMP) (GP 2025, p.OS-57). As a co-permittee, the City must require that most development projects prepare a site-specific Water Quality Management Plan (WQMP). Its primary purpose is to ensure that the land use approval and permitting process of the City will minimize the impact of urban runoff, through the use of

Low-Impact Development (LID) principles in site design, source control measures and treatment control BMPs (SAR-DAMP p.6-9). The project would also be subject to another NPDES permit, the *General Permit for Stormwater Discharges Associated with Construction Activity*, requiring effective erosion and sediment controls during construction. Project-specific BMPs are discussed in Section 5.9.4-Project Design Features.

Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States, and section 303(d) requires a priority list of Impaired Waterbodies ("the 303(d) list"). These waters do not meet their numeric and/or narrative Water Quality Standards (see Tables 5.9-B and 5.9-C) necessary to protect their Beneficial Uses (see Table 5.9-A). To remedy the impairment, a Total Maximum Daily Load (TMDL) is developed for the waterbody that specifies the maximum amount of pollutant it can receive and still meet Standards, and allocates pollutant loadings among point-source and non-point source discharges. Reach 3 of the Santa Ana River has three impairments: pathogens, copper, and lead. The Middle Santa Ana River Bacterial Indicator TMDL is currently in effect to address pathogens. Copper and lead TMDLs are slated for 2021 (RWQCB(b), p.13).

Please refer to Section 5.4 – Biological Resources for a discussion of CWA section 401 and section 404 permits, as well as the California Department of Fish and Wildlife Lake and Streambed Alteration Agreement (Fish and Game code 1602).

Porter-Cologne Water Quality Control Act and the Basin Plan

The Porter-Cologne Water Quality Control Act, Division 7 of the California Water Code, authorizes the SWRCB to adopt, review, and revise policies for all waters of the state (including both surface and ground waters) and directs the RWQCBs to develop regional Basin Plans. The *Water Quality Control Plan for the Santa Ana River Basin* ("Basin Plan") is designed to preserve and enhance the quality of water resources in the Santa Ana River basin for the benefit of present and future generations. The purpose of the Basin Plan is to designate beneficial uses of the region's surface and ground waters, designate water quality objectives for the reasonable protection of those uses, and establish an implementation plan to achieve the objectives (RWQCB(a), p. 1-1).

Beneficial uses are all the various ways that water can be used for the benefit of people and/or wildlife. A total of 23 beneficial uses are defined statewide, of which 19 beneficial uses are recognized within the Santa Ana Region (RWQCB(a), p. 3-2). The main stem of the Santa Ana River is divided into six reaches, each of which is generally a hydrologic and water quality unit (RWQCB(a), p. 1-10). Reach 3 of the Santa Ana River, which is the ultimate receiving water for drainage leaving the Project site (TE(b), p. 7), includes the portion of the Santa Ana River from Mission Boulevard Bridge to Prado Dam (RWQCB(a), p. 1-10).

Tequesquite Arroyo and each reach of the Santa Ana River have assigned beneficial uses, which are threatened or lost when water quality objectives are violated. Tequesquite Arroyo

has the following six beneficial uses: GWR (groundwater recharge), REC 1[4] (water contact recreation), REC 2 (non-contact recreation), WARM (warm freshwater habitat), WILD (wildlife habitat), SPWN (spawning, reproduction and development). In order to protect those beneficial uses, narrative water quality objectives apply to all inland surface waters, unless stricter numeric objectives exist, as detailed in Chapter 4 of the Basin Plan (RWQCB(a)).

The Santa Ana River, Reach 3 has the following seven beneficial uses: AGR (agricultural supply), GWR, REC1, REC2, WARM, WILD, RARE (rare, threatened, or endangered species). The Reach has been "excepted" from the MUN designation because it was determined not a good source for drinking water supply per the Sources of Drinking Water Policy (Res No. 88-63).

In addition to narrative objectives, Reach 3 designations must be protected by numeric thresholds for various constituents that can cause adverse impacts, such as sodium, sulfate and boron (RWQCB(a), Table 4-1). Project-related runoff will discharge into Tequesquite Arroyo and ultimately Reach 3 of the Santa Ana River. The beneficial uses designated for the receiving waters for the Project are identified in **Table 5.9-A – Constituents and Beneficial Uses for Receiving Waters**.

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[4] The REC 1 and REC 2 designations assigned to surface waterbodies in this Region should not be construed as encouraging recreational activities. In some cases, such as Lake Mathews and certain reaches of the Santa Ana River, access to the waterbodies is prohibited because of potentially hazardous conditions and/or because of the need to protect other uses, such as municipal supply or sensitive wildlife habitat. Where REC 1 or REC 2 is indicated as a beneficial use, the designations are intended to indicate that the uses exist or that the water quality of the waterbody could support recreational uses.

Table 5.9-A – Constituents and Beneficial Uses for Receiving Waters

Receiving Water Body	303(d) List Constituents	TMDL Constituents	Beneficial Uses[a, b]
Tequesquite Arroyo	-----	-----	GWR, REC1, REC2, WARM, WILD, SPWN
Santa Ana River, Reach 3	Copper (wet season only) Lead	Pathogens Nitrate	AGR, GWR, REC1, REC2, WARM, WILD, RARE

Definitions of Beneficial Uses[a]	
AGR	Waters are used for farming, horticulture or ranching. Uses may include, but are not limited to, irrigation, stock watering, and support of vegetation for range grazing.
GWR	Groundwater recharge waters, used for natural or artificial recharge of groundwater for purposes that may include future extraction, maintaining water quality, or halting saltwater intrusion in freshwater aquifers.
REC1	Water contact recreation waters, used for recreational activities involving body contact with water where ingestion of water is reasonably possible. Uses may include swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, and use of natural hot springs.
REC2	Non-contact water recreation waters, used for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water would be reasonably possible. These uses may include picnicking, sunbathing, hiking, beachcombing, camping, boating, sightseeing, and aesthetic enjoyment in conjunction of the above activities.
WARM	Warm freshwater habitat waters support warm water ecosystems that may include preservation and enhancement of aquatic habitats, vegetation, fish and wildlife, including invertebrates.
WILD	Wildlife habitat waters support wildlife habitats that may include the preservation and enhancement of vegetation and prey species used by waterfowl and other wildlife.
RARE	Rare, threatened or endangered species waters support habitats necessary for the survival and successful maintenance of plant or animal species designated under the State or federal law as rare, threatened, or endangered.

Notes:
a RWQCB(a) (chapter 3 updated July 2014 to include approved amendments), Table 3-1, p. 3-25; definitions adapted from pp. 3-2 – 3-3.
b TE(b), p. 7.

The Porter-Cologne Act defines water quality objectives as, "…the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area" (RWQCB(a), p. 4-1). The numeric water quality objectives for receiving waters of the Project site are shown in **Table 5.9-B – Water Quality Objectives for Receiving Waters**. Water quality standards are attained when designated beneficial uses are achieved and water quality objectives are being met. The regulatory programs of the RWQCB are designed to minimize pollutant discharges to surface and ground waters within the region, largely through permitting, such that water quality standards are effectively attained.

Table 5.9-B – Numeric Water Quality Objectives for Receiving Waters

Water Body	Water Quality Objectives (mg/L)							
	Total Dissolved Solids	Hardness	Sodium	Chloride	Total Inorganic Nitrogen	Sulfate	Chemical Oxygen Demand	Boron
Santa Ana River, Reach 3 – Base Flow	700	350	110	140	10[a]	150	30	0.75

Notes:
a Total nitrogen in a filtered sample
Source: RWQCB(a) (chapter 4 updated February 2016 to include approved amendments), Table 4-1, p. 4-35.

Regardless whether or not a water body has numeric water quality objectives, narrative objectives apply to all inland surface waters and groundwater basins within the region under jurisdiction of the Santa Ana RWQCB. Where more than one narrative objective is applicable, the Santa Ana RWQCB requires application of the more stringent objective (RWQCB(a), pp. 4-6 and 4-18). Because no numeric objectives have been established for Tequesquite Arroyo, only narrative objectives apply.

Narrative water quality objectives vary in applicability and scope, reflecting the variety of beneficial uses of water that have been identified. Where numerical objectives are specified, they generally represent the levels that will protect beneficial uses. In some cases, an objective may tolerate natural levels of certain substances or characteristics but no increases over those values (RWQCB(a), p. 4-2).

The reduction of pollutants in urban stormwater discharge to the maximum extent practicable (MEP)[5] through the use of structural and non-structural BMPs is one of the primary objectives of the water quality regulations for MS4 co-permittees. BMPs typically used to manage water quality of urban runoff include controlling roadway and parking lot contaminants by installing filters with oil and grease absorbents at storm drain inlets, cleaning parking lots on a regular basis, incorporating peak-flow reduction and infiltration features (such as grass swales, infiltration trenches, and grass filter strips) into landscaping, and implementing education programs. BMPs have been incorporated into the design of the Project as discussed in Section 5.9.4 (Project Design Features).

[5] The term, Maximum Extent Practicable (or MEP) comes from the federal Clean Water Act, §402(p)(3)(B). The MEP standard involves applying best management practices (BMPs) that are effective in reducing the discharge of pollutants in storm water runoff. In discussing the MEP standard, the State Board has said the following: "There must be a serious attempt to comply, and practical solutions may not be lightly rejected. If, from the list of BMPs, a permittee chooses only a few of the least expensive methods, it is likely that MEP has not been met. On the other hand, if a permittee employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost would exceed any benefit to be derived, it would have met the standard. MEP requires permittees to choose effective BMPs, and to reject applicable BMPs only where other effective BMPs will serve the same purpose, the BMPs would not be technically feasible, or the cost would be prohibitive." (Order WQ 00-11, p.20).

The Project-Specific WQMP for the proposed Project was reviewed and deemed approved as preliminary by the City on June 28, 2016 (Appendix H of this DEIR). BMPs identified in the Preliminary Project-Specific WQMP are further discussed in Section 5.9.4 Project Design Features. The primary objective of the Preliminary Project-Specific WQMP is to minimize the impact of Project-generated urban runoff and protect water quality in Reach 3 of the Santa Ana River.

Prior to the issuance of any building or grading permits in connection with the proposed Project, the applicant will prepare a Final Project-Specific WQMP, which must be approved by the City Public Works Department (GP 2025 FPEIR, p. 5.8-11). The City is also responsible for requiring the Project applicant to obtain coverage under the construction NPDES permit prior to commencement of any Project-related demolition or construction activities (GP 2025 FPEIR, p. 5.8-10). To obtain coverage, the Project applicant must file a Notice of Intent with a vicinity map and the appropriate fee with the SWRCB.

Local Regulations

Riverside General Plan 2025

The GP 2025 contains objectives and policies related to drainage and water quality in the Open Space and Conservation Element and Public Facilities and Infrastructure Element that are applicable to the Project. Appendix M of this DEIR summarizes the Project's consistency with the applicable GP 2025 policies.

Riverside Municipal Code

The Riverside Municipal Code (RMC) contains several provisions regulating the discharge of stormwater and changes in hydrology. For example, Title 17 Grading Code of the RMC governs grading activities in the City. Most grading projects that exceed one acre will require a permit from the City. To obtain a permit, applicants must supply a grading plan, and if applicable, must demonstrate compliance with the *General Construction Stormwater NPDES Permit* described above.

In addition, Title 14 Public Utilities, Chapter 14.12 of the RMC regulates discharges into the City's sewer and storm drain systems, and implements the City's requirements under the MS4 permit. Among other things, RMC Chapter 14.12 prohibits discharges to the City's sewer and storm drain systems that contain pollutants or that would impair the operation of those systems. Chapter 14.12 also contains specific regulations for industrial dischargers. Finally, this Chapter gives the City enforcement authority to declare violations, apply penalties, and impose stop-work orders, monitoring requirements, and other enforcement mechanisms.

City of Riverside Green Action Plan

The City of Riverside is committed to becoming a clean, green and sustainable community. Beginning in 2005, a task force of citizen volunteers assembled to outline sustainability goals resulting in the City's 2009 designation by the California Department of Conservation as an

"Emerald City". Developed by the Green Accountability Performance Committee, the Green Action Plan in its eighth iteration lists 19 goals and more than 50 tasks for the City to achieve additional sustainability goals, and reduce its ecological footprint.

Goal 16 of the current Green Action Plan states, "Reduce per capita water usage 20% citywide by 2020" and Goal 17 states, "Increase the use of recycled water by 30% by 2020, based on the 2008 baseline (GAP, p. 32)."

In order to effectively conserve water, the Project includes water conservation measures as discussed in Section 3 – Project Description, Section 5.9.4 (Project Design Features), and Section 5.17 – Utilities. The proposed Project is also subject to RMC Chapter 14.22 – Water Conservation that includes the Water Conservation Ordinance, drought plan, and water conservation programs that help water users throughout the City conform to local and state regulations for water conservation including drought-related regulations.

5.9.3 Thresholds of Significance

The City has not established local CEQA significance thresholds as described in Section 15064.7 of the State *CEQA Guidelines*. Therefore, significance determinations utilized in this section are from Appendix G of the State *CEQA Guidelines*. A significant impact will occur if implementation of the proposed Project will:

- (Threshold A) violate any water quality standards or waste discharge requirements;
- (Threshold B) substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- (Threshold C) substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- (Threshold D) substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- (Threshold E) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- (Threshold F) otherwise substantially degrade water quality;

- (Threshold G) place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- (Threshold H) place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- (Threshold I) expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; and/or
- (Threshold J) [expose people or structures to a significant risk of loss, injury or death involving] inundation by seiche, tsunami, or mudflow.

5.9.4 Project Design Features

Hydrology

The northerly building (Building 2), its southerly truck yard and adjacent parking lots would drain to catch basins in the truck yard and parking lots (16.3 acres total). Runoff would then be conveyed easterly, via the proposed onsite storm drain, then southerly via the proposed public storm drain in Lance Drive to the existing 120-inch offsite storm drain in Eastridge Avenue. The 100-year peak flow rate for the Building 2 area is estimated at 36.7 cfs.

Vehicle parking lots located north of Building 1 (3.65 acres) would drain to catch basins in the parking lots. Runoff would then be conveyed easterly via another proposed onsite storm drain to Lance Drive, then conveyed southerly via the same proposed public storm drain to the existing 120-inch offsite storm drain in Eastridge Avenue. The 100-year peak flow rate for Building 1 parking lots is estimated at 10.4 cfs.

A vehicle parking lot to the southeast corner of Building 1 would drain to a catch basin in the parking lot. This runoff would then be conveyed easterly via a private storm drain to the back of a proposed street catch basin, which accepts runoff from the west half of Lance Drive and adjacent onsite side slope. From the street catch basin, runoff would then be conveyed southerly via a lateral to the proposed public storm drain in Lance Drive, which drains to the existing 120-inch offsite storm drain in Eastridge Avenue. The 100-year peak flow rate for these areas is approximately 9.4 cfs.

The existing residential development located northwest of the Project site and several small offsite dirt areas along the westerly property line would drain to a proposed onsite vegetated swale adjacent to the westerly property line (refer to Section 5.4 Biological Resources for a thorough discussion of the vegetated swale). Runoff would be conveyed southerly in the vegetated swale, then easterly via another proposed onsite storm drain system, which would also accept runoff from the southerly landscaped area, as well as Building 1 and the small parking lot at the southeast corner of the proposed site. Runoff from these areas is conveyed easterly to the same proposed public storm drain in Lance Drive, then southerly to the existing

120-inch offsite storm drain in Eastridge Avenue. The 100-year peak flow rate for these onsite and offsite areas is estimated at 125.3 cfs.

The landscaped area east of Building 2 and adjacent to the easterly property line would surface drain to Dan Kipper Drive. Likewise, the southerly entry driveway to Building 1 and the adjacent landscape fronting Lance Drive would surface drain easterly to Lance Drive.

The total proposed condition 100-year peak flow rate tabled[6] to the existing 120-inch offsite storm drain in Eastridge Avenue is estimated at 175 cfs. This includes the project site, the offsite residential area to the northwest and the dirt lots to the west that are tributary to the Project site (**Figure 5.9-4 – Proposed Condition Hydrology Map**).

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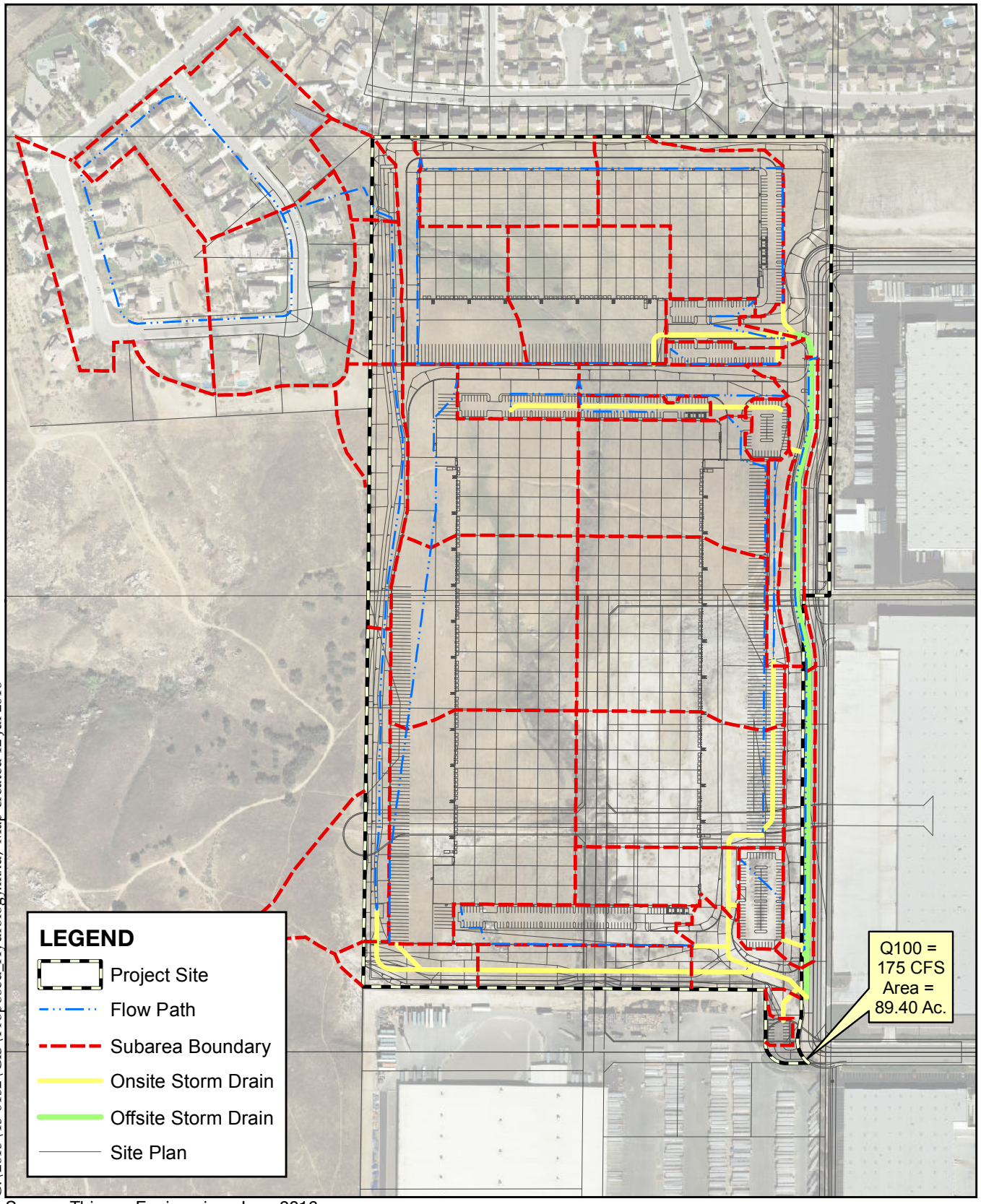
[6] "Tabled" is a term that means "designed for" or "planned for".



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Source: Thienes Engineering, June 2016.

5.9-4 - Proposed Condition Hydrology Map

Sycamore Canyon Business Park Buildings 1 and 2 DEIR

ALBERT A. WEBB ASSOCIATES

The Project site and its vicinity are tabled to a 120-inch public storm drain located in Eastridge Avenue, approximately 1,250 feet south of the site (TE(a)). The existing public storm drain located in Lance Drive is not adequately sized to carry discharge from the Project site. Therefore, the Project will require an adequately-sized storm drain in Lance Drive, continuing southerly past Sierra Ridge Drive and through the western parking lot of the warehouse located at 1680 Eastridge Avenue to connect to the 120-inch storm drain in Eastridge Avenue. This existing storm drain pipe drains to the west and outlets into the marsh, which captures the volume and slowly releases into Sycamore Canyon (**Figure 5.9-5 – Proposed Offsite Storm Drain and Marsh**).

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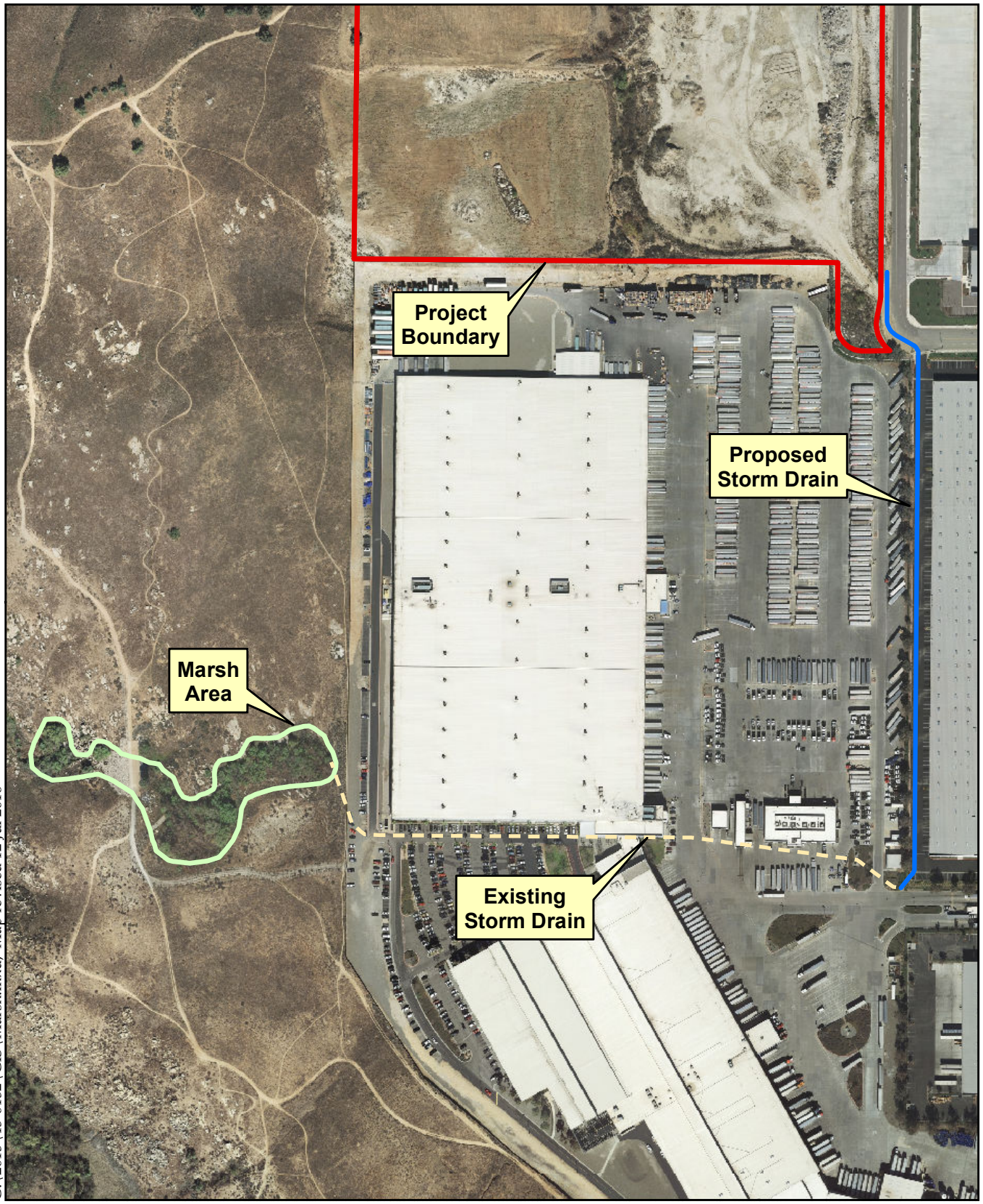

G:\2015\15-0152\GIS\Marsh.mxd; Map revised 12 Jul 2016

Source: Thienes Engineering, 2016;
Imagery: City of Riverside, 2012.

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0 300 600 Feet

5.9-5 - Proposed Offsite Storm Drain and Marsh

Sycamore Canyon Business Park Buildings 1 and 2 DEIR

ALBERT A. WEBB ASSOCIATES

Water Quality

The *Project-Specific Preliminary WQMP* (June 7, 2016, provided in Appendix H) identifies Site Design, Source Control, and Treatment Control BMPs, which would be implemented as part of the Project.

Site Design BMPs

Site Design BMPs are features that reduce the creation or severity of potential pollutant sources or reduce the alteration of a site's natural flow (RWQCB(c), Appendix 4, p. 16). Site Design BMPs are identified in the *Project-Specific Preliminary WQMP* to protect downstream water quality by minimizing the amount of urban runoff, minimizing the impervious footprint of the Project, and minimizing directly-connected impervious areas.

The Project proposes 10.69 acres of "self-treating" areas, which implements a component of LID principles.[7] Self-Treating Areas are natural areas that do not drain to stormwater BMPs, but rather drain directly offsite or to the MS4 facility, rather than having the runoff comingle with runoff from the Project's impervious surfaces. Self-Treating Areas include landscaped slopes that drain off-site to an existing public street, natural conveyance, or MS4 facility. In general, Self-Treating Areas include no impervious areas, unless very small, and slopes are gentle enough to ensure runoff from impervious areas will be absorbed into the vegetation and soil (WQMP Guidance Document for the Santa Ana Region of Riverside County, 2012, p.49). The Project includes an additional 7.07 acres of ornamental landscaping, in addition to the 10.69 acres of Self-Treating Areas, for a total of 17.76 acres of drought-tolerant landscaping.

According to the WQMP Guidance Document for the Santa Ana Region of Riverside County, the minimum effective area required to be made available for LID BMPs at a "Mixed-Use, Commercial/Industrial land use with Floor-to-Area Ratio less than 1.0" is 10 percent (WQMP Guidance, Table 2-5, p.41). The Project meets this description, and with an assumed impervious area of 72 acres, will provide a minimum of 7.2 acres of LID Principles. The Project design exceeds the minimum requirement by providing 10.69 acres of Self-Treating Areas, which are considered LID Principles.

Because the Project includes parking/loading/unloading areas for large trucks as part of its operation as a logistics center, substitution of pavement for landscaping is not feasible. The Project does not propose overflow parking where substitution of pavement for landscaping would be optimal.

Source Control BMPs

Generally speaking, Source Control BMPs are activities or programs intended to limit the contact between pollutant sources and stormwater (RWQCB(c), Appendix 4, p. 17). The

[7] LID "Principles" are site design concepts that prevent or minimize the causes of project impacts, and help mimic the pre-development hydrologic regime (they should be implemented to the maximum extent practicable on all sites). LID "BMPs" help mitigate otherwise unavoidable impacts; i.e., where LID Principles cannot fully address the DCV (WQMP Guidance, p.25).

Project-Specific Preliminary WQMP identifies Permanent Structural and Operational Source Control BMPs to be implemented by the proposed Project. Permanent Structural Source Control BMPs identified for the Project include: on-site storm drain inlet markings; interior floor drains and elevator shaft pump stations; landscape to minimize irrigation and runoff and minimize pesticide use; refuse areas maintained weekly; indoor industrial processes only (no processes drain to exterior or to storm drain system); and proper disposal and cleanup of spills immediately on loading docks (TE(b), p. 21-22).

Operational Source Control BMPs identified for the Project include: on-site storm drain inlet maintenance and stormwater pollution prevention information to new occupants; annual inspections of interior floor drains and elevator shaft sump pumps; landscape maintenance with minimal pesticide use and providing Integrated Pest Management (IPM) information to new occupants; daily maintenance or repair of waste receptacles; moving loaded and unloaded items indoors as soon as possible; monthly parking lot sweeping and inspection, and maintenance of the on-site drainage system (TE(b), p. 21-22).

Treatment Control BMPs

Treatment Control BMPs are engineered systems designed and constructed to remove pollutants from urban runoff (RWQCB(c), Appendix 4, p. 18). The *Sycamore Canyon Business Park Specific Plan* includes three "drainage-siltation basins" identified as Basins "A", "B", and "C" (as shown on Appendix C, Exhibit 1 of the amended *SCBPSP*). Basin A is also known as "the marsh" and receives runoff from the Project site.

The marsh was designed as a stormwater runoff treatment basin per the design guidelines of the time, and constructed in the mid-1990s. The marsh is not considered a LID BMP; however, the City has accepted that the marsh will both treat the "Design Capture Volume (DCV)" from the developed Project site, and mitigate the "Hydrologic Condition of Concern (HCOC)". The DCV is the volume of runoff generated by the area tributary to the BMP (or marsh) during a "design storm" event (i.e., the 85th percentile, 24-hour storm). A HCOC exists when a site's hydrologic regime is altered and there are significant impacts on downstream channels and aquatic habitats, alone or in conjunction with impacts of other projects. This typically occurs when the post-construction runoff rates are greater than the pre-development runoff rates. The Santa Ana Regional Board requires permittees (i.e., the City) to implement LID techniques to minimize the HCOC (RWQCB(c), p.30).

The Project site has minimal capability for infiltration-based BMPs because it overlies granitic bedrock. In such a case, there is "Alternative Compliance," including "Stormwater Credits" for alternatives to infiltration, hydromodification (HCOC), and the other WQMP requirements (WQMP Guidance, p. 63). In the future, the City of Riverside may establish such a water quality credit program, and the marsh may qualify as a "regional" treatment system.

Water Conservation and Efficiency Features of the Proposed Project

The proposed Project includes the following water conservation and efficiency features:

- Create water-efficient landscapes in compliance with the City's Water Efficient Landscape and Irrigation Ordinance 19.570;
- Surface parking lots will be landscaped in accordance with City standards to reduce heat island effect;
- Install water-efficient irrigation systems and devices, such as soil moisture based irrigation controls and sensors for landscaping according to the City's Water Efficient Landscape and Irrigation Ordinance 19.570 developed pursuant to the California Department of Water Resources' Model Efficient Landscape Ordinance;
- Design buildings to be water-efficient. Install water-efficient fixtures and appliances (e.g., EPA WaterSense labeled products);
- Restrict watering methods (e.g., prohibit systems that apply water to non-vegetated surfaces) and control runoff; and
- Provide education about water conservation and available programs and incentives to the building operators to distribute to employees.

5.9.5 Environmental Impacts before Mitigation

Threshold A: *Would the Project violate any water quality standards or waste discharge requirements?*

Construction of the proposed Project has the potential to result in discharges from soil disturbance which could violate water quality standards if not adequately addressed. Therefore, the Project would be required to comply with the NPDES Statewide General Construction Permit (Order No. 09-09-DWQ). The permit requires preparation of an effective Storm Water Pollution Prevention Plan (SWPPP), which describes erosion and sediment control BMPs to prevent stormwater pollution during construction. The SWPPP must be prepared by a Qualified SWPPP Developer and implemented onsite by a Qualified SWPPP Practitioner. Through compliance with the regulatory requirements of the NPDES Statewide General Construction Permit and on-site drainage facilities, the Project is not expected to violate any water quality standards or waste discharge requirements during construction; thus, impacts would be less than significant in this regard.

Once the proposed Project is constructed, operation of the site will have the potential to generate types of pollutants sourced from roof and parking lot runoff typical of a logistics center building. These pollutants include: trash and debris, oil and grease, sediment/turbidity, nutrients, oxygen-demanding substances, pesticides, organic compounds (specifically petroleum hydrocarbons), bacteria and viruses, and metals (TE(b), p. 18). However, as discussed in Section 5.9.4 Project Design Features, the proposed Project is part of a larger common plan of development that has an existing stormwater runoff treatment basin (or "marsh") constructed for volume control and treatment. In addition, more than 10 percent of

the developed site area will be designated "Self-Treating Areas" that meet the requirement for LID BMPs.

The *Project-Specific Preliminary WQMP* (TE(b)) has been reviewed and deemed approved as preliminary on June 28, 2016 by the City. Prior to the issuance of a grading permit for the Project, a Final Project-Specific WQMP would be prepared and submitted to the City for review and approval. The Final Project Specific WQMP would be in substantial conformance to the *Preliminary Project Specific WQMP* in that it would be required to contain measures that would effectively treat all pollutants of concern (from the Project's land use), and hydrologic conditions of concern.

As described in Section 5.9.4 (Project Design Features), some onsite runoff generated during operation will be captured by "Self-Treating" landscaping, which will facilitate settling of non-dissolved pollutants and some infiltration. The Self-Treating landscaped area provides more than 10 percent of the developed area for implementation of LID principles. The remainder of the onsite runoff will be captured and treated in the regional "marsh." Therefore, through compliance with the regulatory requirements of the NPDES permits and implementation of Site Control, Source Control, and Treatment Control BMPs as identified in the *Project-Specific Preliminary WQMP,* and the forthcoming Final Project-Specific WQMP, the Project's potential to violate water quality standards or waste-discharge requirements is considered to be **less than significant.**

Threshold B: *Would the Project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?*

According to the *Water Supply Assessment (WSA)* prepared by WMWD, the proposed Project is not expected to be served with groundwater supplies (WSA 2016, p. 7). Therefore, the Project will not substantially deplete groundwater supplies.

The proposed Project will, however, increase the amount of impervious surfaces on the Project site which could indirectly affect the ability of groundwater to be recharged locally through infiltration. However, the subsurface condition has been described as granitic bedrock as a result of exploratory borings (CHJ(c), 2007). Therefore, the geotechnical investigation has stated that infiltration is not recommended on the proposed Project site due to the existing underlying bedrock (CHJ(c), 2007).

As described in Section 5.9.4 Project Design Features, the Project proposes 10.69 acres of Self-Treating Areas, which meet LID requirements, and 7.07 acres of ornamental landscaping. Landscaping has been provided wherever practicable and drought tolerant landscaping will be provided in designated areas.

Given that the site is not used for groundwater recharge for water supply reasons, and because the site is not suited for groundwater recharge geologically, development of the proposed Project will not impact a local groundwater recharge condition. Therefore the Project will not cause a net deficit in aquifer volume or a lowering of the local groundwater table level and impacts related to groundwater will be **less than significant**.

Threshold C: *Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?*

The proposed Project site is currently an undeveloped dirt lot that drains from north to south. Although construction of the proposed Project and off-site storm drain improvements will change the appearance of the lot, it will continue to drain southerly. However, post-construction stormwater runoff will flow into several new storm drain inlets, all of which drain into the regional stormwater basin, or "marsh."

Existing Condition

The majority of the site surface currently drains southerly to a neighboring property (**Figure 5.9-3 – Existing Condition Hydrology Map**). The existing residential development northwest of the site and several small offsite dirt areas adjacent to the westerly property line also currently drain to and through the site via an existing natural drainage. Surface water drains southerly through the site to the neighboring developed property and into a existing storm drain. The 100-year peak flow rate of surface water leaving the site at the southerly neighboring property is approximately 130.5 cfs.

The northeast corner of the Project site surface drains easterly to Dan Kipper Drive. The existing condition 100-year peak flow rate to Dan Kipper Drive is 6.9 cfs. Portions of the site along the easterly property line currently surface drain easterly to Lance Drive. The 100-year peak flow rate surface draining to Lance Drive is approximately 5.4 cfs. A small portion of the site along the westerly property line currently surface drains westerly away from the site towards the Sycamore Canyon Wilderness Park. The 100-year peak flow rate for to the wilderness park is approximately 3.0 cfs. (TE(a), p. 3)

Proposed Condition

Once the project is constructed, the natural surface drainage will be modified to be conveyed in constructed facilities. The storm drain facilities to be constructed on the site and for which they will tie into have already been designed and effects analyzed for through the Sycamore Canyon Business Park Specific Plan.

The northerly building (Building 2), its southerly truck yard and adjacent parking lots will drain to catch basins in the truck yard and parking lots (16.3 acres total). Runoff will then be conveyed easterly, via the proposed project's onsite storm drain, then southerly via the proposed public storm drain in Lance Drive to the existing 120-inch offsite storm drain in Eastridge Avenue. The 100-year peak flow rate for the Building 2 area is estimated at 36.7 cfs.

Vehicle parking lots located north of Building 1 (3.65 acres) will drain to catch basins in the parking lots. Runoff will then be conveyed easterly via another proposed onsite storm drain to Lance Drive, and then conveyed southerly via the same proposed public storm drain to the existing 120-inch offsite storm drain in Eastridge Avenue. The 100-year peak flow rate for Building 1 parking lots is estimated at 10.4 cfs.

A vehicle parking lot to the southeast corner of Building 1 will drain to a catch basin in the parking lot. This runoff will then be conveyed easterly via a private storm drain to the back of a proposed street catch basin, which accepts runoff from the west half of Lance Drive and adjacent onsite side slope. From the street catch basin, runoff will then be conveyed southerly via a lateral to the proposed public storm drain in Lance Drive, which drains to the existing 120-inch offsite storm drain in Eastridge Avenue. The 100-year peak flow rate for these areas is approximately 9.4 cfs.

The existing residential development located northwest of the Project site and several small offsite dirt areas along the westerly property line would drain to a proposed onsite vegetated swale adjacent to the westerly property line (refer to Section 5.4 Biological Resources for a thorough discussion of the vegetated swale). Runoff would be conveyed southerly in the vegetated swale, then easterly via another proposed onsite storm drain system, which would also accept runoff from the southerly landscaped area, as well as Building 1 and the small parking lot at the southeast corner of the proposed site. Runoff from these areas is conveyed easterly to the same proposed public storm drain in Lance Drive, then southerly to the existing 120-inch offsite storm drain in Eastridge Avenue. The 100-year peak flow rate for these onsite and offsite areas is estimated at 125.3 cfs.

The landscaped area east of Building 2 and adjacent to the easterly property line would surface drain to Dan Kipper Drive. Likewise, the southerly entry driveway to Building 1 and the adjacent landscape fronting Lance Drive will surface drain easterly to Lance Drive.

The total proposed condition 100-year peak flow rate tabled to the existing 120-inch offsite storm drain in Eastridge Avenue is estimated at 175 cfs. This includes the project site, the offsite residential area to the northwest and the dirt lots to the west that are tributary to the Project site (**Figure 5.9-4 – Proposed Condition Hydrology Map**).

As described in Section 5.9.4 (Project Design Features), stormwater runoff from the Project site will no longer surface flow onto adjoining properties and roadways, but rather be collected and piped to the regional stormwater system and treatment basin (marsh) through the adopted Specific Plan. The owner of the Project site and all other property owners within CFD No. 92-1 pay special taxes to maintain the storm water drainage system and the treatment “marsh”. Self-Treating landscape areas on the project site will be utilized as site design BMPs to meet the LID requirement (more than 10 percent minimum requirement of developed site area). Therefore, because the site will construct and implement the storm drain facilities already contemplated through the Sycamore Canyon Business Park Specific Plan, the natural drainage patterns will be modified. However, ultimately the water conveyed through the site in the

existing conditions will still be discharged in a manner that is suitable to surrounding areas, comply with existing storm water quality regulations and any potential impacts to the existing drainage pattern and associated erosion or siltation on- or off-site will be **less than significant**.

Threshold D: *Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?*

The existing and proposed Project site drainage patterns are discussed in Threshold C, above. The total proposed condition 100-year peak flow rate tabled to the existing 120-inch offsite storm drain – from the Project site, the northwesterly offsite residential development and the westerly tributary dirt lots – is approximately 175 cfs.

A shallow stream channel currently traverses the site from north to south, but surface flow is intermittent. Existing drainage patterns flow via surface flows southerly towards a neighboring property and easterly towards Lance Drive as described above. No evidence of significant flooding of the site was observed during the geologic field reconnaissance or on the aerial photographs reviewed (CHJ(c), p.10).

The proposed Project will alter the existing drainage pattern of the Project site due to the relocation of this shallow stream channel, (see **Figure 5.4-2 USACE/RWQCB Jurisdictional Delineation Map** and **Figure 5.4-3 CDFW Jurisdictional Delineation Map**). Because the existing drainage is located in the middle of the site, as a result of the development, the above ground drainage will be "relocated" to the western edge of the development. The above ground drainage will be landscaped with native vegetation that will provide some level of water quality treatment, but also mimic the current condition of the site draining through a natural feature. This relocated drainage (also considered a Mitigation Area for biological impacts) provides on-site mitigation for not only the loss of riparian habitat as discussed Section 5.4 – Biological Resources, but also for the loss of the existing natural drainage feature. The proposed drainage pattern will capture runoff in the Mitigation Area for conveyance to proposed onsite and offsite storm drain systems with conveyance ultimately to the regional marsh for treatment prior to discharge into Sycamore Canyon.

Because the Project will construct adequate on- and off-site drainage facilities that will convey runoff to a regional treatment facility, potential impacts resulting from a change to the existing drainage pattern, which would result in flooding, will be **less than significant**.

Threshold E: *Would the Project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*

The project site is located within the Sycamore Canyon Business Park Specific Plan. As a result of the specific plan adoption, the construction and operation of a underground storm drain system was already anticipated for the project site. The Project site and surrounding development are tabled to a 120-inch diameter public storm drain in Eastridge Avenue

approximately 1,250 feet south of the site. This storm drain was designed for 100-year storm events. An existing public storm drain in Lance Drive adjacent to the Project site is not adequately sized to carry discharge from the Project site. Therefore, the Project proposes to construct a second public storm drain in Lance Drive from the Project site to the 120-inch diameter storm drain in Eastridge Avenue. (TE(a), p. 3) With construction of the proposed public storm drain, the Project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems and therefore potential impacts are **less than significant**.

According to the *Project-Specific Preliminary WQMP,* once the proposed buildings are constructed, the Project will have the potential to generate types of pollutants sourced from logistics centers. These pollutants can include: trash and debris, oil and grease, sediment/turbidity, nutrients, oxygen-demanding substances, pesticides, organic compounds (specifically petroleum hydrocarbons), bacteria and viruses, and metals (TE(b), p. 17). However, as described in Section 5.9.4 (Project Design Features), stormwater runoff from the Project site will be piped to an existing treatment "marsh", which the Project and neighboring businesses in the Sycamore Canyon Business Park, as members of the CFD No. 92-1 have been funding for treatment. The currently regional conveyance and treatment facilities for the Sycamore Canyon Business Park Specific Plan have been deemed adequate by the City to treat increased flows and water quality conditions of the proposed development within the specific plan areas. Self-Treating landscape areas on the project site will also be utilized as site design BMPs to meet the LID standard, (more than 10 percent minimum requirement of developed site area).Therefore, since the regional measures already in place, and the and localized measures proposed by the project are going to be implemented to address the increase in pollutants from the site, impacts related to additional sources of polluted runoff are **less than significant**.

Threshold F: *Would the Project otherwise substantially degrade water quality?*

Pollutants that have the potential to exist onsite during operations, after construction is complete, are listed in Table E.1 of the Project-Specific Preliminary WQMP (TE(b)). These include bacterial indicators, metals, toxic organic compounds (particularly petroleum hydrocarbons and solvents), trash, and oil/grease.[8]

All catch basins on the Project site will drain to the regional treatment basin ("marsh"), which was designed with the elements of what we now call a Sand Filter. A sand filter is considered a Treatment Control BMP according to the RCFCWCD Design Handbook for LID BMPs (2011). The marsh contains a sand and gravel bed lined with filter fabric, and allows for extended detention. The basin outlets through a 10-foot high, 4-foot diameter standpipe that facilitates both a low-flow and a high-flow outlet system prior to discharge to Sycamore Canyon. The primary treatment mechanism for a sand filter basin is filtration and biofiltration. Runoff

[8] Table E.1 also lists Nutrients, Pesticides and Sediment as potential pollutants on Commercial/Industrial Developments and Parking Lots (>5000 ft^2); however, they are only potential pollutants if non-native landscaping is proposed onsite.

entering the marsh is first biofiltered through the well-established vegetation, followed with filtering through the underlying sand bed. According to the RCFCWCD Design Handbook for LID BMPs (2011), "The advantage of a sand filter basin is its effectiveness to remove pollutants where infiltration into the underlying soil is not practical…" As is the case with all BMP performance, it relies heavily on regular maintenance to avoid clogging.

The combination of vegetation and sand/gravel filtration is expected to remove pollutants prior to discharge into Sycamore Canyon. Appendix E of the RCFCWCD Design Handbook for LID BMPs (2011) states that sand filter basins have High Removal Efficiency for sediment, trash, oil/grease, and organic compounds. Sand filter basins have shown to also have Medium Removal Efficiency of metals and bacteria. Although the pollutant-removal effectiveness for filtration and biofiltration methods can vary according to BMP performance studies (Minton, 2005), the proposed Project is consistent with the planned land uses of the Sycamore Canyon Business Park. The marsh was designed for the dual purpose of slowing the speed of storm water runoff prior to discharge into Sycamore Canyon, and for treating runoff from the occupants of the Business Park.

Through compliance with the regulatory requirements of the NPDES Statewide General Construction Permit, the project is not expected to violate any water quality standards or waste discharge requirements during construction. As discussed in the preceding threshold, stormwater may convey pollutants from the Project site downstream to the Santa Ana River. However, through the implementation of the Site Design, Source Control, and Treatment Control BMPs, identified in the *Project-Specific Preliminary WQMP*, as well as the SWPPP and Final WQMP that would be required as part of the final design, the Project's potential to substantially degrade water quality is considered to be **less than significant.**

Threshold G: *Would the Project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?*

The Project does not include housing. Moreover, the Project site is not located within a 100-year flood hazard area (GP 2025, Figure PS-4). Therefore, **no impact** will occur.

Threshold H: *Would the Project place within a 100-year flood hazard area structures which would impede or redirect flood flows?*

The Project site is not located within a 100-year flood hazard area (GP 2025, Figure PS-4), and as such, the proposed structures will not have the potential to impede or redirect flood flows. Therefore, **no impact** will occur.

Threshold I: *Would the Project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?*

The Project site is not located within or near a flood hazard area or subject to dam inundation (GP 2025, Figure PS-4). Thus, the Project will not place structures within a flood hazard or dam

inundation area that would expose people or structures to a significant risk or loss, injury or death. Therefore, **no impact** will occur.

Threshold J: *Would the Project [expose people or structures to a significant risk of loss, injury, or death involving] inundation by seiche, tsunami, or mudflow?*

A seiche is a to-and-fro vibration of a waterbody that is similar to the slopping of water in a basin. Once initiated, oscillation within the waterbody can continue independently. Seiches are often triggered by earthquakes. There are no bodies of water near the Project site that would pose a risk of inundation by a seiche. No impacts due to seiches will occur.

Tsunamis are tidal waves that occur in coastal areas; therefore, since the Project site is not located in a coastal area, no impacts due to tsunamis will occur.

Significant mudflows associated with erosion and fire damage may also occur near the Santa Ana River, Lake Hills, Norco Hills, Box Springs Mountain area and the nine arroyos that traverse the City (GP 2025 FPEIR, p. 5.8-24). The Project site is not located near any of these identified areas or within an arroyo. Additionally, potential impacts associated with limited nuisance mudflows in the event of an extreme storm resulting in erosion of urban landscaping are addressed through the City's standard construction BMPs to control erosion and protect areas with slopes. As such, impacts from mudflow will be less than significant.

Therefore, for the reasons stated above, impacts related to the exposure of people or structures to the risk of loss, injury, or death from inundation by seiche, tsunami, or mudflow are **less than significant**.

5.9.6 Proposed Mitigation Measures

An Environmental Impact Report is required to describe feasible mitigation measures which could minimize significant adverse impacts (State *CEQA Guidelines*, Section 15126.4). No mitigation measures related to hydrology and water quality have been identified, as project design features, implementation of a Final Project-Specific WQMP, SWPPP, and compliance with NPDES permit requirements would eliminate or reduce potential significant adverse impacts related to hydrology and water quality to **less than significant**.

5.9.7 Environmental Impacts after Mitigation Measures are Implemented

No mitigation measures are necessary. After construction of the proposed off-site storm drain and the on-site Mitigation Area, with implementation of NPDES permit requirements, the SWPPP, and the Project-specific WQMP, potential impacts with regard to drainage and hydrology will be reduced to a level that is **less than significant**.

5.9.8 References

In addition to other documents, the following references were used in the preparation of this section of the DEIR:

CHJ(c) C.H.J. Consultants, Inc. *Geotechnical Investigation, Proposed Industrial Development – Sycamore V, Lance and Sierra Ridge Drives, Riverside, CA, Prepared for The Magnon Companies. Job No. 07489-3*. July 20, 2007. (Appendix E)

GAP City of Riverside. *Green Action Plan.* 2012. (Available at http://www.greenriverside.com/about-green-riverside/green-action-plan, accessed July 6, 2016.)

GP 2025 City of Riverside, *General Plan 2025,* certified November 2007 with subsequent amendments to various elements. (Available at http://www.riversideca.gov/planning/gp2025program/general-plan.asp, accessed July 13, 2016.)

GP 2025 FPEIR City of Riverside, *General Plan 2025 Program Environmental Impact Report* (SCH# 2004021108), certified November 2007. (Available at http://www.riversideca.gov/planning/gp2025program/)

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