Section 3.8
Hydrology and Water Quality

This section describes regulations related to hydrology and water quality in the project area, identifies criteria for impacts on hydrology and water quality, and evaluates potential impacts associated with the proposed project. Information in this section is based on hydrology and water quality information obtained from the *Preliminary Hydrology Study* (2022a; Appendix I-1) and the *Preliminary Stormwater Quality Management Plan* (SWQMP) (2022b; Appendix I-2), both prepared by Pasco Laret Suiter & Associates (PLSA). Analysis in this section also draws upon data in the *City of Encinitas General Plan* (1991) and the *City of Encinitas 2013-2021 Housing Element Update Environmental Assessment* (2018). Third party technical reports were peer-reviewed by Michael Baker International and the City of Encinitas.

ENVIRONMENTAL SETTING

Regional Watershed Hydrology

The City of Encinitas is located entirely within the Carlsbad Watershed Management Area (WMA), which is approximately 211 square miles and is formed by a group of six distinct Hydrologic Areas (HA)s: Loma Alta, Buena Vista Creek, Agua Hedionda, Encinas, San Marcos Creek, and Escondido Creek; all of which have separate points of discharge individual watersheds in northern San Diego County (Carlsbad Watershed Management Area Responsible Agencies 2018). The Carlsbad watershed is known for its numerous lagoons, including four unique coastal lagoons: Buena Vista Lagoon, Aqua Hedionda Lagoon, Batiquitos Lagoon, and San Elijo Lagoon. The City of Encinitas also located within the Carlsbad Hydrologic Unit, specifically the San Marcos Hydrologic Area Batiquitos Subunit (904.51).

The Batiquitos Lagoon watershed is approximately 52 square miles and is drained by three stream systems that empty into the eastern end of the lagoon. San Marcos Creek is a major tributary and is dammed at Lake San Marcos within 5 miles of the lagoon. An unnamed tributary joins San Marcos Creek less than 1 mile upstream of the lagoon, and this small tributary drains a small area to the northeast. At the mouth of the San Marcos Creek, Batiquitos Lagoon enters the Pacific Ocean between the community of Leucadia, which is part of the City of Encinitas and the City of Carlsbad. Water levels in the lagoon are controlled by tidal waters entering and exiting through the lagoon's outlet. The lagoon is divided by several transportation corridors into Eastern, Central and Western Basins.

Groundwater

A groundwater basin is generally defined as a hydrogeologic unit containing one large aquifer as well as several connected and interrelated aquifers which have reasonably well-defined

boundaries. All major drainage basins in the San Diego region contain groundwater basins that are typically described as small in area and shallow. There are four groundwater basins in the County that are subject to the Sustainable Groundwater Management Act: Borrego Valley, San Diego River Valley, San Luis Rey Valley, and San Pasqual Valley. The project is not located within one of these groundwater basins (County of San Diego 2020). The nearest basin, San Pasqual Valley, is approximately 11 miles east of the project site. According to the geotechnical investigations for the project site, groundwater occurs at depths greater than 56.5 feet below ground surface (bgs).

Local Setting

Local Surface Water and Drainage

Stormwater discharges flow into various locations within Batiquitos Lagoon. Local surface drains discharge to the lagoon from Interstate 5 (I-5), La Costa Boulevard, El Camino Real, and residential streets adjacent to the lagoon. Caltrans has constructed a stormwater basin adjacent to the La Costa exit ramp off I-5. This stormwater basin has been designed to treat stormwater from I-5 prior to discharge to the Central and East Basins of the lagoon. Another significant stormwater outfall is located on the northern portion of the Eastern Basin that discharges stormwater from the Aviara community and golf course detention basin. Stormwater discharges also occur in the northeastern corner of the Eastern Basin from the developments bordering Alga Boulevard (City of Encinitas 2016).

Under current conditions, the majority of the project site drains north via surface/sheet flow before entering an existing storm drain conveyance system at the northwest corner of the property. Once in the storm drain system, runoff from the northeastern and central portions of the proposed project site flows to the west, crossing I-5 into an earthen ditch. The remainder of the site flows south via surface/sheet flow and enters the existing storm drain system at the southwest corner of the property. The existing system carries runoff across I-5 and discharges into an existing concrete lined ditch where it combines with runoff from the northeastern and central portions of the site. From this point, drainage from both basins continues north until it reaches Batiquitos Lagoon, and eventually, the Pacific Ocean. Refer to Figure 3.8-1, Hydrology – Existing Condition.

The Water Quality Control Plan for the San Diego Basin (Basin Plan) designates the following beneficial uses associated with Batiquitos Lagoon: Contact Water Recreation (REC-1); Non-contact Water Recreation (REC-2); Preservation of Biological Habitats of Special Significance (BIOL), Estuarine Habitat (EST); Wildlife Habitat (WILD), Rare, Threatened and Endangered Species (RARE), Marine Habitat (MAR), Migration of Aquatic Organisms (MIGR); and Spawning, Reproduction and/or Early Development (SPWN) (SDRWQCB 2016). The take of all living marine

resources is prohibited within the protected SMCA portion of Batiquitos Lagoon. Boating, swimming, wading, and diving are also prohibited within the conservation area.

The mouth of Batiquitos Lagoon enters the Pacific Ocean at South Ponto located at the south end of South Carlsbad State Beach. The beneficial uses of the ocean waters along this stretch of beach include industrial water supply; REC-1 and REC-2, BIOL, aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; rare and endangered species; marine habitat; fish migration; fish spawning and shellfish harvesting.

Flooding

As illustrated on Federal Emergency Management Agency (FEMA) map panel 06073C1033H, FEMA has not mapped any Special Flood Hazard Areas through the project corridor, which is designated as being in Zone X (Area of Minimal Flood Hazard) (FEMA 2021). The project site is therefore determined to be outside of the FEMA-mapped 100-year floodplain and the potential for flooding to occur is minimal.

Groundwater Quality

A groundwater basin is generally defined as a hydrogeologic unit containing one large aquifer as well as several connected and interrelated aquifers which have reasonably well-defined boundaries. All major drainage basins in the San Diego region contain groundwater basins that are typically described as small in area and shallow. The project site is not located within a groundwater basin.

Water Quality

Runoff is a term used to describe any water that drains or runs off of a defined land area into a waterway. Runoff can be the result of rain, in which case it is also sometimes referred to as storm water. Runoff can also result from various other sources or activities such as irrigation, hosing down of areas, wash water from cleaning, leaks in pipes, and air conditioner condensation. General hydrologic characteristics, land uses, and activities that involve pollutants have the greatest influence on the water quality runoff from a given area.

In general, stormwater can potentially contain a host of pollutants such as trash and debris, bacteria and viruses, oil and grease, sediments, nutrients, metals, and toxic chemicals. These contaminants can adversely affect receiving and coastal waters, flora and fauna, and public health. Water quality issues are especially prevalent during rainy periods. However, with non-stormwater urban runoff (i.e., irrigation or car washing) also entering the storm drain system, stormwater pollution can be a year-round problem.

Constituents of concern (COCs) found in urban runoff include sediments, non-sediment solids, nutrients, pathogens, oxygen-demanding substances, petroleum hydrocarbons, heavy metals, floatables, polycyclic aromatic hydrocarbons (PAHs), trash, pesticides, and herbicides. These contaminants can adversely affect receiving and coastal waters, flora and fauna, and public health.

Batiquitos Lagoon, the main receiving water for the project area is a 303(d) water body impaired for toxicity. Batiquitos Lagoon was first listed as impaired by the San Diego Regional Board in the 2014 and 2016 Integrated Report (303(d) List/305(b) Report) for toxicity (sediment). The source for the toxicity impairment is listed as unknown; however, the common sources of this pollutant type include contaminants from residential and commercial areas, industrial activities, construction, streets and parking lots.

Seiche and Tsunami

A seiche is a surface wave created when a body of water is shaken, usually by earthquake activity. Seiches are of concern relative to water storage facilities, because inundation from a seiche can occur if the wave overflows a containment wall, such as the wall of a reservoir, water storage tank, dam, or other artificial body of water. Tsunamis are a type of earthquake-induced flooding that is produced by large-scale sudden disturbances of the sea floor. Tsunamis interact with the shallow sea floor topography upon approaching a landmass, resulting in an increase in wave height and a destructive wave surge into low-lying coastal areas.

According to the California Emergency Management Agency Tsunami Inundation Map for Emergency Planning- County of San Diego-Encinitas Quadrangle, the site is not located in a tsunami inundation area, and therefore, it is not anticipated that inundation due to tsunami would occur (California Emergency Management Agency 2009).

REGULATORY FRAMEWORK

Federal

National Flood Insurance Program

FEMA oversees floodplains and administers the National Flood Insurance Program (NFIP) adopted under the National Flood Insurance Act of 1968. The program makes federally subsidized flood insurance available to property owners in communities that participate in the program. Areas of special flood hazard (those subject to inundation by a 100-year flood) are identified by FEMA through regulatory flood maps titled Flood Insurance Rate Maps. The NFIP mandates that development cannot occur within the regulatory floodplain (typically the 100-year floodplain) if

that development results in an increase of more than 1-foot elevation. In addition, development is not allowed in delineated floodways within the regulatory floodplain.

Clean Water Act

The Clean Water Act (CWA) gives states the primary responsibility for protecting and restoring water quality. In California, the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCB) are the agencies with the primary responsibility for implementing federal CWA requirements, including developing and implementing programs to achieve water quality standards. Water quality standards include designated beneficial uses of water bodies, criteria or objectives (numeric or narrative) which are protective of those beneficial uses, and policies to limit the degradation of water bodies. The project site is in an area of the state regulated by the San Diego RWQCB.

Section 401, Water Quality Certification

CWA Section 401 requires that, prior to issuance of any federal permit or license, any activity (including river or stream crossing during road, pipeline, or transmission line construction) that may result in discharges into waters of the United States must be certified by the state, as administered by the RWQCB. This certification ensures that the proposed activity does not violate state and/or federal water quality standards.

Section 402, National Pollutant Discharge Elimination System (NPDES)

CWA Section 402 authorizes the SWRCB to issue a NPDES Construction General Storm Water Permit (Order 2012-0006-DWQ), referred to as the Construction General Permit. NPDES regulations in Encinitas are administered by the San Diego RWQCB. Disturbance of 1 or more acre triggers NPDES coverage under the Construction General Permit, which requires:

- Filing of a Notice of Intent (NOI) with the SWRCB;
- Implementation of a stormwater pollution prevention plan (SWPPP) that specifies best management practices (BMPs) to prevent grading/construction-related pollutants (including sediment from erosion) from contacting stormwater and moving off-site into receiving waters, as well as elimination/reduction of non-stormwater discharges; and
- Inspections of all BMPs.

The Construction General Permit also contains requirements for post-construction stormwater management in the form of long-term BMPs, particularly for impervious surface runoff.

Section 404, Discharge of Dredged or Fill Materials

CWA Section 404 establishes programs to regulate the discharge of dredged and fill material into waters of the United States, including wetlands. For purposes of Section 404, the limits of non-tidal waters extend to the ordinary high water mark, established by the fluctuation of water and indicated by physical characteristics, such as the natural line impressed on the bank, changes in the character of the soil, and presence of debris flow. When an application for a Section 404 permit is made, the applicant must show that steps have been taken to avoid impacts to wetlands or waters of the United States where practicable, minimize unavoidable impacts on waters of the United States and wetlands, and provide mitigation for unavoidable impacts.

Section 404 requires a permit for construction activities involving placement of any kind of fill material into waters of the United States or wetlands. A Water Quality Certification pursuant to CWA Section 401 is required for Section 404 permit actions. If applicable, construction would also require a request for Water Quality Certification (or waiver thereof) from the San Diego RWQCB.

Section 303, Water Quality Standards and Implementation Plans

CWA Section 303(d) requires states to identify "impaired" water bodies as those which do not meet water quality standards. States are required to compile this information in a list and submit the list to the US Environmental Protection Agency (EPA) for review and approval. This list is known as the Section 303(d) List of Impaired Water Bodies. As part of this listing process, states are required to prioritize waters and watersheds for future development of total maximum daily load (TMDL) requirements. The SWRCB and RWQCBs have ongoing efforts to monitor and assess water quality, prepare the Section 303(d) list, and develop TMDL requirements.

Water bodies on the list have no further assimilative capacity for the identified pollutant, and the Section 303(d) list identifies priorities for development of pollution control plans for each listed water body and pollutant. The pollution control plans triggered by the CWA Section 303(d) list are called TMDLs. The TMDL is a "pollution budget" designed to restore the health of a polluted body of water and ensure the protection of beneficial uses. The TMDL also contains the target reductions needed to meet water quality standards and allocates those reductions among the pollutant sources in the watershed (point sources, nonpoint sources, and natural sources) (40 CFR 130.2). Currently, no TMDLs have been finalized for Batiquitos Lagoon. A TMDL for toxicity is anticipated in 2025.

Regulations governing the TMDL program (40 CFR 130.2 and 130.70) define the TMDL as the sum of the individual waste load allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources. When a jurisdiction discharges stormwater to an impaired water body, they may be asked to participate in or supply information for the TMDL development process for impaired waterbodies that do not yet have an approved TMDL. The participation in the TMDL

process will likely mean attending public meetings as a stakeholder and providing information related to the MS4 and associated stormwater discharges, such as outfall locations, drainage areas, types and locations of structural and non-structural BMPs, as well as the expected or measured pollutant load reductions from the BMPs. This information supports calculation of an accurate and reasonable WLA for individual dischargers.

State

Coastal Zone Act Reauthorization Amendments

While stormwater and urban runoff is regulated by the NPDES permitting program, virtually all other nonpoint sources are subject to the Coastal Nonpoint Pollution Control Program (CNPCP) under the Coastal Zone Act Reauthorization Amendments (CZARA). Section 6217 of the federal CZARA established the CNPCP, which requires the EPA to develop, and the states to implement, BMPs to control nonpoint source pollution in coastal waters. Pursuant to CZARA Section 6217(g), the six major categories of nonpoint sources addressed by the amendments are agriculture, forestry, urban areas, marinas, hydromodification projects, and wetlands.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act, in cooperation with the CWA, established the SWRCB. The SWRCB and the nine RWQCBs are responsible for protecting California's surface water and groundwater supplies. Section 13000 of the act directs each RWQCB to develop water quality control plans for all areas in its region, to designate the beneficial uses of California's rivers and groundwater basins; these plans are the basis for each board's regulatory program.

The Basin Plan gives direction on the beneficial uses of state waters in Region 9, describes the water quality that must be maintained to support such uses, and includes programs, projects, and other actions necessary to achieve the standards established in the Basin Plan. The Basin Plan defines water quality objectives for groundwater and inland surface waters. The Batiquitos Lagoon is categorized as a coastal water; therefore, the Basin Plan does not contain any water quality objectives that are specific to the lagoon.

Water quality objectives for coastal waters are contained in the State Board's Water Quality Control Plan for Ocean Waters of California (Ocean Plan). These objectives could be applied to Batiquitos Lagoon, but the San Diego RWQCB implements the Basin Plan by issuing and enforcing waste discharge requirements to individuals, communities, or businesses whose waste discharges may affect water quality. These requirements are state waste discharge requirements for discharge to land or federally delegated NPDES permits for discharges to surface water. Responsibility for implementing CWA Sections 401-402 and Section 303(d) is also outlined in the Porter-Cologne Water Quality Control Act.

Water Quality Improvement Plan for the Carlsbad Watershed Management Area

The water quality improvement plan (WQIP) for the Carlsbad Watershed is a comprehensive watershed-based program designed to improve surface water quality in the Carlsbad WMA, in receiving waters including four unique coastal lagoons, three major creeks, and two large water storage reservoirs, and at nearby beaches. It is required by Order No. R9-2013-0001, as amended by Order Nos. R9-2015-0001 and R9-2015-0100, NPDES No. CAS0109266, NPDES Permit and waste discharge requirements (WDRs) for Discharges from the municipal separate storm sewer systems (MS4s) draining the Watersheds within the San Diego region. The WQIP outlines a framework to improve the surface water quality in the Carlsbad WMA by identifying, prioritizing, and addressing impairments related to urban runoff discharges to protect, preserve, enhance, and restore water quality for beneficial recreational, wildlife, and other uses.

State Water Resources Control Board, Stormwater Construction General Permit

The five-member SWRCB allocates water rights, adjudicates water right disputes, develops statewide water protection plans, establishes water quality standards, and guides the nine RWQCBs in the major watersheds of the state. The joint authority of water allocation and water quality protection enables the SWRCB to provide comprehensive protection for California's waters.

In 1999, the state adopted the NPDES General Permit for Storm Water Discharges Associated with Construction Activities (Construction Activities General Permit) (SWRCB Order No. 2012-0006-DWQ, NPDES No. CAS000002). The Construction General Permit requires that construction sites with 1 acre or greater of soil disturbance, or less than 1 acre but part of a greater common plan of development, apply for coverage for discharges under the Construction General Permit by submitting an NOI for coverage, developing an SWPPP, and implementing BMPs to address construction site pollutants.

The SWPPP should contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP must list the BMPs that the discharger will use to protect stormwater runoff and the placement of those BMPs. The SWPPP must contain a visual monitoring program, a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Section A of the Construction General Permit describes the elements that must be contained in a SWPPP. Enrollment under the Construction General Permit is through the Stormwater Multiple Application and Report Tracking System. Additionally, the SWRCB is

responsible for implementing the CWA and issues NPDES permits to cities and counties through the individual regional boards.

Local

San Diego Regional MS4 Permit

The Regional Water Quality Control Board, San Diego Region (San Diego RWQCB) regulates discharges from Phase I municipal separate storm sewer systems (MS4s) in the San Diego Region under the Regional MS4 Permit. MS4 permits require cities and counties to develop and implement programs and measures to reduce the discharge of pollutants in stormwater to the maximum extent possible. This includes management practices, control techniques, system design and engineering methods, and other measures as appropriate.

As part of permit compliance, permit holders create stormwater management plans for their respective locations. These plans outline the requirements for municipal operations, industrial and commercial businesses, construction sites, and planning and land development. The requirements may include multiple measures to control pollutants in stormwater discharges. During implementation of specific projects under the program, project applicants are required to follow the guidance contained in the stormwater management plans, as defined by the permit holder in that location.

The Regional MS4 Permit covers 39 municipal, county government, and special district entities (referred to jointly as Copermittees) located in San Diego County, southern Orange County, and southwestern Riverside County who own and operate large MS4s which discharge stormwater (wet weather) runoff and non-stormwater (dry weather) runoff to surface waters throughout the San Diego region.

San Diego Municipal Storm Water Permit

This Municipal Storm Water Permit (Order R9-2015-0100) requires that each Watershed Management Area co-permittee covered under the permit prepare a Water Quality Improvement Plan that identifies priority and highest priority water quality conditions and strategies which will be implemented with associated goals to demonstrate progress toward addressing the conditions in the watershed.

In February 2016, the County of San Diego (as the Municipal Storm Water Permit permittee representing all cities in the county) approved a BMP Design Manual in accordance with the Municipal Storm Water Permit. The manual identifies mitigation strategies to protect stormwater quality for new development and significant redevelopment in the San Diego region. The manual outlines a template for municipalities in the region to follow in preparing their respective BMP

design manuals, and it establishes a series of source control, site design, and treatment control BMPs to be implemented by all priority development projects.

The City has a local BMP Design Manual, incorporated as Chapter 7 of the Engineering Design Manual, which was adapted from the County's BMP Design Manual and adopted in February 2016. The City's manual provides guidance on specific design measures to reduce development impacts with regard to treating stormwater runoff and maintaining water quality.

City of Encinitas Jurisdictional Runoff Management Program

The Jurisdictional Runoff Management Program sets forth strategies, standards, and protocols to address the priorities and goals established in the WQIP. The purpose of this document is to present an integrated programmatic approach to reducing the discharge of pollutants from the MS4 to the maximum extent practicable standard, and to protect and improve the quality of water bodies in Encinitas. It describes operational programs and activities developed to meet the requirements of Municipal Stormwater Permit and serves as the implementation mechanism for WQIP strategies. The highest-priority water quality conditions in the area are discharges of bacteria (City of Encinitas 2017).

Stormwater Standards Manual

The Stormwater Standards Manual was developed be used in conjunction with the City Stormwater Management and Discharge Control Ordinance, codified as Encinitas Municipal Code (EMC) Chapter 20.08, and the water quality protection provisions of the City of Encinitas Grading, Erosion and Sediment Control Ordinance, codified as EMC Chapter 23.24. This Manual is not a stand-alone document, but must be read in conjunction with other parts of the Stormwater Ordinance and the Grading, Erosion, and Sediment Control Ordinance. In general, this Manual sets out in more detail, by project category, what dischargers must do to comply with the Ordinances. The Manual and the Ordinances have been prepared to provide the City with the legal authority necessary to comply with the requirements of San Diego Regional Water Quality Control Board (RWQCB) Order No. R9-2013-0001, as amended by Order No. R9-2015-0001.

City of Encinitas Best Management Practice Manual

The City has developed a local BMP Design Manual, incorporated as Chapter 7 of the Engineering Design Manual, which was adapted from the County's BMP Design Manual and adopted in 2016. The City's manual provides guidance on specific design measures to reduce development impacts with regard to treating stormwater runoff and maintaining water quality to ensure compliance with minimal local standards in conformance with the MS4 Permit.

City of Encinitas General Plan and Local Coastal Program

The City of Encinitas General Plan is the primary source of long-range planning and policy direction used to guide growth and preserve the quality of life in Encinitas. The Encinitas General Plan states that a goal of the City is to analyze proposed land uses to ensure that the designations would contribute to a proper balance of land uses within the community. The relevant goals and policies for the project include:

Land Use Element

Policy 2.8: Development shall not be permitted where it will result in significant degradation of ground, surface, or ocean water quality, or where it will result in significant increased risk of sewage overflows, spills, or similar accidents.

Local Coastal Program (from Land Use Element)

Policy 2.3: Growth will be managed in a manner that does not exceed the ability of the City, special districts and utilities to provide a desirable level of facilities and services.

Policy 2.8: Development shall not be permitted where it will result in significant degradation of ground, surface, or ocean water quality, or where it will result in significant increased risk of sewage overflows, spills, or similar accidents.

Policy 2.10: Development shall not be allowed prematurely, in that access, utilities, and services shall be available prior to allowing the development.

Public Safety Element

GOAL 2: **The City of Encinitas will make an effort to minimize potential hazards to public health, safety, and welfare and to prevent the loss of life and damage to health and property resulting from both natural and [human-caused] phenomena.**

Resource Management Element

Policy 2.1: In that ocean water quality conditions are of utmost importance, the City shall aggressively pursue the elimination of all forms of potential unacceptable pollution that threatens marine of human health.

Policy 2.2: In that the San Elijo ocean wastewater outfall lies within the jurisdiction of the City and the Encina outfall lies north of the City, the City shall

encourage the highest feasible level of treatment of said wastewater prior to entering the outfalls and continually encourage the reduction of volume of wastewater to said outfalls by this City and other jurisdictions.

Policy 2.3: To minimize harmful pollutants from entering the ocean environment from lagoons, streams, storm drains and other waterways containing potential contaminants, the City shall mandate the reduction or elimination of contaminants entering all such waterways; pursue measures to monitor the quality of such contaminated waterways, and pursue prosecution of intentional and grossly negligent polluters of such waterways.

City of Encinitas Municipal Code

Encinitas Municipal Code Chapter 20.08 (Stormwater Management and Discharge Control Ordinance) regulates discharges into the stormwater conveyance system and downstream receiving waters to preserve and enhance water quality for beneficial uses and protect the health, safety, and welfare of the public by:

- Prohibiting non-stormwater discharges to the stormwater conveyance system;
- Eliminating pollutants in stormwater to the maximum extent practicable, including pollutants from both point and nonpoint sources;
- Prohibiting activities which cause, or contribute to, exceedance of state and federal receiving water quality objectives; and
- Protecting watercourses from disturbance and pollution.

Chapter 20.08 establishes the City's legal authority to enforce a wide spectrum of stormwater and water quality related requirements and defines minimum BMP standards for various community sectors including residential, commercial, construction, municipal, and development activities.

Chapter 23.24 (Grading, Erosion and Sediment Control Ordinance) requirements that are applicable to drainage issues are as follows:

- Sections 23.24.150 and 23.24.160. The applicant must submit interim and final erosion and sediment control plans.
- Section 23.24.200. The applicant must submit a proposed schedule for installation of all interim and final erosion and sediment control measures.

- Section 23.24.370. Limits grading between October 1 of any year and April 15 of the following year, unless the plans for such work includes desilting basins or other temporary drainage or control measures.

- Section 23.24.380. Provides guidelines for erosion and sediment control measures during and following construction.

STANDARDS OF SIGNIFICANCE

Methodology

An assessment of hydrology and water quality impacts was prepared by evaluating the existing hydrology and water quality settings and comparing them to hydrology and water quality conditions that would occur with implementation of the proposed project. An evaluation of the significance of potential impacts on hydrology and water quality must consider both direct effects to the resource and indirect effects in a local or regional context. When considering the significance of an individual impact, the EIR considers the existing federal, state, and local regulations, laws, and policies in effect, including applicable General Plan policies. In addition, the impact analysis considers the project design features that have been incorporated into the project to avoid, reduce, or offset potential impacts.

Thresholds of Significance

The following thresholds of significance are based, in part, on CEQA Guidelines Appendix G. For the purposes of this EIR, the proposed project may have a significant adverse impact on hydrology and water quality if it would:

1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

    a. Result in substantial erosion or siltation on- or off-site.

    b. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

c. 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.

d. Impede or redirect flood flows.

4. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.

5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

PROJECT IMPACTS AND MITIGATION

VIOLATION OF WATER QUALITY STANDARDS

Impact 3.8-1	**The project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. Impacts would be less than significant.**

Stormwater runoff (both dry and wet weather) generally discharges into storm drains and/or flows directly to creeks, rivers, lakes, and the ocean. Polluted runoff can have harmful effects on drinking water, recreational water, and wildlife. Stormwater characteristics depend on site conditions (e.g., land use, impervious cover, pollution prevention, types and amounts of BMPs), rain events (duration, amount of rainfall, intensity, time between events), soil type and particle sizes, multiple chemical conditions, the amount of vehicular traffic, and atmospheric deposition. Major pollutants typically found in runoff include sediments, nutrients, oxygen-demanding substances, heavy metals, petroleum hydrocarbons, pathogens, and bacteria. The majority of stormwater discharges are considered nonpoint sources and are regulated by an NPDES Municipal General Permit or Construction General Permit.

A net effect of development can be to increase pollutant export over naturally occurring conditions to adjacent streams and to downstream receiving waters. However, an important consideration in evaluating stormwater quality from a site is to assess whether it impairs the beneficial use of the receiving waters. Receiving waters can assimilate a limited quantity of various constituent elements, but there are thresholds beyond which the measured amount becomes a pollutant and results in an undesirable impact.

Short-Term Construction

Following project construction, runoff from the majority of the site would flow to the proposed on-site storm drain system and be conveyed to the south to a proposed biofiltration basin located

adjacent to Plato Place. Once the runoff is treated and stored, it would be discharged into the existing storm drain system near the very southwestern corner of the proposed project site. Runoff generated from the (generally) northernmost and western portions of the proposed project site would primarily sheet flow west towards Piraeus Street where it would be collected in a concrete ditch and discharged into an existing headwall in proximity to the northwest corner of the proposed project site. Refer to Figure 3.8-2, Hydrology – Proposed Condition.

Potential water quality impacts associated with short-term grading and construction activities include discharge of construction-related sediment and hazardous materials (e.g., fuels). To ensure that construction activities do not cause water quality to be impaired, a SWPPP would be prepared and implemented. In accordance with the requirements of Section A of the Construction General Permit, the SWPPP would contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP would list the BMPs that would be used to protect stormwater runoff and the placement of those BMPs. Additionally, the SWPPP would contain a visual monitoring program, a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

Therefore, with implementation of BMPs during construction as required by the SWPPP, water quality impacts would be reduced or avoided. Project construction activities would not substantially degrade surface or ground water quality. Impacts would be **less than significant**.

Long-Term Occupancy and Operations

Potential pollutants due to long-term occupancy and operations of the proposed project include litter, trash, and debris; bacteria and viruses from pet feces; oil, grease, metals, and toxic chemicals from vehicle hydrocarbons; and sediments, nutrients, pesticides, and fertilizers from landscaped areas.

Under existing conditions, the majority of on-site drainage surface flows to an existing storm drain conveyance system at the northwestern portion of the project site. The remainder of the on-site drainage flows to an existing storm drain conveyance system at the southwestern portion of the project site. Drainage from these two systems eventually converge at a ditch to the west of I-5. Refer to Figure 3.8-1, Hydrology – Existing Condition. A pre- and post-development hydrology analysis of the existing system has been included as a part of Appendix I-1 to ensure that the project would not adversely affect the existing storm drain system. Results of the off-site analysis and supporting calculations are provided in Appendix I-1.

As stated in the *Preliminary Hydrology Study*, runoff from drainage areas A-1 through A-18 would flow south and be discharged into a proposed biofiltration basin adjacent to the west of Plato Place. After being treated and stored on the project site, the runoff would be conveyed south to an existing reinforced concrete pipe (POC-A) adjacent to the west of Plato Place, which drains to the west underneath I-5. Runoff generated in drainage areas B-1 through B-6 would flow west, enter a concrete ditch, and be discharged to an existing corrugated metal pipe to the northwest of the project site (POC-B), which drains to the west underneath I-5. Runoff from these areas would converge and travel towards Batiquitos Lagoon; refer to Appendix I-1 and Figure 3.8-2, Hydrology – Proposed Condition.

The project proposes use of a biofiltration basin to meet the treatment and flow control requirements listed in the City of Encinitas BMP Manual for post-construction BMPs. As seen in Table 3.8-1, Peak Flow Rate Comparison - Unmitigated (100 Year, 6 Hour), the unmitigated peak flow from the proposed on-site drainage areas A-1 through A-18 and B-1 through B-6 would exceed or be equivalent to flows under existing conditions. As shown in Table 3.8-2, Peak Flow Rate Comparison – Mitigated (100 Year, 6 Hour), post-development flows for all proposed on-site drainage areas would be reduced as compared to pre-development conditions.

To reduce flow rates, the project design includes an on-site biofiltration basin that would provide stormwater pollutant control to meet the requirements of the San Diego RWQCB municipal stormwater permit and City Stormwater standards. The biofiltration basin would also provide mitigation for the 6-hour, 100-year storm event peak discharge.

With incorporation of proposed site improvements and BMPs, the mitigated peak flow for drainage areas A-1 through A-18 would be approximately 0.12 cubic feet per second (cfs) when compared to existing conditions (4.90 cfs); refer to Table 3.8-2, Peak Flow Rate Comparison - Mitigated (100 Year, 6 Hour). Similarly, the project would reduce stormwater flow rates for drainage areas B-1 through B-9 to approximately 4.83 cfs as compared to existing conditions (10.17 cfs).

Table 3.8-1: Peak Flow Rate Comparison - Unmitigated (100 Year, 6 Hour)

Pre-Development		Post-Development (Unmitigated)[1]	
Drainage Area	**Peak Flows (cfs)**	**Drainage Area**	**Peak Flow (cfs)**
A-1 through A-2	4.90	A-1 through A-18	29.89
B-1 through B-2	10.17	B-1 through B-9	4.90

[1] "Unmitigated" refers to the condition without the incorporation of BMPs or conformance with other regulatory requirements intended to reduce stormwater flows.
Notes: cfs = cubic feet per second
Source: PLSA 2022a (see Appendix I-1).

PLAN VIEW - EXISTING CONDITION HYDROLOGY

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0 50 100 150

Source: Pasco Laret Suiter & Associates, 2022

PIRAEUS POINT
ENVIRONMENTAL IMPACT REPORT

Hydrology - Existing Condition

Figure 3.8-1

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LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY
- ADJACENT PROPERTY LINE
- CENTER LINE OF ROAD
- DRAINAGE BOUNDARY
- INITIAL SUB-BASIN BOUNDARY
- DRAINAGE PATH OF TRAVEL
- EXISTING CONTOURS (175)

BASIN INFORMATION: BASIN DESIGNATOR / AREA (AC) / SUBAREA Q (CFS)

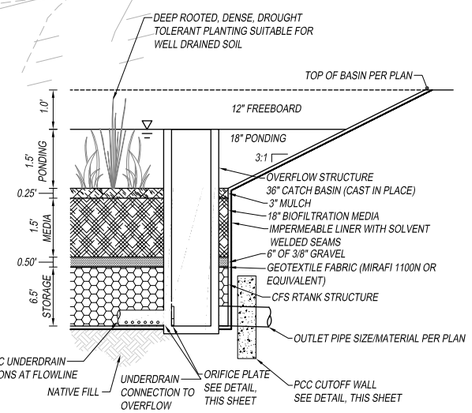
PIRAEUS STREET

PLATO PLACE

POC-A
NODE 700
84.0 IE
Q_{100}(EXISTING) = 4.90 CFS
Q_{100}(UNMITIGATED) = 29.89 CFS
Q_{100}(MITIGATED) = 0.12 CFS

POC-B
NODE 202

PLAN VIEW - POST-DEVELOPMENT HYDROLOGY



Michael Baker INTERNATIONAL

File: 189273Figures.indd

40 20 0 40 80 120

Source: Pasco Laret Suiter & Associates, 2022

PIRAEUS POINT
ENVIRONMENTAL IMPACT REPORT

Hydrology - Proposed Condition

Figure 3.8-2

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Table 3.8-2: Peak Flow Rate Comparison - Mitigated (100 Year, 6 Hour)

Pre-Development		Post-Development (Mitigated)	
Drainage Area	**Peak Flows (cfs)**	**Drainage Area**	**Peak Flow (cfs)**
A-1 through A-2	4.90	A-1 through A-18	0.12
B-1 through B-2	10.17	B-1 through B-9	4.83

Notes: cfs = cubic feet per second
Source: PLSA 2020a (see Appendix I-1).

With the proposed on-site improvements and improvements to the existing storm drain system, the project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality or ground water quality. Rather, it would substantially improve upon existing conditions through the on-site capture and treatment of stormwater. Impacts would be **less than significant**.

Mitigation Measures: None required.

Level of Significance: Less than significant.

GROUNDWATER SUPPLIES

Impact 3.8-2 **The project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project would impede sustainable groundwater management of the basin. Impacts would be less than significant.**

Public water service for the project would be provided by the San Dieguito Water District. Water utility improvements would include connection to the public water system. According to SDWD, there are adequate water supplies to serve the project, and the SDWD expects to meet its customer demands during normal, single-dry, and multiple-dry year scenarios (SDWD 2020). The project would therefore not substantially increase demand for groundwater supplies in this regard.

The project does not include the use of groundwater wells or development activities that could otherwise deplete groundwater supplies. Infiltration would be maintained through project design including detention basins and low-impact design requirements of the MS4 permit. This includes management practices, control techniques, system design and engineering methods, and other measures as appropriate.

A static groundwater table was not observed in the excavations performed during this study; however, seepage was observed within on-site alluvial soils at depths of approximately 38 to 49 feet below the existing ground surface (Geocon 2022). Based on the elevation of the project site, anticipated depth to groundwater, and proximity to the ocean, it does not appear that there is a significant hydrologic connection between stormwater infiltration and underlying groundwater

at the project site. Further, the project site is not located within a groundwater basin that is used for water supply or subject to the Sustainable Groundwater Management Act.

Therefore, the project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project would impede sustainable groundwater management of the basin. Impacts would be **less than significant**.

Mitigation Measures: None required.

Level of Significance: Less than significant.

EROSION OR SILTATION

Impact 3.8-3	**The project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site. Impacts would be less than significant.**

The project would not alter the course of a stream or river because such features are not present on-site. However, the project would alter the site from an undeveloped condition to a developed one, thereby resulting in an increase in impervious on-site surface area. However, as stormwater runoff from the site generally sheet flows across the site untreated under current conditions, the proposed improvements (e.g., landscaped areas, stormwater infrastructure) would reduce the potential for erosion and siltation to occur both on-site and off-site, thereby contributing to improved overall stormwater quality.

The project as designed would not substantially alter the existing drainage pattern of the site as the majority of the on-site drainage would be conveyed west under I-5, similar to that which occurs under existing conditions. Further, the project design includes construction of one on-site biofiltration basin to meet the treatment and flow control requirements listed in the City of Encinitas *BMP Manual* for post-construction BMPs.

Implementation of BMPs during construction as required by the SWPPP would ensure that project construction does not result in substantial erosion or siltation on- or off-site. Post-construction BMPs described in the SWQMP would also ensure that development of the project site does not result in erosion or siltation effects over the long term; refer to Appendix I-2.

As discussed in Impact 3.8-1, incorporation of proposed site improvements and BMPs would mitigate peak flows in drainage areas A-1 through A-18 to approximately 0.40 cfs which would alleviate the existing flooding issues on Plato Place during large storm events when compared to existing unmitigated conditions (4.63 cfs); refer to Table 3.8-2, Peak Flow Rate Comparison -

Mitigated (100 Year, 6 Hour). The project would reduce stormwater flow rates for drainage areas B-1 through B-9 to approximately 7.23 cfs as compared to existing unmitigated conditions (14.58 cfs). As such, the project would not substantially alter existing on-site drainage patterns but would instead maintain and improve on-site stormwater drainage; see also Appendix I-1.

For the reasons above, the project would not result in a change in drainage patterns that would cause substantial erosion or siltation on- or off-site, nor substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. Impacts would be **less than significant**.

Mitigation Measures: None required.

Level of Significance: Less than significant.

FLOODING ON- OR OFF-SITE

Impact 3.8-4	**The project would not substantially alter the existing drainage pattern of the site or area in manner which would substantially increase the rate or amount of surface runoff that would result in flooding on- or off-site. Impacts would be less than significant.**

Refer to Impacts 3.8-1 and 3.8-3 above for discussion of post-development conditions. The general drainage pattern of the site would remain consistent with existing conditions as a majority of the on-site drainage would be conveyed to the existing storm drainage system to the west of I-5. All proposed storm drain improvements would be sized to handle the 100-year storm event. The project also proposes the use of one on-site biofiltration basins to meet treatment and flow control requirements listed in the City of Encinitas *BMP Manual* for post-construction BMPs; refer to Appendices I-1 and I-2. Therefore, the project would not substantially alter on-site drainage patterns, but would instead maintain and improve the existing storm drainage conditions on- and off-site; refer to Table 3.8-2, Mitigated Peak Flow Rate Comparison Table (100 Year, 6 Hour).

The project as designed would not substantially alter the existing drainage pattern of the site or area in manner which would substantially increase the rate or amount of surface runoff that would result in flooding on- or off-site. Impacts would be **less than significant**.

Mitigation Measures: None required.

Level of Significance: Less than significant.

STORMWATER DRAINAGE SYSTEMS AND POLLUTED RUNOFF

Impact 3.8-5	**The project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through addition of impervious surfaces, in a manner which would 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. Impacts would be less than significant.**

Refer to Impacts 3.8-1, 3.8-3, and 3.8-4 above. The project does not include the alteration of the course of any stream or river, as no such conditions are present on-site.

The project would not substantially alter existing drainage patterns on-site. As shown in Tables 3.8-1 and 3.8-2, the project would improve stormwater drainage on- and off-site, decreasing the overall rate of stormwater flows from the property. With incorporation of proposed site improvements and BMPs, peak flows in drainage areas A-1 through A-18 would be reduced to approximately 0.12 cfs as compared to existing unmitigated conditions (4.90 cfs). Similarly, the project would reduce stormwater flow rates for drainage areas B-1 through B-9 to approximately 4.83 cfs as compared to existing unmitigated conditions (10.17 cfs). Based on post-development conditions, the project would not substantially alter existing drainage patterns of the project site but would instead maintain and improve existing on-site stormwater drainage and stormwater runoff in a controlled manner. Refer also to Figure 3.8-2, Hydrology – Proposed Condition.

The proposed development and storm drain design would not only be capable of safely conveying the 100-year storm runoff flow, but has included many instruments in the storm drain system design to ensure that the discharge from the project site is properly treated and that runoff would not pose any significant impact or threats to the water quality of the public storm drain system. Furthermore, in accordance with the requirements of the MS4 permit, the on-site bioretention area would serve as flow-control BMPs, and the project would be subject to MS4 permit requirements to reduce polluted stormwater runoff.

The project would not substantially alter existing drainage patterns in a manner that would contribute runoff that would exceed the capacity of the affected stormwater drainage system or provide substantial additional sources of polluted runoff. Impacts would be **less than significant**.

Mitigation Measures: None required.

Level of Significance: Less than significant.

IMPEDE OR REDIRECT FLOOD FLOWS

Impact 3.8-6	**The project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through addition of impervious surfaces, in a manner which would impede or redirect flood flows. Impacts would be less than significant.**

Refer to also to discussion under Impacts 3.8-4 and 3.8-5. The project would not alter the course of a stream or river, as no such features are present on-site. As illustrated on FEMA map panel 06073C1033H, FEMA has not mapped any Special Flood Hazard Areas within the immediate project vicinity, which is designated as being in Zone X (Other Areas) (FEMA 2021). The project site is therefore determined to be outside the FEMA-mapped 100-year floodplain and is therefore not considered to have the potential for substantial flood events.

The project would not substantially alter the existing drainage pattern of the site or area in a manner which would impede or redirect flood flows. Impacts would be **less than significant**.

Mitigation Measures: None required.

Level of Significance: Less than significant.

INUNDATION BY FLOOD, SEICHE, OR TSUNAMI

Impact 3.8-7	**Project implementation would not risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones. No impact would occur.**

A seiche is a surface wave created when a body of water is shaken, usually by earthquake activity. Seiches are of concern relative to water storage facilities, because inundation from a seiche can occur if the wave overflows a containment wall, such as the wall of a reservoir, water storage tank, dam, or other artificial body of water. Tsunamis are a type of earthquake-induced flooding that is produced by large-scale sudden disturbances of the sea floor. Tsunamis interact with the shallow sea floor topography upon approaching a landmass, resulting in an increase in wave height and a destructive wave surge into low-lying coastal areas.

According to the California Emergency Management Agency Tsunami Inundation Map for Emergency Planning - County of San Diego-Encinitas Quadrangle, the site is not located in a tsunami inundation area, and therefore, it is not anticipated that inundation due to tsunami would occur (California Emergency Management Agency 2009). In addition, based on the distance and elevational differences between the site and large, open bodies of water, inundation of the site due to a seiche event is not anticipated.

As stated in Impact 3.8-6 above, the project site is located in Zone X, as illustrated on FEMA map panel 06073C1033H, and is outside of a FEMA-mapped 100-year floodplain. The potential for on-site flooding is therefore considered to be low.

As the potential for project inundation relative to flood hazard, tsunami, or seiche zones is low, it is not anticipated that project implementation would risk release of pollutants as the result of such events. **No impact** would occur.

Mitigation Measures: None required.

Level of Significance: No impact.

WATER QUALITY CONTROL PLAN OR SUSTAINABLE GROUNDWATER MANAGEMENT PLAN

Impact 3.8-8	**The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Impacts would be less than significant.**

The project site is not located within a groundwater basin that is used for water supply or subject to the Sustainable Groundwater Management Act. Therefore, the project would not conflict with a sustainable groundwater management plan and there would be no impact.

Short-Term Construction

As described under Impacts 3.8-1 and 3.8-3, the project applicant would prepare and implement a SWPPP that would manage stormwater runoff during construction activities. The SWPPP would contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project.

A sediment monitoring plan would be prepared and implemented during project construction as runoff from the site has the potential to discharge directly to Batiquitos Lagoon, which is listed on the 303(d) list for toxicity in sediment. Therefore, with implementation of BMPs, and chemical and sediment monitoring during construction as required by the SWPPP, water quality impacts would be reduced or avoided.

Additionally, seepage was encountered within the alluvial soils located below the previously placed fill in the southern portion of the site. The seepage elevations varied from approximately 38 to 49 feet below the existing ground surface and appeared to be perched within the lower 12 feet of the alluvium. Some perched seepage was also observed within the Santiago Formation. Groundwater/seepage conditions are dependent on seasonal precipitation, irrigation, and land use, among other factors, and vary as a result. A static groundwater table was not observed in

the excavations performed (Geocon 2022). If dewatering is required during project construction, all such activities would occur in conformance with applicable local and state regulations to ensure that water quality is maintained.

Project construction would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Short-term impacts would be **less than significant**.

Post-Construction/Long-Term Occupancy and Operations

As described in Impacts 3.8-1, 3.8-3, and 3.8-5, the project has been designed to include control requirements listed in the City of Encinitas *BMP Manual* for post-construction BMPs.

The project has been designed to redirect and capture stormwater runoff associated with the post-construction condition for the project. Water quality pollutant control BMPs with performance standards consistent with City and MS4 requirements would also be required.

As described in the environmental setting above, the Basin Plan designates numerous beneficial uses for Batiquitos Lagoon. The Basin Plan establishes WQOs for inland waters and groundwater that are protective of the designated uses for high priority issues. No Basin Plan WQOs have been established for Batiquitos Lagoon. Similarly, no goals or water quality improvement strategies to address lagoon water quality have been established within the Carlsbad WQIP or the City's JRMP. For these reasons, the project would not obstruct the ability to meeting Basin Plan WQOs.

The project would not conflict with a water quality control plan or sustainable groundwater management plan. Impacts would be **less than significant**.

Mitigation Measures: None required.

Level of Significance: Less than significant.

CUMULATIVE IMPACTS

Impact 3.8-9	**Implementation of the project would not result in a significant cumulative impact to hydrology and water quality. Impacts would be less than cumulatively considerable.**

Geographic Scope

The geographic scope for cumulative hydrology and water quality impacts includes the areas surrounding the project site, surrounding watershed, underlying groundwater aquifer, and tributaries to the ocean.

Cumulative impacts to hydrology and water quality generally occur as a result of incremental changes that degrade water quality. Cumulative impacts can also include individual projects which, when taken together, adversely contribute to drainage flows or increase potential for flooding in a project area or watershed. Tables 3.0-1 and 3.0-2 and Figure 3.0-1 in Section 3.0 of this EIR identify the cumulative projects considered in this evaluation.

Potential Cumulative Impacts

Future development that could contribute to a cumulative hydrology and water quality impact would be subject to the same requirements as the proposed project and would be required to apply with the San Diego RWQCB for an NPDES permit, which would include implementation of BMPs to prevent water quality impacts during construction and operation. Further, there are several other regional initiatives that are being implemented to meet water quality objectives, reduce pollutant loads, address high-priority pollutants and improve surface water quality within the Carlsbad watershed.

With incorporation of proposed site improvements and BMPs, the mitigated peak flow for drainage areas A-1 through A-18 would be approximately 0.12 cfs when compared to existing unmitigated conditions (4.90 cfs); refer to Table 3.8-2, Peak Flow Rate Comparison - Mitigated (100 Year, 6 Hour). Similarly, the project would reduce stormwater flow rates for drainage areas B-1 through B-9 to approximately 4.83 cfs as compared to existing unmitigated conditions (10.17 cfs). As such, the project would not substantially alter existing drainage patterns of the project site but would instead maintain and improve existing on-site stormwater drainage patterns (see also Appendices I-1 and I-2). Other cumulative projects would be required to implement similar project design features to ensure implementation of the cumulative projects does not result in off-site impacts. Cumulative projects would also be subject to MS4 permit requirements to reduce polluted stormwater runoff (see Appendix I-2).

Therefore, cumulative impacts related to hydrology and water quality are considered to be less than significant. The project's contribution to a cumulative impact would be **less than cumulatively considerable**.

Mitigation Measures: None required.

Level of Significance: Less than cumulatively considerable.