5.8 HYDROLOGY AND WATER QUALITY

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential impacts of the Villages at Cabrillo Specific Plan (Specific Plan) to hydrology and water quality conditions in the City of Long Beach. Hydrology deals with the distribution and circulation of water, both on land and underground. Water quality deals with the quality of surface- and groundwater. Surface water includes lakes, rivers, streams, and creeks; groundwater is under the earth's surface. The analysis in this section is based in part on the following sources:

- *Technical Report, Water Resources,* KPFF, June 19, 2020. (Appendix G2)
- *Utility Infrastructure Technical Report: Water,* KPFF, July 10, 2020. (Appendix G3)
- *Water Supply Assessment*, Long Beach Water, May 28, 2020. (Appendix G4)

A complete copy of these technical reports are included in Appendix G of this DEIR.

5.8.1 Environmental Setting

5.8.1.1 REGULATORY BACKGROUND

Federal, state, and local laws, regulations, plans, or guidelines related to hydrology and water quality that are applicable to the Specific Plan are summarized below.

Federal Regulations

Clean Water Act and National Pollution Elimination Discharge System

The Clean Water Act establishes regulations to control the discharge of pollutants into the waters of the United States and regulates water quality standards for surface waters (US Code, Title 33, §§ 1251 et seq.). Under the act, the US Environment Protection Agency (EPA) is authorized to set wastewater standards and runs the National Pollutant Discharge Elimination System (NPDES) permit program. Under the NPDES program, permits are required for all new developments that discharge directly into Waters of the United States. The federal Clean Water Act requires wastewater treatment of all effluent before it is discharged into surface waters. NPDES permits for such discharges in the project region are issued by the Los Angeles Regional Water Quality Control Board (RWQCB).

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA), the principal federal law intended to ensure safe drinking water to the public, was enacted in 1974 and has been amended several times since it came into law. The SDWA authorizes the EPA to set national standards for drinking water, called the National Primary Drinking Water Regulations, to protect against both naturally occurring and man-made contaminants. These standards set enforceable maximum contaminant levels in drinking water and require all water providers in the United States to treat water to remove contaminants, except for private wells serving fewer than 25 people. In California, the State

Water Resources Control Board (SWRCB) conducts most enforcement activities. If a water system does not meet standards, it is the water supplier's responsibility to notify its customers.

State Regulations

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act (Water Code Sections 13000 et seq.), which was passed in California in 1969 and amended in 2013, the SWRCB has authority over State water rights and water quality policy. This Act divided the state into nine regional basins, each under the jurisdiction of a RWQCB to oversee water quality on a day-to-day basis at the local and regional level. RWQCBs engage in a number of water quality functions in their respective regions. RWQCBs regulate all pollutant or nuisance discharges that may affect either surface water or groundwater.

State Water Resources Control Board Construction General Permit

The SWRCB has adopted a statewide Construction General Permit (Order No. 2012-0006-DWQ) for stormwater discharges associated with construction activity. These regulations prohibit the discharge of stormwater from construction projects that include one acre or more of soil disturbance. Construction activities subject to this permit include clearing, grading, and other disturbance to the ground, such as stockpiling or excavation, that results in soil disturbance of at least one acre of total land area. Individual developers are required to submit Permit Registration Documents (PRDs) to the SWRCB for coverage under the NPDES permit prior to the start of construction. The PRDs include a Notice of Intent (NOI), risk assessment, site map, Stormwater Pollution Prevention Plan (SWPPP), annual fee, and a signed certification statement. The PRDs are submitted electronically to the SWRCB via the Stormwater Multiple Application and Report Tracking System (SMARTS) website.

The NPDES Construction General Permit requires all dischargers to (1) develop and implement a SWPPP, which specifies best management practices (BMPs) to be used during construction of the project; (2) eliminate or reduce non-storm water discharge to stormwater conveyance systems; and (3) develop and implement a monitoring program of all specified BMPs. The two major objectives of the SWPPP are to (1) help identify the sources of sediment and other pollutants that affect the water quality of stormwater discharges and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-storm water discharges.

State Water Resources Control Board Trash Amendments

On April 7, 2015, the State Water Board adopted an Amendment to the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) to Control Trash and Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE Plan). Together, they are collectively referred to as "the Trash Amendments". The purpose of the Trash Amendments is to reduce trash entering waterways Statewide, provide consistency in the SWRCB's regulatory approach to protect aquatic life and public health beneficial uses, and reduce environmental issues associated with trash in State waters. There are two compliance tracks:

- Track 1: Permittees install, operate, and maintain a network of certified Full Capture Systems (FCS) to capture trash in storm drains, located in priority land use areas for municipal systems, and the entire facility for industrial and commercial permit holders

- Track 2: Permittees install, operate, and maintain any combination of controls (structural and/or institutional) anywhere in their jurisdiction as long as they demonstrate that their system performs as well as Track 1

The Trash Amendments provide a framework for permittees to implement its provisions. Full compliance must occur within 10 years of the permit and permittees must also meet interim milestones such as average load reductions of 10 percent per year.

The Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act of 2014 passed in September 2014, and is a comprehensive three-bill package that provides a framework for the sustainable management of groundwater supplies by local authorities. The Sustainable Groundwater Management Act requires the formation of local groundwater sustainability agencies to assess local water basin conditions and adopt locally-based management plans. The Sustainable Groundwater Management Act provides 20 years for groundwater sustainability agencies to implement plans, achieve long-term groundwater sustainability, and protect existing surface water and groundwater rights. The Sustainable Groundwater Management Act also provides local groundwater sustainability agencies with the authority to require registration of groundwater wells, measure and manage extractions, require reports and assess fees, and request revisions of basin boundaries, including establishing new subbasins. Furthermore, under the Sustainable Groundwater Management Act, groundwater sustainability agencies responsible for high- and medium-priority basins must adopt groundwater sustainability plans within five to seven years, depending on whether the basin is in critical overdraft.

Regional Regulations

Los Angeles Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties

The Los Angeles RWQCB's Basin Plan ("Basin Plan") is designed to preserve and enhance water quality and protect the beneficial uses of all regional waters. Specifically, the Basin Plan:

- Designates beneficial uses for surface and ground waters,

- Sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's antidegradation policy,

- Describes implementation programs to protect all waters in the Region.

In addition, the Basin Plan incorporates (by reference) all applicable State and Regional Board plans and policies and other pertinent water quality policies and regulations.

The Basin Plan is a resource for the Regional Board and others who use water and/or discharge wastewater in the Los Angeles Region. Other agencies and organizations involved in environmental permitting and resource management activities also use the Basin Plan. Finally, the Basin Plan provides valuable information to the public about local water quality issues.

Water Replenishment District of Southern California Groundwater Basins Master Plan

The Water Replenishment District of Southern California (WRD), in coordination with other basin stakeholders, developed the Groundwater Basins Master Plan (GBMP). The intent of the plan is to provide a single reference document for parties operating within and maintaining the West Coast and Central groundwater basins. The plan is intended to help guide the stakeholders to develop and assess initial concepts for additional recharge and pumping from these basins to utilize the basins fully and reduce dependence on imported water. Furthermore, the GBMP identifies projects and programs to enhance basin replenishment, increase the reliability of groundwater resources, improve and protect groundwater quality, and ensure that the groundwater supplies are suitable for beneficial uses (WRD 2016).

Los Angeles RWQCB (MS4) Permit for the City of Long Beach

On March 11, 2014, the Los Angeles RWQCB adopted a Municipal Separate Stormwater Sewer System (MS4) Permit for discharges from the City of Long Beach MS4. The MS4 permit (Order No. R4-2014-0024, NPDES No. CAS004003) was subsequently amended by Order No. R4-2014-0024-A01 on November 23, 2016. The municipal discharges of storm water and non-storm water by the City are subject to waste discharge requirements as set forth by this MS4 permit.

Los Angeles County Standard Urban Storm Water Mitigation Plan

Pursuant to NPDES permit requirements, the County of Los Angeles was required to submit Standard Urban Storm Water Mitigation Plans (SUSMPs). The SUSMPs are plans that designate best management practices (BMPs) that must be used in specified categories of development projects. The County submitted SUSMPs, but the Regional Water Board approved the SUSMPs only after making revisions. The Executive Officer issued the revised SUSMPs on March 8, 2000. On October 5, 2000 the Regional Water Board made more changes. The change sheet at the end of the State Board Order approved SUSMPs changes the March 8, 2000 version of SUSMPs (LARWQCB 2018).

Local Regulations

City of Long Beach Low Impact Development Best Management Practices Design Manual

In order to comply with the updated MS4 Permit, a "Low Impact Development (LID) Best Management Practices (BMP) Design Manual" was developed in advance of the final permit. This manual details actions for compliance with the LID regulations adopted in City Ordinance No. ORD-10-035, including land development policies pertaining to LID and hydromodification for new development and significant redevelopment projects. The term "hydromodification" refers to the changes in runoff characteristics from a watershed caused by changes in land use condition. More specifically, hydromodification refers to "the change in the natural watershed hydrologic processes and runoff characteristics (i.e., interception, infiltration, overland flow,

interflow, and groundwater flow) caused by urbanization or other land use changes that result in increased stream flows and sediment transport." The use of LID BMPs in project planning and design is to preserve a site's predevelopment hydrology by minimizing the loss of natural hydrologic processes such as infiltration, evapotranspiration, and runoff detention. LID BMPs try to offset these losses by introducing structural and non-structural design components that restore these water quality functions into the project's land plan (Long Beach 2013).

City of Long Beach Municipal Code

Chapter 8.96 – Stormwater and Runoff Pollution Control: The purpose of this Chapter is to protect and improve water quality of receiving waters by:

- Prohibiting illicit discharges to the municipal stormwater system
- Eliminating illicit connections to the municipal stormwater system
- Eliminating spillage, dumping, and disposal of pollutant materials into the municipal stormwater system
- Reducing pollutant loads in stormwater and urban runoff from land uses and activities identified in the Municipal NPDES Permit.

The intent of this Chapter is to enhance and protect the water quality of the receiving waters of the United States in a manner that is consistent with the Clean Water Act and acts supplementary to applicable regulations and the Municipal NPDES Permit.

Chapter 18.61 - NPDES and SUSMP Regulations: The purpose of this chapter is to provide regulations and give legal effect to certain requirements of the NPDES permit issued to the City of Long Beach, and the subsequent requirements of the Standard Urban Storm Water Mitigation Plan (SUSMP), mandated by Los Angeles RWQCB. The intent of these regulations is to effectively prohibit non-storm water discharges into the storm drain systems or receiving waters and to require source control BMP to prevent or reduce the discharge of pollutants into the storm water to the maximum extent practicable.

Chapter 18.75 – Grading, Excavation, and Fills: The provisions of this chapter apply to grading, excavation and earthwork construction, including erosion control requirements.

Chapter 18.74 – Low Impact Development Standards: The purpose of this chapter is to require the use of LID standards in the planning and construction of development projects. The provisions of this section apply to all new development and redevelopment projects in the City of Long Beach. However, the following development or redevelopment projects are exempt from the requirements of this chapter:

- Any development or redevelopment projects that creates, adds or replaces less than five hundred (500) square feet of impervious surface area
- Any development or redevelopment projects involving emergency construction activities required to immediately protect public health and safety

- Any development or redevelopment projects involving the grinding/overlaying and replacement of existing parking lots
- Any development or redevelopment projects where land disturbing activities result in the replacement of fifty percent (50%) or less of an existing building, structure or impervious surface area
- Any development or redevelopment projects that are technically infeasible pursuant to Subsection 18.74.040.B
- Any development or redevelopment projects that do not require a building permit.

The chapter also specifies LID requirements for new development or redevelopment projects for residential development of 5 units or more and nonresidential development. If redevelopment alters more than fifty percent (50%) of existing buildings, structures or impervious surfaces of an existing developed site, the entire site shall comply with the standards and requirements of this chapter and of the LID Best Management Practices Manual.

City of Long Beach LID Ordinance

The City's LID Ordinance requires applicable development or redevelopment to submit a LID Plan to the City for approval prior to the City issuing any building or grading permits. Since the Specific Plan includes multiple landowners with multiple projects, individual development projects that would be accommodated by the Specific Plan will be subject to the requirements of the City's LID Ordinance, requiring the development of a project-specific LID Plan. Project-specific LID Plans within the project area will be required to ensure all of the requirements of the City's LID Ordinance on stormwater quality are addressed for that project. This includes meeting any new requirements associated with development projects, as well as the requirements of the MS4 permit (or subsequent MS4 Permits), which includes LID features and/or hydromodification controls.

5.8.1.2 EXISTING CONDITIONS

Regional Drainage

The Los Angeles RWQCB encompasses all coastal watersheds and drainages flowing to the Pacific Ocean between Rincon Point (on the coast of western Ventura County) and the eastern Los Angeles County line. In addition, the Los Angeles RWQCB includes all coastal waters within three miles of the continental and island coastlines.

Local Drainage

The Plan Area is located within the Los Angeles River Watershed in the Los Angeles Basin. The Los Angeles River Watershed covers approximately 834 square miles and is bounded at its headwaters by the Santa Monica, Santa Susana, and San Gabriel mountains to the north and west. The southern portion of the watershed captures runoff from urbanized areas surrounding downtown Los Angeles. Jurisdictions in the watershed include the City of Los Angeles (33%), 42 other cities (29%) and eight agencies (37%).

Much of the watershed is highly developed, with residential (36%), open space and agricultural (44%), and commercial/industrial/transportation (20%) being the predominant land uses. Overall, the watershed is approximately one-third impervious.

Most portions of the Los Angeles River are completely channelized for flood protection as are many of its tributaries including Compton Creek, Rio Hondo, Arroyo Seco and Tujunga Wash. They are fed by a complex underground network of storm drains and a surface network of tributaries. Several dams and reservoirs have been constructed within the watershed for flood control and groundwater recharge. The river's two soft-bottom reaches consist of a 3.1-mile portion running adjacent to Los Angeles and Glendale known as the Glendale Narrows and a 2.4-mile portion in the Sepulveda Basin Recreational area behind the Sepulveda Dam. The average dry weather flow at the watershed's most downstream monitoring station near Long Beach is 153 cubic feet per second. The average wet weather flow is two to three times higher or more during large storms.

Site Hydrology

The basic drainage pattern for the Plan Area runs from north to south. Runoff is directed to three main discharge locations. Most of the runoff is drained to underground storm drainpipes via sheet flow in the streets and catch basins throughout the property. The main outlet for these storm drainpipes occurs at River Avenue, where a 35 by 24-inch arch pipe connects to a 42-inch mainline. The mainline conveys stormwater to a 54-inch mainline in Pacific Coast Highway. A small amount of runoff drains to an existing earthen channel on the west side of the campus, next to State Route 103. The storm drain system within the site is private and is maintained by Century Villages at Cabrillo.

The existing development on the Plan Area generates a flow rate of 59.78 cubic feet per second (cfs) and a volume of 8.37 acre-feet (ac-ft) from a 10-year storm event.

Throughout the site, stormwater quality is addressed using methods and requirements as outlined in the Los Angeles County SUSMP and the City's LID design manuals. For example, catch basin, grate filter inserts, detention basins, vegetated swale, tree planting, and hydrodynamic separator units[1] are used throughout the site.

Surface Water Quality

Section 303(d) of the 1972 Federal Clean Water Act requires states to identify water bodies that do not meet water quality objectives and are not supporting their beneficial uses. Each state must submit an updated list, called the 303(d) list, to the EPA every two years. In addition to identifying the water bodies that are not supporting beneficial uses, the list also identifies the pollutant or stressor causing impairment and establishes a priority for developing a control plan to address the impairment. The list also identifies water bodies where 1) a Total Maximum Daily Load (TMDL) has been approved by the EPA and implementation is available, but water quality standards are not yet met, and 2) water bodies where the water quality problem is being addressed by an action other than a TMDL and water quality standards are not yet met.

[1] Hydrodynamic separators separate and trap debris, sediment, and hydrocarbons from stormwater runoff.

Constituents of concern listed for the Los Angeles River estuary at Queensway Bay include chlordane[2], DDT[3], polycyclic aromatic hydrocarbons[4], polychlorinated biphenyls (PCBs)[5], toxicity, and trash (SWRCB 2019).

Groundwater

Roughly fifty-five percent of the City's potable water demand is groundwater obtained from the adjudicated Central Basin Aquifer. The Central Basin encompasses about 277 square miles in mostly urbanized southern Los Angeles County. The Central Basin is bounded on the north by a surface divide called the La Brea high, and on the northeast and east by the Elysian, Repetto, Merced and Puente Hills (LBWD 2016). The Central Basin has a storage capacity of approximately 13.8 million-acre feet. The City is located in the southern point of the Central Basin.

The Long Beach Water Department (LBWD) pumps groundwater through 29 active wells throughout their service area and then transports the extracted groundwater water through a series of collection lines to its groundwater treatment plant. The treatment plant is also home to LBWD's water quality laboratories, which conduct over 50,000 water quality tests per year on LBWD's water supply (LBWD 2016).

The Central Basin needs to be protected from seawater intrusion near the confluence of the San Gabriel River where it meets the Pacific Ocean. The Alamitos Seawater Barrier was implemented to prevent ocean water from migrating underground into the Central Basin aquifers. By injecting potable or highly treated recycled water into the ground near where seawater is likely to enter the aquifers, the Seawater Barrier forms a pressure ridge that blocks the seawater's migration, thereby protecting the aquifers. The water injected into the Alamitos Seawater Barrier is either potable water from the Metropolitan Water District (MWD), or highly purified recycled water from the Water Replenishment District (WDR) of Southern California's Leo J. Vander Lans Advanced Water Treatment Facility (LVL), or a combination of the two (LBWD 2016).

5.8.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

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

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

[2] Chlordane is used as a pesticide
[3] DDT is a synthetic organic compound used as an insecticide.
[4] Polycyclic aromatic hydrocarbons are a class of chemicals that occur naturally in coal, crude oil, and gasoline. They also are produced when coal, oil, gas, wood, garbage, and tobacco are burned. PAHs generated from these sources can bind to or form small particles in the air.
[5] PCBs were used widely in electrical equipment like capacitors and transformers.

HYD-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:

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

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite.

iii) 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.

iv) Impede or redirect flood flows.

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

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

The Initial Study, included as Appendix A, substantiates that impacts associated with the following thresholds would be less than significant:

- Threshold HYD-3i
- Threshold HYD-3ii
- Threshold HYD-3iv
- Threshold HYD-4

These impacts will not be addressed in the following analysis.

5.8.3 Environmental Impacts

5.8.3.1 IMPACT ANALYSIS

The following impact analysis addresses thresholds of significance for which the Initial Study (Appendix A) disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.8-1: Construction and/or operation of the Specific Plan would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality [Threshold HYD-1]

Construction

Clearing, grading, excavation, and construction activities associated with the Specific Plan have the potential to impact water quality through soil erosion and increasing the amount of silt and debris carried in runoff. Additionally, the use of construction materials, such as fuels, solvents, and paints may present a risk to surface

water quality. Finally, the refueling and parking of construction vehicles and other equipment on-site during construction may result in oil, grease, or related pollutant leaks and spills that may discharge into the storm drain system.

To minimize these potential impacts, development accommodated by the Specific Plan would require compliance with the Construction General Permit (CGP) Water Quality Order 2009-0009-DWQ (as amended by Order No. 2010-0014-DWQ and 2012-006-DWQ), which requires the preparation and implementation of a SWPPP. A SWPPP requires the incorporation of BMPs to control sediment, erosion, and hazardous materials contamination of runoff during construction and prevent contaminants from reaching receiving water bodies. The SWRCB mandates that projects that disturb one or more acres of land must obtain coverage under the Statewide CGP. The CGP also requires that prior to the start of construction activities, the project applicant must file PRDs with the SWRCB, which includes a NOI, risk assessment, site map, annual fee, signed certification statement, SWPPP, and post-construction water balance calculations. The construction contractor is always required to maintain a copy of the SWPPP at the site and implement all construction BMPs identified in the SWPPP during construction activities. Prior to the issuance of a grading permit, the project applicant is required to provide proof of filing of the PRDs with the SWRCB, which include preparation of SWPPP. Categories of potential BMPs that would be implemented for this Specific Plan are described in Table 5.8-1, *Construction BMPs*.

Table 5.8-1 Construction BMPs

Category	Purpose	Examples
Erosion Controls and Wind Erosion Controls	• Use project scheduling and planning to reduce soil or vegetation disturbance (particularly during the rainy season) • Prevent or reduce erosion potential by diverting or controlling drainage • Prepare and stabilize disturbed soil areas	Scheduling, preservation of existing vegetation, hydraulic mulch, hydroseeding, soil binders, straw mulch, geotextile and mats, wood mulching, earth dikes and drainage swales, velocity dissipation devices, slope drains, streambank stabilization, compost blankets, soil preparation/roughening, and non-vegetative stabilization
Sediment Controls	• Filter out soil particles that have been detached and transported in water	Silt fence, sediment basin, sediment trap, check dam, fiber rolls, gravel bag berm, street sweeping and vacuuming, sandbag barrier, straw bale barrier, storm drain inlet protection, manufactured linear sediment controls, compost socks and berms, and biofilter bags
Wind Erosion Controls	• Apply water or other dust palliatives to prevent or minimize dust nuisance	Dust control soil binders, chemical dust suppressants, covering stockpiles, permanent vegetation, mulching, watering, temporary gravel construction, synthetic covers, and minimization of disturbed area
Tracking Controls	• Minimize the tracking of soil offsite by vehicles	Stabilized construction roadways and construction entrances/exits, and entrance/outlet tire wash.
Non-Storm Water Management Controls	• Prohibit discharge of materials other than stormwater, such as discharges from the cleaning, maintenance, and fueling of vehicles and equipment.	Water conservation practices, temporary stream crossings, clear water diversions, illicit connection/discharge, potable and irrigation water management, and the

Table 5.8-1 Construction BMPs

Category	Purpose	Examples
	• Conduct various construction operations, including paving, grinding, and concrete curing and finishing, in ways that minimize non-stormwater discharges and contamination of any such discharges.	proper management of the following operations: paving and grinding, dewatering, vehicle and equipment cleaning, fueling and maintenance, pile driving, concrete curing, concrete finishing, demolition adjacent to water, material over water, and temporary batch plants.
Waste Management and Controls (i.e., good housekeeping practices)	• Manage materials and wastes to avoid contamination of stormwater.	Stockpile management, spill prevention and control, solid waste management, hazardous waste management, contaminated soil management, concrete waste management, sanitary/septic waste management, liquid waste management, and management of material delivery storage and use.

Source: CASQA 2012.

In addition, erosion control plans would be implemented for each phase of the Specific Plan and the Project Applicant would be required to comply with City grading permit regulations and inspections to reduce sedimentation and erosion.

Submittal of the PRDs and implementation of the SWPPP, the erosion control plan, and grading requirements throughout the construction phase of the Specific Plan would address anticipated and expected pollutants of concern as a result of construction activities. As a result, water quality impacts associated with construction activities would be less than significant.

Operations

Once the Specific Plan has been constructed, urban runoff could include a variety of contaminants that could impact water quality. Runoff from buildings and parking lots typically contain oils, grease, fuel, antifreeze, byproducts of combustion (such as lead, cadmium, nickel, and other metals), as well as fertilizers, herbicides, pesticides, and other pollutants. Precipitation at the beginning of the rainy season may result in an initial stormwater runoff (first flush) with high pollutant concentrations.

The existing Plan Area varies in imperviousness where there are streets, parking lots, detention basins, residential complexes, landscaping and so forth. Future development would have similar residential impervious percentages as existing because the location of land uses do not alter significantly between the existing and proposed campus. Each forthcoming project development shall apply LID BMPs in accordance with the City LID Manual. Each development project shall complete the BMP feasibility screening procedures required under section 4 of the City LID Manual, since infiltration or capture and use may or may not be feasible for some projects, based on the feasibility tables. Potential BMPs that could be implemented include:

- Infiltration Systems
- Infiltration Basins
- Infiltration Trenches

- Infiltration Galleries
- Bioretention
- Permeable Pavements
- Dry Wells
- Hybrid Bioretention Dry Wells
- Stormwater Capture and Use
  - Cistern
- A Combination of the Above
  - Bioretention With Underdrain
  - Planter Boxes
  - Bioinfiltration
  - Vegetated Swales
  - Filter Strips

Borings completed onsite found groundwater at depths of 4.5 feet and 8feet below ground surface (bgs) (Geotechnologies 2019). Table 4.1 of the City of Long Beach LID BMP Manual states that infiltration measures are infeasible if the depth to groundwater is less than 5 feet below ground surface. In order for infiltration BMPs to be incorporated into future development, individual borings and geotechnical investigations would be required at the time of grading permits in order to determine the depth to groundwater (Long Beach 2013).

The BMPs incorporated into future projects would mitigate at a minimum the first flush or the equivalent of the greater between the 85th percentile storm and first 0.75-inch of rainfall for any storm event. The installed BMP systems would be designed with an internal bypass or overflow system to prevent upstream flooding due to large storm events. The stormwater which bypasses the BMP systems would eventually discharge to an approved discharge point in the public right-of-way.

Additionally, the Specific Plan would comply with all State, County, and local regulations regarding stormwater runoff during the operational phase. Therefore, water quality standards and waste discharge requirements would not be exceeded, and surface water and groundwater quality would not be degraded. Impacts would be less than significant.

Level of Significance before Mitigation: Less than Significant.

Impact 5.8-2: Construction and/or operation of the Specific Plan would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Specific Plan may impede sustainable groundwater management of the basin [Threshold HYD-2]

Construction

The project applicant is engaged in a multi-year development of its property, where existing multi-family housing units would be replaced by larger, multistory mixed-use buildings. These buildings would have housing

for low-income families, veterans, and seniors on the upper levels, and amenities like community centers, gymnasiums, and parking on the lower levels. Similarly, new administration buildings are planned to be built for CVC staff to work on-site with residents, visitors, and others who use the campus.

Although the Plan Area is currently fully developed and paved, construction activities would involve grading and excavation, which have the potential to encounter groundwater. The groundwater beneath the site is shallow and depth to groundwater was encountered between 4.5 feet and 8 feet bgs .

Groundwater could be encountered during excavation and dewatering may be required. If dewatering takes place onsite, the requirements of the Los Angeles RWQCB Waste Discharge Requirements for Discharges of Groundwater from Construction and Project Dewatering to Surface Waters in Coastal Watersheds of Los Angeles And Ventura Counties (Order No. R4-2018-0125) would govern dewatering activities during construction. However, construction activities are temporary in nature and would not result in a substantial depletion of groundwater supplies that could result in a lowering of the groundwater table. Therefore, impacts to groundwater supplies during construction would be less than significant.

Operation

The Specific Plan lies within the LBWD water service area. LBWD is responsible for providing water within the City and supplies water from two primary sources: groundwater and imported water purchased wholesale from the MWD. For 2020, the available water supply is projected to consist of approximately 45 percent MWD imported water, 43 percent groundwater, and 12 percent recycled water. The LBWD 2015 Urban Water Management Plan indicates that LBWD would have sufficient water supplies to meet demands in single-dry-years and multiple-dry-years (that is, three consecutive dry years) over the period of 2020-2040 (KPFF 2020b).

Development of the Specific Plan would increase the long-term water demand associated with consumption, operational uses, maintenance, and other on-site activities. It is estimated that the Specific Plan would result in a net increase in average daily water demand of approximately 192.3 AFY. Based on LBWD's 2015 UWMP water demand projections through 2040, the water demand for the City in 2040 during normal year, single dry year, and multiple dry year hydrological conditions is expected to reach approximately 64,137 AFY with an available supply of 79,291 AFY (LBWD 2016). The Specific Plan's estimated net increase in water demand of approximately 192.3 AFY is well within the City's residual water supply. Therefore, LBWD would be able to meet the water demand for the Specific Plan in combination with existing and planned water demand in its future service area.

Furthermore, the Plan Area is not on an active recharge site and the Specific Plan would result in a change to impervious surfaces from 72 to 72.8 percent, which would not significantly alter groundwater recharge in the Plan Area. Therefore, impacts on groundwater recharge would be less than significant.

Level of Significance before Mitigation: Less than Significant.

Impact 5.8-3: Construction and/or operation of the Specific Plan 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 the 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. [Threshold HYD-3iii]

The Specific Plan would not involve the alteration of any natural drainages or watercourses. Furthermore, impacts related to polluted runoff are addressed in Impact 5.8-1 above.

Storm drainage collection, treatment and conveyance on the Plan Area are regulated by the City. The City has adopted the Los Angeles County Department of Public Works (LACDPW) Hydrology Manual as its basis of design for storm drainage facilities and requires public and private storm drain infrastructure to be designed to the 10-year storm interval.

The land uses between the proposed and existing conditions do not change drastically, as the site would remain a low-income, senior, and veteran housing complex. After performing a hydrologic analysis, as directed in the LACDPW Hydrology Manual, total runoff flow rate generated from the proposed site from a 10-year storm is estimated to be less than that of the existing site. However, the total runoff volume would increase. This is due to the drainage subareas used for the hydrology analysis. For the existing conditions, the Plan Area was subdivided into 54 drainage subareas whereas for the proposed conditions 40 subareas were used. The larger subareas have similar or larger impervious percentages which increases the total volume from that subarea. However, with larger subareas the time of concentration decrease as well as the flow rate. Table 5.8-2 shows the difference in existing and proposed condition flow rates and volumes.

Table 5.8-2 Comparison of Existing and Proposed Flow Rates and Volumes from a 10-year Storm Event

Category	Existing	Proposed	Difference
Flow Rate	59.78 (cfs)	59.31 (cfs)	-0.48 (cfs)
Volume	8.37 (ac-ft)	8.44 (ac-ft)	0.06 (ac-ft)

Source: KPFF, 2020a.
Notes:
cfs – cubic feet per second
ac-ft – acre per feet

The existing storm drain system is described in Section 5.8.1.2. The Specific Plan would connect to the existing storm drain systems and would have similar discharge points. Currently, the 35-inch by 24-inch arch pipe is undersized to convey stormwater runoff from a 10-year storm via gravity flow out of the Plan Area. To meet the LA County Hydrology Manual's storage requirements, detention basins were constructed on site to store the excess volume of runoff created by existing development. This excess volume is released from the basins over a period of time at a slower flow rate due to the larger size of the watershed at buildout. Since the proposed runoff volume is only 0.06 ac-ft higher than the existing volume or less than 1 percent, the increase in hydrologic volume is considered negligible. Each phase of development is required to comply with City and

County hydrology manual storage requirements, which will be plan checked by City staff. Therefore, impacts are considered less than significant.

Level of Significance before Mitigation: Less than Significant.

Impact 5.8-4: Construction and/or operation of the Specific Plan would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan [Threshold HYD-5]

Adherence to the State Construction General Permit (CGP), implementation of the SWPPP, and adherence to the City's grading requirements, as described in detail in Impact 5.8-1, would ensure that surface and groundwater quality are not adversely impacted during construction. In addition, implementation of the LID BMP measures at the site would ensure that water quality is not impacted during the operational phase of the Specific Plan. As a result, site development will not obstruct or conflict with the implementation of the Los Angeles Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties.

The Plan Area will be connected to the City's public water supply. The City manages supplies to ensure withdrawals from the Central Basin Aquifer do not exceed the safe yield for the Basin, as per the Water Replenishment District of Southern California Groundwater Basins Master Plan. Therefore, the Specific Plan would not obstruct or conflict with the plan and impacts would be less than significant.

Level of Significance before Mitigation: Less than Significant.

5.8.4 Cumulative Impacts

Hydrology and Drainage

Cumulative projects within the Los Angeles River Watershed could increase impervious areas and increase stormwater runoff rates. However, all projects within the watershed would be required to implement LID BMPs that include provisions for the capture and infiltration of runoff or the temporary detention of stormwater runoff that post-development runoff discharges do not exceed pre-development runoff rates, in accordance with the NPDES MS4 permit. Thus, no significant cumulative drainage impacts would occur, and project drainage impacts would not be cumulatively considerable.

Water Quality

Cumulative projects have the potential to generate pollutants during project construction and operation. All construction projects that disturb one acre or more of land would be required to prepare and implement SWPPPs in order to obtain coverage under the Statewide GCP. All projects within the watershed would also be required to implement LID BMPs that would be applied during project design and project operation to minimize water pollution from project operation. Thus, no significant cumulative water quality impacts would occur and project water quality impacts would not be cumulatively considerable.

5.8.5 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impacts would be less than significant: 5.8-1, 5.8-2, 5.8-3, and 5.8-4.

5.8.6 Mitigation Measures

No mitigation measures are required.

5.8.7 Level of Significance After Mitigation

No significant impacts related to hydrology and water quality were identified; therefore, no significant and unavoidable impacts would occur.

5.8.8 References

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