

3.8 Hydrology and Water Quality

This chapter evaluates the existing hydrologic and water quality conditions at the project site and the potential impacts associated with the proposed project. This chapter describes impacts to water quality and alteration of existing drainage patterns, as well as potential increases in surface runoff, flooding, and soil erosion.

3.8.1 ENVIRONMENTAL SETTING

The project site is located within the Los Angeles River Watershed, which encompasses approximately 834 square miles, including the eastern portions of the Santa Monica Mountains and Simi Hills in the west, and the Santa Susana Mountains to the San Gabriel Mountains in the east. This watershed is shaped by the path of the Los Angeles River, which flows from its headwaters in the mountains, eastward to the northeastern corner of Griffith Park where the channel turns southward through the Glendale Narrows before it flows across the coastal plain and into San Pedro Bay in the City of Long Beach. The northern 360 square miles of the watershed are covered by forest, chaparral habitat, or undeveloped open space, while the remaining 474 square miles are developed with commercial, industrial, and residential uses and other urban development.¹ Figure 3.8-1 includes a map of the Los Angeles River Watershed.

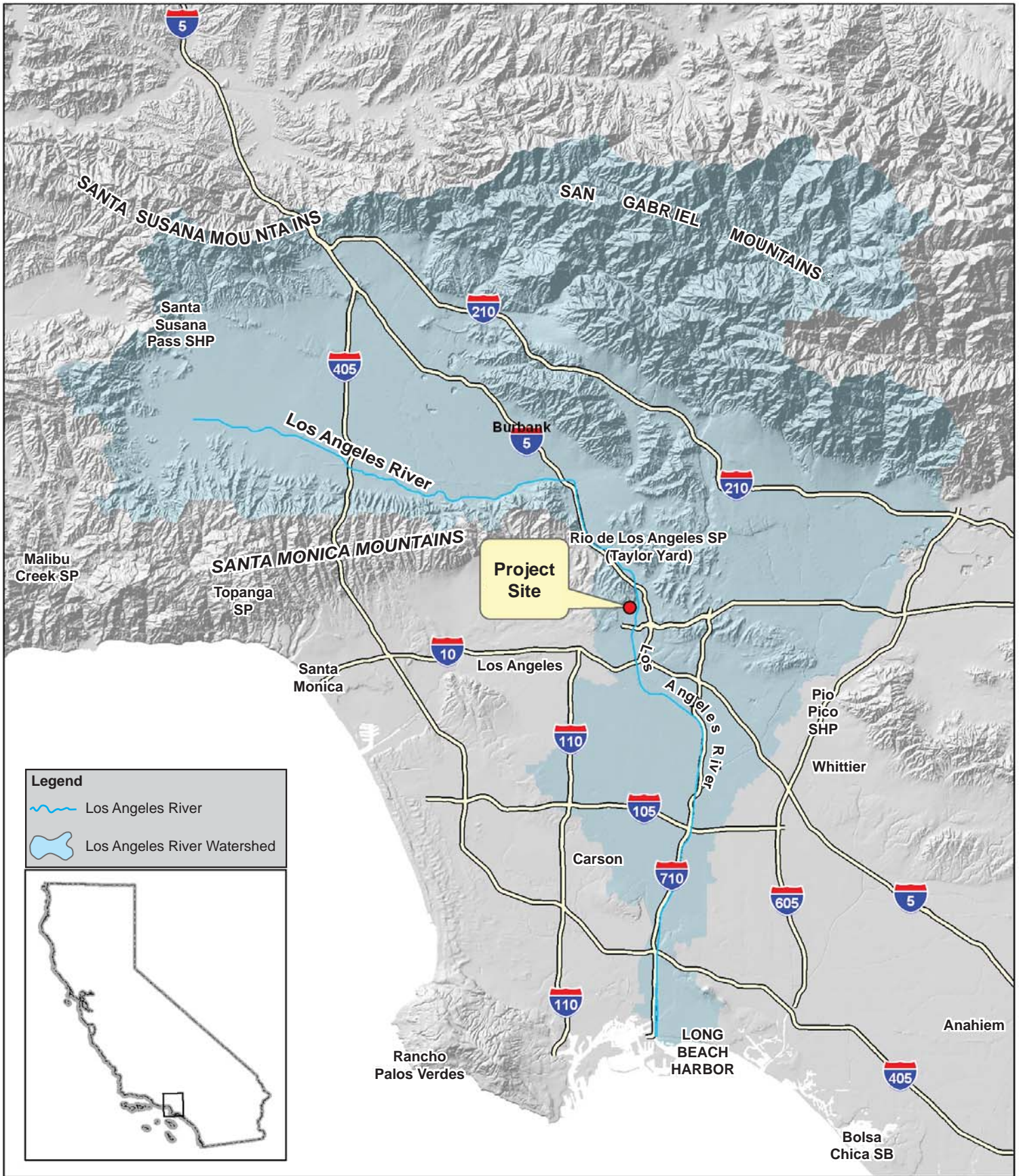
The Los Angeles River once flowed freely over the coastal plain but was channelized by the U.S. Army Corps of Engineers for flood control purposes from the 1930s to the 1960s. Currently 47.9 miles of the total 51-mile length of the river is lined with concrete. The Los Angeles River Watershed includes 22 lakes and a number of spreading grounds within its boundaries. Major tributaries of the Los Angeles River include the Pacoima Wash, Tujunga Wash, Burbank Western Channel, and Verdugo Wash in the San Fernando Valley, and the Arroyo Seco, the Rio Hondo, and Compton Creek south of the Glendale Narrows.

SURFACE WATER HYDROLOGY

As discussed in Chapter 3.5, Geology and Soils, the project site is relatively flat and generally slopes to the southwest with elevations from approximately 312 feet above mean sea level, at the northeastern corner of the project site, to 290 feet above mean sea level, at the southwestern corner. Stormwater at the project site currently flows toward the southwest to storm drain inlets along Spring Street.² A majority of the stormwater that reaches the project site percolates into the ground as the project site consists primarily of permeable surfaces (i.e., landscaped areas, grass, unpaved pathways).

¹ Los Angeles County Department of Public Works, Watershed Management, Los Angeles River Watershed, available at: <http://dpw.lacounty.gov/wmd/watershed/LA/>, accessed: April 12, 2011.

² City of Los Angeles Department of Public Works, Bureau of Engineering, NavigateLA available at: <http://navigate.lacity.org/index01.cfm>, accessed: April 12, 2011.



Source: Source: ESRI World Imagery Topographic

AECOM

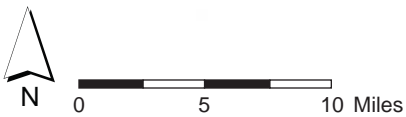


Figure 3.8-1
Los Angeles River Watershed

TSUNAMIS, SEICHES, AND FLOODING

Tsunamis are large ocean waves caused by the sudden displacement of water that results from an underwater earthquake, landslide, or volcanic eruption. These tidal phenomena typically affect low-lying areas along the coastline. The project site is located approximately 14.5 miles northeast of the Pacific Ocean at an elevation of approximately 300 feet above mean sea level.

Seiches are oscillations generated in enclosed bodies of water usually resulting from earthquake-related ground shaking. A seiche wave has the potential to overflow the sides of a water-containing basin to inundate adjacent or downstream areas. The closest bodies of water to the project site are the Los Angeles River, located approximately 360 feet to the east; the Elysian Reservoir, located approximately 0.5 miles north of the project site; Echo Park Lake, located approximately 1.5 miles northwest of the project site; and Silverlake Reservoir, located approximately 2.5 miles northwest.

The 100-year and 500-year flood plains are defined as areas in which flooding resulting from a rainstorm has a probability of occurring once every 100 and 500 years, respectively. According to the Federal Emergency Management Agency Flood Insurance Rate Map for the project area, the project site is located in Zone X, which is defined as an area determined to be outside the 0.2 percent annual chance floodplain.³

GROUNDWATER

The Los Angeles Regional Water Quality Control Board's jurisdiction overlies 14 major regional groundwater basins as identified in the agency's Basin Plan. The Los Angeles Coastal Plain and the San Fernando Valley cover the majority of the City of Los Angeles. The Los Angeles Coastal Plain Hydrologic Area includes the Palos Verdes, West Coast, Santa Monica, Hollywood, and Central Hydrologic Sub-Areas. The San Fernando Valley Hydrologic Area includes the Bull Canyon, Sylmar, Tujunga, Verdugo, and Eagle Rock Hydrologic Sub-Areas.⁴ The project site lies within the Central Hydrologic Sub-Area of the Los Angeles Coastal Hydrologic Area, which is located within the Los Angeles-San Gabriel Valley Hydrologic Unit.

The Seismic Hazard Zone Report for the Los Angeles 7.5-minute quadrangle indicates that the historic high groundwater level at the project site is approximately 20 feet bgs. However, more recent data collected during preparation of the Geotechnical Investigation for the proposed project indicates groundwater depths of 33.5 to 34 feet bgs. Well data collected from monitoring wells at the project site show the highest permanent groundwater levels for the six-year monitoring period (2000 to 2006) ranging from 25 to 35 feet bgs, with a flow gradient following the natural topography of the project site towards the southwest. Groundwater levels within the area may fluctuate with water levels in the adjacent Los Angeles River. However, the groundwater level in the area would not be expected above a depth of 20

³ Federal Emergency Management Agency, Flood Insurance Rate Maps, Search by Address; *Map Number 06037C1628F*, September 26, 2008, available at: <http://msc.fema.gov>, accessed: April 13, 2011.

⁴ Los Angeles Regional Water Quality Control Board, *Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*, adopted June 13, 1994, available at: http://waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/, accessed: November 17, 2011.

3.8 Hydrology and Water Quality

feet bgs. Locally, shallower perched groundwater could be present due to seepage from upslope or man-made sources such as leaking utilities.⁵

3.8.2 REGULATORY SETTING

FEDERAL

Clean Water Act

The 1987 amendments to the Federal Water Pollution Control Act, commonly referred to as the Clean Water Act, added Section 402(p), which establishes a framework for regulating nonpoint source municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) program. The USEPA is the primary federal agency responsible for implementing the Clean Water Act. In 1990, the USEPA published final regulations that establish stormwater permit application requirements for specified categories of industries. The regulations provide that discharges of stormwater to waters of the United States from construction projects that encompass five or more acres of soil disturbance are effectively prohibited unless the discharge is in compliance with an NPDES permit. Regulations (Phase II Rule) that became final on December 8, 1999 expanded the existing NPDES program to address stormwater discharges from construction sites that disturb land equal to or greater than one acre and less than five acres (small construction activity).

The California State Water Resources Control Board (SWRCB), with its regional water boards, is the primary state agency responsible for implementing the Clean Water Act and issuing the NPDES permits. The project site is within the jurisdiction of the Los Angeles Regional Water Quality Control Board. The County of Los Angeles and 84 incorporated cities, including the City of Los Angeles, receive coverage under the NPDES stormwater program under permit No. CAS004001.⁶ The permit, first issued by the Los Angeles Regional Water Quality Control Board in 2001, regulates municipal stormwater and urban runoff discharges within the jurisdictions covered by the permit.

While the federal regulations allow two permitting options for stormwater discharges (individual permits and General Permits), the SWRCB has elected to adopt only one Statewide General Permit. Dischargers are required to submit a Notice of Intent to obtain coverage under this General Permit, which requires all dischargers where construction activity disturbs one acre or more to:

1. Develop and implement a Stormwater Pollution Prevention Plan (SWPPP) which specifies best management practices (BMPs) that will prevent all construction pollutants from contacting stormwater and with the intent of keeping all products of erosion from moving off-site into receiving water;

⁵ *Geotechnical Investigation, Los Angeles State Historic Park, Los Angeles, California*, prepared by Group Delta Consultants, Inc., March 2011.

⁶ Los Angeles Regional Water Quality Control Board, Storm Water – Los Angeles Municipal Permits, available at: http://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/los_angeles_ms4/index.shtml, accessed: April 13, 2011.

2. Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation; and
3. Perform inspection of all BMPs.

Construction activities that are subject to the permit include, but are not limited to, clearing, grading, demolition, excavation, construction of new structures, and reconstruction of existing facilities involving removal and replacement that results in soil disturbance. Additionally, in the event of soil disturbance during the rainy season, generally defined as October 1st through April 15th, construction projects must implement a Wet Weather Erosion Control Plan. The Wet Weather Erosion Control Plan must be prepared prior to each rainy season and must be implemented throughout that rainy season.

STATE

General Construction Activity Stormwater Permit

In 2003, the SWRCB adopted the General Construction Activity Stormwater Permit, which is required for all stormwater discharges associated with construction activity where cleaning, grading, and excavation results in a land disturbance of one or more acres. Projects that meet these criteria must obtain a permit from the SWRCB prior to the start of construction. As discussed above, in order to be covered under the General Permit, the project applicant must submit a Notice of Intent to the SWRCB.

The General Permit authorizes the discharge of stormwater associated with construction activity from construction sites. However, it prohibits the discharge of materials other than stormwater and all discharges which contain hazardous substances in excess of reportable quantities established in 40 Code of Federal Regulations 117.3 or Code of Federal Regulations 302.4 unless a separate NPDES permit has been issued to regulate those discharges.

This General Permit requires development and implementation of a SWPPP, emphasizing BMPs, which are defined in 40 Code of Federal Regulations 122.2 as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. The SWPPP has two major objectives:

1. To help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges; and
2. To describe and ensure the implementation of practices to reduce sediment and other pollutants in stormwater discharges, both during and after construction.

In addition, dischargers are required to conduct inspections before and after storm events, and to annually certify compliance with the General Permit.

3.8.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

As part of the Initial Study (see Appendix A to this EIR), it was determined that the proposed project would not result in impacts related to placing housing or structures within a 100-year flood hazard area. Accordingly, these issues are not further analyzed in this EIR.

In accordance with the CEQA Guidelines, the proposed project would have a significant impact on hydrology and water quality if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- 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;
- Otherwise substantially degrade water quality;
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow.

IMPACT ANALYSIS

HYDRO-1 *The proposed project would not violate any water quality standards or waste discharge requirements. The impact would be less than significant.*

Construction

Construction activities, such as grading, would result in the disturbance of soil and temporarily increase the potential for soil erosion. Additionally, construction activities and equipment would require the on-site use and storage of fuels, lubricants, and other hydrocarbon fluids. Storm events occurring during the construction phase would have the potential to carry disturbed sediments and spilled substances from construction activities off-site to nearby receiving waters, such as the adjacent Los Angeles River.

Prior to the start of construction, the proposed project would require a General Construction Activity Stormwater Permit issued by the SWRCB. The NPDES requires that a Notice of Intent be filed with the SWRCB. By filing a Notice of Intent, CDPR agrees to the conditions outlined in the General Permit. One of the conditions of the General Permit is the development and the implementation of a SWPPP. As discussed in Chapter 2.0, Project Description, the SWPPP identifies which structural and nonstructural BMPs would be implemented with the proposed project, such as gravel bag barriers, temporary desilting basins near inlets, silt fences, and retaining sediment within the construction area. With implementation of the applicable permits and BMPs, the proposed project would not violate any water quality standards or waste discharge requirements. Therefore, construction-related water quality impacts would be less than significant.

Operation

If not properly designed and constructed, the proposed project could increase the rate of urban pollutant introduction into the municipal storm drain system. In order to prevent these potential impacts, the proposed project has been designed in compliance with: 1) Section 402(p) of the Federal Water Pollution Control Act, or Clean Water Act, and 2) Order No. 01-182 of the Regional Water Quality Control Board, Los Angeles Region, which regulates the issuance of waste discharge requirements to Los Angeles County.

As noted above, the proposed project would provide structural or treatment control BMPs designed to control stormwater runoff contamination. Paving of some areas of the project site would be required (i.e., for the parking area). However, the majority of the project site would remain covered with grass, landscaped areas, and other permeable surfaces, which would serve as infiltration areas to control stormwater runoff contamination. Additionally, treatment control BMPs would be implemented in the paved areas to control stormwater runoff contamination. The proposed project would include bioswales for stormwater retention, recharge, and reuse. The bioswales would assist to remove silt and pollution from surface runoff water. With compliance with the Clean Water Act, including implementation of applicable BMPs, the proposed project would not violate any water quality standards or waste discharge

3.8 Hydrology and Water Quality

requirements during operations. Therefore, operational project impacts related to water quality would be less than significant.

HYDRO-2 *The proposed project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. The impact would be less than significant.*

As previously discussed, groundwater levels at the project site were measured between 25 and 35 feet bgs. Due to the shallow groundwater level at the project site, it is possible that groundwater may be encountered during excavation for installation of the building foundations and utilities. In the event that groundwater is encountered, dewatering would be required; however, dewatering is not expected to occur in quantities that would substantially deplete the groundwater supply. Additionally, the proposed project does not involve any direct extraction of groundwater during either construction or operations. Although the parking area would be paved, the majority of the project site would remain covered with permeable materials. As such, the amount of stormwater entering the groundwater table would not be expected to substantially increase, and the proposed project would not deplete groundwater through wells. Therefore, impacts related to groundwater supplies and recharge would be less than significant.

HYDRO-3 *The proposed project would not substantially alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on- or off-site. The impact would be less than significant.*

Construction

Construction activities may result in minor short-term alterations to overland flow; however, all drainage flows would be directed towards and discharged into the existing public storm drain system. Additionally, construction activities could slightly increase the potential for erosion at the local scale due to proposed grading and excavation activities. However, construction activities would be temporary, and compliance with the SWPPP, wet weather erosion control plan, and associated BMPs for the proposed project would minimize impacts. Therefore, construction impacts related to erosion resulting from altered drainage patterns would be less than significant.

Operation

As previously discussed, paving would be required in the parking area included with the proposed project. However, the majority of the project site would remain covered with permeable materials such as grass and landscaped areas. These large areas of permeable surfaces would serve as infiltration areas to control runoff from the project site. No large areas susceptible to erosion would exist on the project site. The proposed project would include a limited area of exposed archaeological features. However, this area would be relatively small and would be maintained by CDPR to prevent erosion. Additionally, the drainage pattern would be designed to connect to the existing public storm drain system. CDPR would implement a wet weather erosion control plan to ensure that runoff is properly conveyed through the project site and discharged to avoid erosion and/or siltation. Therefore, operation of the proposed project

would not alter the existing drainage pattern in a way that would result in erosion or siltation. Impacts would be less than significant.

HYDRO-4 *The proposed project would not substantially alter the existing drainage pattern of the site or area in a manner that would result in on- or off-site flooding. The impact would be less than significant.*

Construction

As previously discussed, construction activities may result in temporary alterations to overland flow; however, all drainage flows would be directed towards and discharged into the existing public storm drain system. Construction activities would be temporary, and compliance with the SWPPP, wet weather erosion control plan, and associated BMPs for the proposed project would minimize impacts. Therefore, construction activities would not cause on- or off-site flooding as a result of alterations to the existing drainage pattern. Construction impacts would be less than significant.

Operation

During the operation of the proposed project, the majority of the project site would remain covered with permeable surfaces, which would serve as infiltration areas to control runoff. As previously discussed, no large impermeable areas would exist on the project site, and the drainage pattern would connect to the existing public storm drain system. Additionally, CDPR would implement a SWPPP, wet weather erosion control plan, and associated BMPs to ensure that runoff is properly conveyed through the project site to avoid flooding on- and off-site. Therefore, long-term operation of the proposed project would not alter the existing drainage pattern in a manner that would result in flooding. Impacts would be less than significant.

HYDRO-5 *The proposed project would not create or contribute to runoff water which would exceed the capacity of existing or planned stormwater drainage systems, nor would the proposed project provide substantial additional sources of polluted runoff. The impact would be less than significant.*

Construction

The project site is currently developed with an interim public use park and is primarily covered with permeable surfaces. During the construction phase, all drainage flows would be directed to the existing public storm drain system. In addition, CDPR will implement a SWPPP, erosion control plan, and associated BMPs. Construction activities are not expected to substantially increase runoff water; thus, the existing storm drain system would be able to accommodate the proposed project. Construction impacts related to drainage system capacity would be less than significant.

There are three sources of potential construction-related runoff pollution associated with the proposed project: 1) the handling, storage, and disposal of construction materials containing pollutants; 2) the maintenance and operation of construction equipment; and 3) earth-moving activities which, when not

3.8 Hydrology and Water Quality

controlled, may generate soil erosion and the transportation of pollutants via runoff or mechanical equipment. Routine safety precautions for handling and storing construction materials would effectively minimize the potential pollution of runoff by these materials. The same types of good housekeeping procedures would also be extended to non-hazardous runoff pollutants such as sawdust and other solid wastes.

Poorly maintained vehicles and heavy equipment leaking fuel, oil, antifreeze, or other fluids onto a construction site are also common sources of runoff pollution and soil contamination. Additionally, earth-moving activities that can greatly increase erosion processes are another source of runoff pollution contamination. Two general strategies are recommended to prevent construction silt from entering local storm drains. First, erosion control procedures would be implemented for those areas that must be exposed. Secondly, the area would be secured to control off-site migration of pollutants. These BMPs, which would be included as part of the implementation of the SWPPP include, but would not be limited to: 1) applying appropriate dust suppression techniques, such as watering or tarping; 2) designing construction entrances to facilitate the movement of trucks on-site that are hauling debris from the site; 3) securing truck loads with tarps; and 4) inspecting all construction equipment for leaks and repairing such leaks according to a regular schedule. Compliance with the SWPPP would ensure that construction impacts would be less than significant.

Operation

As previously discussed, the proposed project would include primarily permeable surfaces. While the proposed project would include some paved areas, the majority of the site would remain covered with landscaped permeable surfaces, which would serve as infiltration areas to control runoff. Additionally, all runoff would be routed to the existing public storm drain system. Furthermore, CDPR would implement a SWPPP, wet weather erosion control plan, and associated BMPs to ensure that runoff is properly conveyed through the project site. Therefore, the proposed project is not anticipated to result in a substantial increase in runoff from the project site.

The operation of the proposed project may generate substances that have the potential to degrade runoff water quality. The deposition of certain chemicals by cars on the parking areas could have the potential to contribute metals, oil and grease, solvents, phosphates, hydrocarbons, and suspended solids to the storm drain system. Additionally, landscaping and maintenance of vegetation on the project site may require the use of pesticides and fertilizers. However, impacts to water quality would be reduced through compliance with water quality standards and wastewater discharge BMPs set forth in the SWPPP. In addition, the proposed project would include bioswales for stormwater retention, recharge, and reuse. The bioswales would assist to remove silt and pollution from surface runoff water. Compliance with existing regulations would ensure that impacts related to operational runoff water quality would be less than significant.

HYDRO-6 *The proposed project would not substantially degrade water quality. The impact would be less than significant.*

Other than the sources already described for project construction activities (i.e., potential soil erosion and fuels for construction equipment) and project operation (i.e., deposition of chemicals by cars, possible use of pesticides), the proposed project does not include other potential sources of contaminants that could potentially degrade water quality. As previously mentioned, the proposed project would include bioswales for stormwater retention, recharge, and reuse. The bioswales would assist to remove silt and pollution from surface runoff water. Compliance with the proposed project's SWPPP and associated BMPs would ensure less than significant impacts related to water quality.

HYDRO-7 *The proposed project would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. The impact would be less than significant.*

The nearest bodies of water to the project site are the Los Angeles River, located approximately 360 feet east of the project site; Elysian Reservoir, located approximately 0.5 miles north of the project site; Echo Park Lake, located approximately 1.5 miles northwest of the project site; and Silverlake Reservoir, located approximately 2.5 miles northwest. The City identified the eastern portion of the project site as being located within a potential inundation area from dam failure or seiche related to the Hansen Dam, which is located approximately 16 miles northwest of the project site.⁷ However, the failure of a levee or dam is considered to be a remote possibility that would only be likely to occur during extremely severe seismic shaking conditions. Additionally, only a small portion of the project site is located within the mapped inundation area and risk to the project site would not be greater than in any other mapped area of the City. Therefore, the potential impacts associated with flooding as a result of failure of a levee or dam would be less than significant.

HYDRO-8 *The proposed project would not expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow. Impacts would be less than significant.*

Seiches are seismically-induced tidal phenomena that occur in enclosed bodies of water. Four bodies of water are located within approximately 2.5 miles of the project site, including the Los Angeles River, Elysian Reservoir, Echo Park Lake, and Silverlake Reservoir. However, seiches primary cause damage to properties that are located in close proximity to the body of water. The distance between the project site and these bodies of water would result in a decreased risk of a seiche resulting in damage to the proposed project. Although the project site is located adjacent to the Los Angeles River, the risk of seiche is considered low due to the limited amount of water typically present in the river. The risk to the project site is no greater than other parts of the City that abut the river. Therefore, the potential impacts associated with inundation due to seiche would be less than significant.

⁷ City of Los Angeles Department of City Planning, Environmental and Public Facilities Maps, *Inundation & Tsunami Hazard Areas* Map, September 1996.

3.8 Hydrology and Water Quality

Tsunamis are seismically-induced tidal phenomena that affect low-lying coastal areas. The project site is located approximately 14.5 miles northeast of the Pacific Ocean at an elevation of approximately 300 feet above mean sea level, and therefore, is not located within a City designated Tsunami Hazard Area.⁸ The project site would not be susceptible to inundation by tsunami, and no impacts related to tsunamis would occur.

The project site is relatively flat and does not contain major hills or steep slopes. The nearest hillside area is located approximately 0.25 miles northwest of the project site.⁹ Thus, the project site is not at risk for mudflows. No impacts related to mudflows would occur with implementation of the proposed project.

3.8.4 MITIGATION MEASURES

No significant impacts related to hydrology and water quality have been identified for the proposed project. Therefore, no mitigation measures are required.

3.8.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impacts related to hydrology and water quality would be less than significant without mitigation.

⁸ Ibid.

⁹ Ibid.