# 4.6 HYDROLOGY and WATER QUALITY

This section analyzes the potential for onsite development to adversely affect hydrology and water quality.

## 4.6.1 Setting

**a. Project Site.** The project site is located in a highly urbanized setting at the northeast corner of Alameda Street and 1st Street at the edge of the Little Tokyo community in downtown Los Angeles. The existing onsite development includes a public parking lot and an approximately 19,500 square foot (sf) office building. The project site is generally flat and covered with impervious surfaces. Project site runoff generally flows east toward the Los Angeles River.

**b. Hydrology.** The project site is within the Central (groundwater) Basin. The Central Basin occupies a large portion of the southeastern part of the Coastal Plain of the Los Angeles Groundwater Basin. This basin is bounded on the north by a surface divide called the La Brea High, and on the northeast and east by less permeable Tertiary rocks of the Elysian, Repetto, Merced and Puente Hills. The southeast boundary between the Central Basin and the Orange County Groundwater Basin roughly follows Coyote Creek, which is a regional drainage province boundary. The southwest boundary is formed by the Newport Inglewood fault system and the associated folded rocks of the Newport Inglewood uplift. The Los Angeles and San Gabriel rivers drain inland and pass across the surface of the Central Basin on their way to the Pacific Ocean. Average precipitation throughout the Basin ranges from 11 to 13 inches, with an average of about 12 inches.

Throughout the Central Basin, groundwater occurs in Holocene and Pleistocene age sediments at relatively shallow depths. The Central Basin is historically divided into forebay and pressure areas. The Los Angeles forebay is located in the northern part of the Central Basin where the Los Angeles River enters the Central Basin through the Los Angeles Narrows from the San Fernando Groundwater Basin. The Montebello forebay extends southward from the Whittier Narrows where the San Gabriel River encounters the Central Basin and is the most important area of recharge in the Basin. Both the Los Angeles and Montebello forebays have unconfined groundwater conditions and relatively interconnected aquifers that extend up to 1,600 feet deep to provide recharge to the aquifer system of this Basin (Department of Water Resources (DWR), 1961). The Whittier area extends from the Puente Hills south and southwest to the axis of the Santa Fe Springs-Coyote Hills uplift and contains up to 1,000 feet of freshwater-bearing sediments. The Central Basin pressure area is the largest of the four divisions, and contains many aquifers of permeable sands and gravels separated by semi-permeable to impermeable sandy clay to clay, that extend to about 2,200 feet below the surface (DWR, 1961). The estimated average specific yield of these sediments is around 18%. Throughout much of the Basin, the aquifers are confined, but some areas allow interaction between the aquifers (DWR 1961).

The main productive freshwater-bearing sediments are contained within Holocene alluvium and the Pleistocene Lakewood and San Pedro formations (DWR 1961). Throughout most of the Basin, the near surface Bellflower aquiclude restricts vertical percolation into the Holocene age Gaspur aquifer and other underlying aquifers, and creates local semi-perched groundwater

conditions. The main additional productive aquifers in the Basin are the Gardena and Gage aquifers within the Lakewood Formation and the Silverado, Lynwood and Sunnyside aquifers within the San Pedro Formation (DWR 1961). Specific yield of deposits in this Basin range up to 23% in the Montebello forebay, 29% in the Los Angeles forebay, and 37% in the Central Basin pressure area (DWR 1961). Historically, groundwater flow in the Central Basin has been from recharge areas in the northeast part of the Basin. However, pumping has lowered the water level in the Central Basin and water levels in some aquifers are about equal on both sides of the Newport-Inglewood uplift, decreasing subsurface outflow to the West Coast Subbasin (DWR, 1961).

Many faults, folds and uplifted basement areas affect the water-bearing rocks in the Central Basin. Most of these structures form minor restrictions to groundwater flow in the Basin. The strongest effect on groundwater occurs along the southwest boundary to the Central Basin. The faults and folds of the Newport-Inglewood uplift are partial barriers to movement of groundwater from the Central Basin to the West Coast Basin (DWR, 1961).

The La Brea High is a system of folded, uplifted and eroded Tertiary basement rocks. Because the San Pedro Formation is eroded from this area, subsurface flow southward from the Hollywood Basin is restricted to the Lakewood formation (DWR 1961). The Whittier Narrows is an eroded gap through the Merced and Puente Hills that provides both surface and subsurface inflow to the Central Basin (DWR, 1961). The Rio Hondo, Pico, and Cemetery faults are northeast-trending faults that project into the gap and displace aquifers. The trend of these faults parallels the local groundwater flow and do not act as significant barriers to groundwater flow (DWR 1961).

Recharge Areas. Groundwater enters the Central Basin through surface and subsurface flow and by direct percolation of precipitation, stream flow, and applied water; and replenishes the aquifers dominantly in the forebay areas where permeable sediments are exposed at ground surface (DWR, 1961). Natural replenishment of the Basin's groundwater supply is largely from surface inflow through Whittier Narrows (and some underflow) from the San Gabriel Valley. Percolation into the Los Angeles Forebay Area is restricted due to paving and development of the surface of the forebay. Imported water purchased from Metropolitan Water District (MWD) and recycled water from Whittier and San Jose Treatment Plants are used for artificial recharge in the Montebello Forebay at the Rio Hondo and San Gabriel River spreading grounds (DWR 1999). Saltwater intrusion is a problem in areas where recent or active river systems have eroded through the Newport-Inglewood uplift. A mound of water to form a barrier is formed by injection of water in wells along the Alamitos Gap (DWR 1999).

Groundwater Level Trends. Water levels varied over a range of about 25 feet between 1961 and 1977 and have varied through a range of about 5 to 10 feet since 1996. Most water wells show levels in 1999 that are in the upper portion of their recent historical range.

**c. Flood Hazard Zones.** The project site is located in flood Zone X, which is an area with a 0.2% annual chance of flood and is not within the 100-year flood zone (FEMA Flood Map, Panel No. 06037C1636F, 2008).

**d. Dam Inundation.** According to the City of Los Angeles Planning Department Inundation and Tsunami Hazard Areas Map (1994), the project site is located in a potential dam inundation area. Dam inundation could occur in the event of dam failure near the project site. Dam failure can be caused by earthquakes. However, most engineered, mechanically compacted dam embankments or fills of earth or rock materials have performed well under seismic shaking (City of Los Angeles General Plan, Technical Appendix to the Safety Element, 1990). The majority of dam failures in either earthen or concrete dams are caused by foundation failures, inadequate spillways, and poor construction or site selection (City of Los Angeles General Plan, Technical Appendix to the Safety Element, 1990).

Because dam failure can cause damage to people and structures, private owners of dams and reservoirs, if governed by State regulations, are required to maintain internal emergency plans that include procedures for damage assessment and emergency warnings. These plans are required to include the following elements:

- *Identification of emergency conditions threatening a dam, including criteria for warning of "failure imminent" or "failure in progress" (FEMA)*
- *A plan for notifying downstream communities within dam inundation zones of evacuation.*

**e. Regulatory Setting.** The federal Water Pollution Control Act (also known as the Clean Water Act (CWA)) is the principle statute governing water quality. The statute's goal is to end all discharges entirely and to restore, maintain, and preserve the integrity of the nation's waters. It mandates permits for wastewater and stormwater discharges, requires states to establish site-specific water quality standards for navigable bodies of water, and regulates other activities that affect water quality, such as dredging and the filling of wetlands.

For stormwater discharges into an existing waterway, water quality control is governed by a National Pollutant Discharge Elimination System (NPDES) Permit. Originally NPDES focused on reducing pollutants from discharges from industrial process wastewater and municipal sewage treatment plants. In 1987, CWA was amended to require the U.S. Environmental Protection Agency (EPA) to establish requirements for regulating stormwater discharges through use of NPDES stormwater permits. In 1990, Section 402(p) was added to CWA to regulate Municipal Separate Storm Sewer System (MS4) discharges into existing waterways. MS4 systems are not required to obtain an NPDES permit and local jurisdictions are also required to adopt programs that control discharges for new and redevelopment areas.

The major CWA section that applies to activities potentially occurring as part of onsite development is NPDES Section 402. Section 402 (33 U.S.C. 1342 and 40 CFR 122) establishes a permitting system for the discharge of any pollutant (except dredge and fill material) into waters of the United States. An NPDES permit is required for all point source discharges of pollutants to surface waters. A point source is a discernible, confined, and discrete conveyance, such as a pipe, ditch, or channel.

The major purpose of the NPDES program is to protect human health and the environment by protecting the quality of water. California's primary statute governing water quality and water pollution is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The

Porter-Cologne Act grants the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Board (RWQCB) broad powers to protect water quality and is the primary vehicle for implementation of California's responsibility under the federal CWA. The Porter- Cologne Act grants the SWRCB and RWQCBs the authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites, and to require clean up of discharges of hazardous materials and other pollutants. Each regional board is required to adopt a water quality control plan or basin plan that reflects the regional differences in existing water quality, the beneficial uses of the region's ground and surface water, and local water quality conditions and problems. The boards implement the permit provisions (Section 402) and certain planning provisions (Sections 205, 208, and 303) of CWA. This means that the state issues one discharge permit for purposes of both state and federal law. Under state law, the permit is officially called Waste Discharge Requirement. Under federal law, the permit is officially called an NPDES General Permit.

Beginning March 10, 2003, EPA and SWRCB regulations began regulating discharges from projects with soil disturbance of one acre or more by amending the general permit that originally regulated soil disturbances of five acres or more. SWRCB Resolution No. 2001-46 also modified provisions of the general permit to require permittees to prepare a specific water quality sampling and analysis plan including analytical procedures for covered construction sites.

Section 303 (d) of CWA also requires the state to develop a list of "impaired" water bodies that may require additional protection (beyond traditional short-term and long-term control) to ensure established after quality standards are achieved and maintained. For these water bodies, states are required to develop appropriate total maximum daily loads (TMDLs). TMDLs are the sum of the individual pollutant load allocations for point sources, nonpoint sources, and natural background conditions, with an appropriate margin of safety for a designated water body.

The protection of water quality in the watercourses within the City of Los Angeles is under the jurisdiction of the Los Angeles RWQCB (SWRCB District 4). The RWQCB establishes requirements prescribing discharge limits and establishes water quality objectives through the "Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges Within the County of Los Angeles, and the Incorporated Cities Therein, Except the City of Long Beach" for which the City of Los Angeles is a co-permittee (Order No. 01-182). NPDES Permit No. CAS00401, dated December 13, 2001, issued by the Los Angeles Regional Water Quality Control Board also serves as a NPDES permit under the Federal Clean Water Act. As a co-permittee, the City is required to implement procedures with respect to the entry of non-storm water discharges into the municipal storm water system. The City of Los Angeles Municipal Code (LAMC Article 4.4), addresses specific stormwater pollution requirements for new developments in accordance with the NPDES Permit.

The NPDES permit specifies that all new development and redevelopment projects that fall under specific priority project categories must comply with the Los Angeles County Standard Urban Storm Water Mitigation Plan (SUSMP) (March 2000). These categories of development are considered "priority" because the RWQCB determined that they have the greatest potential to degrade water quality.

The regulations set forth in Article 4.4 of the Los Angeles Municipal Code are applicable to onsite development. These include requirements for implementation of best management practices (BMPs) designed to reduce pollutant laden runoff from construction sites.

The specific requirements as described in Article 4.4 of the LAMC are as follows:

Pollutant Discharge Control

A. General Discharge Prohibitions. No person shall discharge, cause, permit, or contribute to the discharge of any of the following to the storm drain system or receiving waters:

1. *Any liquids, solids or gases which by reason of their nature or quantity are flammable, reactive, explosive, corrosive, or radioactive, or by interaction with other materials could result in fire, explosion or injury.*
2. *Any solid or viscous materials which could cause obstruction to the flow or operation of the storm drain system.*
3. *Any pollutant that injures or constitutes a hazard to human, animal, plant, or fish life, or creates a public nuisance.*
4. *Any noxious or malodorous liquid, gas, or solid in sufficient quantity, either singly or by interaction with other materials, which creates a public nuisance, hazard to life, or inhibits authorized entry of any person into the storm drain system.*
5. *Any medical, infectious, toxic or hazardous material or waste.*

B. Controlling the Discharge of Pollutants Associated with Industrial or Commercial Activities. Except as allowed under a general or separate NPDES permit, the following prohibitions apply to all persons operating or performing any industrial or commercial activities within the City of Los Angeles:

1. *No person shall discharge, cause or permit the discharge of untreated wastewater from steam cleaning, mobile carpet cleaning, or from other such mobile commercial or industrial operations into the storm drain system.*
2. *No person shall discharge, cause or permit any discharge of untreated runoff containing grease, oil, antifreeze, other fluids from machinery, equipment, tools or motor vehicles, or hazardous substances into the storm drain system.*
3. *No person shall discharge, cause or permit the discharge of untreated runoff from the washing of toxic materials from paved or unpaved areas into the storm drain system.*
4. *No person shall discharge, cause or permit the discharge of wastewater from the washing out of concrete trucks into the storm drain system.*
5. *Violation of any of the following prohibitions within this subdivision shall be punishable as a infraction:*

    a) *No person shall discharge, cause or permit the discharge of untreated wash water from gas stations, auto repair garages, or from other types of automotive facilities into the storm drain system.*

*b) No person shall discharge, cause or permit the discharge of untreated runoff from the washing of impervious surfaces into the storm drain system. This provision shall apply unless the washing is specifically required by State or local health and safety codes or unless the discharge is conditionally exempt as street or sidewalk washing as provided in Subdivision 2, Subsection A of Section 64.70.03 of this article.*

*c) No person shall discharge, cause or permit the discharge of food wastes from the washing of any floor coverings such as duck boards, grates, mats or rugs from any commercial kitchen, or from any other commercial food preparation or processing activity, into the storm drain system.*

*d) No person shall discharge, cause or permit the discharge of commercial/public swimming pool filter backwash into the storm drain system.*

*e) Controlling Spills, Dumping Or Disposal Of Materials To The Storm Drain System. This subsection applies to all persons within the City of Los Angeles and is in addition to any other anti-littering provisions provided in Sections: 56.08, 57.21.06, 62.54, 66.04, and 66.25 of this Code.*

C. The following prohibitions apply to all persons within the City of Los Angeles and any violation of this subdivision shall be punishable as a misdemeanor:

*1. No person shall throw, deposit, leave, cause or permit to be thrown, deposited, placed, or left, any refuse, rubbish, garbage, or other discarded or abandoned objects, articles, and accumulations, in or upon any street, gutter, alley, sidewalk, storm drain, inlet, catch basin, conduit or other drainage structures, business place, or upon any public or private lot of land in the City so that such materials, when exposed to stormwater or any runoff, become a pollutant in the storm drain system.*

*2. No person shall intentionally dispose or cause the disposal of leaves, dirt, or other landscape debris into the storm drain system.*

*3. No person shall spill, dump or dispose any pesticide, fungicide, or herbicide, into the storm drain system.*

*4. No person shall leave, dispose, cause or permit the disposal of hazardous wastes in a manner that results or potentially could result in a spill, leak or drainage of these wastes onto any sidewalk, street or gutter that discharges into or flows with any other runoff into the storm drain system. (Amended by Ord. No. 175,026, Eff. 2/2/03.)*

*5. No person shall store fuels, chemicals, fuel and chemical wastes, animal wastes, garbage, batteries and any toxic or hazardous material(s) in a manner that causes or potentially could cause the runoff of pollutants from these materials or wastes into the storm drain system. (Amended by Ord. No. 175,026, Eff. 2/2/03.)*

*6. No person shall dispose, discharge, or permit the discharge of any sanitary or septage wastes from any source into the storm drain system.*

D. Requirement to Prevent, Control, and Reduce Stormwater Pollutants. Any owner or operator of a facility or business within the City of Los Angeles engaged in activities or operations as listed in the Critical Sources

Categories, Section III of the Board's Rules and Regulations shall be required to implement Best Management Practices (BMPs) as promulgated in the Rules and Regulations. Any owner/developer of a property under construction within the City of Los Angeles or his designated representative shall be required to implement the stormwater pollution control requirements for construction activities as depicted in the project plans approved by the Department of Building and Safety. In the event a specified BMP proves to be ineffective or infeasible, the Director may require additional and/or alternative, site-specific BMPs or conditions deemed appropriate to achieve the objectives of this ordinance as defined in Subsection B of LAMC Section 64.70. Any violation or failure to implement a BMP in a timely manner shall be punishable as an infraction, unless the violation or failure is declared in this Code to be a misdemeanor. (Added by Ord. No. 175,026, Eff. 2/2/03.)

E. Controlling Pollutants From Parking Lots. Any owner or operator of industrial/commercial motor vehicle parking lots with more than twenty-five (25) parking spaces that are located in areas potentially exposed to storm water shall be required through regular sweeping or other effective measures to remove all debris during the period between October 1 and April 15. Violation of this subsection shall be punishable as an infraction. (Former Subsection D. re-designated Subsection E. by Ord. No. 175,026, Eff. 2/2/03.)

Elimination of Illicit Discharges and Illicit Connections:

A. Prohibition of Illicit Discharges. No person shall discharge non-storm water to the storm drain system, unless authorized by a separate or general NPDES Permit or if the discharge is exempted or conditionally exempted by the Municipal Storm Water and Urban Runoff NPDES Permit for Los Angeles County, as provided or as subsequently amended or if granted as a special waiver or exemption by the Regional Board.

1. *Exempt Discharges. The following non-stormwater discharges are exempt from obtaining a separate or general NPDES permit and are allowed to be discharged into the storm drain system:*

   *(a) Flows from riparian habitats or wetlands;*
   *(b) Diverted stream flows;*
   *(c) Flows from natural springs;*
   *(d) Rising ground waters;*
   *(e) Uncontaminated ground water infiltration; and*
   *(f) Discharge or flows from emergency fire fighting activities.*

2. *Conditionally Exempt Discharges. The following non-stormwater discharges may be allowed to be discharged into the storm drain system, subject to all appropriate BMPs. The Board may review and adopt appropriate BMPs for any conditionally exempt discharges and place said BMPs in the Board's*

*"Rules and Regulations Governing the Discharge of Conditionally Exempt Non-Stormwater Discharges". The Board may from time to time, as it deems appropriate, change, modify, revise or alter existing BMPs. It shall be the responsibility of any discharger to comply with all Board adopted BMPs in existence at the time of discharge of any non-stormwater discharge set forth on this Conditionally Exempt Discharge list. If the Board has not adopted BMPs for any of the below listed discharges, the discharger may allow such a discharge provided it is in compliance with all other requirements of the "Stormwater and Urban Runoff Pollution Control Ordinance". Discharge of any of the below listed "Conditionally Exempt Discharges" at a time prior to the Board's adoption of BMPs for that particular discharge shall not relieve the discharger from compliance with the BMPs for the discharge once they are adopted by the Board. The "Conditionally Exempt Discharges" are as follows:*

*(a) Discharges from lawn and landscape irrigation;*
*(b) Water line flushing;*
*(c) Discharges from potable water sources;*
*(d) Foundation drains;*
*(e) Footing drains;*
*(f) Air conditioning condensate;*
*(g) Irrigation water;*
*(h) Water from crawl space pumps;*
*(i) Dechlorinated/debrominated swimming pool discharges; (Amended by Ord. No. 175,026, Eff. 2/2/03.)*
*(j) Discharges from individual residential car washing;*
*(k) Discharges from non-profit car washing;*
*(l) Street washing (including sidewalk washing); and*
*(m) Other categories approved by the Executive Officer of the California Regional Water Quality Control Board, Los Angeles Region or an authorized representative.*

B. Illicit Connections. It is prohibited to establish, use, maintain, or continue illicit drainage connections to the City storm drain system, and to commence or continue any illicit discharges to the City storm drain system. This prohibition applies to connections made in the past. Improperly installed or defective rain diversion systems or devices that release pollutants into the storm drain system shall be considered illicit connections and shall be subject to removal or modifications. One year after the effective date of this article and after notification of the illicit connection, a person has ninety (90) days to remove or modify such connection. Any extension of time for removal or modification must be approved by the Board.

C. Storm Drain Connection Permits. No permit for any storm drain connection as required under Section 64.12 of this Code shall be issued until the Board is satisfied that the discharge from the permitted connection will be in compliance with the provisions of this article and all applicable Federal and State discharge regulations or requirements.

D. Discharges Permitted By Industrial Wastewater Permits. Industrial Wastewater Permits issued for discharges of non-stormwater to the storm drain system, Waters of the State, and industrial waste discharges to points other than to the City's Publicly Owned Treatment Works (POTW), that were previously permitted under Section 64.30 of this Code, shall be canceled by the Director. No Industrial Wastewater Permit will be required for discharges to any point other than to the POTW.

This ordinance shall be construed to assure consistency with the requirements of the Federal Clean Water Act and acts amendatory thereof or supplementary thereto, applicable implementing regulations, and NPDES Permit No. CAS614001 and any amendment, revision or reissuance thereof.

The project site is within the boundaries of the Los Angeles River Improvement Overlay (LA-Rio). This Overlay requires Best Management Practices (BMPs), such as French drains, cisterns, and swales, to reduce the velocities, quantities, and pollutant loads of stormwater runoff entering the storm drain system and to increase opportunities for stormwater runoff to infiltrate into the ground. Development within the LA-Rio would be required to comply with the requirements of the LA-Rio.

## 4.6.2 Impact Analysis

**a. Methodology and Significance Thresholds.** To analyze hydrological conditions on the project site, hydrological information was collected from the City of Los Angeles General Plan, hydrology and water quality maps, the City of Los Angeles Municipal Code, the State Water Resources Control Board, and the Los Angeles Regional Water Quality Control Board. Information was compared to CEQA and City of Los Angeles thresholds to determine impacts related to flooding, surface water quantity and quality, and ground water quantity and quality.

In accordance with Appendix G of the *CEQA Guidelines*, onsite development would have a significant hydrology/water quality impact if it would cause any of the following:

- *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 or 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 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*
- *Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map*
- *Place within a 100-year flood hazard area structures which would impede or redirect flood flows*
- *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*
- *Inundation by seiche, tsunami, or mudflow*

To determine whether a proposed project would have a significant impact to the hydrology and water quality of the project area, the *City of Los Angeles CEQA Thresholds Guide* (2006) provides the following thresholds guidance. As set forth in the *City of Los Angeles CEQA Thresholds Guide*, a project would normally have a significant impact related to hydrology and water quality if it would:

*(a) Cause flooding during the projected 50-year developed storm event which would have the potential to harm people or damage property or sensitive biological resources;*
*(b) Substantially reduce or increase the amount of surface water in a water body;*
*(c) Result in a permanent, adverse change in the movement of surface water sufficient to produce a substantial change in the current or direction of water flow;*
*(d) Produce discharges that would create pollution, contamination or nuisance as defined in Section 13050 of the California Water Code (CWC) or that cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or Water Quality Control Plan for the receiving water body.*
*(e) Change potable water levels sufficiently to:*
- *Reduce the ability of a water utility to use the groundwater basin for public water supplies, conjunctive use purposes, storage of imported water, summer/winter peaking, or to respond to emergencies in drought;*
- *Reduce yields of adjacent wells or well fields (public or private);*
- *Adversely change the rate or direction of flow of groundwater;*

*(f) Result in demonstrable and sustained reduction of groundwater recharge capacity;*
*(g) Affect the rate or change the direction of movement of existing contaminants;*
*(h) Expand the area affected by contaminants;*
*(i) Result in an increased level of groundwater contamination (including that from direct percolation, injection or salt water intrusion); or*
*(j) Cause a regulatory water quality standard at an existing production well to be violated, as defined in the California Code of Regulations (CCR), Title 22, Division 4, Chapter 15 and in the Safe Drinking Water Act.*

The Initial Study discussed flooding and concluded that the project site is located in Zone X, which is an area with a 0.2% annual chance of flood and is not within the 100-year flood zone (FEMA Flood Map, Panel No. 06037C1636F, 2008). As discussed in the Initial Study, impacts to flooding would be less than significant. Therefore, the discussion below discusses issues related to contamination (including water quality standards, surface water, and ground water) and dam inundation.

**b. Project Impacts and Mitigation Measures.**

**Impact HWQ-1 During construction of onsite development, the soil surface would be subject to erosion and the downstream watershed could be subject to temporary sedimentation and discharges of various pollutants. Mandatory compliance with City standards would ensure that impacts would be *less than significant.* Nonetheless, mitigation measures HYD-1(a-c) would be required.**

Onsite development would allow for the development of mixed retail, office, community space, creative live/work units, and residential development. Although no specific development is proposed at this time, it is anticipated that the project site could accommodate a maximum of 1.2 million sf of floor space. During construction of development on the project site, the existing topography of the relatively flat site would generally remain. Site preparation would involve excavation, the majority of which would involve excavation for the proposed subterranean parking garage.

Excavation and grading could result in erosion of onsite soils and sedimentation, with consequent temporary impacts to surface water quality. Onsite development would likely necessitate temporary onsite storage of excavated soils. In addition, soil migration offsite via wind entrainment and/or water erosion could occur during grading and soil storage (see Section 4.2, *Air Quality*, for further discussion of construction generated air quality impacts). In addition, residue/dust from construction activities could potentially migrate offsite and adversely affect water quality.

Construction contractors would be required to comply with local, state, and federal regulations that would reduce the potential for water quality to be affected. These regulations include NPDES permit requirements, including Standard Urban Stormwater Mitigation Plan (SUSMP) requirements, which include Best Management Practices (BMPs) to be implemented during construction activities. In addition, construction contractors would be required to comply with City standards, included in Article 4.4 of the Los Angeles Municipal Code. These standards include mandatory compliance with BMPs identified in the City's "Development Best Management Practices Handbook." Implementation of BMPs required in the NPDES permit and City of Los Angeles BMP Handbook would ensure that impacts would be less than significant. Nonetheless, standard City mitigation measures are required.

**Mitigation Measures**. The following standard mitigation measures would reduce impacts related to the discharge of pollutants.

**HYD-1(a)** **Municipal Code Requirements**. The project shall comply with applicable Municipal Code requirements, including Article 4.4 of the Los Angeles Municipal Code, including regulations to control, prevent, and reduce stormwater pollution during construction

**HYD-1(b)** **Construction Toxins.** Environmental impacts may result from the release of toxins into the stormwater drainage channels during the construction onsite development. Ordinance No. 172,176 and

Ordinance No. 173,494 specify Stormwater and Urban Runoff Pollution Control which requires the application of Best Management Practices (BMPs). Applicants must meet the requirements of the Standard Urban Stormwater Mitigation Plan (SUSMP) approved by Los Angeles Regional Water Quality Control Board, including the following: (A copy of the SUSMP can be downloaded at: http://www.swrcb.ca.gov/rwqcb4/).

- *Reduce impervious surface area by using permeable pavement materials where appropriate, including: pervious concrete/asphalt; unit pavers, i.e. turf block; and granular materials, i.e. crushed aggregates, cobbles.*
- *Cover loading dock areas or design drainage to minimize run-on and run-off of stormwater.*
- *Repair/maintenance bays must be indoors or designed in such a way that doesn't allow stormwater run-on or contact with stormwater runoff.*
- *Design repair/maintenance bay drainage system to capture all washwater, leaks and spills. Connect drains to a standard sump for collection and disposal. Direct connection of the repair/maintenance bays to the storm drain system is prohibited. If required, obtain an Industrial Waste Discharge Permit.*
- *Utilize natural drainage systems to the maximum extent practicable.*
- *Control or reduce or eliminate flow to natural drainage systems to the maximum extent practicable.*
- *All storm drain inlets and catch basins within the project area must be stenciled with prohibitive language (such as NO DUMPING - DRAINS TO OCEAN) and/or graphical icons to discourage illegal dumping.*
- *Signs and prohibitive language and/or graphical icons, which prohibit illegal dumping, must be posted at public access points along channels and creeks within the project area.*

**HYD-1(c)** **Stormwater Best Management Practices.** Onsite development shall implement Best Management Practices (BMPs) that have stormwater recharge or reuse benefits. The following are examples of BMPs that may be implemented as appropriate:

- *Infiltration basin- captures first-flush stormwater, removes particulate pollutants and some soluble pollutants, and contributes toward recharging groundwater*
- *Infiltration trench- similar to an infiltration basin but used for smaller drainage areas*
- *Catch basin insert- a device that can be inserted into an existing catch basin design to provide some level of runoff contaminant removal*
- *Catch basin screens*
- *Pervious pavements- captures runoff by allowing stormwater to infiltrate the surface of pavement layer into a "reservoir" layer*

- *Cistern- captures stormwater runoff as it comes down through the roof gutter system*
- *Greywater systems*
- *Primary (onsite) waste water treatment systems*

**Significance After Mitigation.** Impacts related to temporary sediment and discharge of pollutants would be less than significant with the above standard requirements.

**Impact HWQ-2 Urban runoff can increase the amount of onsite impervious surface area, which may increase stormwater flows. However, onsite development would not increase the amount of pervious surfacing onsite and therefore would not increase stormwater runoff from the project site. Impacts would be *less than significant*. Nonetheless, mitigation measures HYD-2 (a-b) are required.**

It is estimated that impermeable surfaces currently cover approximately 90% of the project site. Onsite development would involve the development of mixed retail, office, community space, creative live/work units and residential development. Although no specific development is proposed at this time, it is anticipated that the project site could accommodate a maximum of 1.2 million sf of floor space. Upon completion of onsite development, it is estimated that non-permeable surfaces would cover approximately 90% of the project site. Given that non-permeable surfaces currently cover approximately 90% of the project site, the project would retain the existing amount of impervious surfacing on the project site. Therefore, the flow rate of surface water runoff onsite is anticipated to remain the same as existing conditions and impacts would be less than significant. Nonetheless, standard City mitigation measures are required.

**Mitigation Measures.** Standard City mitigation measures would be required to reduce potential impacts to water quality. The mitigation measures are identified below.

**HYD-2(a) Municipal Code**. Onsite development shall comply with City of Los Angeles Municipal Code requirements, including Article 4.4 of the Municipal Code, including requirements to control, prevent, and reduce stormwater pollution.

**HYD-2(b) LA-Rio**. Onsite development shall comply with requirements of the Los Angeles River Improvement Overlay (LA-Rio), which requires BMPs such as French drains, cisterns, and swales to reduce stormwater runoff on the project site.

**Significance after Mitigation.** Impacts to stormwater quality and runoff would be less than significant with the above standard requirements.

**Impact HWQ-3 Onsite activity could incrementally increase the amount of pollutants on the project site. However, implementation of mitigation measures HYD-3(a-u) would reduce impacts related to surface water and groundwater quality to a *significant but mitigable* level.**

The proposed increase in the number of dwelling units and the proposed mixed retail, office, community space, and creative live/work units would increase onsite vehicular activity over existing conditions. Impermeable surfaces in parking areas would accumulate deposits of oil, grease, and other vehicle fluids and hydrocarbons. In addition, proposed new landscaping could introduce chemicals such as pesticides and herbicides. Commercial and office uses, including activities associated with restaurants, retail, and community space would contribute pollutants, including litter. These pollutants could potentially percolate into the ground. In addition, during storms, these deposits could be washed into and through the drainage systems, the Los Angeles River, and ultimately to the Pacific Ocean. The addition of fertilizers, pesticides and other chemicals to the proposed landscaping has the potential to include higher than natural concentrations of trace metals, biodegradable wastes (which affect dissolved oxygen levels), and excessive major nutrients such as nitrogen and phosphorus.

Oil and grease contain a number of hydrocarbon compounds, some of which are toxic to aquatic organisms at low concentrations. Heavy metals such as lead, cadmium, and copper are the most common metals found in urban stormwater runoff. These metals can be toxic to aquatic organisms, and have the potential to contaminate drinking water supplies. Nutrients from fertilizers, including nitrogen and phosphorous, can result in excessive or accelerated growth of vegetation or algae, resulting in oxygen depletion and additional impaired uses of water. Therefore, pollutants from onsite development could increase the amount of pollutants in onsite runoff, which could adversely affect groundwater quality and/or the water quality of receiving waters. Therefore, impacts would be potentially significant.

**Mitigation Measures.** The following standard mitigation measures would be required to lessen impacts related to stormwater runoff and water quality to a less than significant level.

**HYD-3(a)** **Municipal Code**. Onsite development shall comply with City of Los Angeles Municipal Code requirements, including Article 4.4 of the Municipal Code, including requirements to control, prevent, and reduce pollution.

**HYD-3(b)** **Groundwater Quantity.** Environmental impacts to groundwater quantity may result from implementation of onsite development through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations, or through substantial loss of groundwater recharge capacity. The Department of Building and Safety requires, when feasible, that applicants modify the structural design of a building so as not to need a permanent dewatering system. When a permanent dewatering system is necessary, the Department of Building and Safety requires the following measures:

1. *Landscape irrigation*
2. *Decorative Fountains or lakes*
3. *Toilet Flushing*
4. *Cooling Towers*

**HYD-3(c)** **Soil Cleaning.** Leaks, drips, spills, and contaminated soil shall be cleaned immediately to prevent contamination from entering into the storm drains.

**HYD-3(d)** **Cleanup Methods.** Hosing down of pavement at material spills shall be prohibited. Dry cleanup methods shall be used whenever possible.

**HYD-3(e)** **Dumpsters.** Dumpsters shall be covered and maintained. Uncovered dumpsters shall be placed under a roof or covered with tarps or plastic sheeting.

**HYD-3(f)** **Gravel Approaches.** Gravel approaches shall be used where truck traffic is frequent to reduce soil compaction and limit the tracking of sediment into streets.

**HYD-3(g)** **Maintenance.** All vehicle/equipment maintenance, repair, and washing shall be conducted away from storm drains. All major repairs shall be conducted off-site. Drip pans or drop clothes shall be used to catch drips and spills.

**HYD-3(h)** **Stenciling.** All storm drain inlets and catch basins within the project area shall be stenciled with messages and/or graphical icons that discourage the dumping of improper materials into the storm drain system (such as "NO DUMPING - DRAINS TO OCEAN"). Legibility of stencils and signs shall be maintained. (Prefabricated stencils can be obtained from the Department of Public Works, Stormwater Management Division.)

**HYD-3(i)** **Enclosures.** Materials with the potential to contaminate stormwater shall be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar stormwater conveyance system; or (2) protected by secondary containment structures such as berms, dikes, or curbs.

**HYD-3(j)** **Paving Storage Areas.** Storage areas shall be paved and sufficiently impervious to contain leaks and spills.

**HYD-3(k)** **Storage Area Awning**. Storage areas shall have a roof or awning to minimize collection of stormwater within the secondary containment area.

**HYD-3(l)** **Drainage Diversion**. Drainage from roofs and pavement shall be diverted around the trash container areas.

**HYD-3(m)** **Trash Container Areas.** Trash container areas shall be screened or walled to prevent off-site transport of trash.

**HYD-3(o)** **Runoff Treatment**. Runoff shall be treated prior to release into the storm drain. Three types of treatments are available: (1) dynamic flow separator; (2) filtration or (3) infiltration. Dynamic flow separator uses hydrodynamic force to remove debris, and oil and grease, and is located underground. Filtration involves catch basins with filter inserts. Infiltration methods are typically constructed on-site and are determined by various factors such as soil types and groundwater table.) If utilized, filter inserts shall be inspected every six months and after major storms, and shall be cleaned at least twice a year.

**HYD-3(p)** **Parking Lots.** The subterranean and above-grade parking lot areas shall include oil and grease separator traps to filter on site contaminants and prevent increased contamination of the City's storm drain system.

**HYD-3(q)** **Commercial and Residential Uses.** Environmental impacts may result from the release of toxins into the stormwater drainage channels during the routine operation of onsite development. However, the potential impacts will be mitigated to a level of insignificance by incorporating stormwater pollution control measures. Ordinance No. 172,176 and Ordinance No. 173,494 specify Stormwater and Urban Runoff Pollution Control which requires the application of Best Management Practices (BMPs). Applicants must meet the requirements of the Standard Urban Stormwater Mitigation Plan (SUSMP) approved by Los Angeles Regional Water Quality Control Board, including the following: (A copy of the SUSMP can be downloaded at: http://www.swrcb.ca.gov/rwqcb4/).

- *Project applicants are required to implement stormwater BMPs to treat and infiltrate the runoff from a storm event producing 3/4 inch of rainfall in a 24 hour period. The design of structural BMPs shall be in accordance with the Development Best Management Practices Handbook Part B, Planning Activities. A signed certificate from a California licensed civil engineer or licensed architect that the proposed BMPs meet this numerical threshold standard is required.*
- *Post development peak stormwater runoff discharge rates shall not exceed the estimated pre-development rates for developments where the increase peak stormwater discharge rate will result in increased potential for downstream erosion.*

- *Concentrate or cluster development on portions of a site while leaving the remaining land in a natural undisturbed condition.*
- *Maximize trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants.*
- *Promote natural vegetation by using parking lot islands and other landscaped areas.*
- *Direct connections to storm drains from depressed loading docks (truck wells) are prohibited.*
- *Any connection to the sanitary sewer must have authorization from the Bureau of Sanitation.*
- *Reduce and recycle wastes, including: paper; glass; aluminum; oil; and grease.*
- *Convey runoff safely from the tops of slopes and stabilize disturbed slopes.*
- *Legibility of stencils and signs must be maintained.*
- *Materials with the potential to contaminate stormwater must be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar stormwater conveyance system; or (2) protected by secondary containment structures such as berms, dikes, or curbs.*
- *The storage area must be paved and sufficiently impervious to contain leaks and spills.*
- *The storage area must have a roof or awning to minimize collection of stormwater within the secondary containment area.*
- *Cleaning of oily vents and equipment to be performed within designated covered area, sloped for wash water collection, and with a pretreatment facility for wash water before discharging to properly connected sanitary sewer with a CPI type oil/water separator. The separator unit must be: designed to handle the quantity of flows; removed for cleaning on a regular basis to remove any solids; and the oil absorbent pads must be replaced regularly according to manufacturer's specifications.*
- *Prescriptive Methods detailing BMPs specific to the "Restaurant" project category are available. Applicants are encouraged to incorporate the prescriptive methods into the design plans. These Prescriptive Methods can be obtained at the Public Counter or downloaded from the City's website at www.lastormwater.org. (See Exhibit A).*

**HYD-3(r)** **Parking Lots.** Environmental impacts may result from delivery vehicles and customer and employee vehicles transferring contaminants (gasoline, oil, grease, sediments) to the parking lot and release toxins into the stormwater drainage channels. However, the potential impacts would be mitigated to a level of insignificance by incorporating stormwater pollution control measures. Ordinance No. 172,176 and Ordinance No. 173,494 specify Stormwater and Urban Runoff Pollution Control which requires the application of Best Management Practices (BMPs). Chapter IX, Division 70 of the Los Angeles Municipal Code addresses grading, excavations, and

fills. Applicants must meet the requirements of the Standard Urban Stormwater Mitigation Plan (SUSMP) approved by Los Angeles Regional Water Quality Control Board, including the following: (A copy of the SUSMP can be downloaded at: http://www.swrcb.ca.gov/rwqcb4/).

- *Project applicants are required to implement stormwater BMPs to treat and infiltrate the runoff from a storm event producing 3/4 inch of rainfall in a 24 hour period. The design of structural BMPs shall be in accordance with the Development Best Management Practices Handbook Part B Planning Activities. A signed certificate from a California licensed civil engineer or licensed architect that the proposed BMPs meet this numerical threshold standard is required.*
- *Post development peak stormwater runoff discharge rates shall not exceed the estimated pre-development rate for developments where the increase peak stormwater discharge rate will result in increased potential for downstream erosion.*
- *Maximize trees and other vegetation at each site by planning additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants.*
- *Promote natural vegetation by using parking lot islands and other landscaped areas.*
- *Incorporate appropriate erosion control and drainage devices, such as interceptor terraces, berms, vee-channels, and inlet and outlet structures, as specified by Section 91.7013 of the Building Code. Protect outlets of culverts, conduits or channels from erosion by discharge velocities by installing a rock outlet protection. Rock outlet protection is a physical devise composed of rock, grouted riprap, or concrete rubble placed at the outlet of a pipe. Install sediment traps below the pipe-outlet. Inspect, repair, and maintain the outlet protection after each significant rain.*
- *Materials with the potential to contaminate stormwater must be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the stormwater conveyance system; or (2) protected by secondary containment structures such as berms, dikes, or curbs.*
- *Reduce impervious land coverage of parking lot areas.*
- *Infiltrate runoff before it reaches the storm drain system.*
- *Runoff must be treated prior to release into the storm drain. Three types of treatments are available, (1) dynamic flow separator; (2) a filtration or (3) infiltration. Dynamic flow separator uses hydrodynamic force to remove debris, and oil and grease, and are located underground. Filtration involves catch basins with filter inserts. Filter inserts must be inspected every six months and after major storms, cleaned at least twice a year. Infiltration methods are typically constructed on-site and are determined by various factors such as soil types and groundwater table.*

- *Prescriptive Methods detailing BMPs specific to this project category are available. Applicants are encouraged to incorporate the prescriptive methods into the design plans. These Prescriptive Methods can be obtained at the Public Counter or downloaded from the City's website at: www.lastormwater.org. (See Exhibit D).*

**HYD-3(s)** **Structural BMPs.** The owner(s) of the property shall prepare and execute a covenant and agreement (Planning Department General Form CP-6770) satisfactory to the Planning Department and Stormwater Division of Bureau of Sanitation binding the owners to post construction maintenance of the structural BMPs in accordance with the Standard Urban Stormwater Mitigation Plan or as per the manufacturer's instructions.

**HYD-3(t)** **RWQCB Permits.** The developer shall obtain all necessary permits from the RWQCB prior to the installation of a temporary and/or permanent dewatering system, if such a system is determined to be necessary for development of onsite development. Procurement of all applicable RWQCB permits will ensure the quality of groundwater discharged into the surrounding storm drain or sewer infrastructure.

**HYD-3(u)** **LA-Rio**. Onsite development shall comply with requirements of the Los Angeles River Improvement Overlay (LA-Rio), which requires BMPs such as French drains, cisterns, and swales to reduce stormwater runoff on the project site.

**Significance after Mitigation.** Impacts to water quality would be less than significant with implementation of mitigation measures HYD-3(a-u).

**Impact HWQ-3** **The project site is located in a dam inundation area. However, the probability of dam failure is low. In addition, onsite development would be subject to a hazards mitigation plan. Therefore, people and structures on the project site would not be exposed to a significant risk of loss, injury, or death as a result of dam failure. Impacts would be *less than significant*.**

According to the City of Los Angeles Planning Department *Inundation and Tsunami Hazard Areas Map* (1994), the project site is located in a potential dam inundation area. Dam inundation would occur in the event of dam failure near the project site. However, the probability of dam failure is low (City of Los Angeles Local Hazards Mitigation Plan Hazard Risk Analysis Rating Form, 2004). Dam failure can be caused by earthquakes. However, most engineered, mechanically compacted dam embankments or fills of earth or rock materials have performed well under seismic shaking (County of Los Angeles General Plan, Technical Appendix to the Safety Element, 1990). The majority of dam failures in either earthen or concrete dams are caused by foundation failures, inadequate spillways, and poor construction or site selection (City of Los Angeles General Plan, Technical Appendix to the Safety Element, 1990). However,

dams in California are continually monitored by various governmental agencies, including the State of California Division of Safety of Dams and the United States Army Corps of Engineers. In addition, dams are required to maintain internal emergency plans that include procedures for damage assessment and emergency warnings.

Given that the probability for dam failure is low and that dams are continually monitored to prevent failure and emergency plans and warning are in place, impacts due to dam inundation on the project site would be less than significant.

**Mitigation Measures**. Mitigation is not required.

**c. Cumulative Impacts.** If all of the development indicated in Table 3-2 (Section 3.0, *Environmental Setting*) were to proceed, individual construction projects located throughout the City and the surrounding area would add approximately 2.7 million square feet (sf) of commercial/retail, 1.8 million sf of office, 20,000 residential dwelling units, 400,000 sf of restaurant, 2,000 hotel rooms, and 200,000 sf (900 students) of institutional development. Because the downtown Los Angeles area is highly urbanized, it is already largely covered with impervious surfaces; therefore, infill development in the area would have relatively little effect on the surface hydrology of the area. Nevertheless, planned and pending development in the general vicinity could incrementally increase impermeable surface area, thereby affecting the quantity of groundwater and the quality of stormwater. However, all planned and pending development would be required to meet standards related to the quantity and quality of runoff. Therefore, impacts from cumulative development to water quality and quantity would be less than significant.

Construction activity associated with cumulative development would increase sedimentation due to grading and construction activities. In addition, new development would increase the generation of urban pollutants that may adversely affect water quality in the long term. However, like onsite development, all future development would be subject to implementation of appropriate Best Management Practices in accordance with City, State and Federal requirements. Furthermore, all qualifying projects would be subject to the requirements of the NPDES Permit and the SUSMP, which are specifically designed to develop, achieve, and implement a timely, comprehensive, and cost-effective stormwater pollution control program. The ultimate goal is to reduce pollutants in stormwater discharges to the Maximum Extent Practicable (MEP). Thus, implementation of applicable requirements on all development in the area would reduce cumulative impacts to a less than significant level. As discussed above, the project's contribution to increased pollutant loads and increased surface water would be less than significant and thus would not be cumulatively considerable.