

## IV.I HYDROLOGY AND WATER QUALITY

### INTRODUCTION

This section provides an overview of hydrology and water quality within the Jordan Downs Specific Plan area and an analysis of potential impacts related to surface water quality, groundwater, surface water hydrology (drainage) and flood hazards as a result of the implementation of the proposed project. This analysis of the potential hydrology and water quality impacts is based, in part, on the Civil Engineering Report prepared by the Mollenhauer Group dated February 20, 2010 for the Jordan Downs Master Plan. The Civil Engineering Report referenced in this section is included as Appendix D.

### ENVIRONMENTAL SETTING

#### *Water Quality*

Several factors may affect surface water quality, including (but not limited to): the types of land uses in a given area, hydrological conditions, meteorological conditions, geological conditions, and soil types. Activities associated with the different types of land uses may affect surface water quality, for example, when an office building generates exterior pollutants that can be washed away by surface water runoff, or when a surface parking lot that has deposits of oil, gasoline, and other pollutants that may affect the quality of surface water runoff. Similarly, meteorological conditions can influence the quantity and concentration of pollutants that are washed away through the frequency and intensity of storm events. In addition, geological conditions such as types of soils and the presence of geological features may affect infiltration and runoff velocity. Surface water runoff has less potential to carry sediments and pollutants when runoff is slow (i.e., sheet flow over a relatively flat surface versus sheet flow down a slope) and infiltrates the soil.

In receiving waters, excess sediments can cause high turbidity, which can affect biological organisms (i.e., plant and animal life in lakes, ponds, rivers, etc.). In urban areas, non-sediment pollutants, (such as zinc, copper, and lead), which can cause toxic effects in high concentrations, are most commonly associated with surface water runoff. A Water Quality Control Plan (Basin Plan) for the Los Angeles Region has been developed by the Los Angeles Regional Water Quality Control Board (LARWQCB), which outlines conservation and enhancement of water resources and establishes beneficial uses for inland surface waters, tidal prisms, harbors, and groundwater basins.

The Specific Plan area is relatively flat and located in a highly urbanized area of southeast Los Angeles. While there are some pervious open space areas associated with the Jordan Downs Recreation Center, Mudtown Farms, and Jordan High School, the majority of the Specific Plan area is developed with structures, paved roadways and other impervious surfaces. Under existing conditions, runoff from the Specific Plan area is not required to comply with the National Pollutant Discharge Elimination System (NPDES) permit requirements for stormwater discharge and may contain urban pollutants such as automotive fluids, heavy metals and chemical constituents, fertilizers, pesticide, and herbicides that could be discharged into the storm drainage system. Fully paved streets, curbs, gutters and sidewalks abut the Specific Plan area on all sides, and stormwater runoff from the Specific Plan area typically sheet flows to these adjacent curbs and gutters and is conveyed to the Glen Avenue Drainage System. The Glen Avenue Drainage System is one of the major drainage systems of the Compton Creek Watershed. Stormwater collected by the Glen Avenue Drainage system is conveyed to the Compton Creek where it is further conveyed to the Los Angeles River and ultimately to the Pacific Ocean in the Long Beach Harbor area.

## Groundwater

A groundwater basin is a groundwater reservoir comprising an overlying land surface and the underlying aquifers that contain water stored in the reservoir. Groundwater basins are separated from adjacent basins by geologic features such as non-water-bearing rock, faults, or other geological structures or topographical features which impede groundwater movement. Aquifers are an underground layer of water-bearing rock permeable rock or unconsolidated materials (e.g., gravel, sand, silt, clay, etc) from which groundwater can be extracted. The name “aquitard” is given to the less permeable silt and clay layers that separate the aquifers. Groundwater basins are recharged naturally by precipitation percolating through the soil to underlying aquifers. Groundwater basins are also recharged artificially with imported or reclaimed water. Artificial recharge is used to offset declining groundwater levels and provide storage for use in times of drought.

The Specific Plan area is located within the northern portion of the Central Subbasin of the Coastal Plain of Los Angeles Groundwater Basin, in the South Coast Hydrologic Region.<sup>1</sup> This subbasin is commonly referred to as the “Central Basin” and is bounded on the north by a surface divide called the La Brea high, and on the northeast and east by emergent less permeable Tertiary rocks of the Elysian, Repetto, Merced and Puente Hills, on the southeast by the Orange County Groundwater Basin, and on the southwest by the Newport Inglewood fault system. This area has unconfined groundwater conditions and extensive interconnected aquifers. Groundwater flow is generally to the south. The Los Angeles and San Gabriel Rivers drain inland basins and pass across the surface of the Central Basin on their way to the Pacific Ocean. Average annual precipitation throughout the subbasin ranges from 11 to 13 inches.

Groundwater pumped from the Central and West Coast Basin currently provides approximately 36 percent of the total water supplies used by the overlying population of four million people in 43 cities of southern Los Angeles County. The major aquifers identified in the Central Basin include the following, from shallowest to deepest:

- Gaspur and Semiperched aquifers of the Holocene Alluvium Formation;
- Exposition, Artesia, Gage, and Gardena aquifers of the Upper Pleistocene Lakewood Formation;
- Hollydale, Jefferson, Lynwood, and Silverado aquifers of the Lower Pleistocene Upper San Pedro Formation; and
- Sunnyside Aquifer of the Lower Pleistocene Lower San Pedro Formation.

Groundwater elevations vary with the amount of pumping and recharge occurring. Most of the groundwater in the Central Basin remains at an elevation below sea level due to historic overpumping, so the importance of maintaining the seawater barrier wells to keep out the intruding saltwater is critical. Spreading grounds are used to enhance groundwater recharge by retaining as much surface water as possible. Areas are flooded with water which percolates into aquifers and supplements the natural supply. The process is limited by available storage capacity, and ability of the basin to accept the water. Spreading grounds are not always enough to compensate for declining groundwater levels.

The California Division of Mines and Geology, 1997 Seismic Hazard Zone Report for the 7.5-Minute South Gate Quadrangle indicates that the historical high groundwater level at the Specific Plan area is less than 10 feet below ground surface (bgs).<sup>2</sup> However, no groundwater was encountered to a maximum depth of 50 feet bgs during the subsurface investigation of the 21-acre property HACLA owns adjacent to the Jordan Downs public housing complex within the Specific Plan area.<sup>3</sup> The County of Los Angeles Department of Public Works (LADPW) groundwater well measurement data indicates that wells 1475B

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<sup>1</sup>Andersen Environmental. *Environmental Sampling Report; Site: 9901 South Alameda Street*, April 13, 2010.

<sup>2</sup>*Ibid.*

<sup>3</sup>*Ibid.*

and 1475C are located within approximately 300 feet from the southeast corner of the Specific Plan area. The highest historical groundwater depths reported for those wells from 1989 to 2008 was approximately 105 feet bgs in 1995. The most recent groundwater measurement, in November 2008, was approximately 121 feet bgs. Based on these data, and on the current depth of groundwater at the site, it is considered unlikely that groundwater at the site will return to the shallow subsurface in the foreseeable future. Based on the surface topography and regional conditions, the groundwater flow direction is anticipated to be to the south.

### **Drainage**

The Specific Plan area, which is a highly urbanized area with paved roads and other impervious surfaces, is located within the Los Angeles-San Gabriel Hydrologic Unit as defined by the LARWQCB.<sup>4</sup> The Hydrologic Unit has three major drainage systems: Ballona Creek, Los Angeles River, and San Gabriel River.<sup>5</sup> These three drainage systems convey stormwater into the Pacific Ocean. Stormwater drainage from the Specific Plan area is provided by the Los Angeles River, which is located approximately 3.3 miles east of the Specific Plan area. The Los Angeles River conveys stormwater runoff from the Santa Monica Mountains to the San Pedro Bay of Long Beach Harbor. Major tributaries of the Los Angeles River include Burbank Western Channel, Pacoima Wash, Tujunga Wash, and Verdugo Wash in the San Fernando Valley; and the Arroyo Seco, Compton Creek, and Rio Hondo south of the Glendale Narrows.

The Compton Creek serves drainage needs in the project area, joining with the Los Angeles River before ultimately flowing into the Pacific Ocean. Stormwater runoff from the Specific Plan area is conveyed to the Compton Creek via the Glen Avenue Drainage System where it is further conveyed to the Los Angeles River and ultimately to the Pacific Ocean. The Compton Creek is a 42-square-mile sub-watershed of the Los Angeles River Watershed. The Compton Creek is the only open water body near the project area. The Compton Creek Channel was once a free-flowing Creek that was channelized in 1954. The Compton Creek Channel begins at Main Street, between 107<sup>th</sup> and 108<sup>th</sup> Street and ends at the Los Angeles River. The Compton Creek Channel has a design capacity for 50-year storm events and has a capacity of 3,900 cubic feet per second, at its origin, and maximum capacity of 21,700 cubic feet per second, just south of the 91 Freeway.<sup>6</sup> As discussed above, the Glen Avenue Drainage System is one of the major drainage systems of the Compton Creek Watershed. Part of the Glen Avenue Drainage system, which consists of a six-foot by six-foot underground concrete reinforced box culvert that has total drainage capacity of 381 cubic feet per second (cfs), or 234.8 million gallons per day (gpd), runs through the Specific Plan area. **Figure IV.I-1** shows where this boxed culvert runs through the Specific Plan area.

As discussed in Section IV.Q Utilities and Service System of this Draft EIR, stormwater drainage from the Specific Plan area is managed by the City of Los Angeles Department of Public Works (LADPW) Bureau of Sanitation (BOS) and the Los Angeles County Flood Control District (LACFCD). The LACFCD constructs and manages major storm drains and open flood control channels, while the LADPW constructs local tributary drains and catch basins. The LACFCD designs its storm drain infrastructure to handle 50-year flood storm events, while the LADPW constructs its storm drain infrastructure to handle 10-year storm events.<sup>7</sup>

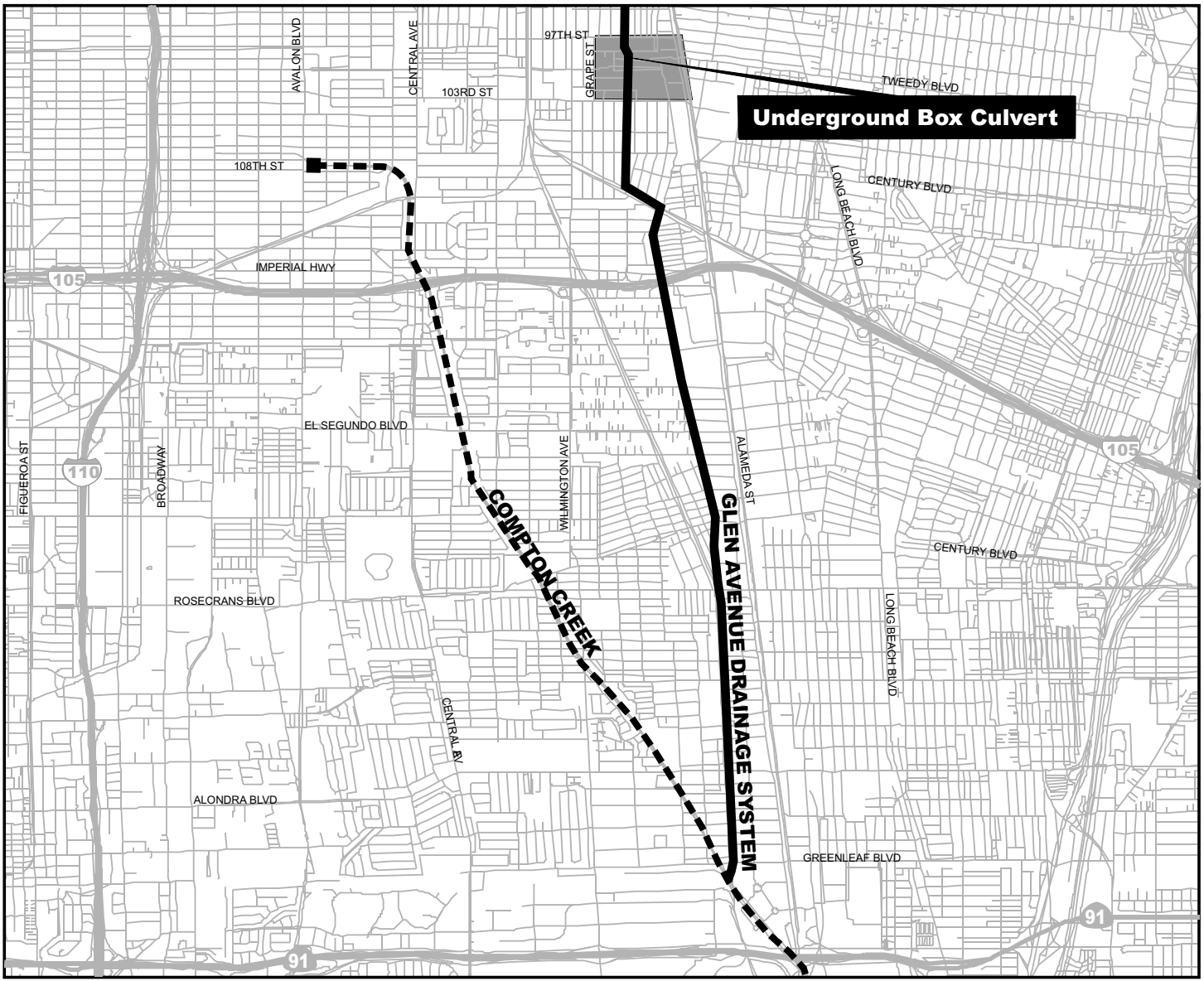
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<sup>4</sup>Los Angeles Regional Water Quality Control Board. *Basin Plan*.

<sup>5</sup>*Ibid.*

<sup>6</sup>Los Angeles & San Gabriel Rivers Watershed Council. *Compton Creek Watershed Management Plan*.

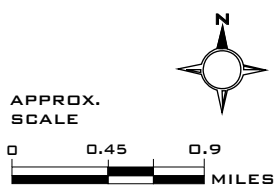
<sup>7</sup>Los Angeles General Plan Framework, Chapter 9.



**LEGEND:**

- Specific Plan Area
- Compton Creek
- Glen Avenue Drainage

SOURCE: TAHA, 2010.



### ***Flooding and Inundation***

Los Angeles County is subject to a wide range of flood hazards, including those caused by earthquakes, intense storms, and failure of man-made structures. Storm conditions, topography, drainage patterns and the adequacy of the stormwater system combine under certain conditions to create areas of flooding. Aside from Compton Creek, no other large bodies of water are present in the vicinity of the Specific Plan area. The Specific Plan area is located more than 12 miles (19.31 kilometers) from the Pacific Ocean coastline. The Federal Emergency Management Agency (FEMA) has identified areas affected by both the 100-year storm frequency flood and the 500-year storm frequency flood. The Specific Plan area is not situated within a 100-year or 500-year FEMA Flood Zone.<sup>8</sup>

The Los Angeles Basin also faces additional dangers in the form of inundation hazards, which is the rising of a body of water and its overflow onto normally dry land. Studies completed by the US Army Corps of Engineers have raised concerns regarding the integrity of the Los Angeles County Drainage Area (LACDA) flood control system, which consists of channels (such as the Compton Creek and the Los Angeles River), 20 flood control dams, 129 debris basins, all built by the US Army Corps of Engineers and the County of Los Angeles over a 30-year period, beginning in the late 1930s.

In addition to storm flooding, the inundation risks have grown from increased stresses on the system. The combination of extensive urban development and improved local drainage sends more water into the channels than they were designed to hold. Peak flows have grown dramatically compared to those originally predicted for the system. Thus, there is a higher risk of inundation due to failure of dams and levees from the increased flow.

### **Regulatory Framework**

#### ***Federal***

**Federal Water Pollution Control Act (Clean Water Act, or CWA).** In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act, or CWA) was amended to provide that the discharge of pollutants to waters of the United States from any point (such as discharge from an industrial facility) or non-point (surface and farmland water runoff) source is unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. In November 1990, the USEPA published final regulations that established stormwater permit application requirements for specified categories of industries. With subsequent amendments, current regulations provide that discharges of stormwater to waters of the United States from industrial activities and from construction activities that encompass one acre or more of soil disturbance are effectively prohibited unless the discharge is in compliance with a NPDES permit. Federal regulations allow two permitting options for stormwater discharges, individual permits and general permits. The State Water Resource Control Board (SWRCB) has elected to adopt one statewide general permit for construction activity at this time. The General Construction Activities Stormwater Permit (GCASP) applies to all stormwater discharges associated with construction activity, except for those on tribal lands, those in the Lake Tahoe Hydrologic Unit, and those performed by the California Department of Transportation (Caltrans). Currently, the GCASP requires all dischargers where construction activity disturbs one acre or more to conduct the following:

- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting

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<sup>8</sup>Andersen Environmental, *Phase I Environmental Site Assessment Report Performed at Jordan Downs Redevelopment Project Area – Jordan Downs Housing Development*, March 24, 2010.

stormwater and with the intent of keeping all products of erosion from moving offsite into receiving waters;

- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the United States; and
- Perform inspections of all BMPs.

The federal CWA was enacted with the primary purpose of restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters. The CWA also directs states to establish water quality standards for all "waters of the United States" and to review and update such standards on a triennial basis. Section 319 mandates specific actions for the control of pollution from nonpoint sources. The USEPA has delegated responsibility for implementation of portions of the CWA, including water quality control planning and control programs, such as the NPDES Program, to the SWRCB and the Regional Water Quality Control Board (RWQCB). Section 303(c)(2)(b) of the CWA requires states to adopt water quality standards for all surface waters of the United States based on the water body's designated beneficial use. Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric, although narrative criteria based upon biomonitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numerical standards. Water quality standards applicable to the proposed project are listed in the California RWQCB's Basin Plan.

**Section 303(d) and Total Maximum Daily Loads (TMDLs).** Section 303(d) of the CWA bridges the technology-based and water quality-based approaches for managing water quality. Section 303(d) requires that states make a list of waters that are not attaining standards after the technology-based limits are put in place. For waters on this list (and where the USEPA administrator deems they are appropriate), the states are to develop TMDLs. TMDLs are established at the level necessary to implement applicable water quality standards. A TMDL must account for all sources of pollutants that cause the water to be listed. Federal regulations require that TMDLs, at a minimum, account for contributions from point sources and nonpoint sources. Specific TMDLs applicable to the proposed project are listed under Regional regulations.

**National Pollutant Discharge Elimination System (NPDES).** The goal of the NPDES diffuse source regulations is to improve the quality of stormwater discharged to receiving waters to the "maximum extent practicable" through the use of BMPs. The NPDES permit system was established in the CWA to regulate point source discharges (a municipal or industrial discharge at a specific location or pipe) and certain types of diffuse source dischargers. As defined in the federal regulations, nonpoint sources are generally exempt from federal NPDES permit program requirements. Nonpoint pollution sources are diffuse and originate over a wide area rather than from a definable point. Nonpoint pollution often enters receiving water in the form of surface runoff and is not conveyed by way of pipelines or discrete conveyances. Urban stormwater runoff and construction site runoff, however, are diffuse-sources regulated under the NPDES permit program because they discharge to receiving waters at discrete locations in a confined conveyance system. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. Section 307 of the CWA describes the factors that the USEPA must consider in setting effluent limits for priority pollutants. For point source discharges, each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. For diffuse-source discharges (e.g., municipal stormwater and construction runoff), the NPDES program establishes a comprehensive stormwater quality program to manage urban stormwater and minimize pollution of the environment to the maximum extent practicable. The NPDES program consists of (1) characterizing receiving water quality, (2) identifying harmful constituents, (3) targeting potential sources of pollutants, and (4) implementing a Comprehensive Stormwater Management Program. State implementation of the NPDES program as it relates to the proposed project is discussed below under State and Regional regulations.

**Flood Insurance Rate Maps.** Flood Insurance Rate Maps are prepared by the Federal Insurance Administration of the Department of Housing and Urban Development (HUD) after a risk study for a community has been completed and the risk premium rates have been established. The maps indicate the risk premium zones applicable in the community and when those rates are effective. They are used in making flood plain determinations and to determine if a proposed action is located in the base or critical action flood plain, as appropriate.

### *State*

Responsibility for the protection of water quality in California rests with the SWRCB and nine RWQCBs. The SWRCB establishes statewide policies and regulations for the implementation of water quality control programs mandated by federal and State water quality statutes and regulations. The RWQCBs develop and implement Water Quality Control Plans (Basin Plans) that consider regional beneficial uses, water quality characteristics, and water quality problems. In cases where the Basin Plan does not contain a standard for a particular pollutant, other criteria are used to establish a standard. Other criteria may be applied from SWRCB documents (e.g., the Inland Surface Waters Plan and the Pollutant Policy Document, California Toxics Rule) or from USEPA water quality criteria developed under Section 304(a) of the CWA. Numeric criteria are required by the CWA for many priority toxic pollutants. To fill in the gap between the water quality control plans and CWA requirements, on May 18, 2000, the USEPA promulgated the California Toxics Rule based on the Administrator's determination that numeric criteria are necessary in the State of California to protect human health and the environment. These federal criteria are numeric water quality criteria for priority toxic pollutants and other provisions for water quality standards legally applicable in the State of California for inland surface waters, enclosed bays, and estuaries for all purposes and programs under the CWA.

Section 401 of the CWA requires water quality certification from the SWRCB or from a RWQCB when the project requires a CWA Section 404 permit. Section 404 of the CWA requires a permit from the USACE to discharge dredged or fill material into waters of the United States.

**Porter-Cologne Water Quality Control Act.** The Porter-Cologne Water Quality Control Act establishes the SWRCB and each RWQCB as the principal State agencies for coordinating and controlling water quality in California. Specifically, the Porter-Cologne Water Quality Control Act authorizes the SWRCB to adopt, review, and revise policies for all waters of the state (including both surface and groundwaters) and directs the RWQCBs to develop regional Basin Plans. Section 13170 of the California Water Code also authorizes the SWRCB to adopt water quality control plans on its own initiative.

### *Regional*

**Basin Plan for the California Regional Water Quality Control Board, Los Angeles Region (Basin Plan).** This project is within the jurisdiction of the Los Angeles RWQCB. The Los Angeles RWQCB provides permits that affect surface waters and groundwater. Under Section 303(d), the Santa Ana RWQCB is also responsible of the CWA for protecting surface waters and groundwater from both point and non-point sources of pollution within the Specific Plan area and for establishing water quality standards and objectives in its Basin Plan that protect the beneficial uses of various waters. The State has developed TMDLs, which is a calculation of the maximum amount of a pollutant that a waterbody can have and still meet Water Quality Objectives (WQOs) established in the Basin Plan, in order to protect the valuable uses of its waters.

**NPDES General Construction Activity Stormwater Permit (GCASP).** The SWRCB permits all regulated construction activities under NPDES GCASP for stormwater discharges associated with construction activity (Order No. 98-08-DWQ (1999)). This Order requires that, prior to beginning any

construction activities, the permit applicant must obtain coverage under the GCASP by preparing and submitting a Notice of Intent (NOI) and appropriate fee to the SWRCB. Additionally, coverage would not occur until an adequate SWPPP has been prepared. A separate NOI shall be submitted to the SWRCB for each construction site.

Construction activities subject to the NPDES GCASP include clearing, grading, and disturbances to the ground, such as stockpiling or excavation, that result in soil disturbances of at least one acre of total land area. Because construction of the proposed project would cumulatively disturb more than one acre, all improvements and construction activities would be subject to these permit requirements.

The SWPPP, which specifies BMPs that will prevent construction pollutants from contacting stormwater with the intent of keeping all products of erosion from moving offsite into receiving waters, 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 BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges. The SWPPP must include BMPs that address source control, and, if necessary, must also include BMPs that address specific pollutant control. The SWPPP includes a description of (1) the site, (2) erosion and sediment controls, (3) means of waste disposal, (4) implementation of approved local plans, (5) control of post-construction sediment and erosion control measures and maintenance responsibilities, and (6) non-stormwater management controls. Dischargers are also required to inspect their construction sites before and after storms to identify stormwater discharge associated with construction activity and to identify and implement controls where necessary.

BMPs are intended to diminish impacts to the Maximum Extent Practicable (MEP), which is a standard developed by Congress to allow regulators the flexibility needed to shape programs to the site-specific nature of municipal stormwater discharges. Reducing impacts to the MEP generally relies on BMPs that emphasize pollution prevention and source control, with additional structural controls as needed.

### **Local**

**County of Los Angeles Hydrology Manual.** Drainage and flood control within the Specific Plan area is regulated by the City of Los Angeles Department of Public Works and the Los Angeles County Department of Public Works. The County has jurisdiction over regional drainage facilities and drainage facilities. The Los Angeles County Department of Public Works' Hydrology Manual requires that a storm drain conveyance system be designed for a 25-year storm event and that the combined capacity of a storm drain and street flow system accommodate flow from a 50-year storm event.<sup>9</sup> Areas with sump conditions are required to have a storm drain conveyance system capable of conveying flow from a 50-year storm event. The County also limits the allowable discharge into existing storm drain facilities based on the MS4 Permit and is enforced on all new developments that discharge directly into the County's storm drain system. Any proposed drainage improvements of County owned storm drain facilities such as catch basins and storm drain lines requires the approval/review from the County Flood Control District department.

**Los Angeles Municipal Code.** Any proposed drainage improvements within the street right of way or any other property owned by, to be owned by, or under the control of the City requires the approval of a B-permit (Section 62.105, LAMC). Under the B-permit process, storm drain installation plans are subject to review and approval by the City of Los Angeles Department of Public Works Bureau of Engineering.<sup>10</sup>

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<sup>9</sup>Los Angeles County Department of Public Works Hydrology Manual, January 2006, [http://ladpw.org/wrd/Publication/engineering/2006\\_Hydrology\\_Manual/2006%20Hydrology%20Manual-Divided.pdf](http://ladpw.org/wrd/Publication/engineering/2006_Hydrology_Manual/2006%20Hydrology%20Manual-Divided.pdf), accessed July 14, 2010.

<sup>10</sup>Los Angeles County Department of Public Works, Bureau of Engineering, <http://eng.lacity.org/index.cfm>, accessed July 14, 2010.



Additionally, any connections to the City's storm drain system from a property line to a catch basin or a storm drain pipe requires a storm drain permit from the City of Los Angeles Department of Public Works, Bureau of Engineering.

**City of Los Angeles Stormwater Program.** NPDES requirements mandate that stormwater BMPs be implemented during project construction into SWPPPs and during project operation into Standard Urban Stormwater Management Plans (SUSMPs). The requirements are enforced through the City's plan review and approval process. During the review process, project plans are reviewed for compliance with the City's General Plans, zoning ordinances, and other applicable local ordinances and codes, including stormwater requirements. Plans and specifications are reviewed to ensure that the appropriate BMPs are incorporated to address stormwater pollution prevention goals.

The purpose of the SWPPP is to identify potential pollutant sources that may affect the quality of discharge associated with construction activity, identify non-stormwater discharges, and design the use and placement of BMPs to effectively prohibit the entry of pollutants from the site into the public storm drain system during construction.

The purpose of SUSMP is to reduce the discharge of pollutants in stormwater by outlining BMPs which must be incorporated into the design plans of new development and redevelopment. The SUSMP provisions that are applicable to new residential and commercial developments include, but are not limited to, the following:<sup>11</sup>

- *Peak Stormwater Runoff Discharge Rate:* Post-development peak stormwater runoff discharge rates shall not exceed the estimated pre-development rate for developments where the increased peak stormwater discharge rate will result in increased potential for downstream erosion;
- Provide storm drain system Stenciling and Signage (only applicable if a catch basin is built on-site);
- Properly design outdoor material storage areas to provide secondary containment to prevent spills;
- Properly design trash storage areas to prevent off-site transport of trash;
- Provide proof on ongoing BMP Maintenance of any structural BMPs installed; and
- *Design Standards for Structural or Treatment control BMPs:* Post-construction treatment control BMPs are required to incorporate, at minimum, either a volumetric or flow based treatment control design or both, to mitigate (infiltrate, filter or treat) storm water runoff on site.

## ENVIRONMENTAL IMPACTS

### Significance Thresholds

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact on hydrology and water quality if the proposed project were to:

- 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

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<sup>11</sup>City of Los Angeles Stormwater Program website, <http://www.lastormwater.org/siteorg/businesses/susmp/industrial.htm>; <http://www.lastormwater.org/siteorg/businesses/susmp/housing.htm>, accessed July 14, 2010.

(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 that 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; and/or
- Cause inundation by seiche, tsunami, or mudflow.

### **Project Design Features**

In compliance with NPDES and City requirements, BMPs would be implemented to address water quality during construction and operation of the proposed project. BMPs chosen for the site will depend on the underlying soil composition and will be determined once a construction-grade geotechnical investigation to address permeability and percolation rates has been completed.

If infiltration is possible, a combination of the following BMPs will be designed:

- An underground detention basin which will receive filtered stormwater runoff and be sized to detain and infiltrate the volume from a 0.75-inch storm event or “first flush” in accordance with City and County standards; and
- A network of storm drain lines will convey runoff received from multiple catch basins fitted with filters located throughout the Specific Plan area and the retention or detention basin. Each catch basin filter will be capable of removing 80 percent of debris including oil and grease and sedimentation. Catch basins will be located in depressions in parking areas and other low points.

Additional options include landscaped planters or areas adjacent to the street that are designed to accept and detain runoff from streets and sidewalks. As planters are filled, water may pass through the next planter in the system creating a chain of infiltration areas. These BMPs allow for more localized infiltration and would recharge the groundwater supply at several locations throughout the site. If infiltration is possible, then a combination of these BMPs will be chosen.

If infiltration is not possible due to the soil composition, that is, if the soil is too clayey, then an alternative approach would be needed. An underground retention basin will be designed to receive filtered runoff from a series of catch basins fitted with filters across the site. Each catch basin filter will be capable of removing 80 percent of debris, sedimentation, oil and grease.

The proposed project will include a number of drainage inlets, proper sizing and sloping of storm drain pipes to accommodate stormwater. In addition, the proposed project has also been designed to meet Leadership in Energy and Environmental Design for Neighborhood Development (LEED ND) certification requirements and the City’s water efficiency requirements set forth in Article V of the LAMC. Specifically, the proposed project would include water conservation measures to reduce water demand and any associated wastewater generation, such as smart irrigation controllers, the usage of native

plants in the landscaping, xeriscaping, and rotating sprinkler systems. In addition, surface runoff water would be directed to vegetated bioswales. Bioswales are landscape elements designed to remove silt and pollution from surface runoff water. They consist of a swaled drainage course with gently sloped sides and filled with vegetation, compost and/or riprap. The water's flow path, along with the wide and shallow ditch, is designed to maximize the time water spends in the swale, which aids the trapping of pollutants and silt.

## **Analysis of Proposed Project Impacts**

### ***Surface Water Quality***

**Construction.** Construction activities such as earth moving, maintenance/operation of construction equipment and handling/storage/disposal of materials could contribute to pollutant loading in stormwater runoff. However, as previously discussed, construction contractors disturbing greater than one acre of soil would be required to obtain coverage under the NPDES General Construction Activity Permit. In accordance with the requirements of the permit, the applicant would prepare and implement a site-specific SWPPP. The SWPPP would specify BMPs to be used during construction; these would include but not be limited to erosion control, sediment control and non-stormwater management and materials management BMPs.

With implementation of these BMPs, included as part of the SWPPP, the proposed project would reduce or eliminate the discharge of potential pollutants to the maximum extent practicable. In addition, the applicant would be required to comply with the City grading permit regulations, which require necessary measures, plans (including a wet weather erosion control plan if construction occurs during the rainy season), and inspections to reduce sedimentation and erosion. Therefore, with compliance with NPDES requirements and City grading regulations, construction of the proposed project would not result in a violation of water quality standards or discharge requirements. Construction-related short term impacts on surface water quality would be less than significant.

**Operation.** As is typical of most major urban development, stormwater runoff from the Specific Plan area has the potential to introduce pollutants into the stormwater system. The proposed project includes a mix of residential, commercial, and other uses (parking, schools, etc.). Anticipated and potential pollutants associated with these types of uses include pathogens, nutrients, metals, organic compounds, sediments, trash, oil, and grease. The proposed project falls into the following categories that are subject to NPDES SUSMP requirements:

- Housing development of ten units or more
- 100,000 square feet or more impervious surface area

Therefore in accordance with NPDES requirements, the applicant would be required to prepare and implement SUSMP requirements throughout the operational life of the project. Stormwater BMPs to address water quality in stormwater runoff would be incorporated into the project design features as described above. BMPs would include source control and treatment control BMPs. Source control BMPs would be used to prevent pollutants from entering into the stormwater discharges and may include effective site design and landscape planning, storm drain signage, properly managed maintenance bays and docks, properly managed trash storage areas, proper design and maintenance of outdoor materials storage areas, and proper maintenance of structural/treatment control BMPs. Treatment BMPs remove pollutants from stormwater discharges and may include catch basins, infiltration/retention, cisterns for collection and reuse of rainwater, and pervious pavement. Moreover, a combination of BMPs would be implemented and designed to treat the first 0.75-inch storm event in compliance with SUSMP requirements.

With implementation of source control and treatment BMPs such as those described above, the proposed project would reduce or eliminate the discharge of potential pollutants from the stormwater runoff to the maximum extent practicable. Therefore, operation of the proposed project would not result in a violation of water quality standards or discharge requirements. Operational impacts on surface water quality would be less than significant.

### ***Groundwater***

The proposed project would be served by the LADWP, which utilizes water from the San Fernando Valley, Sylmar and Central groundwater basins. These basins are adjudicated basins, managed according to a court decree by the Watermaster Program which ensures water is allocated by established rights. Existing regulatory mechanisms and project requirements require water conservation activities to reduce potential demand on potable water resources. Groundwater use as a result of implementation of the proposed project would be in accordance with existing plans and projections of the LADWP and would not substantially deplete groundwater supplies (refer to Section IV.Q Utilities and Service Systems of this EIR for detailed analysis of water supplies).

The majority of the Specific Plan area is developed with primarily impervious surfaces and is not currently used for groundwater recharge activities. Under current conditions, stormwater flows through the project area rapidly and does not remain on-site long enough to recharge groundwater. The improvements that would occur as part of the implementation of the proposed project would include a palette of infiltration planters and bioswales throughout the Specific Plan area to allow stormwater to feed landscaping and percolate through the soil to recharge groundwater supplies. This would be an improvement from existing conditions and a beneficial effect.

### ***Drainage and Flooding***

**Construction.** Construction activities associated with the proposed project would include the removal of the existing structures as well as clearing and grading of development areas. In addition, new buildings, open spaces, and drainage improvements would be developed. Such activities would temporarily alter existing drainage patterns and flows. However, construction of new drainage facilities would be required in a manner and sequence that would preclude flooding during project construction. As discussed above, a SWPPP and Erosion Control Plan would be implemented to provide for temporary stormwater management. These plans would minimize and/or control construction stormwater flows.

In addition, new storm drains would be constructed to support development and would be in place and functioning as development progresses to serve their respective catchments. Construction activities would not subject adjacent properties to project related floodwaters because any alteration of flows on-site would be controlled and then conveyed to existing off-site regional storm drain facilities by temporary flood control improvements. As a result, street surface flow would also remain the same. Therefore, construction-related impacts on hydrology would be less than significant.

**Operation.** The proposed project will alter the overall hydrology of the site. Operation of the project would develop new buildings and paved areas, but would also include several acres of open space and landscaping. As a result, the proposed project will result in a decrease in imperviousness from existing conditions.<sup>12</sup> The proposed project will include sloping of ground surfaces, locations and number of drainage inlets, proper sizing and sloping of storm drain pipes, and the water treatment options to resolve potential flooding impacts. In addition, as previously stated, as part of the SUSMP requirements, site-specific operational detention or infiltration BMPs would be implemented for new development within the Specific Plan area. Detention BMP systems would reduce the peak discharge rate to existing or below existing rates per City or County guidelines. Infiltration BMP systems would recharge groundwater by means of infiltration while reducing stormwater discharge to existing drainage facilities. The infiltration and detention BMPs will result in no net increase to the rate and volume of runoff to existing storm drain system. Therefore, stormwater discharge for the design storm up to and including the 50-year storm would be maintained or reduced. Thus, the proposed project would not exacerbate the existing conditions on-site during the projected 50-year developed storm event nor would it substantially reduce or increase the amount of surface water in a water body. Therefore, impacts related to operational hydrology would be less than significant.

### ***Flood Zones***

The Specific Plan area is not located within a 100 or 500-year FEMA Flood Zone nor is it located within a levee or dam inundation area.<sup>13</sup> Therefore, implementation of the Specific Plan would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including placing housing in a flood zone or flooding as a result of the failure of a levee or dam. No impact would occur.

### ***Seiches, Tsunamis and Mudflows***

Seiches are waves that rock back and forth in enclosed bodies of water, such as lakes, reservoirs, bays, or harbors. No lakes or other bodies of water are present in the vicinity of the Specific Plan area. As such, the risk of a seiche is very unlikely. Therefore, the project would not be subject to impact from seiches, and no impact would occur.

A tsunami is a spontaneous water wave that occurs when a large section of submerged continental shelf or slope is rapidly displaced vertically during a large earthquake or submarine slide. Because the Specific Plan area is located almost 12 miles inland of the Pacific Ocean, the site would not be subject to tsunami inundation, and no impact would occur.

Mudflow hazards typically occur where unstable hill slopes are located above gradient or where site soils are unstable and subject to liquefaction, and when substantial rainfall saturates soils causing failure. The Specific Plan area is not located near steep unstable hill slopes susceptible to mudslides. The closest hillsides up-gradient from the site are more than ten miles to the north, and are separated from the site by urban development, including residential uses, streets, and storm drain systems, which makes it unlikely that the site would experience any affects caused by mudslides. Therefore, the proposed project is not expected to be subject to a mudflow risk, and no impact would occur.

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<sup>12</sup>Mollenhauer, *Jordan Downs Based Redevelopment*, February 2, 2010.

<sup>13</sup>Andersen Environmental, *Phase I Environmental Site Assessment Report Performed at Jordan Downs Redevelopment Project Area – Jordan Downs Housing Development*, March 24, 2010.

## **CUMULATIVE IMPACTS**

The geographic context for the cumulative impact analysis on surface water quality is the Los Angeles River watershed. Like the proposed project, growth in the Los Angeles Creek watershed (inclusive of the nine related projects identified in Section III, Environmental Setting, of this Draft EIR) would be subject to NPDES requirements regarding water quality for both construction and operation. In addition, since the nine identified related projects are generally in an already highly urbanized area, future land use changes or development are not likely to cause substantial changes in regional surface water quality. Furthermore, it is anticipated that these related projects and other future development projects would also be subject to SUSMP requirements and implementation of measures to comply with total maximum daily loads. In addition, increases in regional controls associated with other elements of the MS4 Permit would improve regional water quality over time. Therefore, with compliance with all applicable laws, rules and regulations, impacts to surface water quality not be cumulatively considerable.

## **MITIGATION MEASURES**

Compliance with regulatory requirements and implementation of project design features described above would result in less-than-significant impacts related to hydrology and water quality. Therefore, no mitigation measures are necessary.

## **LEVEL OF SIGNIFICANCE AFTER MITIGATION**

Impacts related to hydrology and water quality would remain less than significant.