G. HYDROLOGY AND WATER QUALITY

This section summarizes the hydrology, drainage, and water quality analyses performed for the project site (i.e., Project Site and Add Area). A detailed presentation of the technical data and calculations is provided in **Appendix F** of this EIR. This section includes an evaluation of the existing conditions on the project site, a comparison of the pre-project and the post-project conditions, a determination of the potential impacts of the project, and recommended mitigation measures. The purpose of this technical evaluation is to determine the impact of the proposed project on surface water drainage and stormwater quality in the vicinity of the project site within the Los Angeles River watershed (including Tujunga Wash).

EXISTING CONDITIONS

RAINFALL

Los Angeles County is dry during the late spring, summer and early fall and receives most of its rain during the winter months (November through April). Precipitation in the San Fernando Valley ranges from 15 to 23 inches per year and averages about 17 inches.[1]

SURFACE DRAINAGE HYDROLOGY

Los Angeles River Drainage[2]

The Project Site and Add Area are located in the Tujunga Wash tributary of the Los Angeles River watershed. The Los Angeles River begins where Arroyo Calabasas and Bell Creek converge in Canoga Park. The river travels about 51 miles, making its way east to Griffith Park and then heading south through the Glendale Narrows, past downtown Los Angeles to where it empties into Long Beach Harbor. The Los Angeles River watershed is 834 square miles (533,760 acres) and has diverse patterns of land use. The upper portion, approximately 360 square miles, is covered by forest or open space, while the remaining watershed is highly developed with commercial, industrial, and residential uses. The river and most of its tributaries in the urbanized portions of the Los Angeles basin have been channelized. The river can be considered more of a flood damage reduction channel, as opposed to a meandering natural river system, with nearly all of its banks hardened and the river bottom lined with concrete for approximately 37 of its 51 miles.

Tujunga Wash Drainage

The Big Tujunga and the Little Tujunga Wash begin in the San Gabriel Mountains and come together at Hansen Flood Control Basin. The channelized portion of the Tujunga Wash begins at the dam and extends nine miles before emptying into the Los Angeles River in Studio City at Colfax Avenue. Pacoima Wash, which has two dams and three spreading grounds, drains into the Tujunga Wash near Roscoe Boulevard and Sheldon Street. The Tujunga Wash watershed is 225-square miles and includes the City of San Fernando and the City of Los Angeles communities of Pacoima, Arleta, Sylmar, Sunland, Tujunga, Panorama City, Van Nuys, North

[1] Source: California Department of Water Resources, *California's Groundwater Bulletin 18*, *San Fernando Valley Groundwater Basin*, February 27, 2004.
[2] Information derived in part from: *Los Angeles River Master Plan, Programmatic Environmental Impact Report/Environmental Impact Statement, Volume 1* (April 2007), page 3-19.

Hollywood, Valley Glen, Valley Village, and Studio City. Within the watershed, there are four dams, 16 debris basins, and five spreading ground facilities. At the Hollywood Freeway (US Highway 101), the Central Branch of the Tujunga Wash converges with the Los Angeles River.

ON-SITE HYDROLOGY AND SURFACE FLOWS AND DRAINAGE FACILITIES

Project Site

Sheet (surface) flow from the Project Site drains east to west and ultimately into the Tujunga Wash. Stormwater runoff generated by the site sheet flows over asphalt pavement and concrete gutters to curb opening inlets located along the western property boundary. These inlets then convey the flow into the Tujunga Wash un-detained and untreated. The connections to the Tujunga Wash are through three (3) 12-inch pipes which outlet through the concrete wall of the channel. **Figure IV.G-1** illustrates the existing site development and flow pattern. The existing site is approximately 97% impervious with a hydraulic path[3] totaling 1,500 feet in length. The resulting Time of Concentration (Tc)[4] is 13 minutes with a 25-Year peak flow rate of 25.98 cubic feet per second (cfs).

Add Area

The existing Add Area is designed to sheet flow in a south-east direction, off-site and into the public right-of-way in Coldwater Canyon and Victory Boulevard. The public streets convey the runoff west, into the Tujunga Wash via a 15-foot wide catch basin located on Victory Boulevard adjacent to the bridge. The Add Area is approximately 97% impervious with a hydraulic path of totaling 925 feet. Both the resulting Tc and 25-Year peak flow rates are unknown at this time.[5]

FLOODPLAIN & FLOOD HAZARDS

Floodplain

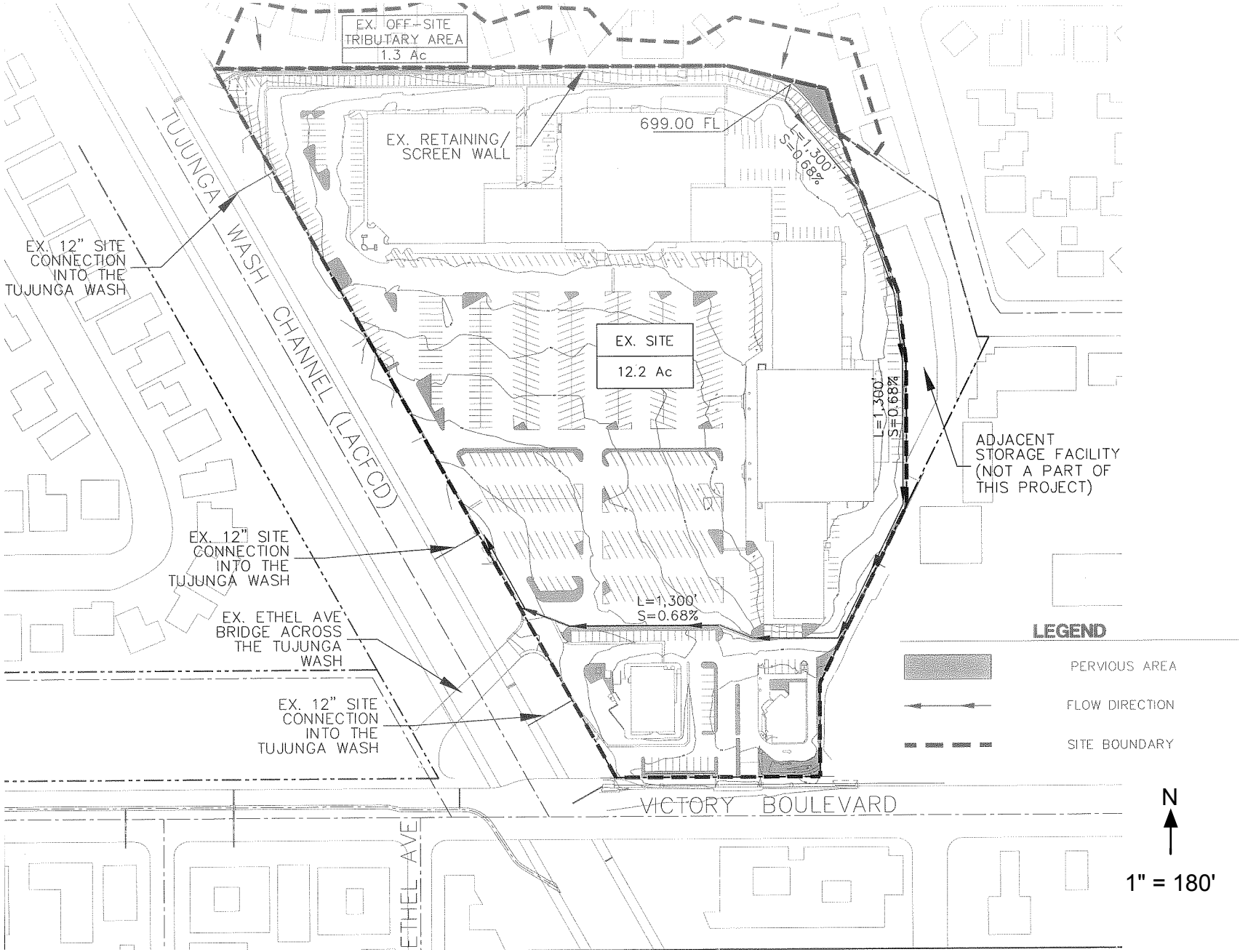
A review of the Federal Emergency Management Agency (FEMA) flood insurance rate maps (FIRM) for the project site indicates that it is not located within a flood plain, flood hazard zone or regulatory floodway.[6]

[3] Note: This term refers to the linear length of travel stormwater flows across a site before entering an outlet to a receiving water (e.g., Tujunga Wash) or additional conveyance facility (e.g., storm drain, etc.). It is measured from the point located farthest from the receiving water or conveyance facility.

[4] Note: The Tc is generally defined as the time required for a drop of water to travel from the most hydrologically remote point in the subcatchment to the point of collection.

[5] A drainage analysis for this area has not been performed. However, similar existing characteristics are anticipated since both the project site and Add Area are: (1) located immediately adjacent; (2) have similar soil types; (3) are similar in land uses and impervious surfaces; and (4) exhibit similar topography.

[6] Source: Federal Emergency Management Agency, Mapping Information Platform, accessed July 29, 2008. Additional source includes *Utility Report for the Plaza at the Glen*, prepared by Development Resource Consultants, Inc. (July 28, 2008), page 1 which notes that the site is located within Zone C (i.e., an area which is determined by FEMA to be outside of the 100-year and 500-year floodplains) of the Flood Insurance Rate Map 060137 0039C, dated December 2, 1980.



SOURCE: Development Resource Consultants, Inc.

Figure IV.G-1

Existing Site Hydrology

Flood Hazards

Los Angeles River

The Los Angeles River has flooded some 30 times since 1811. However, fluctuations in annual precipitation within the Los Angeles basin and its channelization in the 1930s have largely influenced these events. Between 1889 and 1891 the river flooded every year, and from 1941 to 1945, the river flooded five times. Conversely, from 1896 to 1914, a period of 18 years, and again from 1944 to 1969, a period of 25 years, the river did not have serious floods.[7]

Tujunga Wash

Following damaging flood events in 1914, 1936, and 1938, several flood control and sediment control facilities were constructed in the Tujunga and Pacoima watersheds during the mid 20th century. These projects include the Tujunga Wash and Pacoima Wash channels, Big Tujunga Dam, Hansen Dam, and Lopez Dam.[8]

HYDROGEOLOGY

San Fernando Valley Groundwater Basin

The project site is located within the San Fernando Valley Groundwater Basin (SFVGB). The SFVGB is bounded on the north and northwest by the Santa Susana Mountains, on the north and northeast by the San Gabriel Mountains, on the east by the San Rafael Hills, on the south by the Santa Monica Mountains and Chalk Hills, and on the west by the Simi Hills. The valley is drained by the Los Angeles River and its tributaries.

The water-bearing sediments consist of the lower Pleistocene Saugus Formation, Pleistocene and Holocene age alluvium. The ground-water in this basin is mainly unconfined with some confinement within the Saugus Formation in the western part of the basin and in the Sylmar and Eagle Rock areas. The average specific yield for deposits within the basin varies from about 14 to 22 percent. Well yield averages about 1,220 gallons per minute (gpm) with a maximum of about 3,240 gpm.

Several structures disturb the flow of groundwater through this basin. A step in the basement resulting from movement on the Verdugo fault and/or the Eagle Rock fault causes a groundwater cascade down to the south near the mouth of Verdugo Canyon. To the north, the Verdugo fault is a partial barrier to flow that causes a change in water levels in the Hansen Spreading Grounds. Differences in rock type along the Raymond fault create a barrier to groundwater flow from the Eagle Rock area toward the Los Angeles River Narrows and may cause rising water conditions there. Other unnamed faults cause changes in levels of basement and groundwater in the Sunland, Chatsworth, and San Fernando areas and at the mouths of the Little Tujunga and Big Tujunga Canyons. The Little Tujunga syncline affects groundwater movement in the northern part of the basin and folds associated with the Northridge Hills,

[7] Source: *Los Angeles County, All Hazards Mitigation Plan* (June 2005), page 182.
[8] Source: *Hydrodynamic Study for Restoration Feasibility of the Tujunga Wash Corridor*, March 2002, page 17.

Mission Hills and Lopez faults also affect groundwater movement. Subsurface dams in the Pacoima Wash near Pacoima and in Verdugo Canyon are barriers to groundwater flow.

Recharge of the basin is from a variety of sources. Spreading of imported water and runoff occurs in the Pacoima, Tujunga, and Hansen Spreading Grounds. Runoff contains natural stream flow from the surrounding mountains, precipitation falling on impervious areas, reclaimed wastewater, and industrial discharges. Water flowing in surface washes infiltrates, particularly in the eastern portion of the basin.

Groundwater flows generally from the edges of the basin toward the middle of the basin, then beneath the Los Angeles River Narrows into the Central Sub-basin of the Coastal Plain of the Los Angeles Basin. In the northeastern part of the basin, groundwater moves from the La Crescenta area southward beneath the surface of Verdugo Canyon toward the Los Angeles River near Glendale, whereas the groundwater in the Tujunga area flows west following the Tujunga Wash around the Verdugo Mountains to join groundwater flowing from the west following the course of the Los Angeles River near Glendale. Flow velocity ranges from about five feet per year in the western part of the basin to 1,300 feet per year beneath the Los Angeles River Narrows.

The total storage capacity of the SFVGB is calculated at 3,670,000 acre-feet (af) by adding values for the San Fernando, Sylmar, Verdugo and Eagle Rock Basins. The estimated change in storage for the 1997-1998[9] water year is an increase of about 43,600 af.

The groundwater in storage in 1998 is calculated at 3,049,000 af with an additional 621,000 af of storage space available.

Though the SFVGB is managed by adjudication, not enough data exist to compile a complete groundwater budget. A total of about 108,500 af of groundwater was extracted from the SFVGB during the 1997-1998 water year. In addition, subsurface outflow of about 300 af to the Raymond Groundwater Basin and 404 af to the Central Sub-basin of the Los Angeles Coastal Plain Groundwater Basin is estimated. To balance the extraction, a total of 61,119 af of native runoff water was diverted to spreading grounds for infiltration.[10]

Groundwater Levels in the Project Vicinity

Water levels in the SFVGB have been fairly stable over about the past 20 years, since adjudication of the basin.[11] Hydrographs show variations in water levels of 5 feet to 40 feet in the western part of the basin, a variation of about 40 feet in the southern and northern parts of the basin, and a variation of about 80 feet in the eastern part of the basin. Hydrographs show 1998 water levels roughly equal to or higher than water levels of 1980, except near La Crescenta where the 1998 water level is about 60 feet below that of 1980.

[9] Note: The most recent available data provided by the California Department of Water Resources for the San Fernando Valley Groundwater Basins is 1998.
[10] Source: California Department of Water Resources, *California's Groundwater Bulletin 18, San Fernando Valley Groundwater Basin*, February 27, 2004.
[11] Source: Ibid. Note: The San Fernando Valley Groundwater Basin was adjudicated in 1979 and includes the water-bearing sediments beneath the San Fernando Valley, Tujunga Valley, Browns Canyon, and the alluvial areas surrounding the Verdugo Mountains near La Crescenta and Eagle Rock.

SURFACE AND GROUNDWATER POLLUTION SOURCES

Non-Point Source Pollution

Surface water quality in the Los Angeles River and drainages (including Tujunga Wash) that are tributary exhibit degraded surface quality due to uncontrolled pollutants from non-point sources (NPS).[12] NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters and even underground sources of drinking water. These pollutants include:

- Excess fertilizers, herbicides, and insecticides from agricultural lands and residential areas.
- Oil, grease, and toxic chemicals from urban runoff and energy production.
- Sediment from improperly managed construction sites, crop and forest lands, and eroding streambank.
- Salt from irrigation practices and acid drainage from abandoned mines.
- Bacteria and nutrients from livestock, pet wastes, and faulty septic systems.

Atmospheric deposition and hydro-modification are also sources of non-point source pollution.[13] Surface waters on and in the immediate area of the project site experience similar NPS effects from urbanized and agricultural land uses located both upstream and on-site. On the project site (i.e., Project Site and Add Area), pesticides used landscape care, oil and grease from automobiles, etc., can contribute to degrading water quality within Tujunga Hydrologic Subarea.[14]

Point-Source Pollution (PSP)

The National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into "waters of the United States." Point sources are discrete conveyances such as pipes or man-made ditches. Individual residences that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal and other facilities must obtain permits if their discharges go directly to surface waters. In California, the NPDES permit program is administered by the local Regional Water Quality Control Board (RWQCB).[15]

[12] Source: California Regional Water Quality Control Board – Los Angeles Region (4), *Water Quality Control Plan, Los Angeles Region. Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*, June 13, 1994, page 1-19.
[13] Source: http://www.epa.gov/owow/nps/qa.html, accessed July, 29, 2008.

[14] Note: The project site (i.e., Project Site and Add Area) are located within the Los Angeles-San Gabriel Hydrologic Unit's (405.00) San Fernando Hydrologic Area (405.20). Specifically, they are located within the Tujunga Hydrologic Subarea (5.23). Source: Regional Water Quality Control Board, Basin Plan (June 13, 1994), page 1-6.
[15] Source: Source: http://cfpub2.epa.gov/npdes/, accessed July 30, 2008.

SURFACE AND GROUNDWATER WATER QUALITY

Los Angeles River & Tujunga Wash Surface Water Quality

The Los Angeles River has been modified substantially for flood control purposes. With the exception of a seven mile area in the Glendale Narrows[16], the entire river has been paved with concrete. The upper reaches of the river carry urban runoff and flood flows form the San Fernando Valley. Below the Sepulveda Basin, flows are dominated by tertiary treated effluent from several municipal wastewater treatments plants. Because the watershed is highly urbanized, urban runoff and illegal dumping are major contributors to impaired water in the Los Angeles River and its tributaries (e.g., Tujunga Wash, etc.).[17]

Section 303(d) of the Clean Water Act requires states to develop lists of impaired waters that do not meet established water quality standards. The law also requires the states to establish priority rankings for waters on the lists and to develop total maximum daily loads (TMDLs) for these waters. A TMDL specifies the maximum amount of a pollutant that a water body can receive and still meet water quality standards and allocates pollutant loadings among point and non-point pollutant sources. By law, the USEPA must approve or disapprove lists and TMDLs.

The Los Angeles River (including most of its tributaries) is listed as impaired for a number of pollutants: metals, ammonia, coliform, nutrients (algae), scum/foam unnatural, odors, and pesticides. Some of these constituents are of concern throughout the river, while others are of concern in only certain reaches.[18]

Table IV.G-1 lists the pollutants within the reach of the Tujunga Wash which are applicable to the proposed project analysis.

Los Angeles Groundwater Basin Quality

In the western part of the San Fernando Valley Groundwater Basins, calcium sulfate-bicarbonate character is dominant, and in the eastern part of basin, calcium bicarbonate character dominates. Total dissolve solids range from 326 to 615 milligrams (mg)/liter (L), and electrical conductivity ranges from 540 to 996 µmhos. Data from 125 public supply wells shows an average TDS content of 499 and a range from 176 to 1,160.

[16] Note: Due to high groundwater levels in this portion of the Los Angeles River, the United States Army Corps of Engineers did not pave this area.
[17] Source: California Regional Water Quality Control Board – Los Angeles Region (4), *Water Quality Control Plan, Los Angeles Region. Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*, June 13, 1994, pages 1-18 and 1-19.
[18] Information derived in part from: *Los Angeles River Master Plan, Programmatic Environmental Impact Report/Environmental Impact Statement, Volume 1* (April 2007), pages 3-25 and 3-26.

Table IV.G-1 Clean Water Act Section 303(d) List of Water Quality Limited Segments				
Tributary	**CALWATER Watershed**	**Pollutant/Stressor**	**Potential Source**	**TMDL Priority**
Tujunga Wash (Los Angeles River to Hansen Dam)	40521000	Ammonia	Nonpoint source	High
		Copper		High
		High coliform count		High
		Odors		High
		Scum/Foam-unnatural		High
		Trash		Low

Source: *Los Angeles River Master Plan, Programmatic Environmental Impact Report/Environmental Impact Statement, Volume 1* (April 2007).

A number of investigations have determined contamination of volatile organic compounds such as trichloroethylene (TCE), perchloroethylene (PCE), petroleum compounds, chloroform, nitrate, sulfate, and heavy metals. TCE, PCE and nitrate contamination occurs in the eastern part of the basin and elevated sulfate concentration occurs in the western part of the basin.[19]

METHODOLOGY

The assessment of impacts to hydrology and water quality was based on information and/or requirements contained in applicable state and federal regulations, the City of Los Angeles' CEQA Thresholds Guide, RWQCB – Los Angeles' Basin Plan and on-site review of existing conditions. These resources in addition to the thresholds of significance formed the basis for the impact assessment. Additional information on calculation and Best Management Practices methodologies can be found in **Appendix F** of this EIR.

DRAINAGE CALCULATION METHODOLOGY

The hydrology calculations for the project (i.e., Project Site and Add Area) were based on the Los Angeles County Department of Public Works (LACDPW) Hydrology Manual (January 2006 edition). Location maps, precipitation values, and soil values were interpolated from the LACDPW Manual and can be found in **Appendix F** of this EIR. The proposed project does not qualify for the Capital Flood Protection criteria and as such, was evaluated under the Urban Flood Protection level. The Urban Flood Protection level requires that the storm drain facilities be calculated for the 25-Year storm event. Existing and Proposed site conditions were analyzed using the Los Angeles County Time of Concentration (Tc) spreadsheet and LAR04 software to produce flow rates and to generate hydrographs for the 25-Year storm event. The soil type for the project is 015 and the 50-Year Isohyet[20] is 7.25 inches. To determine the 25-Year Isohyet,

[19] Source: California Department of Water Resources, *California's Groundwater Bulletin 18, San Fernando Valley Groundwater Basin*, February 27, 2004.

[20] Note: Isohyet: A line drawn through geographical points recording equal amounts of precipitation during a specific period.

the 50-Year Isohyet was multiplied by a scaling factor of 0.878 (per LACDPW standards). The 25-Year Isohyet for the proposed project is 6.366 inches.

BEST MANAGEMENT PRACTICES (BMP) CALCULATION METHODOLOGY

Best Management Practices calculations and methodologies were developed utilizing a variety of sources including: (1) City of Los Angeles' *Development Best Management Practices Handbook (Parts A & B) Construction Activities* (Third Edition) (September 29, 2004); and (2) California Stormwater Quality Association (CASQA) *Construction Stormwater Best Management Practice Handbook*, January 2003.

ENVIRONMENTAL IMPACT

THRESHOLDS OF SIGNIFICANCE

The following thresholds of significance are based on the *City of Los Angeles CEQA Thresholds Guidelines* (2006). They were developed to evaluate potential impacts on surface water hydrology, water quality, and groundwater.

A proposed project would normally have a significant impact on surface water hydrology if it would:

- Cause flooding during the projected 50-year developed storm, which would have the potential to harm people or damage property or sensitive biological resources;
- Substantially reduce or increase the amount of surface water in a water body;
- Result in a permanent, adverse change to the movement of surface water sufficient to produce a substantial change in the current or direction of water flow;
- Create pollution, contamination, or nuisance, as defined in Section 13050 of the California Water Code;
- Cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or water quality control plan for the receiving water body;
- 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, imported water storage, summer/winter peaking, or to respond to emergencies and drought,
    - Reduce yields of adjacent wells or well fields (public or private), or
    - Adversely change the rate or direction of flow of groundwater; or
- Result in demonstrable and sustained reduction of groundwater recharge capacity.
- Affect the rate or change the direction of movement of existing contaminants;
- Expand the area affected by contaminants;

- Result in an increased level of groundwater contamination (including that from direct percolation, injection or salt water intrusion); or

- Cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations (CCR), Title 22, Division 4, and Chapter 15 and in the Safe Drinking Water Act.

PROJECT AND ADD AREA IMPACTS

Construction

Construction activities would entail the use of machinery and materials handling and storage (e.g., gravel, asphalt) during all phases of the proposed project. These activities would entail the use of graders and other earthmoving equipment during initial site preparation. As stated in the Project Description, development of the proposed project would result in the covering of the Tujunga Wash between Ethel Avenue bridge and Victory Boulevard and extending about 250 feet north of the current Ethel Avenue Bridge. The Tujunga Wash is a concrete lined channel with no vegetation in the channel in this location. The Santa Monica Mountains Conservancy has planted native vegetation in connection with its restoration project in the area adjacent to the channel between Ethel Avenue bridge and Victory Boulevard as well as north of the bridge. The plantings and the channel would be covered by the transit plaza and reconfigured Ethel Avenue bridge from Victory Boulevard to about 250 feet north of the current Ethel Avenue bridge. In addition to the transit plaza this area would include landscaping, bike racks, a ranger station and bathrooms. Proposed construction activities related to the transit plaza are not anticipated to result in interruption of flow as no construction would occur in the channel. The transit plaza would have a caisson type system foundation that would be drilled outside the wash to a depth below the wash so that there would be no surcharge on the wash. A grade beam parallel to the wash walls would tie the caissons together; precast beams would span the wash, with a precast deck atop. No Stream Bed Alteration or 404 permit is anticipated to be required at this time as there would be no construction in the channel.

North of the transit plaza, the Santa Monica Mountains Conservancy has also planted native vegetation adjacent to a bike/pedestrian path; the applicant proposes to integrate their project with this area.

The use of this machinery and other vehicles would generate dust and would require the use of water trucks to meet South Coast Air Quality Management District (SCAQMD) fugitive dust requirements. Increased erosion and siltation may also occur due to construction activities and the modification of existing drainage patterns.

The use of water trucks to reduce dust may increase the potential for urban pollutants and silt to enter Tujunga Wash which is tributary to the Los Angeles River.

Accidental on-site spills of hazardous materials (e.g., fuels, solvents, paint) may also enter ground and/or surface waters, if not properly addressed.

Under the Federal Clean Water Act, each municipality throughout the nation is issued a National Pollutant Discharge Elimination System (NPDES) Permit. The goal of the permit is to stop polluted discharges from entering the storm drain system and local coastal waters. The current

NPDES Permit (Permit No. CA004001) was issued to Los Angeles County and 84 cities, including the City of Los Angeles, by the RWQCB – Los Angeles on December 13, 2001. One component of the Permit is the requirement for Los Angeles County and co-Permittees (i.e., City of Los Angeles) to implement the Development Construction Program.

For the City of Los Angeles, the General Permit is administered by the State Water Resources Control Board (SWRCB) through the Los Angeles Regional Water Quality Control Board (LARWQCB). The General Permit requires all dischargers where construction activity disturbs one acre or more to:

- Develop and implement a State Stormwater Pollution and Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) to prevent pollution associated with construction activities from moving off site into receiving waters.

- Eliminate or reduce non-storm water discharges to storm drains and other waters of the nation.

- Perform maintenance and inspections of all BMPs.[21]

The proposed project would be subject to a General Permit because it would disturb more than one acre of soil and as such, the Applicant and/or its contractor would be required to prepare and implement a SWPPP which meets the requirements of the General Permit.

All construction activities would be required to implement storm water prevention measures identified in the SWPPP during all phases of construction, see Mitigation Measure IV.G-1 below. Adherence to the SWPPP and the implementation of standard BMPs during construction would reduce the potential for increased siltation, erosion and hazardous materials spills. Therefore, construction impacts associated with surface and groundwater water quality would be less than significant.

Operation

Surface Drainage Hydrology

Los Angeles River Drainage

The proposed project does not include modifications to the Los Angeles River. However, Tujunga Wash which is tributary to the Los Angeles River could be affected by implementation of the proposed project. Impacts to this drainage are discussed below.

Tujunga Wash

As stated above, development of the proposed transit plaza would result in the covering of the Tujunga Wash between Victory Boulevard and Ethel Avenue and extending about 250 feet north of the current Ethel Avenue bridge. In this location, the Tujunga Wash is a concrete-lined channel with no vegetation in the channel, but with recently planted channel banks. Proposed

[21] Source: City of Los Angeles' *Development Best Management Practices Handbook (Part A) Construction Activities* (Third Edition) (September 29, 2004), page 5.

development in this area would not result in interruption of flow. Storm water flows from the transit plaza area would drain in a similar manner as the rest of the site; runoff would be treated and retained as necessary. The proposed project includes the implementation of mechanisms to reduce surface flow velocity and quantities originating on-site. The purpose of these improvements is to ensure that flooding, scour or erosion associated flows originating on-site do not affect either on-site or downstream areas. To address these issues a series of swales and retention boxes would be constructed on-site see Mitigation Measure IV.G-3 below. The retention capacity of these facilities would be capable of capturing, retaining and then conveying on-site flows to off-site receiving waters (i.e., Tujunga Wash) (see discussion below). It should be noted that the swales would convey flows and the retention boxes would provide limited holding capacity.[22] **Figure IV.G-2** shows the location of the proposed conveyance and detention facilities for the project site.[23]

The construction of these devices would eliminate the potential for flooding either on-site or off-site, including downstream areas. In addition, they would also reduce the amount of surface water entering the Tujunga Wash from off-site areas. As noted in **Table IV.G-2**, and discussed below the flows originating from the project site[24] would be reduced (compared to existing conditions). This reduction in on-site flows to receiving waters would not result in a permanent, adverse change to the movement of surface water sufficient to produce a substantial change in the current or direction of water flow.

On-Site Hydrology and Surface Flows and Drainage Facilities

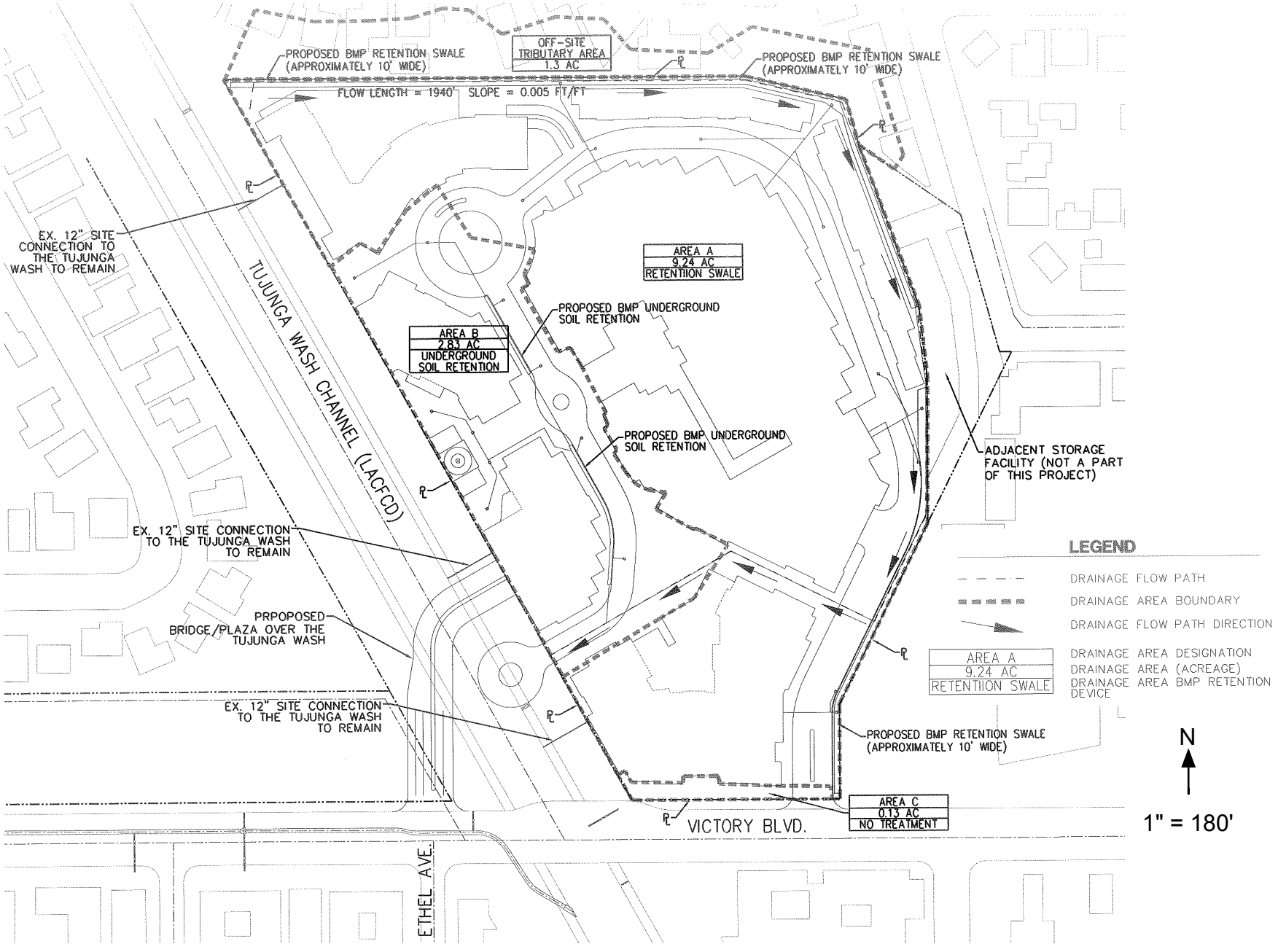
The project site would be graded to create building pads for the on-site land uses. The development area would be graded to one half percent slopes. In addition, the grading plan has been designed to ensure that during rain events precipitation falling on-site is directed towards the storm drain system (described below).

Figure IV.G-2 shows the proposed hydrology plan for the project site. As noted in this figure, on-site surface flows would be directed to the on-site storm drain system and then off-site to Tujunga Wash. Once completed, the project site would be comprised of approximately 85% impervious surfaces. The hydraulic path (flow) would be 1,940 feet with an average slope of 0.5%. The resulting Tc would be 19 minutes with a 25-Year peak flow rate of 20.06 cfs, as noted in **Table IV.G-2**. The proposed site would reduce the peak runoff by approximately 23% (over existing conditions).

[22] Note: The retention box would be designed to provide limited flow retention and is intended to serve as a water quality filtration device.

[23] Note: No drainage conveyance or retention facilities have been designed for the Add Area since the proposed land uses for this area are unknown at this time.

[24] Note: Although a drainage study for the Add Area has not been prepared, stormwater flow quantities would be required to meet City of Los Angeles conveyance and retention requirements and as such, would either result in reduced flow quantities or would be required to ensure that they do not exceed existing levels.



SOURCE: Development Resource Consultants, Inc.

Figure IV.G-2

Proposed Site Hydrology

Table IV.G-2 Peak Site Outflow Summary Table (Project Site)			
Storm Year	**Existing Site Drainage**	**Proposed Site Discharge (un-detained)**	**Tabled Flow rate (1cubic foot per second (cfs)/acre)**
25	25.98 cfs	20.06 cfs	12.2 cfs

Source: Development Resource Consultants, Inc., 2008

Development of the Transit Plaza would not constrict existing Tujunga Wash storm water flows as no construction would take place within the channel. This area of the site would drain in a similar manner to the rest of the site, flows from non-hard-scape areas would drain through the landscaping into the wash directly or would percolate into the portions on either side of the channel; flows from hard-scape areas would be treated as appropriate and conveyed to the wash (see measures IV.G-1 and IV.G-2 below).

Storm flows would be conveyed via ten foot drainage swales located along the northern and eastern property lines and then to the three existing 12-inch lateral connections located along the western portion of the Project Site (adjacent to Tujunga Wash)).

The implementation of the proposed project would result in the following: (1) a beneficial impact related to reducing surface flows compared to existing conditions and therefore, eliminating the site's potential contribution to downstream flooding; (2) a beneficial impact related to decreased levels of on-site surface flows to off-site receiving waters due to the implementation of BMPs; and (3) a less than significant impact related to potential changes in the movement of surface water sufficient to produce a substantial change in the current or direction of water flow.[25]

Floodplain & Flood Hazards

Floodplain

As noted previously, the project site and Add Area are located in a FEMA-designated Zone C location and as such, are outside of a designated flood plain. Therefore, impacts associated with locating the proposed project within a designated floodplain would be less than significant.

Flood Hazard

As noted previously, the project site and Add Area are located in a FEMA-designated Zone C location and as such, would not be subject to flooding in either a 100 or 500-year flood event. Therefore, impacts associated with flooding would be less than significant.

[25] Note: Impacts related to biological resources are discussed in detail in Section IV.C Biological Resources of this EIR.

Hydrogeology

San Fernando Valley Groundwater Basins

The proposed project would utilize potable water supplies available from the Los Angeles Department of Water & Power. No groundwater wells would be required. In addition, as noted in Section IV.L Utilities and Service Systems, sufficient potable water supplies are available to meet project demand. Therefore, implementation of the proposed project would not result in a change in potable water levels sufficiently to either: (1) reduce the ability of a water utility to use the groundwater basin for public water supplies, conjunctive use purposes, imported water storage, summer/winter peaking, or to respond to emergencies and drought; or (2) reduce yields of adjacent wells or well fields (public or private). Based on the analysis above, impacts related to groundwater supplies or well yields are less than significant.

Groundwater Levels in the Project Vicinity

Implementation of the proposed project would entail the recycling of existing urban land uses. It would not convert natural lands which provide or substantially contribute to groundwater recharge. In addition, it does not include facilities or mechanisms capable of changing the rate or direction of flow of groundwater. Similarly, it would not result in demonstrable and sustained reduction of groundwater recharge capacity. Although the total amount of impervious surfaces (compared to existing conditions) would be reduced and some groundwater recharge would be achieved via the drainage swales, retention boxes and landscaping, these recharge levels would be insignificant when compared to existing recharge areas contained within the San Fernando Valley Groundwater Basins. Therefore, impacts associated with implementation of the proposed project on groundwater supplies, yield of public or private wells or impediments to groundwater recharge would be less than significant.

Surface and Groundwater Pollution Sources

Non-Point Source & Point-Source Pollution

As co-permittees of the NPDES Permit the City of Los Angeles has developed programs to address the following:

- Implementation of controls to reduce pollution from commercial, industrial and residential areas.
- Implementation of structural/non-structural controls on land development and construction sites.
- Implementation of controls to reduce pollution from maintenance activities.
- Elimination of illegal connections, including discouragement of improper disposal.
- Encouragement of spill prevention and containment, and implementation of appropriate spill response.
- Inspection monitoring and control programs for industrial facilities.
- Implementation of public awareness and training programs

Surface and Groundwater Water Quality

Los Angeles River & Tujunga Wash Surface Water Quality & San Fernando Valley Groundwater Basins Quality

Water quality for both surface and groundwater resources could be affected by implementation of the proposed project. As noted above, storm water runoff contains urban pollutants that degrade surface and groundwater quality in the Los Angeles River and associated tributaries (i.e., Tujunga Wash).

Standard Urban Stormwater Mitigation Plan

In addition to the City of Los Angeles programs noted above, a Standard Urban Stormwater Mitigation Plan (SUSMP) is required for the project site (including Add Area) by the City of Los Angeles; see Mitigation Measure IV.G-2 below. The storm water management elements and improvements that would be used to form the on-site flood control system can be either classified as conveyance-oriented or storage-oriented. The proposed system would be composed of drainage swales and retention boxes; see Mitigation Measure IV.G-3 below. Where possible, the storm water management system has been designed to include multiple-use facilities to result in the most economical storm water management system while obtaining optimum performance with regard to flood control and water quality parameters.

At least 95% of on-site storm water from the project site[26] would be treated for pollutants before being discharged into the Tujunga Wash. City of Los Angeles SUSMP requirements require pre-treatment of runoff from vehicular areas and infiltrate/retain the first 0.75-inch rain event for all impervious surfaces. This retention requirement results in a volume of water equivalent to four percent of the total impervious area for a depth of approximately 19 inches. In order to meet this requirement, the project has been divided into three drainage areas.

Stormwater runoff in Area A would be directed into a 10 foot swale located along the northern and eastern property lines. The swale would be designed to retain the necessary volume of site runoff in the soil and discharge overflow into the stormdrain network and into the Tujunga Wash. Prior to entering the swale, stormwater from vehicular areas would be pre-treated by City of Los Angeles approved stormwater inlet filter inserts. The retention swale would be approximately 13,700 square feet to provide the required retention capacity.

Drainage Area B would be treated in underground retention boxes. These underground retention boxes would accept stormwater runoff, infiltrate the first 0.75-inch rainfall from the tributary impervious area, and overflow excess runoff into the storm drain network. The underground retention boxes would have a 30 inch deep retention depth for an area of approximately 4,200 square feet. The retained runoff would infiltrate into perforated pipes and release into the storm drain system. Prior to entering the underground retention boxes, stormwater from vehicular areas would be pre-treated by City of Los Angeles approved stormwater inlet filter inserts.

Drainage Area C would not be treated prior to entering the public right-of-way. Due to design constraints there are no practical mitigation measures to treat this stormwater runoff. Area C

[26] Note: The Add Area would be subject to identical requirements. Since the proposed land uses are not known for this area, a SUSMP has not been prepared.

represents approximately 1.1 percent of the total site area, which is within the required 95% treatment of site runoff.

Adherence to NPDES requirements and the implementation of standard BMPs, as described in the following mitigations, would reduce the incidence and quantities of urban pollutants potentially affecting surface and groundwater. Therefore, impacts related to the proposed project resulting in the violation of a water quality standard would be less than significant.

MITIGATION MEASURES

As noted above, the proposed project would be subject to adherence to NPDES requirements and implementation of standard BMPs during both construction and operation. These include the following:

IV.G-1 Short-term water quality impacts may result from the construction of the proposed project. Project construction shall comply with the General Construction Activity Stormwater Permit (General Permit) and the City's Development Construction Program pursuant to the NPDES Permit (Permit No. CA00401). Implementation of the General Permit and NPDES Permit programs will mitigate potential impacts to a level of insignificance. These include the following measures:

- The project applicant shall be required to (a) file a Notice of Intent (NOI) to comply with the General Permit with the State Water Resources Control Board (SWRCB); and (b) pay the applicable fee. A proof of submittal of a NOI to the SWRCB must be shown as a condition for the issuance of a building/grading permit.

- The project applicant shall develop and implement a State Stormwater Pollution and Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) to prevent pollution associated with construction activities from moving off site into receiving waters.

- The project applicant shall perform maintenance and inspections of all BMPs.

- Construction-related materials, wastes, spills, sediments or residues shall be retained at the project site using adequate Treatment Control or Structural BMPs to avoid discharge to streets, drainage facilities, receiving waters, or adjacent properties by wind or runoff.

- All waste shall be disposed of properly. Appropriately labeled recycling bins to recycle construction materials including: solvents, water-based paints, vehicle fluids, broken asphalt and concrete, wood, and vegetation shall be used. Non recyclable materials/wastes shall be taken to an appropriate landfill. Toxic wastes will be discarded at a licensed regulated disposal site.

- Non-storm water runoff from equipment and vehicle washing and any other activity shall be contained at the project site.

- Pavement shall not be hosed down at material spills. Dry cleanup methods shall be used whenever possible.

- Dumpsters shall be covered and maintained. Uncovered dumpsters shall be placed under a roof or be covered with tarps or plastic sheeting.

- Gravel approaches shall be used where truck traffic is frequent to reduce soil compaction and the tracking of sediment into streets shall be limited.

- 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.

- Erosion from slopes and channels shall be controlled by implementing an effective combination of BMPs (as approved in Regional Board Resolution No. 99-03), such as the limiting of grading scheduled during the wet season; inspecting graded areas during rain events; planting and maintenance of vegetation on slopes; and covering erosion susceptible slopes.

IV.G-2 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/).:

- The project applicant shall 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 predevelopment rate for developments where the increase peak stormwater discharge rate will result in increased potential for downstream erosion.

- Clearing and grading of native vegetation at the project site shall be limited to the minimum needed to build lots, allow access, and provide fire protection.

- Trees and other vegetation at each site shall be maximized by planning additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants.

- Natural vegetation shall be promoted by using parking lot islands and other landscaped areas.

- Riparian areas shall be preserved.

- 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 will be incorporated.

- Outlets of culverts, conduits or channels from erosion by discharge velocities shall be protected by installing a rock outlet protection. Rock outlet protection is physical devise composed of rock, grouted riprap, or concrete rubble placed at the outlet of a pipe. Sediment traps shall be installed below the pipe-outlet. Inspect, repair, and maintain the outlet protection after each significant rain.

- Any connection to the sanitary sewer will have authorization from the Bureau of Sanitation.

- Impervious surface area will be reduced by using permeable pavement materials where appropriate. These include pervious concrete/asphalt; unit pavers, i.e. turf block; and granular materials, i.e. crushed aggregates, cobbles.

- Roof runoff systems will be installed where site is suitable for installation.

- Messages that prohibit the dumping of improper materials into the storm drain system adjacent to storm drain inlets shall be painted.

- All storm drain inlets and catch basins within the project area shall 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.

- 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 will be paved and sufficiently impervious to contain leaks and spills.

- The storage area shall have a roof or awning to minimize collection of stormwater within the secondary containment area.

- An efficient irrigation system shall be designed to minimize runoff including: drip irrigation for shrubs to limit excessive spray; shutoff devices to prevent irrigation after significant precipitation; and flow reducers.

- Cleaning of oily vents and equipment will 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.

- Trash dumpsters will be stored both under cover and with drains routed to the sanitary sewer or use non-leaking and water tight dumpsters with lids. Containers will be washed in an area with properly connected sanitary sewer.

- Wastes, including paper, glass, aluminum, oil and grease will be reduced and recycled.

- Liquid storage tanks (drums and dumpsters) will be stored in designated paved areas with impervious surfaces in order to contain leaks and spills. A secondary containment system such as berms, curbs, or dikes shall be installed. Drip pans or absorbent materials whenever grease containers are emptied will be used.

- The owner(s) of the property will prepare and execute a covenant and agreement (Planning Department General form CP-6770) satisfactory to the Planning Department binding the owners to post construction maintenance on the structural BMPs in accordance with the Standard Urban Stormwater Mitigation Plan and or per manufacturer's instructions.

IV.G-3 The project applicant shall construct a series of swales and retention boxes on-site with a retention capacity of capturing, retaining and conveying on-site flows to off-site receiving waters (i.e. Tujunga Wash).

CUMULATIVE IMPACTS

The majority of projects occurring within this portion of the Los Angeles region are largely infill projects (similar to the proposed project). These projects would be required to implement a Development Construction Program (per requirements of the County-wide Permit (see previous discussion above)). In addition, they would also be generally be subject to a General Permit because they would disturb more than one acre of soil and as such, the Applicant and/or its contractor of these projects would be required to prepare and implement a SWPPP which meets the requirements of the General Permit. The adherence to the SWPPP requirements and the implementation of standard BMPs would reduce cumulative impacts related to surface and groundwater water quality to less than significant levels.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impacts would remain less than significant.