IV. ENVIRONMENTAL IMPACT ANALYSIS
F. HYDROLOGY/WATER QUALITY

ENVIRONMENTAL SETTING

Hydrology (Surface Water Runoff and Drainage)

The City of Los Angeles current storm drain system is constructed by the City and the Los Angeles County Flood Control District (LACFCD). The LACFCD constructs the major storm drains and open flood channels and the City of Los Angeles constructs the local tributary drains.[1] Maintenance service and capital improvements to the City's storm drain infrastructure are provided by the City of Los Angeles Bureau of Engineering, Department of Public Works.

The East Campus is developed with an existing church, school buildings, parking areas, and roadways. The West Campus is currently developed with three single-family residential homes. A majority of the West Campus site, to the northwest of the residences to Ridgeway Road remains vacant. Paved areas and building footprints are considered impervious, while exposed earth, landscape or natural vegetated areas are considered pervious. It is estimated that approximately 90 percent of the West Campus project site consists of pervious surface area.

The Federal Emergency Management Agency's (FEMA) National Flood Insurance Program publishes maps that identify areas at risk from potential flooding. Flood hazards are identifies for areas subject to flooding from 100 and 500 year storm events. The Flood Hazard Boundary Map for the area covering the proposed project site indicates that the proposed project is located in a zone with minimal risk from flooding (Zone C).

Storm water currently flows across the natural hillside terrain from the property's upper elevations in the north towards the lower elevations to the south. The project site has an approximate elevation ranging from 1,112 feet to 1,185 feet. Once the storm water reaches the street it is conveyed along curbs and gutters to surface drain inlets leading to storm drains beneath streets. The project includes a system of catch basins and drainage pipes directing all surface water runoff to the storm drain system under Shoshone Avenue. The current capacity of the storm drains serving the project site is considered adequate.[2]

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[1] *Los Angeles Citywide General Framework EIR, January 1995.*

[2] *CRC Enterprises, Hydrology and Hydraulic Site Calculations, Ron Koester, RCE., September 10, 1998.*

Water Quality

No specific runoff water quality data are known to exist for the project site. Paved and developed areas such as the East Campus contribute substantially greater quantities of water to the storm drain system than pervious landscaped areas. The quality of storm water is generally affected by the length of time since the last rainfall, the rainfall intensity, the urban uses of the area, and the quantity of transported sediment. The Environmental Protection Agency (EPA) considers street and parking lot surfaces to be the primary source of storm water pollution in urban areas. Street-generated pollutants typically contain atmospheric pollution, tire-wear residues, petroleum products, heavy metals, oil and grease, fertilizer and pesticide wash-offs, and industrial chemical spills as well as bacteria from food, litter and animal droppings. Current land uses suggest the potential for oil, grease, heavy metals, and dust/sediment to enter the surface runoff from the site and developed areas upslope from the project site.

Regulatory Overview

Federal Water Pollution Control Act

The 1972 amendments to the Federal Water Pollution Control Act, later referred to as the Clean Water Act (CWA), prohibit the discharge of any pollutant to navigable waters of the United States from a point source unless the discharge is authorized by a National Pollution Discharge Elimination System (NPDES) permit. In 1990, the EPA promulgated final regulations that established Phase 1 requirements for the NPDES program to address among other discharges, non-point source discharges from large construction activities of five acres or more of land. Under Phase 1 of the NPDES storm water program, storm water discharges have been primarily regulated for (1) specific industrial categories, (2) construction sites greater than five acres, and (3) municipal separate storm sewer systems (MS4s) serving populations greater than 100,000 persons. The recently enacted NPDES Phase II regulations expand the existing NPDES storm water program to address storm water discharges from small MS4s (municipalities serving less than 100,000 persons) and construction sites that disturb one to five acres.[3]

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[3] *Part II - Environmental Protection Agency 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System—Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule Report to Congress on the Phase II Storm Water Regulations, Federal Register Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations.*

Porter Cologne Water Quality Control Act

In California, the NPDES program is administered by the State Water Resources Control Board (SWRCB) through the nine Regional Water Quality Control Boards (RWQCBs). The SWRCB and the RWQCBs were established in 1969 by the Porter-Cologne Water Quality Control Act, the principal law governing California water quality regulation. General Construction Activity Storm Water Permits (GCASP) for Los Angeles County are administered through Region 4 - Los Angeles Regional Water Quality Control Board (LARWQCB). Under new regulations adopted by the LARWQCB, project applicants are required to implement a Standard Urban Storm Water Mitigation Plan (SUSMP) during the operational life of the project to ensure that storm water pollution is addressed by incorporating "Best Management Practices" (BMPs) in the design phase of development.[4] The SUSMP applies to the proposed project because it will include parking lots with 25 or more spaces which are potentially exposed to storm water runoff. The SUSMP contains a list of the minimum required BMPs that must be used for a designated project. Additional BMPs may be required by ordinance or code adopted by cities and applied generally or on a case-by-case basis. Developers must incorporate appropriate SUSMP requirements into their project plans. Each city is responsible for approving the project plan as part of the development plan approval process and prior to issuing building and grading permits for the projects covered by the SUSMP requirements.

All projects that include the development of 25 or more parking spaces and are potentially exposed to storm water runoff, and projects that are located within or directly adjacent to or discharging directly to an environmentally sensitive area, shall implement the following SUSMP requirements:

- Incorporate a BMP or a combination of BMPs best suited to maximize the reduction of pollutant loadings in runoff to the maximum extent practicable;
- All storm drain inlets and catch basins within the project area must be stenciled with prohibitive language (such as: "NO DUMPING-DRAINS TO OCEAN") and/or graphical icons to discourage illegal dumping;
- Signs and prohibitive language and/or graphical icons, which prohibit illegal pumping, must be posted at public access points along channels and creeks within the project area;
- Legibility of stencils and signs must be maintained;
- Trash container areas must have drainage from adjoining roofs and pavement diverted around the area(s);

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[4] *The Final SUSMP was approved by the Regional Board Executive Officer on March 8, 2000.*

- Trash container areas must be screened or walled to prevent off-site transport of trash;
- As part of project review, if a project applicant has included or is required to include Structural or Treatment Control BMPs in project plans, the City shall require that the applicant provide verification of maintenance provisions through such means as may be appropriate, including but not limited to, legal agreements, covenants, CEQA mitigation requirements and/or Conditional Use Permits.

Among other BMPs listed in the SUSMP, structural or treatment control BMPs selected for use at any project covered by the SUSMP are required to meet the following design standards:

A. Mitigate (infiltrate or treat) storm water runoff from either:

1. The 85th percentile 24-hour runoff event determined as the maximized capture storm water volume for the area, from the formula recommended in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ ASCE Manual of Practice No. 87, (1998), or

2. The volume of annual runoff based on unit basin storage water quality volume, to achieve 80 percent or more volume treatment by the method recommended in California Stormwater Best Management Practices Handbook – Industrial/ Commercial, (1993), or

3. The volume of runoff produced from a 0.75 inch storm event, prior to its discharge to a storm water conveyance system, or

4. The volume of runoff produced from a historical-record based reference 24-hour rainfall criterion for "treatment" (0.75 inch average for the Los Angeles County area) that achieves approximately the same reduction in pollutant loads achieved by the 85th percentile 24-hour runoff event, and

B. Control peak flow discharge to provide stream channel and over bank flood protection, based on flow design criteria selected by the local agency.

The SUSMP was finalized in March 2000. The following requirements are in addition to the above listed standards:

- Post-development peak storm water runoff discharge rates shall not exceed the estimated pre-development rate for developments where the increased peak storm water discharge rate will result in increased potential for downstream erosion;
- Promote natural vegetation by using parking lot islands and other landscaped area;
- Convey runoff safely from the tops of slopes and stabilize disturbed slopes;

- Utilize natural drainage systems to the maximum extent practicable;
- Control or reduce or eliminate flow to natural drainage systems to the maximum extent practicable;
- Stabilize permanent channel crossings;
- Vegetate slopes with native or drought tolerant vegetation;
- Install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion, with approval of all agencies with jurisdiction, e.g. the U.S. Army Corps of Engineers and the California Department of Fish and Game;
- Reduce impervious land coverage of parking areas;
- Infiltrate runoff before it reaches the storm drain system;
- Treat runoff before it reaches the storm drain system;
- Treat to remove oil and petroleum hydrocarbons at parking lots that are heavily used (e.g. lots with 25 or more parking spaces); and
- Ensure adequate operation and maintenance of treatment systems particularly sludge and oil removal, and system fouling and plugging prevention control.

ENVIRONMENTAL IMPACTS

Thresholds of Significance

A significant hydrology and water quality impact would normally occur if the project would cause any of the conditions listed below:

a) Violate any water quality standards or waste discharge requirements;

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);

c) Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; and/or

d) Otherwise substantially degrade water quality.

Project Impacts

Hydrology (Surface Water Runoff and Drainage)

The proposed project would increase the amount of impervious surface area on the project site through the development of the education building, paved parking areas, paved walkways, and hardscape areas. Since the proposed project includes a substantial amount of pervious areas (i.e., the grass play area, planters, and landscaping), the project would not substantially increase surface water runoff. Using a conservative estimate including the building footprint of the proposed structure and all of the parking lot area to the south, it is estimated that approximately 100,000 square feet of area (or approximately 42 percent of the site) will be converted to impervious surface area.[5] Compared to existing conditions, impervious surface area for the West Campus site would increase by approximately 80,000 square feet. Approximately 58 percent of the site will remain pervious surface areas, most of which will be developed as a grass covered athletic field.

The development of the site would alter the existing surface water drainage patterns across the site. Storm water currently flows across the natural terrain from the property's upper elevations in the north towards the lower elevations to the south. The project would provide a system of catch basins and drainage pipes directing all surface water runoff to the storm drain system under Shoshone Avenue. Therefore, the proposed project would not substantially alter the existing drainage pattern of the site or area to the extent that on or off-site flooding would occur.

Since the project includes a normal mix of grass play area, planter areas, paved parking lots, paved driveways and buildings with hardscape areas, water runoff will increase as a result of the proposed project. An analysis of hydrologic conditions for the proposed project was created for a hypothetical 50-year storm event.[6] As indicated in this analysis, the West Campus project site will include a drainage system with pipes that vary in size from 12" reinforced concrete pipe (RCP) up to 30" RCP that will adequately convey surface water runoff into the existing 69-inch storm drain that is currently within Shoshone Avenue. The runoff will be directed down slope towards Ridgeway Road and into a storm drain system. Excess runoff from upslope of the project site will be directed towards the grass play area and continued down to Shoshone Avenue. Therefore, the project will not exceed capacity of the existing or planned storm water drainage systems or provide substantial amounts of polluted runoff.

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[5] *This is considered a conservative estimate because the parking lot area will include sporadic pervious areas as required for trees and shrubs. Approximately 50 trees are proposed in and around the parking lot area.*

[6] *CRC Enterprises, Hydrology and Hydraulic Site Calculations, Ron Koester, RCE., September 10, 1998.*

Water Quality

During construction, the site would be graded and excavated, and soil would be exposed to natural processes such as precipitation (depending on the time of year) and runoff, which would all be contained on site. Storm water discharges generated during construction activities could cause an array of physical, chemical, and biological water quality impacts. Specifically, the biological, chemical, and physical integrity of the waters could become compromised. The interconnected process of erosion, sediment transport, and delivery is the primary pathway for introducing key pollutants, such as nutrients (particularly phosphorus), metals, and organic compounds into aquatic systems. Grading activities would have the potential to result in soil erosion or discharge of sedimentation, which could, through the processes described above, degrade the quality of water. However, construction activities for the proposed project would be required to implement effective BMPS to minimize water pollution to the maximum extent practicable. In addition, as required by the SUSMP, the final drainage plans would be required to provide structural or treatment control BMPs to mitigate (infiltrate or treat) storm water runoff using the methods discussed previously in this Section. Mandatory compliance with SUSMP requirements would ensure BMPs would be implemented during the construction phase to effectively minimize excessive soil erosion and sedimentation and eliminate non-storm water discharge off-site. Though required by law, BMPs would be included as project mitigation measures to ensure potentially significant impacts would be reduced to less than significant levels. Therefore, project impacts on water quality resulting from erosion and siltation would be less than significant.

Activities associated with operation of the proposed project would generate substances that could degrade the quality of water runoff. The deposition of certain chemicals by cars on parking lot surfaces could have the potential to contribute metals, oil and grease, solvents, phosphates, hydrocarbons, and suspended solids to the storm drain system. However, impacts to water quality would be reduced since the project must comply with water quality standards and wastewater discharge BMPs set forth by the County of Los Angeles, and the SWRCB. Further, required design criteria, as established in the SUSMP for Los Angeles County and Cities in Los Angeles County, would be incorporated into the project to minimize the off-site conveyance of pollutants. Compliance with existing regulations would reduce the potential for water quality impacts to a less than significant level.

As indicated previously, the EPA considers street and parking lot surfaces to be the primary source of storm water pollution in urban areas. The proposed project will include a new surface parking lot to serve the West Campus. A total of 124 new parking spaces will be provided in a surface parking lot fronting Rinaldi Street. These 124 spaces will increase surface water runoff pollution (i.e., grease and oil deposits left by motor vehicles) and will contribute to the degradation of our water quality. However, impacts to water quality would be reduced since the project applicant will be required to comply with water quality standards and wastewater discharge BMPs set forth by the County of Los Angeles. Further, required design criteria, as established in the Standard Urban Storm Water

Mitigation Plan for Los Angeles County and Cities in Los Angeles County, would be incorporated into the project to minimize the off-site conveyance of pollutants. Compliance with existing regulations would reduce the potential for water quality impacts to a less than significant level.

CUMULATIVE IMPACTS

The storm drains utilized by the proposed project would not serve sites of the Related Projects. One of the nine related projects, a nine single-family residential development, is upslope of the site. However, the site is 1.3 miles northwest of the Hillcrest School proposed project site and would not drain in the vicinity of the project area. As indicated above, the existing stormwater infrastructure serving the project area would be capable of serving increased surface water runoff from the project site. Impacts attributable to water quality on a cumulative level would be addressed on a case-by-case basis, as applicable to the specific land uses proposed. Individual projects would be required to develop and implement storm drain mitigation, including compliance with NPDES permitting guidelines, where appropriate. As such, cumulative water quality impacts would be less than significant.

MITIGATION MEASURES

Environmental impacts may result from delivery vehicles and customer and employee vehicles transferring contaminants (gasoline, oil, grease, sediments) to the parking lot and release toxins into the stormwater drainage channels. However, the potential impacts will be mitigated to a level of insignificance by incorporating stormwater pollution control measures. Ordinance No. 172,176 and Ordinance No. 173,494 specify Stormwater and Urban Runoff Pollution Control which requires the application of Best Management Practices (BMPs). Chapter IX, Division 70 of the Los Angeles Municipal Code addresses grading, excavations, and fills. The applicant shall meet the requirements of the Standard Urban Stormwater Mitigation Plan (SUSMP) approved by Los Angeles Regional Water Quality Control Board, including the following:

1. Implement stormwater BMPs to retain or treat 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.

2. Post development peak stormwater runoff discharge rates shall not exceed the estimated pre-development rate for developments where the increase peak stormwater discharge rate will result in increased potential for downstream erosion.

3. Maximize trees and other vegetation at each site by planning additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants.

4. Promote natural vegetation by using parking lot islands and other landscaped areas.

5. Cut and fill slopes in designated hillside areas shall be planted and irrigated to prevent erosion, reduce run-off velocities and to provide long-term stabilization of soil. Plant materials include: grass, shrubs, vines, ground covers, and trees.

6. Incorporate appropriate erosion control and drainage devices, such as interceptor terraces, berms, vee-channels, and inlet and outlet structures, as specified by Section 91.7013 of the Building Code. Protect outlets of culverts, conduits or channels from erosion by discharge velocities by installing rock outlet protection. Rock outlet protection is physical devise composed of rock, grouted riprap, or concrete rubble placed at the outlet of a pipe. Install sediment traps below the pipe-outlet. Inspect, repair, and maintain the outlet protection after each significant rain.

7. All storm drain inlets and catch basins within the project area must be stenciled with prohibitive language (such as: "NO DUMPING - DRAINS TO OCEAN") and/or graphical icons to discourage illegal dumping. Legibility of stencils and signs must be maintained.

8. Materials with the potential to contaminate stormwater must be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the stormwater conveyance system; or (2) protected by secondary containment structures such as berms, dikes, or curbs.

9. The storage area must be paved and sufficiently impervious to contain leaks and spills.

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

11. Trash container areas must have drainage from adjoining roofs and pavement diverted around the area(s).

12. Trash container areas must be screened or walled to prevent off-site transport of trash.

13. Reduce impervious land coverage of parking lot areas.

14. Infiltrate runoff before it reaches the storm drain system.

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

16. Any connection to the sanitary sewer must have authorization from the Bureau of Sanitation.

17. 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.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

With implementation of the mitigation measures listed above, both project specific and cumulative impacts on hydrology (surface runoff and drainage) and water quality would be less than significant.