4.8 Hydrology and Water Quality

4.8.1 Regulatory Setting

Federal

Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the discharge of pollutants to the waters of the United States from any point source unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Known today as the Clean Water Act (CWA), it has been amended by Congress several times. In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/construction point sources to comply with the NPDES permit scheme. Important CWA sections are as follows:

- Sections 303 and 304 require states to promulgate water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or a permit to conduct an activity that may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes NPDES, a permitting system for discharges of any pollutant (except for dredged or fill material) into waters of the United States. Regional Water Quality Control Boards (RWQCBs) administer this permitting program in California. Section 402(p) requires permits for discharges of stormwater from industrial/construction sites and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredged or fill material into waters of the United States. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the nation's waters."

National Pollutant Discharge Elimination System Program

Municipal Separate Storm Sewer Systems

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of stormwater discharges, including MS4s. EPA defines an MS4 as "any conveyance or system of conveyances (e.g., roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over stormwater designed or used for collecting or conveying stormwater." The State Water Resources Control Board (SWRCB) has identified LCF as an owner/operator of an MS4 pursuant to federal regulations. LCF's MS4 permit covers all rights-of-way, property, facilities, and activities under LCF jurisdiction. The SWRCB or the RWQCB issues NPDES permits for 5 years, and permit requirements remain active until a new permit has been adopted.

Applicants for development projects in the County of Los Angeles, including LCF, have two major responsibilities under NPDES Municipal Permit No. CAS614001. The first is to implement a Standard Urban Stormwater Mitigation Plan (SUSMP) containing design features and best management practices (BMPs) appropriate and applicable to the project. The purpose of the SUSMP is to reduce the volume of post-construction pollutants in stormwater discharges. Prior to issuance of any grading or building permit, LCF must approve the SUSMP.

The second responsibility is to prepare a Stormwater Pollution Prevention Plan (SWPPP) for all construction projects with disturbed areas of 2 to 5 acres. Alternatively, the applicant may conform to the state Construction Activity Stormwater Permit for projects greater than 5 acres. The applicant must ensure that the SWPPP is approved or file a Notice of Intent to comply with the state permit prior to issuance of a grading permit.

State

Porter-Cologne Water Quality Control Act

California's Porter-Cologne Water Quality Control Act (Porter-Cologne Act), enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a Report of Waste Discharge for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses of the state's surface and/or groundwater. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the United States (e.g., groundwater and surface waters not considered waters of the United States). Additionally, it prohibits discharges of "waste," as defined; this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The SWRCB and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA as well as regulating discharges to ensure compliance with the standards. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. In California, the RWQCBs designate beneficial uses for all water body segments in their jurisdictions and then set the criteria necessary to protect such uses. Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use. In addition, the SWRCB identifies waters that fail to meet standards for specific pollutants, which are then state listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point-source or non-point-source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdictions by using planning, permitting, and enforcement authorities to meet this responsibility.

Local

City of La Cañada Flintridge Municipal Code

Section 9.20.050 of the LCF Municipal Code outlines prohibited activities related to wastewater and runoff. Specifically, the municipal code prohibits any discharge in violation of NPDES Permit Number CAS614001, which reiterates the federal regulations. In addition, LCF's municipal code incorporates the Los Angeles County Building Code, which generally incorporates SUSMP requirements into its code at Appendix Chapter 33 (Excavation and Grading). Section 3319 (NPDES Compliance) requires all grading plans and permits to comply with the NPDES permit, which includes the SUSMP provisions, although the SUSMP is not explicitly mentioned in the county code.

4.8.2 Environmental Setting

The project site is on the crest of the San Rafael Hills in the southeastern part of LCF, at an elevation of approximately 1,650 feet above sea level. Average annual rainfall in the area is approximately 22 inches, as measured at the National Weather Service Cooperative Network station in Altadena, which is 2.6 miles east of the project site (ID 040144, Western Regional Climate Center). More than 90% of this rainfall occurs during the period from November to April.

The Valley Water Company, which provides water service to the site and to residents and businesses, has approximately 2,400 acres of service area within LCF. Roughly 75% of this water comes from the Metropolitan Water District of Southern California, with the remaining 25% coming from local groundwater supplies (Valley Water Company 2014).

Surface Water Quality and Storm Drainage System

The site for the Plan Area 1 parking structure slopes relatively steeply to the east. Stormwater currently flows into a V-gutter or catch basin before being discharged to the landscaped slope east of the parking lot site. The sites for Plan Areas 2 and 3 are level planes above a southwest-facing downhill slope. Stormwater and runoff from the impermeable surfaces near the buildings flow downhill along the curbs to St. Katherine Drive. The site for Plan Area 4 is an undeveloped plot of land with permeable surfaces. The Plan Area 4 site is on a mesa above Palmerstone Drive, which surrounds the mesa on the western, northern, and eastern sides. Given the permeability of the site, stormwater and runoff are either retained and absorbed on site or able to flow to lower elevations on all sides of the mesa. At present, stormwater and runoff are not treated on site.

Flooding

The entire city of LCF has "undetermined but possible flood hazards," according to the Safety Element of the LCF General Plan 2030, which was adopted in 2013. This determination is made for cases in which the Federal Emergency Management Agency (FEMA) has not conducted flood hazard analysis. Given the high elevation of the project site relative to the surrounding area, flooding is not a concern on the FSHA site, other than minor pooling on flat surfaces, such as the existing softball and soccer fields.

4.8.3 Environmental Impact Analysis

Methodology

The evaluation of impacts related to hydrology and water quality is based on the March 2012 *Standard Urban Stormwater Mitigation Plan and Hydrology Report* and other sources.

Thresholds of Significance

For the purposes of the analysis in this EIR, which is made in accordance with Appendix G of the State CEQA Guidelines, project alternatives would cause a significant impact with respect to hydrology and water quality if they would:

1. Violate any water quality standards or waste discharge requirements.
2. 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 that would not support existing land uses or planned uses for which permits have been granted).
3. 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 that would result in substantial erosion or siltation on or off site.
4. 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 that would result in flooding on or off site.
5. 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.
6. Otherwise substantially degrade water quality.
7. Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary Map or Flood Insurance Rate Map or other flood hazard delineation map.
8. Place within a 100-year flood hazard area structures that would impede or redirect flood flows.
9. 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.
10. Be subject to inundation by seiche, tsunami, or mudflow.

Construction Impacts

Water Quality

During the construction period, the sites for each Plan Area would be partially or fully denuded. The temporary removal of landscaping and existing hardscape surfaces has the potential to result in impacts related to stormwater and construction-period runoff, which could carry pollutants, soil, and other suspended particles from the site to the adjacent roadways and hillsides. The SWPPP that would be prepared for the project would identify BMPs to reduce construction-related risks to

water quality. The BMPs may include the use of silt fencing, hydromulch, vegetated swales, sediment barriers or traps, or anti-tracking pads at vehicle exits. Specific BMPs would be identified in the SWPPP and may include any of the following:

- Scheduling of excavation and grading work for dry weather;
- Use of as little water as possible for dust control;
- Prohibiting the hosing down of dirty pavement or impermeable surfaces where fluids have spilled;
- Use of revegetation, if feasible, for erosion control after clearing, grading, or excavating;
- Avoidance of excavation and grading activities during wet weather;
- Construction of diversion dikes to channel runoff around the site and line channels with grass or roughened pavement to reduce the velocity of runoff;
- Covering of stockpiles and excavated soil with tarps or plastic sheeting; and
- Removal of existing vegetation only when absolutely necessary, consideration of planting temporary vegetation for erosion control on slopes or where construction is not immediately planned, and planting of permanent vegetation as soon as possible.

Assuming implementation of the SWPPP, as required under NPDES Municipal Permit No. CAS614001, impacts related to water quality and stormwater runoff would be less than significant.

Construction activities for the SCE subtransmission line would include the replacement of as many as 13 existing subtransmission poles. The subtransmission structure pad locations and temporary laydown/work areas would first be graded and/or cleared of vegetation as required to provide a reasonably level and vegetation-free surface for structure installation. Sites would be graded such that water would run toward the direction of the natural drainage. In addition, drainage would be designed to prevent ponding and erosive water flows that could damage the structure footings. The graded area intended to be drivable would be compacted and would be capable of supporting heavy vehicular traffic.

A negligible increase in the amount of siltation of runoff and erosion is possible due to the clearing of vegetation on the subtransmission pad locations; however, given the small area from which vegetation would be removed, impacts would be less than significant.

Groundwater Supplies and Recharge

Construction of the project would temporarily reduce the percentage of the campus covered by impermeable surfaces, thereby increasing the potential for groundwater recharge. Construction would require water for cleaning equipment, reducing airborne dust, and performing other activities but would not result in the types of actions that would compromise groundwater supplies. Impacts related to groundwater supply and recharge occurring as a result of construction of the proposed project would be less than significant.

The subtransmission structure pad locations and temporary laydown/work areas would result in minimal changes in the permeability of existing surfaces and would not affect groundwater supplies and recharge.

Stormwater Runoff Volume

During the construction period, the amount of impermeable surfaces occurring on the campus would temporarily decrease with the denuding of the sites, thereby temporarily increasing the ability of the sites to retain stormwater. The volume of stormwater occurring on the site is not expected to increase as a result of this temporary increase in recharge capacity; therefore, it is not expected to exceed the capacity of existing stormwater drainage facilities. BMPs identified in the SWPPP would be implemented during the construction period to ensure that stormwater, especially that within the construction footprint, would be retained and treated on site prior to being released to the drainage system. Impacts related to stormwater runoff volumes occurring as a result of construction would be less than significant.

A negligible increase in the amount of siltation of runoff and erosion is possible due to the clearing of vegetation on the subtransmission pad locations; however, given the small area from which vegetation would be removed, impacts would be less than significant.

Flood Hazards

Given the location of the project along the crest of the San Rafael Hills and its high elevation relative to its surroundings, flooding on the campus is highly improbable during the construction and operational phases. Risks associated with inundation by seiche, tsunami, or mudflow are also miniscule. No impacts would occur because the risk of loss, injury, or death would be negligible.

Due to the sloped topography along the SCE subtransmission line alignment and the grading of pad locations in a way that would be consistent with natural drainages, flooding would not occur and impacts would be less than significant.

Operational Impacts

Water Quality

Following the construction period, the possibility exists for runoff to carry dispersed pollutants and small suspended particles from the project site (including the adjacent parking areas) to St. Katherine Drive, other connecting roadways, and the steep undeveloped hillsides surrounding the project site, which would be a significant impact. At present, stormwater runoff from the site is not treated. For Plan Area 1, implementation of the BMPs identified in Mitigation Measure WQ-1 would change this by introducing a Stormceptor® hydrodynamic separator, which is designed to treat runoff by removing a wide range of particle sizes as well as free oils, heavy metals, and nutrients attached to fine sediments. Project operation would not introduce new chemicals that could be discharged as runoff, and the four Plan Areas would not be expected to considerably increase the amount of runoff discharged from the site. Therefore, with implementation of Mitigation Measure WQ-1, impacts on water quality during project operation would be reduced to less-than-significant levels.

Hydrologically, the SCE subtransmission line would be nearly identical to the existing condition. Therefore, operation of the SCE subtransmission line would not result in impacts to water quality.

Groundwater Supplies and Recharge

Overall, implementation of the proposed project would reduce surface permeability at the campus. As shown in Table 4.8-1, the project would reduce the amount of landscaped area and parking lot area. It would increase the amount of hardscape area and the area covered by building footprints. The project is expected to reduce overall permeability at the campus by an estimated 5.8%, or approximately 2.4 acres. Although not all of this 2.4-acre area currently provides high-capacity recharge, the reduction has the potential to lessen overall recharge occurring on site. Because the typical precipitation patterns in the area include infrequent, high-intensity storm events during the winter and spring months, precipitation volumes often exceed recharge capacity. Therefore, even though the project would result in a reduction in overall surface permeability on the campus, this reduction is unlikely to result in a substantial change because of the limited recharge capacity during storm events and the relatively small areas affected. Impacts related to recharge occurring as a result of project operation would be less than significant.

Table 4.8-1. Campus Footprint Composition

Area	Existing (% of campus acreage)	Proposed (% of campus acreage)	Change in Permeability (% of campus acreage)
Overall Campus Area	42.007 acres	42.007 acres	—
Landscape Area	83.8%	81.1%	-2.7%
Hardscape Area	5.6%	7.8%	-2.2%
Parking Lot Area	3.9%	3.7%	0.2%
Building Footprint	6.5%	7.4%	-1.1%
Total	99.8%*	100.0%	-5.8%
* Does not add up to 100% because of rounding. Source: Draft Flintridge Sacred Heart Academy Specific Plan 2014.			

Project operation would expand the capacity of FSHA to accommodate existing and future students, but enrollment is not expected to increase substantially. The number of students and faculty members on campus is an important determinant of the level of water usage during project operation. In addition, water-efficient fixtures would be installed in all new structures, as required by CALGreen. Therefore, the amount of water used on campus is not expected to change substantially. Because approximately 25% of the water supply in the area comes from local groundwater sources and the project would not substantially increase water demand, substantial drawdown of local groundwater would not occur. Therefore, impacts related to the depletion of groundwater supplies as a result of project operation would be less than significant.

Hydrologically, the SCE subtransmission line would be nearly identical to the existing condition. Therefore, operation of the SCE subtransmission line would not result in impacts on groundwater or recharge.

Stormwater Runoff

As shown in Table 4.8-1, there would be an increase in the amount of impermeable surfaces on the campus, with approximately 2.4 additional acres of the 42-acre campus less able to retain runoff. Although this has the potential to result in increased stormwater runoff, the change in runoff is not

expected to be substantial given the relatively small area affected and the limited capacity of on-site soils to retain runoff during high-intensity storm events. Furthermore, expected increases in runoff could be accommodated by existing drainage facilities. Impacts related to stormwater runoff during project operation would be less than significant.

Hydrologically, the SCE subtransmission line would be nearly identical to the existing condition. Therefore, operation of the SCE subtransmission line would not result in impacts on stormwater runoff.

Flood Hazards

Given the location of the project along the crest of the San Rafael Hills, including the SCE subtransmission line, and its high elevation relative to its surroundings, flooding on the campus is highly improbable to occur during the operational phase. Risks associated with inundation by seiche, tsunami, or mudflow are also miniscule. No impacts would occur because the risk of loss, injury, or death would be negligible.

4.8.4 Mitigation Measures

WQ-1: The following BMPs will be implemented per the Standard Urban Stormwater Mitigation Plan:

Structural BMPs

Stormceptor® Hydrodynamic Separator: The Stormceptor® unit will be used as a structural BMP for the site. The unit provides continuous positive treatment of total suspended solids, regardless of flow rate. It is designed to remove a wide range of particle sizes as well as free oils, heavy metals, and nutrients that attach to fine sediment. The Stormceptor® slows incoming stormwater to create a non-turbulent treatment environment, thereby allowing free oils to rise and sediment to settle. Patented scour-prevention technology ensures that pollutants are captured and contained during all rainfall events, even extreme storms.

Non-Structural BMPs

Parking Areas

a. All parking area surfaces will be swept regularly using an appropriate mechanical sweeper. At a minimum, all parking areas will be swept on a weekly basis to prevent the dispersal of pollutants that may collect on surfaces.

b. The detergents and cleaning components used on the site will comply with the following criteria: They will be phosphate free, biodegradable, and non-toxic to marine wildlife; the amounts used will be minimized to the greatest extent practicable; and no fluids containing ammonia, sodium hypochlorite, chlorinated solvents, petroleum distillates, or lye will be used.

c. Spraying down or washing down the parking areas will not be allowed unless the used water is directed to the sanitary sewer system or a filtered drain.

d. Trash and recycling containers that are fully enclosed and watertight will be used so that, if located outside or apart from the principal structure, stormwater

is prevented from coming in contact with waste matter, which can be a potential source of bacteria, grease, and other pollutants in runoff.

Education and Training

a. Annual employee training regarding chemical management and proper methods for handling and disposing of waste will be provided. Employees will understand the on-site BMPs and their maintenance requirements.

Monitoring and Maintenance

a. All BMPs will be operated, monitored, and maintained for the life of the project and, at a minimum, all structural BMPs will be inspected, cleaned out, and, where necessary, repaired at the following minimum frequencies: (1) prior to October 15 each year; (2) during each month between October 15 and April 15 of each year; and (3) at least twice during the dry season (between April 16 and October 14 of every year).

b. Debris and other water pollutants removed from structural BMPs during cleanout will be contained and disposed of in a proper manner.

c. The drainage system and associated structures and BMPs will be maintained according to manufacturers' specifications to ensure maximum pollutant removal efficiencies.

Storm Drain Stenciling and Signage

a. Proper storm drain stenciling and signage will be provided for catch basin inlets.

4.8.5 Significant Unavoidable Impacts

Following implementation of Mitigation Measure WQ-1 and the BMPs proposed in the SWPPP that would be prepared for the project, there would be no significant unavoidable impacts.

4.8.6 Cumulative Impacts

All projects within 0.5 mile of the campus and the proposed SCE subtransmission line are site-specific projects, including additions and remodels of existing structures. Such projects would not temporarily or permanently affect the existing hydrological function or water quality in the watershed. Cumulative impacts would not be considerable, and the project would not contribute to a significant cumulative impact.