APPENDIX F

Hydrology, Flooding, and Water Quality Report
This section provides a regional hydrologic context to the Gavilan College – Hollister Campus Fairview and Airline Highway site, discusses environmental and geologic settings, and describes existing water resources within the study area.

1.1 Regulatory Setting

1.1.1 Federal Regulations

1.1.1.1 National Flood Insurance Program. To mitigate the costs of flood disaster relief, the U.S. Congress passed the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. These acts are meant to reduce the need for large, publicly funded flood control structures and disaster relief by restricting development on floodplains.

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains.

As part of the NFIP, FEMA publishes Flood Insurance Rate Maps (FIRMs) that identify flood hazard zones within a community. The Proposed Project area does not fall within a FEMA-designated floodplain.

1.1.1.2 Clean Water Act. The Clean Water Act (CWA), formally known as the United States Federal Water Pollution Control Act Amendment of 1972 and subsequent amendments, governs discharges to the waters of the U.S. including oceans, bays, rivers, streams, lakes, ponds, and wetlands.

Several sections of the Clean Water Act (CWA) regulate project impacts on waters of the United States. Title I Section 101 specifies the objectives of the CWA implemented largely through the sections of Title III (Standards and Enforcement). The discharge of dredged or fill material into waters of the United States is subject to permitting specified in Section 404 (Discharges of Dredge or Fill Material) of Title IV (Permits and Licenses). Section 401 (Certification) specifies additional requirements for permit review, particularly at the state level.

In fact, several federal regulations are implemented at a state level. In California the Clean Water Act is implemented and enforced by the California State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs). Their functions are described further below under “State Regulations.”

Section 303 – TMDL Program

Section 303 of the CWA and California’s Porter-Cologne Water Quality Control Act require the State of California to adopt water quality standards to protect beneficial uses of state waters. Section 303(d) of the CWA requires the state to develop a list of water bodies that do not meet water quality...
standards, establish priority rankings for waters on the list, and develop actionable targets, known as Total Maximum Daily Loads (TMDLs), to guide the application of state water quality standards. The water-quality impaired waters are often referred to as 303(d) impaired waters. These waters are impaired by the presence of pollutants, including sediment, and have no remaining capacity to accept these pollutants without harming beneficial uses of the waters.

The San Benito River, which has a small tributary that runs alongside the Site, is listed as 303(d) impaired waters. The San Benito River is impaired by fecal coliform and sedimentation/siltation.

Section 401 – Water Quality Certification

CWA Section 401 requires that an applicant pursuing a federal permit to conduct any activity that may result in a discharge of a pollutant to obtain a Water Quality Certification (or waiver). The RWQCBs issue Water Quality Certifications in California. Under the CWA, the State must issue or waive Section 401 certification for the project to be permitted under Section 404. Water Quality Certification requires the evaluation of water quality considerations associated with dredging or placement of fill materials into waters of the U.S. Construction of the Proposed Project would require Section 401 certification if Section 404 is triggered as explained below.

Section 402 – NPDES Program

Along with CWA Section 401, CWA Section 402 establishes the National Pollutant Discharge Elimination System (NPDES) permit for the discharge of any pollutant into waters of the U.S. The NPDES program is the primary federal program regulating point source and non-point source discharges to waters of the U.S.

The EPA has delegated administration of the NPDES program to the State Water Board and Regional Boards in California. The SWRCB and RWQCBs also regulate other waste discharges to land within California through the issuance of waste discharge requirements under authority of the Porter-Cologne Water Quality Act. Both general and individual permits are issued for certain activities.

Construction projects are regulated under a statewide general construction permit, known as the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity. The appropriate RWQCB enforces this permit. The general construction permit requires all construction projects disturbing over one acre of soil to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) during construction. The SWPPP includes pollution prevention measures, such as erosion and sediment control measures and measures to control non-stormwater discharges and hazardous waste spills, demonstration of compliance with all applicable local and regional erosion and sediment control standards, identification of responsible parties, a detailed construction timeline, and a monitoring and maintenance schedule of best management practices (BMPs). A Notice of Intent (NOI) must also be submitted to the RWQCB and should include site-specific information and the certification of compliance with the terms of the general construction
The regional permit governing non-construction activity on the Proposed Project site is discussed in the regional regulations below.

Section 404 – U.S. Army Corps of Engineers Permit

Section 404 of the CWA regulates the discharge of dredged and fill materials into waters of the U.S. Project developers must obtain a U.S. Army Corps of Engineers permit for all discharges of dredged or fill material into such waters before proceeding with a proposed activity. Before any actions that may impact surface waters are carried out, a delineation of jurisdictional waters of the United States must be completed following U.S. Army Corps of Engineers’ protocols to determine whether the project area encompasses wetlands or other waters of the U.S. that qualify for CWA protection.

Wetlands are defined for regulatory purposes as areas “inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3, 40 CF 230.3).

Under the Section 404 permit program, general permits (known as nationwide permits) have been adopted, and coverage under nationwide permits is possible when the amount of fill is relatively small (usually less than half an acre). Projects that do not qualify for a nationwide permit must obtain an individual permit, which has a longer and more involved permitting process.

1.1.2 State Regulations

The following sections briefly describe state water programs, plans, and policies that are applicable to the Proposed Project and its vicinity.

1.1.2.1 Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Control Act of 1969 established the SWRCB and the nine regional basins governed by the RWQCBs. The SWRCB is the primary state agency responsible for protecting the quality of the state’s surface and groundwater supplies, while the Regional Boards are responsible for developing and enforcing water quality objectives and implementation plans, known as Basin Plans. The California SWRCB and its RWQCBs act as the lead agencies for the EPA to implement aspects of the CWA. They perform their duties through implementation of the regional Basin Plans and the NPDES program.

The Porter-Cologne Act authorizes the SWRCB to enact state policies regarding water quality in accordance with Section 303 of the CWA. In addition, the act authorizes the SWRCB to issue Waste Discharge Requirements (WDRs) for projects that would discharge to state waters.

The Basin Plans are required to:
- Identify beneficial uses of waters to be protected;
- Establish water quality objectives for the reasonable protection of the beneficial uses; and
• Establish an implementation program for achieving the water quality objectives.

Basin Plans also provide the technical basis for determining WDRs, taking enforcement actions, and evaluating clean water grant proposals. Basin Plans are updated and reviewed every three years in accordance with Article 3 of the Porter-Cologne Act and Section 303(c) of the CWA.

The Proposed Project is within the jurisdiction of the Central Coast RWQCB, which adopted the most recent edition of its Basin Plan in 1995.

1.1.3 Local Regulations
Several local agencies, including the Water Resources Association of San Benito County, San Benito County Water District, County of San Benito, the San Benito County Health Department, and the County Agricultural Commissioner, also have jurisdiction over the Proposed Project.

County General Plan

General Plans regulate the design of new development through various sections, known as elements. Relevant sections to hydrology and water quality include the Conservation Element, Open Space Element, and Safety Element.

1.2 Environmental Setting

1.2.1 Regional Setting
The City of Hollister is located approximately 85 miles southeast of San Francisco and 25 miles inland from Monterey Bay along the Diablo Range. The area’s regional context is illustrated by Figure 1-1.
1.2.2 Climate
The climate of Hollister is characterized by warm summers and cool, moist winters. The normal temperatures for summer and winter are 73° F and 46° F, respectively. However, it is not unusual for temperatures to rise above 100° F a few days every summer or to fall below 40° F occasionally in the winter. The average yearly rainfall is 13 inches with most of this precipitation occurring from October to May. Snowfall is not a significant form of precipitation in Hollister.

1.1.3 Land Use
The upstream watershed is mostly agricultural or open space with some low density residential land use. The Site itself is entirely undeveloped. Figure 1-2 provides an aerial view of existing land uses within the Project Area.
1.3 **Surface Water Hydrology**

1.3.1 *Drainage Patterns*

Two small tributaries run near the site – one to the north and one to the south, both in a northwesterly direction. The northern one flows to Santa Ana Creek; the southern to San Benito River. Runoff from the Project Area is naturally split between these two tributaries. A schematic of these drainage features are indicated on the FIRM shown in Figure 1-3.
A summary of the information available for these waterways is found in Table 1-1.

<table>
<thead>
<tr>
<th>Line</th>
<th>Drainage Area (sq. mi.)</th>
<th>100-yr Flow (cfs)</th>
<th>Effective FIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Benito River</td>
<td>586 approx. 3.1 miles upstream of Hospital Rd.</td>
<td>28,000</td>
<td>County of San Benito 9/27/91</td>
</tr>
<tr>
<td>Santa Ana Creek Tributary</td>
<td>1.08 at Fairview Rd.</td>
<td>400</td>
<td>County of San Benito 9/27/91</td>
</tr>
</tbody>
</table>

### 1.3.2 Riparian Corridors

The nearby tributaries are not within the site boundaries, nor are they close enough for the Project Area to overlap any stream buffer zones.

### 1.3.3 Flood Hazards

During more extreme storm water runoff events, the Plan Area is not prone to flooding. However, areas directly downstream are. The Federal Emergency Management Agency (FEMA) has applied hydrologic and hydraulic models to produce a set of maps that identify flood hazards within the area. The Flood Insurance Rate Map (FIRM) for the County of San Benito was last revised in September 1991, and remains the official document governing the National Flood Insurance Program (NFIP). Local jurisdictions and FEMA will not allow development to induce increased water surface elevations and thus increase flood risks to neighboring properties, although FEMA’s threshold of...
significance (one foot rise in water surface) is generally less restrictive than that for most local jurisdictions.

1.4 **Groundwater**

The groundwater table in the vicinity of the Project Area is approximately 120 feet below the ground surface as shown in Figure 1-4.

![Figure 1-4: Contours of Depth to Water, Annual Groundwater Report - March 2005](image)

1.5 **Water Quality**

1.5.1 *Surface Water Quality*
Surface water quality testing results are not available for the area.

1.5.2 *Ground Water Quality*
Ground water quality is monitored by several wells throughout the groundwater basin. The San
Benito County Water District publishes an Annual Groundwater Report.¹ Two monitoring wells are located close to the site. The results of the testing at these monitoring wells, as found in the 2005 Report, show that the nitrate levels are less than 30 mg/l, which is less than the 45 mg/l maximum contaminant level for California drinking water standards. However, total dissolved solids (TDS) are nearly 1,500 mg/l, which is significantly higher than the recommended 500 mg/l. A groundwater this high in TDS would not be generally suitable for potable use without treatment.

ENVIRONMENTAL IMPACTS

Approach to Analysis

The impact evaluation identifies potentially significant hydrologic impacts of the project both during project construction and at buildout, as well as describes mitigation measures to reduce those impacts.

Thresholds of Significance

Appendix G of the CEQA Guidelines and the Regulatory Setting requirements considers the proposed project to have a significant environmental impact with regard to hydrology and water quality if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete ground water supplies or interfere substantially with ground water recharge such that there would be a net deficit in aquifer volume or a lowering of the local ground water table level (e.g., the production rate of preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Expose people or structures to inundation by seiche, tsunami, or mudflow.

Impacts would be considered significant if the project would result in exceedance of a RWQCB surface water or groundwater quality objective; would cause substantial erosion and sedimentation problems; or would cause a flood hazard or exacerbate an existing flood hazard, including hazards from a seiche, tsunami, or mudflow.

Proposed Project

Proposed Drainage Conditions

The existing site naturally splits drainage between two drainage basins, as shown if Figure 1. Approximately 75% of the site drains to a tributary of San Benito River that runs along Airline Highway. The remaining 25% drains to the Santa Ana Creek Tributary.

Figure 1: Existing Drainage Basins
Grading and drainage plans for the proposed project will alter the natural drainage such that 100% of the runoff will discharge the San Benito River Tributary as shown in Figure 2. Therefore, only the impacts to San Benito River Tributary will be analyzed.

Figure 2: Proposed Drainage Basin, Grading Plan - May 2008

The current project design proposes a combination of campus facilities and residential housing lots as shown in Figure 3.
Newly created impervious area would cover an estimated 65% of the residential portion of the site, which is a typical estimate for medium density residential development. The college portion of the site would be approximately 47% impervious assuming that all walkways, parking and sporting areas (since it is possible that they will be constructed with lined Astroturf) will be entirely impervious.

**Hydrology and Water Quality Issues Not Discussed Further**

The following environmental impacts have been determined to be *less-than-significant* and are not analyzed further for the reasons given:

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• Violate Water Quality Standards: The Gavilan project would not violate any water quality standards as administered through the NPDES permit. San Benito River is listed as being impaired for fecal coliforms; the site development should not increase the presence of livestock or wildlife to contribute fecal coliforms, and the human waste is being conveyed through a sanitary sewer system and treated at a wastewater treatment facility. Therefore, no increase in fecal coliforms to the river is expected from the site development. San Benito River is also listed as being impaired for sedimentation/siltation. Any potential for increasing sedimentation/siltation will be avoided as set forth in the Stormwater Pollution Prevention Plan (SWPPP) and Stormwater Management Plan (SWMP) to be prepared at a future date.

• Violate Waste Discharge Requirements: The wastewater from the project site is planned to be delivered via piped sanitary sewer lines to the sanitary sewer treatment plant.

• Substantially Deplete Ground Water Supplies or Interfere Substantially with Groundwater Recharge: Since the groundwater table very deep (approximately 120 feet below ground\(^2\)) and the soils on the site have very low infiltration rates, development on the surface will not significantly affect the groundwater.

• Place Housing within a 100-Year Flood Hazard Area or Impede Flood Flows: The FEMA FIRM shows the site outside of an identified 100-year flood hazard area.

• Expose People or Structures to a Significant Risk of Loss: The project area is not in a regulatory flood hazard area nor is it protected by or downstream of a levee or a dam.

• Risk of Seiche: The resonant oscillation of water in an enclosed body of water is a seiche. There are no lakes or other enclosed bodies of water in the general vicinity of the project to produce seiche events that would affect the project site.

• Risk of Tsunami: The project is not near the ocean; thus tsunami events would not affect the project site.

• Risk of Mudslides: Landslides and mudflows tend to occur in steeply sloped areas. The project site contains rolling hills and is not down-slope of any steeply sloped areas. The USGS Quad Sheet confirms the rolling terrain.\(^3\) Data does not appear to be available for landslide potential for San Benito County to confirm that the site is free from mudslide risk. This should be confirmed once the geotechnical survey and report has been completed.

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\(^3\) USGS, 1993, Tres Pinos Quadrangle.
Project Impacts and Mitigation Measures

Impact HYDRO-1 Substantially Alter Drainage Patterns Resulting in Increased Erosion or Siltation and Flooding

Erosion and sedimentation are concerns in both the construction and post-development phase. During construction, the removal of vegetation creates high erosion potential on the site itself. Natural topography creates relatively steep slopes throughout the property thus increasing the risk. A Stormwater Pollution Prevention Plan (SWPPP) has not yet been prepared for the project site but will be required before construction can begin. This will outline the proper Best Management Practices (BMPs) for use in erosion and sedimentation control, location of the BMPs, as well as maintenance.

The existing drainage pattern on the project site, as inferred from the site topography, is dispersed overland flow concentrating through areas of lower elevation. These drainage patterns will be altered by the project. Runoff will be concentrated on the rooftops and collected into the storm drain system. The amount of overland stormwater flow will likely be reduced. Overall, the effects on erosion from such flow, therefore, should be reduced on site.

However, increased imperviousness creates the potential for hydromodification downstream. Flow frequency curves should remain the same or lessen to ensure no increase in erosion or flooding downstream. Increases of flows below the 10-year event can increase erosion in unstable earthen channels. Though the tributary downstream is earthen, it appears to be stable and well-vegetated as shown in Figure 4.

Figure 4: San Benito River Tributary Downstream of Project Outfall
Increases of higher flows can produce increased flooding. The effective FEMA Flood Insurance Rate Map (FIRM) dated September 27, 1991 shows a susceptibility to flooding on the San Benito River Tributary one mile downstream of the project. The flood hazard is classified as Zone A, indicating that the shaded area is approximate for the 100-year storm and a detailed analysis has not been performed on the area. The FIRM is shown in Figure 5.

Since both erosion and flooding are potential impacts for the tributary downstream of the project outfall, an analysis has been performed to determine the effect of the proposed project on the flow-duration curves for the tributary. Models were set up in HEC-HMS (hydrologic watershed modeling software designed to simulate precipitation-runoff processes) for both the pre- and post-development conditions for the tributary. The watershed consists of a mixture of hydrologic soil groups C and D, soils characterized by low infiltration rates. Rainfall was based on the Gilroy, Hollister, and City of San Jose precipitation gages, priority given in that order, and was adjusted directly proportionate to Mean Annual Precipitation (MAP) of 13 inches for the study site. While the rainfall was in one-hour increments, the computations were done on a fifteen-minute basis by assuming four equal amounts of rainfall for each hour. The SCS Curve Number and Clark Transform Methods are used. Curve numbers are based on pasture in fair
condition for existing pervious areas. Proposed landscaped areas are given a curve number corresponding to grass in good condition.

The drainage areas in the model include all upstream watershed for the tributary at the location of the project outlet, including contributing project area, as shown in Figure 6.

![Figure 6: Contributing Watershed at Outfall](image)

After inserting the various coefficients into HMS, the basin models were run and the output flows were extracted into an MSExcel worksheet. Pre-development and post-development flows from HMS were then ranked, plotted and compared. These plots for the San Benito River Tributary at the location of the project outfall are shown in Figure 7.
These curves show approximately a 1% increase between the pre- and post-project conditions.

To estimate peak discharges for specific storm events, the peaks from the pre-development flow have been ranked. A peak flow is defined as when the two previous and two following times-steps have less flow. The peaks are plotted with Weibull plotting positions. The equation of the best fit logarithmic regression line is used to determine the specific storm discharges as shown in Table 1.

Table 1: Flows for the Entire Watershed at the Project Discharge Point

<table>
<thead>
<tr>
<th>Event</th>
<th>Existing</th>
<th>Post-Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Year</td>
<td>530</td>
<td>530</td>
</tr>
<tr>
<td>10-Year</td>
<td>700</td>
<td>700</td>
</tr>
<tr>
<td>100-Year</td>
<td>940</td>
<td>950</td>
</tr>
</tbody>
</table>
Since there is a slight increase in the flows, the project could increase the potential for erosion and flooding in the watershed. The small increase in flows is caused by the additional drainage area due to the proposed grading. However, this 1% increase could likely be confined to the accuracy of prediction of parameters used in the model. As more detailed information for proposed utility systems, impervious surfaces, etc. become available, this 1% could disappear. For flooding concerns downstream, a 1% increase will most likely be completely attenuated within the one mile the flows must travel to reach the Special Flood Hazard Area downstream.

Since the watershed is mostly pervious in a natural condition, the time to the peak of the hydrograph is rather long. Increasing the impervious surface speeds this time up for the project portion of the watershed, allowing some of that water to be released to the tributary before the time of peak which decreases the peak flow. In more developed watersheds, the peak occurs sooner due to the high percentage of impervious surfaces. Increasing the impervious surface would then increase the peak. However, in this particular watershed, increasing the impervious surface has a positive effect for both erosion and flooding.

Therefore, detention in any form is discouraged for this site. Discharges should be encouraged to leave the site as soon as possible. As the site plans continue to evolve, care must be taken to allow flows to discharge quickly. This could be done by connecting impervious surfaces and shortening travel lengths of onsite stormdrains wherever possible. This need will likely conflict with BMP requirements for C.3 mitigation. This will be discussed in the following section.

Overall, the project would have a less-than-significant impact on off-site erosion and flooding.

At later stages of planning, a SWPPP and a SWMP will be prepared to avoid on-site erosion which is discussed in Mitigation Measure HYDRO-2. On-site flooding is not an issue.

**Impact HYDRO-2 Create or Contribute Runoff Water Which Would Exceed the Capacity of Existing or Planned Stormwater Drainage Systems or Provide Substantial Additional Sources of Polluted Runoff**

**Quantity of Surface Water Runoff**

There is no existing storm drain utility system. An adequate system should be designed as part of the project, including properly sized outfalls to the existing tributary. There will be a less-than-significant impact downstream of the outfalls due to the quantity of runoff as discussed in the previous section and no mitigation is required.
Quality of Surface Water Runoff

The Gavilan College project could generate significant adversely impact water quality. Pollutants and chemicals associated with urban development could run off new roadways and other transportation facilities, such as parking lots and walkways. The pollutants could then flow into the natural tributary. These pollutants could include, but may not be limited to, heavy metals from automobile emissions, oil, grease, debris, and air pollution residue. Contaminated urban runoff that remains relatively untreated could result in incremental long-term degradation of water quality.

Short-term adverse impacts to water quality may also occur during construction of the project when areas of disturbed soils become susceptible to water erosion and downstream sedimentation. This impact is of particular concern where projects are located on previously contaminated sites. Grading and vegetation removal in proximity to drainage features could result in an increase in bank erosion, affecting both water quality and slope stability along the drainage feature.

Site design to reduce impervious area coverage, limited grading and fitting of structures to the existing topography, and use of swales rather than storm drain pipes to convey runoff are favored approaches to managing urban runoff. Current agency guidance also recommends that, where soils and geotechnical conditions allow, runoff be infiltrated using a combination of treatment BMPs, such as grass swales and infiltration trenches, to reduce peak flows and enhance water quality. Based on the analysis herein as described in the previous section, these types of BMPs even if installed at the lot- or neighborhood-scale, properly sized for the drainage area, and designed to comply with criteria in the California Stormwater BMP Handbook would NOT be well suited to local conditions unless infiltration without outflow could be achieved. With the low permeability soils found on the site, this is not likely possible. BMPs that enhance water quality but do not delay are more appropriate for this site.

Under existing conditions, fertilizer and organic compounds are the most likely pollutants of concern since the project site is currently used for grazing. Given that grazing activities would cease following project construction, the project could potentially reduce any existing organic contributions to the surface water, a benefit to water quality.

However, there are several pollutants that the project development could contribute to the surface water, including sediment and typical urban pollutants. In contrast to other potential pollutants, sediment is typically of greatest potential concern during the construction-phase of development. After a project has been constructed and the landscaping has been installed, erosion and sedimentation from residential development sites are usually minimal. Pollutants other than sediment which might typically degrade surface-water quality during project construction include petroleum products (gasoline, diesel, kerosene, oil, and grease), hydrocarbons from asphalt paving, paints, and solvents, detergents, nutrients (fertilizers), pesticides (insecticides, fungicides, herbicides, rodenticides), and litter. Once the housing and roadways

4 California Storm Water Quality Task Force, 2003, Ibid.
have been constructed, typical urban runoff contaminants might include all of the above constituents, as well as trace metals from pavement runoff, nutrients, and bacteria from pet wastes, and landscape maintenance debris. Since the drainage system discharges directly to the tributary, these pollutants could affect aquatic and wetland habitats and sensitive species, and sediment could reduce flood storage. Without mitigation, the effects on surface water quality could potentially be significant.

Therefore, the following mitigation measures are recommended to reduce the effects on surface quality to a less-than-significant level:

**Mitigation Measure HYDRO-2**

Potential construction-phase and post-construction pollutant impacts from development can be controlled below the level of significance through preparation and implementation of an erosion control plan, a stormwater pollution prevention plan (SWPPP) and a stormwater management plan (SWMP) consistent with recommended design criteria, in accordance with the NPDES permitting requirements enforced by the Regional Board. The erosion control plan forms a significant portion of the construction-phase controls required in a SWPPP, which also details the construction-phase housekeeping measures for control of contaminants other than sediment. The SWMP implements treatment measures and best management practices (BMPs) to be implemented for control of pollutants once the project has been constructed. Both the SWPPP and the SWMP set forth the BMP monitoring and maintenance schedule and identifies the responsible entities during the construction and post-construction phases.

The applicant’s SWPPP shall prescribe construction-phase BMPs to adequately contain sediment on-site and prevent construction activities from degrading surface runoff. The erosion control plan in the SWPPP would include components for erosion control, such as phasing of grading, limiting areas of disturbance, designation of restricted-entry zones, diversion of runoff away from disturbed areas, protective measures for sensitive areas, outlet protection, and provision for revegetation or mulching. The plan would also prescribe treatment measures to trap sediment once it has been mobilized, at a scale and density appropriate to the size and slope of the catchment. These measures typically include inlet protection, straw bale barriers, straw mulching, straw wattles, silt fencing, check dams, terracing, and siltation or sediment ponds. BMPs shall be implemented in accordance with criteria in the California Stormwater BMP Handbook for Construction\(^5\) or other accepted guidance and shall be reviewed and approved by the County prior to issuance of grading or building permits. The applicant shall identify the SWPPP Manager who will be the responsible party during the construction phase to ensure proper implementation, maintenance and performance of the BMPs.

The applicant’s SWMP shall implement post-construction water quality BMPs that control pollutant levels to pre-development levels, or to the maximum extent practicable (MEP). Neighborhood- and/or lot-level BMPs to promote infiltration or “green” treatment of storm runoff shall be emphasized, consistent with Regional Board guidance for NPDES Phase 2 permit compliance. These types of BMPs include infiltration basins and trenches, constructed wetlands, rain gardens, grassy swales, media filters, and biofiltration features. BMPs shall be designed in accordance with engineering criteria in the California Stormwater BMP Handbook for New and Redevelopment\(^6\) or other accepted guidance and designs shall be reviewed and approved by the County prior to issuance of grading or building permits for the roadway or driveways. These types of structural BMPs are intended to supplement other storm water management program measures, such as street sweeping and litter control, outreach regarding appropriate fertilizer and pesticide use practices, and managed disposal of hazardous wastes. The applicant shall prepare a clearly defined operations and maintenance plan for water quality and quality control measures. The design and maintenance documents shall include measures to limit vector concerns, especially with respect to control of mosquitoes. The applicant shall identify the responsible parties and provide adequate funding to operate and maintain stormwater improvements (through a HOA, Geological Hazard Abatement District, CSD, CFD or similar organization). If lot-level BMPs are accepted by the County as a suitable control measure, the applicant shall establish a mechanism for enforcement to assure that BMP functioning is being maintained as designed. The applicant shall also establish financial assurances, as deemed appropriate by the Department of Resource Management, enabling the County to maintain the stormwater improvements should the HOA or other entity disband or cease to perform its maintenance responsibilities.

The BMPs implemented through the SWMP must NOT delay flows unless the flows would be retained completely and not leave the site. This will likely preclude the use of any detention or filtration measures. Vortex separators and possibly swales will likely be what will be required to allow flows to leave the site quickly before the peak discharge of the tributary arrives at the site, guarding downstream from negative flooding and erosion impacts. Mitigating water quality impacts must not be done at the expense of flooding and erosion impacts downstream.

**CUMULATIVE IMPACTS**

This section analyzes potential cumulative hydrologic and water quality impacts that could occur from the combination of the proposed project with other reasonably foreseeable projects in the near vicinity. CEQA’s concept of a cumulative impact is a change in the environment that results from adding the effects of the project to those effects of cumulative projects in the project vicinity. A cumulative impact

related to hydrology would be an impact caused by the project that, when added to impacts of related past, present, and probably future projects, would rise to the level of significance.

The list of projects considered in the cumulative analysis is shown in Section 4.0 (Cumulative Projects) of this EIR. The other projects listed in the cumulative analysis would also be subject to City, State and federal regulations regulating water quality and flood control. By complying with those regulations, through incorporation of BMPs to prevent increases in peak flows and treat post-construction runoff, there would be a *less-than-significant* cumulative impact associated with hydrologic and water quality impacts.

**LEVEL OF SIGNIFICANCE AFTER MITIGATION**

Impacts after mitigation would be *less-than-significant*. 