4.8 HYDROLOGY AND WATER QUALITY

The analysis presented in this section assesses impacts to surface drainage, surface water and groundwater quality, and flooding resulting from the project. This analysis is based on both previous reports and current project-specific analyses, including: (1) the hydrologic analysis conducted for the project at the site (Penfield & Smith, 2012) and (2) a review of available publications and data from various sources. The Penfield & Smith *Preliminary Drainage Report*, dated June 19, 2012 (included in **Appendix F**), was prepared to accommodate a redesign of the project site plan (as provided in Section 2.0 *Project Description*) and to revise the analysis according to the City's most recent "Draft Interim LID Strategy," and supersedes the February 11, 2010 *Preliminary Drainage Report*, which was provided in the Draft EIR. This Section is revised to incorporate revisions from according to the June 19, 2012 Report. The Report analysis is considered representative of conditions for the site within the current hydrologic setting. This analysis is also based on inspection of aerial and ground photographs.

4.8.1 Existing Conditions

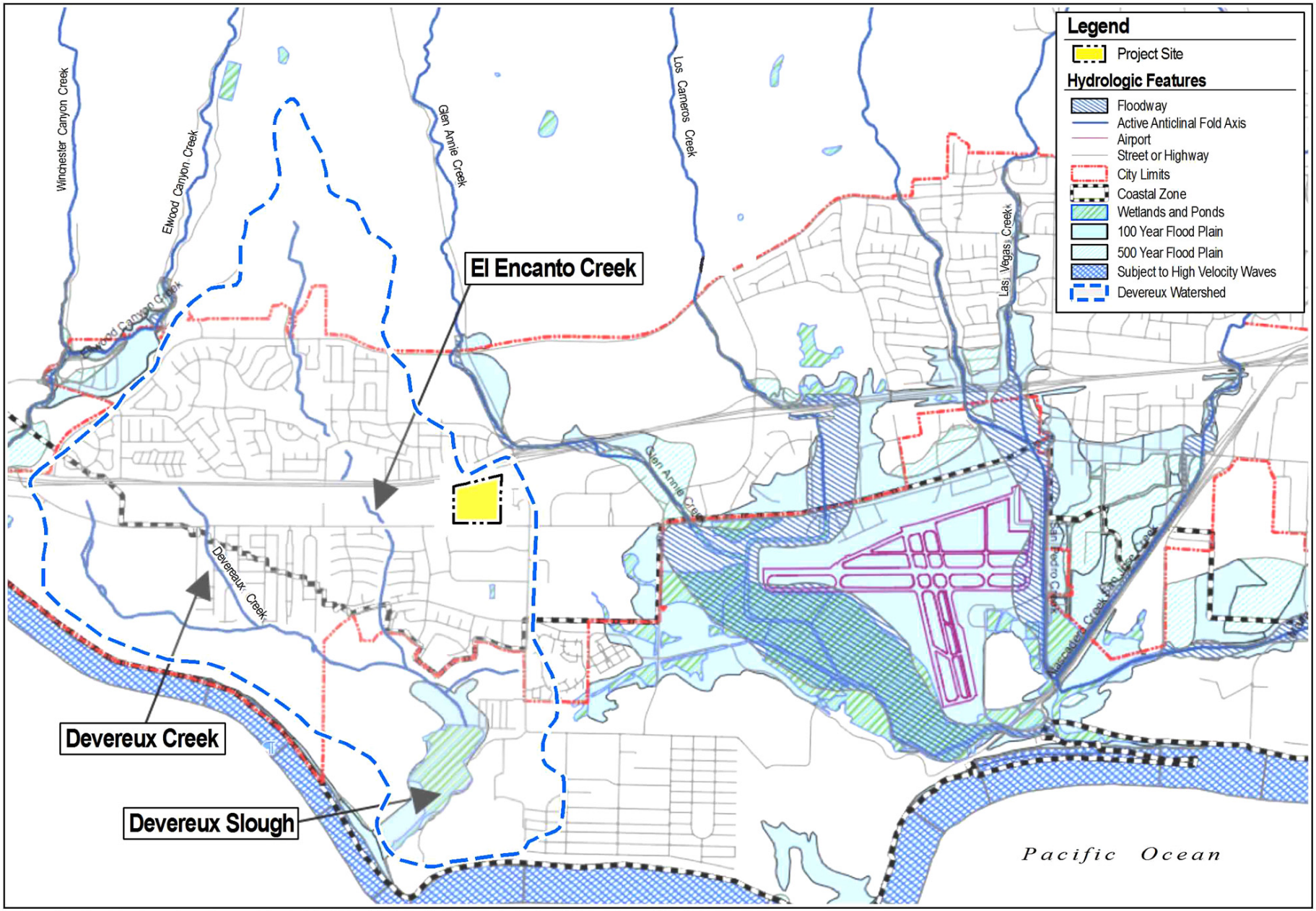
Watershed and Surface Drainage

The project site lies along the coastal strip between the Pacific Ocean on the south and the Santa Ynez Mountains on the north, and north of the Devereux Slough between an unnamed drainage on the west and Glen Annie/Tecolotito Creeks on the east (**Figure 4.8-1**). Average annual rainfall for the period 1952-2010 water years is 17.54 inches (County of Santa Barbara Flood Control District, 2010). The Santa Barbara County Stormwater Management Manual (1999) indicates that the County 25-year frequency, 24-hour precipitation is 3.9 inches.

It is located within the South Coast Hydrologic Unit, identified as Hydrologic Unit 315.31 of the Goleta Hydrologic Subarea (Central Coast Regional Water Quality Control Board [CCRWQCB], 2006). The site location is within the Devereux Creek Watershed on the divide between Ellwood Canyon on the west and Glen Annie Canyon on the east. Specifically, the site is on the far eastern edge of the watershed and about 1,500 feet east of El Encanto creek, a major central watershed drainage, and as it is the far eastern edge, it is possible that a small portion of the project site drains to the east toward Goleta Slough. A smaller unnamed drainage lies just west of the site, and is modified by the US Highway 101 (US 101) and by grading west of the site near Santa Felicia Drive. Within the Devereux Creek Watershed there are several secondary drainages each with its own smaller watershed.

Northern (upper elevation) portions of the watershed exhibit steep to shallow slopes within a generally moderate to low relief drainage basin. The smaller creeks and their respective tributary systems are cut off from the major Santa Ynez Mountains canyons, Ellwood Canyon on the west and Glen Annie Canyon on the east. Drainages in the watershed transport water to the Pacific Ocean by way of the Devereux Slough/Lagoon. Stormwater runoff from the project site passes through existing storm drainage facilities and natural areas, including El Encanto Creek, before discharging to Devereux Slough (Figure 4.8-1), which is approximately 1.2 miles to the south.

The Devereux Watershed is the entire area that collects and funnels water into the Devereux Creek-El Encanto Creek system, to the Devereux Slough, and eventually out to the Pacific Ocean. This watershed encompasses 2,330 acres. The termination of Devereux Creek at Devereux Slough (classified as a Canyon Mouth Estuary) is located on the West Campus of University of California, Santa Barbara. The slough is owned and managed by the University of



Source: City of Goleta, Backgroung Report Number 24, Map 1: Major Hydrologic Features Map, http://www.cityofgoleta.org/index.aspx?page=421, April 2004.

WESTAR MIXED-USE VILLAGE

ENVICOM CORPORATION

Regional Hydrologic Features

0 1,500 3,000 Feet

FIGURE 4.8-1

California's Natural Reserve System, Coal Oil Point Reserve (UCNRS, 2011). Winter flows in Devereux Creek are dependent on storm events and in drier months the intermittent flow is from agricultural and landscape runoff. Calculated average annual runoff, using records for the period 1941-1988, is approximately 690 acre-feet (CERES, 2011). No specific flow or water quality information was found for El Encanto Creek.

Before development in the Goleta area, the Devereux Slough is estimated to have been approximately 2 to 3 times its present size. A 1903 map from UCSB is provided as Exhibit 4.5-1 in Section 4.5 *Geology and Soils* the historical relative location of the slough and the project site. The slough is tidally influenced during short periods in the winter and a beach berm forms at the mouth during drier months. The water in the slough varies from almost completely fresh to more saline than the ocean. Sediment loading has reduced the total size of the slough.

Devereux and El Encanto Creeks, and their related drainages in the watershed are the most important fresh water sources for Devereux Slough and supply most of the fresh water flow into the wetlands (Stream Team, 2006). Because these near coast drainages originate in the low foothills of Santa Ynez Mountains and the Los Padres National Forest, natural vegetation comprises some of the primary land use/surface coverage in Devereux Creek Watershed drainages well upslope from the development north of Cathedral Oaks Road. El Encanto Creek and several secondary drainages cross beneath US 101. In addition, a larger portion of the watershed is covered with agricultural lands on the northern end, residential, commercial, and institutional uses, including a large golf course between the site and the slough. Other natural terrain is present west of the slough (Stream Team, 2006). The urban land uses characterize the majority of the small coastal drainages basins surrounding the project area.

Site Surface Drainage

The 23.55-acre project site is primarily undeveloped, except for 1.23 acres in the southeast corner that is developed with two buildings and a paved parking area. The site topography generally slopes evenly north to south with gradients typically ranging from 1 to 10 percent. No significant natural slopes are present within or immediately adjacent to the site. The north edge of the site is bordered by a railroad easement where a berm (maximum height of approximately 14 feet) slope drops down toward the railroad tracks at about a 1:1 (horizontal:vertical) gradients or less and separates the project site from the adjacent railroad right-of-way. A man-made drainage feature, lying just south of the railroad right-of-way and bounded by 2:1 (horizontal: vertical) slopes, with an arcuate trend roughly west-to-east across the northern portion of the project site.

Site topography generally results in sheet flow runoff in a southward direction toward Hollister Avenue. Presently, most, if not all, stormwater runoff from the project site is collected by area surface drains and conveyed through underground drains along Hollister Avenue to outlet into El Encanto Creek ("open channel") west of the project site (Penfield & Smith, ~~2010~~ 2012), which conveys it to Devereux Slough. All runoff from the site ultimately discharges into the Goleta Slough. The area north of the artificial cut (less than 10 percent of the site area) drains to the ~~north~~east to Glen Annie Road and Storke Road. Stormwater in Glen Annie Road and Storke Road flows south to Hollister Avenue. The intersection of Hollister Avenue and Storke Road is known to flood frequently due to insufficient storm drain capacity (Penfield and Smith, 2012). The northwest corner of the site water flows to the west toward an adjacent property.

Penfield & Smith (~~2010~~2012) divided the overall pre-development site drainage area into seven smaller drainage areas termed X-1 through X-7 that drain to four concentration points, termed A, B, C, and D, and to one general area termed X7 (**Figure 4.8-2**). Under the current project site conditions, stormwater is collected by area drains at points X-1 through X-7 and from there conveyed in underground off-site storm drains.

Surface Runoff Quantities

The Penfield & Smith ~~2010~~2012 Preliminary Drainage Report for the project was submitted to the City in May 2012 and revised in June 2012 and has been reviewed by the City of Goleta Community Services Department. As mentioned, the seven drainage areas discharge to four concentration points and one area as noted below ~~and in **Table 4.8-1.**~~

Concentration Point A (Area X1) Northwest corner of the site.

Concentration Point B (Area X3) Northeast corner of the site.

Concentration Point C (Areas X4 and X5) Southeast corner of the site.

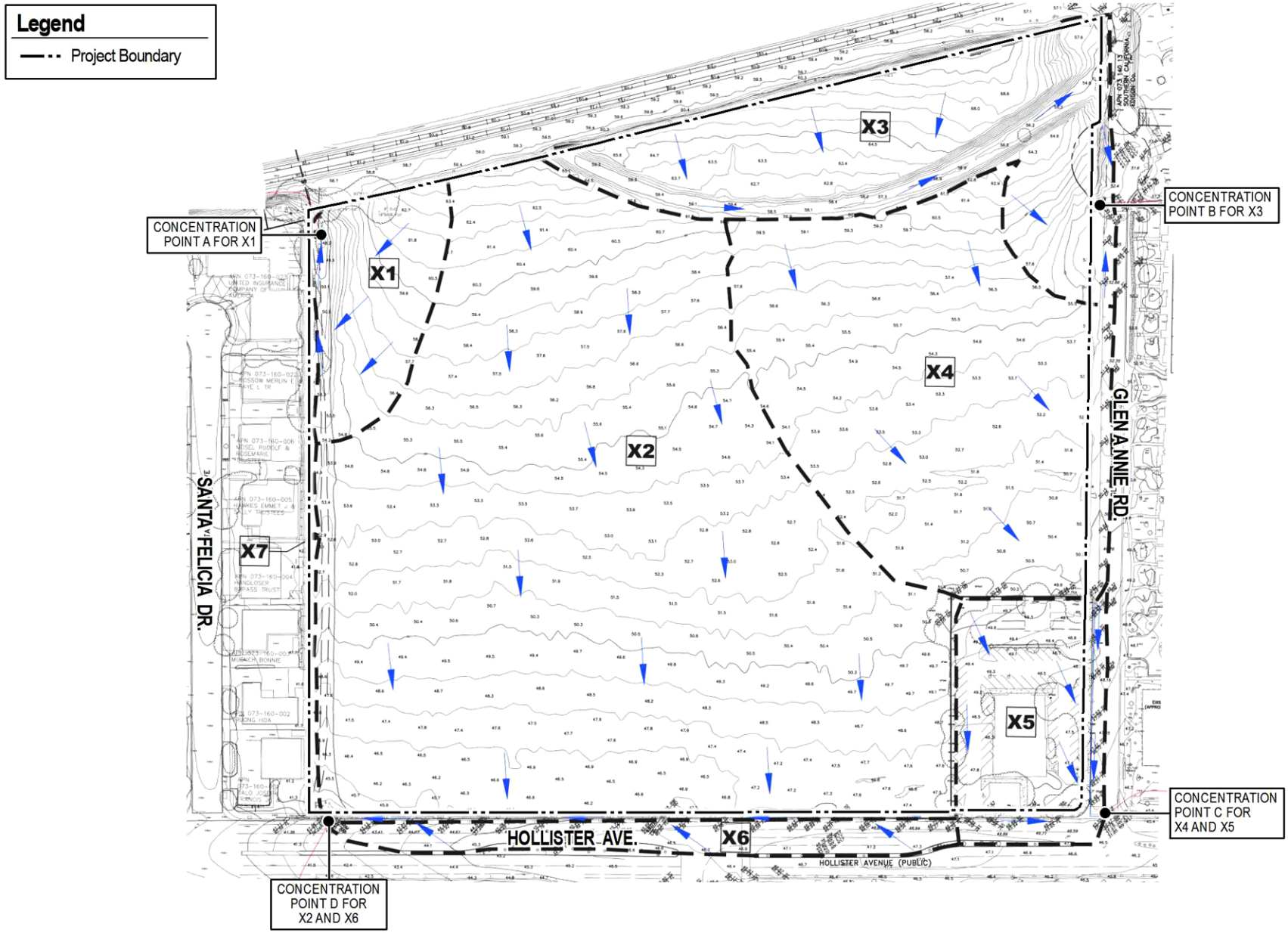
Concentration Point D (Areas X2 and X6) Southwest corner of the site.

Westside (Area X7) **-** Western side of the site.

Pre- and post-development surface runoff peak flow rates and drainage volumes were calculated for the project site to assess estimated increases or decreases, and to compare post-development estimates with allowable discharges into the Santa Barbara County Department of Public Works (SBCDPW) storm drain system adjacent to the development (Penfield & Smith, ~~2010~~ 2012). Pre-development estimates for the project site drainage area as a whole (as opposed to sub-basins within the project site), were prepared for 2-, 5-, 10-, 25-, 50-, and 100-year storms as shown in **Table 4.8-1**.

Table 4.8-1
Summary of Pre-Development Flow Rates

Storm Event (Year)	Pre-Project Flow Rate (cubic feet per second, cfs)
2	14.98
5	26.90
10	35.15
25	45.47
50	53.07
100	60.41
Flow rates were determined by Penfield and Smith (June 2012) using CrystalClean Separator Model 2466 produced by CrystalStream Technologies	



Source: Penfield & Smith, Preliminary Drainage Report, Exhibit #1, June 2010.

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Pre-Development Hydrologic Conditions

0 100 200 Feet

FIGURE 4.8-2

~~**Table 4.8-1**~~
~~**Summary of Pre-Development and**~~
~~**Post-Development Drainage Areas and Concentration Points**~~

~~Pre-Development Drainage Areas~~	~~Post-Development Drainage Areas~~	~~Concentration Points~~
~~X1~~	~~P1~~	~~A~~
~~X3~~	~~P5~~	~~B~~
~~X4 + X5~~	~~P7~~	~~C~~
~~X2 + X6~~	~~P2+P3+P4+P6+P8~~	~~D~~
~~X7~~	~~P9~~	~~Westside of Property~~
~~Source: Penfield & Smith, 2010.~~		

Surface Water Quality

As described above, the Devereux Creek Watershed is a primary surface drainage system north and west of the project site. Water quality within the Devereux Creek Watershed is affected by a number of proximal sources, both point and non-point, including surface water runoff, septic system seepage, and effluent discharges. Devereux, El Encanto, and smaller subsidiary creeks supply most of the fresh water flow into the slough and wetland, and are the sources of most nutrient contamination entering the slough, based on the upstream land uses including agriculture, residential and commercial development, the golf course, and runoff from US 101. There were no Santa Barbara Channelkeeper/Stream Team sampling locations for El Encanto Creek or other drainages upstream from the project site (Santa Barbara Channelkeeper, 2011).

Devereux Creek (Water Body ID CAR3153102020080612164650), El Encanto Creek, and a few unnamed creeks in the watershed are perennial. The Central Coast Region Water Quality Control Board's (CCRWQCB) Basin Plan (2006) and the State Integrated Water Quality Assessment (WQA; SWRCB, 2010) do not designate Devereux Creek or El Encanto Creek as impaired water bodies. For purposes of this analysis, it is assumed that water conditions in El Encanto Creek are similar to those in Devereux Creek for which there is some water quality test data. The creeks drain into Devereux Slough, which is designated as impaired by the CCRWQCB, but the Plan does not identify any specific pollutant point sources within the Devereux Creek drainage contributing to conditions in Devereux Slough (CCRWQCB, 2006). The designation of Devereux Slough is due to either the potential for long-term loss of the designated beneficial use, short-term impairment of the designated beneficial use, or general degradation of water quality. In accordance with the Clean Water Act, ~~T~~the 2010 State Integrated Water Quality Assessment (WQA) makes a ~~new~~ designation of the CWA Section 303(d)[1] *List of Impairments* for Devereux Creek; these are fecal coliform contamination (2 of 14 samples were contaminated) and low dissolved oxygen (2 of 3 samples were low) from golf course activities, natural sources, and urban runoff/storm sewers. Samples were taken from just below the golf course at the entrance to the slough in 2010.

The beneficial uses of surface water in the project area as provided by the CCRWQCB Basin Plan (2006) for inland streams that flow into the Devereux Slough, specifically Devereux Creek, are shown on Table 4.8-2 and include: Municipal and Domestic Supply (MUN), Agricultural

[1] Section 303(d) of the Clean Water Act requires identification of water bodies that do not meet, or are not expected to meet, water quality standards (i.e. impaired water bodies). Approved by the US Environmental Protection Agency, the SWRCB's 2010 WQA meets these requirements. The 2012 WQA is not yet made available.

(AGR), Industrial Process Supply (PRO), Industrial (IND), Groundwater (GWR), Contact Water Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Freshwater Water Habitat (COLD), Warm Freshwater Habitat (WARM), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction and/or Early Development (SPWN), Preservation of Biological Habitats of Special Significance (BIOL), Rare, Threatened or Endangered Species (RARE), Estuarine Habitat (EST), Fresh Water (FRESH), Commercial and Sport Fishing (COMM), and Shellfish Harvesting (SHELL).

Table 4.8-2
Beneficial Uses of Devereux Slough (Receiving Water Body) and Devereux Creek Watershed Drainages (Inland Streams)

EXISTING BENEFICIAL USES OF INLAND AND COASTAL WATERS																						
WATERBODY NAMES	**MUN**	**AGR**	**PRO**	**IND**	**GWR**	**REC1**	**REC2**	**WILD**	**COLD**	**WARM**	**MGR**	**SPWN**	**BIOL**	**RARE**	**EST**	**FRESH**	**NAV**	**POW**	**COMM**	**AQUA**	**SAL**	**SHELL**
Devereux Slough / Ranch Lagoon						X	X	X		X	X	X	X	X	X				X			X
Devereux Creek	X				X	X	X	X		X						X			X			

The CCRWQCB identifies beneficial uses for the Devereux Ranch Lagoon (Slough) and Devereux Creek (Table 4.8-2); the creek, but not the slough, is newly identified on the 303(d) List. Some site area-related surface water quality data for the Devereux Creek was located in the WQA (2010) and some general descriptions for Devereux Slough are provided by CERES (2011) as follows:

Devereux Slough

- Dissolved oxygen (DO) was determined in the slough in 1987 – 1989 with weekly to monthly sampling in the early morning and afternoon at seven stations. DO in morning bottom waters ranged from below detectable limits (temperature 8-10 degrees Celsius [C]) to 8 parts per million (ppm; temperature 20 degrees C). Concentrations of less than 2 parts per thousand (ppt) were recorded in the bottom water during early winter and spring 1987/88 with an average water temperature of 15 degrees C and in the winter of 1989 with an average water temperature of 18 degrees C.
- Water salinity was determined in the slough in 1984 through 1986 with sampling of surface water from five sites in the permanently flooded portions. Salinity is highly variable due to freshwater inputs from storm events, breaching of the beach barrier, and hypersaline conditions from evaporation. Over the period salinities ranged from 0 to 80 ppt at the head of the slough, 0 to 85 ppt in the middle of the slough, and 0 to 59 ppt at the mouth.
- Sediment input from Devereux Creek is limited as most of it is deposited on the golf course north of the slough before it reaches the slough or behind a weir located at the mouth of the creek. Sediment loading from the golf course was calculated at 21,062 cubic feet per year for the years 1965 through 1988.

Devereux Creek

- Many of the 14 samples (7/16/2001-9/26/2001) tested positive for fecal coliform above the threshold for contact and non-contact. Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN/100 ml, nor shall more than ten percent of total samples during any 30-day period exceed 400 MPN/100 ml.
- Many of the samples (2/13/2001-3/7/2002) tested for low DO above the threshold. The Basin Plan objective states that the median oxygen saturation value shall not fall below 85percent and the median value exceeded this criterion.

Sediment is one of the primary sources of pollutants since bacteria, metals, hydrocarbons, and organic matter can be trapped within or upon sand, silt, and clay particles. If these particles are transported, these pollutants will move as well. It is also important to consider that these contaminants (including dissolved metals) typically migrate substantially faster than sediments since not all pollutants are trapped in this manner. Currently the golf course provides a physical buffer between the project site and the slough.

Groundwater Occurrence and Quality, Water Supply

The Goleta Groundwater Basin is bounded on the north by the Santa Ynez Mountains and on the south by the More Ranch fault. It is approximately eight miles long and three miles wide. The Basin is subdivided into the "North-Central Basin" and "West Basin." The project site overlies the central portion of the "West Basin." Groundwater is present in alluvium beneath the site, and to a lesser degree within bedrock formations (Santa Barbara County Department of Public Works, 2000). Aquifers consist of unconsolidated Pliocene and younger sedimentary deposits. The primary unconsolidated water-bearing deposits are alluvium and the Santa Barbara Formation (CDWR, 2003a). Groundwater flow direction is generally towards the south, following the regional topographic gradient. According to GMU Geotechnical (2009), groundwater is likely 30 to 50 feet below the surface of the site. Bachman (2010, his Figure 2-2) shows groundwater contours for June 2008 a few thousand feet east of the site; these contours indicate elevations of 15 to 20 feet above sea level (a depth of approximately 30 to 50 feet) would be expected.

The West Sub-Basin of the Goleta Groundwater Basin is used by municipal and private pumpers. In the Goleta Basin, total dissolved solid (TDS) concentrations range from 617 to 929 mg/L. Average TDS for the basin is about 755 mg/L (CDWR, 2003b). These concentrations represent fair to poor characteristics for drinking water. Bachman (2010, Figures 3-1 through 3-6) shows water quality data for wells near the project site suggesting high chloride (>150 milligrams/liter [mg/L]), low nitrate (<10 mg/L), moderate to high sulfate (>250 mg/L), moderate to high TDS (>500mg/L), low to moderate iron (approximately 10 to 1000 mg/L), and low to high manganese (1 to 1000 mg/L).

Recharge in the basin is from infiltration of precipitation, seepage from streams, and subsurface inflow, as well as from water imported from Lake Cachuma. Groundwater levels decline and/or raise from year to year depending upon recharge and pumping. Several wells, both private and municipal, are scattered throughout the Goleta Basin. SBCWA estimated available usable storage in the "West Basin" at approximately 10,000 acre-feet for water years 1999 through 2000 (CDWR, 2003a) and safe yield (gross pumpage) at about 500 acre-feet per year. In past years, private wells extracted approximately 232 acre-feet per year from the "West Basin" (Bachman, 2010).

Project site geologic units consist of dense marine terrace deposits generally comprising sandy clay and clayey sand that are not conducive to infiltration of surface water runoff. Percolation testing (GMU, 2009) indicates that soil materials in the upper 30 feet are characterized by low percolation rates. These conditions suggest existing on-site groundwater recharge of the Goleta Groundwater West Sub-Basin is very low.

The Goleta Water District (GWD) provides water to Goleta and the project site. The GWD's water supply comes from Lake Cachuma, the State Water Project, and 11 GWD owned wells, and additionally can use 13 other privately and publicly owned wells for injection of treated water to recharge the Goleta Groundwater Basin (SBCWA, 2000b). See Section 4.11.1 for further discussion pertaining to water supply.

Flooding (FEMA Flood Zones and Dam Inundation)

The project site is located outside of the 100- and 500-Year flood zones, and the potential tsunami run-up area as mapped by the City's General Plan lies just south of the project site. There is no potential for dam inundation. These topics are discussed in more detail in Section 4.5 *Geology and Soils*.

4.8.2 Regulatory Framework

Federal Regulations

Clean Water Act

The primary goals of the ~~Clean Water Act~~ Federal Clean Water Act, 33 USC §§ 1251, *et seq*. (CWA) are to restore and maintain the chemical, physical, and biological integrity of the nation's waters and to make all surface waters fishable and swimmable. As such, the CWA forms the basic national framework for the management of water quality and the control of pollutant discharges. The CWA sets forth a number of objectives in order to achieve the above-mentioned goals. The CWA objectives include regulating pollutant and toxic pollutant discharges; providing for water quality which protects and fosters the propagation of fish, shellfish and wildlife; developing waste treatment management plans; and developing and implementing programs for the control of non-point sources pollution.[2]

The CWA provides the legal framework for several water quality regulations including the National Pollutant Discharge Elimination System (NPDES), effluent limitations, water quality standards, pretreatment standards, anti-degradation policy, non-point source discharge programs, and wetlands protection.

Section 303(d) of the CWA requires identification and listing of water-quality limited or "impaired" water bodies where water quality standards or receiving water beneficial uses are not met. Once a water body is listed as "impaired," total maximum daily loads (TMDLs) must be established for the pollutants or flows causing the impairment.[3] Once established, the TMDL allocates the loads among current and future pollutant sources to the water body. In general, where urban runoff is identified as a significant source of pollutants causing the impairments and is subject to load allocating, the implementation of and compliance with the TMDL total maximum daily loads requirements is administered through a combination of individual Industrial

[2] Non-point sources of pollution are carried through the environment via elements such as wind, rain, or stormwater and are generated by diffuse land use activities (such as runoff from streets and sidewalks or agricultural activities) rather than from an identifiable or discrete facility.

[3] 33 United States Code [USC] §1313(d)(c).

Stormwater Permits, the General Industrial and General Construction Stormwater Permits, and the County of Santa Barbara's municipal stormwater NPDES program. The Environmental Protection Agency (EPA) ~~has~~ delegated the responsibility for administration of portions of the CWA to state and regional agencies, including the State of California. ~~therefore~~Accordingly, the primary regulations resulting from the CWA (i.e., NPDES program) are discussed in the state and local regulation discussions that follow.

Federal Anti-Degradation Policy

The CWA's Federal Antidegradation Policy requires states to develop statewide anti-degradation policies and identify methods for implementing them.[4] Pursuant to the Code of Federal Regulations (CFR), state anti-degradation policies and implementation methods shall, at a minimum, protect and maintain: (1) existing in-stream water uses; (2) existing water quality where the quality of the waters exceeds levels necessary to support existing beneficial uses, unless the state finds that allowing lower water quality is necessary to accommodate economic and social development in the area; and (3) water quality in waters considered an outstanding national resource. State permitting actions must be consistent with the federal Anti-degradation Policy.

State

Porter-Cologne Water Quality Control Act (California Water Code)

The State of California is authorized to administer federal law or state-enacted laws regulating water pollution within the State. The Porter-Cologne Water Quality Control Act (Water Code §§ 13000, *et seq*.) ~~The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) was enacted in 1969 by the State of California. This Act~~ includes provisions to address requirements of the CWA. These provisions include NPDES permitting, dredge and fill programs, and civil and administrative penalties. ~~Regulations promulgated as a result of the Porter-Cologne Act are codified in Sections 13000-14958 of the California Water Code.~~ The Porter-Cologne Act is broad in scope and addresses issues relating to the conservation, control, and utilization of the water resources of the State. Additionally, the Porter-Cologne Act states that the quality of all the waters of the State (including groundwater and surface water) ~~shall~~ must be protected for the use and enjoyment by the people of the State.

The State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs) are agencies within the umbrella structure of the California Environmental Protection Agency (CalEPA). The SWRCB has the principle responsibility for the development and implementation of California water quality policy and must develop programmatic water quality control procedures to be followed by the RWQCBs. The Central Coast Regional Water Quality Control Board (CCRWQCB) is the region that ~~oversees~~ regulates water quality permitting in the City of Goleta ~~where the development is located~~. The CCRWQCB adopted a Revised Water Quality Control Plan (Basin Plan) on September 8, 1994. The Basin Plan designates beneficial uses and establishes water quality objectives for groundwater and surface water within the Central Coast Region. It has been amended, but not updated since 1994.

Water Code § ~~Section~~ 13050 ~~of the California Water Code~~ defines what is considered pollution, contamination, or nuisance. Briefly defined, pollution means an alteration of water quality such that it unreasonably affects the beneficial uses of water (which may be for drinking, agricultural

[4] 40 Code of Federal Regulations ~~[CFRCode of Federal Regulations]~~ §131.12.

supply, or industrial uses). Contamination means an impairment of water quality to the degree that it creates a hazard to the public health. Nuisance is defined as anything that is injurious to health, is offensive to the senses, or is an obstruction to property use, and which affects a considerable number of people.

Discharge Permits

The SWRCB has issued a statewide NPDES General Permit for stormwater discharges associated with construction activities (known as the Construction General Permit [SWRCB Order No. 99-08-DWQ]). Any project that disturbs an area more than one acre requires a Notice of Intent (NOI) to discharge under the Construction General Permit. The Construction General Permit includes measures to eliminate or reduce pollutant discharges through implementation of a Stormwater Pollution Prevention Plan (SWPPP), which describes the implementation and maintenance of best management practices (BMPs) to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the site during construction. The Construction General Permit contains receiving water limitations that require stormwater discharges to not cause or contribute to a violation of any applicable water quality standard. The permit also requires implementation of programs for visual inspections and sampling for specified constituents (e.g., non-visible pollutants). Any construction activities under the project that disturb more than one acre would be covered under the Construction General Permit.

To minimize the impact of stormwater discharges from industrial facilities, the NPDES stormwater program also includes an industrial stormwater permitting component. Operators of industrial facilities are required to have authorization under an NPDES industrial stormwater permit.

The CCRWQCB issues combined NPDES Permits under the CWA and California Water Code to all point source dischargers of waste to surface waters.[5] To ensure protection of water quality, NPDES Permits may contain effluent limitations for pollutants of concern, pollutant monitoring frequencies, reporting requirements, schedules of compliance (when necessary), mandates for operating conditions, BMPs, and administrative requirements. NPDES Permits apply to publicly owned treatment works (POTWs) discharges, industrial wastewater discharges, and municipal, industrial, and construction site stormwater discharges.

State Antidegradation Policy

The SWRCB adopted Resolution No. 68-16 (October 28, 1968), "Statement of Policy with Respect to Maintaining High Quality Waters in California" (more commonly referred to as the "State Antidegradation Policy"), which restricts the degradation of surface waters of the State and protects bodies of water where the existing water quality is higher than necessary for the protection of present and anticipated designated beneficial uses. This State policy is generally consistent with the subsequently adopted Federal Antidegradation Policy discussed previously. The State Antidegradation Policy is implemented by the CCRWQCB.

Local

Planning, implementation, and enforcement related to stormwater management during construction and post-construction activities on proposed and active development sites are

[5] "Point dischargers" indicate individual, identifiable sources of waste discharging into regulated bodies of water.

governed by the City of Goleta Storm Water Management Plan (SWMP). The Goleta SWMP was created pursuant to SWRCB General Permit No. CAS000004 for NPDES Phase II.[6]

The SWMP outlines the means by which the City will: (a) protect the health of the recreational public and the environment, (b) meet CWA mandates through compliance with Phase II NPDES Permit requirements and applicable regulations, and (c) foster increased public involvement and awareness. Water quality monitoring has been conducted to define pollutants in many watersheds resulting in identification of bacteria, nutrients, pesticides, sediment, and heavy metals as pollutants of concern in certain drainages. Storm drains may empty into drainages having already passed through land uses such as natural open space, residential, agricultural, commercial, and industrial.

The purpose of the SWMP is to implement and enforce a program designed to reduce the discharge of pollutants to the "maximum extent practicable" (MEP) to protect water quality. According to the General Permit, the MEP standard is an ever-evolving, flexible, and advancing concept, which considers technical and economic feasibility. Since knowledge about controlling urban runoff continues to evolve, so does the mitigation, which constitutes the MEP. Reducing the discharge of stormwater pollutants to the MEP in order to protect beneficial uses requires review and improvement, which includes seeking new opportunities. To do this, the City must conduct and document an evaluation and assessment of each relevant element of its program and revise, as necessary, activities, control measures, BMPs, and measurable goals to meet the MEP.

Project Clean Water (PCW) is the County of Santa Barbara's stormwater quality program initiated in 1998 to improve water quality in local creeks and the ocean by implementing many of the aspects of NPDES BMPs. This program also includes watershed planning and restoration as well as pilot treatment control BMPs and monitoring. PCW is managed and staffed by the Santa Barbara County Water Agency (Public Works Department) and the Environmental Health Services Division (EHS) of the Public Health Department, who are available to work closely with the City of Goleta as needed for access to water quality information.

Goleta's General Plan/Coastal Land Use Plan addresses water resource issues and conditions within the City. The Conservation Element of the City's General Plan/Coastal Land Use Plan established policies that the City will implement with regard to its operations, including regulation of new development. These Conservation Element policies and the objectives that relate to water resources are as follows:

CE 2: Protection of Creeks and Riparian Areas
Objective: *Enhance, maintain, and restore the biological integrity of creek courses and their associated wetlands and riparian habitats as important natural features of Goleta's landscape.*

CE 3: Protection of Wetlands
Objective: *To preserve, protect, and enhance the functions and values of Goleta's wetlands.*

CE 10: Watershed Management and Water Quality
Objective: *To prevent the degradation of the quality of groundwater basins and surface waters in and adjacent to Goleta.*

[6] City of Goleta Storm Water Management Plan, February 2010.

CE 15: Water Conservation and Materials Recycling
Objective: *To conserve scarce water supply resources and to encourage reduction in the generation of waste materials at the source and recycling of waste materials.*

The ~~City of~~ Goleta General Plan/Coastal Land Use Plan policies meet the intent of the ~~County of Santa Barbara County Flood Control and Water Conservation District Ordinance 3095~~ Chapter 15B of the Santa Barbara County Code~~Development Along Watercourses (watercourse setback ordinance), which is to~~: (a) prevent undue damage or destruction of development by flood waters; (b) prevent development on one parcel from causing undue detrimental impact on adjacent or downstream properties in the event of flood waters; and (c) protect the public health, safety and welfare (*see* Santa Barbara County Code § 15B-1). During a project's permitting stage it is necessary for the City of Goleta and the County of Santa Barbara County Flood Control and Water Conservation District to coordinate on flood related issues that may impact areas and properties downstream (e.g., City requirements relative to project stormwater runoff and detention for the design storms).

4.8.3 Thresholds of Significance

The City of Goleta's *Environmental Thresholds and Guidelines Manual* (2002) specifies the following significance thresholds (these thresholds have been organized according to the topics addressed in this section).

Hydrology and Drainage

The project would result in a significant impact related to surface drainage if it would:

a. 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 of amount of surface runoff in a manner that would result in flooding, increased erosion, or increased sedimentation on-site or off-site; or

b. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or increase runoff into naturally drained areas without storm drains.

Surface Water and Groundwater Quality

The project would result in a significant surface water or groundwater impacts if its construction or operation results in:

c. Disturbance of one (1) or more acres of land if the project is located within an urbanized area of the County and the project construction or redevelopment individually or as a part of a larger common plan of development;

d. An increase in the amount of impervious surfaces on a site by 25 percent or more;

e. Channelization or relocation of a natural drainage channel;

f. Discharge of pollutants that exceed the water quality standards set forth in the applicable NPDES permit, the Basin Plan or otherwise impairs the beneficial uses of a receiving waterbody;

g. Results in a discharge of pollutants into an "impaired" waterbody that has been designated as such by the SWRCB or the RWQCB under Section 303 (d) of the ~~Federal Water Pollution Prevention and Control Act (i.e., the CWA)~~CWA;

h. Results in a discharge of pollutants of concern to a receiving water body, as identified in by the RWQCB;

i. Substantial degradation of groundwater quality; or

j. If a project does not comply with the City's Stormwater Program.

Water quality impacts related to removal or reduction of vegetation are discussed in Section 4.3 *Biological Resources*.

Flooding

- The potential flooding impacts for the project are discussed in Section 4.5 *Geology and Soils*.

4.8.4 Project Impacts

The project would include construction and operation of 90,054 square feet of commercial development, 274 residential rental units, 5 live/work units, and demolition of the existing 9,546 square feet of development on the site. The project would develop buildings, access roads, driveways, surface parking lots, landscape and hardscape areas, and utilities, as well as drainage structures necessary to detain and retain surface water and to convey surface water across the project site to points-of-concentration along or outside the project site boundaries. A more detailed discussion of these and other project elements, including landscaped areas, are discussed in Section 2.0 *Project Description*.

For purposes of this project-specific analysis, hydrology, drainage, and water quality conditions raising environmental issues that would be addressed through the standard hydrology study/review/approval process and strict compliance with applicable regulations, are identified as less than significant impacts. Environmental issues that may involve more comprehensive study and advanced state-of-the-practice assessment, and/or might not be easily mitigated through typical hydrology and water quality engineering measures (e.g., drainage structures and BMPs), are considered potentially significant impacts.

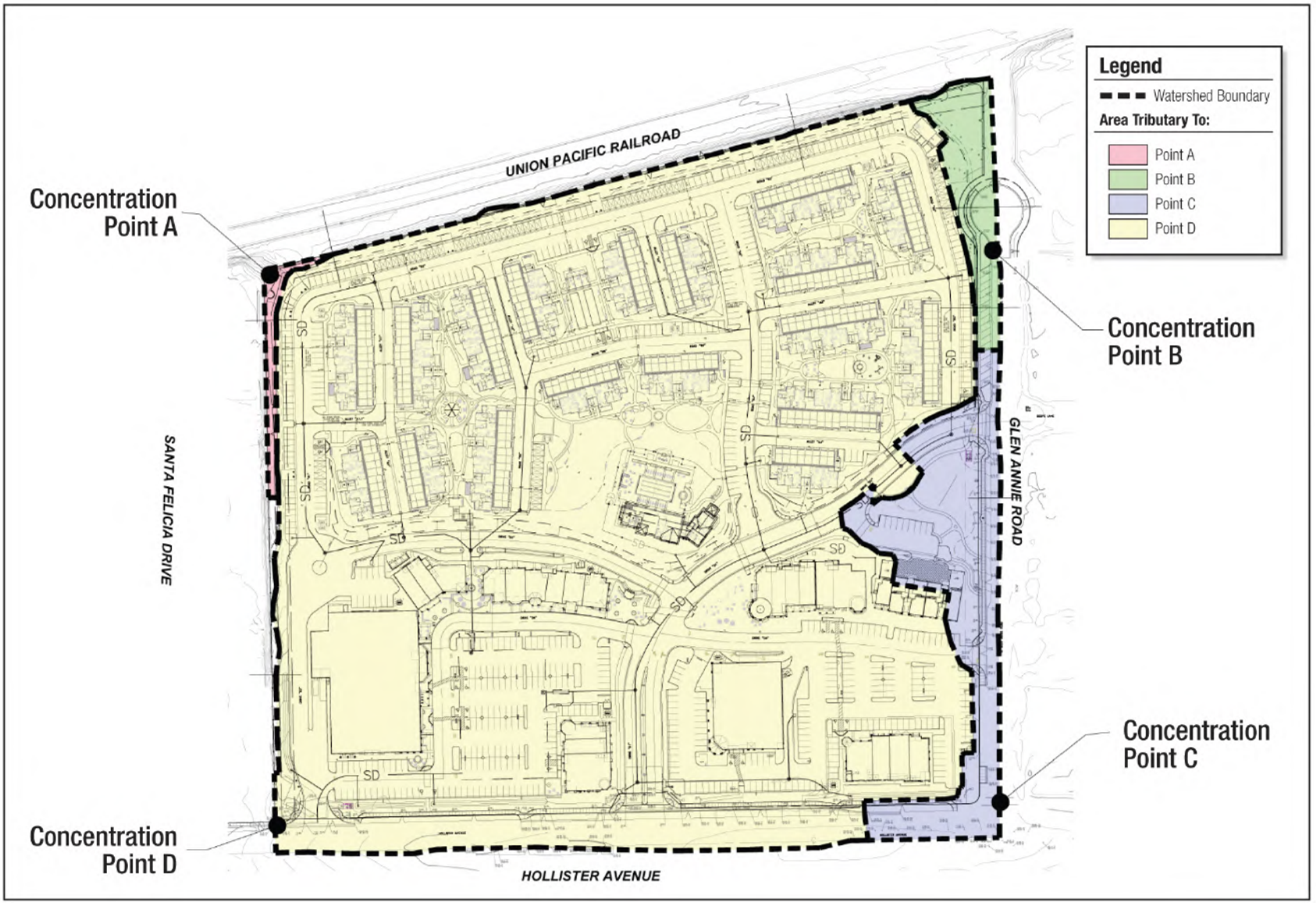
Hydrology and Drainage[7]

Impact Hyd 1: The project would alter on-site drainage patterns and increase impermeable surfaces but also includes drainage facilities to ensure that post project runoff volumes and flow rates would not exceed existing conditions.

Significance Before Mitigation: Less than Significant

The project would require changes and/or modifications to existing on-site drainage patterns (**Figure 4.8-3**). The primary modifications would be (a) removal of the existing engineered cut in the north portion of the project site, (b) the re-direction of portions of the stormwater runoff that currently drains south and southeast toward the Hollister Avenue, and (c) re-direction of most stormwater runoff that currently drains north or west along the west and northwest

[7] -Addresses Thresholds "a" and "b."



WESTAR MIXED-USE VILLAGE

ENVICOM CORPORATION

Post-Development Hydrologic Conditions

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FIGURE 4.8-3

portions of the site. The overall changes would result in a lesser slope across the project site; existing drainage directions (to the south) would not be substantially altered. To accommodate this change to the on-site movement of surface water, new surface drains, storm drain lines, and detention/retention facilities would be constructed to City of Goleta requirements.

~~These are shown in **Table 4.8-3-2**.~~

~~Table 4.8-3~~
~~Pre-Development and Post-Development Peak Flow~~

	~~Area (Acres)~~	~~Q_5 (cfs)~~	~~Q_{10} (cfs)~~	~~Q_{25} (cfs)~~	~~Q_{50} (cfs)~~	~~Q_{100} (cfs)~~	~~Concentration Points~~
~~**Pre-Development Drainage Area**~~							
~~X1~~	~~1.16~~	~~0.86~~	~~1.17~~	~~1.56~~	~~1.85~~	~~2.13~~	~~**A**~~
~~X3~~	~~3.32~~	~~3.26~~	~~4.40~~	~~5.86~~	~~6.93~~	~~7.97~~	~~**B**~~
~~X4 + X5~~	~~6.82~~	~~8.88~~	~~11.69~~	~~15.11~~	~~17.64~~	~~20.10~~	~~**C**~~
~~X2 + X6~~	~~14.11~~	~~21.15~~	~~27.46~~	~~35.12~~	~~41.09~~	~~46.67~~	~~**D**~~
~~X7~~	~~0.17~~	~~0.23~~	~~0.30~~	~~0.40~~	~~0.48~~	~~0.55~~	~~**Westside**~~
~~**Post-Development Drainage Area**~~							
~~P1~~	~~0.22~~	~~0.29~~	~~0.39~~	~~0.52~~	~~0.61~~	~~0.71~~	~~**A**~~
~~P5~~	~~0.90~~	~~1.53~~	~~1.95~~	~~2.47~~	~~2.86~~	~~3.23~~	~~**B**~~
~~P7~~	~~1.91~~	~~3.79~~	~~4.67~~	~~5.76~~	~~6.55~~	~~7.32~~	~~**C**~~
~~P2+P3+P4+P6+P8~~	~~22.40~~	~~42.21~~	~~52.08~~	~~64.33~~	~~73.33~~	~~82.02~~	~~**D**~~
~~P9~~	~~0.16~~	~~0.21~~	~~0.29~~	~~0.38~~	~~0.45~~	~~0.51~~	~~**Westside**~~

~~Source: Penfield & Smith, 2010.~~
~~Flows calculated using HydroCad, Santa Barbara Urban Hydrograph (SBUH) option.~~
~~Cfs = cubic feet per second.~~

The Penfield & Smith (~~2010~~ 2012) Preliminary Drainage Report defines the pre- and post-development hydrology conditions, locations for new drainage facilities, and existing locations of drainage structures. The report was prepared for the currently proposed site improvements including residences, access roads, driveways, and landscape and hardscape areas. The Report covers a total area of 25.74 acres, as it includes areas immediately outside the project site as they contribute to the post-development drainage basins, and models runoff from these areas in three primary directions including: 1.79 acres flowing east in Hollister Avenue, 0.58 acre flowing east through the Southern California Edison storm drain system, and 23.37 acres flowing west in Hollister Avenue. It includes 2-, 5-, 10-, 25-, 50-, and 100-year pre-and post-development peak flow estimates for the project. This study's estimates predict that ~~at one concentration point, D,~~ storm water flowing post-development peak flow would exceed pre-development peak flow for stormwater flows to the west in Hollister Avenue. The off-site flow toward the west in Hollister Avenue, noted by calculations at concentration points A/D increases for all years with the range of increase being between ~~21.06~~ 5.88 cfs and ~~35.35~~ 17.18 cfs for the ~~5~~ 2-year and 100-year storms, respectively. Pre- and post-development drainage areas and points of concentration are shown ~~above~~ on Figures ~~4.8-1 and~~ 4.8-2 and 4.8-3. The differences between pre-development and post-development flow at the various concentration points are summarized in **Table 4.8-2**.

Table 4.8-2
Pre- and Post-Development ~~5~~ 2-Year thru 100-Year Peak Flow Estimates without a Detention Basin

Peak Flow	Concentration Point	Pre-Development Runoff (cfs)	Post-Development Runoff (cfs) w/o Detention Basin / BMPs	Increase in Runoff (cfs)
2 year	A/D	8.30	12.02	5.88
	B	2.92	0.63	No Increase
	C	3.75	2.48	No Increase
5 year	A/D	~~0.86~~ 15.22	~~0.29~~ 23.51	~~No Increase~~ 8.29
	B	~~3.26~~ 5.23	~~1.53~~ 1.02	No Increase
	C	~~8.88~~ 6.52	~~3.79~~ 3.80	No Increase
	~~D~~	~~21.15~~	~~42.21~~	~~21.06~~
	~~Westside~~	~~0.23~~	~~0.21~~	~~No Increase~~
10 year	A/D	~~1.17~~ 19.98	~~0.39~~ 32.11	~~No Increase~~ 12.13
	B	~~4.40~~ 6.83	~~1.95~~ 1.29	No Increase
	C	~~11.69~~ 8.44	~~4.67~~ 4.69	No Increase
	~~D~~	~~27.46~~	~~52.08~~	~~24.62~~
	~~Westside~~	~~0.30~~	~~0.29~~	~~No Increase~~
25 year	A/D	~~1.56~~ 25.94	~~0.52~~ 41.17	~~No Increase~~ 15.23
	B	~~5.86~~ 8.83	~~2.47~~ 1.63	No Increase
	C	~~15.11~~ 10.83	~~5.76~~ 5.79	No Increase
	~~D~~	~~35.12~~	~~64.33~~	~~29.21~~
	~~Westside~~	~~0.40~~	~~0.38~~	~~No Increase~~
50 year	A/D	~~1.85~~ 30.33	~~0.61~~ 46.61	~~No Increase~~ 16.28
	B	~~6.93~~ 10.29	~~2.86~~ 1.88	No Increase
	C	~~17.64~~ 12.59	~~6.55~~ 6.60	No Increase
	~~D~~	~~41.09~~	~~73.33~~	~~32.24~~
	~~Westside~~	~~0.48~~	~~0.45~~	~~No Increase~~
100 year	A/D	~~2.13~~ 34.57	~~0.71~~ 51.75	~~No Increase~~ 17.18
	B	~~7.97~~ 11.71	~~3.23~~ 2.12	No Increase
	C	~~20.10~~ 14.29	~~7.32~~ 7.37	No Increase
	~~D~~	~~46.67~~	~~82.02~~	~~35.35~~
	~~Westside~~	~~0.55~~	~~0.51~~	~~No Increase~~

~~Flows calculated using HydroCad Santa Barbara Urban Hydrograph (SBUH) option.~~
Flows calculated using CrystalClean Separator Model 2466 produced by CrystalStream Technologies (Penfield Smith, June 2012).

In order to control potentially higher post-development flow rates and increase water quality for runoff flowing west in Hollister Avenue (through Points A and D) ~~at point D as summarized in Table 4.8-4)~~, the project would construct a series of on-site BMPs (localized LID design measures) and an underground stormwater detention basin. Modeling of the post-development

flow rates assumed the following measures are implemented with the project, as provided within the Preliminary Drainage Report (Penfield and Smith, 2012):

- vegetated open space areas to increase infiltration, slow runoff and increase evapotranspiration;
- distributed bioretention basins throughout the residential areas to pick up runoff from parking and driving areas;
- bioswales in the commercial areas to collect runoff from parking and driving areas;
- filter strips to slow runoff and allow more time to infiltrate;
- surface disposal of roof runoff and dispersal to vegetated areas, and
- the underground retention basin.

Peak flow rate mitigation is provided by underground detention storage comprised of a gallery of 60" diameter pipes underlain by a 2.7-foot layer of crushed rock and filter fabric, separator device at the inlet for collecting pollutants, a bypass of separator for high volume flows, and manholes for maintenance. All flow into the basin is filtered for debris and sediment with devices with a capacity to treat a water quality flow rate of 7.2 cfs each and will pass the 100-year peak flow rate without resuspension of trapped pollutants. This approach will minimize expensive maintenance of the detention gallery and prolong the infiltrative capacity of the soil.

This would result in no increase in post-development peaks flows relative pre-development flows as shown in **Table 4.8-~~5~~ 3**.

Table 4.8-~~5~~ 3
Pre- and Post-Development ~~5~~ 2-Year thru 100-Year Peak Flow Estimates with BMPs and Detention Basin

Storm Event	Pre-development Runoff (cfs)	Post-development Runoff (cfs) with Detention Basin	~~Decrease~~ Change in Runoff (cfs)
2 year	14.98	14.18	-0.80
5 year	~~21.15~~ 26.90	~~18.78~~ 23.51	~~2.37~~ -3.39
10 year	~~27.46~~ 35.15	~~22.41~~ 32.11	~~5.05~~ -3.04
25 year	~~35.12~~ 45.47	~~26.59~~ 41.17	~~8.53~~ -4.30
50 year	~~41.09~~ 53.07	~~29.51~~ 46.61	~~11.58~~ -6.46
100 year	~~46.67~~ 60.41	~~34.38~~ 51.75	~~12.29~~ -8.66
~~Source: Penfield & Smith, 2010.~~			

In order to provide for the appropriate outlet conditions from the proposed underground detention basin, a reach of about 250 feet of 27" diameter reinforced concrete storm drain in Hollister Avenue (between the point of on-site discharge and Santa Felicia Drive) will be replaced with 36" diameter storm drain. This improvement is needed to allow the storm flow from the project site to enter the storm drains within Hollister Avenue, which are currently subject to periodic flooding.

Also, 2-year post-development water volume is estimated to be greater than pre-development volume from ~~0.383~~ 3.691 acre-feet to ~~1.108~~ 4.156 acre-feet (**Table 4.8-~~6~~4**; Penfield & Smith,

~~2010~~ 2012) due to an estimated increase in impervious area. This estimated increase in volume of ~~0.725~~ 0.465 acre-feet requires added volume retention storage. Landscaped spaces for the project represent about 30 percent of the project site area. **Table 4.8-5** provides an accounting of the runoff that would be retained on-site assuming appropriate BMPs are in place. Considering these drainage facilities, post-development flow rates and volumes leaving the site would be equal to or less than the pre-development flow rates and volumes. Approximately 95.3 percent of the project site area provides filtering/infiltration for storm water flows. ~~that would be created using 25 inches of engineered rock beneath the detention basin thereby providing 40 percent void space. These also result in a decrease in the effective impervious area from pre-development (4.0 percent) to post-development (3.5 percent) conditions.~~

Table 4.8-~~64~~
Drainage Retention Volumes ~~without Mitigation~~

Storm Event/~~Return Period~~	Pre-Development (acre-feet)	Post-Development (acre-feet)	~~Difference~~ Retention Required (acre-feet)
~~1"~~ 2-year	~~0.383~~ 3.691	~~1.108~~ 4.156	~~+0.725~~ +0.465

Table 4.8-5
Project Retention Volume Provided

Project BMP	Pre-Development (acre-feet)
Detention/Retention	0.283
Distributed Bioretention	0.211
Filtration Tank Holding	0.012
Total Retained	**0.506**

~~To summarize, with regard to hydrology and drainage, Penfield & Smith (2010) conclude:~~

- ~~With the incorporation of the design measures the post-development peak flows would be less than the pre-development peak flows for the entire site;~~
- ~~With the incorporation of drainage volume reduction design measures, post-development volume quantities retained on-site are greater than pre-development volume quantities for a 1-inch storm event; and~~
- ~~Based on the project design, the effective impervious area has decreased from pre-development (4.0 percent) to post-development (3.5 percent) conditions.~~

No development is planned within the course of any stream or river. Even though substantial site grading is proposed, the project would not substantially alter the existing drainage pattern of the project site, and would not alter the natural course of a stream or river. ~~Based on a peer review of the Penfield & Smith (2010) report by Wilson Geosciences, Inc. (Ken Wilson, Principal Geologist, R.G.#3175, C.E.G.#928), and g~~ A final comprehensive drainage report, prepared by a licensed engineer, that provides specific design parameters that meet the above analysis would be reviewed by the City for compliance with the City's SWMP. Given required review process to assure that the drainage plan is implemented and that all City of Goleta regulations are followed, hydrology and drainage impacts would be less than significant.

Surface Water and Groundwater Quality[8]

Potential water quality impacts include construction-related impacts (due to vegetation removal, use of construction materials on the site, and construction staging activities) and post-development impacts (including introduction of urban pollutants into stormwater runoff, which is conveyed to the El Encanto Creek and Deveroux Slough). The project would involve site disturbance during construction of building, sidewalks, roadways, patios, landscaping, and associated facilities. For post-development impacts, the primary source of pollutants in stormwater runoff would be driveways and parking areas that carry oil, grease, and other materials deposited on the pavement surfaces. In addition, runoff from landscaped areas may contain sediment, pesticides, herbicides, and other chemical compounds. Construction and operational impacts are further described below.

Construction[9]

Impact WQ 1: The project would introduce urban pollutants into stormwater runoff from the site during construction.

Significance Before Mitigation: Potentially Significant

Construction would involve grading of approximately 49,100 cubic yards of cut and 48,800 cubic yards of fill (300 cubic yards of export) and over 23.55 acres of disturbance. This grading activity would involve vegetation removal and expose soil to erosion and potential for sedimentation of watercourses. Also, during on-site grading and building construction, hazardous materials such as fuels, paints, solvents, and concrete additives could be used. These hazardous materials require proper management and disposal. Improper management of any resultant hazardous wastes could increase the opportunity for hazardous materials releases into soils, surface water runoff, and to the underlying groundwater.

Impacts would be minimized during all phases of project construction through compliance with the Construction General Permit (this permit is described above in the Existing Conditions section, under the headings *Regulatory Setting*, *State Regulations*, and *Discharge Permits*). This permit requires the development and implementation of a SWPPP, which must include erosion and sediment control BMPs that would meet or exceed measures required by the Construction General Permit, as well as BMPs that control other potential construction-related pollutants. Erosion control BMPs are designed to prevent erosion, whereas sediment controls are designed to trap sediment once it has been mobilized. A SWPPP would be developed as required by, and in compliance with, the Construction General Permit and City ~~ordinances~~regulations, including grading ~~ordinances~~regulations. The Construction General Permit requires the SWPPP include a menu of BMPs to be selected and implemented based on the phase of construction and the weather conditions to effectively control erosion and sediment using the Best Available Technology Economically Achievable and Best Conventional Pollutant Control Technology (BAT/BCT) and to protect water quality. These construction site management BMPs would be implemented for the project during the dry season and wet season as necessary depending upon the phase of construction and weather conditions. These BMPs would assure effective control of not only sediment discharge, but also of pollutants associated with sediments, including but not limited to nutrients, heavy metals, and certain pesticides or herbicides. The project is also expected to be subject to an NPDES permit from the CCRWQCB.

[8] -Addresses Thresholds "c" , "d" , and "f" – "h."
[9] -Addresses Thresholds "c" – "i."

~~Prior to the development~~ Before adopting and ~~implementation~~ implanting ~~of~~ a SWPPP including BMPs, including City review of how CCRWQCB permit measures fit together with City BMP requirements, the project's impacts to surface and groundwater quality as a result of construction activity are considered potentially significant.

Operations[10]

Impact WQ 2: The project would introduce urban pollutants into stormwater runoff from the site during operation.

Significance Before Mitigation: Potentially Significant

Surface water quality impacts could occur as a result of project implementation under both dry weather and wet weather conditions. As a residential development, hazardous materials used and stored on the project site are limited to those typically associated with residential uses. Pool chemical use for the pool in the common is regulated by County Environmental Health Services. Residential developments also generate waste in the forms of leftover paints, solvents, pesticides, herbicides, cleaning and automotive products, and residuals from car washing which have the potential to be spilled or dumped into the storm drain system. In addition, construction would include surface improvements, including impermeable surfaces (buildings, driveways, parking lots, walkways, etc.) that would be sources of contaminated runoff.

As planned, surface runoff would generally be directed into existing concentration points (summarized above) and to storm drains within or outside the project site, which would then distribute the water southerly with direct connections to the City storm drain system. A portion of the runoff from driveways and parking lots would initially flow to bio-swales running north-south or east-west to provide a cleanse of the water before it would enter the storm drain system. As described earlier in this section, runoff from the project site ultimately would be conveyed Devereux Slough via the storm drain connections. ~~Specifically, runoff would drain through nine bioswales varying in length from 80 feet to 200 feet and 19 bioretention areas before being discharged toward the Devereux Slough.~~

If untreated, pollutants from the project could be discharged into receiving waters. Although neither Devereux Slough nor Devereux or El Encanto Creeks are "impaired" based on the CCRWQCB criteria, they are waterbodies of concern. To address the potential for pollutant discharges into these water bodies during project operations, the applicant has initially proposed a set of Low Impact Development (LID) design components described in the preliminary drainage report to reduce surface water quality pollutants. ~~These include: the 120,500 cubic-foot underground surface water detention basin with sufficient design capacity to detain stormwater runoff from received from nine four vegetated bio-swales and 19 bio-retention areas, plus commercial filters throughout the site.~~

In accordance with the Goleta LID Strategy, the general Design Measures were implemented to the maximum extent practicable for the proposed design. Landscaped spaces for the project represent about 30 percent of the project site area. Approximately 95.3 percent of the project site area provides filtering/infiltration for storm water flows. The following BMPs were included within the hydraulic modeling of the Preliminary Drainage Report (Penfield and Smith, 2012) in a way to provide a variety of decentralized, distributed permeable areas:

- Downspouts from buildings were directed to landscaped areas and away from building

[10] -Addresses Thresholds "s" – "i."

- foundations;
- Vegetated filter strips;
- Previously impacted open areas were revegetated;
- Curb-cuts to discharge storm flows into landscaped areas were provided
- Vegetated filter swales were used to slow down and filter storm water from parking areas;
- Bioretention basins were designed to filter, retain, and slow down storm water.

Figure 4.8-4 provides a breakdown of the project's 39 post-development watershed designations, along with a color-coded indication as to the type of water quality treatment BMP/LID features would be implemented for each. The project would provide a total of seven bioretention areas, four bioswales, two filter strips, one underground detention basin, and four catch basin inserts.

LID design guidelines include a minimum groundwater table separation or to provide a liner to prevent exfiltration (Southern California Stormwater Monitoring Coalition in cooperation with the State Water Resources Control Board, 2011); however, final design details of the project LID components are not yet available.

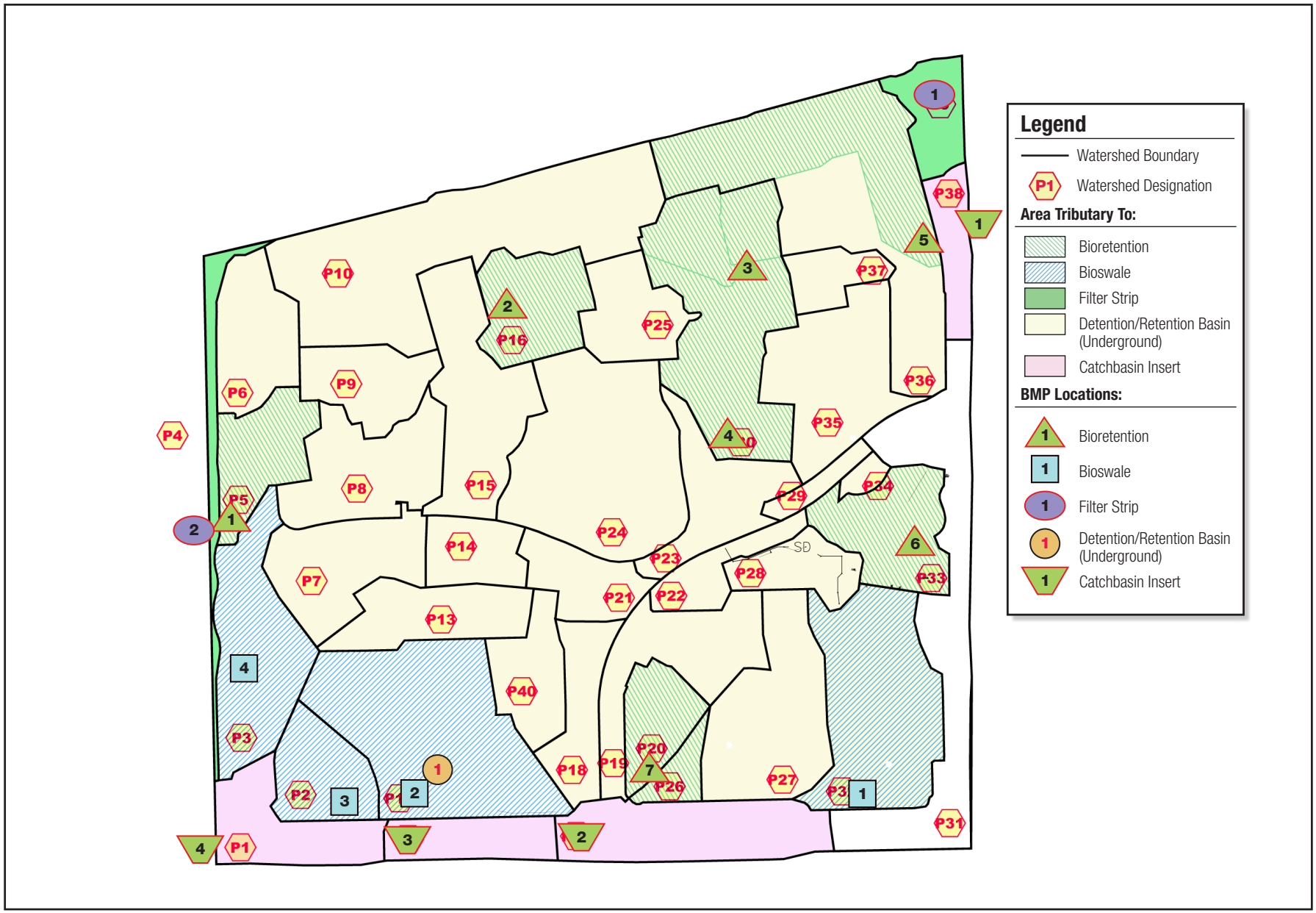
Although the applicant has BMPs and LID design components, prior tobefore review and approval of the adequacy of these measures and a final drainage/stormwater quality protection plan that demonstrates compliance with City's SWMP, long-term operation of the project could result in potentially significant surface water quality impacts.

In addition to these LID components, the project preliminary design includes BMPs, such as planted areas that would assist with absorption of storm runoff from the site. Also, runoff from hardscape, roofs, permeable and non-permeable landscape, and other surfaces would pass through commercial filters in before passing to storm drains. As a result, according to the Penfield & Smith Preliminary Drainage Report, all bioswales are designed to treat the 85 percent storm events and have a flow depth no greater than 4 inches with hydraulic slopes between 0.5 and 2.0 percent. Contact times would meet or exceed the minimum requirements of 10 minutes during the occurrence of a 4-hour time period (BMP storm) would be achieved. The required flow rate for flow-through based stormwater quality treatment facilities was calculated using the guidelines in the City of Goleta Storm Water Management Plan–Water Quality BMPs for new development projects.

4.8.5 Cumulative Impacts[11]

Several projects are proposed for development within the general vicinity of the project, as described in Section 3.0 *Related Projects*. These related projects represent a mix of residential, commercial, and institutional developments, which will result in various changes in the amount of impervious surfaces and the degree of potential surface water quality degradation that could occur before necessary regulatory requirements are met. The proposed project in combination with continued growth including redevelopment, infill, and urbanization of the South Coast Hydrologic Unit may have significant cumulative water quality impacts on the Devereux Creek Watershed, including the El Encanto Creek and Devereux Slough. Given that the Goleta Slough is impacted currently, the project's contribution to cumulative impacts to surface water and groundwater quality would be potentially significant. City-wide implementation of SWMP

[11] Addresses Thresholds "a" – "i"



Source: Penfield & Smith Engineering, June 2012.

BMP Coverage Diagram

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FIGURE 4.8-4

and compliance with CCRWQCB standards for hydro-modification and discharge permit would be required to address these potential impacts. Based on the project design to include on-site treatment of run-off in order to meet local and state requirements for new development, along with plan review and mitigation measures/permitting requirements to verify implementation and performance of BMPs and LID components, the project would be expected to meet the applicable water quality standards and sufficiently reduce its incremental significant contribution to cumulative water quality impacts on this watershed to a less than significant cumulative impact.

4.8.6 Mitigation Measures

Impact Hyd 1: The project would alter on-site drainage patterns and increase impermeable surfaces but also includes drainage facilities to ensure that post project runoff volumes and flow rates would not exceed existing conditions.

This impact would be less than significant and therefore mitigation measures are not required.

Impact WQ 1: The project would introduce urban pollutants into stormwater runoff from the site during construction.

WQ 1-1: The permitee ~~shall~~must prepare a Storm Water Pollution Prevention Plan (SWPPP) covering all phases of grading operations.

Plan Requirements: The SWPPP ~~shall~~must be prepared by a licensed civil engineer and incorporate all appropriate Best Management Practices (BMPs) necessary to mitigate short-term construction impacts. The plan ~~shall~~must include the following BMPs:

a. Temporary berms and sedimentation traps (such as silt fencing, straw bales, and sand bags); the BMPs ~~shall~~must be placed at the base of all cut/fill slopes and soil stockpile areas where potential erosion may occur and ~~shall~~must be maintained to ensure effectiveness; the sedimentation basins and traps ~~shall~~must be cleaned periodically and the silt ~~shall~~must be removed and disposed of in a location approved by the City;

b. Non-paved areas ~~shall~~must be revegetated or restored (i.e., geotextile binding fabrics) immediately after grading and installation of utilities, to minimize erosion and to re-establish soil structure and fertility; revegetation ~~shall~~must include non-invasive, drought-resistant, fast-growing vegetation that would quickly stabilize exposed ground surfaces; alternative materials rater than reseeding (e.g., gravel) may be used, subject to review and approval by the Planning and Environmental Services Director, or designee and Community Services Director, or designee ~~Departments~~.

c. Runoff ~~shall~~ cannot ~~not be directed~~ flow across exposed slopes; all surface runoff ~~shall~~must be conveyed in accordance with the approved drainage plans;

d. Energy dissipaters or similar devices ~~shall~~must be installed at the end of drainpipe outlets to minimize erosion during storm events;

e. Grading ~~shall~~must occur during the dry season (April 15th to November 1st) unless the Community Services Director, or designee, ~~City~~ approved erosion control plan is in place and all erosion control measures are in

effect; erosion control measures ~~shall~~must be identified on an erosion control plan and ~~shall~~must prevent runoff, erosion, and siltation; all exposed graded surfaces ~~shall~~must be reseeded with ground cover vegetation to minimize erosion; graded surface ~~shall~~must be reseeded within four (4) weeks of grading completion, with the exception of surfaces graded for the placement of structures; these surfaces ~~shall~~must be reseeded if construction of structures does not commence within four (4) weeks of grading completion.

f. Site grading ~~shall~~must be completed to ensure such that permanent drainage flows away from foundations and slabs ~~is provided~~ and so that water ~~shall~~ does not pond near structures or pavements.

Timing: The final SWPPP ~~shall~~must be submitted to Community and Services Director, or designee ~~City Building Department~~ for review and approval before the City issues ~~by Building and Community Services Department staff prior to any LUP issuance~~ Land Use Permit for grading. BMPs ~~shall~~must be installed ~~prior to~~ before initiation of grading as appropriate and throughout the construction period.

Monitoring: The Community Services Director, or designee, must ~~City staff~~ ~~shall~~must verify that the SWPPP ~~has been~~ was implemented in accordance with ~~per~~ the approved final plan and before commencement of grading. BMPs ~~shall~~must be monitored throughout the construction period in consultation with the Community Services Director, or designee, and Building Inspector ~~Department~~.

Impact WQ 2: The project would introduce urban pollutants into stormwater runoff from the site during operation and also proposes Best Management Practices to protect water quality.

WQ 2-1: The permittee ~~shall~~must provide documentation to the Community Services Director, or designee, demonstrating that either the project is exempt from obtaining submit a National Pollutant Discharge Elimination System Storm Water Permit from the California Regional Water Quality Control Board, Central Coast Region, or that the applicant applied for such a permit. ~~including the required conditions of the NPDES permit, to ensure any NPDES permit requirements are consistent with the final drainage/stormwater quality protection plan. Alternatively, if no NPDES permit is required by CCRWQCB, the permittee ~~shall~~must submit written documentation of an exemption.~~

Plan Requirements and Timing: The permittee ~~shall~~must submit proof that a ~~written documentation to the City that an~~ NOI ~~has been~~ was filed with the RWQCB and the Community Services Director, or designee, must ~~City staff shall~~ review and approve documentation before the City issues any Land Use Permit for grading~~issuance of preliminary or precise grading permits or any LUP issuance~~.

Monitoring: The Community Services Director, or designee, must ~~City staff shall~~ review the documentation before the City issues a Land Use Permit for grading ~~before any LUP issuance.~~

WQ 2-2: The permittee ~~shall~~must prepare a final Storm Water Pollution Protection Plan (SWPPP) consistent with the City's Storm Water Management Plan that identifies all Best Management Practices (BMPs).

Plan Requirements: The final SWPPP BMPs ~~shall~~must be prepared by a licensed civil engineer. The plan ~~shall~~must include the following BMPs:

a. A final drainage analysis that provides final calculations on pre/post development stormwater runoff volumes, required storage capacity, and specifies~~cation~~ on all elements of the drainage control system;
b. Catch basin filter inserts capable of capturing sediment, trash, debris, and petroleum products from low flow (first flush) stormwater runoff ~~shall~~must be installed in any inlet/catch basins associated with the carwash and each stormwater inlet/catch basin to be connected to the storm drain system serving the project site. Catch basin filter inserts ~~shall~~must be specified for installation in all project stormwater inlets/catch basins shown on the final grading/drainage plan.
c. Regular maintenance and cleaning of catch basins and detention basins;
d. Routine cleaning of streets, parking lots, and storm drains;
e. Stenciling of all storm drain inlets to discourage dumping by informing the public that water flows to the ocean;
f. Development of an integrated pest management program for landscaped areas of the project, emphasizing the use of biological, physical, and cultural controls rather than chemical controls;
g. Provision of educational flyers to ~~residents/commercial tenants~~ occupants regarding proper disposal of hazardous water and automotive waste;
h. Provision of trash storage/material storage areas that are covered by a roof and protected from surface runoff.
i. Drainage improvements associated with the project would route as much roof, parking areas and surface drainage as possible through the on-site landscape areas and bio-swale before it enters the drop inlets.
j. Low Impact Design (LID) improvements consistent with the City's interim Low Impact Design Strategy.

Timing: The final SWPPP ~~shall~~must be submitted to the Community Services Department Director, or designee, before the City issues a Land Use Permit for any commercial or residential building. ~~City Building Department staff for review and approval by Building and Community Services Department staff before any LUP issuance.~~ All BMPs ~~shall~~must be installed as identified on the final drainage/stormwater quality protection plan and grading and drainage plans before the City issues a certificate of occupancy ~~clearance~~.

Monitoring: The Community Services Director, or designee, ~~City staff shall~~ must verify that drainage/stormwater quality protection plan has been constructed/installed per the approved final SWPPP before the City issues a certificate of occupancy ~~clearance~~.

WQ 2-3: The permittee ~~shall~~must prepare a maintenance agreement, in a form approved by the City Attorney, that addresses maintenance requirements for all improvements associated with the stormwater quality protection/BMPs described in the final drainage/stormwater quality protection plan.

Plan Requirements: At a minimum, the maintenance agreement ~~shall~~must include requirements that all inline storm drain filters ~~shall~~must be inspected, repaired, and cleaned per manufacturer specification and at a minimum before September 30th of each year. Additional inspections, repairs, and maintenance ~~shall~~must be performed after storm events as needed throughout the rainy season (November 1st to April 15th) and/or per manufacturer specifications. Any necessary minor repairs ~~shall~~must be completed before the next rainy season. Before September 30th of each year for a period of five (5) years after issuance of the final certificate of occupancy for the project, the permittee ~~shall~~must submit to the City for its review and approval a report summarizing all inspections, repairs, and maintenance work done during the prior year. Subsequent to this five year reporting period, the applicant ~~shall~~must maintain records of all yearly maintenance measures for review by City staff on demand for the life of the project.

Timing: The permittee ~~shall~~must submit the required maintenance agreement to City staff for review, approval, and execution before any LUP issuance.

Monitoring: The Community Services Director, or designee, ~~City staff shall~~must periodically verify compliance with the provision of the agreement and respond to instances of non-compliance with the agreement ~~Plan~~.

WQ 2-4: To prevent illegal discharges to the storm drains, all on-site storm drain inlets, whether new or existing, ~~shall~~ must be labeled to advise the public that the storm drain discharges to the ocean (or other waterbody, as appropriate) ~~and that dumping waste~~ is prohibited (e.g., "Don't Dump – Drains to Ocean"). The information ~~shall~~must be provided in English and Spanish.

Plan Requirements and Timing: The location of all storm drain inlets ~~shall~~must be shown on site, building and grading plans before approval of any grading and/or land use permits. Labels ~~shall~~must be installed before the first occupancy clearance for the project. Standard labels, as available from the Santa Barbara County Public Works, or Project Clean Water ~~shall~~must be shown on the plans and submitted to the Community Services Director, or designee, ~~City prior to~~ before the City issues ~~approval of~~ any grading and/or land use permits.

Monitoring: The Community Services Director, or designee, must inspect the ~~City shall~~ site ~~inspect~~ before the issues a certificate of ~~the first~~ occupancy ~~clearance~~ for the project to verify installation of all storm drain labels.

4.8.6 Residual Impacts

The project's hydrology and drainage impacts are less than significant without mitigation (**Class III**). Implementation of the mitigation measures identified above would reduce potentially significant water quality impacts to less than significant levels (**Class II**).