4.10 HYDROLOGY AND WATER QUALITY

This section evaluates information regarding hydrology and water quality. It describes the existing hydrologic conditions at the project site, presents a summary of the regulatory setting, and provides an analysis of the hydrology and water quality impacts of the proposed project. In accordance with CEQA Guidelines Section 15125(a), the environmental baseline, as analyzed in this EIR, is the environmental setting as it existed at the time the Notice of Preparation was published, November 16, 2006. Therefore, the following discussion describes the site's hydrologic conditions as they were on November 16, 2006. However, it should be noted that the Interstate 80/Sierra College Boulevard Interchange Improvement Project was initiated following release of the Notice of Preparation and extensive grading and excavation work has been initiated along the western and northern portions of the project site to accommodate the interchange project's lane construction and soil borrow requirements. These changes have altered the hydrologic character of the project site's northern and western boundaries.

4.10.1 EXISTING SETTING

HYDROLOGY AND DRAINAGE

Regional Hydrology

The proposed project site is located within the northern portion of the Sacramento River Hydrological Region, as defined by the California Department of Water Resources (DWR). The Sacramento River Hydrological Region covers approximately 17.4 million acres (27,200 square miles). The region includes all or large portions of Modoc, Siskiyou, Lassen, Shasta, Tehama, Glenn, Plumas, Butte, Colusa, Sutter, Yuba, Sierra, Nevada, Placer, Sacramento, El Dorado, Yolo, Solano, Lake, and Napa Counties. Small areas of Alpine and Amador Counties are also within the region. Geographically, the region extends south from the Modoc Plateau and Cascade Range at the Oregon border, to the Sacramento-San Joaquin Delta. The Sacramento Valley, which forms the core of the region, is bounded to the east by the crest of the Sierra Nevada and southern Cascades and to the west by the crest of the Coast Range and Klamath Mountains. Other significant features include Mount Shasta and Lassen Peak in the southern Cascades; Sutter Buttes in the south central portion of the valley; and the Sacramento River, which is the longest river system in the State of California with major tributaries being the Pit, Feather, Yuba, Bear, and American Rivers. (DWR 2003). Exhibit 4.10-1 identifies the regional hydrology for western Placer County.

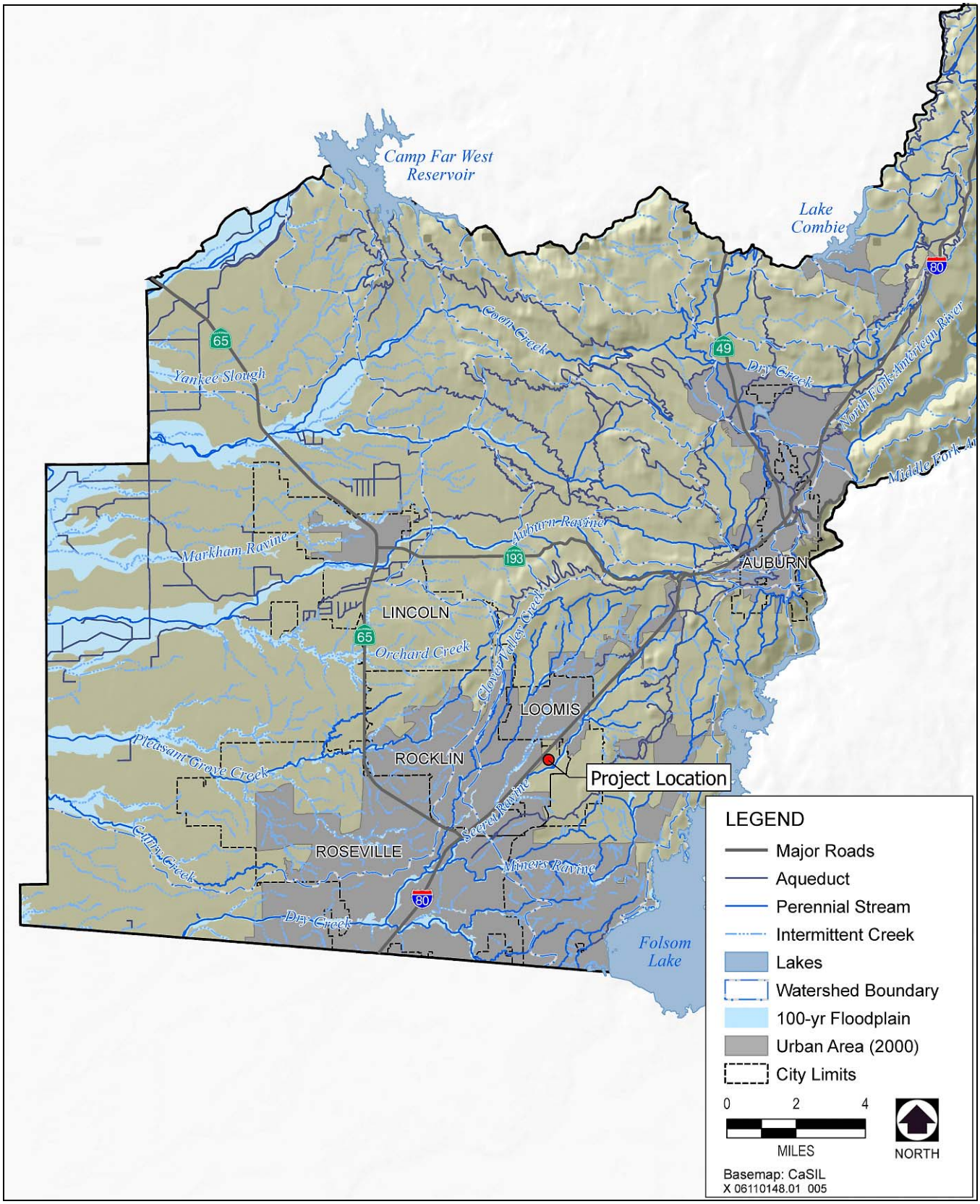
Annual precipitation averages 25 inches, 90 percent of which falls from November through April. Average summer temperatures range from a low of 60˚F to a high of above 90˚F, with temperatures in excess of 100˚F being fairly common.

Surface Hydrology

Dry Creek Watershed

The project is located within the Dry Creek watershed, a tributary to the Sacramento River, in the southwest portion of Placer County. The Dry Creek watershed covers about 101 square miles in Placer and Sacramento Counties. The headwaters of Dry Creek are located in several areas: the upper portions of the Loomis Basin, in the vicinity of Penryn and Newcastle, in unincorporated Placer County; in the Granite Bay area near Folsom Lake; and in Orangevale in Sacramento County.

The Dry Creek watershed is composed of six major subbasins in Sacramento and Placer Counties. Eight named streams are within the Dry Creek watershed and include: Dry Creek, Clover Valley Creek, Antelope Creek, Secret Ravine Creek, Miners Ravine, Cirby Creek, Linda Creek, and Strap Ravine. Antelope Creek and Clover Valley Creek form the northwest boundary of the watershed, and Secret Ravine Creek and Miners Ravine comprise the northeast portion of the watershed. Antelope Creek and Miners Ravine, after combining with Clover Valley Creek



Rocklin Crossing Regional Hydrology **Exhibit 4.10-1**

and Secret Ravine Creek, respectively, combine near Interstate 80 and Atlantic Street in the City of Roseville to form Dry Creek (Restoration Resources 2003).

Secret Ravine Creek

Secret Ravine Creek is a perennially flowing stream that drains a 19.7-square-mile basin within the Sierra Nevada foothills of western Placer County. Secret Ravine Creek flows 10.5 miles from its headwaters in the Newcastle area (elevation 1,285 feet) south of the City of Auburn and then southward, roughly parallel to Interstate 80, to its confluence with Miners Ravine Creek (elevation 165 feet) near Atlantic Street in the City of Roseville. Secret Ravine Creek flows within a narrow valley underlain by recent alluvial deposits. The valley width expands in places to over 1,000 feet, likely as the result of geologic movements. (Dry Creek Conservancy 2001.)

Project Site

Drainage within the City of Rocklin is dominated by a variety of watersheds flowing westward from the Sierra Nevada foothills east of the city, which ultimately discharge into the Sacramento River southwest of the City. The urban drainage system in the City consists of a combination of valley gutters, underground pipes and drop inlets, and open channels that in turn discharge into a variety of creeks.

The project site occupies approximately 55.1 acres of land at the intersection of I-80 and Sierra College Boulevard in the City of Rocklin. The topography is gently sloping to flat with terrain at an elevation of approximately 320 to 360 feet above mean sea level.

Flooding

Secret Ravine Creek is located approximately 300 feet south of the project site at its closest point. The Regulatory Base Flood Elevation is 299 feet above mean sea level immediately upstream of Sierra College Boulevard and 303 feet at the farthest upstream boundary of the project. The project site's lowest elevation is approximately 320 feet above mean sea level along its southern boundary. Based on the site topography and the FEMA Base Flood Elevation, the site is not within the designated 100-year floodplain (Civil Engineering Solutions, Inc. 2005). A 100-year flood has a 1% chance of being equaled or exceeded each year. The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map Panel (6061 C0418F) indicates the site is in an area designated Zone-X, which is defined as "OTHER AREAS, Areas determined to be outside 500-year floodplain." A 500-year flood has a 0.2% chance of being equaled or exceeded each year.

The Placer County Flood Control and Water Conservation District (PCFCD) is a non-regulatory entity with no permitting authority that provides technical support to Placer County, the incorporated cities in the County, the Office of Emergency Services, and developers to help set and meet standards related to stormwater management and flood control. As part of their on-going effort to meet these goals, the PCFCD has developed watershed master plans, hydrologic models, and the Stormwater Management Manual. Additionally, the PCFCD establishes standards for development and performs development review for projects within Placer County and all of the incorporated cities within Placer County.

In an effort to address flooding issues in the Dry Creek watershed; the Dry Creek Watershed Flood Control Plan was sponsored by the PCFCD and the Sacramento County Water Agency (SCWA) (PCFCD and SCWA 1992). This plan covers approximately 101 square miles of the Dry Creek watershed, including the project site.

The Dry Creek Watershed Flood Control Plan provides the PCFCD and other governmental agencies in both Placer and Sacramento Counties with information and recommendations for policies necessary to manage the stormwaters within the Dry Creek watershed. It also includes consideration of required improvements and associated funding programs to accomplish the improvements. The Flood Control Plan was intended to provide an approach for meeting existing and future flood control needs in Dry Creek watershed. The report found that substantial damage would occur under existing conditions during a 100-year flood. The plan determined that

many of the bridges and culverts in the watershed are inadequate to pass the 100-year and even 75-year flows for both existing and future conditions.

The Dry Creek Watershed Flood Plan made several recommendations to improve flood control in the watershed. Among these were structural alternatives such as regional detention, channel improvements, levees and floodwalls, and bridge and culvert replacement. The plan also suggested non-structural recommendations such as on-site detention facilities, floodplain management, and regional flood warning systems.

Regional and on-site detention basins for new development were addressed as necessary features for eliminating increased downstream flows for all new development. While detention basins would not eliminate increased flows throughout the watershed due to development, they were determined to reduce the downstream flows by 55% if local detention basins are constructed with all new development.

Groundwater Hydrology

The project area is located within the North American Groundwater Subbasin of the Sacramento Valley Groundwater Basin, as delineated in DWR Bulletin 118, *California's Groundwater* (2003 update) (DWR 2003). The eastern boundary of the North American subbasin is a north-south line extending from the Bear River south to Folsom Lake and represents the approximate edge of the alluvial basin where little or no groundwater flows into or out of the groundwater basin from the Sierra Nevada. The western portion of the North American subbasin consists of nearly flat flood basin deposits from the Bear, Feather, Sacramento, and American Rivers, and several small eastside tributaries (DWR 2006).

Regional groundwater flows are predicted to be southwesterly. In the vicinity of the proposed project, groundwater elevations and gradients in the area vary considerably, due to the highly fractured nature of the underlying rock. Groundwater elevations in the project vicinity can typically range from 10 feet to greater than 200 feet below the ground surface. The most recent data for the project site indicates that groundwater south of the site is at an approximate elevation 100 feet above mean sea level, or roughly 200 feet below existing site grades. (Wallace-Kuhl & Associates 2005.)

Water Quality

Water quality is most affected by land development, agriculture, grazing, and urban runoff. Constituents found in urban runoff vary during a storm event, from event to event within a given area, and from area to area within a given watershed. Variances can be the result of differences in rainfall intensity and occurrence, geographic features, and the land use of the area, as well as vehicle traffic and the percentage of impervious surface. Furthermore, sediment runoff from construction sites without adequate erosion control measures can contribute sediments, pesticides, fertilizers, and other pollutants to receiving waters.

Surface Water Quality

"Receiving waters" is a general term typically used to describe any surface water body, such as a creek, river, lake, bay, or ocean that receives runoff. The Dry Creek conveys drainage water to the Sacramento River southwest of the city. Therefore, the Sacramento River is receiving water for much of the drainage from the Dry Creek watershed.

Water quality in the Sacramento River is regulated primarily by the Central Valley RWQCB. The Central Valley RWQCB's *Water Quality Control Plan for the Sacramento and San Joaquin River Basins* (Basin Plan) designates beneficial uses for Sacramento River water that include agricultural supply, contact water recreation, noncontact water recreation, warm freshwater habitat, cold freshwater habitat, and wildlife habitat (Central Valley RWQCB 2004). The Sacramento River also has the potential beneficial use of coldwater spawning, reproduction, and/or early development for fisheries. In accordance with the requirements of the federal Clean Water Act, the State Water Resources Control Board (SWRCB) has determined that beneficial uses in the Sacramento River are

impaired by high concentrations of diazinon (a pesticide related to agricultural and urban runoff), mercury (related to mining in the upper watershed), and unknown toxicity. Specific beneficial uses and impairments to those uses have not been identified for the Dry Creek watershed.

Groundwater Quality

The Central Valley RWQCB Basin Plan considers all groundwater in the Central Valley Region as suitable or potentially suitable, at a minimum, for municipal and domestic water supply, agricultural supply, industrial process supply, and industrial service supply, unless otherwise designated by the Central Valley RWQCB.

As mentioned above under "Groundwater Hydrology," the Secret Ravine Creek Watershed is located within the North American Groundwater Subbasin of the Sacramento Valley Groundwater Basin. An area of groundwater along the Sacramento River extending from Sacramento International Airport northward to the Bear River has been found to have high levels of TDS, chloride, sodium, bicarbonate, manganese, and arsenic. However, the groundwater in the southern part of the groundwater subbasin is otherwise generally characterized as good quality (DWR 2006). In addition, there are three sites within the North American Groundwater Subbasin with significant groundwater contamination issues: the former McClellan Air Force Base in Sacramento County, Union Pacific Railroad Rail Yard in Roseville, and the Aerojet Superfund Site in the City of Rancho Cordova. Although the Aerojet site lies south of the North American subbasin, a contaminant plume (including TCE and PCE) extends north from Aerojet, under the American River and into the North American subbasin (DWR 2006).

Groundwater in the Dry Creek watershed and in the vicinity of the project site is generally of good quality. None of the sites discussed above with significant groundwater contamination issues (the former McClellan Air Force Base, the Union Pacific Railroad Rail Yard, and the Aerojet Superfund site) are located in the Secret Ravine Creek Watershed (DWR 2006). Furthermore, as described in Section 4.8, Public Health and Hazards, Wallace-Kuhl & Associates (2005) found no records of on-site contamination, including contaminated groundwater wells, during its Phase I Environmental Site Assessment for the project site.

4.10.2 REGULATORY SETTING

HYDROLOGY

Federal

Federal Emergency Management Agency

In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer funded disaster relief for flood victims and the increasing amount of damage caused by floods. FEMA administers the NFIP to provide subsidized flood insurance to communities that comply with FEMA regulations to limit development in floodplains. FEMA also issues Flood Insurance Rate Maps that identify land areas subject to flooding. These maps provide flood information and identify flood hazard zones in the community. FEMA has established the minimum level of flood protection for new development as the 1-in-100 Annual Exceedance Probability (i.e., 100-year flood event).

Local

City of Rocklin General Plan

The following goal and policies from the Open Space, Conservation, and Recreation Element of the City of Rocklin General Plan (1991) are applicable to the proposed project:

- **Policy 6:** To cooperate in a coordinated regional approach to the management of drainage basins and flood plains with regional agencies such as the Placer County Flood Control and Water Conservation District (PCFCD).

The following goal and policies from the Community Safety Element of the City of Rocklin General Plan (1991) are also applicable to the proposed project:

- **Goal:** To minimize the danger of natural and man-made hazards and to protect residents and visitors from the dangers of earthquake, fire, flood, and other natural disasters, and manmade dangers.

  - **Policy 2:** To cooperate with and support the formation of a coordinated city-wide and/or regional approach for the construction, operation, and maintenance of drainage and flood control facilities.

  - **Policy 5:** To ensure that 100-year floodplain elevations, based upon the most current information, both up and downstream are not adversely affected by new development.

  - **Policy 6:** To require new developments to detain on-site drainage such that the rate of runoff flow is maintained at pre-development levels and to coordinate with other projects' master plans to ensure no adverse cumulative effects. In lieu of detention, the City may require off-site drainage improvements that are more beneficial to the community's overall drainage system.

WATER QUALITY

Federal

The U.S. Environmental Protection Agency (EPA) is the lead federal agency responsible for water quality management. The Clean Water Act (CWA) is the primary federal law that governs and authorizes water quality control activities by EPA as well as the states. Various elements of the CWA address water quality. These are discussed below. Wetland protection elements of the CWA administered by the U.S. Army Corps of Engineers are discussed in Section 4.12, Biological Resources.

Federal Antidegradation Policy

The federal antidegradation policy, established in 1968, is designed to protect existing uses and water quality and national water resources. The federal policy directs states to adopt a statewide policy that includes the following primary provisions:

- existing in-stream uses and the water quality necessary to protect those uses shall be maintained and protected;

- where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the State finds that allowing lower water quality is necessary for important local economic or social development; and

- where high-quality waters constitute an outstanding national resource, such as waters of national and State parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

Water Quality Criteria/Standards

Pursuant to federal law, EPA has published water quality regulations under Title 40 of the Code of Federal Regulations (CFR). Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the act, water quality standards consist of designated beneficial uses of the water body in question and criteria that protect the designated uses. Section 304(a) requires EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. As described in the discussion of State regulations below, the SWRCB and its nine RWQCBs have designated authority in California to identify beneficial uses and adopt applicable water quality objectives.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established in the CWA to regulate municipal and industrial discharges to surface waters of the United States. NPDES permit regulations have been established for broad categories of discharges including point source municipal waste discharges and nonpoint source stormwater runoff.

Each NPDES permit identifies limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits.

"Nonpoint source" pollution originates over a wide area rather than from a definable point. Nonpoint source pollution often enters receiving water in the form of surface runoff and is not conveyed by way of pipelines or discrete conveyances. Two types of nonpoint source discharges are controlled by the NPDES program: (1) discharges associated with industrial activities including construction activities; and, (2) the general quality of stormwater in municipal stormwater systems. The goal of the NPDES nonpoint source regulations is to improve the quality of stormwater discharged to receiving waters to the maximum extent practicable. The RWQCBs in California are responsible for implementing the NPDES permit system (see the discussion of State regulations below).

Section 303(d) Impaired Waters List

Under Section 303(d) of the CWA, states are required to develop lists of water bodies that would not attain water quality objectives after implementation of required levels of treatment by point source dischargers (municipalities and industries). Section 303(d) requires that the State develop a total maximum daily load (TMDL) for each of the listed pollutants. The TMDL is the amount of the pollutant that the water body can receive and still be in compliance with water quality objectives. The TMDL is also a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. EPA must either approve a TMDL prepared by the State or disapprove the State's TMDL and issue its own. NPDES permit limits for listed pollutants must be consistent with the waste load allocation prescribed in the TMDL. After implementation of the TMDL, it is anticipated that the problems that led to placement of a given pollutant on the Section 303(d) list would be remediated.

State

In California, the SWRCB has broad authority over water quality control issues. The SWRCB is responsible for developing water quality policy and exercises the powers delegated to the State by the federal government under the CWA. Other State agencies with jurisdiction over water quality regulation in California include the California

Department of Health Services (DHS) (for drinking water regulations), the California Department of Pesticide Regulation, the California Department of Fish and Game, and the Office of Environmental Health and Hazard Assessment.

Regional authority for planning, permitting, and enforcement is delegated to the nine regional water boards. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. The Central Valley RWQCB is responsible for the water bodies in the project vicinity.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) is California's statutory authority for the protection of water quality. The act sets forth the obligations of the SWRCB and RWQCBs under the CWA to adopt and periodically update water quality control plans, or basin plans. Basin plans are plans in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The Porter-Cologne Act also requires waste dischargers to notify the RWQCBs of such activities by filing Reports of Waste Discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, NPDES permits, Section 401 water quality certifications, or other approvals.

Water Quality Control Plan for the Sacramento and San Joaquin River Basins

The Central Valley RWQCB Basin Plan for the Sacramento River and San Joaquin River Basins adopted by the Central Valley RWQCB (2004) identifies the beneficial uses of water bodies and provides water quality objectives and standards for waters of the Sacramento River and San Joaquin River basins, including the Delta. State and federal laws mandate the protection of designated "beneficial uses" of water bodies.

The Basin Plan contains specific narrative and numeric water quality objectives for a number of physical properties (e.g., temperature, turbidity, suspended solids), biological constituents (e.g., coliform bacteria), and chemical constituents of concern including inorganic parameters, trace metals, and organic compounds. Water quality objectives for toxic priority pollutants (i.e., select trace metals and synthetic organic compounds) are included in the Basin Plan and the California Toxics Rule.

National Pollutant Discharge Elimination System Permits

The SWRCB and Central Valley RWQCB have required specific NPDES permits for a variety of activities that have potential to discharge pollutants to waters of the State and adversely affect water quality. To receive an NPDES permit, a Notice of Intent to discharge must be submitted to the Central Valley RWQCB and design and operational best management practices (BMPs) must be implemented to reduce the level of contaminated runoff. BMPs can include the development and implementation of regulatory measures (local authority of drainage facility design) and structural measures (filter strips, grass swales, and retention basins). All NPDES permits also have inspection, monitoring, and reporting requirements.

In April 2003, the SWRCB adopted an NPDES Phase II General Permit for the Discharge of Storm Water from small municipal separate storm sewer systems (MS4s) to provide NPDES permit coverage to municipalities that were not covered under the NPDES Phase I Rule for municipalities serving more than 100,000 people. The City of Rocklin is included within the NPDES Phase II General Permit. Under the Phase II General Permit, the City is required to develop, implement, and enforce a stormwater management program. The details of the development, implementation, and enforcement of the Phase II General Permit requirements are provided in the City's stormwater management program, which was approved in 2003.

General Permit for Stormwater Discharges Associated with Construction Activity (General Construction Permit)

The SWRCB adopted the statewide NPDES General Construction Permit in August 1999. The State requires that projects disturbing one acre or more of land during construction file a Notice of Intent with the RWQCB to be covered under this permit. Construction activities subject to the General Construction Permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce nonstormwater discharges to storm sewer systems and other waters. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site covered by the permit. The SWPPP must include BMPs designed to prevent construction pollutants from contacting stormwater and keep products of erosion from moving off-site into receiving waters throughout the construction and life of the project. The BMPs must address source control and, if necessary, pollutant control.

General Order for Dewatering and Other Low-Threat Discharges to Surface Waters (General Order for Dewatering)

Dewatering during construction is sometimes necessary to keep trenches or excavations free of standing water when improvements or foundations/footings are installed. Clean or relatively pollutant-free wastewater that poses little or no threat to water quality may be discharged directly to surface water under certain conditions. The Central Valley RWQCB has adopted a general NPDES permit, the General Order for Dewatering, for short-term discharges of small volumes of wastewater from certain construction-related activities. Discharges may be covered by the General Order for Dewatering provided either that they are four months or less in duration or that the average dry-weather discharge does not exceed 0.25 million gallons per day. Construction dewatering and miscellaneous dewatering/low-threat discharges are among the types of discharges that may be covered by the NPDES permit.

State Nondegradation Policy

In 1968, as required under the federal antidegradation policy described previously, the SWRCB adopted a nondegradation policy aimed at maintaining high quality for waters in California. The nondegradation policy states that the disposal of wastes into State waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the State and to promote the peace, health, safety, and welfare of the people of the State. The policy provides as follows:

a. Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the State and would not unreasonably affect present and anticipated beneficial uses of such water.

b. Any activity which produces waste or increases the volume or concentration of waste and which discharges to existing high-quality waters would be required to meet waste discharge requirements.

Safe Drinking Water Act

As mandated by the Safe Drinking Water Act (Public Law 93-523), passed in 1974, EPA regulates contaminants of concern to domestic water supply. Such contaminants are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are regulated by EPA primary and secondary Maximum Contaminant Levels (MCLs). MCLs and the process for setting these standards are reviewed triennially. Amendments to the Safe Drinking Water Act enacted in 1986 established an accelerated schedule for setting drinking water MCLs.

EPA has delegated to the DHS the responsibility for California's drinking water program. DHS is accountable to EPA for program implementation and for adoption of standards and regulations that are at least as stringent as those developed by EPA.

Title 22 of the California Administrative Code (Article 16, Section 64449) defines secondary drinking water standards, which are established primarily for reasons of consumer acceptance (i.e., taste) rather than for health issues.

Local

City of Rocklin General Plan

The following policy from the Open Space, Conservation, and Recreation Element the City of Rocklin General Plan (1991) is applicable to the proposed project:

- **Policy 19:** To minimize the degradation of water quality through requiring implementation of techniques such as, but not limited to, the prohibition of grading, placement of fill or trash or alteration to vegetation within designated stream setback buffer areas, and requiring the installation of measures which minimize runoff waters containing pollutants and sediments entering surface water. Measures for minimizing pollutants and sediments entering watercourses may include oil/grit separators, detention basins and flow reduction devices.

Rocklin Municipal Code Title 8, Health and Safety

Chapter 8.30, Stormwater Runoff Pollution Control Ordinance, of the Rocklin Municipal Code prohibits the discharge of any materials or pollutants that cause or contribute to a violation of applicable water quality standards, other than stormwater, into the municipal storm drain system or watercourses. Discharges from specified activities that do not cause or contribute to the violation of any plan standard, such as landscape irrigation, lawn watering, and flows from fire suppression activities are exempt from this prohibition.

Rocklin Municipal Code Title 15, Buildings and Construction

Chapter 15.28, Grading and Erosion and Sedimentation Control, of the Rocklin Municipal Code regulates grading on all property within the City of Rocklin; to avoid pollution of watercourses with nutrients, sediments, or other earthen materials generated or caused by surface runoff on or across the permit area; to comply with the City's National Pollution Discharge Elimination System permit issued by the California RWQCB; and to ensure that the intended use of a graded site is consistent with the City of Rocklin General Plan, provisions of the California Building Code as adopted by the City relating to grading activities, City of Rocklin improvement standards, any applicable specific plans or other land use entitlements.

In addition, this chapter establishes rules and regulations to control grading and erosion control activities, including fills and embankments; establishes the administrative procedure for issuance of permits; and provides for approval of plans and inspection of grading construction and erosion control plans for all graded sites.

4.10.3 IMPACTS AND MITIGATION MEASURES

METHOD OF ANALYSIS

The environmental analysis for hydrology and water quality was conducted using existing information from previously completed documents that address water resources in the project vicinity, including the City of Rocklin General Plan (1991), the Preliminary Drainage Report (Civil Engineering Solutions, Inc. 2005), and the Placer County Flood Control and Water Conservation District Stormwater Management Manual. The effects of the

proposed project were compared to environmental baseline conditions (i.e., existing conditions) to determine impacts.

THRESHOLDS OF SIGNIFICANCE

An impact is considered significant, as identified by the State CEQA Guidelines (Appendix G), if the proposed project would:

- violate any water quality standards or waste discharge requirements;
- substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate or pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion, siltation, or flooding on- or off-site;
- create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- 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 floodflows;
- cause the potential for inundation by seiche, tsunami, or mudflow; or
- 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.

The project would not rely on groundwater to serve the proposed development (see Section 4.6, Utilities and Public Services) and would not place housing or other structures in a 100-year floodplain or in the vicinity of a levee or dam or interfere substantially with groundwater recharge. The project is not within an inundation area for seiches, tsunamis, or mudflows and would not expose people to these events. These impacts are not evaluated further in this EIR.

IMPACTS AND MITIGATION MEASURES

IMPACT 4.10-1 **Increased Runoff and Potential for Localized or Downstream Flooding.** *Implementation of the proposed project would result in an increase in impervious surfaces on the project site, which would lead to an increase in stormwater runoff compared to existing conditions. The increased surface runoff could result in a greater potential for on- and off-site flooding. The proposed project includes a stormwater runoff collection and detention system pursuant to the guidelines set forth in the Stormwater Management Manual that would reduce the post-project peak flows to pre-project levels. This impact would be* ***less than significant****.*

Implementation of the proposed project would create additional impervious surfaces (e.g., buildings, sidewalks, paved parking areas) on the project site. The additional runoff caused by the increase in impervious surfaces would lead to an increase in localized stormwater runoff. If not properly accommodated on the project site, increased stormwater runoff could result in localized flooding on the site and adjacent lands. In addition, if

stormwater runoff from the project site were discharged in sufficient quantities during severe storm events, lands downstream of the project site could be exposed to greater flooding risk because of increased peak flows.

A preliminary drainage report for the project was prepared in accordance with Placer County Flood Control and Water Conservation District's Stormwater Management Manual methodology. The purpose of the preliminary drainage report was to determine how peak stormwater flows would be managed on the project site. The report evaluated the combined stormwater generation effects of the proposed project and the proposed Rocklin 60 residential development located directly adjacent and to the east. The two proposed projects were evaluated together in order to determine the cumulative stormwater impacts if both projects were constructed, because the current proposal is for both projects to share the same detention basin to capture peak stormwater flows.

The preliminary drainage report identified the installation of a detention basin that would be used by both projects. The detention basin would be located on a 5.6-acre area within the boundaries of the proposed Rocklin 60 residential development and directly adjacent to the southeast corner of the proposed project (Exhibit 3-3). The detention basin would be constructed whether or not the Rocklin 60 project is developed, although its required size could be reduced without the Rocklin 60 project due to reductions in the projected peak stormwater volumes. As provided in the Detention Basin Easement Agreement entered into between the project applicant and the Rocklin 60 project applicant on May 8, 2006, the Rocklin Crossings project applicant has a non-exclusive perpetual easement and right-of-way on the Rocklin 60 property for the purposes of creating, utilizing and maintaining a detention basin intended to be used by both projects. The detention basin would be constructed upon the initiation of project construction for either of the two proposed projects.

The preliminary drainage report identified the detention volume and outlet configuration required to attenuate the post-project peak flows to pre-project levels. The preliminary drainage report's recommendations regarding detention basin sizing and outlet configurations were developed by modeling the system under pre- and post-project conditions using the U.S. Army Corps of Engineers HEC-1 model. This modeling software is designed to identify peak flow conductions during a variety of storm events and site conditions. The model was used to calculate the peak flows for the 2-year through 500-year storm events (Civil Engineering Solutions, Inc. 2006).

The pre-project modeling identified seven separate watersheds that extended over the two project sites that, with few exceptions, flows to the south and east toward Secret Ravine Creek. The total pre-project watershed was identified as approximately 121 acres. The resultant 10-year and 100-year peak flows for this area are 121 cubic feet per second (cfs) and 233 cfs, respectively (Table 4.10-1).

The post-project model consists of nine total watersheds that drain to the proposed detention site. The total watershed area is approximately 111 acres. The total area is reduced because the area of the proposed Interstate 80 eastbound onramp soon to be constructed along the northern site boundary, which is within the modeled watershed area, would drain into a separate system once completed. For the 111 acres, the 10-year and 100-year peak flows without stormwater detention increases to 151 cfs and 280 cfs, respectively (Table 4.10-1).

Table 4.10-1
Project Peak Flow Rates under Pre-Project, Post-Project, and Mitigated Project Conditions

	Project Peak Flow Rates (cfs)			
	2-Year	10-Year	100-Year	500-Year
Pre-Project Flows	55	121	233	329
Post-Project Flows	74	151	280	387
Mitigated Project Flows [a]	56	113	201	245

Source: Civil Engineering Solutions, Inc. 2006
a Mitigated project flows assumes construction of a minimum of a 4.8-acre-foot detention basin that would be designed to accommodate stormwater flows from both the Rocklin Crossings and the Rocklin 60 projects.

The preliminary drainage report indicates that the detention volume required to attenuate a 500-year storm event with the combined projects is approximately 4.8 acre-feet. All stormwater flows from both the proposed project's commercial development and the proposed residential development within the Rocklin 60 project would be routed to the detention basin, which would be sized to reduce 2-year through 500-year post-project peak flows to pre-project levels. An outlet structure from the detention basin would consist of a single 30-inch diameter "weep-hole" that would limit the volume of water that could regularly flow from the detention basin. This weep-hole would be located at the lowest point of the detention basin (approximately 308 feet above mean sea level) and would ensure that the detention basin completely drains after storm events. In addition, the detention basin would include a 48-inch riser that would control releases from the detention basin during larger storm events. The elevation of the riser would be 315.5 feet above mean sea level. Therefore, once water levels in the detention basin rise approximately 7.5 feet, stormwater would flow through both the weep-hole and the riser. The total stormwater flows would be controlled by the combined size of these two outlets.

Both the 30-inch weep-hole and 48-inch riser would discharge into a 60-inch diameter culvert that would extend through the southern bank of the detention basin. The culvert would be aligned to discharge to an existing swale connected to Secret Ravine Creek. As described below, the mitigated discharge volumes entering Secret Ravine Creek would be similar to or less than the pre-project conditions. Therefore, the proposed project would not be expected to increase erosion or streambed scour within Secret Ravine Creek.

As identified in Table 4.10-2, the detention basin would be designed to accommodate water levels in excess of a 500-year storm event. The top of the bank of the detention basin would be 325 above mean sea level and the water level elevation in the basin during a 500-year event would be 320.98 feet.

Table 4.10-2
Water Surface Elevations in the Detention Basin during Various Storm Events

Storm Event	Water Surface Elevation (feet)[a]
10-Year	316.32
100-Year	318.74
500-Year	320.98

[a] Top of Detention Basin is 325 feet.
Source: Civil Engineering Solutions, Inc. 2006

With construction of the detention basin, the mitigated 10-year and 100-year flows decrease under post-project conditions to 113 cfs and 201 cfs, respectively. This would be 8 cfs less than the 10-year pre-project flows and 32 cfs less than the 100-year pre-project flows assuming construction of both the proposed project and the Rocklin 60 project (Table 4.10-1). If the Rocklin 60 project is not constructed, the post-project flows from the project site would be less than projected for both projects. Because the proposed project includes a stormwater runoff collection and detention system pursuant to the guidelines set forth in the Stormwater Management Manual that would be sufficient to reduce the post-project peak flows to below pre-project levels with or without the Rocklin 60 project, the project would not be expected to substantially alter the course of a stream or river, or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems. Therefore, this impact would be **less than significant**.

Mitigation Measure 4.10-1 Increased Runoff and Potential for Localized or Downstream Flooding

No mitigation measures would be necessary.

Level of Significance After Mitigation

The project's runoff and flooding impacts would be considered less than significant.

IMPACT 4.10-2 Potential for Short-Term Construction-Related Water Quality Degradation. *Implementation of the proposed project could cause short-term water quality degradation associated with construction activities. Construction activities (grading, excavation, etc.) could result in substantial stormwater discharges of suspended solids and other nonpoint source pollutants, which could drain to off-site areas, potentially degrading local surface water quality. Further, areas of exposed or stockpiled soils could be subject to sheet erosion during rain events. This impact would be considered potentially* ***significant****.*

Grading, earthmoving, excavation, and utility installation, infrastructure development, and building construction would disturb the existing vegetation cover, soil, and drainage systems over the entire project site and some off-site areas (e.g., water and wastewater infrastructure). Therefore, the site would be exposed to wind and water erosion, which could adversely affect surface water quality.

The subsurface conditions on the site generally consist of variably weathered granodiorite rock. Infiltrating surface runoff water could create saturated surface conditions because of the impervious nature of the underlying bedrock. In addition, intense rainfall and associated stormwater runoff could result in short periods of sheet erosion within areas of exposed or stockpiled soils. If uncontrolled, these soil materials would flow off of the site and into local drainages. Further, the compaction of soils by heavy equipment may reduce the infiltration capacity of soils and increase the potential for runoff and downstream sedimentation.

Construction activities could result in substantial stormwater discharges of suspended solids and other pollutants into local drainage channels from the project construction site. Construction-related chemicals (fuels, paints, adhesives, etc.) could be washed into surface waters by stormwater runoff. The deposition of pollutants (gas, oil, etc.) onto the ground surface by construction vehicles could similarly result in the transport of pollutants to surface waters by stormwater runoff or in seepage of such pollutants into groundwater. Increased turbidity could result in adverse impacts on fish and wildlife species within local water courses. Long-term effects could include increased flooding hazards caused by reduced drainage facility and channel capacity.

Nonstormwater discharges could result from activities such as construction dewatering procedures, or discharge or accidental spills of hazardous substances such as fuels, oils, concrete, paints, solvents, cleaners, or other construction materials. Because of the shallow depth to bedrock and the sloping terrain of the site, it is likely that perched water could be as shallow as three feet below existing grade depending on the time of year. If perched water is encountered during excavation, dewatering activities would be necessary (Wallace-Kuhl & Associates 2005). Dewatering discharges may contain elevated levels of suspended sediment or other construction-related contaminants.

Because the project could contribute substantial additional sources of polluted runoff and could substantially degrade water quality during proposed construction activities, the project would result in potentially **significant** construction-related water quality impacts.

Mitigation Measure 4.10-2 Potential for Short-Term Construction-Related Water Quality Degradation

a. The project applicant shall demonstrate compliance, through its erosion control plan and SWPPP, with all requirements of the City's Stormwater Runoff Pollution Control Ordinance (Title 8, Chapter 8.30 of the City Code) and the Grading and Erosion and Sedimentation Control Ordinance (Title 15, Chapter 15.28 of the City Code), which regulate stormwater and prohibit non-stormwater discharges except where regulated by an NPDES permit. This includes preparing erosion, sediment, and pollution control plans for the entire construction site. The project's grading plans shall be approved by the City of Rocklin, Engineering Department prior to the initiation of site grading activities. The project applicant shall implement measures

including the use of soil stabilizers, fiber rolls, inlet filters, and gravel bags to prevent pollutants from being carried off-site in stormwater generated on the project site. These measures shall be designed to accommodate stormwater discharges associated with proposed measures that would be implemented to control on-site dust generation (e.g., wheel washing, active watering).

b. Prior to the issuance of a grading permit or any construction activity, the project applicant shall obtain from the Central Valley RWQCB the appropriate regulatory approvals for project construction including a Section 401 water quality certification, and an NPDES stormwater permit for general construction activity, including construction dewatering activities.

c. As required under the NPDES stormwater permit for general construction activity, the project applicant shall prepare and submit the appropriate Notice of Intent and prepare the SWPPP and the erosion control plan for pollution prevention and control prior to initiating site construction activities. The SWPPP shall identify and specify the use of erosion sediment control BMPs, means of waste disposal, implementation of approved local plans, nonstormwater management controls, and inspection and maintenance responsibilities. The SWPPP shall also specify the pollutants that are likely to be used during construction and that could be present in stormwater drainage and nonstormwater discharges. A sampling and monitoring program shall be included in the SWPPP that meets the requirements of SWRCB Order 99-08-DWQ to ensure the BMPs are effective.

d. Construction techniques shall be identified that would reduce the potential runoff and the SWPPP shall identify the erosion and sedimentation control measures to be implemented. The SWPPP shall also specify spill prevention and contingency measures, identify the types of materials used for equipment operation, and identify measures to prevent or clean up spills of hazardous materials used for equipment operation and hazardous waste. Emergency procedures for responding to spills shall also be identified. BMPs identified in the SWPPP shall be used in subsequent site development activities. The SWPPP shall identify personnel training requirements and procedures that would be used to ensure that workers are aware of permit requirements and proper installation and performance inspection methods for BMPs specified in the SWPPP. The SWPPP shall also identify the appropriate personnel responsible for supervisory duties related to implementation of the SWPPP. All construction contractors shall retain a copy of the approved SWPPP on the construction site.

Level of Significance After Mitigation

With implementation of the above mitigation measures, erosion from site soils would be minimized and pollutants would be largely captured on the site. Also, the implementation of identified spill prevention and cleanup plans would limit the potential for hazardous material spills to adversely affect storm water quality. Therefore, the project's construction-related water quality impacts would be reduced to a less-than-significant level.

IMPACT 4.10-3 Potential Long-Term Degradation of Water Quality. *The conversion of the site from vacant to commercial uses would introduce new stormwater pollutant sources. These pollutant sources would include oils and greases, petroleum hydrocarbons (gas and diesel fuels), nitrogen, phosphorus, and heavy metals. Pesticides, herbicides, and other landscape maintenance products typically used in landscape maintenance also could be present. These pollutants could adversely affect the site's stormwater discharges. The potential water quality degradation associated with site operations would be considered* ***significant****.*

The project site is currently vacant and undeveloped. The development of the project site with commercial land uses would alter the types, quantities, and timing of contaminant discharges in stormwater runoff relative to existing conditions. If this stormwater runoff is uncontrolled and not treated, the water quality of the discharge could affect off-site drainage channels and downstream waterbodies. The stormwater runoff generated within the project site would ultimately discharge to Secret Ravine Creek.

Water quality degradation from the discharge of urban runoff occurs when stormwater or landscaping irrigation runoff enters the storm drain system carrying contaminants found in urban environments. Stormwater may

encounter oil, grease, or fuel that has collected on roadways and parking lots and convey these contaminants to the storm drain system. Water used for irrigation of landscaped areas may encounter pesticides, herbicides, and fertilizer. Water that has encountered these chemicals but that has not been absorbed by plants and soil can enter the storm drain system and be conveyed to receiving waters. The potential discharges of contaminated urban runoff from paved and landscaped areas could increase or could cause or contribute to adverse effects on aquatic organisms in receiving waters. Urban contaminants typically accumulate during the dry season and may be washed off when adequate rainfall returns in the fall to produce a "first flush" of runoff.

The amount of contaminants discharged in stormwater drainage from development areas varies based on a variety of factors, including the intensity of urban uses such as vehicle traffic, types of activities occurring on-site (e.g., office, commercial, industrial), types of chemicals used on-site (e.g., pesticides, herbicides, cleaning agents, petroleum byproducts), the pollutants on street surfaces, and the amount of rainfall. The potential for the project to contribute substantial additional sources of polluted runoff and to substantially degrade water quality during site operations would be considered a **significant** water quality impact.

Mitigation Measure 4.10-3 Potential Long-Term Degradation of Water Quality

Before issuance of a grading permit for the site, the project applicant shall obtain from the Central Valley RWQCB a general NPDES permit and shall comply with all of the permit requirements in order to minimize storm water discharges associated with site operations. In addition, the project applicant shall prepare a SWPPP and implement Best Management Practices designed to minimize sedimentation and release of products used during site operations.

Before approval of the final project design, the project applicant shall identify storm water runoff BMPs selected from the Storm Water Quality Task Force's California Storm Water Best Management Practices Handbook (American Public Works Association 1993), the Bay Area Stormwater Management Agencies Association's (1999) Start at the Source: Design Guidance Manual for Stormwater Quality Protection, or similar documents. Typical BMPs that could be used on the project site shall include, but are not limited to, catchbasin inserts, compost storm water filters, sand filters, vegetated filter strips, biofiltration swales, oil/water separators, biodetention basins, or other equally effective measures. Other BMPs shall include, but would not be limited to, administrative controls such as signage at inlets to prevent illicit discharges into storm drains, parking lot and other pavement area sweeping, public education, and hazardous waste management and disposal programs. BMPs shall identify and implement mechanisms for the routine maintenance, inspection, and repair of pollution control mechanisms. In addition, the BMPs shall be reviewed for adequacy by the City of Rocklin, Engineering Department prior to issuance of a grading permit for the site to ensure that they will effectively remove pollutants from the site's stormwater runoff.

Level of Significance After Mitigation

With the implementation of the BMPs identified above, the stormwater discharge from the project site would be captured within the project's drainage systems and would be filtered through oil/water separators and/or other equally effective control systems prior to being directed to the detention basin. Once in the detention basin, the settlement of undissolved solids would occur, further removing contaminants from the stormwater. As the stormwater is discharged from the detention basin, it would flow through an existing grassy swale for approximately 300 feet before entering Secret Ravine Creek. The grassy swale would remove additional contaminants within the stormwater through biofiltration. The implementation of these BMPs, consistent with the requirements of the site's NPDES permit and the SWPPP, would ensure that the quality of the water entering Secret Ravine Creek would not be substantially degraded. With implementation of the above mitigation measures, the project's operational water quality impacts would be reduced to a less-than-significant level.