

8 HYDROLOGY AND WATER QUALITY

This chapter describes the regulatory background, existing hydrology and water quality conditions, and potential effects of Alternatives A through D on hydrology and water quality. Water quality and resultant lake clarity are issues of vital concern at Lake Tahoe. Since 1968, the clarity of the deep waters of the lake has declined, on average, approximately 1 foot per year (Goldman 1988). The primary direct causes of this decline are believed to be elevated nutrient and sediment inputs to the lake (Reuter and Miller 2000). The sources of these elevated nutrient and sediment inputs involve a wide range of activities, including soil erosion, fertilizer application, automobile and motorized watercraft operation, and wood burning. In addition to issues of clarity, other potential water quality issues include the discharge of chemicals that are potentially toxic to humans and other living organisms.

Local, state, and federal regulations related to water resources are described, and the effects of Alternatives A through D on hydrology and water quality are analyzed. Mitigation measures are provided when necessary to reduce potentially significant impacts to a less-than-significant level.

This hydrology and water quality analysis for the project alternatives is based, in part, on review of the *Affordable/Employee Housing & Interval Ownership Resort – Placer County Preliminary Drainage Report* prepared by K. B. Foster Civil Engineering, Inc. (2006) (Note: the Preliminary Drainage Report prepared for Alternative A [Proposed Project] is included as Appendix B of this EA/EIR; similar drainage reports were prepared for Alternatives B and C – those reports are available for review during normal business hours at the Placer County Planning Department office at the following address: Placer County Planning Department, 565 West Lake Boulevard, Tahoe City, CA).

8.1 AFFECTED ENVIRONMENT

8.1.1 REGIONAL HYDROLOGY

The project site is situated on a predominantly south and southwest facing slope located within the northern portion of the Lake Tahoe Hydrologic Unit. This unit is located along the Nevada-California border in the Sierra Nevada mountain range.

8.1.2 LOCAL WATERSHED DESCRIPTION

The approximately 6.25-acre (272,303 sf) project site is located approximately 250 feet north of the north shore of Lake Tahoe. No rivers, streams, or creeks traverse the site. A watershed area of approximately 10.5 acres to the north and northwest contributes runoff to the project site by means of overland flow and disconnected overland flow across the neighboring parcels to the north and northwest. These parcels do not have a designated discharge point to the project parcel, but they contribute runoff from pervious and impervious surfaces, such as driveways, roadways, and undeveloped land to the project area via overland flow. The project site does not lie within the 100-year floodplain mapped by Federal Emergency Management Agency (FEMA). Additionally, there are no Stream Environment Zones (SEZs) on the site (K. B. Foster Civil Engineering, Inc. 2006).

The project site contains a private campground and RV park that has operated since the 1920s. Primary structures include a main building and smaller ancillary buildings clustered around the main building. There are several other improvements on the site including paved and gravel roads, and a system of compacted dirt pathways. No evidence of erosion, channelization, or of historical drainageways through the site are evident, and the vast majority of runoff, therefore, occurs by overland sheet flow. Slopes range from 2–12%, and the land surface varies from open developed areas to semi-dense stands of conifers and cedar.

Based on the Soil Survey for the Tahoe Basin Area, California and Nevada, by the U.S. Department of Agriculture (USDA) Soil Conservation Service and Forest Service (1974), the project watershed contains soil types JhC (stony sandy loams) and JwE (very stony sandy loams) and consists of stony soils underlain by basic volcanic rock. Jorge soils and Tahoma soils make up this unit, with slight variations of very stony sandy loams and alluvial soils. The Tahoma soils described under the unit are typical of the Tahoma series with 5–15% of the surface area covered with cobblestones and boulders. The Jorge and Tahoma soils are moderately permeable and well-drained. The percolation rate for these soil types is 1.0 inch per hour, according to the TRPA permeability chart (K. B. Foster Civil Engineering, Inc. 2006).

8.1.3 GROUNDWATER

The project site lies in the Tahoe Valley North Subbasin of the Tahoe Valley Groundwater Basin. The Tahoe Valley Groundwater Basin is located within the larger structural feature of the Lake Tahoe Basin. The groundwater basin consists of three alluvial areas surrounding the California side of the lake on the south, west, and north. The Tahoe Valley North Subbasin lies in the northern portion of the Tahoe Valley Groundwater Basin. The subbasin occupies a triangular area along the north shore of Lake Tahoe. The basin boundaries approximate an area in which basin-fill deposits have accumulated. Elevations within the subbasin range from 6,225 feet at lake level to 6,500 feet in the north (DWR 2004). At the project site, groundwater was not found to a maximum depth explored of 13 feet below ground surface (bgs) (Kleinfelder 2001); however, the soils/hydrologic subsurface investigation was conducted during a relatively dry year with an average lake elevation of 6,225.5 feet, which could result in groundwater conditions that are not representative of wet years with higher lake elevations. Consequently, the specific depth of groundwater is unknown and may vary locally (i.e., spatially within the project site), seasonally, and by water year type (and associated lake level).

Groundwater recharge in the subbasin is primarily from infiltration of precipitation into faults and fractures in bedrock, into the soil and decomposed granite that overlies much of the bedrock, and into unconsolidated basin-fill deposits. Groundwater is recharged over the entire extent of the flow path, except where the land surface is impermeable or where the groundwater table coincides with land surface. Stream flow also recharges groundwater when the water-table altitude is lower than the water-surface altitude of the stream (Thodal 1997, cited in DWR 2004).

In general, the inorganic quality of groundwater in the Lake Tahoe Basin is excellent (Thodal 1997, cited in DWR 2004). Total dissolved solids average 800 mg/L based on one well sampled (North Tahoe Public Utility District 1999, cited in DWR 2004). Electrical conductivity averages 800 mg/L based on one well sampled (North Tahoe Public Utility District 1999, cited in DWR 2004).

8.2 REGULATORY SETTING

Numerous federal, state, and regional laws, rules, regulations, plans, and policies define the framework for regulating hydrology and water quality in the Tahoe Basin. The following discussion focuses on hydrology and water quality requirements applicable to the proposed project.

8.2.1 FEDERAL

CLEAN WATER ACT

The Clean Water Act (CWA) consists of the Federal Water Pollution Control Act of 1972 and subsequent amendments. The CWA establishes the basic structure for regulation of discharges of pollutants to surface waters within the United States. It authorizes the U.S. Environmental Protection Agency (EPA) to set effluent limits for discharges and requires the EPA to set water quality standards for contaminants in surface waters.

The CWA authorizes the EPA to delegate many permitting, administrative, and enforcement aspects of the law to state governments. In such cases, the EPA still retains oversight responsibilities. The State of California has assumed such responsibility and administers the CWA through the State Water Resources Control Board (State Water Board) and nine Regional Water Quality Control Boards (Regional Boards). The Lahontan Regional Board is responsible for the California side of the Tahoe Basin.

The CWA established a framework for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) Program. The CWA requires dischargers to obtain a permit that establishes effluent limits and specifies monitoring and reporting requirements. The NPDES Program in the Tahoe Basin is administered through the Lahontan Regional Board (see below for additional information).

FEDERAL ANTIDEGRADATION POLICY

The federal Antidegradation Policy is designed to protect existing beneficial uses and the level of water quality necessary to protect existing uses. It also provides protection for high-quality water resources and water resources of national importance. The federal policy directs states to adopt a statewide policy that includes the following provisions:

- (1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.
- (2) Where high quality waters constitute an outstanding national resource, such as waters of national and state parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected (40 CFR 131.12).

Lake Tahoe was designated by the State Water Board as an Outstanding National Resource Water (ONRW) in 1980, so it is subject to the Antidegradation Policy.

8.2.2 TAHOE REGIONAL PLANNING AGENCY

Tahoe Regional Planning Agency (TRPA) has established environmental thresholds, goals and policies, and ordinances directed at protecting and improving water quality in Lake Tahoe and the Tahoe Basin. In addition, TRPA has been designated as the region-wide water quality planning agency under Section 208 of the federal CWA. Under those auspices, it has developed a Water Quality Management Plan (208 Plan) for the Lake Tahoe Region.

WATER QUALITY THRESHOLDS

TRPA has established a number of measurable water quality objectives for Lake Tahoe. The thresholds applicable to the proposed project are provided in Table 8-1. TRPA identified a broad suite of actions to be undertaken to attempt to meet these standards, ranging from erosion and runoff control capital projects to implementing Best Management Practices (BMPs) on residential and commercial properties, and restoration and revegetation of disturbed areas. TRPA water quality thresholds are numeric limits for discharges to surface waters and groundwater, which are similar to the Lahontan Regional Board stormwater effluent limitations. There are some important distinctions for monitoring and reporting. Some TRPA standards specify dissolved forms of nutrients rather than total. However, TRPA's strictest standard requirements for dissolved forms of nutrients would defer to the more stringent total nutrient standards in California. TRPA has a suspended sediment standard, whereas the Lahontan Regional Board effluent limitation is in terms of turbidity and "suspended solids." These standards are often nearly equivalent, especially in cases where sediment is the primary source of suspended material. Certain thresholds define standards in two forms because they have been expressed differently in different documents, e.g., in the 208 Plan.

Table 8-1 TRPA Water Quality Thresholds Applicable to the Proposed Project	
Threshold	Status
<p>WQ-5: Stormwater runoff quality, surface water</p> <ul style="list-style-type: none"> ▶ Discharges to surface water not to exceed: <ul style="list-style-type: none"> • 0.5 mg/L dissolved inorganic nitrogen • 0.1 mg/L dissolved phosphorus • 0.5 mg/L dissolved iron as Fe • 250 mg/L suspended sediment • 2.0 mg/L grease and oil • 20 NTU turbidity¹ <p>(standards stated slightly differently in 208 Plan)</p>	Non-attainment
<p>WQ-6: Stormwater runoff quality, infiltration to groundwater</p> <ul style="list-style-type: none"> ▶ Surface infiltration into groundwater: <ul style="list-style-type: none"> • 5.0 mg/L total nitrogen as N • 1.0 mg/L total phosphorus as P • 4.0 mg/L total iron • 40 mg/L grease and oil • 200 NTU turbidity ▶ Where there is a direct hydrologic connection between ground and surface waters, discharges shall meet the guidelines for surface discharges (WQ-5) 	Non-attainment
<p>¹ Not a specific TRPA discharge standard, but used as a surrogate field measure until TRPA and the Lahontan Regional Board determine uniform turbidity standards. mg/L = milligrams per Liter NTU = Nephelometric Turbidity Units Source: TRPA 2002, 2007</p>	

TRPA last adopted an evaluation of the status of attainment of the environmental thresholds in 2001 (TRPA 2002). A draft version of the 2006 threshold evaluation was released in April 2007 for public comment; this document was updated in September 2007, but has not yet been adopted by the TRPA Governing Board (TRPA 2007). The 2001 attainment designations for the thresholds applicable to the project (Table 8-1) are upheld in the draft 2006 evaluation. Only one of the seven water quality thresholds is considered to be in attainment. Although certain thresholds indicate what may be positive trends, the overall conclusion of the 2001 review was a trend toward water quality degradation. Following the 2001 review, TRPA implemented a ban on two-stroke carbureted boat engines and identified BMPs for more effective control of soil erosion and sedimentation. In addition, an ONRW boat pollution reduction program may be implemented as part of the Shorezone Ordinance amendments, if the amendments are adopted by the TRPA Governing Board. These programs may lead towards improved water clarity. The draft 2006 evaluation finds a positive trend in the tributary water quality threshold, but a negative trend in the lake clarity threshold and an increasing trend in phytoplankton primary productivity. While the analysis in this EA/EIR is based on the last adopted threshold attainment status from 2001, which is presented in Table 8-1, the attainment designations are the same in the draft 2006 evaluation.

GOALS AND POLICIES

TRPA has established many goals and policies related to water quality. Goals include the reduction of sediment and nutrients to Lake Tahoe and the elimination or reduction of other pollutants. Policies address a range of issues, including snow removal, wastewater spill prevention, and underground storage tanks.

CODE OF ORDINANCES

The TRPA Code of Ordinances (1991, updated 2004) contains a range of requirements and standards intended to help achieve water quality thresholds, goals, and policies (Table 8-2). Chapters 81 and 82 of the TRPA Code of

Ordinances are directed specifically at water quality, but a number of other chapters contain provisions related to physical processes important to maintaining aquatic health. Code Chapter 81 specifies water quality standards and regulations; Code Chapter 82 identifies procedures and requirements for water quality mitigation.

Table 8-2 Selected Code Requirements Related to Project Water Quality	
Ordinance	Requirement
Chapter 25	Excess runoff shall be controlled with implementation of Best Management Practices (BMPs).
Chapter 64	Sets standards for grading and excavation. Grading is permitted only between May 1 and October 15.
Chapter 81	Sets discharge standards for runoff and discharge to surface and groundwater.
Chapter 82	For projects which result in increased impervious coverage, implementation of off-site water quality control or stream environment zone mitigation projects is required; or payments into the Water Quality Mitigation Fund.
Source: Code of Ordinances (TRPA 1991, 2004)	

WATER QUALITY MANAGEMENT PLAN FOR THE LAKE TAHOE REGION (208 PLAN)

Section 208 of the CWA authorizes the preparation of areawide wastewater management plans. As a bi-state regional planning agency, TRPA was designated as the region-wide planning agency under Section 208 in 1974. TRPA developed a Water Quality Management Plan for the Lake Tahoe Region (208 Plan), most recently revised in 1988 (TRPA 1988). The 208 Plan identifies water quality problems that have contributed to the degradation of Lake Tahoe and sets forth a series of control measures, including land use restrictions, wetland protection and restoration, a BMP Handbook, and a Capital Improvements Program of remedial erosion and surface water runoff control projects (now incorporated into the Water Quality Environmental Improvement Program).

Implementation of water quality control programs in the Tahoe Basin is of necessity a bi-state, interagency effort between TRPA, the Lahontan Regional Board in California, and the Nevada Division of Environmental Protection in Nevada. The Lahontan Regional Board and TRPA implement their respective water quality plans in a complementary manner. The agencies entered into a Memorandum of Understanding in 1994 to increase the level of coordination. The Lahontan Regional Board’s most recent update of its Basin Plan in 1995 incorporated provisions of TRPA’s 208 Plan as a part of that effort. In addition, the Memorandum of Understanding was amended in 2004. TRPA’s Compact directs the agency to attain and maintain federal, state, or local water quality standards, whichever are the strictest in the jurisdiction where those standards apply.

TAHOE REGIONAL PLANNING AREA WATER QUALITY DISCHARGE STANDARDS

Numerical discharge standard limitations are specified in the TRPA Code of Ordinances for nitrogen, phosphorus, iron, turbidity, suspended sediments, and grease and oil (Table 8-3). All surface flows generated within the facility, or as a result of development of the facility, which are discharged to land treatment systems and/or surface waters shall not contain constituents in excess of the concentrations listed in Table 8-3. In addition to numerical discharge limits, TRPA code also restricts the discharge of wastewater and toxic substances, sets requirements for snow removal and control of salts, and sets criteria for pesticide use and fertilizer control.

**Table 8-3
Tahoe Regional Planning Agency Water Discharge Limits**

Constituent	Units	Discharge to Surface Waters ^{2, 3}
Dissolved Inorganic Nitrogen	mg/L as N	0.5
Dissolved Phosphate	mg/L as P	0.1
Dissolved Iron	mg/L	0.5
Turbidity	NTU ¹	–
Suspended Sediment	mg/L	250
Grease and Oil	mg/L	2.0

1 Nephelometric Turbidity Units
2 If the constituent levels of water entering a site from upstream areas are of a superior or equal quality to the above, those waters shall meet the quality level listed above before discharge from the site.
3 If the constituent levels of waters entering a site do not meet the quality levels above, there shall be no increase in the concentrations of these constituents in water discharged from the site, based on a 24-hour average.
Source: TRPA 2004

8.2.3 STATE

PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Water Quality Control Act is the State of California’s statutory authority for the protection of water quality. Under the Act, California must adopt water quality policies, plans, and objectives that ensure beneficial uses of state waters are reasonably protected. The Act requires the nine Regional Boards to adopt water quality control plans and establish water quality objectives, and authorizes the State Water Board and Regional Boards to issue and enforce permits containing requirements for the discharge of waste to surface waters and land. This Act also banned wastewater discharge in the Tahoe Basin and requires export of raw sewage for treatment outside the Basin or export of treated sewage effluent for discharge outside the Basin.

WATER QUALITY CONTROL PLAN FOR THE LAHONTAN BASIN

The Water Quality Control Plan for the Lahontan Basin (Basin Plan) defines the beneficial uses, water quality objectives, implementation programs, and monitoring programs for waters of the Lahontan Region, which includes the California portion of Lake Tahoe and its tributaries, and therefore the project area. The Basin Plan was first adopted in 1975, and most recently updated in 1995. The 1995 Basin Plan incorporates the provisions of TRPA’s Water Quality Management Plan for the Lake Tahoe Region (1988). The Basin Plan contains both narrative and numeric water quality objectives for the region. Two types of water quality standards are discussed: ambient water quality objectives and effluent limits (or discharge standards). The former are standards set as objectives for a body of water. The latter are conditions in state or federal wastewater discharge permits, such as the NPDES permits. The Basin Plan also identifies land uses and activities that could degrade water quality and discusses BMPs that could be used to address various nonpoint sources of pollution.

Beneficial Uses

The beneficial uses of the surface waters of Lake Tahoe and its tributaries, as set forth and defined in the Basin Plan (Lahontan Regional Board 1995), include the following:

- ▶ municipal and domestic water supply;
- ▶ agricultural water supply;

- ▶ water contact recreation;
- ▶ non-contact water recreation;
- ▶ groundwater recharge;
- ▶ freshwater replenishment;
- ▶ navigation;
- ▶ commercial and sport fishing;
- ▶ cold freshwater habitat;
- ▶ wildlife habitat;
- ▶ preservation of biological habitats of special significance;
- ▶ rare, threatened, or endangered species;
- ▶ migration of aquatic organisms;
- ▶ spawning, reproduction, and development;
- ▶ water quality enhancement; and
- ▶ flood peak attenuation/flood water storage.

Water Quality Objectives

The water quality objectives for surface waters identified in the Basin Plan include numerical or narrative standards for ammonia, clarity, coliform bacteria, dissolved oxygen, nondegradation of aquatic communities, oil and grease, pesticides, pH, plankton counts, suspended sediment, temperature, transparency, and turbidity. Numerical objectives for nitrogen, phosphorus, and dissolved solids, especially pertinent to declining lake clarity, are listed in Table 8-4. These objectives were established with the intention of stabilizing the quality of Lake Tahoe at clarity levels recorded in the late 1960s and early 1970s.

Table 8-4						
Water Quality Objectives for Lake Tahoe (mg/L except as noted)^{1,2}						
TDS	Cl	SO4	B	N	P	Fe
60	3.0	1.0	0.01	0.15	0.008	—
¹ Values shown are mean of monthly mean for the period of record. ² Objectives are as mg/L and are defined as follows: TDS: Total Dissolved Solids Cl: Chloride SO4: Sulfate Source: Lahontan Regional Board 1995				B: Boron N: Nitrogen, total P: Phosphorus, total Fe: Iron, total		

The Lahontan Regional Board’s water quality objectives for Lake Tahoe include a clarity standard, measured in terms of an extinction coefficient (a measure of the decrease in light penetration with increasing depth). In water that is too shallow to determine a reliable extinction coefficient, the clarity objective is measured in terms of turbidity, and should not exceed three Nephelometric Turbidity Units (NTUs). Turbidity shall not exceed one NTU in shallow waters not directly influenced by stream discharges.

The Lahontan Regional Board narrative toxicity objective is: All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. The survival of aquatic life in surface waters subjected to waste discharge shall not be less than that for the same water body in areas unaffected by the discharge. Compliance is determined by the use of indicator organisms or other methods as specified by the Lahontan Regional Board (1995).

NPDES PERMIT PROGRAM

The NPDES stormwater permitting program, under Section 402(p) of the federal CWA, is administered by the State Water Board on behalf of the EPA. The Lahontan Regional Board implements and enforces permits for activities, including construction activities that could cause impacts to surface waters and groundwater in the vicinity of the project site. Because construction activities associated with the proposed project would result in the disturbance of more than 1 acre, a NPDES construction activity permit would be required. The NPDES permit would require that the following measures be implemented during construction activities:

- ▶ elimination or reduction of nonstormwater discharges to stormwater systems and other waters of the United States;
- ▶ development and implementation of a Storm Water Pollution Prevention Plan (SWPPP);
- ▶ consideration of permanent post-construction water quality BMPs; and
- ▶ inspections of stormwater control structures and pollution prevention measures.

Additional BMPs may also be required by the Lahontan Regional Board. The Lahontan Regional Board also issues work authorization for some activities under its general NPDES permit for low threat discharges. Categories of low threat discharges include wells/boring waste, clear water discharges, and small dewatering projects.

The federal CWA, administered through the regulatory program of the U.S. Army Corps of Engineers, regulates the water quality of all discharges into waters of the United States, including wetlands and perennial and intermittent stream channels. Section 401, Title 33, Section 1341 of the CWA sets forth water-quality certification requirements for “any applicant applying for a Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters.” No wetlands or waters of the United States are found on the project site; therefore, Section 401 of the CWA does not apply.

STATE NONDEGRADATION OBJECTIVE AND OUTSTANDING NATIONAL RESOURCE WATER DESIGNATION

In 1968, the State Water Board adopted a nondegradation policy requiring the maintenance of existing high-quality waters. In 1980, as provided for under federal regulations, the State Water Board designated Lake Tahoe an ONRW, for its recreational and ecological values. The purpose of the ONRW designation is to protect high-quality waters from permanent or long-term reductions in water quality.

8.2.4 LOCAL

PLACER COUNTY

The Placer County Flood Control and Water Conservation District has developed a Storm Water Management Manual (SWMM) that provides the basis for project requirements for hydrology, conveyance, and analysis of downstream hydrologic impacts. The SWMM dictates that proposed development shall not adversely impact upstream or downstream drainage facilities. This generally requires detention of the excess runoff volume generated by the proposed project conditions. The design storm parameters required by the SWMM are listed in Table 8-5.

Table 8-5 Design Storm Requirements	
Design Element	Storm Event
Conveyance (Flow Quantity)	10-Year, 24-hour
	100-Year, 24-hour
Storage (Flow Quantity)	10-Year, 24-hour
	100-Year, 24-hour
Storage/Infiltration (Water Quality)	20-Year, 1-hour
Source: Placer County SWMM	

National Pollutant Discharge Elimination System – Phase 1 Permit

In 1987, amendments to the CWA added Section 402(p), which defined stormwater discharges from certain municipal and industrial activities as point sources required to be permitted by a NPDES permit. The amendments directed the EPA to adopt regulations establishing permitting requirements for municipal and industrial stormwater discharges. The amendments also required stormwater discharges from municipal separate storm sewer systems to obtain coverage under a national surface water permit program. The EPA promulgated the stormwater regulations on November 16, 1990. These regulations, which were to be implemented in two phases, contained permitting application requirements and a schedule for phased implementation and permit issuance for municipalities and industries.

Placer County shares a Phase 1 NPDES permit with El Dorado County and the City of South Lake Tahoe for the Tahoe Basin. The Phase 1 NPDES permit requires Placer County to be responsible for all stormwater/urban runoff within the County boundaries of the Tahoe Basin, excluding state and federal lands.

8.3 ENVIRONMENTAL CONSEQUENCES AND RECOMMENDED MITIGATION MEASURES

8.3.1 CRITERIA OF SIGNIFICANCE

An impact would be considered significant if the proposed project caused any of the following to occur:

CEQA CRITERIA

Based on Appendix G of CEQA Guidelines, the proposed project would have a significant impact related to hydrology and water quality if it 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;
- ▶ substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- ▶ substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the amount of surface runoff in a manner which would result in flooding on- or off-site;

- ▶ create or contribute runoff which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- ▶ otherwise substantially degrade water quality;
- ▶ place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- ▶ place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- ▶ expose people of structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or a dam; and
- ▶ result in substantial risk of inundation by seiche, tsunami, or mudflow.

TRPA CRITERIA

- ▶ contribute substantially to the nonattainment of TRPA environmental thresholds for water quality (see Table 8-1).
- ▶ contribute substantially to the nonattainment of the Lahontan Regional Board receiving water standards for Lake Tahoe (see Table 8-4).
- ▶ fail to meet TRPA or the Lahontan Regional Board effluent limitations for discharges to surface or groundwater (see Tables 8-1, 8-3, and 8-4).
- ▶ violate any 208 Plan policies or TRPA Code of Ordinances standards.
- ▶ be inconsistent with the Lahontan Regional Board Basin Plan.
- ▶ result in any permanent or long-term degradation of Lake Tahoe waters.
- ▶ substantially interfere with or adversely affect littoral processes.

8.3.2 IMPACT ANALYSIS

ALTERNATIVE A—PROPOSED PROJECT

Construction Impacts

IMPACT 8.A-1	Potential Short-Term Accelerated Soil Erosion and Sedimentation and/or Release of Pollutants to Nearby Water Bodies During Construction. <i>Slope and soil disturbance associated with Alternative A construction could cause accelerated soil erosion and sedimentation or the release of other pollutants to nearby waterways.</i>
Significance	<i>Potentially Significant</i>
Mitigation	<i>Mitigation Measure 8.A-1a. Prepare and Implement a Storm Water Pollution Prevention Plan and Obtain a Storm Water Quality Permit.</i>

Mitigation Measure 8.A-1b. Prohibit Grading Activities During Winter Months.

Mitigation Measure 8.A-1c. Develop and Implement a Permanent and Temporary BMP Plan and BMP Maintenance Plan.

Significance After Mitigation *Less Than Significant*

Project construction would commence as soon as possible after project approval and acquisition of permits. Site grading and utility work would occur across the entire site in the earliest part of construction between May and October of 2008. Development of the proposed buildings and commercial building improvements would occur in two phases. Phase 1 would include the construction of the proposed 10 affordable/employee housing units and the clubhouse/administration building with the five upper floor one-bedroom tourist accommodation units (TAUs) and associated pool/spa and deck area. Phase 2 would include the construction of the buildings that would house the additional TAU units, the associated garage buildings, and proposed modifications to the rear area of the existing main 2-story commercial building. Phase 2 construction would begin in September 2009 with complete occupancy of the buildings occurring as early as July 2010. Site grading and utility work (including excavations) would occur across the site in the earliest part of construction and permanent BMPs and all paving of access would be installed during this phase. Non-grading construction activities would be continuous, except during winter months when activities would be required to cease for a period of time. Construction is expected to require standard construction equipment to be operated from paved access and parking areas, including construction labor parking and access.

Most excavated soil would be used on-site as fill for finish grading and in other areas where necessary. However, excavation for subsurface structures and/or roadway improvements may result in excess material that may be exported from the project site to a previously approved disposal site. Materials that may be imported to the project site include aggregate base rock for roadway and parking area subgrade, sand bedding and backfill for utility lines, and crushed rock for buildings and foundations.

The slope and soil disturbance associated with project construction could cause accelerated soil erosion and sedimentation or the release of other pollutants to nearby waterways. This impact is considered **potentially significant**.

IMPACT 8.A-2 *Interception of Groundwater Table During Construction. Excavation during construction of Alternative A could intercept the groundwater table, creating the potential for introduction of contaminants to groundwater. Excavation activities for the foundations of the proposed buildings and other facilities (e.g., the swimming pool and the clubhouse/administration building basement) may reach a maximum depth of approximately 12 feet below ground surface (bgs). Based on data generated during the soils/hydrologic subsurface investigation, proposed construction excavation on the site should not encounter groundwater and TRPA has issued an approved excavation exemption (TRPA Permit #20021821), which allows for excavation at depths of up to a maximum of 15 feet bgs; however, variable subsurface conditions may be present resulting in interception.*

Significance *Potentially Significant*

Mitigation *Mitigation Measure 8.A-2. Develop and Implement a Dewatering Plan and Groundwater Quality BMPs in the SWPPP as Part of Mitigation Measure 8.A-1a.*

Significance After Mitigation *Less Than Significant*

Excavation activities for the foundations of the proposed buildings, swimming pool and clubhouse/administration building basement may reach a maximum depth of approximately 12 feet; however, the final depths would be determined as part of the final improvement plan process. TRPA Ordinances prohibit excavation deeper than 5 feet because of the potential for groundwater interception or interference, except under certain defined and permitted conditions. Excavation is prohibited if it interferes with or intercepts the seasonal high water table by: (a) altering the direction of groundwater flow; (b) altering the rate of flow of groundwater; (c) intercepting groundwater; (d) adding or withdrawing groundwater; or (e) raising or lowering the water table (TRPA 2004).

TRPA may approve exceptions to the prohibition of groundwater interception or interference if TRPA finds that: (a) excavation is required by the Uniform Building Code (UBC) or local building code for minimum depth below natural ground for above ground structures; (b) retaining walls are necessary to stabilize an existing unstable cut or fill slope; (c) drainage structures are necessary to protect the structural integrity of an existing structure; (d) it is necessary for the public safety and health; (e) it is a necessary measure for the protection or improvement of water quality; (f) it is for a water well; (g) there are no feasible alternatives for locating mechanical equipment, and measures are included in the project to prevent groundwater from leaving the project area as surface flow and groundwater, if any is interfered with, is rerouted in the groundwater flow to avoid adverse impacts to riparian vegetation, if any would be so affected; (h) it is necessary to provide two offstreet parking spaces, there is no less environmentally harmful alternative, and measures are taken to prevent groundwater from leaving the project area as surface flow; (i) it is necessary to provide below grade parking for projects, qualifying for additional height under Subsection 22.4.D, to achieve environmental goals including scenic improvements, land coverage reduction, and areawide drainage systems; and measures are included in the project to prevent ground water from leaving the project area as surface flow and that groundwater, if any is interfered with, is rerouted into the groundwater flow to avoid adverse impacts to hydrologic conditions, SEZ vegetation, and mature trees; or (j) it is necessary for a marina expansion approved pursuant to TRPA Code of Ordinances Chapter 16, and the environmental documentation demonstrates that there would be no adverse effect on water quality (TRPA 2004).

Excavations in excess of 5 feet in depth or where there exists a reasonable possibility of interference or interception of a water table, shall be prohibited unless TRPA finds that (TRPA Code 64.7.B): (1) a soils/hydrologic report prepared by a qualified professional, whose proposed content and methodology has been reviewed and approved in advance by TRPA, demonstrates that no interference or interception of groundwater would occur as a result of the excavation; and (2) the excavation is designed such that no damage occurs to mature trees, except where tree removal is allowed pursuant to Subsection 65.2.E (TRPA Code), including root systems, and hydrologic conditions of the soil. (To ensure the protection of vegetation necessary for screening, a special vegetation protection report shall be prepared by a qualified professional identifying measures necessary to ensure damage would not occur as a result of the excavation); and (3) excavated material is disposed of pursuant to Section 64.5 (TRPA Code) and the project area's natural topography is maintained pursuant to Subparagraph 30.5.A(1); or if groundwater interception or interference would occur as demonstrated by a soils/hydrologic report prepared by a qualified professional, the excavation could be made as an exception pursuant to Subparagraph 64.7.A(2) and measures are included in the project to maintain groundwater flows to avoid adverse impacts to SEZ vegetation, if any would be affected, and to prevent any groundwater or subsurface water flow from leaving the project area as surface flow (TRPA 2004).

Data generated during the soils/hydrologic subsurface investigation showed that proposed maximum construction excavation of approximately 12 feet may not encounter seasonal groundwater (Kleinfelder, Inc. 2001) (see Appendix D) and TRPA has issued an approved excavation exemption (TRPA Permit #20021821) dated August 7, 2003, which allows for excavation at depths of up to a maximum of 15 feet bgs.

However, because the soils/hydrologic subsurface investigation was conducted during a relatively dry year, with average lake elevation of 6,225.5 feet and variable subsurface conditions may be present during the period when construction activities would occur, more extensive investigations should be conducted to reduce the inherent uncertainties associated with this type of study (see Chapter 9, "Geology, Soils, and Land Capability and

Coverage,” for information on additional investigations). If groundwater is encountered, contaminants, such as nutrients, sediment, and hydrocarbons could enter groundwater. Therefore, this is considered a **potentially significant** impact.

Operational Impacts

IMPACT 8.A-3	Impervious Surface Area and Runoff. <i>Development of Alternative A would result in approximately 3.88 acres or 169,061 sf of impervious surfaces (a reduction in coverage from existing conditions) on a currently developed site, and would possibly increase and/or alter runoff from the project site to downgradient areas during storm events.</i>
Significance	<i>Potentially Significant</i>
Mitigation	<p><i>Mitigation Measure 8.A-3a. Submit, Obtain Approval, and Implement a Final Drainage Report in Conformance with Placer County Storm Water Management Manual.</i></p> <p><i>Mitigation Measure 8.A-3b. Design and Implement Drainage Facilities in Accordance with Requirements of the Placer County Storm Water Management Manual.</i></p> <p><i>Mitigation Measure 8.A-3c. Prepare and Implement an Erosion Control/Water Quality Mitigation and Monitoring Plan in Accordance with Placer County Condition MM5.</i></p>
Significance After Mitigation	<i>Less Than Significant</i>

Impervious surfaces would be modified on the project site as a result of the proposed road, parking, and buildings. The change in impervious surfaces would affect local drainage conditions. The existing site is currently developed with an existing TRPA-verified land coverage of 174,324 sf. The site has no evidence of any drainage ways transecting the site, and all drainage discharges from the site were determined to be from overland sheet flow to the southern and southeastern boundaries. With development of Alternative A, on-site drainage would be collected in a new drainage system that would include runoff flow conveyance, runoff flow storage, and runoff water quality treatment facilities.

According to the preliminary drainage study prepared by K. B. Foster Civil Engineering, Inc. (2006) (Appendix B), the proposed change in impervious surfaces would result in a decrease in runoff flow rate for the 10-year event and the 100-year event. Development of Alternative A would create a total impervious surface area of 3.88 acres or 169,061 sf (without snow cover). These impervious surfaces would result in attenuated runoff flow rates of 2.13 cubic feet per second (cfs) (an approximate 16.8% decrease relative to existing conditions) for the 10-year event and 9.28 cfs (an approximate 1.1% decrease relative to existing conditions) for the 100-year event (K.B. Foster Civil Engineering, Inc. 2006). Therefore, the preliminary drainage study identifies that project-related change in runoff rate would be reduced to less than pre-project levels for the 10-year and 100-year events (per Placer County SWMM requirements) through implementation of the project improvements, including the design and implementation of detention facilities. Calculations in the preliminary drainage study indicate that, based on Placer County criteria, project improvements would result in a net decrease at the point of discharge from the project site and there would be no adverse effects from the proposed development on downstream facilities (K.B. Foster Civil Engineering, Inc. 2006).

Runoff volume from the 20-year, 1-hour event (approximately 1-inch) would be stored and infiltrated for water quality treatment purposes per TRPA and Lahontan Regional Board requirements. The 20-year, 1-hour roof runoff from all buildings would be conveyed to standard dripline infiltration trenches or drywells that would be constructed adjacent to the buildings. The roadway runoff would also be treated before infiltration with treatment devices constructed to treat the 20-year, 1-hour storm volume as required by TRPA and Lahontan Regional Board

for removal of sediment, nutrients (e.g., nitrogen and phosphorous) and oils. The capacity of drainage facilities would enable immediate detention and infiltration of snowmelt and rainwater resulting from impervious surfaces associated with the residential buildings, parking, and roads. This approach would keep runoff created at upstream developments from affecting downstream drainage facilities.

Conveyance facilities would be designed for the 10- and 100-year storms per the Placer County SWMM. Flows from larger storm events would be allowed to bypass the treatment basins and flow into the onsite roadway drainage system. This system would incorporate onsite vegetated and paved swales and curb and gutter drainage that would be returned to sheet flow to the maximum extent possible. To ensure that the storage system is available to treat and store runoff from future storms, the infiltration systems would be designed to be drained over a 48- to 72-hour period. The SWMM requires that all storage facilities have a draw down within 72-hours. The time period also corresponds to the TRPA recommendations that a 34- to 72-hour draindown time shall be incorporated into the design of all detention facilities to provide for vector control.

Placer County and TRPA recommend returning concentrated runoff to sheet flow (or predevelopment natural conditions) by using numerous small surface stormwater detention facilities in series. Due to the configuration of the property and site plan, it appears that there is ample room to store flows in excess of the 20 year, 1-hour storm event. Overflow spillways with level spreaders shall be incorporated into infiltration basins and galleries for flows and runoff over the 20-year, 1-hour event volumes. The high flows would be designed to sheet flow to the extent possible across the site from the detention areas and into the existing drainage system at State Route (SR) 28.

The storm drain system pipe sizes shall be designed based on the 10-year peak flow and slopes shown on the conceptual drainage plan (Exhibit 3-15). The final drainage designs shall also incorporate the conveyance of the pre-project 100-year event through the site and the bypass of the culvert piping and roadway grades to prevent damage to property.

In addition to managing storm runoff with the facilities outlined above, Alternative A would incorporate “low impact development” (LID) concepts such as buffer zones or strips, which are grassed open spaces, to reduce the amount of impervious surfaces and associated runoff where feasible.

According to the drainage study prepared for Alternative A, project-related increases in design flow runoff rate would be reduced to pre-project levels for the 10-year and 100-year events (per Placer County SWMM requirements) through the design and implementation of detention facilities and other permanent BMPs. However, the construction of the proposed project would result in altered runoff from the project site to downgradient areas during storm events. This impact is considered **potentially significant**.

IMPACT 8.A-4	Possible Increased Urban Contaminants in Surface Runoff. <i>Operation of Alternative A could result in an increase in urban contaminants in surface runoff.</i>
Significance	<i>Potentially Significant</i>
Mitigation	<i>Mitigation Measure 8.A-4. Implement Construction and Operational Water Quality Control Measures as Provided in Mitigation Measures 8.A-1a and c, and 8.A-3a, b, and c, to Remove Pollutants of Concern from Downstream Water Bodies or Groundwater.</i>
Significance After Mitigation	<i>Less Than Significant</i>

Implementation of Alternative A would create residential units and TAUs (and associated facilities) and increase impervious surfaces throughout the project site. Residential activities could contribute to water quality degradation through maintenance of yards associated with the use of fertilizers, herbicides, and pesticides; motor vehicle operation and maintenance; and animal waste. In addition, an increase in impervious surfaces would have

the potential to increase the amount of runoff coming from the project site. Runoff from developed uses would typically contain contaminants such as oils, grease, fuel, antifreeze, byproducts of combustion (such as lead, cadmium, nickel, and other metals), nutrients, sediment, and other pollutants. Therefore, the proposed change in current site conditions has the potential to result in impacts on the water quality in downstream water bodies and to groundwater.

The Lahontan Regional Board requires that the first 1-inch of rainfall over improved, impervious surfaces be treated via standard permanent BMPs, which may include infiltration ponds, wet ponds, sediment ponds, biofiltration swales, buffer zones, and mechanical treatment facilities. As discussed above, Alternative A would incorporate LID concepts such as buffer zones or strips, which are grassed open spaces, to treat runoff before directing it to underground drainage systems. Sedimentation and infiltration ditches/trenches would be constructed, where possible, to capture sediment, trash, and metal and to treat grease and oil. The parking areas and driveways would be constructed with landscaped roadside ditches to help filter the runoff. Where LID concepts (e.g., buffer strips, biofiltration swales, and sedimentation/infiltration ditches) cannot be used, mechanical treatment methods, such as oil and sand separators and “rainstore” treatment facilities, would be used to treat the runoff. The Lahontan Regional Board permits bioswales (using grasses for filtration) and hard systems (filtration tanks) for filtering runoff.

Additionally, the introduction of impervious surfaces to the project site would require snow removal services, including the use of deicers, such as sand and/or magnesium chlorides. Filtering devices would be necessary in areas storing snow (Exhibit 3-4) that may contain water quality contaminants such as deicers and automobile exhaust components. The final design of the water quality treatment systems would be determined according to Lahontan Regional Board requirements.

The potential for increased runoff containing urban contaminants from the project site to enter downstream water bodies or groundwater is a **potentially significant** impact.

ALTERNATIVE B—REDUCED DEVELOPMENT

Construction Impacts

IMPACT 8.B-1	Potential Short-Term Accelerated Soil Erosion and Sedimentation and/or Release of Pollutants to Nearby Water Bodies During Construction. <i>Because Alternative B would be constructed on the same site and would result in the development of similar facilities, this impact is the same as Impact 8.A-1 described above for Alternative A. Slope and soil disturbance associated with Alternative B construction could cause accelerated soil erosion and sedimentation or the release of other pollutants to nearby waterways.</i>
Significance	<i>Potentially Significant</i>
Mitigation	<i>Mitigation Measure 8.B-1a. Prepare and Implement a Storm Water Pollution Prevention Plan and Obtain a Storm Water Quality Permit.</i> <i>Mitigation Measure 8.B-1b. Prohibit Grading Activities During Winter Months.</i> <i>Mitigation Measure 8.B-1c. Develop and Implement a Permanent and Temporary BMP Plan and BMP Maintenance Plan.</i>
Significance After Mitigation	<i>Less Than Significant</i>

IMPACT 8.B-2 **Interception of Groundwater Table During Construction.** *Because Alternative B would be constructed on the same site and would result in the development of similar facilities, this impact is the same as Impact 8.A-2 described above for Alternative A. Excavation during construction of Alternative B could intercept the groundwater table, creating the potential for introduction of contaminants to groundwater. Excavation activities for the foundations of the buildings and other facilities (e.g., swimming pool and the clubhouse/administration building basement) may reach a maximum depth of approximately 12 feet bgs. Based on data generated during the soils/hydrologic subsurface investigation, Alternative B construction excavation on the site should not encounter groundwater and TRPA has issued an approved excavation exemption (TRPA Permit #20021821), which allows for excavation at depths of up to a maximum of 15 feet bgs; however, variable subsurface conditions may be present resulting in interception.*

Significance *Potentially Significant*

Mitigation *Mitigation Measure 8.B-2. Develop and Implement a Dewatering Plan and Groundwater Quality BMPs in the SWPPP as Part of Mitigation Measure 8.B-1a.*

Significance After Mitigation *Less Than Significant*

Operational Impacts

IMPACT 8.B-3 **Impervious Surface Area and Runoff.** *Because Alternative B would be constructed on the same site and would result in the development of similar facilities, this impact is the same as Impact 8.A-3 described above for Alternative A. Development of Alternative B would result in approximately 3.75 acres or 163,459 sf of impervious surfaces (a reduction in coverage from existing conditions) on a currently developed site, and would possibly increase and/or alter runoff from the project site to downgradient areas during storm events.*

Significance *Potentially Significant*

Mitigation *Mitigation Measure 8.B-3a. Submit, Obtain Approval, and Implement a Final Drainage Report in Conformance with Placer County Storm Water Management Manual.*

Mitigation Measure 8.B-3b. Design and Implement Drainage Facilities in Accordance with Requirements of the Placer County Storm Water Management Manual.

Mitigation Measure 8.B-3c. Prepare and Implement an Erosion Control/Water Quality Mitigation and Monitoring Plan in Accordance with Placer County Condition MM5.

Significance After Mitigation *Less Than Significant*

IMPACT 8.B-4 **Possible Increased Urban Contaminants in Surface Runoff.** *Because Alternative B would be constructed on the same site and would result in the development of similar facilities, this impact is the same as Impact 8.A-4 described above for Alternative A. Operation of Alternative B could result in an increase in urban contaminants in surface runoff.*

Significance *Potentially Significant*

Mitigation *Mitigation Measure 8.B-4. Implement Construction and Operational Water Quality Control Measures as Provided in Mitigation Measures 8.B-1a and c, and 8.B-3a, b, and c, to Remove Pollutants of Concern from Downstream Water Bodies or Groundwater.*

Significance After Mitigation *Less Than Significant*

ALTERNATIVE C—REDUCED DEVELOPMENT WITH RECREATION ELEMENTS

Construction Impacts

IMPACT 8.C-1 **Potential Short-Term Accelerated Soil Erosion and Sedimentation and/or Release of Pollutants to Nearby Water Bodies During Construction.** *Because Alternative C would be constructed on the same site and would result in the development of similar facilities, this impact is the same as Impact 8.A-1 described above for Alternative A. Slope and soil disturbance associated with Alternative C construction could cause accelerated soil erosion and sedimentation or the release of other pollutants to nearby waterways.*

Significance *Potentially Significant*

Mitigation *Mitigation Measure 8.C-1a. Prepare and Implement a Storm Water Pollution Prevention Plan and Obtain a Storm Water Quality Permit.*

Mitigation Measure 8.C-1b. Prohibit Grading Activities During Winter Months.

Mitigation Measure 8.C-1c. Develop and Implement a Permanent and Temporary BMP Plan and BMP Maintenance Plan.

Significance After Mitigation *Less Than Significant*

IMPACT 8.C-2 **Interception of Groundwater Table During Construction.** *Because Alternative C would be constructed on the same site and would result in the development of similar facilities, this impact is the same as 8.A-2 described above for Alternative A. Excavation during construction of Alternative C could intercept the groundwater table, creating the potential for introduction of contaminants to groundwater. Excavation activities for the foundations of the buildings and other facilities (e.g., swimming pool and clubhouse/administration building basement) may reach a maximum depth of approximately 12 feet bgs. Based on data generated during the soils/hydrologic subsurface investigation, Alternative C construction excavation on the site should not encounter groundwater and TRPA has issued an approved excavation exemption (TRPA Permit #20021821), which allows for excavation at depths of up to a maximum of 15 feet bgs; however, variable subsurface conditions may be present resulting in interception.*

Significance *Potentially Significant*

Mitigation *Mitigation Measure 8.C-2. Develop and Implement a Dewatering Plan and Groundwater Quality BMPs in the SWPPP as Part of Mitigation Measure 8.C-1a.*

Significance After Mitigation *Less Than Significant*

Operational Impacts

IMPACT 8.C-3 **Impervious Surfaces and Runoff.** *Because Alternative C would be constructed on the same site and would result in the development of similar facilities, this impact is the same as Impact 8.A-3 described above for Alternative A. Development of Alternative C would result in approximately 3.75 acres or 163,459 sf of impervious surfaces (a reduction in coverage from existing conditions) on a currently developed site, and would possibly increase and/or alter runoff from the project site to downgradient areas during storm events.*

Significance *Potentially Significant*

Mitigation *Mitigation Measure 8.C-3a. Submit, Obtain Approval, and Implement a Final Drainage Report in Conformance with Placer County Storm Water Management Manual.*

Mitigation Measure 8.C-3b. Design and Implement Drainage Facilities in Accordance with Requirements of the Placer County Storm Water Management Manual.

Mitigation Measure 8.C-3c. Prepare and Implement an Erosion Control/Water Quality Mitigation and Monitoring Plan in Accordance with Placer County Condition MM5.

Significance After Mitigation *Less Than Significant*

IMPACT 8.C-4 **Possible Increased Urban Contaminants in Surface Runoff.** *Because Alternative C would be constructed on the same site and would result in the development of similar facilities, this impact is the same as Impact 8.A-4 described above for Alternative A. Operation of Alternative C could result in an increase in urban contaminants in surface runoff.*

Significance *Potentially Significant*

Mitigation *Mitigation Measure 8.C-4. Implement Construction and Operational Water Quality Control Measures as Provided in Mitigation Measures 8.C-1a and c, and 8.C-3a, b, and c, to Remove Pollutants of Concern from Downstream Water Bodies or Groundwater.*

Significance After Mitigation *Less Than Significant*

ALTERNATIVE D—NO PROJECT

This alternative proposes no project. The project site would remain developed as it is today; the TAUs and associated clubhouse/administration building and affordable/employee housing units would not be constructed. Therefore, this alternative would result in no impacts to hydrology and/or water quality.

8.3.3 MITIGATION MEASURES

ALTERNATIVE A—PROPOSED PROJECT

Mitigation Measure 8.A-1a. Prepare and Implement a Storm Water Pollution Prevention Plan and Obtain a Storm Water Quality Permit.

In compliance with the requirements of the State General Construction Activity Storm Water Permit as well as the Basin Plan, the project applicant shall prepare a SWPPP, which describes the site, erosion and sediment controls, means of waste disposal, implementation of approved local plans, control of post-construction sediment and erosion control measures and maintenance responsibilities, and nonstormwater management controls. The SWPPP shall be submitted to the Lahontan Regional Board for review. The applicant shall require all construction contractors to retain a copy of the approved SWPPP on the construction site. BMPs identified in the SWPPP shall be implemented in all subsequent site development activities. Water quality controls shall be consistent with TRPA guidelines, the Placer County Grading Ordinance, and the Lahontan Regional Board's Regional Project Guidelines for Erosion Control and shall demonstrate that the water quality controls would ensure compliance with all current requirements of the County and the Lahontan Regional Board. Water quality controls shall ensure that runoff quality meets or surpasses TRPA and the Lahontan Region (Lahontan Regional Board 1995) water quality objectives, and complies with the Basin Plan's narrative water quality objectives, state antidegradation policy, and maintains beneficial uses of Lake Tahoe, as defined by the Basin Plan. Stormwater quality sampling and reporting associated with the SWPPP shall be the responsibility of the project applicant.

Because the proposed project would result in ground disturbance on an area exceeding one acre, it is subject to construction stormwater quality permit requirements of the NPDES program. Therefore, the project applicant shall obtain a permit from the Lahontan Regional Board and shall provide to the Placer County Engineering and Surveying Department (ESD) evidence of a state-issued water discharge identification number or filing of Notice of Intent and fees prior to the start of construction.

Mitigation Measure 8.A-1b. Prohibit Grading Activities During Winter Months.

Grading activities shall be prohibited during the winter months, unless approved by TRPA, Placer County ESD, and the Lahontan Regional Board. Exposed graded areas shall be protected during the winter months using approved methods. Site disturbance, such as clearing and grubbing, grading, and cut/fill, is limited to the period from May 1 to October 15 without special authorization from the appropriate agencies.

Mitigation Measure 8.A-1c. Develop and Implement a Permanent and Temporary BMP Plan and BMP Maintenance Plan.

Before improvement plan approvals, the project applicant shall develop a permanent and temporary "BMP Plan" (including maintenance) and identify who would be responsible for ensuring its implementation and making the necessary updates/modifications. Water quality BMPs, shall be designed according to the California Stormwater Quality Association (CASQA) Stormwater Best Management Practice Handbooks for Construction, for New Development/Redevelopment, or for Industrial and Commercial (Lahontan Regional Board 1988 or other similar source as approved by TRPA, Placer County ESD, and Lahontan Regional Board). BMPs shall be designed and

implemented to mitigate (e.g., minimize, infiltrate, filter, or treat) stormwater runoff to meet TRPA, ESD, and Lahontan Regional Board discharge requirements.

Construction (temporary) BMPs for the project include, but are not limited to:

1. Temporary erosion control facilities shall be installed to prevent the transport of earthen materials and other waste off the property prior to commencement of grading (or other ground disturbance) activities. These facilities shall be reinforced and have a level of performance greater than typical requirements at the lower end of the site to prevent discharge to Lake Tahoe.
2. Temporary gravel earthen berms, sandbag dikes or filter fence shall be used as necessary to prevent discharge of earthen materials from the site during periods of precipitation or runoff. These facilities shall be inspected regularly to ensure that they continue to function properly.
3. Tree protection fencing shall be installed around trees that are to remain in place throughout construction of the project.
4. A minimum of 48-hours notice shall be provided to the appropriate agencies so that a pre-grading inspection could be conducted at the site to ensure proper installation of the temporary erosion control measures.
5. Ground compaction and disturbance activities shall be minimized in unpaved areas not subject to construction. The nonconstruction areas shall be protected with fencing or other barriers to limit access.
6. Before October 15 of each year, all disturbed or eroding areas shall be stabilized by installation of permanent, or temporary if the project is incomplete, vegetative or mechanical stabilization measures as outlined by the plans.
7. After October 15 of each year, construction vehicle movement on-site must be only on paved roads and parking areas with permanent BMPs in place and protected.
8. All slopes subject to erosion shall be stabilized.
9. All loose piles of soil, silt, clay, sand, debris, or other earthen material shall be protected in a reasonable manner to prevent the discharge of these materials caused by runoff. All grading is to be completed in the first construction season; no such piles shall remain on-site after the grading season.
10. If groundwater is encountered during construction and the excavated area requires dewatering to complete the work, a separate NPDES Permit may be required. Dewatering shall proceed according to the dewatering plan noted below, and in a manner that treats the water and allows it to infiltrate back into the ground or reduce the levels of constituents of concern to a level acceptable for discharge into surface waters.
11. Dust shall be controlled to prevent transport of such materials off the project site, into any surface water, or into any drainage course. Because Lake Tahoe is 250 feet from the lower end of the site, special diligence shall be required for the control of dust.
12. The discharger shall immediately clean up and transport to a legal disposal site any spilled petroleum products or petroleum-contaminated soils, to the maximum extent possible. A spill prevention plan shall be developed and implemented as part of the SWPPP.
13. At or before completion of the construction project or at the end of the grading season, all surplus or waste earthen materials shall be removed from the project site and disposed of only at a legal, authorized point of disposal or shall be stabilized on-site, in accordance with previously approved erosion control plans.

14. Drainage swales disturbed by construction activities shall be stabilized by appropriate soil stabilization measures to prevent erosion.
15. All areas compacted by construction activities and not intended to become permanent land coverage shall be ripped and revegetated with native vegetation to create a pervious surface.

Storm drainage from on- and off-site impervious surfaces (including roads) shall be collected and routed through specially designed catch basins, vegetated swales, vaults, infiltration basins, water quality basins, filters, etc. for the entrapment of sediment, debris, and oils/greases or other identified pollutants, as approved by the ESD, TRPA, and the Lahontan Regional Board. BMPs shall be designed at a minimum, in accordance with the Placer County Guidance Document for Volume for Flow-Based Sizing of Permanent Post-Construction BMPs for Storm Water Quality Protection and shall be installed as early in the project construction phasing as feasible. Post-development (permanent) BMPs for the project include, but are not limited to:

1. Infiltration trenches/pits shall be incorporated at the outlet of all new culverts draining proposed impervious road surfaces. These infiltration pits shall be sized based on TRPA and Lahontan Regional Board requirements. The infiltration pits shall provide settling time and filtering as the water is absorbed into the ground. Infiltration trenches and pits shall be inspected once yearly to ensure they are functioning properly and to ensure debris is removed from the flow path.
2. Rock energy dissipaters shall be placed at pipe outlets to reduce the velocity and energy of concentrated storm water flows. Outlet protection shall help to prevent scour and to minimize the potential for downstream erosion. Rock riprap shall be placed at the outlet of pipes, drains, culverts, conduits, or channels at the bottom of mild slopes. Rocks are typically angular, and hand placed to ensure locking and efficient filling of voids. Where appropriate, runoff from outlets shall be returned to sheet flow via level spreaders.
3. Modified drain inlets shall be required for the pretreatment of most roadway runoff. The modified inlets shall include sediment sumps with drains and oil-separation baffles at the outlets. These inlets may also be fitted with oil-absorbent pillows if necessary, or other appropriate inlet filters. Oil-absorbent pillows are equipped with retaining ring and cord, secured to or under the frame and cover for hand access. Drain inlets shall be inspected once per year to determine the need for replacement of oil-absorbent pillows and the need for sediment removal.
4. Sand oil separators shall be required for pretreatment of runoff from larger areas subject to vehicular traffic and parking. Larger sand-oil separation vaults shall generally be used where the placement of multiple smaller modified drain inlets is impractical, or where the flow rate from any one source of runoff from vehicular areas is too large for the smaller inlets to handle.
5. Vegetated/rock lined swales have been designed with a combination of rock and vegetation swales, where overland sheet flow must remain concentrated, to promote reduction in flow velocity and to increase infiltration opportunities. The vegetated/rock swale shall collect and detain storm water runoff to provide ample settling time before the water is absorbed into the ground water. Excess runoff shall be returned to sheet flow where appropriate.
6. Revegetation shall be implemented for all finished excavation and cut slopes and all areas disturbed by construction to establish a vegetative cover. Typical revegetation of roadway disturbance involves ripping to break compacted soil, transplanting, hand or hydroseed, fertilizer or appropriate compost incorporation, and mulch. Other disturbed areas may receive similar treatment depending on the slope, aspect, soil constituents and size of the disturbed area. Some portions of the developed area would also be landscaped with various types of shrubs, trees, and grasses. The application rates, seed mixes, fertilizer content and other specifics of the revegetation process are developed on a case by case basis, and shall be submitted with the construction drawings along with landscape construction plans.

7. The project site shall be designed to eliminate or reduce runoff contaminants originating in snow storage areas. Filtering devices may be necessary in areas storing snow that may contain water quality contaminants such as de-icers and automobile exhaust components. Alternatives may include designing storage areas to utilize filtering devices for roadway runoff. Another alternative is the use of a hard system to clean out sand and oil from snowmelt. All methods would comply with TRPA and Lahontan Regional Board standards to prevent water quality impacts downstream and to meet local, state, and federal water quality standards.

No water quality facility construction shall be permitted within any identified wetlands area, floodplain, or right-of-way, except as authorized by project approvals.

All BMPs shall be maintained as required to insure effectiveness. The applicant shall provide for the establishment of vegetation, where specified, by means of proper irrigation. Proof of on-going maintenance, such as contractual evidence, shall be provided to ESD upon request. Maintenance of these facilities shall be provided by the project owners/permittees unless, and until, a County Service Area is created and said facilities are accepted by the County for maintenance. Prior to Improvement Plan or Final Map approval, easements shall be created and offered for dedication to the County for maintenance and access to these facilities in anticipation of possible Placer County maintenance.

Mitigation Measure 8.A-2. Develop and Implement a Dewatering Plan and Groundwater Quality BMPs in the SWPPP as Part of Mitigation Measure 8.A-1a.

The SWPPP developed and implemented as part of Mitigation Measure 8.A-1a shall specifically include a dewatering plan and measures to prevent/minimize sediment and contaminant releases into groundwater during excavations and methods to clean up releases if they do occur. If necessary, dewatering shall be done in a manner that allows discharge to an infiltration basin approved by TRPA and Lahontan Regional Board. Measures to prevent/minimize sediment and contaminant releases into groundwater during excavations and methods to clean up releases may include using temporary berms or dikes to isolate construction activities; using vacuum trucks to capture contaminant releases; and maintaining absorbent pads, and other containment and cleanup materials on-site to allow an immediate response to contaminant releases if they occur. Additionally, permanent perimeter subsurface drainage systems shall also be constructed below the planned depth of all building excavations prior to any finish grading to pass groundwater flow around foundation structures if intercepted.

Mitigation Measure 8.A-3a. Submit, Obtain Approval, and Implement a Final Drainage Report in Conformance with Placer County Storm Water Management Manual.

Prepare and submit, with the project Improvement Plans, a drainage report in conformance with the requirements of Section 5 of the Land Development Manual (LDM) and the Placer County SWMM that are in effect at the time of submittal, to Placer County ESD for review and approval. The report shall be prepared by a Registered Civil Engineer and shall, at a minimum, include:

- ▶ A written text addressing existing conditions, the effects of project improvements, all appropriate calculations, a watershed map, increases in downstream flows, proposed on- and off-site improvements and detention facilities, features to protect downstream uses and property, and drainage easements to accommodate downstream flows from this project. The report shall identify water quality protection features and methods to be used both during construction and for long-term post-construction water quality protection. BMP measures shall be provided to reduce erosion, water quality degradation, and prevent the discharge of pollutants to stormwater to the maximum extent practicable.
- ▶ Stormwater runoff shall be reduced to pre-project conditions for 10-year and 100-year storm events at the project's drainage outfall point through the installation of retention/detention facilities and where appropriate, returned to sheet flow. Retention/detention facilities shall be designed in accordance with the requirements of the Placer County SWMM that are in effect at the time of submittal, and to the satisfaction of Placer County

ESD. The ESD may, after review of the project drainage report, delete this requirement if it is determined that drainage conditions do not warrant installation of this type of facility. No retention/detention facility construction shall be permitted within any identified wetlands area, floodplain, or right-of-way, except as authorized by project approvals.

- ▶ All related underground and surface drainage systems must be addressed to ensure full integration of areas that would generate runoff. These areas would include rooftops, sidewalks, cut/fill slopes, patio areas, streets, parking lots, up gradient off-site source areas, and impervious landscaping areas. Seepage from underground sources must also be addressed.
- ▶ Staging Areas: Stockpiling and/or vehicle staging areas shall be identified on the Improvement Plans and located as far as practical from existing dwellings and protected resources in the area.

Mitigation Measure 8.A-3b. Design and Implement Drainage Facilities in Accordance with Requirements of the Placer County Storm Water Management Manual.

Drainage facilities, for purposes of collecting and treating runoff on individual lots, shall be designed and implemented in accordance with the requirements of the Placer County SWMM, TRPA, and Lahontan Regional Board that are in effect at the time of submittal, and to the satisfaction of Placer County ESD. These facilities shall be constructed with subdivision improvements and easements provided as required by Placer County ESD. Maintenance of these facilities shall be provided by the project applicant or other entity approved by Placer County.

Mitigation Measure 8.A-3c. Prepare and Implement an Erosion Control/Water Quality Mitigation and Monitoring Plan in Accordance with Placer County Condition MM5.

An Erosion Control/Water Quality Mitigation and Monitoring Plan (MMP), prepared by a civil engineer or other Development Review Committee (DRC) approved erosion control specialist, shall be submitted with the project's Improvements Plans.

An annual monitoring report for a minimum period of 1 to 5 years from the date of installation, prepared by the above-cited professional, shall be submitted to the DRC for review and approval. Any corrective action shall be the responsibility of the project applicant.

Prior to the approval of the Improvement Plans, a Letter of Credit, Certificate of Deposit, or cash deposit in the amount of 100% of the accepted proposal shall be deposited with the Placer County Planning Department to assure on-going performance of the monitoring program (i.e., monitoring needs to demonstrate that stormwater BMPs are performing as designed and discharge standards are being met). Evidence of this deposit shall be provided to the satisfaction of the DRC prior to the approval of Improvement Plans. For the purposes of administrative and program review by Placer County, an additional 25% of the estimated cost of the Monitoring Program shall be paid to the County, in cash, at the time that the 100% deposit is made. With the exception of the 25% of the administrative fee, 100% of the estimated costs of implementing the monitoring program shall be returned to the applicant once the applicant has demonstrated that all years of monitoring have been completed to the satisfaction of the DRC. Refunds would only be available at the end of the entire review period.

It is the applicant's responsibility to ensure compliance with the MMP. Violation of any components of the approved MMP may result in enforcement activities per Placer County Environmental Review Ordinance, Article 18.28.080 (formerly Section 31.870). If a monitoring report is not submitted for any one year, or combination of years, as outlined in these conditions, the County has the option of utilizing these funds and hiring a consultant to implement the MMP. Failure to submit annual monitoring reports or take corrective action could also result in forfeiture of a portion of, or all of, the deposit. An agreement between the applicant and County shall be prepared which meets DRC approval that allows the County use of this deposit to assure performance of the MMP in the event the project applicant fails to perform.

Mitigation Measure 8.A-4. Implement Construction and Operational Water Quality Control Measures as Provided in Mitigation Measures 8.A-1a and c, and 8.A-3a, b, and c, to Remove Pollutants of Concern from Downstream Water Bodies or Groundwater.

Implementation of Mitigation Measures 8.A-1a and c, and 8.A-3a, b, and c would require construction and operational features of the project to provide sufficient water quality control measures (including specially designed water quality treatment facilities for removal of pollutants of concern, as approved by Placer County ESD, TRPA, and Lahontan Regional Board) to ensure no adverse impacts to downstream water bodies or groundwater as a performance standard and would reduce Impact 8.A-4 to a **less-than-significant** level.

ALTERNATIVE B—REDUCED DEVELOPMENT

Mitigation Measure 8.B-1a. Prepare and Implement a Storm Water Pollution Prevention Plan and Obtain a Storm Water Quality Permit.

See Mitigation Measure 8.A-1a described above for Alternative A. The same mitigation measure would apply.

Mitigation Measure 8.B-1b. Prohibit Grading Activities During Winter Months.

See Mitigation Measure 8.A-1b described above for Alternative A. The same mitigation measure would apply.

Mitigation Measure 8.B-1c. Develop and Implement a Permanent and Temporary BMP Plan and BMP Maintenance Plan.

See Mitigation Measure 8.A-1c described above for Alternative A. The same mitigation measure would apply.

Mitigation Measure 8.B-2. Develop and Implement a Dewatering Plan and Groundwater Quality BMPs in the SWPPP as Part of Mitigation Measure 8.B-1a.

See Mitigation Measure 8.A-2 described above for Alternative A. The same mitigation measure would apply.

Mitigation Measure 8.B-3a. Submit, Obtain Approval, and Implement a Final Drainage Report in Conformance with Placer County Storm Water Management Manual.

See Mitigation Measure 8.A-3a described above for Alternative A. The same mitigation measure would apply.

Mitigation Measure 8.B-3b. Design and Implement Drainage Facilities in Accordance with Requirements of the Placer County Storm Water Management Manual.

See Mitigation Measure 8.A-3b described above for Alternative A. The same mitigation measure would apply.

Mitigation Measure 8.B-3c. Prepare and Implement an Erosion Control/Water Quality Mitigation and Monitoring Plan in Accordance with Placer County Condition MM5.

See Mitigation Measure 8.A-3c described above for Alternative A. The same mitigation measure would apply.

Mitigation Measure 8.B-4. Implement Construction and Operational Water Quality Control Measures as Provided in Mitigation Measures 8.B-1a and c, and 8.B-3a, b, and c, to Remove Pollutants of Concern from Downstream Water Bodies or Groundwater.

See Mitigation Measures 8.A-1a and c and 8.A-3a, b, and c described above for Alternative A. The same mitigation measures would apply.

ALTERNATIVE C—REDUCED DEVELOPMENT WITH RECREATION ELEMENTS

Mitigation Measure 8.C-1a. Prepare and Implement a Storm Water Pollution Prevention Plan and Obtain a Storm Water Quality Permit.

See Mitigation Measure 8.A-1a described above for Alternative A. The same mitigation measure would apply.

Mitigation Measure 8.C-1b. Prohibit Grading Activities During Winter Months.

See Mitigation Measure 8.A-1b described above for Alternative A. The same mitigation measure would apply.

Mitigation Measure 8.C-1c. Develop and Implement a Permanent and Temporary BMP Plan and BMP Maintenance Plan.

See Mitigation Measure 8.A-1c described above for Alternative A. The same mitigation measure would apply.

Mitigation Measure 8.C-2. Develop and Implement a Dewatering Plan and Groundwater Quality BMPs in the SWPPP as Part of Mitigation Measure 8.C-1a.

See Mitigation Measure 8.A-2 described above for Alternative A. The same mitigation measure would apply.

Mitigation Measure 8.C-3a. Submit, Obtain Approval, and Implement a Final Drainage Report in Conformance with Placer County Storm Water Management Manual.

See Mitigation Measure 8.A-3a described above for Alternative A. The same mitigation measure would apply.

Mitigation Measure 8.C-3b. Design and Implement Drainage Facilities in Accordance with Requirements of the Placer County Storm Water Management Manual.

See Mitigation Measure 8.A-3b described above for Alternative A. The same mitigation measure would apply.

Mitigation Measure 8.C-3c. Prepare and Implement an Erosion Control/Water Quality Mitigation and Monitoring Plan in Accordance with Placer County Condition MM5.

See Mitigation Measure 8.A-3c described above for Alternative A. The same mitigation measure would apply.

Mitigation Measure 8.C-4. Implement Construction and Operational Water Quality Control Measures as Provided in Mitigation Measures 8.C-1a and c, and 8.C-3a, b, and c, to Remove Pollutants of Concern from Downstream Water Bodies or Groundwater.

See Mitigation Measures 8.A-1a and c and 8.A-3a, b, and c described above for Alternative A. The same mitigation measures would apply.

ALTERNATIVE D—NO PROJECT

No mitigation is required.