This section provides an analysis of the potential impacts on the existing stormwater system that would result from project implementation. The analysis is based on the Preliminary Drainage Study prepared by Triad/Holmes Associates, which is provided in Appendix H of this document, and the 2005 Town of Mammoth Lakes Storm Drain Master Plan Update.

3.13.1 REGULATORY FRAMEWORK

Stormwater flows and stormwater drainage systems associated with the project site are subject to the Town of Mammoth Lakes Storm Drainage Master Plan Update, the Town of Mammoth Lakes General Plan of 1987, the Draft General Plan Update 2005, and the Town's Municipal Code.

a. Town of Mammoth Lakes Storm Drainage Master Plan Update

In May 2005, the Town updated its 1984 Storm Drain Master Plan (SDMP). The SDMP was primarily formulated to control the existing drainage and erosion problems by establishing a program to rehabilitate existing development areas, while also providing policies, standards, and procedures to guide future development. The SDMP identifies several existing drainage problems in the Town including the following:

- Lack of a stable drainage system in much of the community located within the Urban Growth Boundary;
- Roadside and slope erosion due to uncontrolled runoff in poorly defined channels from steep areas;
- Drainage that crosses private property, and development in or near the natural drainage channels;
- Undersized culverts and channels; and
- Discharge of runoff from developed areas directly to Mammoth Creek resulting in high sediment loads to the creek and water quality degradation.

In response to these problems, the SDMP identifies general drainage improvements throughout the Town to remedy existing drainage problems and accommodate projected buildout of the Town. Construction of the SDMP facilities can be spread out over a number of years. This would allow facilities to be built as they are needed or as further development occurs. Three priority levels have been established in the SDMP for construction of the improvements as summarized below:

- Priority 1 improvements focus primarily on eliminating existing drainage and erosion control problems;
- Priority 2 improvements include solutions to less critical drainage problems and facilities required to provide adequate drainage trunk capacity for the ultimate development; and
- Priority 3 improvements include the remainder of SDMP facilities, which are principally improvements for local storm drainage.

The SDMP strives to retain or improve natural streams where possible, rather than replacing them with storm pipes for aesthetic, economic, and functional purposes. Storm pipes would be placed in streets where feasible; however, some easements would be required on private property, primarily where existing development has occurred near stream zones. The updated SDMP recommends the Town replace corrugated metal pipelines that failed to transmit the required 20-year flows, with pipes of the same size made of concrete, PVC, HDPE, or other materials that do not have a rough texture.

The SDMP also includes guidelines for erosion control for the Mammoth Lakes area. In an effort to remedy drainage and erosion problems, the erosion guidelines prescribe requirements that must be followed during all phases of developments involving soil disturbance on one-quarter acre or more. The erosion guidelines also provide a basis for consistent design of storm drainage and erosion control facilities. Please see Section 3.10, Hydrology and Water Quality, for a more detailed discussion regarding erosion.

The 2005 SDMP inventories all of the existing storm drain pipe facilities and assesses the adequacy of storm drain system(s) under three general scenarios: 1) existing conditions, 2) future conditions, and 3) improved conditions. An improved condition is defined as the future condition in conjunction with impacts due to the construction of a detention facility proposed as part of the SDMP. In the future and improved scenarios, future land uses are considered to

account for planned development. In all storm drain scenarios, the 20-year and 100-year return periods are considered.[110]

The 2005 SDMP applies two criteria to assess whether the existing stormwater conveyance pipelines are considered to be adequately sized: 1) each pipe is to have adequate capacity to convey the 20-year discharge; and 2) in the cases of storm drain flows under streets, the combined street capacity and storm drain capacity is to have the necessary capacity to convey the 100-year flow. In the case where inadequate pipes are encountered, the pipes would be identified and enlarged to meet the adequacy criteria for the future and improved condition scenarios. The drainage improvements would be primarily funded through payment of developer impact fees and would be constructed as needed or as further development occurs.

b. Town of Mammoth Lakes General Plan (1987)

The Town of Mammoth Lakes General Plan, which was adopted in 1987, contains goals and policies relating to stormwater drainage systems. The Conservation and Open Space Element contains the following applicable goal and policy relative to stormwater for the proposed project:

Goal #2 To safeguard the productivity and capacity of surface and ground waters, the flood carrying capacity of streams, the storage of reservoirs.

Policy #5 The Town shall carefully regulate construction and other activities and development, that which would cause or accelerate erosion sedimentation, water pollution and runoff volumes.

c. The Town of Mammoth Lakes Draft General Plan (Update 2005)

The Town has prepared a Draft General Plan Update 2005. The Draft Update contains the following policy and implementation measure regarding stormwater, which would be applicable to the project:

Policy II.1.C.a: Ensure that new development densities do not exceed the capacity of public service infrastructure and utility systems. Require new development to upgrade or fund facilities to meet increased demand or require reduced density or project redesign for any project that would result in deterioration of service levels or cause available capacity to be exceeded if capacity expansion is infeasible.

[110] *A return period is the probability that a storm of a particular magnitude will occur in a one-year time period.*

Implementation Measure

II.1.C.a.1: The Town shall ensure service providers are involved in development review process.

d. Town of Mammoth Lakes Municipal Code

Section 13.20.040 of the Town's Municipal Code, Storm drainage impact fee, requires that all projects that require the issuance of a building permit shall pay a storm drainage connection, or impact, fee at the time of occupancy of the project.

3.13.2 AFFECTED ENVIRONMENT

The project site consists of both undeveloped areas on the western portion of the site and developed areas on the eastern portion of the site. Developed areas on the site include the temporary Eagle Lodge Base facility, the Chairlift, and the associated surface parking lot which all provide services for the ski facilities at Mammoth Mountain.

As indicated in Section 3.10, Hydrology and Water Quality, the general trend of the Mammoth Basin is generally northeasterly, extending from Mammoth Crest to the Hot Creek Gorge. The complex drainage system comprised of lakes and interconnecting surface streams has a flow length of approximately 18 miles with sheet flow and natural swales flowing from the west. The land upstream of the project site is relatively steep, so there is no impact to lands above the site from surface runoff. Based on the Preliminary Drainage Study, the site contributes 7.6 cubic feet per second (cfs) to the tributary area during a storm of 100-year intensity.

a. Existing Drainage Facilities

Runoff from the project site flows to the Town of Mammoth Lakes Separate Storm Sewer System (TMLSSS) which is made up of underground and surface storm drainage facilities. The elevation of the parking lot and Majestic Pines Road directs stormwater flows to several storm drain inlets located in the southwestern portion of the site, as well as several inlets located within the central portion of the parking lot. There are currently no infiltration/retention basins onsite.

As shown in Figure 48 on page 480, existing drainage facilities onsite convey flows through an existing 36-inch corrugated metal pipe (CMP) that runs northeasterly under the surface parking lot and into two 36-inch storm drain pipes under Majestic Pines Road that outlet at the southwest corner of the Sierra Star (also known as Loadstar) Golf Course. From the Golf

CP 3.6.5
Q_{20} = 24 CFS
Q_{100} = 46 CFS

CP 3.6
Q_{20} = 230 CFS
Q_{100} = 416 CFS

CP 3.6.4
Q_{20} = 50 CFS
Q_{100} = 92 CFS

CP 3.6.2
Q_{20} = 103
Q_{100} = 193

CP 3.6.3
Q_{20} = 11 CFS
Q_{100} = 20 CFS

CP 3.6.7
Q_{20} = 42 CFS
Q_{100} = 99 CFS

CP 3.6.6
Q_{20} = 76 CFS
Q_{100} = 150 CFS

CP 3.6.8
Q_{20} = 21 CFS
Q_{100} = 40 CFS

CP 3.6.9
Q_{20} = 52 CFS
Q_{100} = 103 CFS

LEGEND

- MAJOR WATERSHED BOUNDARY
- DETAILED DRAINAGE WATERSHED BOUNDARIES
- FLOWLINE
- STORM DRAIN, EXISTING
- STORM DRAIN, RECOMMENDED
- CURB AND GUTTER, EXISTING
- CURB AND GUTTER, RECOMMENDED
- WATERSHED COLLECTION POINT, CP
- 30" RECOMMENDED PIPE REPLACEMENT OR NEW PIPE. (RED SHADING = PRIORITY 1, YELLOW SHADING = PRIORITY 2)
- 10 NEW PIPE ID

Project Area Boundary

Not to scale

PCR

Figure 48
Existing Drainage Facilities

Source: Town of Mammoth Lakes, PCR Services, 2006

Course, the offsite runoff crosses Meridian Boulevard twice through a drainage course that enters a 36-inch storm drain under Joaquin Road. From the 36-inch drain in Joaquin Road lowflow stormwater drains northeasterly through one 36-inch CMP and three 24-inch CMPs that cross Dorrance Avenue at Manzanita Road. Currently, this low-flow diverter only allows approximately 1 cfs into the stream beds flowing northeasterly. However, the Town is planning on updating the pipe capacities in the area to allow larger low-flow to increase to 10 or 15 cfs, and possibly 20 cfs. Currently any runoff that is conveyed at more than 1 cfs at maximum is considered high-flow. This high-flow stormwater is diverted north perpendicular to Dorrance Avenue in a 42-inch CPP that runs east into a 48-inch CPP along Dorrance Avenue. All discharge then outflows into a natural channel in the Shady Rest Parcel and is collected from this location in an inlet located adjacent to Center Street. From Center Street, the runoff is conveyed to stormdrain pipes within Main Street then into natural and manmade channels that outlet into Murphy Gulch into Mammoth Creek and eventually to the Owens River system and Crowley Lake.

The Murphy Gulch watershed, into which the runoff first discharges, is a seasonal stream that has very little or even no flow during dry months. Currently, runoff from the project site is 7.6 cfs. Offsite runoff quantity as indicated in the SDMP for Tributary Subarea 3.6 is 334 cfs for a 20-year intensity storm, and 603 cfs for a 100 year-intensity storm, inclusive of the project site's current stormwater flows. During the spring snowmelt and heavy rainfall however, estimated peak flows within the Murphy Gulch area is approximately 550 cubic feet per second (cfs). Mammoth Creek, where the runoff ultimately discharges into, has an average annual flow of 20 cubic feet per second with peak 100-year flows estimated at 640 cubic feet per second[111] Flows of these magnitudes create flood conditions and are dangerous to portions of the Town.

According to Exhibit 8.5, Area 2.3 West Plan, in the SDMP, no stormwater improvements have been identified for the project site or the surrounding roadways (i.e., Meridian Boulevard and Majestic Pines Road). Appendix E of the SDMP Update includes an evaluation of the existing facilities within each drainage area for flow capacity, street capacity, and existing flooding problems. The analysis in the SDMP Update found that 50 of the 445 stormdrain pipes in the Town did not meet the required capacity for the 20-year event. Of these 50 pipes, seven were identified as pipes that would convey stormwater runoff from the project site. The seven pipelines that were identified as providing insufficient capacity are located along the drainage course that runs northeasterly crossing Lupin Street, Mono Street, and Manzanita Road towards Center Street and Highway 203. The SDMP Update also contains an analysis of the 100-year event for pipes that run parallel to the street. The study found that 16 of the 82 pipes were undersized. None of the seven pipelines that convey stormwater runoff from the site were analyzed in the SDMP for the 100-year event.

[111] *Town of Mammoth Lakes General Plan (2005 Update)*

Appendix G of the SDMP Update provides an evaluation of the necessary pipe capacities required to convey runoff assuming the projected land uses based on the 1987 General Plan. In the modeling, the seven pipelines that were determined to provide insufficient capacity in the 20-year event, which are located along the drainage course that runs northeasterly crossing Lupin Street, Mono Street, and Manzanita Road towards Center Street and Highway 203, were provided with the necessary replacement sizes. Of the seven pipelines, one pipe was identified by the Town to be a priority replacement. The pipeline identified as a priority replacement is currently a 24-inch CMP located in the Shady Parcel Area at the end of Center Street near Highway 203. The SDMP Update indicates that this pipeline will be replaced by a 30-inch stormdrain pipe in the future. The inadequacies of the four other pipes will be offset by the low-flow diverter on Joaquin Road. This diverter has an orifice that directs low-flow to the existing four undersized pipes. As stated above, any non- low-flow stormwater is directed north to a 42-inch CPP that runs along Joaquin Road and connects to a 48-inch CPP at the intersection of Dorrance Avenue and runs east.

In order to correct the remaining two pipeline inadequacies, which are the 48 inch CPP and 24 inch CPP that are both located off Manzanita Road, north of Dorrance Avenue, the SDMP identifies the installation of larger storm drainage piping. However, the timing of the installation of larger pipes has not been determined.

The Town considered the use of detention basins rather than increasing the size of the pipes. However, an economic analysis conducted as part of the SDMP indicates that the use of detention basins is too costly. Therefore, according to the SDMP, the proposed replacement of using larger pipelines is the more feasible approach to the necessary system upgrades. In accordance with the SDMP, the 20-year basin flows will be conveyed in pipelines, culverts, natural channels, and man-made channels while the streets will help convey the 100-year flows.

3.13.3 ENVIRONMENTAL CONSEQUENCES

a. CEQA Significance Criteria

Based on Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on stormwater facilities if the project would:

- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems; or

- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which would cause significant environmental effects;

b. Methodology

The analysis contained in this section is based on the information provided in the Preliminary Drainage Study, which is contained in Appendix H, as well as the Town's SDMP Update, which was adopted in 2005. Peak post-development flows from the Preliminary Drainage Study were compared to the allowable discharge rates of the existing drainage facilities in Tributary Subarea III-5. In addition, a review of policy documents to identify goals and policies regarding stormwater facilities that are relevant to the project was conducted.

c. Environmental Consequences of the Proposed Action

(1) Construction

Project construction would include the removal of the existing 36-inch storm drain pipeline that traverses diagonally across the site. The removal of this pipe would not affect the existing stormwater infrastructure that currently conveys stormwater offsite. The project would implement a Storm Water Pollution Prevention Plan (SWPPP) during construction. The SWPPP must list Best Management Practices (BMPs) the discharger will use to protect storm water runoff and the placement of those BMPs. With the implementation of the SWPPP and the associated BMPs, impacts with regard to stormwater runoff during construction would be less than significant.

(2) Operation

As indicated in Section 3.10, Hydrology and Water Quality, the project would result in an increase of 1.08 acres of impermeable surface or approximately 14 percent when compared to existing conditions. The peak runoff flow from the site would be approximately 8.8 cubic feet per second (cfs) during a storm of 100-year intensity. In comparison to the direct offsite tributary, the increase of 1.2 cubic feet per second out of a total 103.8 cubic feet per second represents an increase of approximately 1.5 percent.

As indicated in the Preliminary Drainage Study, rainfall is assumed to occur at 1-inch/hour or 0.083 feet/hour. Based on the various types of proposed surfaces (i.e., roof area and pavement area) on the project site, the average runoff volume from the project site would be 19,962 cubic feet per hour. As indicated in Section 3.10, Hydrology and Water Quality, the project would include the installation of one infiltration/detention facility along the eastern

boundary of the project site and another along the project's northern boundary near the lodge entrance. These facilities would be sized for a storm of 100-year intensity. As indicated in the SDMP, detention basins serve to reduce adverse flooding impacts by decreasing the peak flow to downstream watersheds and/or by delaying the time at which downstream hydraulic systems are impacted. For runoff associated with the Eagle Lodge Project, the infiltration/ detention basins would capture the first flush of a 20—year intensity storm acting as a groundwater recharge and as a filter by removing any silt or pollutants collected in the system. In addition, the project would also include stormwater drainage facilities that would run east along Meridian Boulevard and would turn north as it intersects Majestic Pines Drive. These drainage facilities would then connect to the Town's existing stormwater drainage system. In conjunction with the infiltration/detention facility the stormwater drainage facilities would delay the release of stormwater to the Town's system by allowing a longer period for downstream watersheds to drain.

Runoff from the project site would continue to drain through the existing two 36-inch storm drain pipelines that outlet at the southwest corner of the Sierra Star Golf Course. As stated above, the four undersized pipelines are offset by a low-flow diverter that conveys non-lowflow north on Joaquin then east on Dorrance Avenue. Then, the runoff is conveyed to storm drain pipes within Main Street then into natural and manmade channels that outlet into Murphy Gulch. Runoff through Murphy Gulch then enters a pipe that crosses under Highway 203 and enters Mammoth Creek and eventually to the Owens River system and Crowley Lake.

Based on comparisons between current runoff capacities, the rate of runoff generated by the project site would increase a maximum of 1.2 cubic feet per second of stormwater, a total 8.8 cfs. The project runoff would be conveyed through the existing two-36 inch stormdrain pipes. The project runoff would not exceed the flow capacities of the pipes. In addition, the proposed infiltration/detention facilities onsite would collect and store stormwater runoff, slowly releasing the runoff in a way as to reduce the stormwater runoff rates to the downstream areas.

In conclusion, the increase of stormwater flows that would result from project implementation would not be a significant increase in runoff quantities beyond existing stormwater runoff rates. The project would include the installation of infiltration/detention facilities on site, as well as drainage facilities south of the site which would serve to collect stormwater runoff and allow a slow release of runoff into the existing public infrastructure. The site would continue to drain as it does under existing conditions. Since the project would not result in an increase in runoff that would exceed the capacity of existing or planned stormwater drainage systems, the project would result in a less than significant impact on existing stormwater facilities. In addition, the project would not result in the need to construct stormwater drainage facilities or the expansion of existing facilities, the construction of which would cause significant environmental effects.

The project would comply with the relevant policies regarding stormwater facilities. The project would reduce flooding potential through the installation of infiltration/detention facilities on site. The project would be consistent with Policy II.1.C.a of the 2005 Draft General Plan Update as the project would not exceed the capacity of the stormwater infrastructure. With regard to Policy #5 of the Conservation and Open Space Element, the project would implement a Storm Water Pollution Prevention Plan (SWPPP) during construction. The SWPPP must list Best Management Practices (BMPs) the discharger will use to protect storm water runoff and the placement of those BMPs. With the implementation of the SWPPP and the associated BMPs, impacts with regard to stormwater runoff during construction would be less than significant. In addition, the applicant would pay the storm drainage impact fee as required by the Town's Municipal Code.

d. Mitigation Measures

The proposed project would result in a less than significant impact with regard to stormwater infrastructure. Therefore, no mitigation measures are necessary.

e. Environmental Consequences of Alternative 1 - Development in Accordance with Existing Regulations Alternative

Surface runoff from Alternative 1 would be conveyed in the Town's existing stormwater drainage pipes. An infiltration/detention facility would be installed onsite to retain the first inch of rainfall during a 20-year intensity storm as required by the Town. It is anticipated that the Town would continue to upgrade the undersized pipeline offsite to accommodate this Alternative and other development projects as planned in the SDMP. Therefore, runoff would not exceed the capacity of the existing or planned drainage systems in this alternative and impacts would be less than significant. Since the alternative would install stormwater drainage facilities onsite and offsite, Alternative 1 would not require or result in the construction of new stormwater drainage facilities or an expansion of the existing facilities, the construction of which would cause significant environmental effects. Therefore, impacts with regard to stormwater under Alternative 1 would be less than significant.

f. Environmental Consequences of Alternative 2 - Reduced Intensity Alternative

Alternative 2 would result in the same amount of impermeable surfaces as the Proposed Action and would therefore, generate the same amount of stormwater runoff in the project area. Alternative 2 would include the installation of two underground infiltration/detention facilities along the eastern and northern boundaries of the site. The underground detention facilities would capture the first flush of a 20-year intensity storm and would lessen the amount of runoff downstream. With the installation of these facilities and the continued improvements of the

Town to the undersized pipelines, runoff would not exceed the current capacity of the existing or planned drainage system. In addition, Alternative 2 would not require or result in the construction or expansion of stormwater facilities, the construction of which would cause significant environmental effects. Therefore, impacts of Alternative 2 with regard to stormwater would be less than significant.

g. Environmental Consequences of Alternative 3 - Alternate Design Alternative

Alternative 3 would result in the same amount of impermeable surfaces as the Proposed Action and would therefore, generate the same amount of stormwater runoff in the project area. In accordance with Town requirements, Alternative 3 would install an infiltration/detention facility to retain the first inch of rainfall during a 20-year intensity storm. In addition, on- and off-site drainage facilities under this alternative are expected to be sized to accommodate flows entering and exiting the site during a storm of 100-year intensity. Thus, runoff that would occur under Alternative 3 would not exceed the capacity of the existing or planned drainage system. The Alternative would not require or result in the construction of new stormwater drainage facilities or an expansion of the existing facilities, the construction of which would cause significant environmental effects. Therefore, Alternative 3 would result in less than significant impacts with regard to stormwater.

h. Environmental Consequences of Alternative 4 - No Action Alternative

Under the No Action Alternative, the existing tent would be removed thereby reducing the amount of impermeable surface on the site. The runoff would discharge as it does today and the existing stormwater infrastructure would continue to accommodate runoff from the project site. The No Action Alternative would not result in the installation of infiltration/detention basins on the site, which would decrease the peak flows to the stormwater infrastructure. Thus, the No Action Alternative would not enhance the existing stormwater drainage systems and its capacity. However, the No Action Alternative would result in a less than significant impact to the storm drain system as the existing system is adequate to serve the site.