Initial Study/Proposed Mitigated Negative Declaration and
Initial Environmental Checklist

Lower Blackwood Creek Restoration Project

Prepared for:

California Tahoe Conservancy

Tahoe Regional Planning Agency

California Department of General Services

Prepared by:

AECOM
870 Emerald Bay Road, Suite 400
South Lake Tahoe, CA 96150

Northwest Hydraulic Consultants
3950 Industrial Boulevard, Suite 100c
West Sacramento, CA 95691

January 11, 2010

Initial Study/Proposed Mitigated Negative Declaration and
Initial Environmental Checklist

Lower Blackwood Creek Restoration Project

Prepared for:

California Tahoe Conservancy
1061 Third Street
South Lake Tahoe, CA 96150

Contact:

Adam Lewandowski
Wildlife Program Coordinator
530/543-6054

Tahoe Regional Planning Agency
P.O. Box 5310
Stateline, NV 89449

Contact:

Mike Elam
Environmental Planner II
775/588-4547

Department of General Services
RESD-Environmental Services, 3rd Floor
Mailstop 3-509
P.O. Box 989052
West Sacramento, CA 95798-9052

Contact:

Brian Wilkinson
Senior Environmental Planner
916/376-1605

Prepared by:

AECOM
870 Emerald Bay Road, Suite 400
South Lake Tahoe, CA 96150

Contact:

Nanette Hansel
Project Manager
530/543-5100

Northwest Hydraulic Consultants
3950 Industrial Boulevard, Suite 100c
West Sacramento, CA 95691

January 11, 2010

AECOM

nhc

05110111.01

DRAFT

PROPOSED MITIGATED NEGATIVE DECLARATION

PROJECT: **Lower Blackwood Creek Restoration Project**

LEAD AGENCY: **California Tahoe Conservancy**

PROJECT DESCRIPTION

This combined initial study and mitigated negative declaration (IS/MND) evaluates the environmental effects of the proposed Lower Blackwood Creek Restoration Project. The project involves partially restoring the lower reach of Blackwood Creek on the west shore of Lake Tahoe. The project includes proposed vegetation enhancement, bank stabilization, and trail rehabilitation elements that would contribute to improved water quality and habitat conditions within the creek.

The Lower Blackwood Creek project area includes the lowest reach of the Blackwood Creek stream channel from its point of discharge into Lake Tahoe to 4,000 feet upstream. Relative to State Route 89 (SR 89), the project study area begins 3,000 feet upstream (west) of SR 89 and extends approximately 1,000 feet downstream (east) of SR 89 to Lake Tahoe, north of the Tahoe Pines residential area.

FINDINGS

An IS/MND has been prepared to assess the project's potential effects on the environment and the significance of those effects. Based on the IS/MND, it has been determined that the proposed project would not have any significant effects on the environment after implementation of mitigation measures. This conclusion is supported by the following findings:

1. The proposed project would have no effects related to agricultural resources, land use and planning, mineral resources, population and housing, or public services.

2. The proposed project would have a less-than-significant impact on aesthetics.

3. Mitigation is required to reduce potentially significant impacts related to air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, recreation (construction related to the proposed trail rehabilitation work could result in short-term adverse effects on the environment), transportation/traffic, and utilities and service systems.

The following mitigation measures would be implemented by the California Tahoe Conservancy (Conservancy) to avoid or minimize environmental impacts. Implementation of these mitigation measures would reduce the environmental impacts of the proposed project to a less-than-significant level.

- **Mitigation Measure AQ-1: Reduce Temporary Construction Emissions of ROG, NO_X, and PM_{10}.**

  In accordance with Placer County Air Pollution Control District (PCAPCD) Rule 228 (PCAPCD 2003), the Conservancy and its contractor(s) shall implement the following measures during construction of the proposed project.

1. The Conservancy shall submit to PCAPCD and receive district approval of a construction emission/dust control plan before groundbreaking. This plan must address the minimum administrative requirements found in Sections 300 and 400 of PCAPCD Rule 228, Fugitive Dust.

2. Fugitive dust shall not exceed 40% opacity and shall not drift beyond property boundaries at any time. If lime or other drying agents are used to dry out wet grading areas, they shall be controlled as to not to exceed Rule 228 limitations.

3. Exhaust emissions from construction equipment shall not exceed Rule 202 limitations. Operators of vehicles and equipment that exceed opacity limits shall be immediately notified and the equipment must be repaired within 72 hours.

4. The prime contractor shall submit to PCAPCD a comprehensive inventory (i.e., make, model, year, emissions rating) of all heavy-duty off-road equipment (50 horsepower or greater) that will be used for an aggregate of 40 or more hours during construction of the project. The project representative shall provide PCAPCD with the anticipated construction timeline, including the start date, and the name and phone number of the project manager and on-site foreman. The project representative shall provide a plan for approval by PCAPCD demonstrating that the heavy-duty off-road vehicles to be used in project construction—owned, leased, and subcontractor vehicles alike—will achieve a project-wide fleet-average 20% reduction in NO_X emissions and 45% reduction in particulate emissions compared to the most recent ARB fleet average. Acceptable options for reducing emissions may include the use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

5. No open burning of removed vegetation shall occur during infrastructure improvements.

6. Idling time shall be minimized to 5 minutes for all diesel-powered equipment.

7. ARB-approved diesel fuel shall be used for all diesel-powered equipment.

8. Dust control measures shall be required for any grading or earthmoving activity creating substantial quantities of dust. Dust control measures shall comply with Chapter 64.4 of the TRPA Code of Ordinance and be approved by TRPA before groundbreaking. Dust control measures that would be submitted for TRPA review and approval would likely include the following:

    a. Water shall be applied to control dust as needed to prevent dust impacts off-site. One or more water trucks shall be used on-site as required to control fugitive dust. Construction vehicles leaving the site shall be inspected and treated as necessary in the designated equipment wash area to prevent dust, silt, mud, and dirt from being released or tracked off-site and onto SR 89.

    b. Approved chemical soil stabilizers, vegetative mats, or other appropriate best management practices shall be applied to all inactive construction areas (previously graded areas that remain inactive for 96 hours or more, or daily if there is a 30% or great chance of rain or if a wind advisory for Lake Tahoe is in effect) to manufacturers' specifications.

    c. Soil binders shall be spread on unpaved roads and employee/equipment parking areas and streets shall be washed or cleaned using a vacuum sweeper or pick broom if silt is carried over to adjacent public thoroughfares.

9. Existing power sources or clean fuel generators shall be used rather than temporary diesel-powered generators. If such sources or generators are not available, low-sulfur fuel is to be used for diesel-powered generators.

Implementation of Mitigation Measure AQ-1 would reduce fugitive PM_{10} dust emissions a minimum of approximately 50% and prevent it from dispersing beyond the property boundary. Implementation of this mitigation measure would also reduce exhaust emissions of ROG, NO_X, and PM_{10} from diesel equipment by at least 5%, 20%, and 45%, respectively.

- **Mitigation Measure BIO-1: Conduct Preconstruction Surveys for Yellow Warbler and Implement a Limited Operating Period If Necessary.**

  For construction activities that would occur within suitable habitat during the nesting season (approximately March 1–August 31, depending on weather), a qualified wildlife biologist shall conduct focused surveys for active nest sites of yellow warbler within 14 days before construction activities during any project phase (i.e., Phase 1 or 2). The biologist should be able to identify Sierra Nevada bird species audibly and visually. The preconstruction survey for yellow warbler nests shall be conducted using a nest-searching technique appropriate for the species (e.g., first conducting point counts in suitable riparian habitat to determine occupancy, followed by nest searching if the species is present). If a yellow warbler nest is located, DFG and the Conservancy shall be notified. Construction shall be prohibited within a minimum of 500 feet (or at a distance directed by the appropriate regulatory agency) of the nest to avoid disturbance until the nest is no longer active. The 500-foot buffer may be reduced through consultation with DFG.

  If any special-status wildlife species is detected incidentally on the project site during preconstruction surveys or otherwise, the Conservancy and TRPA, DFG, and/or USFWS shall be notified, as appropriate. If necessary, measures to minimize or avoid disturbances to individuals or breeding activities (e.g., limiting operating periods during sensitive breeding periods) shall be developed and implemented in consultation with the appropriate agencies.

- **Mitigation Measure BIO-2: Conduct Preconstruction Surveys for Special-Status Bats, and Develop and Implement a Passive Relocation Plan If Necessary.**

  Bat surveys shall be conducted by a qualified wildlife biologist within 14 days before any tree removal or clearing. Locations of vegetation and tree removal or excavation shall be examined for potential bat roosts. Potential roost sites identified shall be monitored on two separate occasions for bat activity, using bat ultrasonic detectors to record bat echolocation to help identify species. Monitoring shall begin 30 minutes before sunset and shall last up to 2 hours at any potential roost identified. Any significant roost locations discovered shall not be disturbed by project activities, or if necessary, a passive relocation plan shall be developed in coordination with the appropriate agencies before any disturbance to the roost site.

  If any special-status wildlife species is detected incidentally on the project site during preconstruction surveys or otherwise, the Conservancy and TRPA, DFG, and/or USFWS shall be notified, as appropriate. If necessary, measures to minimize or avoid disturbances to individuals or breeding activities (e.g., limiting operating periods during sensitive breeding periods) shall be developed and implemented in consultation with the appropriate agencies.

- **Mitigation Measure BIO-3: Revegetate Areas of Disturbance with Salvaged Willow and Other Riparian Shrub Plantings.**

  The Conservancy shall coordinate with USACE as appropriate and obtain coverage under Regional General Permit No. 16 for the construction of all aspects of the project. All general terms required for permit compliance shall be implemented. To minimize the loss of native wetland vegetation at the site, salvage actions shall be implemented. Where riparian vegetation would be removed during new-channel construction and recontouring of the existing channel, willow, alder, and dogwood stumps shall be salvaged and propagated for revegetation of the areas of disturbance and bank stabilization.

- **Mitigation Measure BIO-4: Clean and Decontaminate All Equipment Used in and Around Blackwood Creek.**

  To ensure that aquatic nuisance species are not transported into Blackwood Creek or Lake Tahoe, all equipment that has been used previously in other water bodies shall be cleaned and sanitized using a dilute quaternary disinfectant solution (or the equivalent) and allowed to dry before being used in Blackwood Creek.

- **Mitigation Measure CUL-1: Further Document and Evaluate P-31-2806H and CA-Pla-1954H.**

  Prior to any project activities that could impact the setting and integrity of the documented Basque tree carvings and possibly associated site CA-Pla-1954H, the sites shall be documented in further detail including scale drawings of the individual carvings and a scale site map. The site shall also be assessed and evaluated by a recognized expert in Basque history and tree carving practices. This evaluation will recommend whether or not the site is eligible for listing on the NRHP/CRHR. This evaluation is presently being conducted by the USACE which may combine both locations into a single cultural site. If recommended eligible to either the NRHP or the CRHR, further research and/or project avoidance would be necessary. Implementation of Mitigation Measure CUL-1 would reduce these impacts to a less-than-significant level.

- **Mitigation Measure CUL-2: Mitigate Impacts on Previously Undiscovered Resources.**

  Archaeological site CA-Pla-40/H shall be avoided by the designation of a 50-meter (165 foot) buffer zone by a qualified archaeologist. The buffer would be delineated by the installation of “cyclone” fencing or other clearly visible markers or fencing. Construction contractor(s) who may be working in the vicinity of CA-Pla-40/H shall also be notified of the demarcated buffer zone to further ensure avoidance. However, due to the sensitivity of the site vicinity, a qualified monitor shall be onsite during all subsurface ground-disturbing restoration activities. This would ensure that if any buried cultural resources are found, they would be avoided, or if necessary evaluated for their potential listing in the NRHP/CRHR. If buried or previously identified resource (prehistoric in particular) are discovered during project activities, all work in the vicinity of the find would cease, and the State Historic Preservation Officer and the Washoe Tribe of Nevada and California Tribal Historic Preservation Officer would be contacted for additional consultation under 36 CFR 13 (b), Discoveries Without Prior Planning. Implementation of Mitigation Measure CUL-2 would reduce potential impacts to a less-than-significant level.

- **Mitigation Measure CUL-3: Mitigate Impacts on Previously Undiscovered Burials.**

  In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, the Conservancy and its contractor(s) shall immediately halt potentially damaging excavation in the area of the burial and notify the Placer County Coroner and a professional archaeologist to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). After the coroner’s findings have been made, the archaeologist and the NAHC-designated Most Likely Descendant shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities of Placer County for acting upon notification of a discovery of Native American human remains are identified in California Public Resources Code Section 5097.9.

  California law recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. The Conservancy shall ensure that the procedures for the treatment of Native American human remains contained in California Health and Safety Code Sections 7050.5 and 7052, and California Public Resources Code Section 5097, are followed.

- **Mitigation Measure HAZ-1: Prepare and Implement an Accidental-Spill Prevention and Response Plan.**

  The Conservancy shall work with the project contractor(s) to establish on-site construction staging areas where hazardous materials would be stored during construction. The Conservancy shall also require project contractor(s) to prepare an accidental-spill prevention and response plan and to employ BMPs for spill control and prevention. With these prevention and management practices in place, potential impacts from construction- and maintenance-related accidental spills of hazardous materials would be reduced to a less-than-significant level.

- **Mitigation Measure WQ-1: Prepare and Implement Effective Site Management Plans.**

  The preparation and implementation of several construction phase site management plans would be required as part of various permit and approval requirements, including but not limited to: a grading and erosion control plan; a spill prevention plan; a dewatering, diversion and channel seasoning plan; a revegetation plan; and a monitoring and oversight plan. The following measures shall be implemented by the Conservancy within each of these plans to be developed for specific permits, or as independent mitigation measures.

  - Restrict the area and duration of construction disturbance to the absolute minimum necessary to accomplish work.

  - Design, install, and maintain temporary BMPs to protect disturbed areas and minimize soil erosion, prevent surface runoff interaction with disturbed surfaces, and limit the potential for release of sediment, nutrients, or otherwise contaminated water from entering surface water bodies or groundwater recharge areas for storm events up to the 20-year precipitation event.

  - Design, install, and maintain internally draining construction area(s) within the study area to prevent discharge of un-treated stormwater to Blackwood Creek. Anticipate runoff from upslope and re-route it around the construction zone.

  - Establish specific locations for construction vehicle/equipment refueling, maintenance, and storage that are lined and/or bermed to prevent release of any potential spills into surface or groundwater.

  - Provide winterization that isolates and protects disturbed areas from high streamflow on Blackwood Creek (up to the 50-year event).

  - Protect stockpiled and transported materials or debris from wind or water erosion. All soil piles (base, sand, soil, dirt, waste, and debris) shall be covered when not in use, including nights, weekends, and during days when material is not being moved in or out of the pile.

  - Provide site-specific and reach-wide dewatering/diversion plans that indicate the scheduling approach and/or maximum diverted flows to minimize risks from summer thunderstorms, specific diversion/dewatering methods and equipment, defined work areas and diversion locations, the types and locations of temporary BMPs for the diversions and re-introduction points, measures and options for treating turbid water prior to release back to the channel, and stated water quality performance standards. Prior to connecting flows from the dewatered channel [back] to the restored channel, turbidity levels of the water upstream and downstream of the proposed creek improvements shall be monitored. In the event that during the rewatering of the channel measured turbidity levels exceed the designated turbidity standard in nephelometric turbidity units (NTUs) developed by Lahontan RWQCB prior to issuance of a permit, the rewatering activities shall be modified by pumping to the upland basins and sprinkling area or other method to reduce turbidity. This would occur for a maximum of 3 days, or until turbidity levels drop to less than or equal to the designated turbidity standard, whichever is sooner. If the designated turbidity standard is not reached after 3 days of pumping, pumping or other modifications to the

rewatering activities would continue until decreases of turbidity greater than 25% of the previously measured turbidity are no longer being achieved and turbidity is less than or equal to 20 NTUs prior to releasing flows to the existing channel.

- Provide wetting flows prior to activation of restored reaches based on a channel seasoning plan that indicates the water source(s), volumes and duration required, phased placement of clean, washed gravels, and the measures and options for treating potentially turbid water.

- Monitor the status and effectiveness of temporary erosion control measures, throughout the construction area, including each of the internally draining zones that could discharge into Blackwood Creek. Monitor turbidity in lower Blackwood Creek upstream and downstream of the construction zone. Monitoring shall be conducted by a qualified representative on a regular basis during summer construction and on an event basis when runoff equals or exceeds the BMP design standards. Failures and/or threats of BMP failures shall be documented, and remedial measures identified and implemented. BMP failures shall be repaired within 24 hours of documentation.

► **Mitigation Measure WQ-2: Minimize Fine Sediment and Organic Material Available for Mobilization.**

Final project design and re-vegetation specifications for the restored channel reaches shall include measures to minimize the risk of mobilization of accumulated fine sediment and/or organic materials if a large flood flow occurs during the first few years after construction. The measures would remove and/or adequately stabilize the materials to resist expected erosive forces if a large flood (i.e., 25-year peak flow) occurred within 2–3 years after implementation. Such measures could include:

- Removal of loose, unvegetated, or otherwise unstable fine sediment and/or organic material within project reaches to eliminate the potential pollutant source. The excavated materials could be salvaged for soil amendment and revegetation use in off-channel areas if suitable, or shall be disposed of properly off-site.

- Re-vegetate loose, unvegetated, or otherwise unstable fine sediment and/or organic material within project reaches to increase roughness and reduce velocities. Re-vegetation of these areas shall meet species, density, planting methods, irrigation, and success criteria similar to streambank plantings.

► **Mitigation Measure WQ-3: Adaptively Manage Potential Flood Damage in the Interim Period After Construction.**

The Conservancy shall develop and implement an Adaptive Management Plan, focused on potential short-term water quality degradation that could result if unexpectedly large flood flows occur within the first 2–3 years after construction. The plan would identify specific data collection and monitoring protocols, describe decision-making processes and authorities, and list thresholds for corrective actions. The performance criteria for the corrective actions would focus on preventing initial flood damage or turbidity effects from becoming a persistent, recurring, or chronic source, whether the corrective action is needed at the initial damage site or at other location(s) that could be affected by channel response to the initial damage.

With implementation of Mitigation Measures WQ-1 through WQ-3 as described above, short-term water quality degradation is unlikely, and the potential for impairment of beneficial uses is very low. The potential impact associated with the project construction and post-construction period would be reduced to less than significant.

► **Mitigation Measure WQ-4: Submit a Final Engineering Report to TRPA, Placer County, and the Lahontan RWQCB.**

The Conservancy shall submit a final engineering report prepared by a qualified professional civil engineer to TRPA, Placer County, and the Lahontan RWQCB for review and approval. The report shall include an updated analysis of future flooding conditions (via iterative hydraulic modeling) to evaluate any changes

related to the upstream USFS restoration activities and the project's final design. The report shall demonstrate that the project would be flood neutral, prevent the future 100-year water surface elevation from increases greater than 1 foot, and prevent any increase in flood elevation or inundation area that could increase flood hazards or potential damages to persons or property relative to existing conditions.

- **Mitigation Measure NOI-1: Reduce Noise Levels from On-Site Construction Equipment.**

  The Conservancy and its contractor(s) shall implement the following mitigation measures during construction to reduce on-site short-term construction noise levels:

  - Construction equipment shall be properly maintained and equipped with noise control, such as mufflers, in accordance with manufacturers' specifications.

  - Construction activities shall be limited to the hours between 8:00 a.m. and 6:30 p.m., Monday through Saturday, during which such activities are exempt from noise levels identified in applicable standards. Emergency work to protect life or property is exempt from these hourly limits and applicable noise standards.

  - If construction activities, including the use of dewatering pumps, must run past exempted hours, any nearby sensitive receptors (less than 500 feet from those activities) must be given at least 48 hours notice of such activities. Before initiating construction activities during exempted hours, the Conservancy shall prepare a plan demonstrating how appropriate noise-reducing measures (such as erecting temporary sound barriers) will be implemented to maintain the applicable PAS's maximum community noise level standards (55 dBA CNEL for PAS 161, and 50 dBA CNEL for PAS 162). All dewatering pumps shall be enclosed or surrounded by a structure or tent wrapped with noise-reducing material, such as SoundSeal BBC-13-2 or equivalently rated material. Where portable pumps are used in the channel, a portable enclosure or barrier between the pump and nearby sensitive receptors shall be used where feasible. To the extent practical, pumps shall be located as far from residences as feasible. The plan shall be submitted to TRPA for review and approval, and shall be implemented during all construction activities occurring outside of TRPA's exempted hours.

  - Construction equipment shall be arranged to minimize travel adjacent to occupied residences and turned off during prolonged periods of nonuse.

  - A disturbance coordinator shall be designated and the person's telephone number conspicuously posted around the project site and supplied to nearby residences. The disturbance coordinator shall receive all public complaints and be responsible for determining the cause of the complaint and implementing any feasible measures to alleviate the problem.

  - Construction equipment shall be staged and construction employee parking shall be located in designated areas only.

- **Mitigation Measure TRA-1: Prepare a Traffic Control Plan.**

  The Conservancy shall prepare a traffic control plan subject to review and comment by TRPA and the State Fire Marshal before construction. The plan shall address project construction traffic and parking, and emergency access. At a minimum, the traffic control plan shall address truck haul routes, truck turning movements at the project staging areas and spurs, traffic control signage, potential bicycle and pedestrian traffic conflicts, and monitoring of the in-place traffic control plan to implement traffic control revisions, if necessary.

- **Mitigation Measure UTIL-1: Secure Proper Disposal/Soil Reuse Facility with Adequate Capacity for Project Construction Waste Materials.**

  Before initiating construction, the Conservancy shall ensure that the landfill used for material disposal, or other soil reuse location, has sufficient permitted capacity to accommodate the projected waste resulting from project construction.

Questions or comments regarding this IS/MND may be addressed to:

Department of General Services
Attn: Brian Wilkinson, RESD-Environmental Services, 3rd Floor
Mailstop 3-509
P.O. Box 989052
West Sacramento, CA 95798-9052
(916) 376-1605

The address for e-mail questions or comments is: brian.wilkinson@dgs.ca.gov.

APPROVAL OF INITIAL STUDY/MITIGATED NEGATIVE DECLARATION:

Certification by Those Responsible for Preparation of this Document. The California Department of General Services has been responsible for the preparation of this mitigated negative declaration and the incorporated initial study. I believe this document meets the requirements of the California Environmental Quality Act, is an accurate description of the proposed project, and that the lead agency has the means and commitment to implement the project design measures that will assure the project does not have any significant, adverse effects on the environment. I recommend approval of this document.

_____ _____

Brian Wilkinson, Senior Environmental Planner Date
Department of General Services
RESD-Environmental Services

(*To be signed upon completion of the public review process and preparation of a final project approval package including responses to comment, if any, on the environmental document and any necessary modifications to project design measures.)

Approval of the Project by the Lead Agency. Pursuant to Section 21082.1 of the California Environmental Quality Act, the California Tahoe Conservancy has independently reviewed and analyzed the initial study and mitigated negative declaration for the proposed project and finds that the initial study and mitigated negative declaration for the proposed project reflect the independent judgment of the California Tahoe Conservancy. The lead agency finds that the project design features will be implemented as stated in the mitigated negative declaration.

I hereby approve this project.

_____ _____

Patrick Wright, Executive Officer Date
California Tahoe Conservancy

TABLE OF CONTENTS

Chapter/Section **Page**

Acronyms and Abbreviations ..... **iv**

1 Introduction **1-1**
1.1 Lead Agencies and Public Review 1-1
1.2 Purpose and Legal Authority 1-3
1.3 Summary of Findings 1-3
1.4 Project Approvals and Permits 1-5
1.5 Document Organization 1-5

2 Project Description **2-1**
2.1 Introduction 2-1
2.2 Background and Need 2-1
2.3 Regional and Local Setting 2-2
2.4 Project Objectives 2-6
2.5 Project Characteristics 2-7
2.6 Construction Activities, Schedule, and Ongoing Monitoring and Maintenance 2-26
2.7 Other Projects in the Project Vicinity 2-37
2.8 Other Alternatives Considered but Rejected from Further Analysis 2-37

3 CEQA Environmental Checklist and Explanations **3-1**
3.1 Aesthetics 3-4
3.2 Agricultural Resources 3-6
3.3 Air Quality 3-8
3.4 Biological Resources 3-18
3.5 Cultural Resources 3-30
3.6 Geology and Soils 3-37
3.7 Hazards and Hazardous Materials 3-41
3.8 Hydrology and Water Quality 3-44
3.9 Land Use and Planning 3-60
3.10 Mineral Resources 3-63
3.11 Noise 3-64
3.12 Population and Housing 3-70
3.13 Public Services 3-71
3.14 Recreation 3-73
3.15 Transportation/Traffic 3-76
3.16 Utilities and Service Systems 3-82
3.17 Mandatory Findings of Significance 3-85

4 TRPA Initial Environmental Checklist and Explanations **4-1**
I Project Information 4-1
II Environmental Impacts 4-1
1 Land 4-1
2 Air Quality 4-4
3 Water Quality 4-7
4 Vegetation 4-13
5 Wildlife 4-16
6 Noise 4-20
7 Light and Glare 4-23
8 Land Use 4-24

TABLE OF CONTENTS

Chapter/Section **Page**

9 Natural Resources 4-25
10 Risk of Upset 4-25
11 Population 4-26
12 Housing 4-27
13 Transportation/Circulation 4-28
14 Public Services 4-31
15 Energy 4-32
16 Utilities 4-33
17 Human Health 4-35
18 Scenic Resources/Community Design 4-35
19 Recreation 4-37
20 Archaeological/Historical 4-38
21 Findings of Significance 4-41
III Certification 4-47
IV Determination 4-48

5 List of Preparers 5-1

6 References 6-1

Appendices

Appendix A Public Information Meeting Summary
Appendix B Air Quality Modeling Results
Appendix C Biological Resources Reports

Exhibits

2-1 Regional Location 2-3
2-2 Project Area and Access 2-4
2-3 Improvements to Reaches 3, 4, and 5 2-9
2-4 Improvements to Reaches 4, 5, and 6 2-11
2-5 Cross Sections of Improvements 2-13
2-6A Typical Details of Improvements 2-15
2-6B Typical Details of Improvements 2-17
2-7 Vegetation Enhancement Areas 2-22
2-8 Trail Rehabilitation Areas 2-24
2-9 Construction Access, Staging Areas, and BMPs, and Dewatering Plan 2-29
2-10 Schematic of Proposed Phase 1 Dewatering Plan 2-34
3-1 Annual Peak Discharges Recorded at Blackwood Creek, 1961–2007 3-47
3-2 FEMA 100-Year Floodplain 3-48

TABLE OF CONTENTS

Chapter/Section **Page**

Tables

2-1 Existing Channel Conditions in Lower Blackwood Creek 2-5
2-2 Proposed Restoration Quantities Associated with Enhancement Indicators 2-21
2-3 Tree Removal Estimate for the Proposed Creek Restoration Element 2-28
2-4 Construction Phasing, Dewatering, and Short-Term Water Quality Protection Measures 2-31
2-5 Cumulative Projects 2-38
3-1 TRPA Significance Thresholds for Peak Emissions during a 24-Hour Period 3-9
3-2 Summary of Modeled Short-Term Construction-Generated Emissions 3-12
3-3 Summary of Modeled Construction-Generated Emissions of Greenhouse Gases 3-15
3-4 Peak Discharge Levels Calculated at the USGS Gauge for Blackwood Creek 3-47
3-5 Designated Beneficial Uses for Blackwood Creek 3-51
3-6 Water Quality Objectives for Blackwood Creek and Lake Tahoe 3-51
3-7 Lake Tahoe Interagency Monitoring Program Water Quality Data for Blackwood Creek for Water Years 2000–2005 3-51
3-8 Typical Equipment Noise Levels 3-66
3-9 Typical Construction-Equipment Vibration Levels 3-68

ABBREVIATIONS AND ACRONYMS

µin/sec	microinches per second
AB	Assembly Bill
ADT	average daily trips
APN	Assessor's Parcel Number
ARB	California Air Resources Board
Basin Plan	*Water Quality Control Plan for the Lahontan Region*
BMPs	best management practices
Cal Fire	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CCC	California Conservation Corps
CEQA	California Environmental Quality Act
cf	cubic feet
cfs	cubic feet per second
CH_4	methane
CNEL	community noise equivalent level
CO	carbon monoxide
CO_2	carbon dioxide
Conservancy	California Tahoe Conservancy
CRHR	California Register of Historical Resources
cu. yd.	cubic yards
dBA	A-weighted decibels
dbh	diameter at breast height
DFG	California Department of Fish and Game
DGS	California Department of General Services
diesel PM	diesel particulate matter
DVTE	daily vehicle trip ends
EIP	Environmental Improvement Program
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency

Farmland	Farmland of Statewide Importance
FEMA	Federal Emergency Management Agency
FIRM	flood insurance rate map
FONSE	finding of no significant effect
FTA	Federal Transit Administration
gpm	gallons per minute
General Storm Water Permit	*General Permit for Discharges of Storm Water Runoff Associated with Construction Activity*
GWP	global warming potential
IEC	Initial Environmental Checklist
in/sec	inches per second
IPES	Individual Parcel Evaluation System
IS/MND	initial study and mitigated negative declaration
Lahontan RWQCB	Lahontan Regional Water Quality Control Board
lb/day	pounds per day
$L_{eq}(h)$	hourly equivalent noise level
L_{max}	maximum noise level
LOS	level of service
LTAB	Lake Tahoe Air Basin
LTIMP	Lake Tahoe Interagency Monitoring Program
M	Richter scale magnitude
mg/l	milligrams per liter
MLD	Most Likely Descendant
N_2O	nitrous oxide
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
nhc	Northwest Hydraulic Consultants
NO_2	nitrogen dioxide
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System

NRHP	National Register of Historic Places
NTUs	nephelometric turbidity units
OHV	off-highway vehicle
OPR	Office of Planning and Research
PACs	protected activity centers
PAOT	persons at one time
PAS	Plan Area Statement
PCAPCD	Placer County Air Pollution Control District
$PM_{2.5}$	respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less
PM_{10}	respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
PPV	peak particle velocity
RMS	root mean square
ROG	reactive organic gases
SB	Senate Bill
SEZ	Stream Environment Zone
SIP	state implementation plan
SO_2	sulfur dioxide
sq. ft.	square feet
SQIP	Scenic Quality Improvement Program
SR 89	State Route 89
SRA	shaded riverine aquatic
SWPPP	storm water pollution prevention plan
TAC	Technical Advisory Committee; toxic air contaminant
TCPUD	Tahoe City Public Utility District
TMDL	total maximum daily load
TRPA	Tahoe Regional Planning Agency
T-TSA	Tahoe-Truckee Sanitation Agency
TTSD	Tahoe Truckee Sierra Disposal

UCMP	University of California Museum of Paleontology
USACE	U.S. Army Corps of Engineers
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VdB	vibration decibels
VMT	vehicle miles traveled

This page intentionally left blank.

1 INTRODUCTION

The California Tahoe Conservancy (Conservancy), in conjunction with California Department of General Services (DGS), is proposing partial restoration of the lower reach of Blackwood Creek on the west shore of Lake Tahoe. The project includes proposed vegetation enhancement, bank stabilization, and trail rehabilitation elements that would contribute to improved water quality and habitat conditions within the creek.

The lower Blackwood Creek study area includes the lowest reach of the Blackwood Creek stream channel from its point of discharge into Lake Tahoe to 4,000 feet upstream. Relative to State Route 89 (SR 89), the study area begins 3,000 feet upstream (west) of SR 89 and extends approximately 1,000 feet downstream (east) of SR 89 to Lake Tahoe, north of the Tahoe Pines residential area.

1.1 LEAD AGENCIES AND PUBLIC REVIEW

The Conservancy is the project sponsor and lead agency for the proposed project under the California Environmental Quality Act (CEQA). The Tahoe Regional Planning Agency (TRPA) is the primary permitting agency and the lead agency for purposes of the Tahoe Regional Planning Compact and TRPA Code of Ordinances. The U.S. Army Corps of Engineers (USACE) is a funding entity for the proposed action and lead agency under the National Environmental Policy Act (NEPA).

With respect to this document, DGS is assisting the Conservancy in directing the preparation of an initial study and proposed mitigated negative declaration (IS/MND) in compliance with CEQA and the State CEQA Guidelines, and an initial environmental checklist (IEC) in accordance with the TRPA Code of Ordinances. (Note: the USACE has prepared a separate NEPA compliance document consistent with the NEPA Implementing Regulations of the Council on Environmental Quality and USACE that was publicly circulated in the fall of 2009.)

The purpose of this joint IS/MND and IEC is to fully disclose to the public and decision makers the environmental consequences of implementing the proposed project and describe the mitigation measures recommended to reduce significant and potentially significant impacts, in accordance with Section 15205(d) of the State CEQA Guidelines, Chapter 5 of the TRPA Code of Ordinances, and Article VI of the TRPA Rules of Procedure. An IEC is normally submitted concurrently with submittal of a project application to TRPA, but is included here to ensure preparation of the most comprehensive environmental review document with the broadest overview of environmental impacts and consistency in mitigation measures. A complete TRPA application package for the first phase of the proposed project will be submitted to TRPA subsequent to the close of the environmental review process and as early as spring 2010.

As part of the initiation of this environmental review process, a public information meeting was held on July 3, 2008. The purpose of the meeting was to introduce and share information about the proposed Lower Blackwood Creek Restoration Project, answer questions, understand any public issues or concerns, provide project contact information, and communicate opportunities for ongoing public input. A summary of the meeting, including comments made at that meeting and responses to those comments, is provided in Appendix A.

The joint IS/MND and IEC is available for a 30-day public review period from January 11, 2010 to February 9, 2010. Comments on the joint IS/MND and IEC may be made either in writing before the close of the review period or at the public hearing to be held during the public review period. The public hearing is being conducted to provide you with the opportunity to learn more about the proposed project and to express oral comments about the content of this joint IS/MND and IEC, in addition to your opportunity to submit written comments. The public meeting will be held at the following time and location:

Thursday, January 28, 2010
Beginning at 6:00 p.m.
Rideout Community Center, Room 5
740 Timberland Lane
Tahoe City, CA 96145

Written comments sent via U.S. Mail must be postmarked by February 9, 2010. Electronic comments may be e-mailed to the address shown below by February 9, 2010. Comments should be addressed to:

Department of General Services
Attn: Brian Wilkinson, RESD-Environmental Services, 3rd Floor
Mailstop 3-509
P.O. Box 989052
West Sacramento, CA 95798-9052
(916) 376-1605

The address for e-mail comments is brian.wilkinson@dgs.ca.gov.

After comments are received from the public and reviewing agencies, the Conservancy will consider those comments and may take one of the following actions: (1) adopt the mitigated negative declaration and approve the proposed project, (2) undertake additional environmental studies, or (3) abandon the project.

This joint IS/MND and IEC is available for public review at the following locations:

California Tahoe Conservancy
1061 Third Street
South Lake Tahoe, CA 96150
www.tahoe.ca.gov

South Lake Tahoe Branch Library
1000 Rufus Allen Boulevard
South Lake Tahoe, CA 96150

Tahoe City Public Library
740 North Lake Boulevard
Tahoe City, CA 96145-6579

Department of General Services
RESD-Environmental Services, 3rd Floor
707 Third Street, Suite 3-400
West Sacramento, CA 95798-9052

1.2 PURPOSE AND LEGAL AUTHORITY

This document contains an IS prepared pursuant to CEQA (Public Resources Code Section 21000 et seq.), and in accordance with the State CEQA Guidelines (California Code of Regulations Section 15000 et seq.), as amended. The purposes of this IS are to determine whether implementation of the Lower Blackwood Creek Restoration Project would result in potentially significant effects on the environment, and to incorporate mitigation measures into the project as necessary to eliminate the project's potentially significant effects or reduce them to less-than-significant levels. The IS is intended to support adoption of an MND by the Conservancy for the proposed project. The proposed MND is also contained in this document.

As provided in CEQA Section 21064.5, an MND may be prepared for a project subject to CEQA when an IS has identified potentially significant effects on the environment, but:

(1) revisions in the project plans or proposals made by, or agreed to by, the applicant [or lead agency] before the proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur; and

(2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment.

Consistent with the State CEQA Guidelines, this IS indicates that, after incorporation of mitigation measures, no significant or potentially significant effects would result from the proposed project; therefore, the project does not require preparation of an environmental impact report (EIR), and adoption of a MND would be appropriate for CEQA purposes.

This document also contains an IEC prepared pursuant to Chapter 5 of the TRPA Code of Ordinances and Article VI of the TRPA Rules of Procedure. Based on the IEC included in this document and discussions with TRPA staff members, it is anticipated that TRPA will be able to make the finding pursuant to Section 5.2.B(2) that mitigation measures incorporated into the project would preclude the potential for significant effects on the environment, and that a mitigated finding of no significant effect (FONSE) will be prepared in accordance with TRPA's Rules of Procedure.

1.3 SUMMARY OF FINDINGS

Chapters 3 and 4 of this document contain the analysis and discussion of potential environmental impacts of the proposed project. The Conservancy has agreed to adopt each of the mitigation measures described in Chapters 3 and 4. A mitigation monitoring and reporting plan will be prepared for those mitigation measures needed to reduce environmental impacts to less-than-significant levels. The following summarizes the findings of the CEQA IS and TRPA IEC checklist, respectively.

CEQA

Based on the issues evaluated in Chapter 3, it was determined that the proposed project would have no impact related to the following issue areas:

- Agricultural Resources
- Land Use and Planning
- Mineral Resources
- Population and Housing
- Public Services

Impacts of the proposed project were determined to be less than significant for the following issue area:

- Aesthetics

Impacts of the proposed project related to the following issue areas would be less than significant with the incorporation of the identified mitigation measures:

- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Recreation (construction related to the proposed trail rehabilitation work could result in short-term adverse effects on the environment)
- Transportation/Traffic
- Utilities and Service Systems
  Mandatory Findings of Significance

TRPA

Based on the issues evaluated in Chapter 4, it was determined that the proposed project would have no impact related to the following issue areas:

- Light and Glare
- Land Use
- Natural Resources
- Population
- Housing
- Public Services
- Energy
- Utilities
- Recreation

Impacts of the proposed project were determined to be less than significant for the following issue areas:

- Vegetation
- Scenic Resources/Community Design

Impacts of the proposed project related to the following issue areas would be less than significant with the incorporation of the identified mitigation measures:

- Land
- Air Quality
- Water Quality
- Wildlife
- Noise
- Risk of Upset
- Transportation/Circulation
- Human Health
- Archeological/Historical Resources
- Findings of Significance

1.4 PROJECT APPROVALS AND PERMITS

During initial planning for the project, a technical advisory committee (TAC) was formed to provide regular review from technical experts at various design stages for the proposed improvements to lower Blackwood Creek. The TAC for the proposed project includes representatives from the California Department of Transportation (Caltrans), the Conservancy, DGS, the Lahontan Regional Water Quality Control Board (Lahontan RWQCB), Placer County, TRPA, USACE, the U.S. Forest Service (USFS), and the U.S. Fish and Wildlife Service (USFWS). This environmental document includes 50% design plans for the proposed creek improvements. TAC representatives will continue to guide and oversee design through project construction.

This environmental document is intended to meet the environmental review requirements of the Conservancy and TRPA, the lead agencies with discretionary authority over primary project approvals. As noted above, USACE has prepared its own separate environmental review document pursuant to NEPA to support its decision-making process. State or local responsible and state trustee agencies will have the opportunity to review this document during the public and agency review period and will use this information in consideration and issuance of any other required permits or approvals.

The following identifies permits that are anticipated to be required for the proposed project and the related permitting entity:

- USACE—Department of the Army authorization pursuant to Section 404 of the Clean Water Act, Regional General Permit No. 16 (available for wetland restoration in the Tahoe Basin)
- USFWS—Informal consultation for Endangered Species Act consistency for Lahontan cutthroat trout
- TRPA—TRPA permit covering all aspects of the proposed project
- California Department of Fish and Game (DFG) —Streambed alteration agreement pursuant to Section 1602 of the California Fish and Game Code (for the alteration of streambanks)
- Lahontan RWQCB—Water quality certification or waiver thereof, pursuant to Section 401 of the Clean Water Act; and National Pollutant Discharge Elimination System general construction storm water permit (for construction activities)
- Caltrans—Encroachment permit or waiver thereof
- Placer County—Encroachment permit

1.5 DOCUMENT ORGANIZATION

This joint IS/MND and IEC is organized as follows:

Proposed Mitigated Negative Declaration. The MND is included at the beginning of this document and presents a summary project description, the determination that no significant effects on the environment would occur after incorporation of mitigation measures, and a listing of the adopted mitigation measures.

Chapter 1: Introduction. This chapter provides an introduction and describes the purpose and organization of this document, and the public review process.

Chapter 2: Project Description. This chapter identifies project objectives and provides a detailed description of the proposed project.

Chapter 3: CEQA Environmental Checklist and Explanations. This chapter presents an analysis of environmental issues identified in the CEQA Environmental Checklist, and determines whether each would result in no impact, a less-than-significant impact, a less-than-significant impact with mitigation incorporated, or a potentially significant impact. If any impacts were determined to be potentially significant, an EIR would be required. For this project, however, mitigation measures have been incorporated where needed, to reduce all potentially significant impacts to less-than-significant levels.

Chapter 4: TRPA Initial Environmental Checklist and Explanations. This chapter presents an analysis of environmental issues identified in the TRPA Initial Environmental Checklist, and determines whether each would result in no impact, a less-than-significant impact, a less-than-significant impact with mitigation incorporated, or a potentially significant impact (indicated by a "data insufficient" response). If any impacts were determined to be potentially significant, an environmental impact statement would be required. For this project, however, mitigation measures have been incorporated where needed, to reduce all potentially significant impacts to less-than-significant levels.

Chapter 5: List of Preparers. This chapter identifies report preparers.

Chapter 6: References. This chapter lists the references used in preparation of this IS/MND and IEC.

2 PROJECT DESCRIPTION

2.1 INTRODUCTION

The proposed project involves the partial restoration of lower Blackwood Creek by implementing vegetation enhancement, bank stabilization, and trail rehabilitation elements, as described in Section 2.5 below.

This joint document evaluates the environmental effects of the proposed project and serves as an IS/MND in accordance with CEQA and an IEC in accordance with the TRPA Code of Ordinances and Rules of Procedure. The Conservancy is the lead agency for the project under CEQA and TRPA is the lead agency under the Tahoe Regional Planning Compact. USACE is the federal lead agency under NEPA and has prepared a separate NEPA compliance document that was publicly circulated in the fall of 2009.

2.2 BACKGROUND AND NEED

2.2.1 PROJECT LOCATION

Blackwood Creek originates in the Lake Tahoe Basin Management Unit in Placer County and drains about 11.2 square miles of steep mountainous terrain eastward into Lake Tahoe. The lower Blackwood Creek project area includes the lowest reach of the Blackwood Creek stream channel (see Exhibit 2-2) from its point of discharge into Lake Tahoe to 4,000 feet upstream. Relative to SR 89, the project area begins 3,000 feet upstream (west) of SR 89 and extends approximately 1,000 feet downstream (east) of SR 89 to Lake Tahoe, north of the Tahoe Pines residential area.

Most of the lands adjacent to lower Blackwood Creek consist of upland habitat with mainly white fir and little or no riparian habitat (EDAW 2007). Other vegetation in the creek corridor consists of low riparian scrub, Jeffrey pine, cottonwoods, and aspens, with willows, alders, and dogwoods lining the channel banks. Some riparian habitat exists along the study reach, although it is fragmented and poor quality, largely because of unstable banks. Aquatic habitat has been substantially affected by altered hydrogeomorphic processes, in part because of the existing culvert at SR 89. Shaded riverine aquatic (SRA) habitat has also been reduced due to bank instability and degradation of the channel bed.

The Blackwood Creek culvert at SR 89 was constructed in 1928 in conjunction with a realignment and roadway improvement project implemented by the State of California. The culvert is a rubble masonry arch structure that is owned and maintained by Caltrans, which is also responsible for structural maintenance and debris removal during flood events.

2.2.2 PROJECT BACKGROUND

The proposed project began with an evaluation of the condition of lower Blackwood Creek and the development of a design to stabilize eroding banks and improve aquatic and riparian habitat conditions in the project area. Restoration, stabilization, and fish passage projects have occurred throughout the Blackwood Creek watershed, and the physical and biological characteristics of various stream reaches have been investigated in past studies. Many of these studies have focused on the effects of historical gravel mining activity, timber harvest, roads, grazing, and other human uses in the watershed and the resulting effects of increased transport of sediment and loss of aquatic habitat. Recent studies by USACE have focused on conditions in the lower reach of Blackwood Creek and the potential for restoration activities to improve channel stability and enhance aquatic and riparian habitats.

Restoration alternatives were developed by Northwest Hydraulic Consultants (nhc) for the lower Blackwood Creek study reach based on field observations, published technical reports, and additional analysis of stream conditions. A technical memorandum authored by nhc noted the benefits and costs associated with three potential design approaches: (1) creek enhancement without changes to the SR 89 rubble masonry arch culvert, (2) creek

enhancements coupled with hydraulic and structural improvements to the SR 89 rubble masonry arch culvert, and (3) creek enhancements coupled with replacement of the SR 89 rubble masonry arch culvert with a full-span structure (Conservancy and DGS 2007).

A comparison of these options was presented and discussed during the project's first TAC meeting held on December 10, 2007. TAC members are technical experts, including representatives from nhc (the project's design engineer) and the following agencies: Caltrans, the Conservancy, DGS, the Lahontan RWQCB, Placer County, TRPA, USACE, the USFS, and the USFWS. During that meeting, it was recognized that modification of the culvert structure would be too costly without direct participation and financial assistance from Caltrans. Caltrans does not plan to modify or replace the structure within the next 10 years. The potential exists for future modifications to the culvert, including the addition of side culverts or replacement of the culvert with a single-span bridge. However, no modifications are planned and the culvert would remain in its current state for this project.

The TAC concluded that alternatives development should proceed by assuming that the existing SR 89 culvert would not be modified, and that options should focus on channel stability and habitat enhancement features consistent with the physical and hydraulic constraints posed by the existing culvert crossing.

2.2.3 NEED FOR THE PROJECT

The Blackwood Creek watershed has been subject to various forms of disturbance over time, including intensive logging, grazing, and gravel mining. Timber harvesting was the prevalent land use in the 1950s and 1960s, and instream gravel mining occurred between 1960 and 1968. The gravel pit was eventually captured by the stream, causing substantial channel instability. The volcanic geology of the watershed and steeply glaciated topography results in relatively high natural erosion rates and sediment yield, and high sensitivity to disturbance. Upland and stream corridor disturbance has resulted in elevated sediment loads in runoff and high rates of bank erosion. In the lower portion of Blackwood Creek, historical aerial photos indicate multiple channel scars and distributary flows, including evidence that the main channel previously flowed substantially south of its present course to its mouth in Lake Tahoe. The proposed project would include habitat enhancing bank stability structures, engineered debris jams, riparian and aquatic habitat enhancements, trail improvements, channel realignment, and sediment dispersal techniques (e.g., installation of floodplain benches and hydraulic roughness features) that would reduce the effects of historical disturbances that have contributed to the degraded condition of the lower reaches of Blackwood Creek.

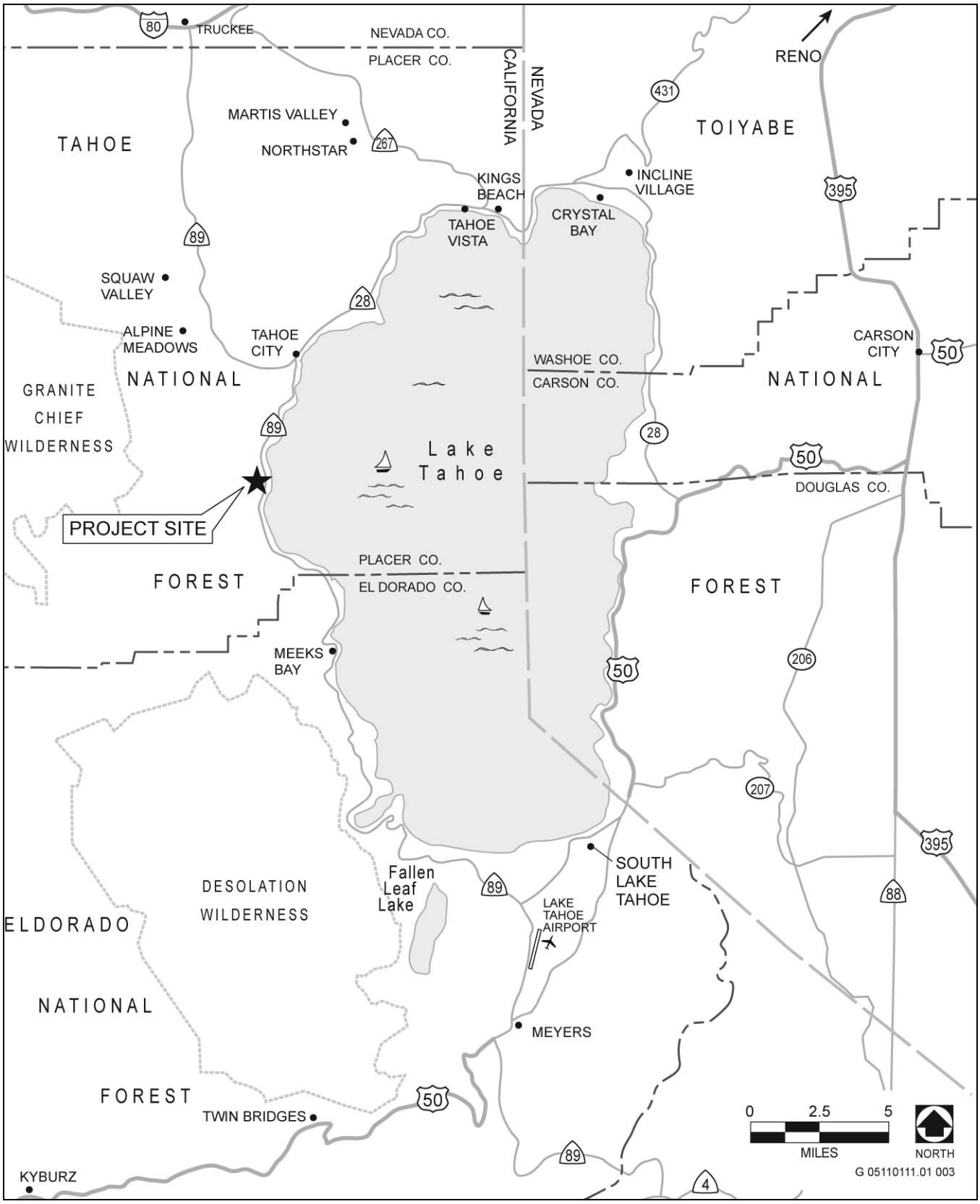
2.3 REGIONAL AND LOCAL SETTING

The project site is located north of the Tahoe Pines residential area and south of Eagle Rock on the west shore of Lake Tahoe in Placer County, California (Exhibit 2-1). Regional access is provided by SR 89 (Exhibit 2-2). The project study area includes the lower reaches of Blackwood Creek as well as land immediately adjacent to the lower reaches of the creek; west of SR 89 the project study area also extends north of the creek to an area just south of Blackwood Canyon Road/Barker Pass Road. For purposes of this study, lower Blackwood Creek is divided into the six reaches shown in Exhibit 2-2.

2.3.1 EXISTING CHANNEL CONDITIONS

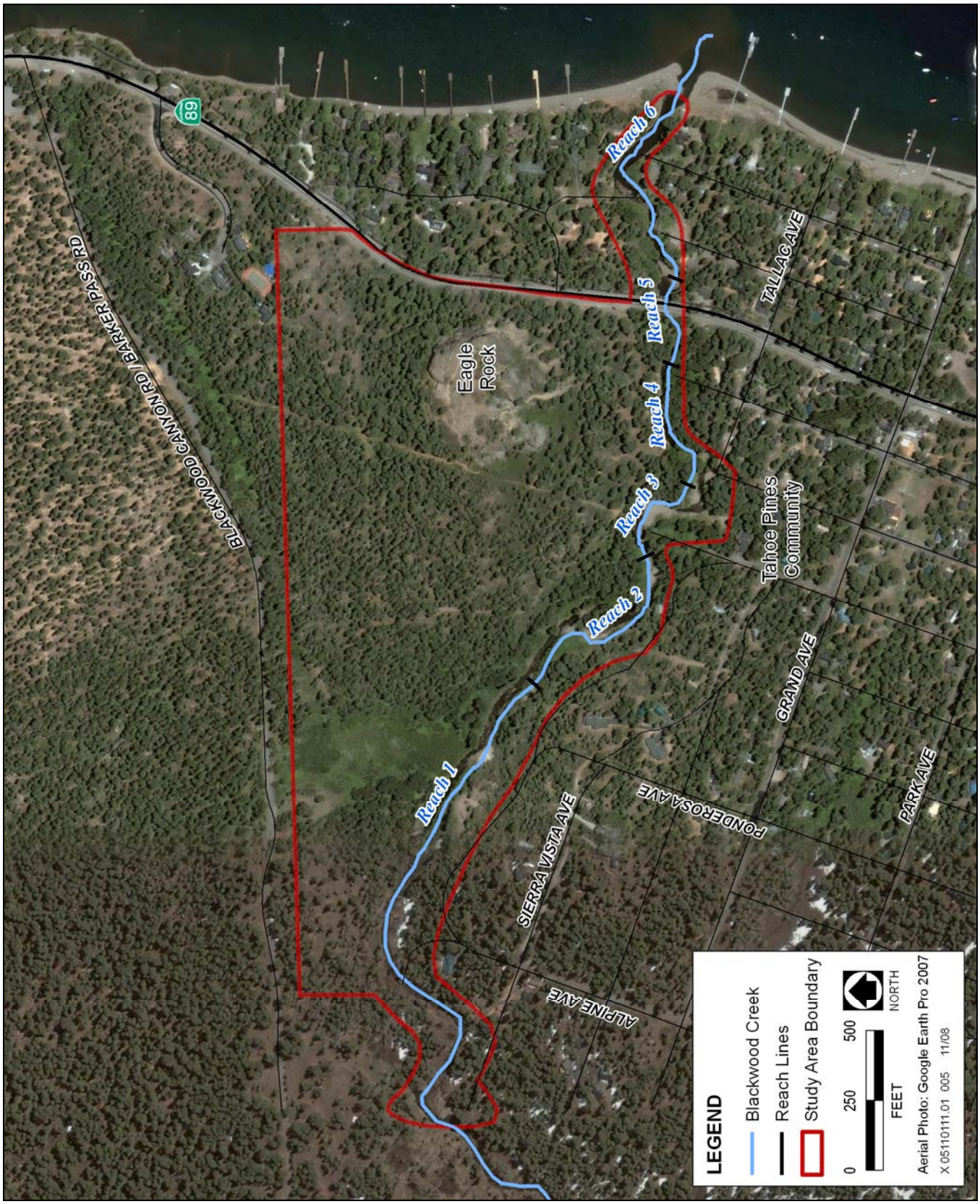
A site assessment conducted on July 24, 2007, mapped at a reconnaissance level the existing riparian vegetation and channel conditions observed along the lowest reaches of Blackwood Creek. Categories were developed to characterize riparian vegetation, channel bank stability, and stream channel characteristics of each study reach. These categories were defined as:

- *Channel Banks:* (1) sloping, (2) steep, (3) undercut, or (4) rocked/protected
- *Riparian Vegetation:* (1) bare, (2) riparian scrub, or (3) overhanging
- *Stream Segment Character:* (1) riffle, (2) pool, or (3) glide/run



Source: Adapted by EDAW in 2008

Regional Location **Exhibit 2-1**



Source: Adapted by EDAW in 2008

Project Area and Access **Exhibit 2-2**

Both the left and right banks of Reaches 3–6 of lower Blackwood Creek were mapped for channel bank stability and vegetation. A single stream segment characterization was defined for the channel. The results of the channel mapping are shown by reach in Table 2-1. Table 2-1 shows that about 16% of the channel banks between Reaches 3 and 6 are steep and eroding, with about 15% of the observed banks artificially protected. In terms of bank vegetation, about 45% of observed banks are bare and exposed with only 7% of the reach having some overhanging vegetation. The study reach is also generally dominated by glides and runs, which make up 43% of the stream channel during low flow periods.

Away from the channel on the high terraces, white fir and Jeffrey pine are dominant in the overstory canopy. The understory consists of various shrub species, including whitethorn and wax currant.

Table 2-1
Existing Channel Conditions in Lower Blackwood Creek

	Observed Channel Characteristics (feet)				Total
	Reach 3	Reach 4	Reach 5	Reach 6	
Channel Banks					
Sloping	370	516	735	1,051	2,672
Steep	296	161	133	106	696
Undercut	105	153	51	0	309
Rocked/Protected	0	0	127	538	665
Bank Vegetation					
Bare	362	307	120	1,251	2,040
Riparian Scrub	410	524	596	683	2,213
Overhanging	0	0	75	239	314
Stream Character					
Riffle	230	94	289	109	722
Pool	102	83	118	45	348
Glide/Run	139	250	23	771	1,183

Source: Conservancy and DGS 2008

2.3.2 SURROUNDING LAND AND USES

Upstream of SR 89, lands north of Blackwood Creek and within the project area boundary shown in Exhibit 2-2 are owned by the Conservancy, and lands to the south are owned by a combination of private residential landowners, Placer County, the Conservancy, and the USFS. A U.S. Geological Survey (USGS) gauging station (USGS gauge 10336660) is located 400 feet upstream of the highway on the right bank of the creek. The lands along the reach downstream of SR 89 are private residences, with a single Conservancy parcel located adjacent to the highway on the left bank of the creek, and a single Placer County parcel located on the right bank of Blackwood Creek at its outflow to Lake Tahoe.

2.3.3 TRPA PLAN AREA STATEMENTS

The project area includes properties located within Plan Area Statements (PAS) 161 and 162.

PAS 161, Tahoe Pines, is designated for residential uses and is located approximately 1 mile north of Homewood on Lake Tahoe's west shore. It includes the outlet of Blackwood Creek, the shorezone area east of SR 89 extending from north of Cherry Street to St. Michaels Court, and the residential area west of SR 89 and north of Cherry Street to the southern edge of Blackwood Creek. The existing use is residential, primarily at a density of one single-family dwelling per lot of record. An existing commercial use occupies the former Tahoe Pines post office building, and a single condominium development is also located within this PAS. Blackwood Creek makes up the northern border of PAS 161 west of SR 89 (Reaches 1–5) and is within PAS 161 east of SR 89 (Reaches 5 and 6).

PAS 162, Blackwood, is designated as conservation land. It follows the Tahoe Basin boundary from Twin Peaks to Ellis Peak and then eastward to Tahoe Pines. The northern border largely follows the border between the McKinney Bay Hydrologic Area and the Tahoe City Hydrologic Area. It also includes a small section of shorezone located between St. Michaels Court and the residential area served by Elizabeth Drive. The southern border is adjacent to Homewood/Tahoe Ski Bowl PAS 157. PAS 162 has a mixture of low- to moderate-intensity uses related to both recreation and timber management. Recreational uses include hiking, fishing, primitive camping, and use of off-road vehicles. Blackwood Creek makes up the southeastern border of PAS 162 west of SR 89 (Reaches 1–5).

2.3.4 TRPA LAND CAPABILITY AND COVERAGE

According to TRPA GIS soils layers, the project study area includes property within TRPA land capability classes 1a, 1b (SEZ), 1c, 3, and 5. The boundary of the SEZ area paralleling lower Blackwood Creek was verified by TRPA in the fall of 2009.

Coverage within the study area is limited to the footprint of roads, building structures, and the trail system. Coverage within the study area has not been verified by TRPA.

2.4 PROJECT OBJECTIVES

The primary project objective is to implement restoration enhancements for stabilizing the creek system and improving aquatic and riparian habitat conditions in the lower reaches of Blackwood Creek. This objective reflects the overall mission of the Conservancy to preserve, protect, restore, enhance, and sustain the unique and significant natural resources and recreational opportunities of the Lake Tahoe Basin. Objectives associated with stream channel restoration (i.e., stability), riparian habitat enhancement, and in channel aquatic habitat enhancement are presented separately below.

Specific stream channel restoration objectives for the proposed project are to:

- improve stream habitat and riparian vegetation, considering geomorphic processes in the project design to maximize their sustainability;
- reduce sediment sources within the project reaches and watershed through creekbank stabilization and sediment source control, respectively;
- avoid an increase in risk of damage as a result of flooding to private property and any identified biological and cultural resources; and
- provide recreational access and wildlife restoration opportunities on appropriate Conservancy parcels.

In addition to the stream channel restoration objectives, habitat enhancement objectives are included in the proposed project. Objectives for improvement of riparian habitat are to:

- stabilize excessively eroding and oversteepened creekbanks, including regrading or using biotechnical stabilization to provide acceptable sites for establishing riparian plants;
- improve connectivity of floodplain surfaces to provide sites with higher soil moisture and relatively flat surfaces for plant establishment; and
- increase the diversity of hydraulic conditions along the channel banks to provide areas of slower velocities, depositional pockets, or backwater areas that provide for more diverse plant microsites and improved resting/foraging habitat.

Objectives for improvement of aquatic habitat are to:

- increase the amount of SRA habitat, including:
    - riparian vegetation that overhangs or protrudes in the channel;
    - flow areas that include variable amounts of wood, branches, and other structures that provide diversity in velocities and sources; and
    - flow areas that provide shade under structures or vegetation; and
- increase the hydraulic and substrate complexity of the channel by installing riffle-pool sequences and boulders in the channel.

The objectives of the vegetation enhancement and trail rehabilitation elements include contributing to improved creek conditions, enhancement of riparian habitat adjacent to the creek through aspen and cottonwood regeneration, and erosion control, respectively.

2.5 PROJECT CHARACTERISTICS

The objectives above, combined with constraints imposed by the existing channel and SR 89 culvert crossing, led to proposed restoration elements focused on the following general types of creek improvements:

- installation of woody toe revetment, where necessary, as bank stabilization structures, provide riparian planting sites, increase local hydraulic roughness and complexity, and provide SRA;
- bank regrading to provide stable upper banks for riparian and upland planting;
- constructed riffles and boulder clusters to maintain the channel profile and increase in-channel complexity;
- excavated floodplain benches and surfaces to provide riparian planting sites with improved soil moisture and stability; and
- channel realignment, where necessary, to accommodate installation of woody toe stabilization structures and reduce erosive forces.

These features were combined at different sizes and scales in the various reaches of lower Blackwood Creek to formulate the proposed project. The project is composed of three main restoration and enhancement elements: creek restoration, vegetation enhancement, and trail rehabilitation. The creek restoration element includes substantial measures to stabilize steep and eroding channel banks to reduce the loading of suspended sediment and allow riparian vegetation to become established along channel banks. The project calls for using rock and log revetment structures to protect the channel's edge along bends. By virtue of their design and the use of natural materials in construction, all bank protection structures would have the additional benefit of providing new

aquatic habitat and would increase the complexity of the creek's water flows along the margins of the channel. In addition to bank and toe protection, the proposed project would involve grading 14,000 square feet of floodplain bench surfaces that would be constructed to the elevation of the 1.5- to 5-year return interval flood. These surfaces would provide new riparian floodplain habitat as well as refugia for aquatic species during high flows. Constructed floodplain bench surfaces would also contribute to the water quality benefits of the project by encouraging sediment deposition during small flood events. In the existing lower Blackwood Creek system, almost no riparian surfaces exist at levels that are inundated by frequent (e.g., 1.5- to 2-year) floods.

The proposed project also includes upland-vegetation enhancement and trail rehabilitation elements that would contribute to improved creek conditions. The proposed vegetation enhancement includes thinning conifers in upland areas to improve aspen and cottonwood stands adjacent to the creek. Proposed trail rehabilitation, removal, and realignment would reduce sediment loading to the creek and promote recreation in a sustainable manner.

These individual elements of the project are described below.

2.5.1 CREEK RESTORATION ELEMENTS

The creek restoration elements were developed with the goal of minimizing required construction access through private property while taking advantage of Conservancy property ownership along the left bank of the creek and upstream of SR 89. The proposed project would involve placing logs and rocks for toe protection along many of the eroding bends in the upper section of the creek and extending the creek channel north through Conservancy parcels to increase channel length, reduce constricted flows, and improve bank stability. Floodplain benches would be placed along appropriate banks and would be graded to allow flooding to occur during the 1.5 to 5-year return interval floods as described below (Exhibits 2-3 and 2-4). All rock used for boulder clusters would be in the range of colors that would blend rather than contrast with the natural surroundings of the area. Where feasible, native vegetation appropriate for the riparian habitat would be used to screen and visually break up larger areas of rock application as viewed from SR 89. Exhibit 2-5 shows typical cross sections at four locations along the affected reaches; cross section lettering corresponds to those shown in Exhibits 2-3 and 2-4. Exhibit 2-6 shows typical details for the proposed creek improvements referenced in Exhibits 2-3 and 2-4.

Private-property easements would likely be required for improvements to Reach 5 east of SR 89 and possibly along the right bank of Reach 3 west of SR 89. The easements would be used for short-term construction access and long-term maintenance for the project improvements. Detailed information on the extent and number of private property easements that would be required is under development and will be refined as the detailed design process progresses.

The proposed creek restoration measures are described by reach below.

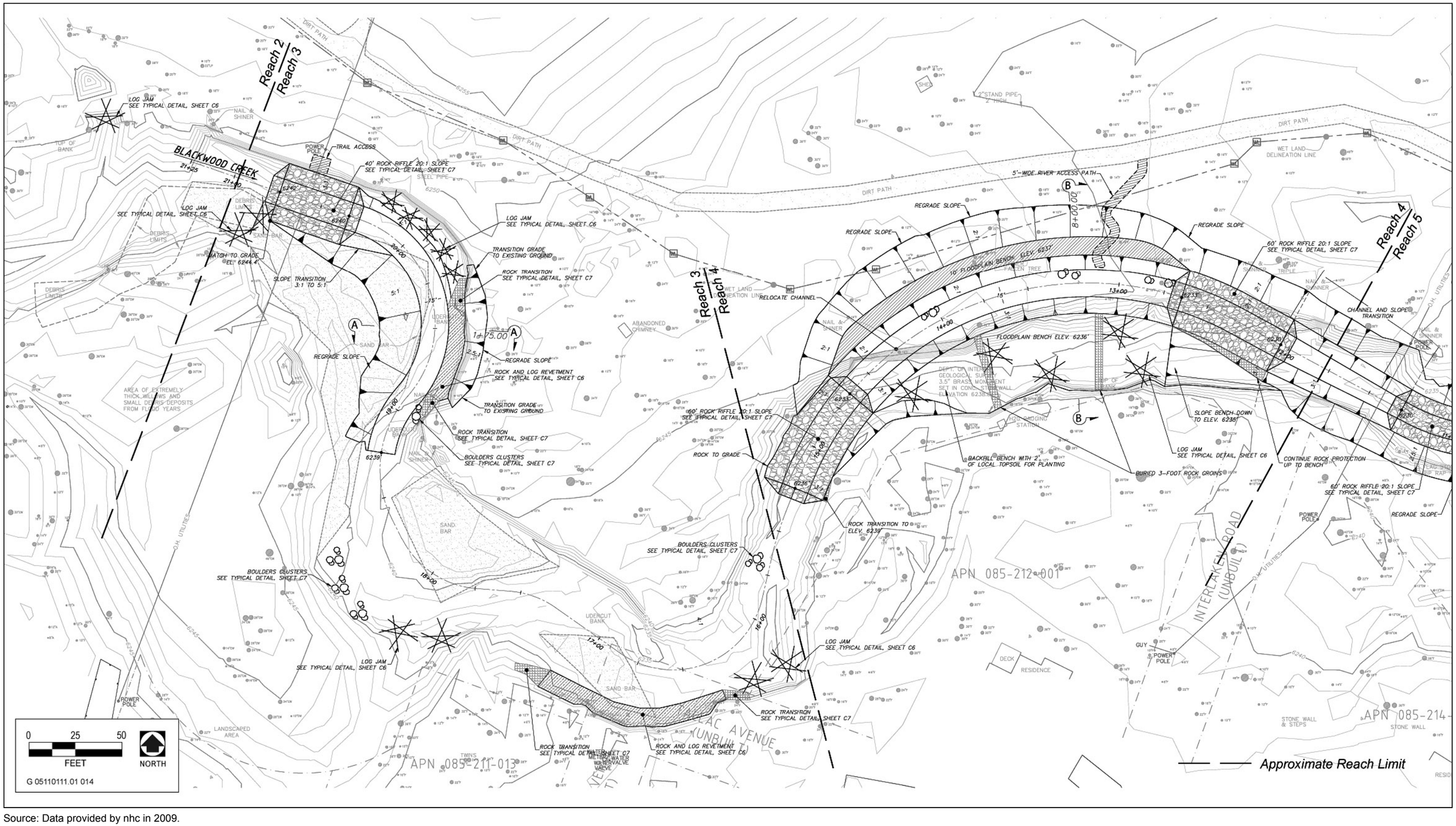
CREEK RESTORATION MEASURES BY REACH

Reach 1

Reach 1 is a straight east/west reach, confined along the right bank's valley wall. Reach 1 has fewer problems with channel stability and habitat quality than downstream reaches. No creek restoration measures are proposed along this reach.

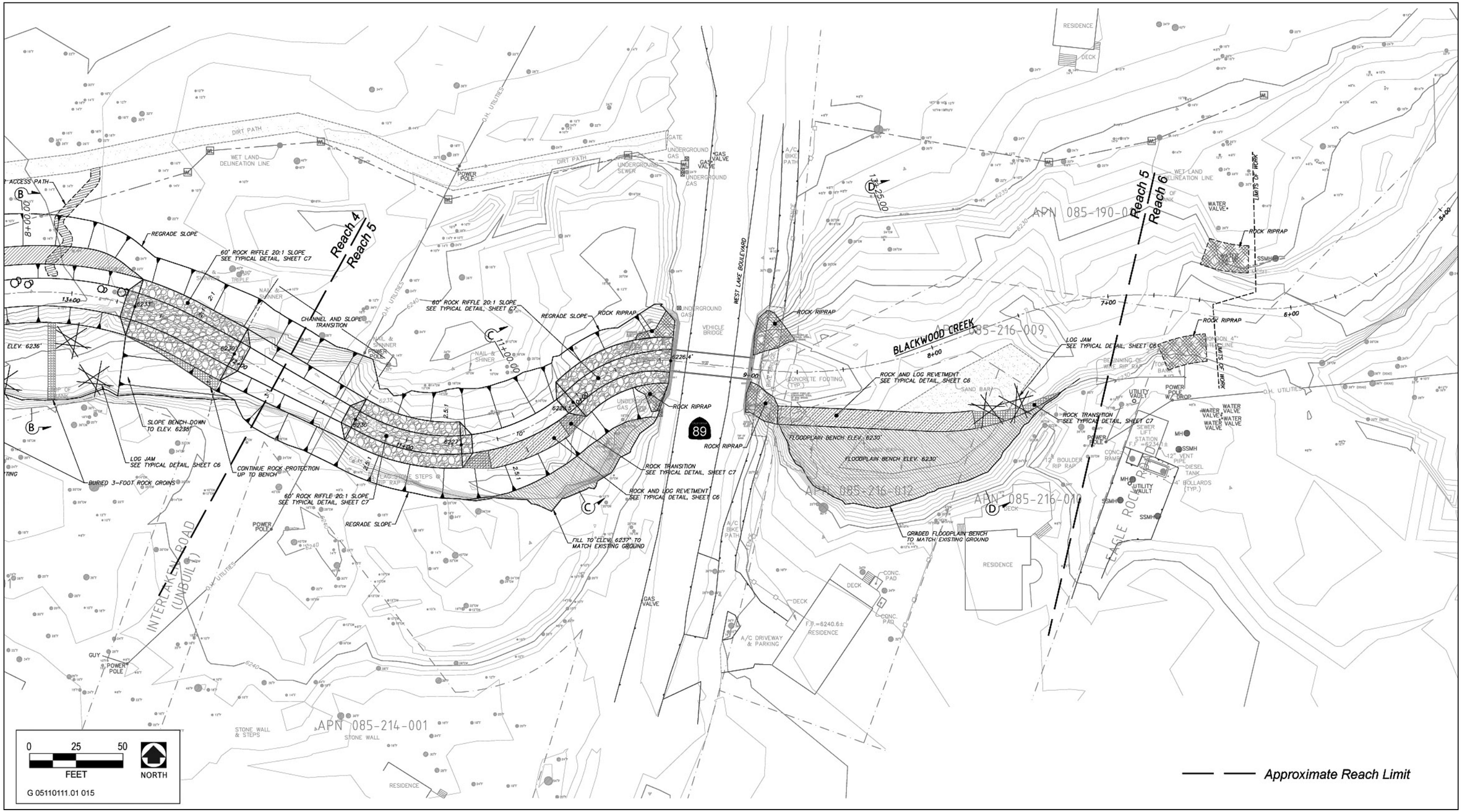
Reach 2

Reach 2 includes a long bend in the channel. Most of the right bank is confined along the valley wall and a broad and well-vegetated floodplain exists along the left bank. At the upstream end of this reach, high flows enter the floodplain in a shallow flood channel. The left bank is generally lower and has more stable banks than in the downstream reaches. The right bank is high and steep in some locations, but the rate of erosion and bank retreat appears to be relatively slow because of the existence of resistant bank materials. Like Reach 1, Reach 2 has fewer problems with channel stability and habitat quality than downstream reaches. No creek restoration measures are proposed along this reach.



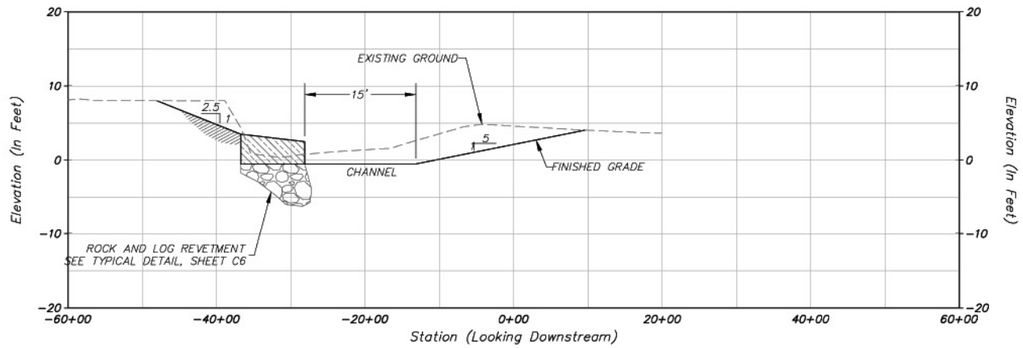
Source: Data provided by nhc in 2009.

Improvements to Reaches 3, 4, and 5 **Exhibit 2-3**

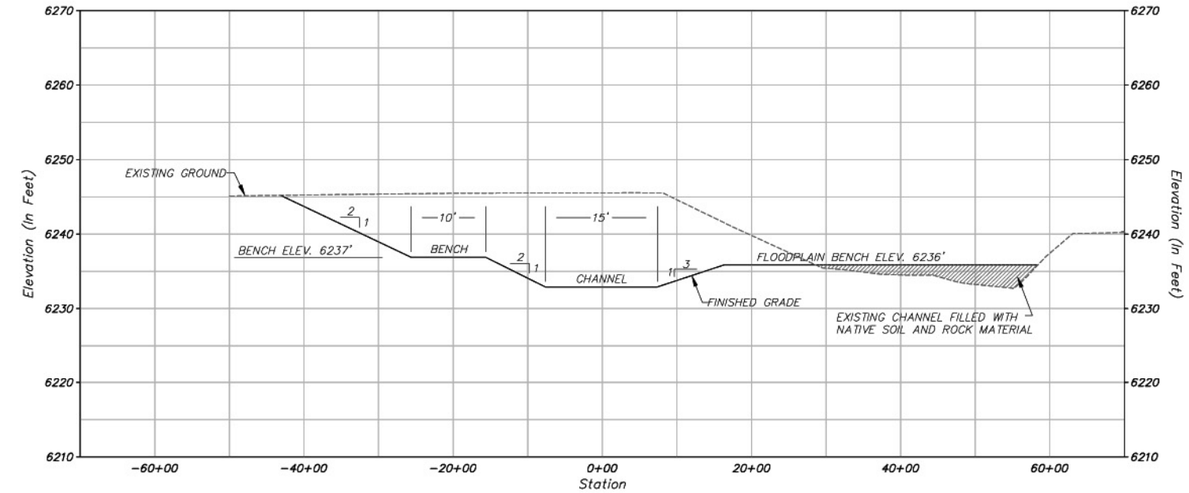


Source: Data provided by nhc in 2009.

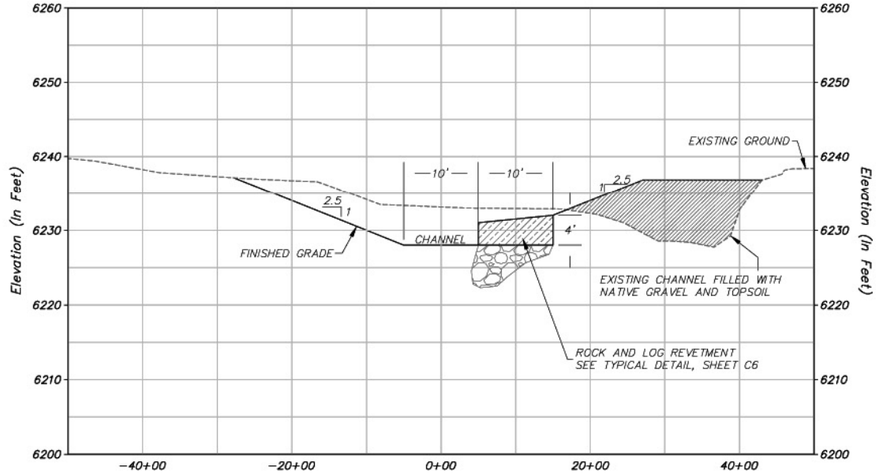
Improvements to Reaches 4, 5, and 6 **Exhibit 2-4**



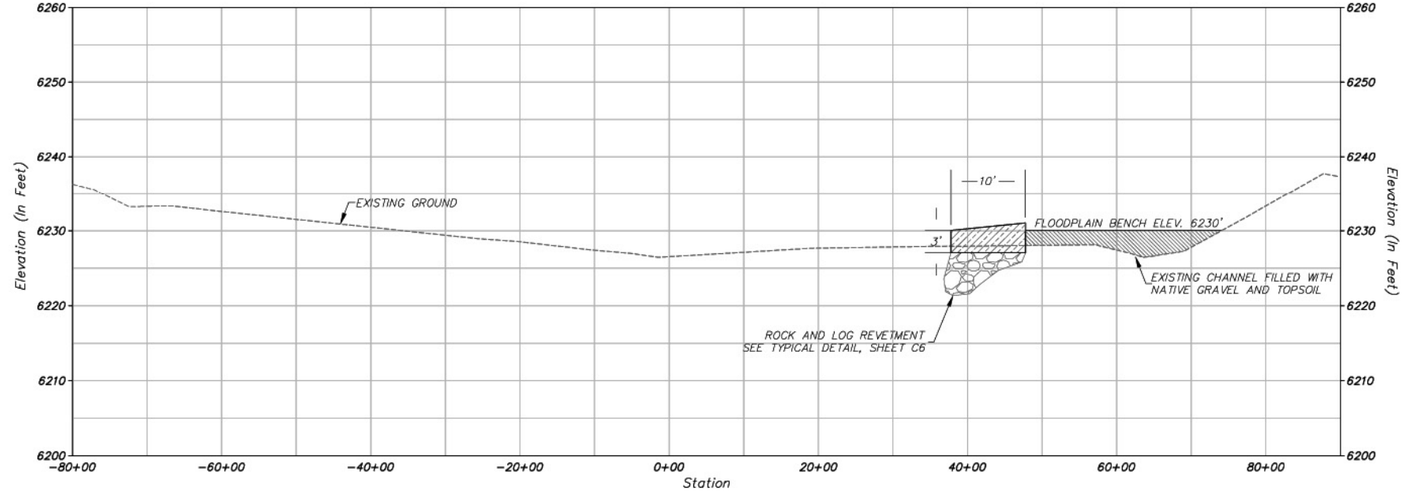
A SECTION



B SECTION



C SECTION

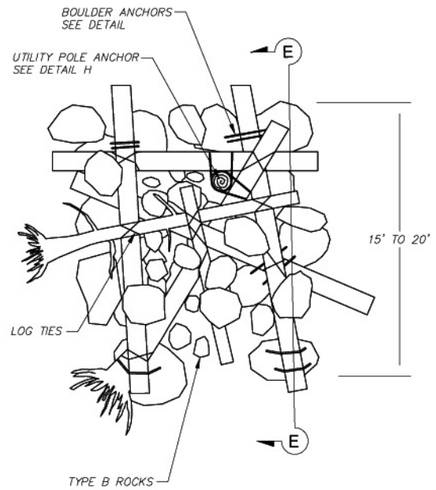


D SECTION

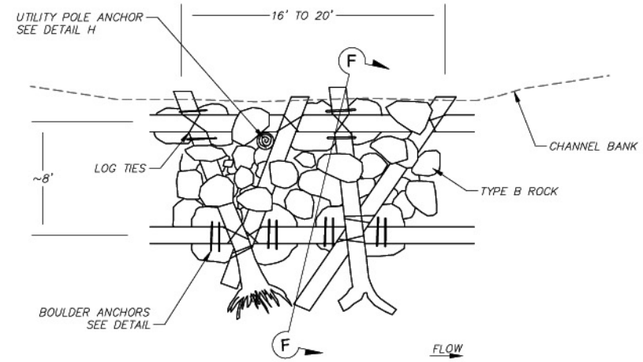
G 05110111.01 016

Source: Data provided by nhc in 2009.

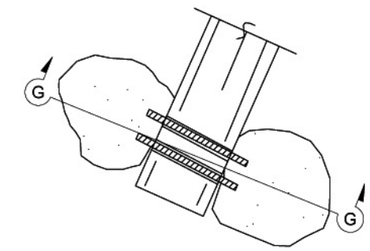
Cross Sections of Improvements **Exhibit 2-5**



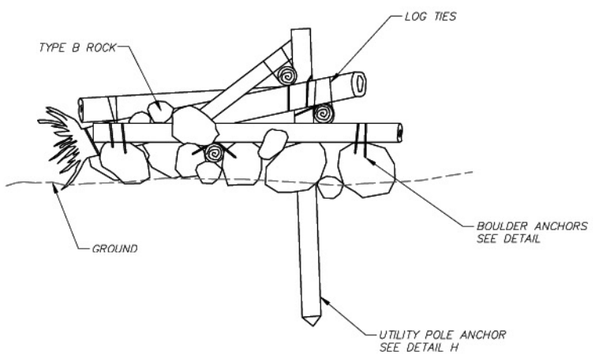
TYPICAL PLAN - LOG JAM
SCALE: 1"=5'



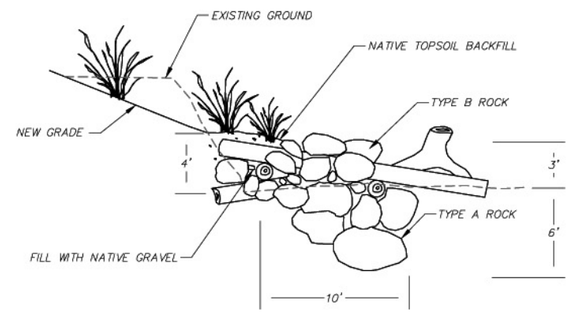
TYPICAL PLAN - ROCK AND LOG REVETMENT
SCALE: 1"=5'



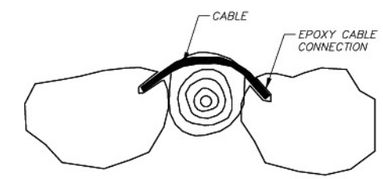
TYPICAL DETAIL - BOULDER ANCHOR
SCALE: 1"=2'



E SECTION
SCALE: 1"=5'



F SECTION
SCALE: 1"=5'



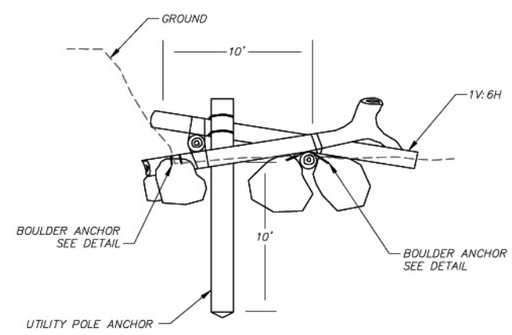
G SECTION
SCALE: 1"=2'

NOTES FOR BOULDER ANCHOR:

1. EACH LOG SHALL BE SECURED TO TWO BOULDERS BY CABLE.
2. CABLE SHALL BE SECURED TO BOULDERS THROUGH PRE-DRILLED HOLES USING EPOXY.

ROCK TYPE CHART

TYPE	PASSING
A	D100=48"
B	D100=36"
C	D100=24"



H TYPICAL DETAIL - ROCK AND LOG REVETMENT ANCHORING
SCALE: 1"=5'

NOTES FOR LOG JAM:

1. LOGS SHALL BE TIED TOGETHER USING STEEL CABLE.
2. AT A MINIMUM, EACH LOG SHALL BE ANCHORED AT 2 LOCATIONS.
3. EACH JOG JAM STRUCTURE SHALL BE CONSTRUCTED USING 6 LOGS, 1 UTILITY POLE ANCHOR, 8 TYPE A ROCK ANCHORS, AND 20 TYPE B ROCKS.
4. SHAPES OF LOG JAMS CAN VARY.

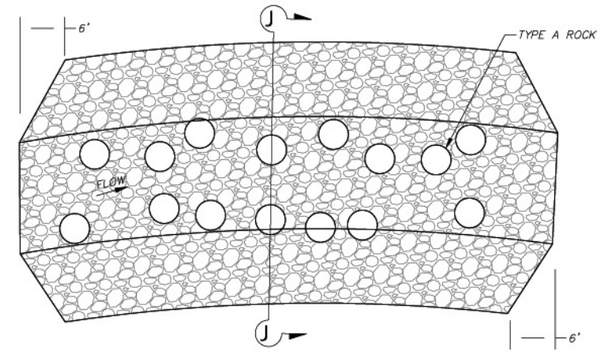
NOTES FOR ROCK AND LOG REVETMENT:

1. ROCK AND LOG REVETMENT STRUCTURES SHALL CONTAIN UTILITY POLE ANCHORS EVERY 16'-20'.
2. LOG CONFIGURATION OF STRUCTURE SHALL BE CONSISTENT WITH DETAILS, THOUGH SHAPES MAY VARY.

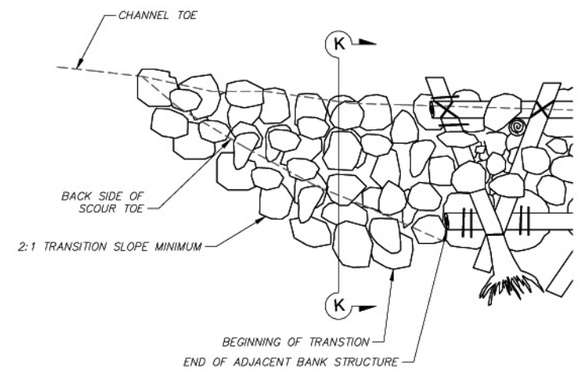
Note: This exhibit reflects Sheet C6 referenced in Exhibits 2-3 and 2-4.
G 05110111.01 018

Source: Data provided by nhc in 2009.

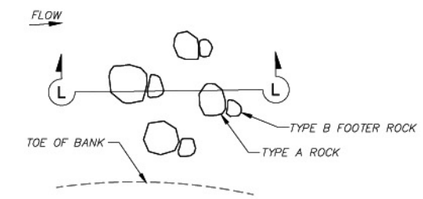
Typical Details of Improvements **Exhibit 2-6A**



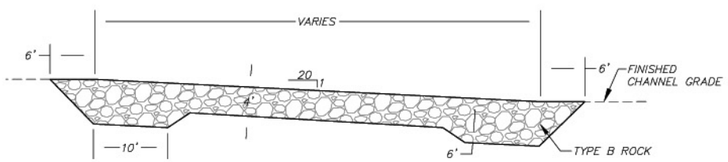
TYPICAL PLAN - ROCK RIFFLE
SCALE: 1"=10'



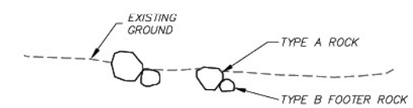
TYPICAL PLAN - ROCK TRANSITION
SCALE: 1"=5'



TYPICAL PLAN - BOULDER CLUSTER
SCALE: 1"=10'



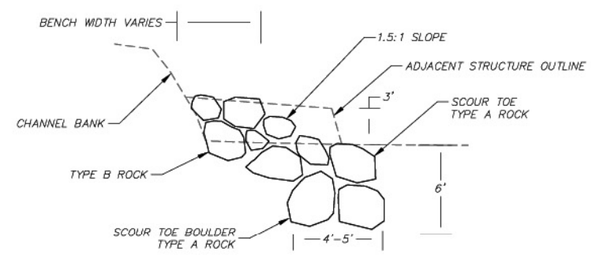
TYPICAL PROFILE - ROCK RIFFLE
SCALE: 1"=10'



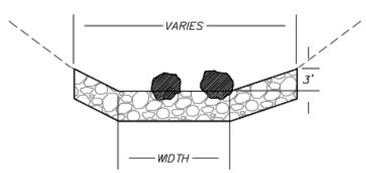
L SECTION
SCALE: 1"=10'

NOTES FOR BOULDER CLUSTER:

1. BOULDER ROCKS SHALL BE 30" TO 48" DIAM.
2. FOOTER BOULDERS SHALL BE INSTALLED TO SUPPORT THE CLUSTER, ALLOWING FOR A MINIMUM OF 6 FEET OF CHANNEL SCOUR AT THE TOE



K SECTION
SCALE: 1"=5'



J SECTION
SCALE: 1"=10'

NOTES FOR ROCK TRANSITION:

1. TYPE A ROCK SHALL BE USED IN SCOUR TOE.
2. TRANSITION SHALL MAINTAIN FORM OF ADJACENT STRUCTURE AND REGRESS INTO BANK AT A 2:1 SLOPE.

NOTES FOR ROCK RIFFLE:

1. TYPE A ROCKS ON SURFACE OF RIFFLE SHALL BE BURIED 1' INTO BED.
2. RIFFLE SIDE SLOPES SHALL NOT EXCEED 2:1
3. RIFFLE SIDES SHALL EXTEND TO AT LEAST 3 FEET ABOVE THE ELEVATION OF THE BED.

Note: This exhibit reflects Sheet C7 referenced in Exhibits 2-3 and 2-4.

G 05110111.01 019

Source: Data provided by nhc in 2009.

Typical Details of Improvements **Exhibit 2-6B**

Reach 3

The existing channel in Reach 3 contains sharp bends and numerous locations with significant channel bank erosion. Floods with return intervals greater than the 10-year flood overtop the channel at the furthest downstream bend where the channel turns north. Debris jams have been observed in the vicinity of the overtopping location due to the relatively low elevation of the upper bank and the sharp bend. The proposed improvements to this reach (Exhibit 2-3) include anchoring a large woody debris structure on the low bank to more effectively capture floating debris in the area. Upstream on the right bank, a 100-foot section of continuous rock and log revetment would be placed along the toe to protect an eroding upper bank. The revetment may be backfilled and planted with willows and other riparian vegetation to help reduce near bank velocities. Two large woody debris structures would be placed at locations upstream of the revetment to protect eroding banks and encourage flow away from the right bank. In addition, several boulder clusters would be placed at the beginning of the bend to encourage flow away from the bank and provide instream habitat. A small creek access pad has been included on the right bank between the log jams and the rock and log revetment structure.

The upper portion of Reach 3 includes a long meander bend that has migrated against a historic terrace to the north of the creek. Over the years, the meander has severely eroded the outer channel bank and has left a nearly vertical channel side slope. The proposed project includes the realignment of the channel and the construction of a 50-foot long rock and log revetment structure placed along the lower section of the meander bend. Behind the revetment, the upper channel banks are to be graded back from the bench at a 2.5:1 slope to meet the existing terrace grade. All graded surfaces would be revegetated following construction. In the upstream portion of the bend, five log jams would be placed on the right bank (outer bend) of the existing channel to catch floating debris and push the flow off the bank. To increase the cross sectional area of the channel, the gravel bar on the inside of the bend would be graded back at a 5:1 slope from the newly aligned channel bed.

Upstream of the bend, a rock riffle would be constructed to prevent future downcutting of the channel through this section. Channel access would be provided to the riffle by means of a series of rock steps down the bank where the existing power line trail ends at the creek's edge. At the uppermost end of the project a single large debris structure would be constructed on the left bank where an existing hanging secondary channel meets the creek.

Reach 4

Reach 4 is incised below an abandoned floodplain surface on the right bank and a higher terrace on the left bank. The lower portion of this reach is a straight section of channel with very steep, poorly vegetated banks that are 6–10 feet above the stream valley line. The upper portion of Reach 4 is more sinuous, and includes the entrance to a shallow flood channel on the right bank's floodplain in the most upstream bend. Coarse bed materials (cobbles and boulders) are characteristic of this reach.

In the existing channel of Reach 4, downcutting of the creek has created steep channel banks that are actively eroding. To stabilize the channel, the proposed project includes the extension of the creek channel in a gentle bend to the north on Conservancy property (Exhibit 2-3). A large floodplain bench would be constructed on the inside of the bend at about the elevation of the 5-year return interval flood. The surface of the bench would contain five log jams and be planted with riparian vegetation to reduce flow velocities during floods. Graded channel banks along the channel would be protected by planting of riparian vegetation where appropriate. To help maintain the channel invert along the bend, two additional grade control structures are proposed at the upstream and downstream ends of the bend. The transition between Reaches 3 and 4 would include several large boulder clusters placed into the main channel to increase local channel complexity. A trail would be constructed from the existing northern access footpath on Conservancy lands to provide access to the creek channel. Vegetation would be strategically planted in the vicinity of the trail to discourage foot traffic along the left bank away from the trail.

Reach 5

Reach 5 is heavily influenced by the existing culvert crossing at SR 89. Immediately downstream of the highway crossing, a large scour hole and midchannel bar have formed as a result of high-velocity discharges that flow through the culvert. Upstream of the culvert, bank erosion associated with constriction of the flow has occurred at the culvert inlet and has undermined the rock headwalls. Farther upstream, active erosion is occurring along the right bank as the flow turns sharply toward the culvert opening along the highway embankment. The proposed project includes creek restoration measures upstream and downstream of SR 89; the proposed restoration measures downstream of SR 89 would result in creek improvements independent of, and uninfluenced by, the proposed upstream improvements.

The excessively wide channel downstream of SR 89 would be partially filled to define a new stable main channel as well as a new floodplain surface on the right bank (Exhibit 2-4). The toe of the floodplain bench would be protected by a combination of log and rock revetment and large woody debris structures. The elevation of the 5,000-square foot bench would be about equal to the 2-year return interval flood depth. The bench would be planted with willows and other riparian species.

At both the upstream and downstream faces of the culvert, additional boulders and riprap would be placed up to the bottom elevation of the box to hold the invert of the channel and along the transitions to protect the channel banks. Upstream of the highway, the existing channel would be realigned to the north to increase the radius of the bend and smooth the transition to the culvert entrance. The right bank would be partially filled and stabilized with a log/rock toe revetment. This revetment may include protruding logs to help catch large debris immediately upstream of the culvert entrance. All graded surfaces would be revegetated to provide structural SRA. The left bank would be regraded to promote stability and provide plantable area for riparian species. To prevent future downcutting and increase channel complexity, two riffle grade control structures would be placed along the realigned reach. The riffles would be constructed with a 20:1 slope, drop the channel profile 2 to 3 feet, and include rock protection on channel banks within 3 feet of the bed.

Reach 6

At the downstream end of Reach 6, Blackwood Creek is influenced by the backwater of Lake Tahoe. This reach includes a meandering channel planform with a primarily gravel and sand bed and some point and lateral bars. Numerous bank protection measures (e.g., bulkhead walls, gabions, riprap, and concrete slope protection) have been installed by property owners and are in various states of repair.

Except for a short continuation of the bench grading proposed in Reach 5 and two log jam structures, no downstream improvements are proposed. For Reach 6, the proposed project does include placement of additional rock protection on the right and left banks in the vicinity of the sewer force main and water lines that cross under the channel (Exhibit 2-4).

INDICATORS OF HABITAT ENHANCEMENT BENEFITS

Based on the habitat enhancement objectives presented in Section 2.4, a list of significant indicators and variables that could be used to assess the benefits to lower Blackwood Creek from the proposed restoration features was developed. These indicators help estimate the quality of habitat in the study reach by defining it within quantifiable parameters. The following primary indicators were defined for lower Blackwood Creek:

- acreage or area of floodplain bench,
- feet of riparian bank vegetation,
- feet of stable banks,
- stream length (feet) of riffles
- stream length (feet) of pools, and
- stream length (feet) of instream woody material.

Table 2-2 summarizes the proposed restoration quantities and lists the significant indicators that each feature would likely benefit.

Table 2-2
Proposed Restoration Quantities Associated with Enhancement Indicators

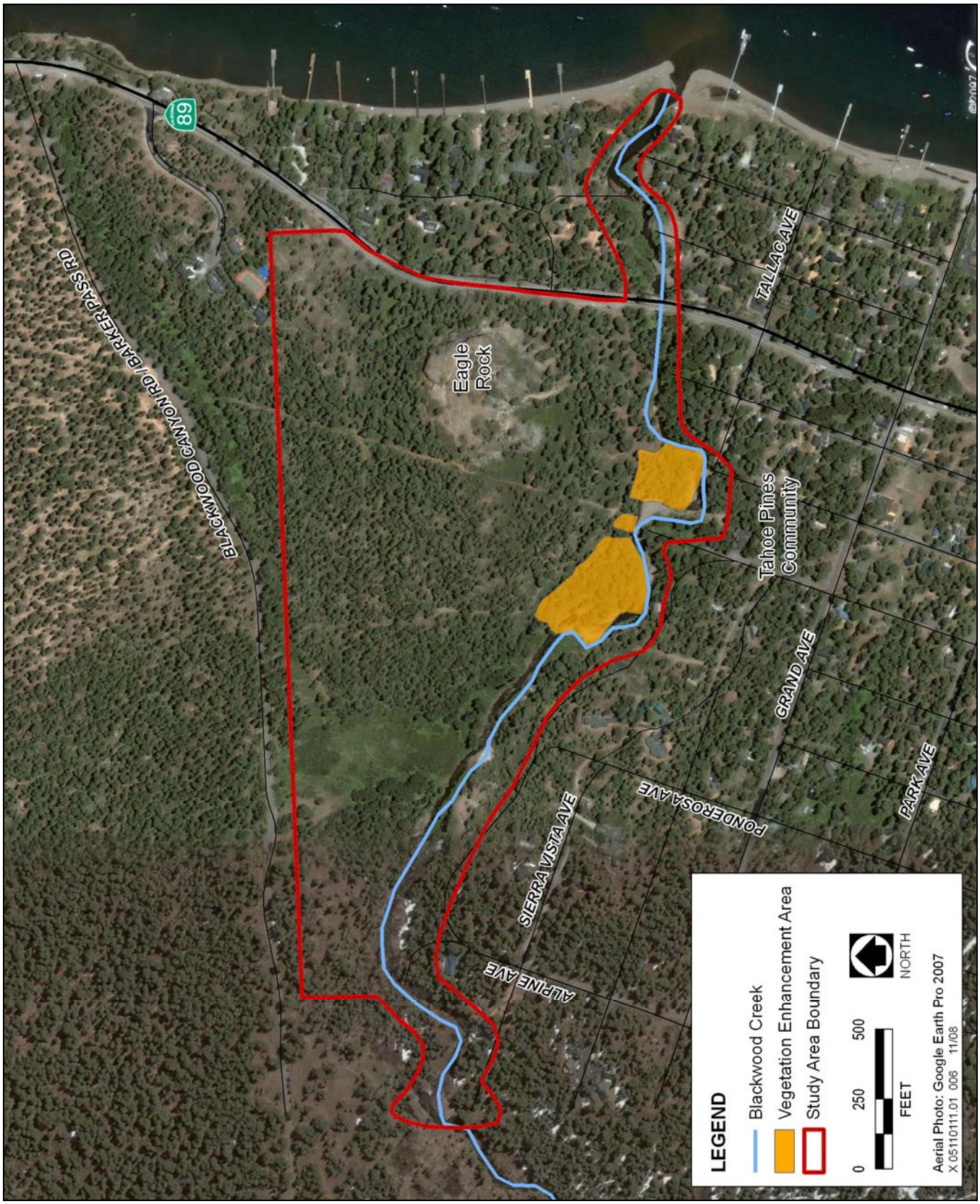
Enhancement Indicator	Existing Conditions	Proposed Project Conditions	Increase
Area of Floodplain Bench (sq. ft.)	5,000	14,000	180%
Area of Riparian Vegetation (sq. ft.)	7,000	17,000	143%
Stable Banks (feet)	1,500	2,400	60%
Stream Length of Riffles (feet)	600	900	50%
Stream Length of Pools (feet)	330	600	82%
Stream Length of Instream Woody Material (feet)	100	450	350%

Notes: sq. ft. = square feet
Source: Data provided by nhc in 2009.

2.5.2 VEGETATION ENHANCEMENT ELEMENTS

The proposed project also includes upland-vegetation enhancement elements that would contribute to improved creek conditions. Three stands of mature aspen trees are intermixed with dense white fir in the project area adjacent to Reaches 2–5. Aspen regeneration within these stands is restricted because of shading and competition from encroaching white fir. The presence of mature aspens indicates that a vigorous root system exists within the stands, which would allow aspens to regenerate if competing conifers were removed. The effectiveness of removing conifers for aspen regeneration has been demonstrated on the site where wind-induced tree blowdowns have reduced shading from conifers and resulted in localized aspen regeneration. The three stands also include some black cottonwoods that would benefit, in a manner similar to that described for aspen above, from the removal of encroaching conifers.

The proposed conifer removal would occur over two seasons. The initial removal of conifers to support aspen regeneration would occur in the area north of Blackwood Creek along Reaches 3–5 in mid to late summer 2010, the year before the proposed creek restoration work. Conifer removal in the most westerly stand north of Reach 2 would occur in the summer of 2011 and could overlap with the proposed creek restoration work. Conifers would be removed by hand crews, a small tractor, and a truck with a chipper. Conservancy hand crews would remove all conifers less than 30 inches in diameter at breast height (dbh) within the aspen stands; the total number of trees to be removed for vegetation enhancement is unknown at this time. Some additional large conifers may be retained pending field marking by Conservancy forestry staff members and qualified contracted staff. An evaluation of trees to be retained would be made before the marking of trees so that screening and restoration protection measures are including in the forestry prescription. Conifers would be retained to discourage increased unmanaged access to the regenerating aspen stand and to preserve visual screening from both the existing trail and the neighborhood south of the creek (Exhibit 2-7). The removed conifers would be felled and limbed. Logs and slash would be dragged by contracted crews to a staging area on or near the primary access point and unpaved trail north of the creek. Here, logs would be stockpiled for use in the proposed creek restoration measures such as bank revetments, debris structures, and trail features. Slash material would be chipped and stockpiled on-site and either incorporated into the proposed revegetation treatment or restoration of trail surfaces.



Source: Data provided by the California Tahoe Conservancy in 2008.

Vegetation Enhancement Areas **Exhibit 2-7**

Upstream of the project study area, along the reach of Blackwood Creek being restored by the USFS, beavers (*Castor canadensis*) felled a substantial number of trees and constructed dams within the restored channel during and following restoration activities. Damage to vegetation by beavers occurred primarily within aspen stands that were enhanced through conifer removal. The increase in beaver activity within the USFS restoration reach (including damage to enhanced aspen stands) was likely a result of enhanced hydrologic and geomorphic conditions for beavers due to channel and floodplain restoration. For example, the increased channel sinuosity, reduced stream gradient, and improved floodplain connectivity within the USFS restoration reach increased habitat suitability for beavers, by increasing the potential for beaver dams to create relatively large ponds over broad floodplain areas. The potential for this to occur as a result of project implementation in the lower Blackwood Creek project study area is considered lower, due to the more confined channel conditions there and limited potential to substantially enhance hydrologic and floodplain conditions for beavers. However, beavers presently use and have cut trees within the project area, including the aspen stands where vegetation enhancement would occur. Although overall beaver use and modification of the stream channel (including dam construction) is not expected to substantially increase as a result of project implementation, aspen stand enhancement could provide an improved food and materials source for beavers that presently use the project or upstream areas (e.g., through improved aspen regeneration and vigor). An increase in beaver activity within enhanced aspen stands could impair the success of vegetation enhancement treatments, and possibly result in additional inputs of woody debris to the stream channel. To ensure the success of vegetation enhancement treatments, tree cutting by beavers in the project study area would be monitored, and vegetation protection measures would be adapted and implemented if needed. This monitoring would be part of the Conservancy's overall monitoring and maintenance program for the project, which is described below in Section 2.6.6, "Ongoing Monitoring and Maintenance."

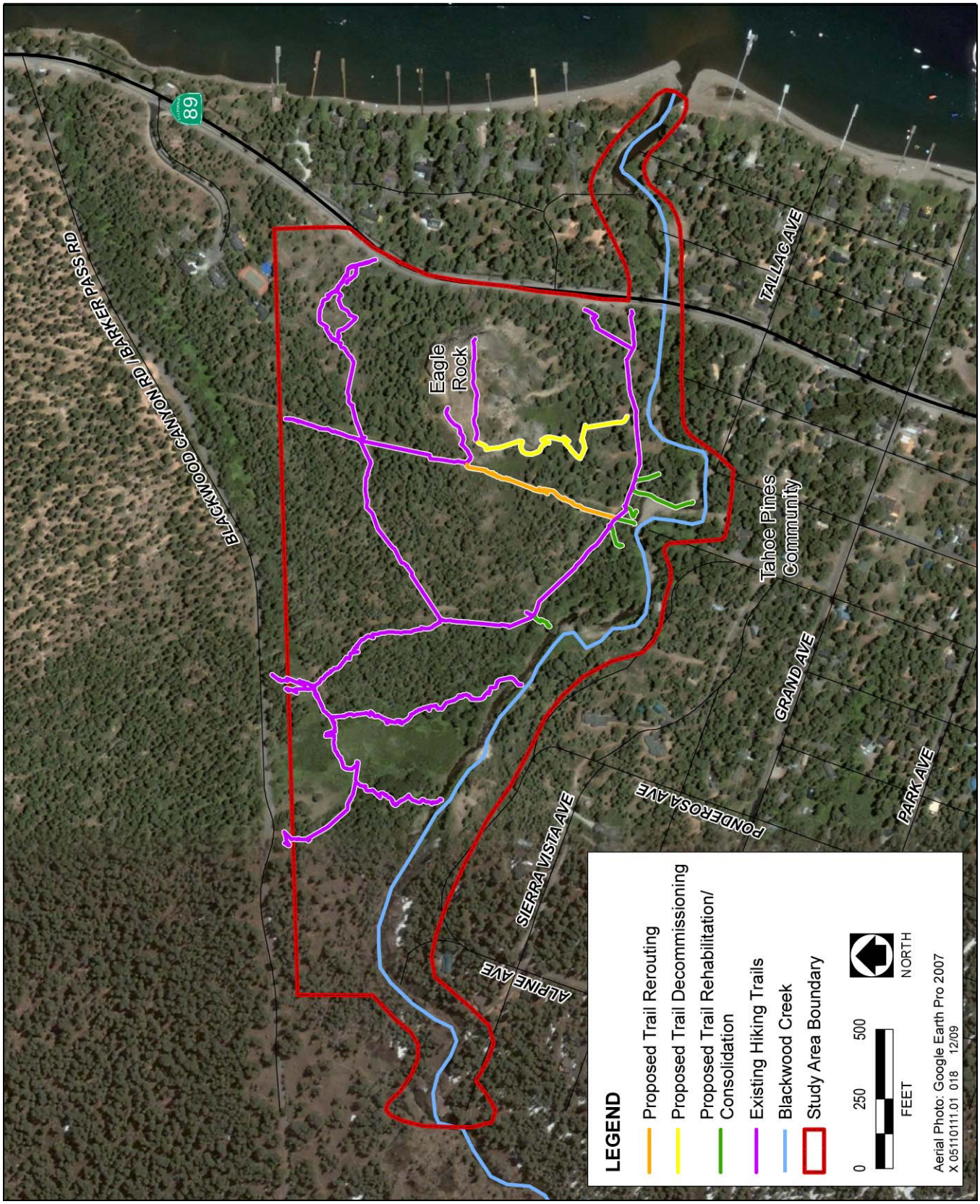
2.5.3 TRAIL REHABILITATION ELEMENTS

The lower Blackwood Creek project area includes an informal unpaved trail network along the north side of Blackwood Creek west of SR 89 that is used mainly by individuals seeking access to Eagle Rock and the creek. The proposed project would rehabilitate and restore the trail network to a less erosive and more user-friendly condition. All proposed trail work, including restoration of decommissioned or relocated trails, would occur in compliance with Chapter 20, "Land Coverage Standards," of the TRPA Code of Ordinances. The trail rehabilitation elements would occur concurrently with or prior to the creek restoration improvements.

The network of trails within the project area is small and consists of short loops connecting SR 89 with access points along Blackwood Canyon Road/Barker Pass Road, which parallels and runs north of the project area boundary. A small unpaved parking area is located on the west side of SR 89 north of the Blackwood Creek culvert and south of Eagle Rock, which lies between Blackwood Creek and Blackwood Canyon Road/Barker Pass Road (located approximately 0.5 mile north of Blackwood Creek). The main trail is unpaved and leads up through Blackwood Canyon. A trail located under existing power lines, ascending the hill in a straight line, serves as the main access trail to the top of Eagle Rock from the south. A trail south of Eagle Rock and east of the power line trail appears to have been created with the intent of providing access to the top of Eagle Rock, but instead it dead ends at the base of its volcanic cliffs. A similar dead end trail leading from the parking area south of Eagle Rock towards Eagle Rock was decommissioned and rehabilitated by the Conservancy in the fall of 2008. Most of the trails leading toward Eagle Rock are on steep, eroding slopes. Several other footpaths serve as spur trails to access

Blackwood Creek. Mountain bikers are not common users of the area, although local residents on bikes may traverse the project area to access other trails.

A detailed trail rehabilitation plan is under development, and certain elements of this plan would be adapted in the field during construction; rehabilitation plans for the various types of trails that are present are addressed below. (Note: the detailed trail rehabilitation plan, including maps, will be submitted to TRPA concurrent with submittal of the complete TRPA project application package.) All trail rehabilitation work would be accomplished by hand crews and a small tractor. Trails that would be affected by this element of the proposed project are shown in Exhibit 2-8; many of the trails would be unaffected.



Source: Data provided by the California Tahoe Conservancy in 2008 and 2009.

Trail Rehabilitation Areas **Exhibit 2-8**

Power Line Trail to Eagle Rock

This trail is located under existing NV Energy power lines and ascends the hill in a straight line in a very steep section; its runoff flows directly into Blackwood Creek. NV Energy has an easement that extends the length of the overhead power lines along this trail. NV Energy was contacted by Conservancy staff early in the planning process to discuss potential concerns regarding the proposed trail rehabilitation work. NV Energy staff indicated that access to their power lines is normally provided over snow and during the winter by foot or snowmobile such that the proposed trail work is not anticipated to affect access to these facilities nor would it be expected to result in disruption in services.

Soils on this trail are very fine and very loose. Soil stabilization techniques and other erosion-control best management practices (BMPs) would be implemented to reduce sediment deposition in the creek. Trail rehabilitation techniques would likely include rerouting portions of the existing trail and the use of water-diverting designs that need little or no maintenance (such as trail dips or reverse grades). Switchbacks would be used to reroute trail segments by winding the trail across and gradually down the slope, thereby increasing trail length and reducing slope gradient. The number of switchbacks would be kept to a minimum to reduce shortcutting. Drainage would be installed at the bends of switchbacks (above turns) to channel water off the trail, using stone, treated timber, or available logs found on-site. This may result in a step down at the turn for hikers. Stone or log steps may be installed in steep uphill areas.

Drainage techniques would be used to maintain areas where water collects and contributes to erosion. Hikers walking through a small puddle or muddy patch may quickly cause more extensive erosion, and hikers who walk around the patch to avoid it can damage surrounding areas. Wherever possible, water drainage across the trail from upslope would be prevented, diverted, or slowed. Trails would be graded to encourage cross-slope drainage to prevent channel erosion within the trail. The trail surface would be “out-sloped” so that water drains off to the side instead of being channeled down the trail. Trail edges would be free of impediments to cross-slope drainage. Each section of trail would have grade breaks for drainage relief at intervals appropriate for the gradient, soils, steepness and cover of the upslope side of the trail, rainfall and runoff conditions, level of use, and the 20-year, 1-hour storm conditions. Grade breaks would be carefully located to take advantage of downed logs, large rocks, or little patches of flat ground on the downhill side of the trail, where flow velocity can be further dissipated, sediments can be deposited, and water can be spread out into the forest. Grade breaks allow for the installation of drainage-relief features that effectively break up concentrated flow, reduce the rate of flow, and evacuate water from the trail before it causes damage.

Rolling grade dips, which include trail diversions stepped 5 feet downslope and then stepped back up 5 feet, would be implemented where feasible; these dips serve as an effective way of providing drainage for and controlling erosion on trails. Rolling grade dips are self-cleaning, with water exiting the trail as the trail is stepped back up. Naturally occurring dips would be accentuated to drain water off long, straight trails. Rolling grade dips would use natural materials found on or near the trail that are already suited to the climate. The dips would be disguised as much as possible with piles of rocks or by routing the trail around a tree. Within the trail, a dip is constructed no more than 5 or 6 inches into the tread. The entire downhill side of the dip is opened up for drainage. This promotes high-volume drainage with very low water velocity. Water moving slowly is less likely to cause erosion cuts or channeling in the surface of the tread of the trail. Excavated soil would be piled on the trail at the lower end of the dip to create a slight hump no more than 6–8 inches high. The mass of dirt would help support the feature and add longevity. Maintenance would be limited to removal of leaves or other debris that would occasionally collect in the dip.

Installation of water bars or weirs, rock or log, placed across the direction of water flow would provide another drainage option. Water bars placed at regular intervals would divert water off the trail and into the forest. Water bars would be keyed deeply into the soil so that they would not be undercut by piping and erosion.

Trail rehabilitation would also include revegetation work along trail edges and other areas, if they are disturbed by trail reconstruction. Revegetation techniques would include soil rehabilitation to decompact soil, increase

infiltration, and increase conditions for plant establishment; seeding and container planting of upland forest species that are native to the project area; and temporary watering to establish plant materials. Chipped slash, bark, or pine needle mulch would be applied as top-dressing for revegetated areas. In steep or other areas where user patterns are being shifted to new trail sections, branches, rocks, and other physical barriers may be used to prevent reestablishment and would require only minimal revegetation. After rehabilitation, the trail would be a 12- to 24-inch-wide native-surface trail.

Dead-End Trail to Eagle Rock

The dead-end trail south of and leading toward Eagle Rock would be decommissioned and restored to a natural condition using natural materials (such as boulders and logs). In limited areas, grading may occur if needed to create an uneven and undulating surface that mimics and transitions to the existing topography, and revegetation may also occur. Revegetation techniques would be the same as those described above for the Power Line Trail. Boulders and logs would be used to block and redirect public access. Directional signage would be installed to orient visitors to the trail up Eagle Rock.

Spur Trails to Blackwood Creek

The spur trails that lead to Blackwood Creek would be evaluated to determine whether they should be decommissioned or retained; however, a minimum of two creek access points (Exhibit 2-3) would be retained as a result of the proposed project. If they are determined to be redundant or located where they contribute to irreparable environmental damage, decommissioning would occur as described in previous sections. Where user patterns suggest that retention of creek access is appropriate (e.g., the first location where people want to see the creek, places where people are likely to get water for their dogs after exiting their cars or the trail system, creek crossing points), trails would be incorporated in concert with the proposed floodplain restoration work for the creek.

2.6 CONSTRUCTION ACTIVITIES, SCHEDULE, AND ONGOING MONITORING AND MAINTENANCE

2.6.1 CONSTRUCTION SCHEDULE

Some of the proposed vegetation enhancement work, which would provide needed materials for other project elements, would occur in the area north of Blackwood Creek along Reaches 3–5 in mid to late summer 2010. Conifer removal in the most westerly stand north of Reach 2 would occur in the summer of 2011 and could overlap with the proposed creek restoration and trail rehabilitation work as described below.

The proposed creek restoration work would be completed in two distinct construction phases. Phase 1 would include the proposed creek improvements upstream of SR 89, and Phase 2 would include all improvements downstream of SR 89. The work associated with each phase of construction could be accomplished in a single construction season. The Phase 1 improvements are planned for summer 2011. Construction activities are expected to take up to 4 months, but may need to be extended to the entire season. In accordance with TRPA Code of Ordinances Section 64.2.A, all excavation, filling and clearing of vegetation or other disturbance of the soil would occur within the May 1–October 15 time frame. Construction would not occur between October 15 and May 1, unless approval has been granted by TRPA pursuant to Subsection 64.2.B. Prior to October 15, all construction sites would be winterized pursuant to Subsection 64.2.D. Construction hours would be limited to those authorized by TRPA and Placer County, except in certain instances (such as during water diversion pumping) where extended construction hours may be necessary. Construction contractors would be required to seek authorization and follow all conditions of approval for extended work hours. The proposed Phase 2 improvements would be constructed at a time when funding becomes available, likely within 2 to 4 years after completion of Phase 1; these improvements would occur no sooner than summer 2013.

The proposed trail rehabilitation work would occur in summer 2011 either concurrent with or subsequent to the proposed Phase 1 creek improvements.

2.6.2 CONSTRUCTION STAGING, ACCESS AREAS, AND BMPS

An existing dirt path west of SR 89 on the north side of Blackwood Creek would provide the main point of access to the upstream portion (Phase 1) of the project. Four branching access routes would be constructed from the road to the creek to provide direct channel access. Additional creek access routes would be constructed at Tallac Avenue on the south side of the creek as well as one east of the highway to provide access to the downstream portion of the project site during Phase 2 of construction. When possible, excavation of the channel and placement of restoration structures would be performed from the top of bank. However, it is expected that some sections of the proposed improvements would require heavy equipment to enter and maneuver within the creek channel itself. Five storage/staging areas would be located at various points around the site: four north of the creek and one to the south.

During construction, sensitive areas away from construction access points would be fenced off to prevent trampling and unnecessary equipment access. Silt fences would be placed along the downhill sides of access routes and storage/staging areas. Steeper access routes heading towards the creek would be temporarily covered with crushed rock or other surfacing to prevent erosion, if needed. All access routes and storage/staging areas would be regraded as necessary and treated with appropriate erosion control measures, including revegetation, upon completion of the proposed project. A Storm Water Pollution Prevention Plan (SWPPP) would be submitted to the Lahontan RWQCB for each phase of the project as part of the permitting process. Preliminary access routes, storage/staging areas, and preservation fence locations are shown on Exhibit 2-9. It is estimated that 12–14 employees would be working on the project at any one time. However, during trail rehabilitation an additional contractor, such as the California Conservation Corps, would add another 10–14 on-site workers. Trail rehabilitation crews typically use one or two vehicles per crew.

2.6.3 GENERAL CONSTRUCTION ACTIVITIES

Construction activities associated with the vegetation enhancement and trail rehabilitation elements of the project are described in Section 2.5. Creek restoration elements would include channel grading and realignment, inset floodplain creation (e.g., benches), bank stabilization via placement of natural materials and riprap, and vegetation thinning (e.g., conifer removal) and establishment along banks. During construction the flow of the creek would be diverted via a temporary diversion dam structure constructed upstream of the project; the creek's flow would be captured in two pipelines secured to the channel banks and diverted downstream of the project area by gravity flow. Water diversion pumping for construction dewatering in the creek channel may also be required on a limited basis (less than 1 week per occurrence); in such cases, pumping could occur continuously for up to 24 hours. Any pumping that would occur would be limited to construction hours allowed for under permit – generally, this would be limited to daylight hours, but may include extended construction days. The specific construction equipment required for the aforementioned activities is not known at this time, but would likely include a loader, dozer/tractor, scraper, excavator, backhoe, grader, pump, generator, and trucks (haul and passenger). Several hand tools would also be used for construction. Table 2-3 shows the estimated number, type, and size ranges of trees to be removed as part of the proposed creek restoration element of the proposed project.

A TRPA-approved BMP plan would be prepared as part of the TRPA project application before the start of construction; some of the anticipated BMPs that would be implemented are discussed below.

Staff from DGS's project management branch and/or the Conservancy would provide daily construction oversight for contract and permit compliance, and BMP implementation. This oversight would be in addition to regular inspections provided by Lahontan RWQCB, TRPA, USACE, and other agencies that would monitor permit compliance.

Table 2-3 Tree Removal Estimate for the Proposed Creek Restoration Element		
Tree Type	Trunk Diameter (dbh)	Number of Trees to be Removed
Fir and Pine	Between 20 and 30 inches	15
	Greater than 30 inches	1
Aspen and Cottonwoods	Between 20 and 30 inches	4
	Greater than 30 inches	0
Note: dbh = diameter at breast height Source: Data provided by nhc in 2008.		

2.6.4 CONSTRUCTION PHASING, DEWATERING AND SHORT-TERM WATER QUALITY PROTECTION MEASURES

Table 2-4 outlines the construction phasing plan and activities for the proposed creek restoration element of the project. Minor adjustments may be made on-site as necessary.

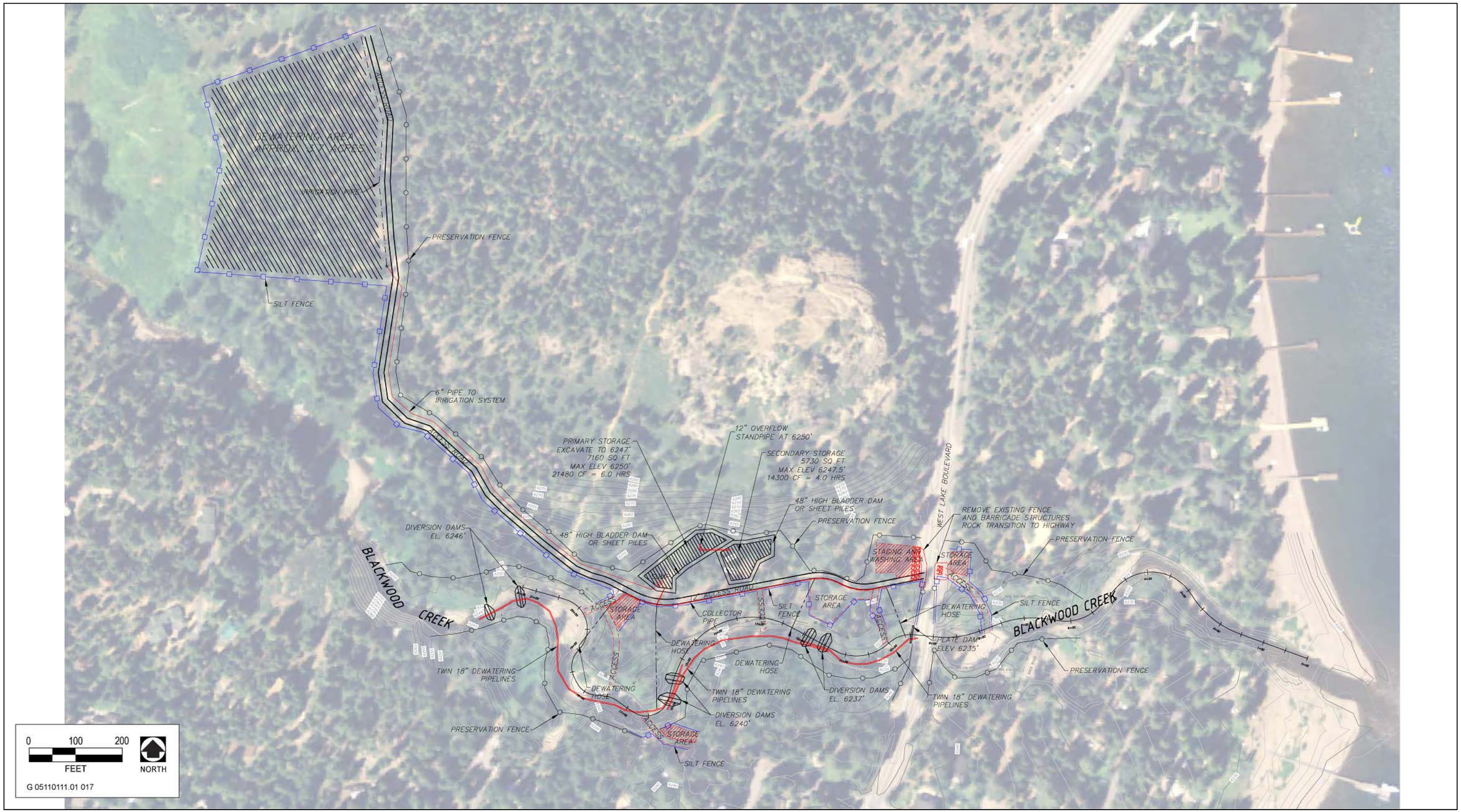
STREAMFLOW DIVERSION PLAN

The streamflow diversion plan for the Lower Blackwood Creek Restoration Project has been designed to accommodate phased construction of the project during two distinct construction periods. Phase 1 of the project would be constructed in 2011 and includes all enhancement and revegetation features upstream of SR 89. Phase 2 is expected to occur when funding becomes available, likely within 2 to 4 years after completion of Phase 1, and would include the proposed enhancements downstream of SR 89. The proposed streamflow diversion for Phase 1 of the project is presented here at a preliminary level, but would be refined during final design or in the initial stages of construction through submittal, review, and regulatory agency approval of dewatering plans prepared by the selected contractor. The Phase 2 plan does not include design details beyond the conceptual level due to uncertainty of construction conditions and regulatory requirements (e.g., those changes related to TRPA's Regional Plan Update) that could be in effect in the future. It is recognized that additional detailed design of the diversion plan and dewatering scheme for Phase 2 and potential supplemental environmental review would be necessary prior to final authorization and project construction.

Phase 1: Upstream of SR 89

The streamflow diversion plan for Phase 1 of the project is based on a series of pipeline segments that are designed to bypass creek flows around local construction reaches. The extent of the Phase 1 improvements was divided into three construction segments that span between the sets of diversion dams shown on Exhibit 2-9. Each of these segments includes bypass pipelines and flow diversion dams to direct flow around construction areas. The pipelines would generally be placed along the invert of the existing creek channel, though some excavation trenching along channel banks may be necessary to allow for construction of channel features. In some cases, the pipeline alignment location may vary during the project to allow construction to occur in multiple locations along the channel. The proposed locations of the pipelines and associated diversion dams are shown on Exhibit 2-9.

Each of the three pipeline segments would include twin 18-inch pipes that are designed to convey up to 10 cubic feet per second (cfs) each of instream flow (20 cfs total) by gravity. Based on USGS stream gauge data dating back to 1961, a 20 cfs creek discharge has only been exceeded twice during the summer/fall construction season once spring flows have dipped below 10 cfs. Therefore, installation of the pipeline segments would begin once creek discharges have dropped below this threshold. Once the pipeline segments are in place, a plate dam would be installed at the upstream face of the SR 89 culvert and sealed to prevent channel flow from passing through the culvert. The downstream end of the furthest downstream pipeline segment would be connected to an opening in the plate dam that allows flow in the pipes to discharge downstream into the culvert.



Source: Data provided by nhc in 2009.

Construction Access, Staging Areas, and BMPs, and Dewatering Plan **Exhibit 2-9**

Table 2-4
Construction Phasing, Dewatering, and Short-Term Water Quality Protection Measures

Activity	Duration	Description	Acreage Affected
Mobilization: Construction of access routes and staging areas, equipment refueling areas, and parking	2 weeks	Clearing of vegetation, grading, and stabilization of routes/areas as necessary. <u>BMPs:</u> BMPs may include silt and isolation fences, and straw wattles or coir logs. Crushed rock may be placed on steep access routes with heavy traffic and water bars cut onto road surfaces with less traffic.	Access routes: 0.8 acre Staging areas: 0.3 acre Parking and refueling areas: 0.1 acre
Mobilization: Aspen thinning	2–3 weeks	Thinning of conifers in areas with aspen and cottonwood stands. Includes use of hand crews equipped with chain saws and power tools, a small tractor, and a truck with a chipper. Sites located on Conservancy lands north of the creek.	Area affected: 0.2 acre
Dewatering: Creek diversion	3 months, 24 hours/day	Construction of multiple temporary diversion dam structures along the affected project reaches upstream of SR 89. Creek flow to be captured in twin 18-inch pipeline segments and diverted downstream of the construction areas by gravity flow.	Typical diversion pond area: 0.1 acre Pipeline alignment length: 1,500 feet
Dewatering: Groundwater/construction water pumping	3 months, 2–24 hours/ day	Use of pumps to remove ponded groundwater and construction water in local excavation sites. Water would be sent to one of two temporary settling basins on the north side of the creek and ultimately pumped to an upland land application area.	Number of pumps: 3 to 5 Hose lengths: 100–1,500 feet Main basin area: 0.2 acre Secondary basin area: 0.1 acre
Dewatering: Groundwater/construction water disposal	3 months, 2–24 hours/ day	Water collected in temporary settling basins would be pumped uphill approximately 1,000 feet to the west following the existing foot trail. Water would be released on the western slope of the local hillside with relatively flat gradient using 450 feet of irrigation pipe with control gates. <u>BMPs:</u> BMPs may include silt fences and coir logs around the perimeter of the application site and outflow energy dissipaters to reduce the likelihood of rilling.	Number of pumps: 2 Pipe lengths: 450–1,000 feet
Construction: Excavation and grading	3 months	Channel banks and bench cuts excavated and exposed throughout the project. It is assumed that the heavy equipment would include one excavator and one front loader. <u>BMPs:</u> Potential BMPs would include coir logs and local silt fences in areas of active grading. Visqueen plastic and crushed rock may also be kept available on site to cover up construction areas and stockpiles in case of rain events	Area of graded banks: 1.2 acres Area of bench cuts: 0.3 acre Volume of excavation: 8,400 cu. yd.

Table 2-4
Construction Phasing, Dewatering, and Short-Term Water Quality Protection Measures

Activity	Duration	Description	Acreage Affected
Construction: Structures	3 months	Structures to be built in the channel include toe protection, log jams, boulder clusters, and riffles. Construction would include the use of one excavator to position materials and backfill the area surrounding some structures. <u>BMPs:</u> BMPs for construction of structures would be similar to those discussed above for excavation and grading.	See Table 2-2 and Exhibits 2-3 and 2-4.
Construction: Trucking	3 months	Trucks would be entering and leaving the site to export cut material and import boulders, logs, and plants for restoration design, as needed. <u>BMPs:</u> BMPs could include a truck wash/inspection area near the highway, preservation fencing, dust control measures, and traffic control.	Typical number of trucks/day: 11
Construction: Equipment Wash Area	3–4 months	Inspection and washing of trucks and equipment leaving the site located adjacent to the highway. <u>BMPs:</u> BMPs could include silt fences, coir logs, road sweeping, and rock placed at the highway interface.	Equipment wash area: 0.1 acre
Construction: Stockpiles	3 months	Stockpiles of materials to construct restoration structures such as toe protection, riffles, and logjams would be required. Materials may include boulders, logs, and wire. <u>BMPs:</u> BMPs may include isolation of stockpiles with silt fences and covering with tarpaulins.	Area of stockpiles (staging areas): 0.3 acre
Demobilization	1 week	Heavy equipment to be used to regrade staging areas and access routes back to original conditions. Removal of remaining materials, supplies, and heavy equipment.	Area: 1.0 to 1.5 acres
Planting and Erosion Control Placement	1 month	Trucks used to deliver plants and erosion protection. Trail rehabilitation performed and all access routes/storage areas are planted and protected using coir logs, erosion blankets, wetland sod mats, etc.	Area: 2.0 to 2.5 acres

Source: Data provided by nhc in 2009.

The first set of diversion dams would be constructed just west of SR 89 (Exhibit 2-9) once the majority of flow is collected by the downstream pipelines. The first dam would be temporary and constructed using sandbags wrapped with visqueen plastic to prevent flow through the structure. Once most of the flow is blocked off, the primary dam structure would be constructed downstream of the temporary dam and would include a 3-foot key below the channel bed to reduce interstitial flow. The temporary dam would be removed after the primary structure is in place. This process would be repeated for the middle and upper construction segments as work is completed downstream.

An important objective of the proposed dewatering plan is to safely collect and remove all aquatic organisms that may become trapped in a construction segment during the dewatering process. Once a creek segment is closed off by construction of the diversion dams, pools containing standing water would be carefully investigated. If aquatic organisms are found, they would be captured and transported to an identified reintroduction site upstream. The water in the pools would then be slowly pumped out while the search for organisms in the pool continues. The dewatering plan for the project also includes a fish passage barrier to be installed at the upstream end of the project reach. All pipeline inlets would be covered by fish screens to provide additional protection against fish capture.

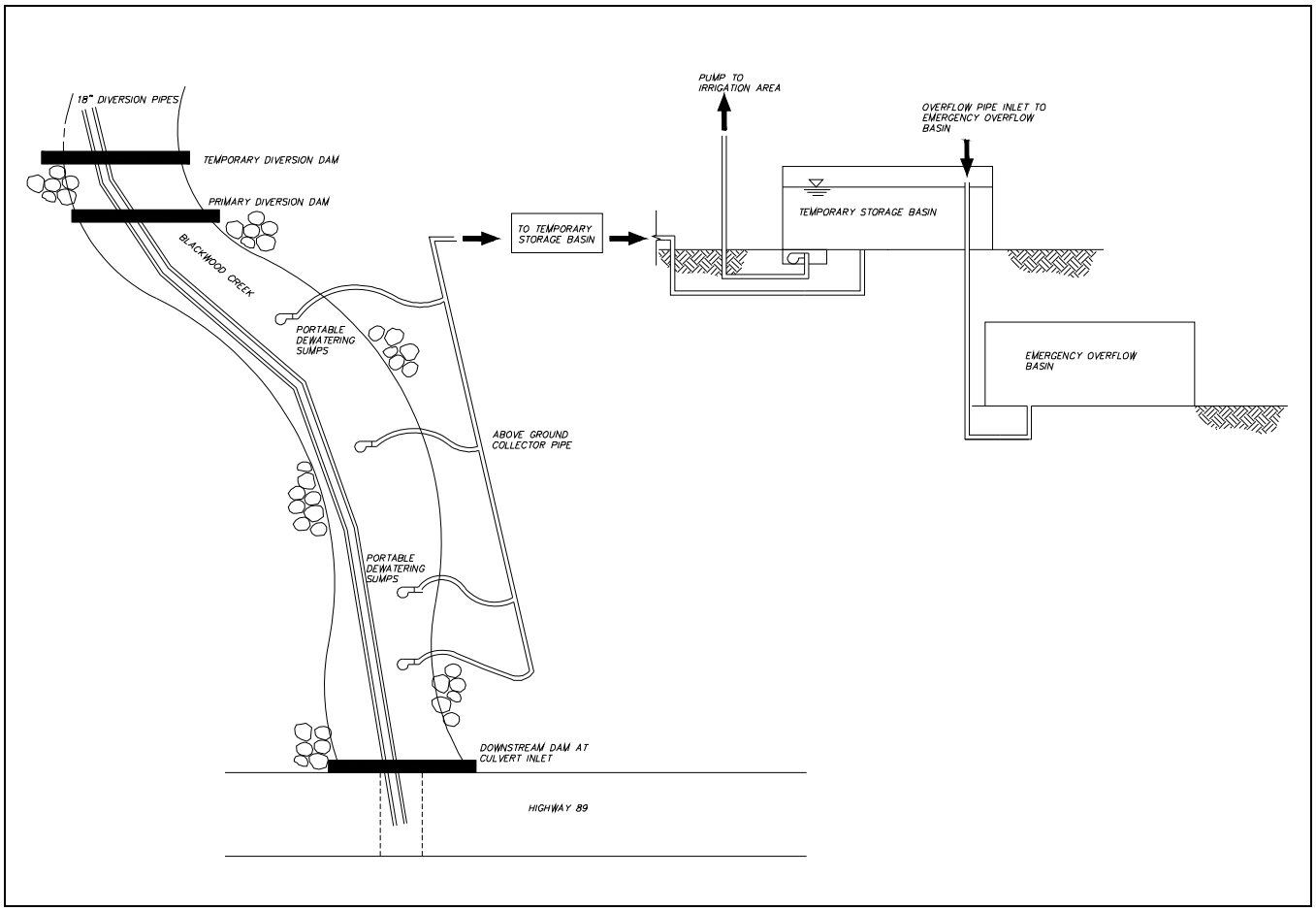
Phase 2: Downstream of SR 89

Because Phase 2 of the proposed project is not scheduled for construction until several years after completion of Phase 1, fewer details regarding its streamflow diversion plan can be identified at this time. A general discussion of the major elements that might be associated with stream diversion for this phase of the project is presented here to provide a better understanding of potential design elements.

The enhancement design for Phase 2 of the project includes grading, log structures, and rock protection elements downstream of SR 89. The most significant feature proposed is the construction of a floodplain bench on the right bank just downstream of the culvert where a large scoured bank currently exists. Because this feature is proposed on the side of the channel, the dewatering scheme would likely entail isolation of the creek to the left bank away from the construction area. This could be achieved using a low but continuous diversion structure parallel to the channel that separates construction activities from creek flows. Proposed access to the site would come from the left bank, so a short section of pipe would be required to act as a culvert under the access road. Construction water pumping may be necessary, but to a far lesser extent than in Phase 1. A portable storage tank on the top of bank could collect pumped construction water and serve as a sump for a small sprinkling or direct land application system. Due to private ownership of lands on both sides of the channel, easements would be required for discharge of pumped water. It is expected that some or most construction of proposed structures in this project reach would take place in the wet to minimize pumping requirements. Rock protection proposed in the design at the culvert outlet and near the sewer force main may be placed from the top of bank to avoid direct contact with the stream channel.

CONSTRUCTION DEWATERING

It is assumed that, during excavation, subsurface water would be encountered in the channel. Agitation of the water during the construction process would likely cause the suspension of silt and sand in the water, which could flow through the bed to other sections of the channel and emerge downstream as instream flow. To prevent this, the dewatering plan for Phase 1 of the project includes actions for isolating, removing, and discharging construction water that collects in excavation areas. The schematic presented in Exhibit 2-10 shows the elements proposed for the Phase 1 construction dewatering plan. Groundwater and local construction water would be pumped out of the construction area and disposed of offsite using a land application system to protect creek water quality. Refinement of the concepts presented here would likely continue as the design progresses to construction. The final construction dewatering design developed for the project would be included in the construction bid documents.



Source: Data provided by nhc in 2009.

Schematic of Proposed Phase 1 Dewatering Plan **Exhibit 2-10**

The proposed construction dewatering plan for Phase 1 would use 100- and 250-gallon per minute (gpm) portable submersible pumps to remove water from local work areas. These pumps would be portable such that they can be placed at any location in the construction site where pumping may be necessary. Flexible hose would carry the sediment-laden water from the creek to a more permanent collector pipe along the main access road. Various connection points to this collector would be established by the construction contractor for flexibility. The collector pipe would discharge into one of two temporary storage basins built on the north side of the main access road (Exhibit 2-9). The two temporary basins would be constructed using sheet piles or 48-inch water-filled dams to temporarily hold water pumped from the construction area. The primary basin would be excavated to elevation 6,247 feet and would hold approximately 21,480 cubic feet (cf) of water. Approximately 150 cubic yards (cu. yd.) of material would be removed during excavation and stored onsite for reconstruction of the landscape after creek dewatering is completed. The second basin would serve as an emergency overflow and would be used only if needed. The two basins would be connected by an overflow weir or standpipe that would automatically divert water to the secondary basin if water levels in the primary basin exceeded elevation 6,250 feet. Assuming a maximum construction water pumping rate of 1 cfs, the primary and secondary basins would provide a total of about 10 hours of storage capacity.

Inside the primary storage basin, two submersible pumps would be installed in a pumping pit and connected to a 6-inch pipeline. The pumps would be designed to carry 1 cfs of water over an elevation gain of about 65 feet using 10-horsepower motors. The pumps would be activated based on water levels in the primary storage basin.

Water would be pumped through the pipeline west along an existing trail to the top of a small hill. At the top of the hill, the pipe would connect to approximately 450 feet of gated irrigation pipes placed perpendicular to the mild hill slope. Water would be discharged through the gates of the irrigation pipe onto approximately 3.7 acres of upland area for overland flow and infiltration (Exhibit 2-9). Each gate would discharge approximately 4 gpm and flows would be regulated to prevent surface erosion and promote complete infiltration into the soil. The foot of the hill is surrounded by a large meadow that is capable of absorbing any subsurface seepage that might occur. Based on design calculations completed by project engineers, no surface runoff from the upland disposal area is expected. Following construction, all pipes would be removed and any surface disturbance would be restored.

The proposed dewatering basins were located in a manner that minimizes tree impacts. The footprint of the primary storage basin was located so as to avoid any trees. The footprint of the proposed secondary storage basin includes four conifers measuring from 16 to 26 inches in dbh; however, the secondary storage basin serves as an emergency overflow basin only and is not expected to be inundated for sustained periods of time such that tree loss would result.

POST-CONSTRUCTION SITE PREPARATION

As segments of the channel are completed and structures set in place, pressurized water may be used to jet fines into the rock and gravel surfaces of the restored reaches. Affected areas would include the rock and log toe protection structures, rock riffles, and graded channel beds. Undisturbed surfaces and areas of fine-grained soil on the banks and floodplain would not be jetted. Water that collects in the channel from jetting would be captured by either downstream diversion dams or trenches downstream of the jetted reach. This water would be pumped up to the settling basin/treatment area north of the channel. Once the jetting is completed, sub reaches may be seasoned by allowing water to enter specific areas and percolate down through the bed to reduce the volume of fine particles on the surface.

CHANNEL EROSION CONTROL

Temporary erosion control features would be required over portions of the project to prevent soil loss on newly graded surfaces and provide sufficient time for vegetation to take hold. Erosion control would likely be designed to address erosion potential found in three parts of the channel: (1) newly graded channel beds, (2) channel banks less than 3 feet above the bed, and (3) channel banks higher than 3 feet above the bed and on floodplain benches.

Realigned channel beds would be over-excavated by 1 to 2 feet and backfilled with gravel and cobbles derived from excavation of native material or produced in an appropriate mixture from quarry materials. Lower channel banks within 3 feet of the bed would be protected with a protective erosion control blanket (such as bio-degradable coconut fiber), coir logs, and/or wetland sod mats to stabilize the lower bank during moderate flow conditions in the first couple of seasons. The upper banks would be protected with mulch to prevent erosion from runoff. All exposed and newly-graded surfaces would be planted following construction.

PROJECT CONTINGENCIES

The proposed dewatering plan and erosion control measures provide a flexible system for diverting instream flows around construction areas and the removal of local construction water to protect the water quality of the creek and Lake Tahoe. The plan includes design redundancies such as primary and secondary diversion structures, multiple pumps, and division of the construction site into separate segments to reduce the risk of unanticipated discharge directly to the creek. In addition to the design features described above, contingency plans have been developed to deal with conditions that might surpass the capacity of the dewatering system as designed. A brief description of some of the contingency plans is provided below.

Heavy rains in the basin could initiate erosion over exposed surfaces during construction. If rains are predicted, rolls of visqueen plastic would be available on site to cover graded areas, access roads, and stockpiles of

excavated material. If flow in the creek exceeds the design discharge of 20 cfs, overtopping of the diversion structures may occur. However, the plate dam installed at the SR 89 culvert would serve to back up water in the downstream channel reach to help settle out fine material. The elevation of the plate dam is designed to be low enough to safely pass overflow discharges into the culvert without inundating overbank areas.

It is expected that groundwater would seep into excavated trenches during construction and would be removed using submersible pumps. The project specifications would require the construction contractor to proceed with excavation in short sections while noting pumping rates to the storage areas. As the pumping rate approaches the design capacity of 1 cfs, excavation would be slowed to allow time for structures to be placed in the open trench and the site to be backfilled with appropriate fill material. If pumping rates exceed 1 cfs, construction operations would be modified to reduce the need for pumping, or the storage areas would be used to temporarily buffer increased pumping rates. The storage areas have adequate capacity to allow for a full day of pumping from the excavations at twice the design rate, or a full day of pumping at the design rate with the disposal area shut down. This would provide the contractor with flexibility to temporarily increase pumping rates or to make modifications in the land disposal area while continuing with construction. Pumping rates to the land application site would also be monitored and the site checked for surface erosion. If erosion occurs, several modifications to the application method would be considered. These would include improving the uniformity of outflow at each gate over the length of the irrigation pipe, the addition of structures at the pipe gates to help disperse the flow, and the reduction of pumping rates. In the event that local runoff was to occur, the design includes construction of a silt fence around the perimeter of application area to prevent sediment from leaving the site.

FISH CAPTURE AND TRANSLOCATION

Before construction activities commence within lower Blackwood Creek (i.e., before creek diversion and dewatering), a qualified biologist would conduct fish capture and translocation activities within the construction impact area, and areas approximately 100 feet upstream and downstream of that area. Block nets with 1/8-inch mesh would be placed at the upstream and downstream extent of the fish removal area to prevent fish from moving into the area during fish removal and subsequent construction activities. All captured fish species would be immediately released to suitable habitat upstream of the construction work area.

2.6.5 MATERIALS TRANSPORTATION

Materials would need to be imported to the site for the proposed creek restoration elements. Preliminary estimates of materials required include approximately 351 cu. yd. of logs, 1,220 cu. yd. of rock, and 1,346 cu. yd. of boulders. Assuming the average haul truck would have the capacity to carry approximately 14 cu. yd. of material, the proposed project would generate approximately 208 truck trips related to materials import over the duration of project construction, including Phases 1 and 2.

Early estimates of cut-and-fill quantities indicate that the proposed project would result in approximately 8,400 cu. yd. of cut and 3,300 cu. yd. of fill. The on-site cut would be used as much as possible for fill; however, about 5,100 cu. yd. of cut soil would still need to be removed from the site. Assuming that each haul truck would carry 14 cu. yd. of material, approximately 364 truck trips would be needed over the duration of the project to remove the excess material. The excess material would be either transported out of the Tahoe Basin to an undetermined site, likely in the Carson Valley of Nevada (approximately 45 miles one way), or used to fill an old upstream USFS borrow site or other site (with applicable permits and authorizations) within the Tahoe Basin. Priority would be given to an in-Basin location for the disposal/reuse of excess material.

2.6.6 ONGOING MONITORING AND MAINTENANCE

Conservancy staff members would perform regular and ongoing post-project inspection and maintenance along lower Blackwood Creek to monitor the condition and performance of the creek improvements, to protect features from human or other disturbances if needed, and to evaluate whether debris needs to be removed from the

channel. It should be noted that debris in the channel is a natural part of this system and debris would only be removed if it causes an increased risk of flooding or other environmental impact. A detailed monitoring and maintenance plan is under development. At a minimum, the plan would include bi-monthly visual inspections from April through November of log/debris jams, rock and log toe revetments, beaver effects to vegetation enhancement areas and the stream channel, and areas near the mouth of the SR 89 culvert for the first 2 years following construction. Following the first 2 years after construction, Conservancy staff would perform visual inspections at least once annually after peak flows and immediately following significant flow events. If determined necessary to protect vegetation enhancement areas, in-channel hydrologic and geomorphic conditions, or other resources from beaver damage, measures to prevent tree cutting by beavers would be implemented. Appropriate measures to prevent or minimize beaver damage to trees could include installing wire fencing (or a functionally similar material) around individual trees.

2.7 OTHER PROJECTS IN THE PROJECT VICINITY

Table 2-5 includes a list of past, present, and probable future projects that have occurred or are planned to occur within the Blackwood Creek area and in the Placer County portion of the Tahoe Basin, which extends from Tahoe City to the El Dorado County boundary north of Meeks Bay. Most notable among these projects is the restoration work USFS is implementing in the upper reaches of Blackwood Creek; the USFS restoration plan has undergone separate environmental review and permitting, and construction was initiated in summer 2008 and will extend through 2010.

2.8 OTHER ALTERNATIVES CONSIDERED BUT REJECTED FROM FURTHER ANALYSIS

Several alternatives or project elements were considered during the early project design process. However, considerations related to schedule, cost, permitting constraints, and/or the inability to avoid or substantially lessen significant environmental impacts rendered other alternatives and elements infeasible. Therefore, these alternatives were rejected from further consideration.

In addition to variations in creek restoration elements, the Conservancy also considered replacing the existing Blackwood Creek culvert at SR 89 with a new single-span structure, or installing two additional culverts into the existing span (Section 2.2.2). Because modification of the SR 89 culvert structure would be too costly for consideration as part of the project without direct participation and financial assistance from Caltrans, and absent plans by Caltrans to modify or replace the culvert within the next 10 years, the concept of modifying the culvert was eliminated from further consideration and analysis.

Two alternative concepts for restoration of the creek were then developed based on the decision to keep the existing culvert. Although both alternatives were similar, one proposed extensive work in Reach 6 just upstream of Lake Tahoe and a smaller amount of floodplain-bench square footage than the second, which had minimal restoration in Reach 6 and increased floodplain bench area. The second also had a channel realignment feature in Reaches 4 and 5. Vegetation enhancement and trail rehabilitation elements proposed as part of the project were common to each alternative evaluated. Elements from both alternatives were then refined with direction from the TAC to create an alternative that most effectively met the project goals from a cost and environmental benefit perspective; the proposed project evaluated in this joint environmental document reflects the direction provided by the TAC.

Table 2-5
Cumulative Projects

Project Name	Project Type	Description	Implementation Year
Past Projects			
Road Restoration and Upgrades	Infrastructure Upgrades	Decommissioned North Fork Road and upgraded Barker Pass and Middle Fork Roads with appropriate BMPs.	2000–2001
Blackwood Gully Restoration	Channel/Upland Stabilization	Revegetated and stabilized gullies in the headwaters of Blackwood Creek to decrease sediment transport into the creek.	2001–2003
Blackwood Shooting Range Decommissioning Project	Infrastructure Upgrades	Decommissioned an unmanaged, undeveloped shooting range in an area of high recreation use.	2002–2003
Kaspian Campground Rehabilitation	Infrastructure Upgrades	Improved parking facilities at the Kaspian Sno-Park. Constructed an off-loading ramp for snowmobiles and a trail from the parking lot to Blackwood Canyon.	2002
Blackwood Canyon Uplands Restoration Project	Channel/Upland Stabilization	Completed small-scale rehabilitation and revegetation of 7.5 acres of landslide area that occurred along the Jeep trail between the north and middle forks of Blackwood Creek.	2002
Dispersed Camping Infrastructure Project	Infrastructure Upgrade/Resource Disturbance Reduction	Prohibited any further dispersed camping in Blackwood Canyon and established 10 official campsites near the off-highway vehicle staging area.	2004
Blackwood Fish Ladder Removal	Channel/Ecosystem Restoration	Removed the Blackwood Creek fish ladder above the existing bridge near the old gravel mining operation and replaced it with a naturalized boulder step pool.	2003
Quail Vegetation and Fuel Treatment Project	Fuels Reduction	Completed thinning and prescribed burning.	2005–2008
Blackwood Bridge replacement	Infrastructure Upgrades	Replaced the existing culvert on Barker Pass Road where it crossed Blackwood Creek with a 100-year-flood capacity bridge.	2006
Present Projects			
Quail Vegetation and Fuel Treatment Project	Fuels Reduction	Involves prescribed pile burning in previously thinned treatment areas.	2008–2012
Blackwood Creek Phase 3—Stream and Floodplain Restoration Project (Upstream Sites A and B)	Channel/Ecosystem Restoration	Restores channel stability and improves floodplain connectivity on 2 sites of Blackwood Creek.	2008–2009
USFS Urban Lots fuels reduction	Fuels Reduction	Involves prescribed pile burning and chipping in previously thinned urban lots.	2008
Future Projects			
Quail Vegetation and Fuel Treatment Project	Fuels Reduction	Would prescribe pile burning in previously thinned treatment areas.	2009–2012

Table 2-5
Cumulative Projects

Project Name	Project Type	Description	Implementation Year
Placer County Erosion Control Project (Tahoe Pines)	Infrastructure Upgrades	Would implement erosion control measures within the Tahoe Pines residential unit.	2009
Blackwood Fuels Reduction Treatments	Fuels Reduction	Would involve fuels reduction treatments of remaining Wildland Urban Intermix defense zone areas along Blackwood Creek in the upper two-thirds of the canyon.	2010+
Caltrans SR 28 Side Streets—Sequoia Avenue to Pine Avenue	Water Quality Improvement	Includes water quality improvements on side streets along the west shore of Lake Tahoe.	2008
Caltrans Tahoe Improvement Program—Placer 89 Project 2	Water Quality Improvement	Spans SR 89 between the El Dorado County line and the SR 28/89 junction in Tahoe City. The project's purpose is to collect and treat SR 89 stormwater runoff. This project would include reconstructing the existing drainage system; collecting roadway runoff for stormwater treatment; constructing sand traps and detention/infiltration basins to treat roadway runoff; constructing paved maintenance pullouts at sand traps; widening and paving shoulders where needed and justified such as for transit stops and drainage capacity; paving areas adjacent to right-of-way that provide scenic views; constructing new left-turn pockets and/or two-way left turn lanes in some commercial areas; relocating the existing Class I bike trail where needed; and stabilizing and revegetating existing slopes and bare areas.	2011–2013
Caltrans Tahoe Improvement Program—Placer 89 Project 3	Roadway Improvement	The purpose of this project is to restore and improve a degraded roadside access area on SR 80 from 0.3 mile north of Elizabeth Drive to 0.2 mile south of Sugar Pine Road. This project would include replacing and relocating bollards between parking pullouts and the bicycle path to clearly designate parking areas; enhancing the bicycle path with pullouts with bicycle racks; developing an interpretive plaque area; incorporating trash receptacles; installing new signage; providing protective split-rail fending around existing vegetation; and revegetating areas where erosion is occurring.	2011
Thompson 4 Lot Parcel Map	Minor Land Division	Minor land division splitting a 1.15-acre parcel into four new lots of (14,535 square feet, 11,652 square feet, 11,652 square feet, and 12,220 square feet).	2008
Homewood Mountain Resource Master Plan	Planning Document for Future Homewood Development	Community enhancement program project that includes new base and up-mountain recreation facilities, lodging, residential and commercial elements, including the areas of the present north and south base and an off-highway connection in between the two areas. Also included are some local areas serving commercial areas including a small grocery store and hardware store. Mountain improvements contemplated include restaurant/lodge areas, learn-to-ski areas, and lift improvements.	2010+

Notes: BMPs = best management practices; SR = State Route; USFS = U.S. Forest Service
Sources: Caltrans 2008, USFS 2008, Placer County 2008

This page intentionally left blank.

3 CEQA ENVIRONMENTAL CHECKLIST AND EXPLANATIONS

PROJECT INFORMATION		
1.	Project Title:	Lower Blackwood Creek Restoration Project
2.	Lead Agency Name and Address:	California Tahoe Conservancy 1061 Third Street South Lake Tahoe, CA 96150
3.	Contact Person and Phone Number:	Brian Wilkinson (916) 376-1605
4.	Project Location:	Lower Blackwood Creek—the 4,000 linear feet of stream channel that begins 3,000 feet upstream of State Route 89 (SR 89) and extends approximately 1,000 feet east of SR 89 (see Exhibits 2-1 and 2-2 in Chapter 2, "Project Description").
5.	Project Sponsor's Name and Address:	California Tahoe Conservancy 1061 Third Street South Lake Tahoe, CA 96150
6.	General Plan Designation:	Residential and Conservation
7.	Zoning:	TRPA Plan Area Statements 161 (Tahoe Pines) and 162 (Blackwood); see Chapter 2, "Project Description"
8.	Description of Project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.) See Chapter 2, "Project Description."	
9.	Surrounding Land Uses and Setting: (Briefly describe the project's surroundings)	See Section 2.3.2, "Surrounding Land and Uses," in Chapter 2, "Project Description."
10:	Other public agencies whose approval is required: (e.g., permits, financing approval, or participation agreement)	U.S. Army Corps of Engineers Tahoe Regional Planning Agency Lahontan Regional Water Quality Control Board California Department of Fish and Game California Department of Transportation Placer County

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology / Soils
☐ Hazards & Hazardous Materials	☐ Hydrology / Water Quality	☐ Land Use / Planning
☐ Mineral Resources	☐ Noise	☐ Population / Housing
☐ Public Services	☐ Recreation	☐ Transportation / Traffic
☐ Utilities / Service Systems	☐ Mandatory Findings of Significance	☒ None With Mitigation

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation:

I find that the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared. ☐

I find that although the proposed project COULD have a significant effect on the environment, there WILL NOT be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared. ☒

I find that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required. ☐

I find that the proposed project **MAY** have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed. ☐

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required. ☐

Signature

1-6-10
Date

Patrick Wright
Printed Name

Executive Director
Title

CA Tahoe Conservancy
Agency

EVALUATION OF ENVIRONMENTAL IMPACTS
1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis). 2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts. 3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required. 4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced). 5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following: a) Earlier Analysis Used. Identify and state where they are available for review. b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis. c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project. 6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated. 7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion. 8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected. 9. The explanation of each issue should identify: the significance criteria or threshold, if any, used to evaluate each question; and the mitigation measure identified, if any, to reduce the impact to less than significance.

3.1 AESTHETICS

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I.	**Aesthetics. Would the project:**				
	a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
	b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
	c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
	d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

VISUAL CHARACTER OF THE PROJECT SITE AND SURROUNDING ENVIRONMENT

The project area includes land owned by the U.S. government, the State of California, Placer County, and private landowners. A portion of the land in the project area is visible from SR 89; however, most of the project area is not visible from SR 89 and is more than 300 feet from the closest highway travel lane. The project area includes properties located within TRPA Plan Area Statement (PAS) 161, Tahoe Pines, and PAS 162, Blackwood, and is located within the area of the *West Shore Area General Plan*, adopted by Placer County in 1998 (Placer County 1998).

Blackwood Creek is situated in the Tahoe Basin, which is renowned for its natural beauty. The visual character of the project site and surrounding environment is dominated by forested lands; views of Lake Tahoe from SR 89, Eagle Rock, and Blackwood Creek; and residential development along SR 89 and Blackwood Creek.

TRPA has developed a system for addressing scenic resources by using a set of travel route ratings. Roadways in the Tahoe Basin have been divided into 53 travel segments known as “roadway travel units,” each representing a continuous two-directional viewshed of similar visual character. The roadway unit closest to the project site is Roadway Travel Unit 12, Tahoe Pines, which includes SR 89. Like scenic roadways, the shoreline of Lake Tahoe has been divided into 33 segments known as “scenic shoreline units.” The project area includes portions of Scenic Shoreline Unit 13, Eagle Rock. PAS 162 specifically recommends that the exceptionally high quality of TRPA Roadway Travel Unit 12 be protected.

TRPA’s 2006 threshold evaluation report determined that the roadway travel and scenic shoreline units near Blackwood Creek have been maintained since the 2001 evaluation and continue to be in attainment (TRPA 2007). This document did not identify any scenic changes to the roadway travel unit for 2006. The 2001 threshold evaluation indicated that continuing the trend of building fences along SR 89 could negatively affect the roadway travel unit. The shoreline unit also had no documented changes for 2006; however, the 2001 threshold evaluation indicated that continued construction of larger homes could negatively affect the scenic shoreline unit.

No TRPA-designated public recreation areas or campgrounds have views of the project site, although the segment of bicycle trail along SR 89 that bisects the project area is included as a scenic resource in TRPA's *1993 Lake Tahoe Scenic Resources Evaluation* (TRPA 1993). The scenic quality of existing views of the project area as viewed from the bicycle trail should be maintained.

DISCUSSIONS

a) Would the project have a substantial adverse effect on a scenic vista?

Less-than-Significant Impact. The proposed vegetation enhancement, trail rehabilitation, and creek restoration elements would be consistent with the character of the surrounding area. Neither the conifer thinning nor the trail work would be visible from SR 89. Similarly, most of the proposed creek restoration work would be set back and/or screened from SR 89, including the separated bicycle trail that runs on the east side of SR 89 on the Blackwood Creek overcrossing. Proposed creek restoration work would include natural materials and revegetation that would be consistent with the natural setting.

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Less-than-Significant Impact. The project would remove trees in areas where aspen stands and cottonwoods would benefit from the removal of conifers. This tree removal is not proposed to occur in an area that would degrade scenic quality within the scenic roadway or shoreline units. Additionally, the tree removal would maintain existing aspen stands and cottonwoods, which are expected to increase in size and quality over time. No rock outcroppings or historic buildings would be affected by the proposed project. For these reasons, the project would not damage scenic resources. This impact would be less than significant.

c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

Less-than-Significant Impact. As discussed in item "a" above, the existing visual character of the site would be maintained. No building structures are proposed as part of the project. As previously mentioned proposed creek restoration work would include natural materials and revegetation that would be consistent with the natural setting (see Chapter 2 "Project Description"). All areas of restoration work would have a natural appearance upon completion.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less-than-Significant Impact. The project does not propose any exterior lighting. As discussed in items "a" and "c" above, proposed creek restoration work would include natural materials (e.g., rock features) and revegetation that would be consistent with the natural setting (see Chapter 2 "Project Description"); therefore, no new sources of substantial light or glare are anticipated.

3.2 AGRICULTURAL RESOURCES

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II.	**Agricultural Resources.**				
	In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland.				
	Would the project:				
	a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
	b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☒
	c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Lower Blackwood Creek is located within an undeveloped conservation area. Surrounding lands are primarily zoned for residential and conservation and do not support agricultural activity. The project would not affect parcels under Williamson Act contracts, nor lands identified as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance (TRPA n.d.).

DISCUSSION

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. The proposed project would be located on land that primarily contains government or public service uses; therefore, no farmland would be converted to nonagricultural uses as a result of this project. There would be no impact on agricultural lands.

b) Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?

No Impact. The project would be located on land that contains primarily government or public service uses. The project site is not enrolled in a Williamson Act contract and its proposed use as recreation and conservation land would be consistent with the existing zoning. Therefore, there would be no impact on zoning on the project site.

c) Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?

No Impact. The project site would be used for recreation and conservation uses. Because no changes to the existing environment would occur that could result in the conversion of farmland to nonagricultural use, there would be no impact on farmland.

3.3 AIR QUALITY

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III.	**Air Quality.**				
	Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the following determinations.				
	Would the project:				
	a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
	b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
	c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
	d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
	e) Create objectionable odors affecting a substantial number of people?	☐	☒	☐	☐

ENVIRONMENTAL SETTING

The project site is located in the eastern portion of Placer County, which lies in the Lake Tahoe Air Basin (LTAB) and under the jurisdiction of the U.S. Environmental Protection Agency (EPA), the California Air Resources Board (ARB), the Placer County Air Pollution Control District (PCAPCD), and TRPA. With respect to ozone, the eastern portion of Placer County in the LTAB is currently designated as an unclassified/attainment area for the 1-hour state ambient air quality standard and for the 8-hour national ambient air quality standard. The LTAB is also designated as an unclassified/attainment area with respect to the national standard for PM_{10} (i.e., respirable particulate matter with an aerodynamic diameter of 10 micrometers or less), and the state and national standards for $PM_{2.5}$ (i.e., respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less). However, the area is currently designated as a nonattainment area for the state PM_{10} ambient air quality standard (ARB 2008, EPA 2008). Under TRPA standards the LTAB is classified as nonattainment for ozone (1-hour and 8-hour), PM_{10}, and carbon monoxide (CO).

Air quality within the LTAB is regulated by EPA and ARB at the federal and state levels, respectively, and locally by PCAPCD and TRPA. PCAPCD and TRPA seek to improve air quality conditions in the LTAB through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean-air strategy of PCAPCD includes developing programs for the attainment of ambient air quality standards, adopting and enforcing rules and regulations, and issuing permits for stationary sources. PCAPCD also inspects stationary sources, responds to citizens' complaints, monitors ambient

air quality and meteorological conditions, and implements other programs and regulations required by the federal Clean Air Act, federal Clean Air Act Amendments of 1990, and the California Clean Air Act.

For the purposes of CEQA evaluation, PCAPCD has established quantitative thresholds of significance of 82 pounds per day (lb/day) for reactive organic gases (ROG), oxides of nitrogen (NO_X), and PM_{10}. PCAPCD also requires projects to implement standard mitigation measures and best available mitigation measures when project construction or operations exceed these mass-emission thresholds.

For the purposes of TRPA evaluation, implementation of the proposed project would result in significant air quality impacts if project-generated emissions from stationary sources were to exceed TRPA's significance thresholds for peak emissions during a 24-hour period, as established by Chapter 91 of the Code of Ordinances (Table 3-1).

Table 3-1
TRPA Significance Thresholds for Peak Emissions during a 24-Hour Period

Pollutant	Kilograms	Pounds
Nitrogen Dioxide (NO_2)	11.0	24.2
Respirable Particulate Matter (PM_{10})	10.0	22.0
Volatile Organic Compounds (reactive organic gases [ROG])	57.0	125.7
Sulfur Dioxide (SO_2)	6.0	13.2
Carbon Monoxide (CO)	100.0	220.5

Source: TRPA 2007

The project area is located in an area of Placer County that is least likely relative to other parts of the county to contain naturally occurring asbestos (CGS 2006, CDMG 2000).

EMISSIONS OF GREENHOUSE GASES

No air district in California has identified a significance threshold for analyzing Greenhouse Gas (GHG) emissions generated by construction only projects or a methodology for analyzing impacts related to GHG emissions or global climate change. Though, by adoption of Assembly Bill (AB) 32 and Senate Bill (SB) 97, the state of California has identified GHG reduction goals and that the effect of GHG emissions as they relate to global climate change is inherently an adverse environmental impact issue. While the emissions of one single project would not cause global climate change, GHG emissions from multiple projects throughout the world could result in a cumulative impact with respect to global climate change.

To meet AB 32 goals, California would need to generate less GHG emissions than current levels. It is recognized, however, that for most projects there is no simple metric available to determine if a single project would substantially increase or decrease overall GHG emission levels.

Although the text of AB 32 applies to stationary sources of GHG emissions, this mandate demonstrates California's commitment to reducing the rate of GHG emissions and the state's associated contribution to climate change, without intent to limit population or economic growth within the state. Thus, to achieve the goals of AB 32, which are tied to GHG emission rates of specific benchmark years (i.e., 1990), California would have to achieve a lower rate of emissions per unit of population than it has now. Further, in order to accommodate future population and economic growth, the state would have to achieve an even lower rate of emissions per unit than was achieved in 1990. (The goal to achieve 1990 quantities of GHG emissions by 2020 means that this will need to be accomplished with 30 years of population and economic growth beyond 1990 in place.) Thus, future

planning efforts that would not encourage reductions in GHG emissions would conflict with the policy decisions contained in the spirit of AB 32, thus impeding California's ability to comply with the mandate.

Thus, if a statewide context for GHG emissions is pursued, any net increase in GHG emissions within state boundaries would be considered "new" emissions. For example, a land development project does not create "new" emitters of GHGs, but would theoretically accommodate a greater number of residents in the state. Some of the residents that move to the project could already be California residents, while some may be from out-of-state (or would 'take the place' of in-state residents who 'vacate' their current residences to move elsewhere). The out-of-state residents would be contributing new emissions in a statewide context, but would not necessarily be generating new emissions in a global context. Given the California context established by AB 32, the project would need to accommodate an increase in population in a manner that would not inhibit the state's ability to achieve the goals of lower emissions overall.

However, the state of California has established GHG reduction targets and has determined that GHG emissions as they relate to global climate change are a source of adverse environmental impacts in California that should be addressed under CEQA. Although AB 32 did not amend CEQA, it identifies the myriad of environmental problems in California caused by global warming (Health and Safety Code, Section 38501[a]). SB 97, however, did amend CEQA by directing the Governor's Office of Planning and Research (OPR) to prepare revisions to the State CEQA Guidelines addressing the mitigation of GHGs or their consequences. As an interim step toward development of required guidelines, in June of 2008, OPR published a technical advisory, entitled "CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review." OPR recommends that the lead agencies under CEQA make a good-faith effort, based on available information, to estimate the quantity of GHG emissions that would be generated by a proposed project, including the emissions associated with vehicular traffic, energy consumption, water usage, and construction activities, to determine whether the impacts have the potential to result in a project or cumulative impact and to mitigate the impacts where feasible (OPR 2008).

In that document, OPR acknowledged that "perhaps the most difficult part of the climate change analysis will be the determination of significance," and noted that "OPR has asked ARB technical staff to recommend a method for setting thresholds which will encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the state." ARB has not yet completed this task at the time of writing.

OPR is in the process of updating Appendix G of the state *CEQA Guidelines* to address impacts of GHG emissions, as directed by SB 97 (2007). OPR has proposed the following additions to Appendix G. An impact related to global climate change is considered significant if the proposed project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or,
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

For the purposes of this IS the project would be considered significant if the project would substantially hinder the State's ability to attain the goals identified in AB 32 (i.e., reduction of statewide GHG emissions to 1990 levels by 2020). GHG emissions are discussed under checklist item "c" below.

DISCUSSION

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less-than-Significant Impact. The state implementation plan (SIP) is a broad-level air quality plan based on population growth levels and distribution identified in local community plans, combined with the cumulative impacts from approved and proposed development projects. Proposed projects that increase population or employment growth beyond that identified in the local plans may increase vehicle miles traveled (VMT), leading to an increase in mobile-source emissions, which may conflict with air quality planning efforts. An increase in VMT beyond projections in local plans could result in a significant adverse incremental effect on the region's ability to attain or maintain national and state ambient air quality standards.

Implementation of the proposed project would be consistent with the existing land use designations. Project implementation would not result in an increase in population, employment, or VMT, nor would it affect the emissions budget of the SIP. In addition, implementation of the proposed project would not result in the operation of any major stationary emissions sources or long-term operation of area or mobile sources of emissions. Thus, implementation of the proposed project would not conflict with or obstruct implementation of the applicable air quality efforts of ARB, PCAPCD, or TRPA. As a result, this impact would be less than significant.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Please note that air quality emissions from both short-term construction and long-term project operation are discussed below. Separate impact conclusions are provided for short-term and long-term air quality emissions. However, the most conservative impact conclusion listed below is provided under item "b" in the environmental checklist above.

SHORT-TERM CONSTRUCTION-GENERATED EMISSIONS OF CRITERIA AIR POLLUTANTS AND OZONE PRECURSORS

Less than Significant with Mitigation Incorporated. Construction emissions are described as "short term" or temporary in duration and could represent a significant impact with respect to air quality, especially in the case of fugitive PM_{10} dust emissions. Fugitive PM_{10} dust emissions are associated primarily with site preparation and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and VMT on- and off-site. Emissions of the ozone precursors ROG and NO_X are associated primarily with exhaust from construction equipment.

The construction of access roads and staging areas, vegetation thinning, bank stabilization, channel realignment, temporary water diversion activities, and trail rehabilitation work for the proposed project would temporarily generate emissions of ROG, NO_X, and PM_{10} from site preparation (e.g., grading, excavation, and land clearing); exhaust from construction equipment, construction workers' commute trips, and materials transport; and other miscellaneous activities. The exact number and type of construction equipment that would be used for these activities is not known at this time; however, the diesel-powered equipment that would be used on-site would likely include a grader, excavator, loader, water pumps, haul trucks, chippers, hand tools (such as chain saws), backhoes, and tractors.

Short-term construction-generated emissions of ROG, NO_X, and PM_{10} were estimated using the ARB-approved computer program URBEMIS 2007, Version 9.2.4 (Rimpo and Associates 2007). URBEMIS is designed to model construction emissions for land use development projects and allows for the input of project-specific information. Some of the proposed vegetation enhancement work, which would provide needed materials for other project

elements, would occur in the area north of Blackwood Creek along Reaches 3–5 in mid to late summer 2010. Conifer removal in the most westerly stand north of Reach 2 would occur in the summer of 2011 and could overlap with the proposed creek restoration and trail rehabilitation work. The proposed creek restoration work would be completed in two distinct construction phases. Phase 1 would include the proposed creek improvements upstream of SR 89, and Phase 2 would include all improvements downstream of SR 89. The work associated with each phase of construction could be accomplished in a single construction season. The Phase 1 improvements are planned for summer 2011. Construction activities are expected to take up to 4 months within the May 1—October 15 time frame to complete. The proposed Phase 2 improvements are anticipated to be constructed 2 to 4 years after completion of Phase 1. The proposed trail rehabilitation work would occur in summer 2011 either concurrent with or subsequent to the proposed Phase 1 creek improvements. URBEMIS modeling was conducted for a worst-case period of construction that would include Phase 1 creek restoration work coupled with trail rehabilitation work. It is assumed that soil disturbance would occur on approximately 8 acres and, according to URBEMIS default parameters, that the maximum daily level of ground disturbance would be less than 1 acre per day. In addition, most of the ground disturbance, which produces fugitive PM_{10} dust, would occur during the spring and summer, and therefore would not overlap with the time of year when the LTAB experiences its highest levels of PM_{10} from use of wood for heating purposes. Estimated daily construction emissions are shown in Table 3-2.

Table 3-2
Summary of Modeled Short-Term Construction-Generated Emissions

Source	ROG (lb/day)	NO_X (lb/day)	PM_{10} (lb/day)
Fine Grading Dust	–	–	10.0
Off-Road Equipment Exhaust	6.3	59.5	2.8
On-Road Equipment Exhaust	0.9	14.1	0.6
Worker Trips	0.2	0.2	0.0
Total Unmitigated Emissions	**7.4**	**73.8**	**13.4**
PCAPCD Threshold	**82.0**	**82.0**	**82.0**
TRPA Threshold	**–**	**–**	**22.0**

Notes: lb/day = pounds per day; NO_X = oxides of nitrogen; PCAPCD = Placer County Air Pollution Control District; PM_{10} = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less; ROG = reactive organic gases; TRPA = Tahoe Regional Planning Agency
See Appendix B for modeling results.
Source: Data prepared by EDAW 2008

As shown in Table 3-2, maximum daily construction emissions of ROG (7.4 lb/day), NO_X (73.8 lb/day), and PM_{10} (13.4 lb/day) would not exceed PCAPCD or TRPA thresholds. However, because PCAPCD-recommended mitigation measures are not incorporated into the project description, short-term construction-generated emissions could violate or contribute substantially to an existing or projected air quality violation. As a result, this impact would be significant absent inclusion of these measures. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure AQ-1: Reduce Temporary Construction Emissions of ROG, NO_X, and PM_{10}.

In accordance with PCAPCD Rule 228 (PCAPCD 2003), the Conservancy and its contractor(s) shall implement the following measures during construction of the proposed project.

1. The Conservancy shall submit to PCAPCD and receive district approval of a construction emission/dust control plan before groundbreaking. This plan must address the minimum administrative requirements found in Sections 300 and 400 of PCAPCD Rule 228, Fugitive Dust.

2. Fugitive dust shall not exceed 40% opacity and shall not drift beyond property boundaries at any time. If lime or other drying agents are used to dry out wet grading areas, they shall be controlled as to not to exceed Rule 228 limitations.

3. Exhaust emissions from construction equipment shall not exceed Rule 202 limitations. Operators of vehicles and equipment that exceed opacity limits shall be immediately notified and the equipment must be repaired within 72 hours.

4. The prime contractor shall submit to PCAPCD a comprehensive inventory (i.e., make, model, year, emissions rating) of all heavy-duty off-road equipment (50 horsepower or greater) that will be used for an aggregate of 40 or more hours during construction of the project. The project representative shall provide PCAPCD with the anticipated construction timeline, including the start date, and the name and phone number of the project manager and on-site foreman. The project representative shall provide a plan for approval by PCAPCD demonstrating that the heavy-duty off-road vehicles to be used in project construction—owned, leased, and subcontractor vehicles alike—will achieve a project-wide fleet-average 20% reduction in NO_X emissions and 45% reduction in particulate emissions compared to the most recent ARB fleet average. Acceptable options for reducing emissions may include the use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

5. No open burning of removed vegetation shall occur during infrastructure improvements.

6. Idling time shall be minimized to 5 minutes for all diesel-powered equipment.

7. ARB-approved diesel fuel shall be used for all diesel-powered equipment.

8. Dust control measures shall be required for any grading or earthmoving activity creating substantial quantities of dust. Dust control measures shall comply with Chapter 64.4 of the TRPA Code of Ordinance and be approved by TRPA before groundbreaking. Dust control measures that would be submitted for TRPA review and approval would likely include the following:

    a. Water shall be applied to control dust as needed to prevent dust impacts off-site. One or more water trucks shall be used on-site as required to control fugitive dust. Construction vehicles leaving the site shall be inspected and treated as necessary in the designated equipment wash area to prevent dust, silt, mud, and dirt from being released or tracked off-site and onto SR 89.

    b. Approved chemical soil stabilizers, vegetative mats, or other appropriate best management practices shall be applied to all inactive construction areas (previously graded areas that remain inactive for 96 hours or more, or daily if there is a 30% or great chance of rain or if a wind advisory for Lake Tahoe is in effect) to manufacturers' specifications.

    c. Soil binders shall be spread on unpaved roads and employee/equipment parking areas and streets shall be washed or cleaned using a vacuum sweeper or pick broom if silt is carried over to adjacent public thoroughfares.

9. Existing power sources or clean fuel generators shall be used rather than temporary diesel-powered generators. If such sources or generators are not available, low-sulfur fuel is to be used for diesel-powered generators.

Implementation of Mitigation Measure AQ-1 would reduce fugitive PM_{10} dust emissions a minimum of approximately 50% and prevent it from dispersing beyond the property boundary. Implementation of this mitigation measure would also reduce exhaust emissions of ROG, NO_X, and PM_{10} from diesel equipment by at least 5%, 20%, and 45%, respectively.

LONG-TERM OPERATIONAL EMISSIONS OF CRITERIA AIR POLLUTANT AND OZONE PRECURSORS

No Impact. Implementation of the proposed project would not result in the ongoing operation of any new emissions sources. The project would result in a limited number of new vehicle trips related to routine inspection and maintenance of the proposed creek restoration element of the project. Conditions would generally remain unchanged. Thus, there would be no impact related to long-term emissions of criteria air pollutants and ozone precursors.

c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less than Significant with Mitigation Incorporated. As discussed in item "b" above, project implementation would not result in any new long-term operational emissions of criteria air pollutants and ozone precursors. However, because PCAPCD-recommended mitigation measures are not incorporated into the project description, short-term construction-generated emissions could violate or contribute substantially to an existing or projected air quality violation, particularly considering the nonattainment status for PM_{10} in the LTAB. Thus, construction-generated PM_{10} emissions could result in a cumulatively considerable net increase in a criteria air pollutant for which the project region is nonattainment. As a result, this impact would be potentially significant. Implementation of Mitigation Measure AQ-1, as described above, would reduce short-term construction-generated emissions to a less-than-significant level.

GLOBAL CLIMATE CHANGE

Less-than-Significant Impact. GHG emissions generated by the proposed project would predominantly be in the form of carbon dioxide (CO_2) from construction equipment exhaust. While emissions of other GHGs such as methane (CH_4) and nitrous oxide (N_2O) are important with respect to global climate change, the emission levels of these GHGs for the sources associated with project construction are nominal compared with CO_2 emissions, even considering their higher global warming potential (GWP). Therefore, all GHG emissions for construction and operation are reported as CO_2.

Emission factors and calculation methods for estimating GHG emissions associated with infrastructure projects have not been formally adopted for use by the state, PCAPCD, TRPA, or any other air district. The construction-related GHG emissions associated with the Phase 1 creek restoration work were calculated using URBEMIS 2007 version 9.2.4.

No operational electricity, water transport, or other GHG emission sources would be associated with the long-term implementation of the proposed project.

CONSTRUCTION-GENERATED GREENHOUSE GAS EMISSIONS

Construction activities associated with the proposed Phase 1 creek restoration work would occur over a 4-month period. During this time, a net increase in GHG emissions would result from installation of proposed restoration features. Construction-related GHG emissions would be associated with engine exhaust from heavy-duty construction equipment and worker commute trips. While any increase in GHG emissions would add to the quantity of emissions that contribute to global climate change, it is noteworthy that emissions associated with construction of the project would occur over a finite period of time. Following completion of the project, all GHG emissions would cease.

To establish additional context in which to consider the order of magnitude of project-generated construction GHG emissions, it may be noted that facilities (i.e., stationary, continuous sources of GHG emissions) that generate greater than 25,000 metric tons CO_2/year are mandated to report their GHG emissions to the ARB pursuant to AB 32. As shown in Table 3-3, estimated GHG emissions associated with construction of the Phase 1 creek improvements would be approximately 274 metric tons of CO_2 over one year. Absent any air quality regulatory agency-adopted threshold for GHG emissions, it is notable that the proposed project would generate substantially fewer emissions than 25,000 CO_2/year. This information is presented for informational purposes only, and it is not the intention of the lead agency to adopt 25,000 metric tons CO_2/year as a numeric threshold. Rather, the intention is to put project-generated GHG emissions in the appropriate statewide context in order to evaluate whether the project's contribution to the global impact of climate change is considered substantial. Because construction-related emissions would be temporary and finite in nature, and below the minimum standard for reporting requirements under AB 32, the project's GHG emissions would not be a considerable contribution to the cumulative global impact, and therefore, would be less than significant.

Table 3-3
Summary of Modeled Construction-Generated Emissions of Greenhouse Gases

Source	Total Mass CO_2 Emissions (metric tons)[1]
Construction Emissions in Placer County	
Phase 1 Creek Improvement Totals	274
Total Cumulative Project GHG Emissions (2011)	274

[1] Construction emissions were modeled with the URBEMIS 2007 computer model. The URBEMIS 2007 model does not account for embedded CO_2 emissions associated with the manufacture of construction equipment or production of concrete or other building materials used in project construction. URBEMIS does not estimate GHG emissions other than CO_2, such as CH_4 and N_2O, as these levels are expected to be nominal in comparison to the estimated CO_2 levels despite their higher global warming potential.

Notes: CO_2 = Carbon Dioxide. The emission estimates shown are based on emission factors for the year 2009, as the modeling was conducted prior to a change in the project schedule; as a result, emissions presented here are conservative, and actual emissions would likely be lower in 2011. This is attributable to more stringent emission standards and lower emission technologies for mobile sources in future years.

See Appendix B for model results.

Source: Modeling conducted by EDAW 2008

OPERATIONAL-GENERATED GREENHOUSE GAS EMISSIONS

As stated above, there would be no new mobile, area, or stationary sources of GHGs associated with the proposed project. Therefore, implementation of the proposed project would not result in a net increase of long-term operation-related GHG emissions from mobile, stationary, or area sources. Thus, project-generated operational emissions would not result in a cumulatively considerable net increase of GHGs. As a result, this impact is considered less than significant. No mitigation is required.

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

Please note that the potential for the project to expose sensitive receptors both to concentrations of criteria air pollutants and ozone precursors and to concentrations of toxic air contaminants (TACs) are discussed below. Separate impact conclusions are provided for each type of emission. However, the most conservative impact conclusion listed below is provided under item "d" in the environmental checklist above.

EMISSIONS OF CRITERIA AIR POLLUTANTS AND OZONE PRECURSORS

Less than Significant with Mitigation Incorporated. Project construction activities would occur as close as 50 feet from the nearest residences south of lower Blackwood Creek. As discussed in item "b" above, project implementation would not result in long-term operational emissions of ROG, NO_X, or PM_{10}, or local emissions of CO, that would result in or contribute substantially to an air quality violation. However, because PCAPCD-recommended mitigation measures are not currently incorporated into the project description, short-term construction-generated emissions could violate or contribute substantially to an existing or projected air quality violation. Thus, construction-generated emissions could expose residences to substantial concentrations of pollutants. As a result, this impact would be significant. Implementation of Mitigation Measure AQ-1, as described above, would reduce short-term construction-generated emissions to a less-than-significant level.

EMISSIONS OF TOXIC AIR CONTAMINANTS

Less than Significant with Mitigation Incorporated. Construction of the project would result in emissions of diesel exhaust from on-site heavy-duty equipment. Particulate exhaust emitted by diesel-fueled engines (diesel PM) was identified as a TAC by ARB in 1998. Project construction would generate diesel PM emissions from the use of off-road diesel equipment required for site grading and earth movement. As shown in Table 3-2, off-road diesel-powered equipment operated during project construction would emit approximately 3.0 lb/day of diesel PM exhaust at the project site during the approximately 4-month construction effort modeled for the Phase 1 creek improvements. These emissions would be reduced with implementation of Mitigation Measure AQ-1 because these ROG, NO_X, and PM_{10} reduction measures would also reduce diesel PM emissions.

The dose to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent to which a person is exposed to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for such an individual are higher if a fixed exposure occurs over a longer period of time. According to the California Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, are based on a 70-year exposure period; however, such assessments are limited to the period/duration of activities associated with the project (Salinas, pers. comm., 2004). Thus, the anticipated 4 months of project construction activities would constitute less than 0.5% of the total exposure period. Because the use of off-road equipment would be temporary, diesel PM from construction activities would not be expected to result in the exposure of sensitive receptors to levels that exceed the applicable standards. In addition, the predominant wind direction in the project area during the summer months is from the south-southwest (WRCC 2008). Thus, the sensitive receptors near project construction activities, the closest being residences located south of lower Blackwood Creek where restoration work would occur, would not be located immediately downwind of construction activities. Furthermore, as discussed in Section 3.11, "Noise," Mitigation Measure NOI-1 would require that construction equipment and construction employee parking be located in designated areas only and be arranged to minimize travel near adjacent residences.

Also, as discussed in item "b" above, implementation of the proposed project would not result in the ongoing operation of any new emissions sources. The project would result in a limited number of new vehicle trips related to routine inspection and maintenance of the proposed creek restoration element of the project.

e) Would the project create objectionable odors affecting a substantial number of people?

Please note that odor sources from both short-term construction and long-term project operation are discussed below. Separate impact conclusions are provided for short-term and long-term sources of odors. However, the most conservative impact conclusion listed below is provided under item "e" in the environmental checklist above.

SHORT-TERM ODOR SOURCES

Less than Significant with Mitigation Incorporated. The occurrence and severity of odor impacts depend on numerous factors: the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies.

Project construction would result in diesel exhaust from on-site construction equipment. This exhaust, though intermittent and temporary, could be within 50 feet of sensitive receptors (residences in Tahoe Pines) and could result in objectionable odors affecting these neighbors. As a result, this impact would be potentially significant. Implementation of Mitigation Measure AQ-1, as described above, would reduce short-term construction-generated emissions, and therefore the odor associated with diesel exhaust emissions, to a less-than-significant level.

LONG-TERM ODOR SOURCES

Less-than-Significant Impact. Project operations may generate sulfuric-type odors associated with stagnant water and anaerobic activity during periods when water levels are drying up on the site. However, the potential for this type of odor currently exists because of seasonal flooding and drying up of floodplains on the project site. Thus, because the proposed project would not introduce a new odor source or introduce a new odor type to the area, this impact would be less than significant.

3.4 BIOLOGICAL RESOURCES

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV.	**Biological Resources. Would the project:**				
	a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☐	☒	☐	☐
	b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☐	☐	☒	☐
	c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
	d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
	e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
	f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Note: The potential to introduce aquatic nuisance species to Blackwood Creek during project construction is discussed in Section 5, "Wildlife," in Chapter 4, "TRPA Initial Environmental Checklist and Explanations."

ENVIRONMENTAL SETTING

Several biological studies have been conducted within the project area (Exhibit 2-2) since 2003. These studies, which provide the basis for this analysis, include:

- *California Tahoe Conservancy Forest Habitat Enhancement Program Blackwood Creek Pilot Study Parcel: Biological Resources Report* (Conservancy and DGS 2003);
- *Results of a Reconnaissance-Level Survey for Special-Status Wildlife Species on the Blackwood Creek Stream Restoration Project* (EDAW 2007a; see Appendix C);

- *Results of a Special-Status Plant Survey for the Blackwood Creek Stream Restoration Project* (EDAW 2007b; see Appendix C);
- *Revised Draft Fish and Wildlife Coordination Act Report for the Blackwood Creek Section 206 Aquatic Ecosystem Restoration Project* (USFWS 2003);
- *Results of Blackwood Canyon Goshawk/Spotted Owl Surveys* (Holl 2009a); and
- USFS wildlife records.

Field study methods, background literature and database searches, and the environmental setting for common and sensitive biological resources are described in detail in these reports. In addition to these studies, an EDAW fisheries biologist conducted a field reconnaissance survey of aquatic resources in the project area on July 24, 2007.

Plant communities and aquatic ecosystems present in the project area were mapped and described by EDAW (Conservancy and DGS 2003), and include montane coniferous forest, aspen riparian forest, montane riparian scrub, cottonwood-willow riparian forest, wet meadow, and stream.

Sensitive habitats are those that are of special concern to resource agencies or are afforded specific consideration through the TRPA Goals and Policies and TRPA Code of Ordinances, Section 404 of the Clean Water Act, and other applicable regulations. A preliminary delineation of waters of the United States, including wetlands, has been prepared for the project area (Conservancy 2008). This report identifies the number of acres of federally protected wetlands that occur in the project area. Blackwood Creek, as a perennial drainage that flows directly into Lake Tahoe, is likely considered a "water of the United States" subject to regulation by the U.S. Army Corps of Engineers (USACE). Much of the project area is classified as Stream Environment Zone (SEZ) and includes those areas mapped as aspen riparian forest, montane riparian scrub, cottonwood-willow riparian forest, wet meadow, and stream.

Several native and nonnative fish species occur in Tahoe Basin streams and rivers and have been documented or have high probability of occurring within the lower Blackwood Creek project area. Common native fish species include Lahontan redside (*Richardsonius egregious*), tui chub (*Siphateles bicolor*), speckled dace (*Rhinichthys osculus*), Tahoe sucker (*Catostomus tahoensis*), and Paiute sculpin (*Cottus beldingi*). Common nonnative fish species include rainbow trout (*Oncorhynchus mykiss*), brown trout (*Salmon trutta*), and brook trout (*Salvelinus fontinalis*).

No detections (i.e., individuals or sign) of northern goshawks (*Accipiter gentilis*) or spotted owls (*Strix occidentalis occidentalis*) were recorded during protocol-level surveys conducted in the project study area during 2008 and 2009 (Holl 2009a). However, both goshawks and spotted owls are known to have occurred historically in Blackwood Canyon, including areas adjacent to and within (spotted owls only) the project study area. An active goshawk nest was located in 1980 immediately north of the project study area. Two USFS designated goshawk protected activity centers (PACs) occur in Blackwood Canyon, one of which occurs in lower Blackwood Canyon immediately adjacent to and north of the project study area. Adult goshawks have been detected sporadically in Blackwood Canyon since 1980. In 2002 three goshawk observations were reported by USFS approximately 600 feet west of the project study area. In 2007 and 2008 USFS reported a total of six detections of goshawk over 1.5 miles west of the project study area in the upper portions of the watershed. The most recent detections of goshawks in the lower portion of the Blackwood Creek watershed (n = 3 records) were in 2006, nearly 1 mile west of the project study area. Additionally, a USFS spotted owl PAC occurs immediately north of the project study area. A number of spotted owl detections (> 10) have occurred in association with this PAC between 1997 and 2005, primarily north and west of the project study area. Most recently a pair of spotted owls, not associated with a nest, was detected in July 2007 within the project study area and a single owl was detected approximately 1 mile northwest of the project study area in 2009. Habitat assessments conducted during 2008 and

2009 concluded that habitat in the project study area was generally of low suitability for goshawk and spotted owl nesting as a result of the lack of large diameter trees, overabundance of small trees, and somewhat lower overstory canopy cover relative to species' preferences (Holl 2009a). Habitat in the project study area is suitable as foraging habitat for goshawk and spotted owl.

DISCUSSION

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?

Please note that project effects on species of plants, wildlife, and fish are discussed below. Separate impact conclusions are provided for plants, wildlife, and fish. However, the most conservative impact conclusion listed below is provided under item "a" in the environmental checklist above.

PLANTS

Less-than-Significant Impact. Protocol-level surveys were conducted on July 22 and 23, 2007, for special-status plant species with potential to occur in the project area. The results of these surveys were summarized in a technical memorandum titled *Results of a Special-Status Plant Survey for the Blackwood Creek Stream Restoration Project* prepared by EDAW and dated October 3, 2007 (EDAW 2007b). No special-status plant species were found in the project area. Therefore, the project is expected to have a less-than-significant impact on special-status plants.

WILDLIFE

Less than Significant with Mitigation Incorporated. Two special-status wildlife taxa have been documented in the lower Blackwood Creek project area: California spotted owl and waterfowl species (collectively). These species are not known to breed in the project area. Eleven additional special-status wildlife species were identified as having a moderate or high potential to occur within the lower Blackwood Creek project area (EDAW 2007a):

- bald eagle (*Haliaeetus leucocephalus*),
- osprey (*Pandion haliaetus*),
- northern goshawk (*Accipiter gentilis*),
- Cooper's hawk (*A. cooperii*),
- sharp-shinned hawk (*A. striatus*),
- long-eared owl (*Asio otus*),
- yellow warbler (*Dendroica petechia*),
- western red bat (*Lasiurus blossevillii*),
- hoary bat (*L. cinereus*),
- American marten (*Martes americana*), and
- Sierra Nevada snowshoe hare (*Lepus americanus tahoensis*).

Habitat associations, regulatory or management status, and potential for occurrence of these species in the project area are detailed in the special-status wildlife report prepared for this project (EDAW 2007a; Appendix C). Although project implementation is expected to provide substantial long-term benefits for all of these species through restoration of the creek and forest ecosystems, some short-term adverse impacts are anticipated; these impacts are discussed below by species with appropriate mitigation to reduce these short-term impacts to a less-than-significant level. Mitigation measures are included at the end of the discussion.

YELLOW WARBLER

Yellow warbler is designated as a species of special concern by the California Department of Fish and Game (DFG). In the Sierra Nevada, yellow warbler typically breeds in wet areas with dense riparian vegetation. Primary breeding habitats are willow patches in montane meadows, and riparian scrub and woodland dominated by willow, cottonwood, aspen, or alder with dense overstory cover. Some suitable breeding habitat for yellow warbler is present along Blackwood Creek in the project area, although it is patchy. The largest and most contiguous area suitable for yellow warbler is located in the meadow on the north side of Reach 1. The proposed project would not affect this meadow area.

The project is expected to improve habitat along Blackwood Creek for riparian birds, including yellow warbler, over the long term by increasing riparian vegetation cover, corridor width, and hydrologic connectivity with the stream channel. However, channel excavation, grading, vegetation removal, clearing, cut and fill, trenching, finishing, revegetation, cleanup, and materials transport within or adjacent to the riparian corridor would result in the temporary removal or disturbance of vegetation that could provide nesting habitat for yellow warbler. Construction within occupied habitat could cause direct impacts on breeding and nesting activities, and could affect the size or viability of the local population. Removal of occupied nesting habitat would be a direct and significant impact if yellow warblers were taken or deterred from occupying breeding and nesting locations. Construction could also result in noise, dust, and other disturbances to nesting warblers in the vicinity, resulting in potential nest abandonment and mortality to eggs and chicks.

WATERFOWL SPECIES

"Waterfowl" is designated as a special-interest group of species by TRPA. Several waterfowl species occur in the Tahoe Basin during spring and summer months, including Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), green-winged teal (*Anas crecca*), common merganser (*Mergus merganser*), and ruddy duck (*Oxyura jamaicensis*). In the Tahoe Basin, wetlands provide nesting, resting, and foraging habitat for waterfowl; open water and some stream habitats provide foraging and resting habitat. Important areas for waterfowl include Pope Marsh, Truckee Marsh, Taylor Creek Marsh, Grass Lake, and Spooner Lake (TRPA 2007).

Waterfowl occur in the project area, particularly in Reaches 5 and 6 and along the shoreline of Lake Tahoe. However, no suitable nesting habitat for waterfowl species exists in the project area, and waterfowl are not expected to nest there. Within the project area, riparian vegetation grows along Blackwood Creek. The riparian vegetation distributed along Blackwood Creek is sparse and patchy in many locations, and much of it grows above the water table, as evidenced by exposed roots along the eroded and incised banks. These conditions do not provide adequate cover for most waterfowl for nesting habitat. No TRPA-designated waterfowl threshold sites exist in the Blackwood Creek watershed. Project activities in Reach 5 include bank stabilization, revegetation, and partial channel fill. No project activities would occur in Reach 6, although some rock protection may be added to existing sewer and water facilities. Construction-related disturbance (such as noise) associated with these project activities could affect foraging or resting waterfowl, but would not cause the loss of nesting habitat, result in injury or mortality to individuals, or lead to changes in the population size or viability of any waterfowl species. Also, existing disturbance levels in the project vicinity are relatively high because of residential and recreational land uses; the temporary incremental increase in project-related disturbance would not reduce the population viability of these species if they occur in the vicinity.

BALD EAGLE AND OSPREY

Bald eagle is designated as a special-interest species by TRPA and as a sensitive species by the USFS. Three bald eagle nest sites are known to occur in the Tahoe Basin: one at Emerald Bay and two at Marlette Lake. Winter-season surveys for bald eagle in the Tahoe Basin are conducted annually and sponsored by USFS; breeding-season surveys are conducted annually by TRPA. Most sightings of bald eagles in the Tahoe Basin have occurred

along undeveloped shorelines and south-shore marshes. TRPA has designated bald eagle wintering habitat at Emerald Bay and the Upper Truckee Marsh.

Osprey is designated as a special-interest species by TRPA. In the Tahoe Basin, osprey nests are distributed primarily along the Lake Tahoe shoreline at the northern portion of the east shore and southern portion of the west shore. Other osprey nest sites in the Tahoe Basin occur along the shorelines of smaller lakes (such as Fallen Leaf Lake), and in forest uplands up to 1.5 miles from lakes. USFS and TRPA annually monitor breeding osprey during walk-in and shoreline boat surveys. The nearest known osprey nest site is located approximately 2 miles south of the project area (TRPA 2007).

Bald eagles and ospreys forage and perch along Lake Tahoe's west shore, and Lake Tahoe at the mouth of Blackwood Creek provides foraging habitat. However, bald eagles and ospreys do not nest in the lower Blackwood Creek project area. These conspicuous species were not detected during the reconnaissance wildlife survey of the project area (EDAW 2007a). Nesting ospreys and bald eagles are highly vocal and visible when disturbed. The nearest known bald eagle nest site is located at Emerald Bay, approximately 12 miles from the project area. The nearest TRPA-designated wintering habitat is located along the south shore at Emerald Bay and the Upper Truckee Marsh. However, it is possible that both osprey and bald eagle forage over Lake Tahoe near the project site. If ospreys or bald eagles use the immediate vicinity of the project site for foraging, construction activities related to bank stabilization in Reach 5 could disturb their foraging activities. However, because of the presence of existing recreation and residential use, the existing disturbance level is relatively high; additional temporary disturbance related to bank stabilization, proposed vegetation treatments, or trail decommissioning and rehabilitation would not substantially affect the foraging patterns of bald eagle or osprey. Also, abundant and suitable foraging habitat is available in other areas nearby. Because of the limited spatial and temporal effects of channel restoration in Reach 5 and current recreation and residential use, these activities are not expected to cause injury or mortality to individuals, disrupt breeding attempts, or affect the population size or viability of these species.

NORTHERN GOSHAWK

Northern goshawk is designated as a sensitive species by the Regional Forester (USFS Pacific Southwest Region), a special-interest species by TRPA, and a species of special concern by DFG. In the Sierra Nevada, northern goshawks breed at elevations from approximately 2,500 feet in the ponderosa pine/mixed-conifer vegetation types through approximately 10,000 feet in the red fir and lodgepole pine vegetation types, and throughout eastside pine forests on the east slope (Bloom, Stewart, and Walton 1986). Additionally, northern goshawks nest in aspen stands occurring in shrub vegetation types on the eastern slope of the Sierra Nevada (Herron, Mortimore, and Rawlings 1985; Bloom, Stewart, and Walton 1986). Northern goshawks are year-round residents in the Lake Tahoe region (Keane 1999) and are suspected to be year-round residents throughout the Sierra Nevada, although some limited seasonal altitudinal movements may occur.

Northern goshawks have been documented within 600 feet of the project study area (USFS data), and USFS has designated a PAC on its land adjacent to the project area. As discussed above, no goshawks or their sign (feathers, whitewash, nests, etc.) were detected during two-year protocol-level surveys conducted in the project area during 2008 and 2009 (Holl 2009a). (Note: the shelf life of protocol-level surveys for northern goshawks is typically 2 years; proposed construction activities [e.g., Phase 2 creek improvements] that occur after 2 years following the 2008/2009 survey could be subject to another round of protocol-level surveys.) Therefore, goshawks are not known to nest in the project study area; however, they probably use the project area for foraging. The removal or disturbance of occupied nesting habitat is not anticipated as a result of the proposed project. Construction could result in noise, dust, and other disturbances to foraging birds in the vicinity, potentially resulting in avoidance of the project area during construction. All potential impacts on northern goshawk would be temporary; no long-term degradation of habitat would occur as a result of project implementation. Most trees larger than 30 inches diameter at breast height (dbh) would be retained during creek restoration and vegetation enhancement treatments, and overall canopy closure in the project area is not expected to change substantially.

COOPER'S HAWK AND SHARP-SHINNED HAWK

Cooper's hawk and sharp-shinned hawk are designated as species of special concern by DFG. Both species are breeding residents throughout much of California and generally nest and frequent riparian deciduous habitat, or other forested habitats near water sources. Both species tend to avoid areas of deep snowpack; therefore, residents in the Tahoe Basin may migrate seasonally to lower elevations.

Riparian and forest habitat in the project area provides suitable foraging and breeding habitat for both of these species, although high levels of human disturbance may limit breeding potential within areas where project activities would occur. No cooper's hawks or sharp-shinned hawks were incidentally detected during the two-year protocol-level surveys for northern goshawks and spotted owls conducted in the project area during 2008 and 2009 (Holl 2009b). (Note: the shelf life of protocol surveys for owls is typically 2 years; proposed construction activities [e.g., Phase 2 creek improvements] that occur after 2 years following the 2008/2009 survey could be subject to another round of protocol-level surveys.) Therefore, cooper's hawks and sharp-shinned hawks are not known to nest in the project study area. Similar to the effects on northern goshawks discussed above, the proposed project is not anticipated to adversely affect these species.

LONG-EARED OWL

Long-eared owl is designated a species of special concern by DFG. Long-eared owl occurs in a variety of habitat types throughout its range and will nest in woodland, forest, and open (e.g., grassland, shrub-steppe, and desert) settings. Long-eared owl occupies wooded and nonwooded areas that support relatively dense vegetation (trees, shrubs) adjacent to or within larger open areas such as grasslands or meadows (i.e., habitat edges) (Marks, Evans, and Holt 1994). This species has also been documented breeding in contiguous conifer forest habitat with heavy mistletoe infestation (Bull, Wright, and Henjum 1989). Trees and shrubs used for nesting and roosting include oaks, willows, cottonwoods, conifers, and junipers (Marks, Evans, and Holt 1994). Suitable nesting and foraging habitat for this species may exist within the project area. Preferred nesting habitat for long-eared owl in the Tahoe Basin has not been well documented. However, the species has been documented in the region during the breeding season as recently as 2005. No long-eared owls were incidentally detected during the two-year protocol-level surveys for northern goshawks and spotted owls conducted in the project area during 2008 and 2009 (Holl 2009b). (Note: the shelf life of protocol surveys for owls is typically 2 years; proposed construction activities [e.g., Phase 2 creek improvements] that occur after 2 years following the 2008/2009 survey could be subject to another round of protocol-level surveys.) Therefore, long-eared owls are not known to nest in the project area. Similar to the effects on northern goshawks discussed above, the proposed project is not anticipated to adversely affect this species.

CALIFORNIA SPOTTED OWL

California spotted owl is designated as a sensitive species by the Regional Forester and a species of special concern by DFG. California spotted owl occurs in several forest vegetation types: mixed conifer, ponderosa pine, red fir, and montane hardwood. In the Sierra Nevada, approximately 80% of known spotted-owl sites occur in mixed conifer forest, 10% are in red fir, 7% are in ponderosa pine/hardwood forest, and 3% occur in foothill riparian/hardwood forest and eastside pine (USFS 2001). Nesting habitat is generally characterized by dense canopy closure (i.e., 70% or greater) with medium to large trees and multistoried stands (i.e., at least two canopy layers). Foraging habitat can include intermediate to late-successional forest with greater than 40% canopy cover (Verner et al. 1992).

California spotted owl has been documented within the project area, and suitable nesting (albeit low quality) and foraging habitat is present there. No spotted owls or their sign (feathers, whitewash, nests, etc.) were detected during two-year protocol-level surveys conducted in the project area during 2008 and 2009 (Holl 2009a). (Note: the shelf life of protocol surveys for owls is typically 2 years; proposed construction activities [e.g., Phase 2 creek improvements] that occur after 2 years following the 2008/2009 survey could be subject to another round of

protocol-level surveys.) Therefore, spotted owls are not known to nest in the project area; however, they probably use the project area for foraging. The removal or disturbance of occupied nesting habitat is not anticipated as a result of the proposed project. The same project activities and resulting potential impacts to foraging described for northern goshawk could affect this species (see "Northern Goshawk" discussion above). All potential impacts on California spotted owl would be temporary; no long-term degradation of habitat would occur as a result of project implementation.

WESTERN RED BAT AND HOARY BAT

Western red bat is designated as a sensitive species by the Regional Forester and a species of special concern by DFG. In California, western red bat is more common at lower elevations; however, because this species has seasonal migrations, individuals can be found in higher elevations of the Sierra. Red bats are found primarily in dense riparian woodland habitats containing willow, cottonwood, and sycamore trees (Bolster 1998).

Hoary bat is designated as a species of special concern by DFG. Hoary bat is the most widespread North American bat, and individuals have been found at elevations from sea level to more than 13,000 feet. Roosts are generally in medium to large trees with dense foliage. This species tends to prefer open habitats or habitat mosaics with habitat edges and trees for roosting.

Western red bat has been documented in the region, and hoary bat was documented upstream of the project area along Blackwood Creek (Roth, pers. comm., 2007). Both of these special-status bat species may occur within the project area; however, it is not known whether the project area supports roost sites. If roost sites for these species are present in the project area, project activities that remove or disturb trees (such as vegetation enhancement treatments or vegetation removal during channel restoration) could remove or cause abandonment of these features.

AMERICAN MARTEN AND SIERRA NEVADA SNOWSHOE HARE

American marten is designated as a sensitive species by the Regional Forester and a species of special concern by DFG; Sierra Nevada snowshoe hare is designated as a species of special concern by DFG. Both of these mammal species may occupy the project area; however, they have not been documented there. Because of the high level of human activity in and around the project area, it is unlikely that either of these species use the project area for breeding or denning.

Noise or other factors associated with project activities (vegetation removal, clearing, and excavation) could temporarily disturb foraging or movement activities of and temporarily displace American marten or snowshoe hare. Also, individuals could alter their behavior by avoiding the project area during construction. The behavior and local distribution of prey species for marten could be temporarily altered by project activities; this could influence foraging patterns. However, potential disruptions of prey populations would occur locally, and are not likely to occur over a significant portion of any individual's foraging range. Although the proposed project could adversely affect individuals and habitat locally and temporarily, the magnitude and intensity of potential adverse effects are not expected to affect the species' distribution, breeding productivity, local population size, or regional populations. All potential impacts on American marten or Sierra Nevada snowshoe hare would be temporary; no long-term degradation of habitat would occur as a result of project implementation. Most trees larger than 30 inches dbh would be retained during creek restoration and vegetation enhancement treatments, and overall canopy closure, habitat composition, and stand structure in the project area are not expected to change significantly.

WILDLIFE IMPACT CONCLUSIONS

The following potential impacts on special-status wildlife species that could result from project implementation (discussed above) would be significant: (1) loss of individuals or nests, or disruptions to nesting attempts, of yellow warbler; and (2) removal of an active roost site for, or injury to, western red bat or hoary bat. Implementation of Mitigation Measures BIO-1 and BIO-2 would reduce these impacts to a less-than-significant level.

Mitigation Measure BIO-1: Conduct Preconstruction Surveys for Yellow Warbler, and Implement a Limited Operating Period If Necessary.

For construction activities that would occur within suitable habitat during the nesting season (approximately March 1–August 31, depending on weather), a qualified wildlife biologist shall conduct focused surveys for active nest sites of yellow warbler within 14 days before construction activities during any project phase (i.e., Phase 1 or 2). The biologist should be able to identify Sierra Nevada bird species audibly and visually. The preconstruction survey for yellow warbler nests shall be conducted using a nest-searching technique appropriate for the species (e.g., first conducting point counts in suitable riparian habitat to determine occupancy, followed by nest searching if the species is present). If a yellow warbler nest is located, DFG and the Conservancy shall be notified. Construction shall be prohibited within a minimum of 500 feet (or at a distance directed by the appropriate regulatory agency) of the nest to avoid disturbance until the nest is no longer active. The 500-foot buffer may be reduced through consultation with DFG.

If any special-status wildlife species is detected incidentally on the project site during preconstruction surveys or otherwise, the Conservancy and TRPA, DFG, and/or USFWS shall be notified, as appropriate. If necessary, measures to minimize or avoid disturbances to individuals or breeding activities (e.g., limiting operating periods during sensitive breeding periods) shall be developed and implemented in consultation with the appropriate agencies.

Mitigation Measure BIO-2: Conduct Preconstruction Surveys for Special-Status Bats, and Develop and Implement a Passive Relocation Plan If Necessary.

Bat surveys shall be conducted by a qualified wildlife biologist within 14 days before any tree removal or clearing. Locations of vegetation and tree removal or excavation shall be examined for potential bat roosts. Potential roost sites identified shall be monitored on two separate occasions for bat activity, using bat ultrasonic detectors to record bat echolocation to help identify species. Monitoring shall begin 30 minutes before sunset and shall last up to 2 hours at any potential roost identified. Any significant roost locations discovered shall not be disturbed by project activities, or if necessary, a passive relocation plan shall be developed in coordination with the appropriate agencies before any disturbance to the roost site.

If any special-status wildlife species is detected incidentally on the project site during preconstruction surveys or otherwise, the Conservancy and TRPA, DFG, and/or USFWS shall be notified, as appropriate. If necessary, measures to minimize or avoid disturbances to individuals or breeding activities (e.g., limiting operating periods during sensitive breeding periods) shall be developed and implemented in consultation with the appropriate agencies.

FISH

Less than Significant with Mitigation Incorporated. Two special-status fish species, Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*) and Lahontan Lake tui chub (*Gila bicolor pectinifer*), were investigated for habitat requirements and proximity of occurrences to the project area to evaluate their potential for occurrence. Lahontan cutthroat trout, federally listed by USFWS as threatened, is the only salmonid native to the Tahoe Basin. However, because of historic land uses, habitat loss, and introductions of nonnative salmonids, they were extirpated in the Tahoe Basin—including Blackwood Creek—in the late 1930s. Because of the presence of nonnative species currently found in Blackwood Creek—specifically rainbow trout, which are known to compete

and hybridize with cutthroat trout—suitable habitat does not exist within the project area. Lahontan Lake tui chub, designated as a sensitive species by the Regional Forester, are lake-dwelling pelagic fish that feed on zooplankton in the open waters of Lake Tahoe and are not known to occur in streams. Spawning generally occurs over sandy bottoms or in the mouths of tributaries. Larvae will eventually move out of the shoreline nursery areas and into their respective habitats (Moyle 2002). The shoreline and backwater segments of Blackwood Creek at the downstream extent of the project area may provide suitable habitat for this species. Surveys along these areas have not been conducted.

Before creek diversion and dewatering activities, fish capture and translocation measures would be implemented as part of the proposed project as described in Chapter 2, "Project Description." These measures would avoid and/or minimize direct effects on fish that would otherwise occur from dewatering activities. However, construction activities would disturb soils and could generate surface runoff, sedimentation, and increased turbidity in aquatic habitats downstream. Additionally, the use of construction equipment within the creek channel could result in the release and exposure of construction-related contaminants (such as fuels and lubricants). These construction-related effects could temporarily degrade downstream fish habitat function and quality. However, with implementation of the temporary BMPs identified in Chapter 2, "Project Description," and Mitigation Measures WQ-1 through WQ-3 discussed in Section 3.8, "Hydrology and Water Quality," the resulting effect on fish habitat function and quality would be less than significant.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?

Less-than-Significant Impact. The present condition of riparian habitat along the study reach is poor. The stands of riparian shrub that do exist along lower Blackwood Creek are narrow, discontinuous, and outside of the active floodplain, and they have little structural heterogeneity (i.e., all the individual shrubs are even aged, with little herbaceous understory and little to no emergent tree overstory). Some riparian shrub and associated herbaceous species would be removed during the proposed restoration work for realignment and regrading of the channel. Where possible, riparian vegetation that is removed would be salvaged and used to revegetate the newly created banks and floodplains. The removal of riparian shrub and associated herbaceous species would be a short-term construction-related impact. Because the project involves altering a stream channel and banks, the project would require a streambed alteration agreement from DFG pursuant to Section 1602 of the California Fish and Game Code as described in Chapter 1, "Introduction." Because the project would be required to comply with all permitting requirements of DFG as part of the Section 1602 permit, including conditions identified in the Section 1602 permit, this short-term construction impact would be less than significant.

A net long-term benefit would result from project implementation related to the establishment of naturally functioning riparian vegetation (i.e., continuous and more structurally diverse vegetation, with emergent aspen and cottonwood cover, that is connected to an active floodplain) along 4,000 linear feet of stream channel.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less than Significant with Mitigation Incorporated. The project involves manipulating the channel of lower Blackwood Creek, a potentially jurisdictional "water of the United States." This would result in significant short-term impacts on federally protected wetlands. As described in Chapter 1, "Introduction," the Conservancy would be required to obtain USACE authorization for the project pursuant to Section 404 of the Clean Water Act, Regional General Permit No. 16 (available for wetland restoration in the Tahoe Basin). Separate Section 404 permit applications would be submitted for each phase of the project (Phases 1 and 2). Although not a requirement of the authorization pursuant to Section 404 of the Clean Water Act (USACE 2008), a delineation of

waters of the United States was completed for the proposed project and will be submitted as part of the Section 404 permit for USACE use in application review. The Section 404 permitting process includes securing authorization for fill or reconstruction of jurisdictional waters of the United States, including wetlands, from the Sacramento District of USACE. The Section 404 permit requires the following general permit terms:

- determination of volume and type of material to be placed into waters of the United States;
- determination of total area of waters of the United States to be directly and indirectly affected;
- a description of habitat, including plant community, located in the project area;
- a description of any environmental impacts that are expected to occur, including methods to avoid, minimize, or mitigate adverse impacts on water quality or aquatic function at the project site;
- any other information pertinent to the wetland, stream, or water body involved;
- for projects involving the restoration of greater than 3 acres of wetlands, evidence that USFWS has been provided with a courtesy copy of the project notification; and
- a copy of the 401 water quality certification or waiver issued for the project.

Because the proposed project would be required to comply with all applicable Section 404 permitting requirements of the USACE pertaining to wetland impacts, including conditions identified in the Section 404 permit, impacts to wetlands would be minimized. Implementation of Mitigation Measure BIO-3 would further reduce the effects on wetlands by minimizing the loss of native vegetation. Compliance with the Section 404 permit process and implementation of Mitigation Measure BIO-3 would reduce the impact on wetlands at the site to a less-than-significant level.

Mitigation Measure BIO-3: Revegetate Areas of Disturbance with Salvaged Willow and Other Riparian Shrub Plantings.

The Conservancy shall coordinate with USACE as appropriate and obtain coverage under Regional General Permit No. 16 for the construction of all aspects of the project. All general terms required for permit compliance shall be implemented. To minimize the loss of native wetland vegetation at the site, salvage actions shall be implemented. Where riparian vegetation would be removed during new-channel construction and recontouring of the existing channel, willow, alder, and dogwood stumps shall be salvaged and propagated for revegetation of the areas of disturbance and bank stabilization.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Please note that potential effects on species of both wildlife and fish are discussed below. Separate impact conclusions are provided for wildlife and fish. However, the most conservative impact conclusion listed below is provided under item “d” in the environmental checklist above.

WILDLIFE

Less-than-Significant Impact. Wildlife movement corridors are considered an important ecological resource by various agencies (e.g., USFWS, USFS, and TRPA). Also, wildlife movement and migration corridors are protected under the TRPA Code of Ordinances. Movement corridors may provide favorable locations for wildlife to travel between different habitat areas, such as foraging sites, breeding sites, cover areas, and preferred summer

and winter range locations. They may also function as dispersal corridors allowing animals to move between various locations within their range.

The lower Blackwood Creek riparian zone upstream of the project area likely functions as a wildlife corridor because of its position away from the urban interface and connectivity to large open spaces; however, the importance of the lower Blackwood Creek project area as a wildlife corridor is unknown. Because of the high level of human disturbance within and adjacent to the project area, the presence of a major highway dividing the project area, and residential development surrounding much of the area, the potential for the project area to function as an important wildlife corridor is limited. To the extent that animals use the project area as a movement corridor, short-term disturbance caused by construction activities could affect wildlife movements within or across the project area temporarily. However, because of the project area's position at the forest-urban interface and adjacent to SR 89, species that would use the area during daily or seasonal movements are most likely adapted to high disturbance levels that presently exist there; and the temporary incremental increase in project-related disturbance would not affect wildlife movement patterns to a great degree. Also, no long-term barriers to animal movements would be created as a result of project implementation. Potential impacts of project implementation on wildlife movements would be temporary and less than significant. No wildlife nursery sites are known to occur on the project site.

FISH

Less than Significant with Mitigation Incorporated. During construction activities, the creek channel would be temporarily diverted and dewatered. This would result in a temporary barrier to migration and movement of fish and other aquatic organisms; however, none of the fish species that use Blackwood Creek would require movement or migration through the segment of creek that would be diverted and dewatered during project construction to complete their life history. Once construction within the channel is complete, the creek channel would be rewetted and migration and movement would be restored. Ultimately, the restored creek channel would provide improved habitat conditions and would not result in a barrier to migration or movement of fish or other aquatic organisms. For these reasons, temporary diversion of the creek and associated barriers to fish migration and movement during construction activities would be a less-than-significant impact.

As discussed above for impacts on special-status species, construction activities would disturb soils and could generate surface runoff, sedimentation, and increased turbidity in aquatic habitats downstream, including potential nursery sites within the lowermost backwater and shoreline areas. Additionally, the use of construction equipment within the creek channel could result in the release and exposure of construction-related contaminants (such as fuels and lubricants) in these areas. The impacts of proposed construction on these potential nursery sites would be potentially significant. However, with implementation of the temporary BMPs identified in Chapter 2, "Project Description," and Mitigation Measures WQ-1 through WQ-3 discussed in Section 3.8, "Hydrology and Water Quality," the resulting impact on fish habitat function and quality would be less than significant.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less than Significant with Mitigation Incorporated. Through its goals and policies and code of ordinances, TRPA sets standards for preserving and managing wildlife habitats, with special emphasis on protecting or increasing habitats of special significance such as deciduous trees, wetlands, meadows, and riparian areas (Chapter 78 of the TRPA Code of Ordinances). Specific habitats that are protected include riparian areas, wetlands, and SEZs; wildlife movement and migration corridors; important habitat for any species of concern; critical habitat necessary for the survival of any species; nesting habitat for raptors and waterfowl; fawning habitat for deer; and snags and coarse woody debris. In addition, TRPA special-interest species, which are locally important because of rarity or other public interest, and species listed under federal or state endangered species laws are protected from habitat disturbance from conflicting land uses. In addition, no project or activity can be

implemented within the boundaries of a SEZ except as otherwise permitted for habitat improvement, dispersed recreation, vegetation management, or as provided in Chapter 20 of the TRPA Code of Ordinances.

The project with mitigation incorporated would not conflict with the protection of TRPA special-interest species (see analysis and Mitigation Measure BIO-1 under item "a" above). Because the project's goals include enhancing riparian and upland habitat, it is consistent with TRPA regulations for conducting project activities within SEZs and riparian areas. Also, conformance with TRPA regulations is addressed in Chapter 4, "TRPA Initial Environmental Checklist and Explanations."

TRPA regulates the management of forest resources in the Tahoe Basin to achieve and maintain the environmental thresholds for species and structural diversity, to promote the long-term health of the resources, and to create and maintain suitable habitats for diverse wildlife species (TRPA 2004). Provisions for tree removal are provided in the TRPA Code of Ordinances (Chapter 71, "Tree Removal," and Chapters 30, 65, 75, and 77). All cutting of trees 14 inches dbh and larger requires a permit from TRPA. According to TRPA Code of Ordinances Sections 71 and 71.2.B, within the non-SEZ urban area, individual trees larger than 30 inches dbh that are healthy and sound are to be retained as desirable specimen trees having aesthetic and wildlife value, unless (1) all reasonable alternatives are not feasible to retain the tree, including reducing parking areas or modifying the original design; or (2) TRPA determines that they would contribute to a fire hazard or pose an unacceptable risk to occupied or substantial structures or areas of high human use, or removal of severely insect-infested or diseased trees is warranted to help control an outbreak. In addition, trees and vegetation not scheduled to be removed must be protected during construction in accordance with Chapter 65 of the TRPA Code of Ordinances. If a project would result in substantial tree removal (as defined by TRPA), a tree removal or harvest plan must be prepared by a qualified forester. The required elements of this plan, and TRPA's review process for tree removal plans, are described in Chapter 71 (Section 71.3.B) of the TRPA Code of Ordinances.

The Placer County Tree Ordinance (Placer County Code, Chapters 12.16 and 12.20) is intended to provide protection for all native and landmark trees, riparian zone trees, and certain commercial firewood operations, except as exempted. Under this ordinance, no development activities may be conducted within the protected zone of any protected tree on public or private land, or harm, destroy, kill, or remove any protected tree unless authorized by a tree permit or as permitted pursuant to approval of a discretionary project. Removal of conifer trees for this project would take place on lands owned by the State of California and is therefore not subject to the Placer County Tree Ordinance.

All proposed tree removal activities would be subject to TRPA permitting. The Conservancy would obtain a separate TRPA tree removal permit for the proposed vegetation enhancement and thinning activities. Tree removal for the creek restoration elements (Table 2-3) would be part of the TRPA permit for the proposed creek restoration elements and trail rehabilitation work. All conifer removal taking place as part of the vegetation enhancement and creek restoration elements of the project would conform to TRPA regulations for tree removal.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. No federal, state, or local conservation plans that include the project site have been adopted.

3.5 CULTURAL RESOURCES

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V.	**Cultural Resources. Would the project:**				
	a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☒	☐	☐
	b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
	c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
	d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

ENVIRONMENTAL SETTING

Project activities would take place within and along the side of Blackwood Creek, which is located primarily within the Pleistocene-age Tioga Formation (glacial outwash deposits consisting of boulder and cobble gravel, sand, and silt) and undifferentiated Holocene/Pleistocene alluvium (Saucedo 2005).

Preliminary background information on cultural resources issues for the Lower Blackwood Creek Restoration Project area was obtained from a review of previously prepared cultural resources studies conducted within and near the project area, among them the following:

- *California Tahoe Conservancy Forest Habitat Enhancement Program Blackwood Creek Pilot Study: Cultural Resources* (Conservancy and DGS 2003),
- *Historical Archaeological Resource Evaluation Report for the Highway 89 Rehabilitation Project* (Caltrans 2005), and
- *An Archaeological Survey of 1.5 Miles Along Blackwood Creek for the Proposed Blackwood Creek Aquatic Ecosystem Restoration Project* (USACE 2002).

The cultural resources encountered in the project area are the result of human behaviors within and adaptations to the natural environment. To better understand the origins of these resources and their management implications, they must be viewed within a broad regional cultural setting. The following section briefly discusses and summarizes cultural developments through the prehistoric, ethnographic, and historic past.

CULTURAL SETTING

PREHISTORY

Archaeological research in the Sierra Nevada over the last 50 years has resulted in the accumulation of a substantial body of knowledge. Investigations begun in the 1950s revolved around the examination of sites throughout the Lake Tahoe vicinity, including the lake shoreline, and the high Sierran crest east of the lake

(Heizer and Elsasser 1953, Arnold 1957, Elsasser 1960). This research led to the designation of two chronologically and spatially distinct archaeological complexes. The Martis Complex, dominated by basaltic materials and oriented toward hunting and gathering activities, was believed to date to 2,000–4,000 years ago. The subsequent Kings Beach Complex was associated with bow and arrow technology, as well as a greater use of obsidian and silicate materials. Technological developments oriented toward the extensive use of local fisheries and piñon nuts were also apparent (Heizer and Elsasser 1953).

More recent investigations have led to important modifications to the earlier sequence of archaeological developments. Excavations and analyses presented in Elston and Davis (1972), Elston et al. (1977), and Keesling and Johnson (1978) revealed the presence of several pre-Martis manifestations termed the Tahoe Reach and Spooner Phases, and the division of the Martis and Kings Beach Complexes into five more refined phases (Elston et al. 1977). The overview of California archaeology by Moratto (1984) provides a thorough summary of the above studies relevant to the Sierra Nevada and the Lake Tahoe region.

ETHNOGRAPHY AND ETHNOHISTORY

The Blackwood Creek project area falls within territory commonly attributed to the ethnographic Washoe (Kroeber 1925). The Washoe occupied the area surrounding the upper reaches of the Truckee and Carson Rivers, with Lake Tahoe constituting the center of their traditional territory (Kroeber 1925). The Washoe were the westernmost of the Great Basin hunting and gathering societies, although their use of Lake Tahoe and the high Sierra led to several important distinctions in their way of life. Linguistic evidence suggests "…the Washoe people have had a long tenure in their known area of historic occupation and that their presence predates the arrival of the Numic-speaking neighbors" (D'Azevedo 1986).

Gradually, the Washoe saw their traditional gathering grounds fenced off by Euro-American settlers. Political appeals and requests for government protections went largely unanswered and, by the early 20th century, the Washoe were heavily marginalized. Most people lived "…a precarious existence in scattered camps on the outskirts of town or in more isolated sections" (D'Azevedo 1986). More recently, Washoe people have been reinvesting in their community, including consolidations of the tribe and raising the standard of living through education and job creation, and through a renewed pursuit of traditional cultural practices and belief (D'Azevedo 1986).

HISTORY

A history of early transportation and logging in the Tahoe region has been summarized by Lindstrom (2001). This section focuses on the primary themes of historic development in the project vicinity: transportation, logging, and sheep herding.

Early Transportation

Historically documented Euro-American use of the Tahoe region began in the mid-19th century. The Stevens-Murphy party crossed the Sierra Nevada along the Truckee and Bear Rivers in 1844, along a trail that became known as the California Trail or the Truckee Pass Emigrant Road. In 1845, John Charles Fremont entered California through this pass, followed in 1846 by the infamous Donner Party. Only a few years later, the discovery of gold in the Sierra Nevada foothills greatly increased the flow of settlers over the pioneer Emigrant Trail, although the ruggedness of the trail at Donner Pass made early wagon travel along this route difficult. Alternative routes such as the Alder Emigrant Trail were used only minimally over the next 15 years, with Dutch Flat Road (to the north) being the main transportation route in the area by 1865 (GLO 1865, Farquhar 1965, Hoover et al. 1990).

Logging

Large-scale logging was first initiated in the Tahoe area after the discovery of silver at the Comstock Lode in Nevada in 1859. When production began to decline in the mines by 1867, the local lumbering business also began to suffer. However, a new market for lumber was found in association with the construction of the Transcontinental Railroad. As the rails reached Donner Summit in 1866–67, several mills established operations in the Tahoe area to supply the railroad with cordwood for fuel, lumber for construction, and ties for the railroad bed. As timber markets were gradually expanded with the completion of the railroad, a growing emphasis was placed on the production of other wood products. The expansion beyond rough lumber milling into other more refined facilities as planning mills and box factories meant that self-sufficient communities grew up where the larger mills were situated.

Basque Sheepherding

The Basque homeland is located between eastern France and western Spain. The first Basques to arrive in California were associated with the wave of immigration during the Gold Rush. When they became disillusioned with life in the mining camps, they turned to their traditional pursuit of herding sheep on the California/Nevada range (Douglass and Bilbao 1975).

During the 1850s, more than 500,000 sheep crossed Nevada on their way to California markets. By the 1860s, the direction of travel had been reversed. From 1865 to the 1890s millions of California sheep were trailed from California to the mining camps of the Great Basin and railheads in the plains (Douglass and Bilbao 1975). The historic Basque influence can still be seen in the Sierra Nevada today, and one of the most tangible reminders of their presence can be found in the prolific intricate tree carvings found in aspen groves throughout the region.

RESULTS OF CULTURAL INVESTIGATIONS

NATIVE AMERICAN CONSULTATION

Consultation with the Native American community was initiated by EDAW in October 2001, with a letter to the Native American Heritage Commission (NAHC) requesting a list of local Native American representatives and/or tribal contacts. This letter also requested a search of the NAHC sacred lands file to determine whether any properties of cultural concern to the Native American community are situated within or near the project area. No such properties had been documented in the area. Letters and follow-up phone calls were made to Lynda Shoshone and William Dancing Feather of the Washoe Tribe, the only NAHC-recommended contact. Ms. Shoshone did not express any particular concerns regarding the project area. Mr. Dancing Feather stated that no Washoe-related traditional observances are held within the project area, nor did any properties of particular cultural significance to the Washoe exist within or near the project area.

In 2009 the USACE performed additional consultation with the Washoe Tribe. The USACE contacted Darrel Cruz, Tribal Historic Preservation Officer with the Washoe Tribe and arranged a project study area visit to explain the proposed project and confirm there were no known significant early Native American sites or other culturally sensitive properties in the study area. Mr. Cruz, USACE archeologists, and Conservancy staff conducted this study area visit on October 21, 2009. The results of the most recent consultation and site visit are summarized below under the heading “Study Findings.”

STUDY FINDINGS

Previous cultural resources investigations covered a significant portion of the lower Blackwood Creek project study area. Cultural resources documented as part of those surveys include seven built properties (CA-Pla89-1H, and sites located at 6810, 5490, 5290, 5280, 5210, and 4890 West Lake Boulevard), a prehistoric bedrock mortar/historic-era refuse site (CA-Pla-40/H), and a former recreational camp site (ca. 1932) (CA-Pla-1927H).

Most of these resources were recommended significant under National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR) criteria. One site (CA-Pla-40/H) has not been evaluated per NRHP/CRHR criteria. Site CA-Pla-1927H was recommended not eligible to the NRHP/CRHR by Williams (as cited in Caltrans 2005) and the recommendation was concurred with by the State Historic Preservation Officer on November 8, 2005.

Bridge #19-0067, a 1927 concrete arch culvert located within the project area, was originally evaluated during the statewide bridge inventory (1986) and determined ineligible for NRHP/CRHR listing. Of these previously-documented cultural resources, none appear to have been associated with any significant historical event (NRHP Criterion A, CRHR Criterion 1), historically important individual(s) (NRHP Criterion B, CRHR Criterion 2), or were the work of a master, possess high artistic values, or have any distinctive characteristics (NRHP Criterion C, CRHR Criterion 3). The bedrock mortar site (CA-Pla-40/H) may retain some data potential for understanding early Native American habitation in the Lake Tahoe Basin and as a result should be considered potentially eligible to the NRHP/CRHR (NRHP Criterion D, CRHR Criterion 4).

An additional survey undertaken by EDAW cultural resource specialists covered the Blackwood Creek channel and adjacent areas east of SR 89. In 2003, EDAW conducted an intensive survey of the eastern portion of Blackwood Creek up to the shore of Lake Tahoe to complete the field inventory of the creek and its immediate vicinity. This survey resulted in the documentation of a segment of unpaved roadway (P-31-2804H, EDAW temporary designation BC-2), a historic-era trash deposit (CA-Pla-1954H, EDAW temporary designation BC-3), and an aspen grove containing a total of eight trees bearing carvings consistent with those noted elsewhere in the region done by Basque sheep-herders (P-31-2806H, EDAW temporary designation BC-4). The roadway (P-31-2804H) and trash deposit (BC-3) were not found to possess any historically important associations with significant events (NRHP Criterion A, CRHR Criterion 1), or persons (NRHP Criterion B, CRHR Criterion 2), were not the work of a master and did not possess any distinctive characteristics or high artistic value (NRHP Criterion C, CRHR Criterion 3). In addition, neither P-31-2804H nor CA-Pla-1954H possess significant data potential that could be used to address historical research issues and as a result are recommended not eligible to the NRHP/CRHR under NRHP Criterion D or CRHR Criterion 4 (data potential). The Basque tree carvings (P-31-2806H), however, would require further evaluation for their significance by a recognized expert. This evaluation work is presently being conducted by the USACE and further investigation may link the aspen carvings with the refuse scatters noted at CA-Pla-19654H. One of the carvers, Steven Landa, was a noted regional Basque sheep-herder and operator of one of the larger herding companies to operate out of the Lake Tahoe Basin. Landa, in addition, was a noted bread baker who supplied bread to the herders in his company and other companies in the region. Ongoing research may suggest that the trash deposits are associated with Landa's operations and if so, the USACE may recommend combining the trash scatters with the aspen carvings as a single site potentially eligible for listing on the NRHP/CRHR. Consequently, for management purposes this resource(s) should be considered eligible to the NRHP/CRHR particularly under NRHP/CRHR Criterion A (NRHP)/1 (CRHR) (association with significant events), Criterion B (NRHP)/2 (CRHR) (association with significant persons), and/or Criterion C (NRHP)/3 (CRHR) (distinctive characteristics, work of a master, high artistic value).

During the EDAW survey it was noted that the creek channel and adjacent banks were heavily eroded and overgrown with dense vegetation. The eroded character of the stream channel and immediate setting suggest that if any prehistoric or historic-era cultural resources were once present, they would likely have been heavily disturbed or completely destroyed, particularly by seasonal water flow. Also, much of the landform directly in the creek channel and its immediate banks appears to be the result of recent sediment deposition and dynamic formation processes, making it especially unlikely that potentially significant (per NRHP/CRHR criteria) prehistoric cultural resources would have been deposited and remained present in this area.

As described previously, in 2009 the USACE performed additional consultation and a site visit on October 21, 2009 with the Washoe Tribe. During this visit at least one potential piece of prehistoric lithic debitage (stone flake[s] resulting from tool manufacture and/or maintenance) was detected within site CA-PLA-1927H (also referred to as CA-PLA-1953H). Mr. Cruz requested that a focused survey be conducted in the vicinity to

determine if the find could represent a potentially significant (per NRHP/CRHR criteria) cultural resource. A subsequent survey by a USACE archeologist specializing in prehistoric stone artifacts, documented a total of five pieces of debitage within an area of approximately 300 square meters. A sketch map of their location and distribution was drawn and an assessment of artifact morphology was conducted. The USACE survey determined that this sparse surface scatter of debitage occurred within a heavily disturbed area and recommended that the find was not eligible to the NRHP/CRHR under Criterion A (NRHP)/1 (CRHR) (association with significant events), Criterion B (NRHP)/2 (CRHR) (association with significant persons), Criterion C (NRHP)/3 (CRHR) (distinctive characteristics, work of a master, high artistic value) and/or Criterion D (NRHP)/4 (CRHR) (data potential). The USACE has sought concurrence from the State Historic Preservation Officer on the eligibility recommendations.

DISCUSSION

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

Less than Significant with Mitigation Incorporated. With the possible exception of the Basque-related aspen carvings (P-31-2806H) and the possibly associated trash scatter (CA-Pla-1954H) which requires further evaluation, none of the cultural resources identified within the project area appear to be eligible for listing on the NRHP/CRHR. In order to determine the significance of this site per NRHP/CRHR criteria, further documentation and evaluation is necessary. Although such carvings are commonly encountered in the Lake Tahoe region, their context and historical significance needs to be addressed by a recognized expert in the field. Implementation of Mitigation Measure CUL-1 would reduce the project's potential for the disturbance of this site to a less-than-significant level.

Mitigation Measure CUL-1: Further Document and Evaluate P-31-2806H and CA-Pla-1954H.

Prior to any project activities that could impact the setting and integrity of the documented Basque tree carvings and possibly associated site CA-Pla-1954H, the sites shall be documented in further detail including scale drawings of the individual carvings and a scale site map. The site shall also be assessed and evaluated by a recognized expert in Basque history and tree carving practices. This evaluation will recommend whether or not the site is eligible for listing on the NRHP/CRHR. This evaluation is presently being conducted by the USACE which may combine both locations into a single cultural site. If recommended eligible to either the NRHP or the CRHR, further research and/or project avoidance would be necessary. Implementation of Mitigation Measure CUL-1 would reduce these impacts to a less-than-significant level.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less than Significant with Mitigation Incorporated. Site CA-Pla-40/H (prehistoric bedrock mortar/historic-era refuse) would be avoided by project activities. Sites P-31-2806H and CA-Pla-1954H would be evaluated for NRHP/CRHR inclusion. Additional research and a NRHP/CRHR evaluation study for P-31-2806H and CA-Pla-1954H is presently being conducted by the USACE. However, the potential exists to encounter previously undiscovered cultural material during project-related construction activities (i.e., grading or other earthmoving activities). Because project-related construction activities could disturb previously unknown, buried, and important cultural resources, this impact would be potentially significant. Implementation of Mitigation Measure CUL-2 would reduce the project's potential for the disturbance of documented and potentially buried important cultural resource to a less-than-significant level.

Mitigation Measure CUL-2: Mitigate Impacts on Previously Undiscovered Resources.

Archaeological site CA-Pla-40/H shall be avoided by the designation of a 50-meter (165 foot) buffer zone by a qualified archaeologist. The buffer shall be delineated by the installation of "cyclone" fencing or other clearly visible markers or fencing. Construction contractor(s) who may be working in the vicinity of CA-Pla-40/H shall also be notified of the demarcated buffer zone to further ensure avoidance. However, due to the sensitivity of the site vicinity, a qualified monitor shall be onsite during all subsurface ground-disturbing restoration activities. This would ensure that if any buried cultural resources are found, they would be avoided, or if necessary evaluated for their potential listing in the NRHP/CRHR. If buried or previously identified resource (prehistoric in particular) are discovered during project activities, all work in the vicinity of the find would cease, and the State Historic Preservation Officer and the Washoe Tribe of Nevada and California Tribal Historic Preservation Officer would be contacted for additional consultation under 36 CFR 13 (b), Discoveries Without Prior Planning. Implementation of Mitigation Measure CUL-2 would reduce potential impacts to a less-than-significant level.

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No Impact. The potential paleontological importance of the project site can be assessed by identifying the paleontological importance of exposed rock units within the project area. Because the areal distribution of a rock unit can be easily delineated on a topographic map, this method is conducive to delineating parts of the project site that are of higher and lower sensitivity for paleontological resources and to delineating parts of the project site that may require monitoring during construction.

A paleontologically important rock unit is one that has a high potential paleontological productivity rating and is known to have produced unique scientifically important fossils. The potential paleontological productivity rating of a rock unit exposed at the project site refers to the abundance and densities of fossil specimens and/or previously recorded fossil sites in exposures of the unit in and near the project site. Exposures of a specific rock unit at the project site are most likely to yield fossil remains representing particular species in quantities or densities similar to those previously recorded from the unit in and near the project site.

The value or importance of different fossil groups varies, depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions, such as part of a research project. Marine invertebrates are generally common, well developed, and well documented; they would generally not be considered a unique paleontological resource. On the other hand, identifiable vertebrate marine and terrestrial fossils are generally considered scientifically important because they are relatively rare.

Project-related activities would take place primarily within the Pleistocene-age Tioga glacial outwash deposits and undifferentiated Holocene/Pleistocene alluvium. A search of the University of California Museum of Paleontology database indicates that there are no recorded vertebrate fossils from the Lake Tahoe area, nor are there any fossils recorded from the Tioga Formation (UCMP 2008). Therefore, project-related activities would have no impact on unique paleontological resources.

d) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Less than Significant with Mitigation Incorporated. Based on documentary research, no evidence suggests that any prehistoric or historic-era marked or unmarked human interments are present within or in the immediate vicinity of the project site. However, there is a possibility that unmarked previously unknown graves of Native Americans or Euro-Americans could be present within the project site. Potential disturbance of previously undiscovered human remains during project construction would be a potentially significant impact.

Implementation of Mitigation Measure CUL-3 would reduce the project's potential for disturbance of human remains to a less-than-significant level.

Mitigation Measure CUL-3: Mitigate Impacts on Previously Undiscovered Burials.

In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, the Conservancy and its contractor(s) shall immediately halt potentially damaging excavation in the area of the burial and notify the Placer County Coroner and a professional archaeologist to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). After the coroner's findings have been made, the archaeologist and the NAHC-designated Most Likely Descendant shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities of Placer County for acting upon notification of a discovery of Native American human remains are identified in California Public Resources Code Section 5097.9.

California law recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. The Conservancy shall ensure that the procedures for the treatment of Native American human remains contained in California Health and Safety Code Sections 7050.5 and 7052, and California Public Resources Code Section 5097, are followed.

3.6 GEOLOGY AND SOILS

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI.	**Geology and Soils. Would the project:**				
	a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
	i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	☐	☐	☐	☒
	ii) Strong seismic ground shaking?	☐	☐	☐	☒
	iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
	iv) Landslides?	☐	☐	☐	☒
	b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
	c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
	d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?	☐	☐	☐	☒
	e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

GEOLOGY

The project area is located along the west shore of Lake Tahoe on a regionally significant down-dropped fault block. The Blackwood Canyon watershed is approximately 11.2 square miles located within a nearly 2,000 foot-wide, U-shaped glacial valley with a length of approximately 5 miles. The topography of the watershed is characterized by steep canyon walls and a gently sloping valley floor with elevations ranging from 8,878 feet above mean sea level at Twin Peaks to 6,230 feet at Lake Tahoe; the maximum elevation within the project area (Eagle Rock) is 6,500 feet. Four similarly sized forks of Blackwood Creek drain the upper third of the watershed. The gradients of the North Fork, two branches of the Middle Fork, and the main stem of Blackwood Creek are on the order of 10% and decrease abruptly to approximately 1% at the confluence of the Middle Fork and main stem

of Blackwood Creek (Lahontan RWQCB 2007). The canyon and creek in the vicinity of the project area slope eastward toward Lake Tahoe.

The watershed geology is generally composed of Miocene-Pliocene-age (between 23 million years and about 2 million years before present) extrusive volcanic rocks overlain by Quaternary-age (last 2 million years) fluvial and glacial deposits (Saucedo 2005). The volcanic and glacial deposits are easily erodible and produce relatively high rates of sediment yield. Swanson Hydrology and Geomorphology, in a study for USFS (USFS 2003), and others (Schweickert and Lahren 2002) have identified numerous landslides upstream of the project area that postdate the most recent glacial deposits. These landslide deposits are considered significant factors in both sediment production and fluvial processes (USFS 2003).

The project area is in Uniform Building Code Seismic Zone 3. It is not located near any active faults, as delineated on the Alquist-Priolo Earthquake Fault Zoning Map issued by the California Department of Conservation, Division of Mines and Geology (Hart and Bryant 1999). However, the Geologic Map of the Lake Tahoe Basin, California and Nevada (Saucedo 2005), the most recent geologic map of the region, shows several active or potentially active faults mapped near the project area (the closest within approximately 0.5 mile of the project area boundary). None of these active or potentially active faults (i.e., having ruptured during the last 11,000 years and the last 1.2 million years, respectively) transect the project area on this map. The Nevada Department of Mines and Geology's Preliminary Map of Late Quaternary to Holocene Faults in the Lake Tahoe Basin does show a northwesterly trending fault, identified as the Tahoe-Sierra Frontal Fault Zone, running through the project area (Schweickert et al. 2000). The presence of the mapped Tahoe-Sierra Frontal Fault Zone was reevaluated for the more recent Geologic Map of the Lake Tahoe Basin, California and Nevada (Saucedo 2005). The analysis included collecting a dense grid of seismic chirp sonar data in 2002 that revealed no offset of post-Tioga sediments or offset of bedrock scarps. Based on this study, input from the professional community, and the overall consensus from participating parties, the Tahoe-Sierra Frontal Fault Zone was eliminated from the updated geologic map of the region (Kent et al. 2005).

Known faults in the vicinity, described below, include the North Tahoe, East Tahoe, and West Tahoe-Dollar Point Faults.

The North Tahoe Fault is a subaqueous northeast-southwest trending fault that is approximately 7 miles long. The northeast-southwest trending Incline Village Fault Zone appears to be the landward extension of the submerged North Tahoe Fault and also trends northeast toward the Truckee Meadows Fault. All three of these faults may be part of a system of normal faults that rupture together. Evidence indicates that an earthquake may have occurred along the Incline Village Fault as recently as 500 years ago, and all three faults are estimated to be capable of generating an earthquake of Richter magnitude (M) 7.0 (Seitz and Kent 2004).

The East Tahoe Fault, much of which is also located under Lake Tahoe, is inferred to bounds the east margin of the basin. The fault shows bedding terminating against a planar west-dipping bedrock surface, which suggests young movement. Recent bathymetry of Lake Tahoe reveals that the escarpment is deeply dissected, has an irregular base, and is partly buried at the base by well-developed sediment aprons. The subaqueous fault has probably been modified by the deposition of thick debris avalanche deposits that appear to have accumulated against the eastern basin escarpment related to one or more very large debris avalanches that initiated on the west wall of the basin. Schweickert et al. (1999) speculated that at least one "megalandslide" on the west side of the basin was triggered by a Holocene faulting event. No evidence has been reported that the East Tahoe Fault displaces Quaternary deposits on the north or south shores of the lake.

The north-south trending West Tahoe–Dollar Point Fault Zone is another prominent normal slip fault zone in the Tahoe Basin. The West Tahoe Fault is submerged from Emerald Bay to McKinney Bay. The Dollar Point Fault is the northern continuation of the West Tahoe Fault northward from McKinney Bay. Both of these faults are likely to rupture together (Ichinose et al. 1999).

According to the Earthquake Potential Map for Portions of Eastern California and Western Nevada, the Tahoe area has a relatively low potential for shaking caused by seismic-related activity (CGS 2005). However, the Nevada Seismological Laboratory catalog lists eight earthquakes with a 4.2 M or greater that have occurred since 1950 within approximately 18 miles of the center of Lake Tahoe (Smith et al. 2004). These include an M 4.5 earthquake at Tahoe Vista (approximately 35 miles northeast of the project area) on June 3, 2004. The 2004 event has been attributed to an increase in upper crustal seismicity following a deep dike swarm of 1,611 earthquakes in the Tahoe Vista area at the site of a deep magma injection event beneath Lake Tahoe (Smith et al. 2004). Recent seismic research in the Tahoe Basin suggests that the potential for strong seismic shaking in the area may be greater than had been thought previously.

SOILS

Soils in the project vicinity are typically deeper than those found upstream of the project area. They consist primarily of loamy coarse sands derived from andesitic parent material that are well to moderately well drained, with relatively high permeability. Two exceptions are the volcanic rock outcrop and the Tahoe Complex derived from a mixed material, primarily andesitic lahar and granodiorite. Tahoe Complex soils are very deep, poorly drained soils. The following soils are found within the project area based on the *Soil Survey for the Tahoe Basin Area, California* (NRCS 2007):

- Kneeridge gravelly sand loam, 2–5% slopes, very stony;
- Kneeridge gravelly sandy loam, 5–15% slopes, very stony;
- Oxyaquic Cryorthenths–Aquic Zerorthents–Tahoe Complex, 0–15% slopes;
- Paige medial sandy loam, 5–15% slopes;
- Paige medial sandy loam, 15–30% slopes;
- Rock outcrop, volcanic;
- Tahoe Complex, 0–5% slopes, gravelly;
- Waca very gravelly medial coarse sandy loam, 9–30% slopes;
- Waca very gravelly medial coarse sandy loam 30–50% slopes; and
- Waca very gravelly medial coarse sandy loam 50–70% slopes.

DISCUSSION

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)

ii) Strong seismic ground shaking?

iii) Seismic-related ground failure, including liquefaction?

iv) Landslides?

i–iv) No Impact. The proposed project would not expose people or structures to substantial adverse effects from a rupture of a known earthquake fault, seismic related ground shaking, failure, or liquefaction because the project is a stream, habitat, and trails restoration project that does not propose housing or other structures. The project site is not located in an Alquist-Priolo Earthquake Fault Zone; however, preliminary mapping (Schweickert 2000) showed a strand of the northwest-trending Tahoe-Sierra Frontal Fault Zone running through the project area. The Tahoe-Sierra Frontal Fault was eliminated from the updated geologic map of the region based on an analysis of 2002 seismic sonar chirp data, professional consensus, and community input (Kent et al. 2005). Landslide

deposits identified by Swanson Hydrology and Geomorphology in a study for USFS (USFS 2003) are located upstream, not within the project area. Therefore, the project would have no impact related to faulting, seismic ground shaking, failure, or liquefaction.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less than Significant with Mitigation Incorporated. Project grading would result in exposure of soil to potential wind and water erosion until the project site was effectively stabilized and revegetated. To minimize erosion potential, the final construction plans would include slope stabilization methods, a dewatering plan, and revegetation specifications. Temporary BMPs identified in Chapter 2, "Project Description," and Mitigation Measures WQ-1 through WQ-3 identified in Section 3.8, "Hydrology and Water Quality," address soil erosion and the potential for loss of top soil. Specifically, as discussed in item "a" in Section 3.8, "Hydrology and Water Quality," the proposed project would be required to obtain and comply with the Lahontan RWQCB NPDES permit, which requires the applicant to file a notice of intent for stormwater discharges associated with general construction activities and to prepare and implement a storm water pollution prevention plan (SWPPP) before the start of any construction work, site grading, or excavation. (Note: separate permit applications will be submitted for each phase of the project.) The NPDES permit would address soil erosion and the potential for loss of topsoil. The SWPPP would require identification of grading and erosion-control best management practices (BMPs) and specifications that are necessary to avoid and minimize water quality impacts to the extent practicable. Implementation of standard erosion-control measures (e.g., management, structural, and vegetative controls) would be required for all construction activities that expose soil. Grading operations would be required to eliminate direct routes for conveying potentially contaminated runoff to drainage channels. The SWPPP would identify specific measures for stabilizing soils before the onset of winter as well. These standard erosion-control measures would be designed to reduce the potential for soil erosion and sedimentation. The general contractor(s) and subcontractor(s) conducting the work would be responsible for constructing or implementing, regularly inspecting, and maintaining the erosion-control and waste-discharge measures identified in the SWPPP.

BMPs identified in Chapter 2, "Project Description," and Mitigation Measures WQ-1 through WQ-3 would reduce potential impacts related to substantial soil erosion and loss of top soil to a less-than-significant level.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less-than-Significant Impact. According to the preliminary geotechnical report (Allwest Geoscience 2007), the soils and geologic conditions of the project area do not preclude the proposed restoration. The proposed project would not include construction of any building structures, the project area is not located within a State of California Seismic Hazard Zone for landslides, and subsurface conditions indicate that no potential liquefaction hazards exist because of the nature and density of the underlying glacial deposits and relatively shallow bedrock. Although landslides have been documented upstream, none are located within the project area. Therefore, the proposed project would have a less-than-significant impact related to unstable soils.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?

No Impact. The proposed project is not located on expansive soils as defined in Table 18-1-B; therefore, it would not create any risks associated with expansive soils.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The project does not propose the construction of any septic tanks or wastewater disposal systems.

3.7 HAZARDS AND HAZARDOUS MATERIALS

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII.	**Hazards and Hazardous Materials. Would the project:**				
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h)	Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The project site is located in a conservation/rural setting and is currently open space land. According to EPA's Envirofacts Web site database, no hazardous-waste generators or Superfund sites are located on or within the vicinity of the project site (EPA 2005). No schools or airports are located in the vicinity of the project site.

DISCUSSION

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less-than-Significant Impact. Construction of the proposed project would involve the routine transport and handling of hazardous substances such as diesel fuels, lubricants, and solvents. Handling and transport of these materials could result in the exposure of workers to hazardous materials. No hazardous materials would be used or stored on the project site after project construction. Because the proposed project would be in compliance with applicable federal, state, and local laws pertaining to the handling, transport, storage, and disposal of hazardous materials, including California Occupational Health and Safety Administration requirements, this impact would be less than significant.

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?

Less than Significant with Mitigation Incorporated. As noted above, construction of the proposed project would involve the use of heavy construction equipment, which uses small amounts of hazardous materials such as oils, fuels, and other potentially flammable substances that are typically associated with construction activities. Because no accidental-spill prevention and response plan is in place, this impact would be potentially significant. Implementation of Mitigation Measure HAZ-1 would reduce this impact to a less-than-significant level. (Note: The proposed project would also be required to conform with all applicable regulations and permitting requirements of the Lahontan RWQCB and TRPA pertaining to construction discharges and water quality standards discussed in item "a" in Section 3.8, "Hydrology and Water Quality.")

Mitigation Measure HAZ-1: Prepare and Implement an Accidental-Spill Prevention and Response Plan.

The Conservancy shall work with the project contractor(s) to establish on-site construction staging areas where hazardous materials would be stored during construction. The Conservancy shall also require project contractor(s) to prepare an accidental-spill prevention and response plan and to employ BMPs for spill control and prevention. With these prevention and management practices in place, potential impacts from construction- and maintenance-related accidental spills of hazardous materials would be reduced to a less-than-significant level.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. No existing schools are located within 0.25 mile of the project site, nor are any proposed within 0.25 mile. The nearest school, Coldstream Alternative School (740 Timberland Lane, Tahoe City), is located approximately 1.5 miles northwest of the project site. Therefore, no impacts would occur related to emissions or handling of hazardous materials within 0.25 mile of an existing or proposed school.

d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. The Phase I environmental site assessment conducted for the project site (USACE 2002) verified that the site is not included on any list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. As a result, the project would not create a significant hazard to the public or the environment.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

e), f) No Impact. The project site is not located within 2 miles of a private airstrip or within the land use plan or safety areas of the nearest airport, the Truckee Tahoe Airport, which is located approximately 14 miles north of the project site. Therefore, there would be no impact associated with safety hazards from air traffic.

g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact. The proposed project would not physically interfere with an emergency access route or response plan. No project-related construction activities would be located at an off-site location that could interfere with an emergency access route or response plan. Activities would be confined to the project site and would not block street or highway access. Vehicles and equipment would be staged on-site. Thus, project implementation would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and there would be no impact.

h) Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Less-than-Significant Impact. Given the proximity to forested land, the project site is located in an area that may contain substantial forest fire risks and hazards (Cal Fire 2000). However, the proposed project would not result in any uses or changes that would create a greater fire risk than currently exists. The proposed project would not expose people or structures to a significant loss, injury, or death involving wildland fires. Therefore, this impact would be less than significant.

3.8 HYDROLOGY AND WATER QUALITY

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII.	**Hydrology and Water Quality. Would the project:**				
a)	Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c)	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 on- or off-site erosion or siltation?	☐	☒	☐	☐
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?	☐	☒	☐	☐
e)	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☒	☐	☐
f)	Otherwise substantially degrade water quality?	☐	☒	☐	☐
g)	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?	☐	☐	☐	☒
h)	Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☒	☐	☐
i)	Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☒	☐	☐
j)	Result in inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

WATERSHED OVERVIEW

Blackwood Creek is a tributary to Lake Tahoe, located in the central portion of the North Tahoe Hydrologic Area (HA No. 634.20) on the west side of the lake. Several studies related to hydrology, hydraulics, water quality, and morphology of Blackwood Creek have been conducted and provide the basis for this analysis. Among these studies are the following:

- *Blackwood Creek Restoration Project Schematic Design Report* (Conservancy and DGS 2008);
- *Highway 89 Culvert Options for the Blackwood Creek Restoration Project* (Conservancy and DGS 2007);
- *Reconnaissance Level Geotechnical Study, Blackwood Creek Restoration Project, Lake Tahoe, California* (Allwest Geoscience 2007); and
- *35% Feasibility Report, Blackwood Creek Aquatic Ecosystem Restoration, Placer County, California* (USACE 2002).

The Blackwood Canyon watershed is approximately 11.2 square miles and is located within a nearly 2,000-foot -wide, U-shaped glacial valley approximately 5 miles long. The topography of the watershed is characterized by steep canyon walls and a gently sloping valley floor with elevations ranging from 8,878 feet above mean sea level at Twin Peaks to 6,230 feet at Lake Tahoe. Four similarly sized forks of Blackwood Creek—the North Fork, two branches of the Middle Fork, and the creek's main stem—drain the upper third of the watershed. The gradients of the creek's four forks are on the order of 10%, then decrease abruptly to approximately 1% at the confluence of the creek's Middle Fork and main stem (Lahontan RWQCB 2007). The project area for this project includes the last 4,000 feet of stream channel that begins 3,000 feet upstream of SR 89 and extends approximately 1,000 feet downstream (east) of SR 89. This 4,000-foot length of channel is divided into six reaches. These six reaches and their restoration elements are described in Chapter 2, "Project Description."

The watershed geology is generally composed of Miocene- to Pliocene-age (between 23 million years and about 2 million years before present) extrusive volcanic rocks overlain by Quaternary-age (last 2 million years) fluvial and glacial deposits (Saucedo 2005). The volcanic and glacial deposits are easily erodible and produce relatively high sediment yield. Swanson Hydrology and Geomorphology (Swanson), in a study for USFS (USFS 2003), and others (Schweickert and Lahren 2002) have identified numerous landslides that postdate the most recent glacial deposits upstream of the project area. These landslide deposits are considered significant factors in both sediment production and fluvial processes (USFS 2003).

The watershed has been subject to various forms of historical disturbances, including intensive logging, grazing, and gravel mining. The creek was first listed as an impaired water body on the state's Section 303(d) list in the *305(b) Water Quality Report for Water Years 1988–1989* (SWRCB 1990) based on sedimentation problems associated with these disturbances. Timber leases were the prevalent land use in the 1950s and 1960s, and instream gravel mining occurred between 1960 and 1968. The gravel pit was eventually captured by the stream, causing significant channel instability. The volcanic geology of the watershed and steeply glaciated topography of the upper watershed results in relatively high natural erosion rates and sediment yield, and high sensitivity to disturbance.

The hydraulic and sediment transport analyses and field observations performed by Northwest Hydraulic Consultants (nhc) and EDAW (Conservancy and DGS 2007) indicate that the evolution of the Blackwood Creek channel over the past several decades has involved incision and subsequent widening and straightening. These changes have resulted in greater inputs of sediment from eroding channel banks, less frequent and less extensive floodplain inundation, and consequently lower levels of sediment deposition on the floodplain. These changes are

also likely to have reduced summer groundwater elevations below the floodplain, and consequently reduced the extent of riparian vegetation.

The channel's evolution has been strongly influenced by construction of the SR 89 culvert, perhaps in combination with other human influences. Comparison of the bed profile and historical floodplain elevations near the highway indicate that culvert installation and channel straightening probably produced local scour and bed degradation.

In contrast to previous studies (USACE 2001a, 2001b, 2002), the study by nhc and EDAW analyzing culvert options for this project (Conservancy and DGS 2007) concluded that the culvert does not affect deposition and erosion levels at the upstream bend in Reach 3, nor is it a concern in regard to long-term passage of sediment through the system. However, sediment and debris problems in large flood events are evident, and they are largely associated with the culvert. The culvert is an important influence on the planform and profile of the channel and has been a major contributor to historical incision. This incision has resulted in major changes in channel morphology, including disconnecting or reducing interaction with floodplains in Reaches 3–5, most significantly on the right bank in Reaches 4 and 5.

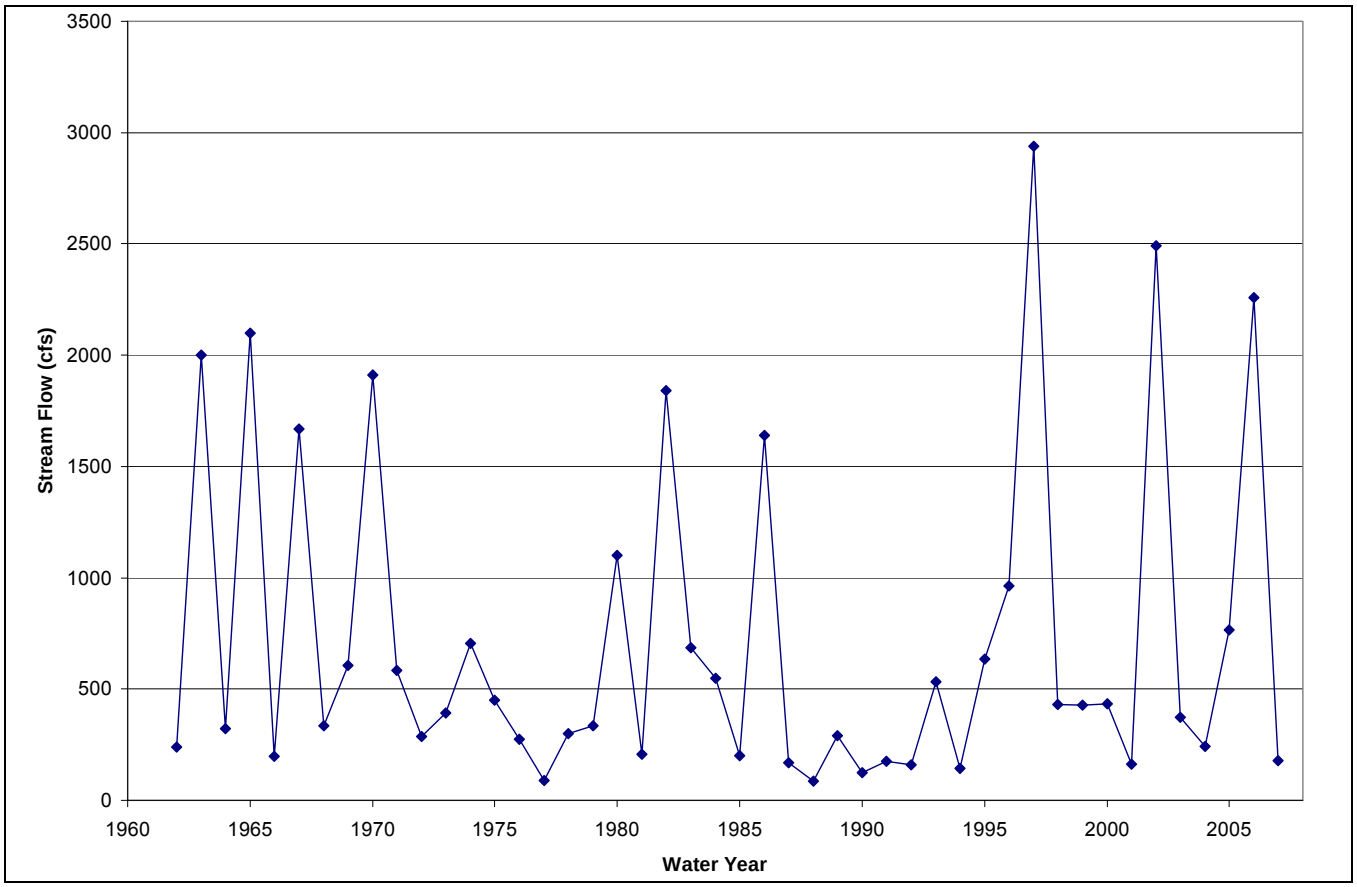
FLOOD HISTORY

A U.S. Geological Survey (USGS) gauge (#10336660) located 400 feet upstream of the bridge at SR 89 has recorded daily stream flow since 1961, providing one of the longest continuous records of any tributary of Lake Tahoe. Daily flow records indicate that flows are highly variable with maximum mean monthly flows of 130 cfs occurring in May and minimum mean monthly flows of 2.7 cfs occurring in September. The hydrology of the Blackwood Creek watershed is dominated by precipitation that occurs between November and April, much of which accumulates as snowpack in the upper watershed (USFS 2002).

Runoff events responsible for substantial flooding in the lower section of the creek occur as the snowpack begins to melt as a result of warming temperatures in late spring, or during warm rain-on-snow events. These latter events appear to be responsible for a shift in the annual peak-discharge frequency curve recorded by the USGS gauge for events greater than about 1,600 cfs (Conservancy and DGS 2007). Peak flows caused by spring snowmelt may last longer with greater total discharge volume than rain-on-snow events, but they do not typically generate the extreme peak flows associated with flood hazards. Exhibit 3-1 depicts the instantaneous peak discharges recorded on Blackwood Creek for water years 1961–2007. The largest peak flow recorded occurred on January 1, 1997, with a discharge of 2,940 cfs recorded at the USGS gauging station. Lake Tahoe was near flood stage at this time at an elevation of 6,229.4 feet (TRPA 2004).

USACE (2001b) used the "Hunrichs Method" to develop two separate trend lines that describe flood return intervals. The USACE analysis developed a flood frequency curve for lower Blackwood Creek that predicts slightly higher peak discharges than those calculated by USGS (2002). These results, summarized in Table 3-4, were reviewed and accepted for use in the analyses prepared by nhc and EDAW (Conservancy and DGS 2007) to evaluate creek restoration alternatives for the proposed project.

At the upstream end of the project area, Blackwood Creek is confined against the south valley wall but has an active floodplain on the left bank. Progressing downstream, the floodplain passes to the right bank in the area of an abandoned channel meander. As the channel passes near the Tahoe Pines subdivision approximately 500 feet upstream of SR 89 (at the boundary of Reaches 3 and 4), the capacity of the creek declines to about 1,800 cfs, which is equal to the 10-year return interval flow. During flood events, this restriction forces part of the flow out of the channel and onto the right overbank. Part of this overbank flow parallels the creek and reenters the main channel upstream of the culvert. The remaining flow becomes hydraulically isolated from Blackwood Creek and flows south toward SR 89, ultimately crossing the highway near Grand and Tallac Avenues. The extent of the overbank flooding is shown as the lower Blackwood Creek 100-year floodplain in Exhibit 3-2, as mapped on the Federal Emergency Management Agency's (FEMA's) flood insurance rate map (FIRM) (FEMA 1998). The flood pattern shown on the FIRM also agrees with individual descriptions of observed flooding of the creek during the 1997 and 2005 events (Wilkins, pers. comm., 2008).



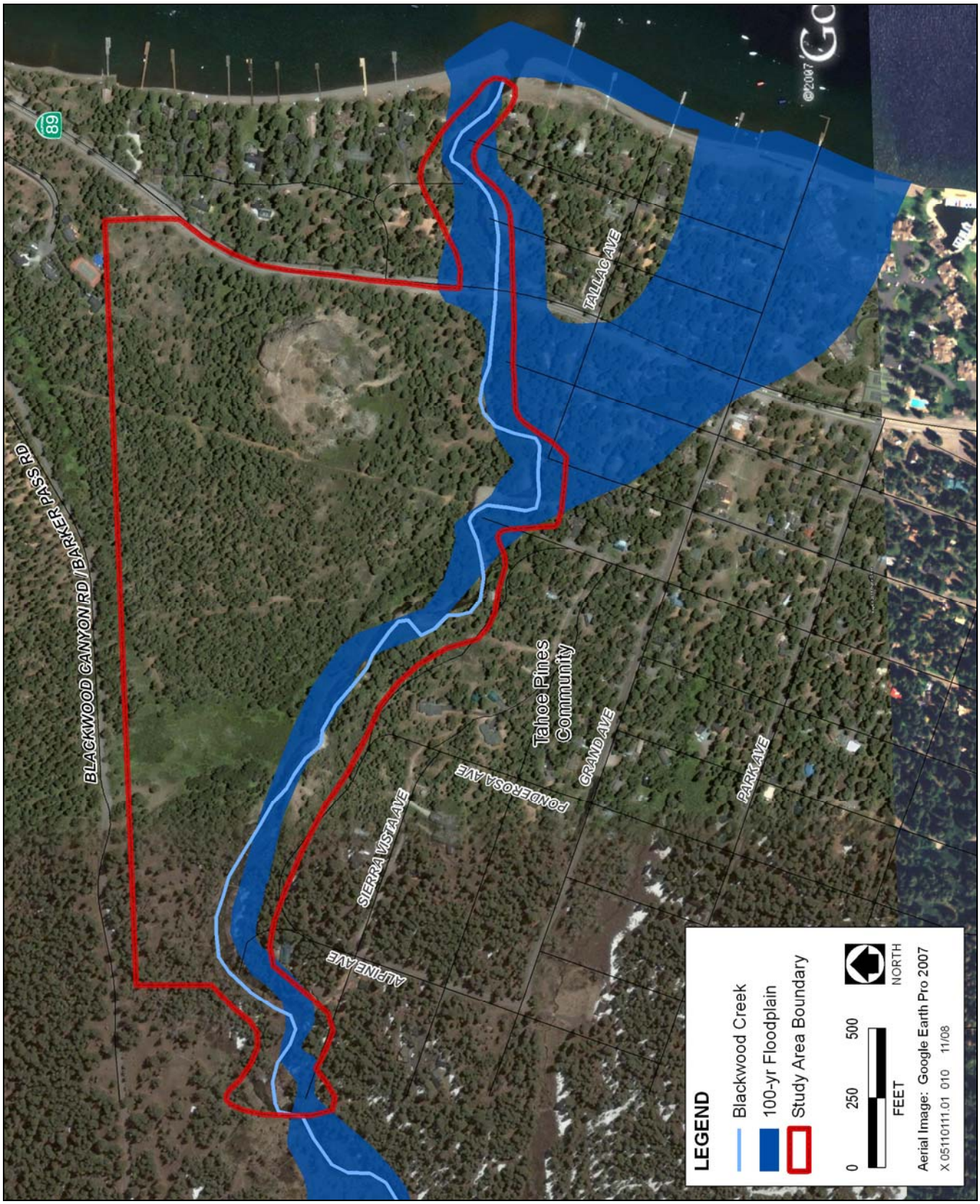
Source: USGS 2008a

Annual Peak Discharges Recorded at Blackwood Creek, 1961–2007 **Exhibit 3-1**

Table 3-4
Peak Discharge Levels Calculated at the USGS Gauge for Blackwood Creek

Annual Recurrence Interval	Peak Discharge (cfs)	
Years	USACE (2001)	USGS (2002)
100	2,800	2,710
50	2,500	2,070
25	2,200	–
10	1,800	–
5	1,100	–
2	400	–

Notes: cfs = cubic feet per second; USACE = U.S. Army Corps of Engineers; USGS = U.S. Geological Survey
Source: Conservancy and DGS 2007



Sources: TRPA 1994, FEMA 1998

FEMA 100-Year Floodplain **Exhibit 3-2**

Hydraulic modeling of the project area, completed by nhc, indicated substantial differences in capacity between the culvert at SR 89 and the upstream channel during discharges greater than about 400 cfs, the 2-year return interval flood (Conservancy and DGS 2007). At discharges greater than the 2-year peak discharge, the culvert creates a backwater that propagates upstream with increasing discharge. The result is a reduction in flow velocities in the main channel and an increase in flow depth, which tends to create a hydraulic buffer that helps protect channel banks against the direct forces of the flow. It is likely that this buffering effect lends considerable protection against erosion to the sharp channel bends that lie immediately upstream of the culvert inlet.

The culvert at SR 89 is a hydraulic constriction for flood flows, and because of the configuration of the channel and the culvert opening, it is subject to debris blockage that worsens during flood conditions. During a worst-case scenario for flooding upstream of SR 89, the inlet to the culvert can be assumed to be completely blocked by debris, which forces water to back up to the elevation of the highway. According to available survey data, the highway is slightly lower south of the creek crossing, with a minimum elevation of around 6,242 feet. Thus, floodwater could conceivably back up to slightly higher than this elevation as it spills over the highway. This depth of flooding would inundate a large part of the Tahoe Pines development, affecting an area that extends 1,000 feet upstream of the highway. If it is assumed that the culvert is free of debris and that only 1,800 cfs remains in the channel downstream of the overflow breakout, the backwater from the highway extends only about 400 feet upstream at an elevation of 6,240.5 feet.

Previous studies of lower Blackwood Creek have indicated that the backwater effect from the SR 89 culvert may be responsible for substantial deposition of coarse material in the large bends at the upper end of the study reach (USACE 2002). However, the hydraulic models developed in those studies do not appear to have considered the effects of flow overtopping at Tahoe Pines near the boundary between Reaches 3 and 4, or limits to the height of the backwater based on the elevation of the highway immediately south of the creek crossing. Preliminary modeling indicates that backwater effects might reach as far as the large upstream bends, but only under such rare conditions that the general morphology of the channel would not be affected (Conservancy and DGS 2007). Therefore, it is unlikely that the SR 89 culvert plays a substantial role in causing the physical processes currently observed in Reach 3 and at the upper end of Reach 4.

The hydraulic effects of the culvert also affect sediment transport at the highway crossing. During large flows, it is likely that coarse sediments are deposited in the area of the channel upstream of the culvert because the backwater affords the ability for coarse sediments to settle out. However, at discharges lower than the 2-year return interval flood, the effects of the culvert are insignificant and the channel flows are able to mobilize and transport any deposited material. This is evident by the general incision seen upstream of the culvert and the lack of substantial gravel storage in the reach. It is also evident that the incised channel has become armored with large cobbles that have been transported from upstream or from adjacent eroding banks.

Downstream of SR 89, water surface elevations in Blackwood Creek are strongly influenced by lake levels during flows lower than about 400 cfs, or the 2-year-return-interval peak discharge. During high flows, the downstream end of the left overbank appears vulnerable to shallow flooding. The downstream right overbank is slightly higher and less prone to flooding. In this vicinity, the channel has widened and formed a large scour hole because of the high velocities and flow turbulence associated with the culvert outlet. Just downstream of the scour hole, the scoured material is redeposited in the channel and forms a bar. Sediment transport modeling indicates that deposition downstream of the culvert probably occurs during lower flows or during the trailing limb of a flood hydrograph (Conservancy and DGS 2007). During peak high-flow conditions, the shear stresses in the downstream channel are large enough to transport incoming coarse material into Lake Tahoe.

In November 2007, nhc used aerial photographs taken between 1939 and 2005 to identify recent periods of morphological change in the planform of Blackwood Creek. According to channel alignment centerlines mapped for the years 1939, 1965, 1976, 1987, 1997, and 2005, the lower Blackwood Creek channel has remained relatively stationary. Areas that appear to have active channel migration during this period are the large bends in Reach 3 and the bends downstream of SR 89. The channel planform maps also indicate that most channel

migration in lower Blackwood Creek during this period occurred between 1939 and 1976. This time period coincides with the operation and closing of the upstream gravel mines, which had substantial effects on coarse sediment supply.

Channel centerlines developed from the 1976, 1987, 1997, and 2005 aerials show very limited planform migration over the last 30 years. The 1939 aerial map was also used to identify abandoned channels and traces of historic channel alignments in the project area. The aerials show remnant channel scars across a broad distributary or fan surface. A fisheries enhancement study conducted by Hydro Science (DGS and Conservancy 1997) suggests that the mouth of the creek was previously located south of its present location. This suggestion is supported by the historical channel locations and is consistent with the effective FEMA FIRM (Exhibit 3-2), which shows secondary flooding from Blackwood Creek passing through Tahoe Pines to the south during the 100-year event flood.

SURFACE WATER QUALITY

Lake Tahoe is a designated Outstanding National Resource Water renowned worldwide for its clarity and purity (Lahontan RWQCB 1995). However, Lake Tahoe's clarity has declined by nearly 30% since 1968 (USGS 2008b). Studies over the last three decades suggest that the reduction in water clarity of Lake Tahoe is correlated with the delivery of fine sediments from various watersheds in the basin and increased phytoplankton productivity, which in turn has been attributed to an increase in nutrients, especially nitrogen and phosphorus (Goldman 1974, Reuter and Miller 2000, Coats and Goldman 2001, Rowe et al. 2002, Simon et al. 2003, Simon 2006, SWRCB and NDEP 2007). The increase in sediment and nutrient loading to Lake Tahoe is a direct result of ongoing and historical land use practices. Land use practices and the naturally erosive geology have caused the Blackwood Creek watershed to be the second largest producer of sediment in the basin, relative to its watershed size (Simon et al. 2003).

The federal Clean Water Act defines water quality standards as including both "designated uses" (i.e., beneficial uses) and "water quality criteria" (i.e., water quality objectives). Thus, the designated beneficial uses (Table 3-5) and the water quality objectives (Table 3-6) listed below are the California water quality standards for waters of the Lake Tahoe Hydrologic Unit. The water quality of Blackwood Creek meets the Lahontan RWQCB's standards for the creek's beneficial uses described in the *Water Quality Control Plan for the Lahontan Region* (Basin Plan).

Water quality conditions along Blackwood Creek are monitored at the USGS gauging station through the Lake Tahoe Interagency Monitoring Program (LTIMP). Data collected at Blackwood Creek include a constant record of stream gauge measurements since 1961, and inconsistent records of periodic daily water temperature, daily specific conductance, and concentrations of nutrients and suspended sediment.

Table 3-7 shows annual mean LTIMP water quality data for Blackwood Creek. According to Chapter 3, "Water Quality," of the *TRPA 2006 Thresholds Evaluation Report* (TRPA 2007), annual mean nutrient concentration thresholds for Blackwood Creek were generally in nonattainment based on LTIMP data for water years 2000–2005. Blackwood Creek appears to be in attainment for suspended sediment concentration based on monthly means through the 2005 water year, except for exceedance of the concentration standard in May and June 2005 for Blackwood Creek, representing more than 10% of the monthly data for 2005.

TRPA's *Annual Water Quality Report* (TRPA 2004) shows that average annual total nitrogen concentrations in Blackwood Creek for water years 1989–2002 ranged from approximately 0.1 to 0.35 milligram per liter (mg/l). The state standard for total nitrogen (0.19 mg/l) was met for water years 1990, 1992, 1994, 1999, and 2001. Total nitrogen concentrations were above the threshold for all other years that measurements were collected. Total phosphorus concentrations within Blackwood Creek were at or above the state standard (0.15 mg/l) for all water years (1980–2002).

Table 3-5 Designated Beneficial Uses for Blackwood Creek	
Beneficial Use	Description
Cold Freshwater Habitat	Supports cold-water ecosystems, including but not limited to preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.
Commercial and Sportfishing	Used for commercial or recreational collection of fish or other organisms, including but not limited to uses involving organisms intended for human consumption.
Migration of Aquatic Organisms	Supports habitats necessary for migration, acclimatization between freshwater and salt water, or temporary activities by aquatic organisms, such as anadromous fish.
Municipal and Domestic Supply	Used for community, military, or individual water supply systems, including but not limited to drinking-water supply.
Navigation	Used for shipping, travel, or other transportation by private, military, or commercial vessels.
Water Contact Recreation	Used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses include but are not limited to swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, and use of natural hot springs.
Noncontact Water Recreation	Used for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water is reasonably possible. These uses include but are not limited to picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities.
Spawning, Reproduction, and Development	Supports high-quality aquatic habitat necessary for reproduction and early development of fish and wildlife.
Wildlife Habitat	Supports wildlife habitats, including but not limited to the preservation and enhancement of vegetation and prey species used by wildlife, such as waterfowl.
Source: Lahontan RWQCB 1995	

Table 3-6
Water Quality Objectives for Blackwood Creek and Lake Tahoe

Surface Waters	Objective (mg/l)						
	TDS	Cl	SO_4	B	N	P	Fe
Lake Tahoe	60/65	3.0/4.0	1.0/2.0	0.01/–	0.15/–	0.008/–	–
Blackwood Creek	70/90	0.30/–	–	–	0.19/–	0.015/–	0.03/–

Notes: B = boron; Cl = chlorine; Fe = iron; mg/l = milligrams per liter; N = nitrogen; P = phosphorous; SO_4 = sulfates; TDS = total dissolved solids
Source: Lahontan RWQCB 1995

Table 3-7
Lake Tahoe Interagency Monitoring Program Water Quality Data for Blackwood Creek for Water Years 2000–2005

Constituent	Measured Levels (mg/l)					
	2000	2001	2002	2003	2004	2005
TDS	91	25	21	45	21	139
N	0.191	0.144	0.354	0.078	0.188	0.329
P	0.075	0.028	0.032	0.078	0.030	0.086
Fe	1.18	0.209	0.461	No Data	No Data	No Data

Notes: Fe = iron; mg/l = milligrams per liter; N = nitrogen; P = phosphorous; TDS = total dissolved solids
Source: TRPA 2006

The Blackwood Creek watershed is the Tahoe Basin's second largest sediment producer relative to watershed size for both total sediment and fine-grained sediment, with median annual loads of suspended sediment and fine-grained sediment of approximately 1,930 tons per year and 844 tons per year, respectively. Relative to its size, Blackwood Creek's contribution of fine-grained sediment is much higher than that of other areas in the basin (Simon et al. 2003). Main features identified as contributing to this condition in the lower reaches of Blackwood creek include unstable eroding banks and erosion from adjacent trails.

As part of the Blackwood Creek total maximum daily load (TMDL) report, Tetra Tech evaluated the LTIMP's suspended-sediment data collected at the Blackwood Creek gauging station (Lahontan RWQCB 2007). That evaluation considered that the collection of sediment data has focused on storm runoff and spring snowmelt runoff, with approximately two-thirds of the suspended-sediment samples being collected during the largest flow events. Because of the sample bias toward high-flow events and the need to characterize suspended sediments from conditions throughout the year, Tetra Tech used sediment rating relationships developed by Simon et al. (2003) to predict that the water quality objective for suspended sediment is being met at the Blackwood Creek gauging station.

Simon et al. (2003) reviewed the data set for Blackwood Creek and developed rating relationships based on LTIMP's instantaneous measurements of suspended sediments in stream flow and grab samples. The data consisted of 483 samples collected from 1974 through 2002. Simon et al. (2003) found that different flows in Blackwood Creek required different rating curves. They also found that the relationships between flow and concentration of suspended sediment changed after the January 1997 flood event. These results, which indicate lower suspended-sediment loads after the January 1997 event, probably reflect a large flushing of stored sediment (Simon et al. 2003).

The following results for daily loading and associated concentrations of suspended sediment were obtained using the 90th percentile flow and the appropriate rating equation:

- Pre-1997: 11.4 metric tons per day, 44 mg/l suspended sediment
- Post-1997: 4.9 metric tons per day, 19 mg/l suspended sediment

Therefore, the water quality objectives for suspended sediment, as estimated for the time period 1961–2006 using the rating curves described above, are met at the Blackwood Creek gauging station. For comparison purposes, using the post-1997 rating relationships, the calculated concentrations of suspended sediment at the mean maximum daily flow of 151 cfs (4.3 cubic meters per second) is 44 mg/l, and at a summer flow of 4 cfs (0.11 cubic meter per second) is 4 mg/l.

GROUNDWATER HYDROLOGY AND WATER QUALITY

Blackwood Creek is located within the Tahoe West Subbasin of the Tahoe Valley Groundwater Basin (Number 6-5.02) of North Lahontan Hydrologic Region 6. The groundwater basin covers a surface area of 6,000 acres (DWR 2004) and consists of three alluvial areas on the California side of the lake on the south, west, and north. The subbasin occupies an elongated, approximately 10-mile-long structural basin in which basin-fill deposits have accumulated (Thodal 1997). It is bounded on the east by the west shore of the lake and on the west by the Sierra Nevada, with an approximate north-south boundary that lies about 0.5 mile west of Dollar Point and 2 miles west of Meeks Bay. Elevations within the subbasin range from 6,400 feet at the western boundary to 6,225 feet at lake level. Several creeks flow through the subbasin and into Lake Tahoe—from north to south, Burton Creek, Ward Creek, Blackwood Creek, Mckinney Creek, and General Creek. The Truckee River, the only outlet from Lake Tahoe, flows through the northern region of the subbasin near Tahoe City.

Although only limited groundwater information is available, the groundwater system along Blackwood Creek is expected to have typical alluvial surface water–groundwater relationships. Water tables generally slope toward the creek from the valley margins, and down the valley toward the lake. Water-bearing formations include

Tertiary- and Quaternary-age glacial outwash, lacustrine (lake-generated), and fluvial (stream-generated) deposits of moderate to high permeability. The basin-fill comprises glacial deposits and lacustrine sediments composed of rock ranging from fine silt to large boulders that have been sorted and stratified by the action of water flowing from glaciers (Freeze and Cherry 1979). Driller logs within the subbasin report show well yields ranging from 8 to 650 gallons per minute (DWR 2004).

Groundwater recharge in the basin 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 the land surface. Stream flow also recharges groundwater when the water table is lower than the water surface level of the stream (Thodal 1997). Changes in groundwater elevation are directly related to changes in groundwater storage. As reported by Thodal (1997), overall changes in groundwater storage have been minimal. Decreases in groundwater storage have occurred in areas of pumping, whereas increases in storage have occurred in areas where storm runoff is temporarily ponded in small basins.

Domestic wells in the area range in depth from 65 to 210 feet, with an average of 126 feet, and municipal/irrigation wells range from 72 to 805 feet deep, with an average of 335 feet. The Tahoe City Public Utility District monitored the nine wells in the subbasin for water quality. In 1999, total dissolved solids ranged from 68 to 128 mg/l, averaging 103 mg/l, and electrical conductivity ranged from 89 to 190 mg/l, averaging 137 mg/l. Well 164 is located north of Eagle Rock near Kaspian Point; however, no major monitoring is associated with that well. Nutrient data have been collected for Well 213, south of the project area near Homewood, since 1989. According to the USACE groundwater evaluation report (USACE 2003), analysis of 16 samples taken from Well 213 found the following average concentrations: dissolved ammonia + organic nitrogen, 0.001 mg/l; dissolved nitrate (including nitrite), 0.192 mg/l; orthophosphorus, 0.003 mg/l; and total dissolved phosphorus, 0.046 mg/l. However, Well 213 is located downgradient of Homewood Ski Resort and is not representative of most surrounding land uses.

DISCUSSION

a) Would the project violate any water quality standards or waste discharge requirements?

Less than Significant with Mitigation Incorporated. Short-term adverse impacts to water quality could result from construction-related disturbances occurring within and adjacent to the channel. For each phase (Phases 1 and 2) of the proposed creek improvements, construction would occur within a single distinct construction season (between May 1 and October 15). Construction would not occur between October 15 and May 1, unless approval has been granted by TRPA pursuant to Subsection 64.2.B. Prior to October 15, all construction sites would be winterized pursuant to Subsection 64.2.D. Construction would disturb upland areas (primarily on the north side of the creek), as well as areas in the floodplain and active channel of lower Blackwood Creek. The extent of "in-channel" (i.e., channel that normally carries flows year round) work varies with each phase and location along the project reaches (see Section 2.5.1, "Creek Restoration Elements," in Chapter 2, "Project Description"). Creek restoration elements including bank protection measures and floodplain bench grading (including revegetation), channel realignment, and installation of in-channel complexity features (e.g., riffles and boulder clusters) would require work in the active channel. Vegetation enhancement (conifer removal) and trail rehabilitation elements would be completed off-channel (outside of the active channel). Portions of the proposed access routes and staging areas are within the 100-year floodplain.

The proposed project would be required to obtain and comply with permits and approvals from several entities (e.g., TRPA, Lahontan RWQCB, USACE, and CFG) that would impose conditions and requirements to minimize risks of water quality degradation by sediment or other pollutants during construction; these permits are in fact designed to preclude significant environmental effects from occurring. (Note: separate permit applications will be submitted for Phases 1 and 2 of the project.) For example, as described in Chapter 1, "Introduction," the

Conservancy would be required to obtain a National Pollutant Discharge Elimination System (NPDES) general construction storm water permit from Lahontan RWQCB for construction activities. Before initiating construction, the Conservancy would also be required to submit to the State Water Resources Control Board (SWRCB) a notice of intent to comply with the terms of the NPDES permit. A NDPES permit requires preparation of a SWPPP that includes a detailed dewatering plan, erosion control plan, and monitoring plan.

While the general types of permit documents and their components are known, the specifics would not be established until the time of issuance. Several general construction management measures would be implemented to minimize environmental impacts, along with specific measures to protect water quality (see Section 2.6, "Construction Activities, Schedule, and Ongoing Monitoring and Maintenance," in Chapter 2, "Project Description"). Specific erosion control measures (or BMPs) are not defined at this time, but would likely include use of construction limit fencing, silt fences and coir logs, visqueen plastic and crushed rock, and a truck wash/inspection area (refer to Table 2-4 in Chapter 2, "Project Description"). Construction activities that must access the existing streambed or streambanks would require the diversion of surface water in the creek channel via temporary diversion dam structures and gravity flow pipelines, and where subsurface access is needed, temporary dewatering/pumping of groundwater that seeps into the work area would also be required. Construction dewatering would include the use of pumps coupled with temporary storage basins north of the creek where water would be stored and then pumped uphill for land application. These conceptual approaches to dewatering and diversion are subject to refinement as project design progresses.

In general, efforts would be made to work as quickly as possible to move from initial disturbance through final revegetation, but it is possible that disturbed areas could be exposed to high flows during summer storm events occurring in the construction season or for the first 2-3 years of vegetation reestablishment.

All temporary stormwater erosion controls (BMPs) would be designed and sized to meet typical regulatory requirements (e.g., 20-year rainstorm for stormwater; 50-year peak streamflow), but could be overwhelmed by a larger event if it occurred during the construction period or soon after.

Based on the conceptual information regarding construction management for the proposed project, it remains possible that violations of water quality standards could occur, at least for short periods of time during the summer's activities. The primary potential source of contamination would be the loosened soil materials, but other on-site sources of contamination during construction could include leaks or spills of fluids or fuels from vehicles and equipment, or miscellaneous construction materials and debris. The applicable standard used for the proposed project is Lahontan RWQCB beneficial uses, with a focus on aesthetic values under Non-Contact Recreation Use designated in the Basin Plan (Lahontan RWQCB 1995). Visible turbidity is considered the primary concern along the receiving waters of Blackwood Creek, where degradation of a magnitude and duration that impairs aesthetic values is considered significant. The strictest criteria is if persistent visible turbidity is produced, particularly during the recreation season and especially during low flow, summer months when background conditions would be expected to result in high water clarity. Visible turbidity that lasts after the initial disturbance ends, and/or disturbances that produce a recurring or chronic source of turbidity are considered significant and adverse. It is anticipated that the Conservancy would request an exemption for potential violation of water quality turbidity standards from the Lahontan RWQCB as part of Clean Water Act compliance. However, it is possible that surface and/or groundwater degradation of a magnitude and duration that would impair beneficial uses of Blackwood Creek could result. This short-term impact as a result of construction-related disturbances would be potentially significant.

A natural channel adjustment effect could occur where engineered designs are implemented. In particular, such adjustments would be expected as normal post-construction channel dynamics for areas where the selected restoration design does not impose the final channel size, shape, or bed and bank materials directly during construction. Expected channel adjustments would likely require at least a few years (approximately 2–3 years) where flows approach or exceed the geomorphic design flow to reach equilibrium. Natural channel adjustments would be expected in response to in-channel modifications and floodplain grading. Channel adjustments in the

form of streambed or streambank erosion could produce turbidity effects. Normal channel adjustments would most likely occur during and just following peak seasonal streamflow (spring snowmelt) or during a large flood event.

Blackwood Creek is an unregulated creek, therefore, it would not be possible to avoid or control streamflow due to a large flood occurring while the project area was still adjusting to construction. While the probability of a large flood flow (i.e., 25-year recurrence peak flow) in any given year would be relatively low, the project area could be vulnerable for a few consecutive years. Revegetation on graded floodplain benches and bank stabilization features that might be adequate to protect surfaces against typical small flood events shortly after construction might not yet be mature enough to withstand a large flood. A large flood, occurring within the first couple of years following construction could violate water quality standards within the study area, potentially extending downstream. A large flood event would most likely occur during winter storms, including rain-on-snow events when absorption rates are low and runoff rates are high. During these large events background turbidity tends to be extremely high and aesthetic beneficial uses are less prevalent. While unexpectedly large flows could damage the active channel and/or newly graded areas of the channel, causing instability that could continue beyond the initial flood event and/or propagate over time to affect additional locations, this could also occur under existing conditions. Under existing conditions a flood flow of this same magnitude would also produce streambed and streambank erosion that could mobilize sediment in areas of instability along the channel. However, the project would modify the specific locations, areal extent, and soil/vegetation conditions that would be exposed to flood flows in the channel or across floodplain benches and localized risks of increased erosion and sedimentation could occur. The effects would be greatest within the immediate vicinity of project reaches, and would dissipate upon cessation of the flood event, but it is possible that turbidity might be detectable and extend downstream of the study area, at least for short periods of time. This short-term impact on aesthetic beneficial uses during the channel adjustment period would be potentially significant.

Mitigation Measure WQ-1: Prepare and Implement Effective Site Management Plans.

The preparation and implementation of several construction phase site management plans would be required as part of various permit and approval requirements, including but not limited to: a grading and erosion control plan; a spill prevention plan; a dewatering, diversion and channel seasoning plan; a revegetation plan; and a monitoring and oversight plan. The following measures shall be implemented by the Conservancy within each of these plans to be developed for specific permits, or as independent mitigation measures.

- Restrict the area and duration of construction disturbance to the absolute minimum necessary to accomplish work.
- Design, install, and maintain temporary BMPs to protect disturbed areas and minimize soil erosion, prevent surface runoff interaction with disturbed surfaces, and limit the potential for release of sediment, nutrients, or otherwise contaminated water from entering surface water bodies or groundwater recharge areas for storm events up to the 20-year precipitation event.
- Design, install, and maintain internally draining construction area(s) within the study area to prevent discharge of untreated stormwater to Blackwood Creek. Anticipate runoff from upslope and re-route it around the construction zone.
- Establish specific locations for construction vehicle/equipment refueling, maintenance, and storage that are lined and/or bermed to prevent release of any potential spills into surface or groundwater.
- Protect stockpiled and transported materials or debris from wind or water erosion. All soil piles (base, sand, soil, dirt, waste, and debris) shall be covered when not in use, including nights, weekends, and during days when material is not being moved in or out of the pile.

- Provide site-specific and reach-wide dewatering/diversion plans that indicate the scheduling approach and/or maximum diverted flows to minimize risks from summer thunderstorms, specific diversion/dewatering methods and equipment, defined work areas and diversion locations, the types and locations of temporary BMPs for the diversions and re-introduction points, measures and options for treating turbid water prior to release back to the channel, and stated water quality performance standards. Prior to connecting flows from the dewatered channel [back] to the restored channel, turbidity levels of the water upstream and downstream of the proposed creek improvements shall be monitored. In the event that during the rewatering of the channel measured turbidity levels exceed the designated turbidity standard in nephelometric turbidity units (NTUs) developed by Lahontan RWQCB prior to issuance of a permit, the rewatering activities shall be modified by pumping to the upland basins and sprinkling area or other method to reduce turbidity. This would occur for a maximum of 3 days, or until turbidity levels drop to less than or equal to the designated turbidity standard, whichever is sooner. If the designated turbidity standard is not reached after 3 days of pumping, pumping or other modifications to the rewatering activities would continue until decreases of turbidity greater than 25% of the previously measured turbidity are no longer being achieved and turbidity is less than or equal to 20 NTUs prior to releasing flows to the existing channel.

- Provide wetting flows prior to activation of restored reaches based on a channel seasoning plan that indicates the water source(s), volumes and duration required, phased placement of clean, washed gravels, and the measures and options for treating potentially turbid water.

- Monitor the status and effectiveness of temporary erosion control measures, throughout the construction area, including each of the internally draining zones that could discharge into Blackwood Creek. Monitor turbidity in lower Blackwood Creek upstream and downstream of the construction zone. Monitoring shall be conducted by a qualified representative on a regular basis during summer construction and on an event basis when runoff equals or exceeds the BMP design standards. Failures and/or threats of BMP failures shall be documented, and remedial measures identified and implemented. BMP failures shall be repaired within 24 hours of documentation.

Mitigation Measure WQ-2: Minimize Fine Sediment and Organic Material Available for Mobilization.

Final project design and revegetation specifications for the restored channel reaches shall include measures to minimize the risk of mobilization of accumulated fine sediment and/or organic materials if a large flood flow occurs during the first few years after construction. The measures would remove and/or adequately stabilize the materials to resist expected erosive forces if a large flood (i.e., 25-year peak flow) occurred within 2–3 years after implementation. Such measures could include:

- Removal of loose, unvegetated, or otherwise unstable fine sediment and/or organic material within project reaches to eliminate the potential pollutant source. The excavated materials could be salvaged for soil amendment and revegetation use in off-channel areas if suitable, or shall be disposed of properly off-site.

- Revegetate loose, unvegetated, or otherwise unstable fine sediment and/or organic material within project reaches to increase roughness and reduce velocities. Revegetation of these areas shall meet species, density, planting methods, irrigation, and success criteria similar to streambank plantings.

Mitigation Measure WQ-3: Adaptively Manage Potential Flood Damage in the Interim Period After Construction.

The Conservancy shall develop and implement an Adaptive Management Plan focused on potential short-term water quality degradation that could result if unexpectedly large flood flows occur within the first 2–3 years after construction. The plan would identify specific data collection and monitoring protocols, describe decision-making processes and authorities, and list thresholds for corrective actions. The performance criteria for the corrective actions would focus on preventing initial flood damage or turbidity effects from becoming a persistent, recurring,

or chronic source, whether the corrective action is needed at the initial damage site or at other location(s) that could be affected by channel response to the initial damage.

With implementation of Mitigation Measures WQ-1 through WQ-3 as described above, short-term water quality degradation is unlikely, and the potential for impairment of beneficial uses is very low. The potential impact associated with the project construction and post-construction period would be reduced to less than significant.

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

Less-than-Significant Impact. The proposed project would not consume substantial amounts of groundwater and would not affect any nearby groundwater users. Although groundwater encountered during construction would need to be extracted from the construction zone, this would not alter groundwater flow direction and rates. Groundwater encountered during construction would be pumped into temporary storage basins north of the creek and then pumped uphill for sprinkling and infiltration back into the ground via land application. To the extent possible, water collected in the temporary storage basins would be used as irrigation water during vegetation reestablishment and for dust suppression. No groundwater uses would be impaired. The minor effects on groundwater would be less than significant.

c) Would the project 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 on- or off-site erosion or siltation?

Less than Significant with Mitigation Incorporated. Topography within the project area would be modified along the stream channel and trail system. Terraced banks would be regraded to a gentler slope, rock protection and woody debris structures would be installed to direct flows away from eroding banks, and trail rehabilitation techniques would include rerouting portions of the existing trails. The proposed project is designed to reduce sediment sources by stabilizing the creek banks and by rehabilitating and decommissioning trails. Decreased rates of erosion are an anticipated long-term beneficial effect of the proposed project. BMPs identified in Chapter 2, "Project Description," and Mitigation Measures WQ-1 through WQ-3 would reduce the potential for short-term construction-related erosion and siltation to a less-than-significant level.

d) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?

Less than Significant with Mitigation Incorporated. The proposed project has been designed to maintain the rate and volume of surface runoff. Flood flow velocities and water surface elevations would be expected to be similar to or lower than those under existing conditions, thus not increasing the potential for flooding off-site. Consistent with existing conditions, floods with return intervals greater than the 10-year flood event would continue to overtop the channel at the easternmost downstream bend of Reach 3 where the channel turns north. Debris jams have been observed in the vicinity of the overtopping location because of the relatively low elevation of the upper bank and the sharp bend. The proposed project would place large boulders and anchor large woody debris structures at this and other unstable bank locations within the creek channel, which would have a secondary benefit of capturing floating debris along all project reaches. By capturing floating debris at various points along the project reach, the project would likely reduce the frequency and severity of debris blockages at the culvert, which exacerbates flooding under existing conditions. Therefore, these engineered debris jams are expected to reduce the frequency and severity of flooding as a result of culvert blockage.

To monitor the success of creek restoration elements and post-project conditions relative to flooding, Conservancy staff members would perform regular and ongoing post-project inspection and maintenance activities along lower Blackwood Creek to monitor condition and performance of the creek improvements, to protect features from human or other disturbances, and to evaluate whether debris needs to be removed from the channel. It should be noted that debris in the channel is a natural part of this system and debris would only be removed if it causes an increased risk of flooding or other environmental impact. A detailed monitoring and maintenance plan is under development. At a minimum, the plan would include bi-monthly visual inspections from April through November of log/debris jams, rock and log toe revetments, beaver impacts to the stream channel and effects on flood risk, and areas near the mouth of the SR 89 culvert for the first 2 years following construction. Following the first 2 years after construction, Conservancy staff would perform visual inspections at least once annually after peak flows and immediately following significant flow events. As necessary, Conservancy staff or contractors would remove from the creek materials caught in these structures. If monitoring identifies an increase in flood risk as a result of tree cutting and woody debris input by beavers, measures to prevent tree cutting by beavers would be implemented. The proposed project would be flood neutral and designed to not increase the risk of flood hazards to persons or property. As part of project design, nhc, the project engineer, modeled future flooding conditions and concluded that the project would not cause increased flooding risks (Conservancy and DGS 2007). Modeling data were compiled before initiation of the two USFS upstream creek restoration projects. Failure to appropriately evaluate these projects in flood modeling could result in unanticipated increases in flood risk. This impact would be potentially significant. Implementation of Mitigation Measure WQ-4, which would require reevaluation of flood conditions to include the upstream USFS restoration projects and final project design modifications, coupled with Mitigation Measures WQ-1 through WQ-3 would reduce this impact to a less-than-significant level.

Mitigation Measure WQ-4: Submit a Final Engineering Report to TRPA, Placer County, and the Lahontan RWQCB.

The Conservancy shall submit a final engineering report prepared by a qualified professional civil engineer to TRPA, Placer County, and the Lahontan RWQCB for review and approval. The report shall include an updated analysis of future flooding conditions (via iterative hydraulic modeling) to evaluate any changes related to the upstream USFS restoration activities and the project's final design. The report shall demonstrate that the project would be flood neutral, prevent the future 100-year water surface elevation from increases greater than 1 foot, and prevent any increase in flood elevation or inundation area that could increase flood hazards or potential damages to persons or property relative to existing conditions.

e) Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less than Significant with Mitigation Incorporated. The proposed project would not contribute runoff water that would exceed stormwater drainage capacity. Direct precipitation would continue to either infiltrate into the soil or flow to the natural receiving-water bodies of the creek. During construction, the potential for discharge of pollutants to surface waters could increase. Temporary BMPs identified in Chapter 2, "Project Description," and in Mitigation Measures WQ-1 through WQ-3 would be implemented during construction. These measures would reduce the potential to provide substantial sources of polluted runoff. Consequently, potential impacts due to polluted runoff would be less than significant.

f) Would the project otherwise substantially degrade water quality?

Less than Significant with Mitigation Incorporated. As discussed in items "a" through "e" above, the proposed project would not degrade water quality. BMPs identified in Chapter 2, "Project Description," and in Mitigation Measures WQ-1 through WQ-3 have been incorporated to reduce potential water quality impacts to a less-than-significant level.

g) Would the project 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?

No Impact. The proposed project does not involve construction or modification of any housing, nor would the project result in changed conditions such that the 100-year flood zone would be revised to include areas of existing housing.

h) Would the project place within a 100-year flood hazard area structures that would impede or redirect flood flows?

Less than Significant with Mitigation Incorporated. Portions of the project area are located within the 100-year floodplain of Blackwood Creek (Exhibit 3-2). No bridges, culverts, homes, or other structures are proposed as part of the project. However, the project does propose several locations of rock protection and large woody debris components within the creek channel that is within the 100-year floodplain. These devices are designed to locally redirect flows away from specific eroding banks for restoration of the stream and habitat. Flows would not be impeded, and redirected flows would improve the natural function of the stream and riparian areas.

As discussed in item "d" above, implementation of Mitigation Measure WQ-4 would reduce potential flooding-related impacts to a less-than-significant level.

i) Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

Less than Significant with Mitigation Incorporated. See the discussion in items "d" and "h" above. Mitigation Measure WQ-4 would reduce potential flooding-related impacts to a less-than-significant level.

j) Would the project result in inundation by seiche, tsunami, or mudflow?

No Impact. The project does not propose any new development or modifications that could be affected by a seiche, tsunami, or mudflow. The site is exposed to seiches, which are natural standing waves in a lake, reservoir, or bay. The risk from a seiche would remain unchanged with implementation of the proposed project, however; therefore, the proposed project has no impact related to inundation by seiches, tsunamis, or mudflows and would not expose people or structures to any such hazards.

3.9 LAND USE AND PLANNING

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX.	**Land Use and Planning. Would the project:**				
	a) Physically divide an established community?	☐	☐	☐	☒
	b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
	c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The project site is located north of the Tahoe Pines community and south of Eagle Rock on the west shore of Lake Tahoe in Placer County, California (Exhibit 2-1). Regional access is provided by SR 89 and Barker Pass Road (Exhibit 2-2). The project site includes the land immediately adjacent to the lower reaches of Blackwood Creek. Lower Blackwood Creek is subdivided into the six reaches shown in Exhibit 2-2.

Upstream of SR 89, lands north of Blackwood Creek and within the project area boundary shown in Exhibit 2-2 are owned by the Conservancy, and lands to the south are owned by a combination of private residential landowners, the Conservancy, Placer County, and the USFS. A USGS gauging station (USGS gauge #10336660) is located 400 feet upstream of the highway on the right bank of the creek. The lands along the reach downstream of SR 89 are owned primarily by private residential landowners, with a single Conservancy parcel located adjacent to the highway on the left bank of the creek, and a single Placer County parcel on the right bank of Blackwood Creek at its outflow to Lake Tahoe. The parcels owned by the Conservancy and Placer County have a land use designation of Conservation/Recreation.

PLACER COUNTY

The project area lies within the *West Shore Area General Plan* area of Placer County. As stated in the *West Shore Area General Plan*, with respect to the land use element, Placer County has adopted the TRPA PASs as county code (Placer County 1998).

TAHOE REGIONAL PLANNING AGENCY

The adopted plan for the Tahoe Basin is the *Regional Plan for the Tahoe Basin* and PASs, both adopted by TRPA. The project area is located within TRPA-designated PASs 161 and 162, which are described below.

PLAN AREA STATEMENTS

PAS 161

PAS 161, Tahoe Pines, is designated as residential land and is located approximately 1 mile north of Homewood on Lake Tahoe's west shore. It includes the outlet of Blackwood Creek, the shorezone area on the east side of SR 89 extending from north of Cherry Street to St. Michaels Court, and the residential area west of SR 89 and north of Cherry Street to the southern edge of Blackwood Creek. The existing use is residential, primarily at a density of one single-family dwelling per lot of record. An existing commercial use is located in the former Tahoe Pines post office building. One large condominium development also exists. The project site makes up the northern border of PAS 161 west of SR 89 (Reaches 1–5) and is within PAS 161 east of SR 89 (Reaches 5 and 6). According to Chapter 18, "Permissible Uses," of the TRPA Code of Ordinances, residential, commercial, public service, recreation, and resource management uses, including SEZ restoration, are permissible throughout the plan area.

In addition, the following special policies would apply to the proposed project:

- Efforts to restore Blackwood Creek should continue.
- Public access to the shoreline should be maintained or expanded on public lands, particularly on the county lands at Tahoe Pines.

PAS 162

PAS 162, Blackwood, is designated as conservation land. It follows the Tahoe Basin boundary from Twin Peaks to Ellis Peak, then eastward to Tahoe Pines. The northern border largely follows the border between the McKinney Bay Hydrologic Area and the Tahoe City Hydrologic Area. It also includes a small section of shorezone located between St. Michaels Court and the residential area serviced by Elizabeth Drive. The southern border is adjacent to Homewood/Tahoe Ski Bowl PAS 157. PAS 162 has a mixture of low- to moderate-intensity uses related to both recreation and timber management. Recreational uses include hiking, fishing, primitive camping, and use of off-road vehicles. The project site makes up the southeastern border of PAS 162 west of SR 89 (Reaches 1–5). According to Chapter 18, "Permissible Uses," of the TRPA Code of Ordinances, residential, public service, recreation, and resource management uses, including SEZ restoration, are permissible throughout the plan area. In the shorezone area permissible uses include various recreation uses and salvage operations.

In addition, the following special policies would apply to the proposed project:

- Management activities that restore disturbed areas and improve vegetative cover should be emphasized.
- Blackwood Creek should be stabilized and other instream programs to minimize erosion and scouring should be performed.

ENVIRONMENTAL IMPROVEMENT PROGRAM

TRPA's Environmental Improvement Program (EIP) focuses on efforts to protect Lake Tahoe for future generations. The program encompasses hundreds of capital improvement, research, program support, and operation and maintenance projects in the Tahoe Basin, all designed to help restore Lake Tahoe's clarity and environment. EIP projects are designed to achieve and maintain environmental thresholds that protect Lake Tahoe's resources. Both PASs 161 and 162 state the following regarding EIP projects: "The capital improvement and other improvement programs required by the Regional Goals and Policies Plan and [EIP] for this area shall be implemented." Elements of the project are included in EIP Projects 27.4, 606, 657, 883, and 976 (Nielsen, pers. comm., 2008).

DISCUSSION

a) Would the project physically divide an established community?

No Impact. The proposed project includes upland trail rehabilitation elements that would restore the trail network to a less erosive and more user-friendly condition, while contributing to improved creek conditions (Exhibit 2-8). The project is intended to promote recreation in a sustainable manner. Although some trails would be decommissioned and others realigned and/or rehabilitated, a goal of the trail rehabilitation work is to have no net change in existing uses and public access within the project area. The project does not include any elements that could physically divide an established community.

However, private-property easements would likely be required for Reach 5 improvements east of SR 89, and possibly along the right bank of Reach 3 west of SR 89. Most of the easements would be used for short-term construction access and long-term maintenance for the project improvements. Detailed information on the extent and number of private-property easements that would be required is under development and would be refined as the detailed design process progress. The terms of any easement would be negotiated between the landowner and the Conservancy. Although the project would require private-property easements, this would not result in a physical division of an established community. Therefore, no impact would occur.

b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The proposed project would include bank stability structures, flood management features, riparian habitat enhancement, channel realignment, and sediment dispersal techniques that would reduce or eliminate the historical disturbances that have affected the lower reaches of Blackwood Creek. As noted above, a goal of the project is to have no net change in existing uses and public access within the project area.

The project would effectively implement goals and policies of the TRPA Regional Plan. Specifically, the proposed project would partially implement several EIP projects, including EIP Project 27.4, Blackwood Creek SEZ/Fishery Restoration, which is intended to restore Blackwood Creek (TRPA 2007). In addition, the project would be consistent with specific policies and planning considerations of PASs 161 and 162 that address the importance of restoring Blackwood Creek and maintaining public access to the shorezone. Therefore, no impact would occur regarding conflicts with applicable land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. Please see the response to item “b” above and the response to item “f” in Section 3.4, “Biological Resources.”

3.10 MINERAL RESOURCES

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X.	**Mineral Resources. Would the project:**				
	a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
	b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The project area does not contain any state-designated Mineral Resources Zones according to maps prepared by the State Mining and Geology Board (Loyd 1995). However, instream gravel mining occurred in Blackwood Canyon upstream of the project area between 1960 and 1968. The gravel pit was eventually captured by the stream, which caused significant channel instability.

DISCUSSION

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. No known mineral resources are located within the project area. The potential disposal sites for exported cut materials are aggregate extraction sites, but fill disposal and restoration at these sites would not affect the availability of the resource.

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No Impact. Please see response to item “a” above.

3.11 NOISE

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI.	**Noise. Would the project result in:**				
	a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?	☐	☒	☐	☐
	b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
	c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
	d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
	e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
	f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The project site is located in Placer County and is surrounded by residential and recreational uses. Existing sensitive receptors near the site include residences located 50 feet south of Reach 5 in the project's affected area, and other residences south of and adjacent to Reaches 3 and 4. The existing noise environment within the project area is generally influenced by surface transportation noise emanating from vehicle traffic on SR 89 and local surface streets (e.g., Sierra Vista Avenue, Tallac Avenue, and Barker Pass Road), recreational activities on Lake Tahoe (such as jet skis and power boats), and natural sounds (e.g., birds, water, wind, and insects).

Placer County has established nontransportation-related noise standards of 55 A-weighted decibels (dBA) hourly equivalent noise level (L_{eq}[h]) and 70 dBA maximum noise level (L_{max}) for daytime hours (7:00 a.m. to 10:00 p.m.), and 45 dBA L_{eq}(h) and 65 dBA L_{max} for nighttime hours (10:00 p.m. to 7:00 a.m.), and transportation-related noise standards of 60 dBA community noise equivalent level (CNEL) for outdoor activity areas and 45 dBA CNEL for interior spaces for residential land uses. Placer County exempts construction noise that occurs Monday through Friday from 6:00 a.m. to 8:00 p.m., and Saturdays from 8:00 a.m. to 8:00 p.m. Construction noise is not exempt from applicable standards on Sundays or federal holidays (Placer County 1994, 2004).

Although state-sponsored projects are not subject to county regulations, typically state agencies attempt to adhere to local policies to the extent feasible. In addition, the proposed project is subject to the noise standards set forth

by TRPA. TRPA has established for PAS 161, Tahoe Pines, a maximum community noise level of 55 dBA CNEL and for PAS 162, Blackwood, a maximum community noise level of 50 dBA CNEL. Chapter 23 of the TRPA Code of Ordinances specifies standards for maximum allowable single noise events, including standards for noise from operation of off-road vehicles (such as construction equipment). Chapter 23 also states that TRPA-approved construction and maintenance projects are exempt from noise threshold standards between 8:00 a.m. and 6:30 p.m. (TRPA 2002, 2004), and that emergency work to protect life or property is exempt from applicable noise standards.

DISCUSSION

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?

Please note that noise levels from both short-term construction and long-term operational source noise are discussed below. Separate impact conclusions are provided for on-site and off-site construction-related noise and for on-site and off-site operational noise. However, the most conservative impact conclusion listed below is provided under item "a" in the environmental checklist above.

SHORT-TERM CONSTRUCTION SOURCE NOISE

ON-SITE CONSTRUCTION EQUIPMENT

Less than Significant with Mitigation Incorporated. The project's proposed vegetation enhancement element, which would provide needed materials for other project elements, would occur in the area north of Blackwood Creek along Reaches 3–5 in mid to late summer 2010. Conifer removal in the most westerly stand north of Reach 2 would occur in the summer of 2011 and could overlap with the proposed creek restoration and trail rehabilitation work. The proposed creek restoration work would be completed in two distinct phases. Phase 1 would include the proposed creek improvements upstream of SR 89, and Phase 2 would include all improvements downstream of SR 89. The work associated with each phase of construction could be accomplished in a single construction season. The Phase 1 improvements are planned for summer 2011. Construction activities are expected to take up to 4 months within the May 1–October 15 time frame to complete. The proposed Phase 2 improvements are anticipated to be constructed 2 to 4 years after completion of Phase 1. The proposed trail rehabilitation work would occur in summer 2011 either concurrent with or subsequent to the proposed Phase 1 creek improvements.

Construction activities would generally include site preparation (e.g., excavation, grading, and clearing), construction of floodplains, channel realignment, water diversion and pumping, installation and construction of bank stability structures, installation of habitat features, revegetation, vegetation thinning, trail rehabilitation, and other miscellaneous activities. Specific on-site construction equipment is not known at this time, but project construction activities would typically include a grader, excavator, loader, water pumps, haul trucks, chippers, hand tools (such as chain saws), backhoes, and tractors. Thus, noise levels for individual equipment can range from 77 dBA to 85 dBA at 50 feet, as indicated in Table 3-8.

The simultaneous operation of the three noisiest pieces of on-site equipment identified above could result in combined intermittent noise levels of up to approximately 90 dBA at 50 feet from the center of the site. Based on these equipment noise levels and a typical noise-attenuation rate of 6 dBA per doubling of distance, project construction activities could result in noise levels at sensitive receptors that exceed the applicable PAS maximum community noise levels, which are 55 dBA and 50 dBA CNEL for PASs 161 and 162, respectively, and 55 dBA L_{eq}(h) (Placer County standard) if feasible noise controls are not implemented.

Table 3-8 Typical Equipment Noise Levels	
Type of Equipment	Noise Level in dBA at 50 feet
Grader	85
Excavator	85
Loader	80
Pumps	77
Truck	84
Chipper	84
Chain saw	78
Backhoe	80
Tractor	84
Note: dBA = A-weighted decibels Sources: FHWA 2006; the sound levels for a hand-fed chipper and chain saw are based on sound level measurements conducted by EDAW in 2004.	

In addition, water diversion pumping for construction dewatering in the creek channel would likely be required; in such cases, pumping could occur continuously for up to 24 hours. Any pumping that would occur would be limited to construction hours allowed for under permit – generally, this would be limited to daylight hours, but may included extended construction hours. It is not expected, but it is possible, that pumping could occur up to 24 hours on a given day. Construction dewatering would require two sets of pumps. The proposed dewatering plan for Phase 1 calls for the use of up to five portable submersible pumps to remove ponded groundwater and construction water in local excavation areas within the creek channel. These pumps would be portable such that they can be placed at any location in the construction site where pumping may be necessary. The pumped water would be discharged into two temporary storage basins constructed on the north side of the main access road (Exhibit 2-9). The second set of submersible pumps (two pumps) would be installed in a pumping pit near the primary storage basin and would be used to pump stored water to an upland land application area. Given the required distance and the need to pump water up a hill for upland irrigation, this second set of pumps would be larger than those used to pump construction water from the channel into the basins. These larger pumps are expected to require a 10-horsepower motor. Pumps of this size could generate noise levels of 97 dBA at a distance of 3 feet (Yanmar Corporation 2008) and result in unmitigated noise levels of approximately 73 dBA at 50 feet.

Construction activities between 8:00 a.m. and 6:30 p.m. are exempt from TRPA noise standards. Nevertheless, if construction activities (such as use of the dewatering pumps) were to occur during the more noise-sensitive hours (e.g., evening, nighttime, and early morning—outside of the exempted hours) or if construction equipment were not properly equipped with noise control devices, construction-generated noise could cause noise levels to exceed the applicable PAS's maximum community noise levels or the Placer County standards, result in annoyance and/or sleep disruption to occupants of existing noise-sensitive land uses in the project vicinity, and create a substantial temporary increase in ambient noise levels. As a result, this impact would be significant. Implementation of Mitigation Measure NOI-1 would reduce this impact to a less-than-significant level.

Mitigation Measure NOI-1: Reduce Noise Levels from On-Site Construction Equipment.

The Conservancy and its contractor(s) shall implement the following mitigation measures during construction to reduce on-site short-term construction noise levels:

- Construction equipment shall be properly maintained and equipped with noise control, such as mufflers, in accordance with manufacturers' specifications.
- Construction activities shall be limited to the hours between 8:00 a.m. and 6:30 p.m., Monday through Saturday, during which such activities are exempt from noise levels identified in applicable standards. Emergency work to protect life or property is exempt from these hourly limits and applicable noise standards.
- If construction activities, including the use of dewatering pumps, must run past exempted hours, any nearby sensitive receptors (less than 500 feet from those activities) must be given at least 48 hours notice of such activities. Before initiating construction activities during exempted hours, the Conservancy shall prepare a plan demonstrating how appropriate noise-reducing measures (such as erecting temporary sound barriers) will be implemented to maintain the applicable PAS's maximum community noise level standards (55 dBA CNEL for PAS 161, and 50 dBA CNEL for PAS 162). All dewatering pumps shall be enclosed or surrounded by a structure or tent wrapped with noise-reducing material, such as SoundSeal BBC-13-2 or equivalently rated material. Where portable pumps are used in the channel, a portable enclosure or barrier between the pump and nearby sensitive receptors shall be used where feasible. To the extent practical, pumps shall be located as far from residences as feasible. The plan shall be submitted to TRPA for review and approval, and shall be implemented during all construction activities occurring outside of TRPA's exempted hours.
- Construction equipment shall be arranged to minimize travel adjacent to occupied residences and turned off during prolonged periods of nonuse.
- A disturbance coordinator shall be designated and the person's telephone number conspicuously posted around the project site and supplied to nearby residences. The disturbance coordinator shall receive all public complaints and be responsible for determining the cause of the complaint and implementing any feasible measures to alleviate the problem.
- Construction equipment shall be staged and construction employee parking shall be located in designated areas only.

OFF-SITE CONSTRUCTION TRAFFIC

Less-than-Significant Impact. Construction of the proposed project would require approximately 12 on-site employees at any given time. During trail rehabilitation work an additional 10–14 trail crew members from a contracted group (such as the California Conservation Corps) would be on-site. Assuming two total one-way trips per day per employee, four total one-way trips per day per trail rehabilitation crew, and up to 11 round trips per day associated with the transport of equipment and materials, project construction would result in a maximum of approximately 39 one-way daily trips. Typically, traffic volumes have to double before the associated increase in noise levels is noticeable (3 dBA CNEL) along roadways. Therefore, the addition of these daily trips to existing SR 89 daily volumes (approximately 6,900 average daily trips [ADT] [Caltrans 2007]) would be a minor change. Consequently, construction of the project would not result in a noticeable change in the traffic noise contours of area roadways. In addition, such increases in traffic would be temporary and would normally occur during less noise-sensitive daytime hours. Thus, short-term noise from off-site construction traffic would not expose persons to or generate noise levels in excess of applicable standards or create a substantial temporary increase in ambient noise levels in the project vicinity. As a result, this impact would be less than significant. No mitigation is required.

LONG-TERM OPERATIONAL SOURCE NOISE

ON-SITE STATIONARY SOURCES OF NOISE

No Impact. Long-term operation of the proposed project would not result in any new stationary sources of noise. Also, recreation use of the area is not expected to increase as a result of project implementation. Because no new sources would be created, and use of the site would remain similar to existing conditions, there would be no noise impact from the long-term operation of stationary sources of noise.

OFF-SITE OPERATIONAL TRAFFIC

No Impact. The project would result in a limited number of new vehicle trips related to routine inspection and maintenance of the proposed creek restoration element of the project. Conditions would generally exist as they do today. Further, long-term operation of the proposed project would not add or change recreational traffic to area roadways. Therefore, there would be no impact.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less-than-Significant Impact. Construction activities have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and operations involved. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. Table 3-9 shows vibration levels for typical construction equipment.

Table 3-9
Typical Construction-Equipment Vibration Levels

Equipment	PPV at 25 feet (in/sec)	Approximate L_V at 25 feet
Large Bulldozer	0.089	87
Trucks	0.076	86
Small Bulldozer	0.003	58

Notes:
in/sec = inches per second; L_V = velocity level in decibels (VdB) referenced to 1 microinch/second and based on the root mean square velocity amplitude; PPV = peak particle velocity
Source: FTA 2006

As discussed above, on-site construction equipment would include a grader, excavator, loader, water pumps, haul trucks, chippers, hand tools (e.g., chain saws), backhoes, and tractors. According to the Federal Transit Administration (FTA), bulldozers can create vibration levels of 0.089 inch per second (in/sec) peak particle velocity (PPV) and 87 vibration decibels (VdB) referenced to 1 microinch per second (µin/sec) and based on the root mean square (RMS) velocity amplitude at 25 feet, as shown in Table 3-9.

Using FTA's recommended procedure for applying a propagation adjustment to these reference levels, which accounts for the decrease in vibration levels with an increase in distance from the source to receptor, predicted worst-case vibration levels of approximately 0.03 in/sec PPV and 78 VdB at the nearest residences (approximately 50 feet south of the creek) could occur from the use of trucks. These vibration levels would not exceed the California Department of Transportation's (Caltrans') recommended standards with respect to the prevention of structural building damage (0.2 in/sec PPV for normal buildings) or FTA's maximum-acceptable-vibration standard with respect to human response (80 VdB for residential uses) at nearby existing vibration-sensitive land uses (Caltrans 2004, FTA 2006). The long-term operation of the proposed project would not include any vibration sources. Thus,

project implementation would not result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. This impact would be less than significant. No mitigation is required.

c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

No Impact. As discussed in item "a" above, no long-term or permanent on-site stationary-source noise would result from the project. As a result, there would be no impact.

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant with Mitigation Incorporated. As discussed in item "a" above, short-term noise from on-site construction equipment could expose persons to or generate noise levels in excess of applicable standards or create a substantial temporary increase in ambient noise levels in the project vicinity. As a result, this impact would be potentially significant. Implementation of Mitigation Measure NOI-1 would reduce this impact to a less-than-significant level.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

e), f) No Impact. The project site is not located within 2 miles of an airport land use plan or in the vicinity of a public or private airport. The nearest airport is the Truckee Tahoe Airport, which is located approximately 14 miles north of the project site. Therefore, there would be no impact on people residing or working in the project area from exposure to excessive aircraft noise levels.

3.12 POPULATION AND HOUSING

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII.	**Population and Housing. Would the project:**				
	a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
	b) Displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
	c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The project site is located within the unincorporated area of Placer County. According to California Department of Finance data, the estimated population of the unincorporated area of Placer County is 108,894. In addition, approximately 54,348 housing units are located within the unincorporated area of Placer County (DOF 2008). Housing in the project vicinity consists of the Tahoe Pines neighborhood to the south and the Idlewild neighborhood to the north.

DISCUSSION

a) Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

b) Would the project displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?

c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

a), b), c) No Impact. The proposed project would not induce substantial population growth, either directly or indirectly, or displace a substantial number of people or existing housing. The project site includes conservation/open space land, and no houses would be relocated as a result of the proposed project. As a result, the project would not induce substantial population growth or displace people or housing. Therefore, there would be no impact on population or housing.

3.13 PUBLIC SERVICES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. Public Services. Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
i) Fire protection?	☐	☐	☐	☒
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The North Tahoe Fire Protection District provides fire protection for the project site. The nearest fire station to the project site is North Tahoe Fire Station No. 51 in Tahoe City, approximately 5 miles from the project site (Placer County 2008a). Police protection in the project area is provided by the Placer County Sheriff's Department (Placer County 2008b). The nearest school, Coldstream Alternative School (740 Timberland Lane, Tahoe City), is located approximately 1.5 miles northwest of the project site (Tahoe Truckee Unified School District 2008).

DISCUSSION

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

i) No Impact. The proposed project would not result in any changes to the projected population of the area, nor would it involve the construction of any structures that would require additional fire protection services. The proposed project would not change the demand for fire protection services in the project area. Because demand for fire protection services would not increase, there would be no impact on fire services.

ii) No Impact. The proposed project would not increase the population in the project area, and public access to the project site would remain the same or be reduced from existing conditions. Therefore, the proposed project would not cause an increase in demand for police services beyond existing conditions.

iii) No Impact. The project would not increase the population or housing in the project area; therefore, it would not increase the number of students in the project area. The project would have no impact on schools.

iv) No Impact. No recognized parks exist on the project site or in the surrounding area. Although recreation does occur on the project site, the proposed project would not increase the demand for park facilities beyond existing conditions. Therefore, the proposed project would have no impact on parks.

v) No Impact. The proposed project would have no impact on other public facilities because no additional residences or businesses would be constructed that could lead to increased demand on public facilities.

3.14 RECREATION

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV.	**Recreation. Would the project:**				
	a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
	b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☒	☐	☐

ENVIRONMENTAL SETTING

EXISTING RECREATIONAL FACILITIES

Regional recreation and public access consists of a wide range of activities such as cross-country skiing and snowmobiling in the winter, and hiking, nature viewing, fishing, boating, swimming, camping, vehicular use (off-highway vehicles [OHVs] and motorcycles), horseback riding, and mountain biking. In addition, downhill skiing is offered at the Homewood Mountain Resort to the south, Alpine Meadows to the north, and numerous other resorts within or near the Tahoe Basin.

Within the project study area (Exhibit 2-2), recreation and public access consists primarily of passive year-round uses such as hiking, mountain biking, fishing, and nature viewing. The Kaspian picnic area and campground immediately north of the project area provides developed recreation facilities in the northeastern area of Blackwood Canyon. A portion (approximately 30 acres) of the Granite Chief Wilderness, a popular undeveloped recreation area, is located in the northwestern portion of the canyon. The Pacific Crest Trail runs along the western edge of the canyon. Areas of Blackwood Canyon outside of the project study area are used by an increasing number of OHVs. Logging roads and trail routes designed for access to camping sites are often used by OHVs.

The network of trails within the project study area is small and consists of short loops connecting SR 89 with access points along Blackwood Canyon Road (Exhibit 2-8). The project study area is used primarily by day hikers who arrive by vehicle and hike up to Eagle Rock, a neck of an eroded basaltic volcano located between Blackwood Creek and Blackwood Canyon Road/Barker Pass Road. Eagle Rock is a popular hike for tourists and local residents who are looking for a quick hike with a 360-degree view that includes Lake Tahoe (immediately east) and the Crystal Range (to the southwest) (EDAW 2007).

The main hiking trail is unpaved and leads up through Blackwood Canyon. A trail located under existing power lines, ascending up the hill in a straight line, serves as the main access to the top of Eagle Rock from the south. A trail south of Eagle Rock and east of the power line trail appears to have been created with the intent of providing access to the top of Eagle Rock, but instead it dead ends at the base of volcanic cliffs. Most of the trails toward Eagle Rock are on steep eroding slopes. Several other footpaths serve as spur trails to access the creek. Mountain bikers are not prominent users of the area, although local residents may traverse the site to access other trails (EDAW 2008).

Hikers who access Eagle Rock from the trails on the north side may come down through the project area on the south side of Eagle Rock and make a loop to return to their vehicles. Near Barker Pass Road, hikers access the 8,754-foot Ellis Peak.

Cyclists along the west shore of Lake Tahoe tend to stay on the paved bike path that parallels SR 89. Most users of the bike path (cyclists and pedestrians) tend to stay on the east side of SR 89, and because no crossing to the project area exists, they do not usually access Blackwood Canyon. Bike rental shops operate in two neighboring areas north and south of the project site: Sunnyside (Cyclepaths) and Homewood (across from the marina). These shops mostly rent bikes to people who use the paved bike path. Cyclists who rent mountain bikes are not typically directed to the Blackwood Canyon area, as there are not any single-track (dirt) mountain bike trails in the canyon; the trails in and around the project area are fairly short and are much more appropriate for hikers.

Approximately 0.5 mile beyond Barker Pass is a trailhead for mountain bikers of all skill levels, although they are not allowed on the Pacific Crest Trail. Beginners often use logging roads that traverse the area, and more advanced riders proceed southwest to access the Rubicon Jeep trail (EDAW 2007).

TAHOE REGIONAL PLANNING AGENCY

The adopted plan for the Tahoe Basin is the *Regional Plan for the Tahoe Basin* and PASs, both adopted by TRPA. The project area is located within TRPA-designated PASs 161 and 162. Each PAS indicates the amount of additional developed outdoor recreation allowed for that area. The additional capacities are measured in persons at one time (PAOT). For both PAS 161 and PAS 162, no additional PAOTs are allowed during summer, winter, or overnight uses.

DISCUSSION

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less-than-Significant Impact. The proposed project includes upland trail rehabilitation elements that would restore the trail network to a less erosive and more user-friendly condition, while contributing to improved creek conditions (Exhibit 2-8). The project is intended to promote recreation in a sustainable manner. Although some trails would be decommissioned and others realigned and/or rehabilitated, a goal of the trail rehabilitation work is to maintain public access within the project area and to have no net change in recreation use or increase in PAOT. Therefore, no long-term impacts on existing recreational facilities that could create substantial physical deterioration would occur.

Temporary closures of portions of the project area would have a short-term effect on existing recreational opportunities locally. However, because of the substantial amount of publicly held land in the Tahoe Basin, regional recreational facilities in the surrounding area can absorb the displacement of recreational activity from the project area on an interim basis. To the extent feasible and without compromising health and safety, portions of the project area would remain accessible to members of the public, potentially on a very limited basis. The accessibility of the area would vary depending on the stages of active construction, hauling of materials, and revegetation efforts that may require closure of areas until plantings are established. Because of the temporary nature of the closures associated with construction and the availability of alternate areas for dispersed recreation, this impact would be less than significant.

b) Would the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

Less than Significant with Mitigation Incorporated. The proposed project includes upland trail rehabilitation elements that would restore the trail network to a less erosive and more user-friendly condition. A detailed trail rehabilitation plan is under development and certain elements of this plan would be adapted in the field during construction. Trails that would be affected by this element of the project are shown in Exhibit 2-8 and discussed below.

Power Line Trail to Eagle Rock. This trail is located under existing power lines and ascends the hill in a straight line in a very steep section; its runoff flows directly into Blackwood Creek. Trail rehabilitation techniques may include rerouting portions of the existing trail and using water-diverting designs that need little or no maintenance (e.g., trail dips, tilts, or reverse grades) and can route the trail and water off the slope. Switchbacks would be used to reroute trail segments by winding them across and down a slope, thereby increasing trail length and reducing slope gradient. The number of turns in the switchback would be kept to a minimum to reduce shortcutting. Trail rehabilitation would also include revegetation work along trail edges and other areas, if they are disturbed by trail reconstruction. After rehabilitation, the trail would be a 12- to 24-inch native-surface trail. Because of its slope, it would not be wheelchair accessible.

Dead-End Trail To Eagle Rock. The dead-end trail south of and leading toward Eagle Rock would be decommissioned and restored to a less erosive and more user-friendly condition, using natural materials. Boulders and logs would be used to block and redirect public access. Directional signage would be installed to orient visitors to the trail up Eagle Rock.

Spur Trails to Blackwood Creek. The spur trails that lead to and are north of Blackwood Creek would be evaluated to determine whether they should be decommissioned or retained; however, a minimum of two creek access points would be retained and rehabilitated as a result of the proposed project. All remaining spur trails would be decommissioned.

Temporary construction activities related to the proposed trail rehabilitation work that may have a significant impact on water and air quality, noise, wildlife, soils and vegetation are discussed further in the appropriate sections of this document. Excavation activities have the potential for soil disturbance that could have short-term negative effects on water quality, vegetation, and soils. Mechanical equipment used for excavation has the potential to discharge hydrocarbons to the soil or surface waters. Additionally, the use of mechanical equipment could create short-term air quality and noise impacts. Sensitive wildlife species that exist in the project area may be adversely affected by temporary construction activities. Temporary construction activities could result in adverse environmental effects.

As described in other sections of this document, all phases of construction would be managed to avoid adverse environmental effects on the environment. Temporary BMPs in accordance with the requirements of TRPA and the Lahontan RWQCB shall be used to protect water quality, soils, and vegetation throughout project construction. Maintenance and use of mechanical equipment shall be in accordance with current standards to minimize noise, air emissions, and adverse effects on water quality. The mitigation measures identified to protect air quality, biological resources, water quality, and noise, respectively, are discussed in Section 3.3, “Air Quality”; Section 3.4, “Biological Resources”; Section 3.7, “Hazards and Hazardous Materials”; Section 3.8, “Hydrology and Water Quality”; and Section 3.11, “Noise.” While the proposed trail rehabilitation work would not negatively affect recreation resources, implementation of these mitigation measures would reduce potential construction-related adverse effects on the environment related to the modification of a recreation resource to a less-than-significant level.

3.15 TRANSPORTATION/TRAFFIC

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV.	**Transportation/Traffic. Would the project:**				
	a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☒	☐	☐
	b) Exceed, individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☒	☐	☐
	c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
	d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
	e) Result in inadequate emergency access?	☐	☐	☐	☒
	f) Result in inadequate parking capacity?	☐	☐	☐	☒
	g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

EXISTING ROADWAYS AND INTERSECTIONS

Regional access is provided by SR 89. SR 89 is two lanes with posted speed limits between 35 and 45 mph, serving a mix of both local and tourist trips. Typically, the speed reduces to 35 mph through the more populated and tourist-attracting areas. SR 89 is striped to prohibit passing of vehicles. Tourism tends to increase during the summer and winter months, correlating to peak-season boating, camping, and snow-related activities. Many local trips are made on SR 89 to reach employment destinations in South Lake Tahoe and Tahoe City (Placer County 1998).

BLACKWOOD CREEK CULVERT

The Blackwood Creek culvert at SR 89 was constructed in 1927 in conjunction with a realignment and roadway improvement project implemented by the state of California. The culvert is a rubble masonry arch structure that is owned and operated by Caltrans, which is also responsible for structural maintenance and debris removal during flood events. Caltrans has no plans to modify or replace the SR 89/Blackwood Creek culvert within the next 10 years. Future modifications to the culvert could be made concurrent with SR 89 improvements, including adding side culverts or replacing the culvert with a single-span bridge. However, no modifications are planned and the culvert would remain in its current state for this project.

EXISTING TRAFFIC VOLUMES

Traffic counts conducted by Caltrans in the project area, as reported by the Caltrans Traffic and Vehicle Data Systems Unit (Caltrans 2007), indicate the ADT volume on SR 89 in the project area is 6,900 trips with a peak-hour volume of about 720 trips. During peak recreational periods, daily and peak-hour volumes increase. According to Caltrans, the peak-month daily traffic volume was approximately 9,400 (an increase of about 36% over typical conditions). The increase in traffic volumes during peak recreational periods is associated with increases in travel delays, most notably in the Tahoe City area and especially near the SR 89 and SR 28 junction.

EXISTING ALTERNATIVE TRANSPORTATION

The Tahoe Basin is served by two publicly operated transit systems, a tourist-oriented trolley service (summer only), and several privately operated shuttle systems and taxi services (TRPA and Tahoe Metropolitan Planning Organization 2008). The Tahoe Area Regional Transit, which is operated by Placer County, serves the project area with stops located approximately 0.33 mile south of the project site near Tahoe Pines, approximately 1.5 miles to the south at Homewood, approximately 1.5 miles to the north near Timberland, and approximately 2.5 miles to the north at Sunnyside.

EXISTING BICYCLE AND PEDESTRIAN FACILITIES

A designated shared-use (Class I) bicycle facility is provided in the project area, running parallel to SR 89. The facility provides for bicycle travel on a right-of-way completely separated from any street or highway. Most users of the bike path in the project area (cyclists and pedestrians) tend to stay on the east side of SR 89, and because there is not a crossing to the project area, do not usually access Blackwood Canyon.

EXISTING PARKING FACILITIES

Parking is located immediately off SR 89, on the west side just north of Blackwood Creek, and is used primarily to access Eagle Rock from the south. Approximately 12 unmarked spaces are available for parallel vehicular parking. Parking is also available at Barker Pass (approximately 6 miles west of SR 89), and a larger parking lot is available 0.5 mile farther, where the Pacific Crest Trail crosses the road (EDAW 2007).

REGULATORY SETTING

State agencies are sovereign entities and are not required to comply with local ordinances. The State of California is subject to TRPA regulations and ordinances. The primary regulatory documents influencing transportation in the Lake Tahoe Basin are the *Regional Plan for the Lake Tahoe Basin: Goals and Policies* (TRPA 1986), the *Mobility 2030: Lake Tahoe Regional Transportation Plan* (TRPA and Tahoe Metropolitan Planning Organization 2008), and the *Lake Tahoe Regional Bicycle and Pedestrian Master Plan* (Tahoe Metropolitan Planning Organization 2006).

TRPA maintains jurisdiction over all aspects of transportation in the Lake Tahoe Basin; however, Caltrans oversees California's state highway system and Placer County maintains and operates all Placer County roads within the basin.

TRIP GENERATION AND VEHICLE MILES OF TRAVEL

According to Chapter 93, "Traffic and Air Quality Mitigation Program," of the TRPA Code of Ordinances, a project that would expand gross floor area or change the type of generator on the Trip Table (normally indicated by a substantial change in products or service provided) would be considered a "change in operation" that would result in additional trip generation.

VMT is a value computed by forecasting the number of trips made on the regional roadway system and summing the lengths of these trips. TRPA criteria require a reduction in VMT by 10% from the 1981 level, which was estimated at 1,648,554 VMT on a peak summer day. The target VMT is 1,483,700 VMT. A project's impact on VMT is based on the number of trips generated by the proposed land use. If a land use produces 100 or fewer daily trips (based on TRPA's Trip Table), the VMT increase is insignificant (TRPA Code of Ordinances, Chapter 93). If a land use produces 101–200 daily trips, the increase is considered minor, and any land use generating more than 200 daily trips results in a significant increase, which would require mitigation.

LEVEL OF SERVICE

Level of service (LOS) is a quantitative and qualitative measure of traffic conditions on isolated sections of roadway or intersections. LOS ranges from "A" (with no congestion) to "F" (where the system fails with gridlock or stop-and-go conditions prevailing).

TRPA has established traffic capacity and LOS criteria for various types of highways, and an operational level of service for signalized intersections. To meet the goals of TRPA's transportation element and the *2030 Mobility: Lake Tahoe Regional Transportation Plan*, peak-period traffic flow should not exceed:

- LOS C on rural scenic/recreational roads,
- LOS D in rural developed areas,
- LOS D on urban roads, or
- LOS D for signalized intersections.

LOS E may be acceptable during peak periods not to exceed 4 hours per day.

The Placer County planning document for the project area is the *West Shore Area General Plan* (Placer County 1998). According to the *West Shore Area General Plan*, SR 89 experiences a lower LOS in the Tahoe City area and improves to the south in the project area. The following policy of the *West Shore Area General Plan* would apply to the proposed project:

> **A. Policy:** Strive to maintain a Level of Service D or better conditions on the Plan area roadways. Due to the high degree of peak recreation travel through the area, LOS E may be acceptable during peak periods, not to exceed 4 hours per day.

CONSTRUCTION TRAFFIC

TRPA ordinances require that site disturbance in the area, including clearing and grading, is limited to between May 1 and October 15.

DISCUSSION

a) Would the project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

Less than Significant with Mitigation Incorporated. According to Chapter 93, "Traffic and Air Quality Mitigation Program," of the TRPA Code of Ordinances, a project that would expand gross floor area or change the type of generator on the Trip Table (normally indicated by a substantial change in products or service provided) would be considered a "change in operation" that would result in additional trip generation and VMT. With the exception of a limited number of new vehicle trips related to on-going routine inspection and maintenance of the proposed creek restoration element, the proposed project would not result in additional trip

generation because it would not change existing land uses. A goal of the project is to have no net change in recreation use and public access within the project area. Trip generation and VMT would remain essentially the same. Therefore, no long-term traffic impact would occur.

Although project uses would not result in significant long-term traffic impacts, additional trips would be generated on a short-term basis during project construction. The proposed vegetation enhancement element, which would provide needed materials for other project elements, would occur in the area north of Blackwood Creek along Reaches 3–5 in mid to late summer 2010. Conifer removal in the most westerly stand north of Reach 2 would occur in the summer of 2011 and could overlap with the proposed creek restoration and trail rehabilitation work. The proposed creek restoration work would be completed in two distinct phases. Phase 1 would include the proposed creek improvements upstream of SR 89, and Phase 2 would include all improvements downstream of SR 89. The work associated with each phase of construction could be accomplished in a single distinct construction season. The Phase 1 improvements are planned for summer 2011. Construction activities are expected to take up to 4 months within the May 1–October 15 time frame to complete. The proposed Phase 2 improvements are anticipated to be constructed 2 to 4 years after completion of Phase 1. The proposed trail rehabilitation work would occur in summer 2011 either concurrent with or subsequent to the proposed Phase 1 creek improvements. Construction hours would be limited to those required by TRPA and Placer County unless specific permitting allows for longer hours. Contractors would be required to follow all conditions of approval for extended work hours. As discussed in Section 3.11, "Noise," the hours of construction would primarily be limited to between 8:00 a.m. and 6:30 p.m.

It is anticipated that the heaviest truck traffic would occur over a 3-month period, during which trucks would be entering and leaving the site to haul away cut material and supply boulders, logs, and plants for restoration design. Construction equipment, materials, and employee vehicles would be staged primarily on the north side of the creek and on the west side of SR 89 (Exhibit 2-9); only the proposed Phase 2 creek improvements would be staged on the east side of SR 89. Construction traffic would access the project site from SR 89 and could generate construction-related traffic during peak summer periods. Traffic volumes in the Tahoe Basin are greater during summer months. The character of the vehicles would be different than the existing trips generated by the site. Construction trips would be dominated by trucks and heavy equipment and existing trips are dominated by passenger vehicles. Five storage/staging areas would be located at various points around the site for temporary construction access to the project site: four north of the creek and one to the south. Storage/staging areas would be placed where minimal disturbance to existing vegetation would occur.

The creek elements of the proposed project would include channel aggradation and realignment, floodplain installation, bank stabilization, placement of debris and riprap, installation of riparian and SRA habitat, and enhancement of recreational trails. The construction activities required for this work would include excavation, grading, vegetation removal, clearing, cut and fill, trenching, finishing, revegetation, cleanup, materials transport, and trail installation. The specific construction equipment required is not known at this time, but would likely include a loader, dozer/tractor, scraper, excavator, backhoe, grader, pump, generator, and trucks (haul and passenger). Several hand tools would also be used for construction.

Materials would need to be imported to the site for the proposed creek restoration elements. Preliminary estimates of material import quantities include approximately 351 cubic yards (cu. yd.) of logs, 1,220 cu. yd. of rock, and 1,346 cu. yd. of boulders. Assuming that the average haul truck would have the capacity to carry approximately 14 cu. yd. of material, the proposed project would generate approximately 208 truck trips related to materials import over the duration of project construction, including Phases 1 and 2.

Early estimates of cut-and-fill quantities indicate that the proposed project would result in approximately 8,400 cu. yd. of cut and 3,300 cu. yd. of fill. The on-site cut would be used as much as possible for fill; however, 5,100 cu. yd. of cut soil would still need to be removed from the site. Assuming that each haul truck would carry 14 cu. yd. of material, approximately 364 truck trips would be needed over the duration of the project to remove the excess material. The excess material would be either transported out of the Tahoe Basin to an undetermined

site, likely in the Carson Valley of Nevada (approximately 45 miles one way), or used to fill an old upstream USFS borrow site or other site (with applicable permits and authorizations) within the Tahoe Basin. Priority would be given to an in-Basin location for the disposal/reuse of excess material.

Construction of the proposed project would require approximately 12 on-site employees at any given time. During trail rehabilitation work, an additional 10–14 trail crew members from a contracted group (such as the California Conservation Corps) would be on-site and would arrive in a single large van or crew carrying vehicle.

Trucks and equipment entering and leaving the storage/staging area north of Blackwood Creek and east of SR 89 for the proposed Phase 2 creek improvements could conflict with bicycle and pedestrian use on the shared-use (Class I) bicycle facility that runs parallel to and east of SR 89. The bicycle facility provides for bicycle travel on a right-of-way completely separated from SR 89. Trucks and equipment would need to cross the bicycle facility to access the storage/staging area. Construction of the proposed Phase 2 creek improvements would occur between May 1 and October 15 and could coincide with peak summer bicycle use. Crossing the bicycle path during peak usage could create potential short-term safety issues for bicycles and pedestrians using the trail system.

Although the proposed project would not result in significant long-term traffic impacts, short-term construction-related traffic impacts from construction vehicle traffic would be potentially significant. Implementation of Mitigation Measure TRA-1 would reduce construction-related traffic impacts to a less-than-significant level.

Mitigation Measure TRA-1: Prepare a Traffic Control Plan.

The Conservancy shall prepare a traffic control plan subject to review and comment by TRPA and the State Fire Marshal before construction. The plan shall address project construction traffic and parking, and emergency access. At a minimum, the traffic control plan shall address truck haul routes, truck turning movements at the project staging areas and spurs, traffic control signage, potential bicycle and pedestrian traffic conflicts, and monitoring of the in-place traffic control plan to implement traffic control revisions, if necessary.

b) Would the project exceed, individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

Less than Significant with Mitigation Incorporated. As discussed under item “a” above, the project would not result in an increase in project-related traffic because existing land uses would remain unchanged. However, short-term construction traffic could affect local roadways and intersections.

Short-term construction-related traffic impacts would be potentially significant. Implementation of Mitigation Measure TRA-1 would reduce construction-related impacts on local roadways and intersections to a less-than-significant level.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

No Impact. The nearest airport to the project area is the Truckee Tahoe Airport, approximately 14 miles north of the project site. The project site is not located within any safety areas designated in the *Comprehensive Airport Land Use Plan*. No private airstrip exists in the vicinity of the project site. The project does not propose any activities that could interfere with air traffic patterns. Therefore, no impact on air traffic patterns would occur.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. Existing land uses would remain unchanged; therefore, the project would not create an incompatible use. No impact would occur related to increased hazards from a design feature or incompatible use.

e) Would the project result in inadequate emergency access?

No Impact. The project would not have long-term effects on site circulation and access. As discussed under item "a" above, project plans would be reviewed by TRPA to assure that the emergency access routes are maintained during construction. Therefore, no impact would occur related to emergency access.

f) Would the project result in inadequate parking capacity?

No Impact. A goal of the project is to have no net change in recreation use and public access within the project area. The proposed project would not result in significant long-term parking-related impacts, because public use levels are, by intent, to be maintained at current levels. Therefore, parking demand would not increase as a consequence of the project.

g) Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

No Impact. The project would have no net change in recreation use and public access within the project area. The project is intended to promote recreation in a sustainable manner and does not include any element that could conflict with alternative transportation. No impacts would occur related to policies, plans, or programs supporting alternative transportation.

3.16 UTILITIES AND SERVICE SYSTEMS

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI.	**Utilities and Service Systems. Would the project:**				
	a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
	b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
	c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
	d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
	e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	☐	☐	☐	☒
	f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☒	☐	☐
	g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

Utility providers that serve the project area include the Tahoe City Public Utility District (TCPUD) for water service, Tahoe-Truckee Sanitation Agency (T-TSA) for wastewater service, NV Energy for electrical service, Southwest Gas Corporation for natural gas service, and Tahoe Truckee Sierra Disposal (TTSD) for waste and recycling services.

TCPUD's service area extends from Emerald Bay north to Dollar Point along the west shore of Lake Tahoe. The district operates 11 active wells and no water is taken from Lake Tahoe or other surface-water sources. TCPUD's wastewater pipelines are connected to a 36-inch pipeline that runs along the Truckee River corridor to the 7.4-million-gallon-per-day T-TSA wastewater treatment facility located in east Truckee. After tertiary-level treatment, the facility discharges effluent to a land disposal area via a subsurface leach field system. The treated effluent then migrates through the soil northward approximately 1 mile, where it eventually enters the Truckee River and the lower reaches of Martis Creek (Beals, pers. comm., 2004).

NV Energy is a regulated utility based in Nevada. NV Energy is required to serve projects within its designated service area, which includes 54,500 square miles in northern and southern Nevada and northeastern California, including the Lake Tahoe area (NV Energy 2008). NV Energy generates the majority of the power it supplies. The remaining supplies are purchased from other power generators on an as-needed basis. Provided that electricity is available for purchase, no shortfall in electrical energy supply is anticipated in the future.

Southwest Gas Corporation purchases, transports, and distributes natural gas to residential, commercial, and industrial customers in Arizona, Nevada, and portions of California, including the project area (SWG 2007).

TTSD provides waste removal services for the Tahoe Basin from Emerald Bay to Crystal Bay, handling approximately 63,000 tons of solid waste per year, with a capacity of approximately 20 years or more, depending on the amount of waste that can be recycled. TTSD is responsible for collecting household waste and recyclables, which are then transported to various facilities (Ratto, pers. comm., 2005). All materials collected, including garbage and recyclables, are hauled to the Placer County Eastern Material Recovery Facility, where they are sorted in an effort to meet California's mandatory solid-waste diversion requirements. Waste materials are hauled to the Lockwood Regional Landfill, a 1,535-acre municipal solid-waste facility located in Storey County, Nevada. The Eastern Regional Landfill, located between Truckee and Squaw Valley west of the Truckee River, handles and processes inert material (e.g., construction waste, cement).

Standards for water, wastewater treatment, electricity, and natural gas are set by TRPA and Placer County. Most of these regulations can be found in Chapter 27 of the TRPA Code of Ordinances, and in the "Public Services and Infrastructure" section of the *Placer County General Plan*.

DISCUSSION

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

No Impact. The proposed project would not generate any new sources of wastewater and, therefore, would not exceed wastewater treatment requirements of the Lahontan RWQCB. No improvements are proposed that would require wastewater treatment.

b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. The proposed project would not require construction or expansion of any on-site or off-site water or wastewater treatment facilities, the construction of which could cause significant environmental effects. Therefore, there would be no impact.

c) Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. The proposed project would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. Therefore, there would be no impact.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Less-than-Significant Impact. During construction, water for dust suppression would be provided via a metered TCPUD hydrant or diverted from the dewatered areas and pumps from Blackwood Creek. Permits and meters for use of the water would need to be obtained as required by the Lahontan RWQCB and TRPA. No additional water would be needed during project operation. Because the Conservancy would be required to comply with all applicable permitting and metering requirements of the Lahontan RWQCB and TRPA pertaining to use of water for dust suppression, this impact would be less than significant.

e) Would the project result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?

No Impact. The project site is not directly served by any wastewater treatment facilities, nor would wastewater be generated at the project site; therefore, the project would not affect the capacity of any wastewater treatment facilities. There would be no impact.

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less than Significant with Mitigation Incorporated. Cut and fill for the proposed project would be balanced on-site as much as possible. The excess material would be either transported out of the Tahoe Basin to an undetermined site, likely in the Carson Valley of Nevada (approximately 45 miles), or used to fill an old upstream USFS borrow site or other site (with applicable permits and authorizations) in the Tahoe Basin. Priority would be given to an in-Basin location for the disposal/reuse of excess material. However, because the exact site has not been determined, this impact would be potentially significant. Implementation of Mitigation Measure UTIL-1 would ensure the availability of adequate disposal capacity to accommodate the projected waste materials from project construction, and would reduce this impact to a less-than-significant level.

No solid waste would be associated with the long-term operation of the project. There would be no long-term impact.

Mitigation Measure UTIL-1: Secure Proper Disposal/Soil Reuse Facility with Adequate Capacity for Project Construction Waste Materials.

Before initiating construction, the Conservancy shall ensure that the landfill used for material disposal, or other soil reuse location, has sufficient permitted capacity to accommodate the projected waste resulting from project construction.

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

Less-than-Significant Impact. Because the proposed project would not generate solid waste on a long-term basis and would comply with Mitigation Measure UTIL-1, it would comply with all federal, state, and local statutes regarding solid waste and it would not cause any landfills to exceed their capacity.

3.17 MANDATORY FINDINGS OF SIGNIFICANCE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. Mandatory Findings of Significance.				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☒	☐	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Authority: Public Resources Code Sections 21083 and 21087.
Reference: Public Resources Code Sections 21080(c), 21080.1, 21080.3, 21082.1, 21083, 21083.3, 21093, 21094, 21151; *Sundstrom v. County of Mendocino*, 202 Cal.App.3d 296 (1988); *Leonoff v. Monterey Board of Supervisors*, 222 Cal.App.3d 1337 (1990).

DISCUSSION

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

Less-than-Significant Impact. Development of the project would not substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; reduce or restrict the range of rare or endangered plants or animals; or eliminate important examples of the major periods of California history or prehistory. As discussed earlier in this chapter, mitigation measures committed to by the Conservancy would reduce potential impacts on biological resources to less-than-significant levels.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less than Significant with Mitigation Incorporated. The project would involve the restoration of the lower reach of Blackwood Creek on the west shore of Lake Tahoe, as well as supporting elements of vegetation enhancement and trail rehabilitation that would also contribute to improved creek conditions. All of the project's impacts are either less than significant or mitigable to less-than-significant levels. Many project impacts are site specific (e.g., soils) and would not combine with the impacts of other cumulative projects in the area. This is true for the following resource areas: aesthetics, agricultural resources, geology and soils, hazards and hazardous materials, mineral resources, noise, population and housing, public services, and utilities and service systems.

Air quality impacts have regional implications and are not site specific. Short-term emissions of pollutants generated during construction are temporary in nature, but can contribute to air quality violations and nonattainment conditions. Emissions are primarily associated with heavy-duty construction equipment and fugitive emissions from ground disturbance and earth-moving activities. Unmitigated emissions associated with the proposed project are not expected to exceed the applicable significance thresholds (82 lb/day of ROG, NO_x, or PM_{10}). Therefore, the project would not result in a cumulatively considerable contribution to a short-term cumulative air quality impact. With the exception of a limited number of new vehicle trips related to on-going routine inspection and maintenance of the proposed creek restoration element, the proposed project would not generate any long-term operational emissions. Therefore, the proposed project would not contribute to a cumulative long-term regional air quality impact. (Note: global climate change and project-generated greenhouse gas emissions are discussed in item "c" in Section 3.3, "Air Quality.")

For certain resource areas—biological resources, cultural resources, hydrology and water quality, land use and planning, recreation, and transportation and traffic—considering the past, current, or probable future projects in the project vicinity identified in Table 2-5 of Chapter 2, "Project Description," is warranted. Potential cumulative impacts for each of these resource areas are described briefly below. Except for hydrology and water quality, the discussion below supports the finding that no past, current, or probable future projects were identified in the project vicinity that, when added to project-related impacts, would result in cumulatively considerable impacts. With mitigation, the identified potential effects on water quality and increased flooding risk would be reduced to a less-than-significant level.

The cumulative effects on biological resources, cultural resources, hydrology and water quality, land use and planning, recreation, and transportation/traffic are discussed below. Separate impact conclusions are provided for each resource area. However, the most conservative impact conclusion listed below is provided under item "b" in the environmental checklist above.

BIOLOGICAL RESOURCES

Less than Significant with Mitigation Incorporated. Other past, present, and reasonably foreseeable future actions identified in Table 2-5 include restoration projects whose long-term goals would be similar to the project's goal—namely, to improve the overall quality of habitat for fish and wildlife and enhance riparian vegetation. The proposed project would have a long-term beneficial effect on biological resources as discussed in Section 3.4, "Biological Resources." Therefore, the long-term cumulative impact on biological resources would be less than significant.

Implementation of Mitigation Measures BIO-1, BIO-2, and BIO-3 would fully mitigate the project's short-term contribution to cumulative impacts on biological resources. Therefore, the short-term cumulative impact on biological resources would be less than significant.

CULTURAL RESOURCES

Less than Significant with Mitigation Incorporated. Cumulative impacts on historic and unique archaeological resources are based on analysis of past, present, and reasonably foreseeable future actions in the project vicinity in combination with potential effects of this project. In general, archaeological resources within the Tahoe Basin are the result of thousands of years of human occupation. Previous development has disturbed, destroyed, or compromised numerous archaeological resources and has resulted in a certain amount of degradation of the surrounding cultural landscape. However, with implementation of the identified mitigation measures (CUL-1, CUL-2, and CUL-3), which are designed to eliminate or minimize impacts on documented and presently un-recorded cultural resources and human remains, the potential for the project to make a considerable contribution to significant cumulative effect would be reduced to a less-than-significant level.

HYDROLOGY AND WATER QUALITY

Less than Significant with Mitigation Incorporated. Implementation of the proposed construction activities could temporarily degrade water quality by directly releasing soil and construction materials into water bodies or exposing the soil surface to the erosive effects of wind, runoff, or overbank creek flows and stream flows. These effects would be additive with similar effects caused by other construction projects in the watershed of Blackwood Creek, and thus could result in a short-term cumulative effect on water quality. However, the proposed project and other past, present, and reasonably foreseeable future projects are required to comply with all ordinances, permitting requirements, and conditions of approval established by jurisdictional agencies (TRPA, the Lahontan RWQCB, USACE, and DFG). Implementation of standard erosion control measures (e.g., management, structural, and vegetative controls) would be required for all construction activities that expose soil; grading operations would be required to eliminate direct routes for conveying potentially contaminated runoff to drainage channels; and each project must identify measures to prevent or minimize the release of contaminants, along with methods of cleaning up releases if they do occur. The performance standards for BMPs for the reasonably foreseeable future projects would be expected to be the same as those for the mitigation identified for the proposed project, but it is possible that the BMPs could fail, particularly if infrequent runoff or streamflow conditions occur that exceed the BMP design capacity. Blackwood Creek has no dams or other flow-regulation facilities, and it is not possible to predict weather and runoff conditions before the onset of construction, especially construction that occurs over more than one season. The Blackwood Creek restoration projects would all be located along the same unregulated creek, and all would be scheduled without advanced prediction of future storm events. Construction related to the upstream USFS restoration projects on Blackwood Creek is anticipated to be completed in 2010; it is not expected that the proposed project would be constructed concurrently with those projects. However, all projects are expected to have an adjustment period after completion (approximately 2 to 3 years). Implementation of BMPs identified in Chapter 2, “Project Description,” and Mitigation Measures WQ-1 through WQ-3 would reduce the potential for the proposed project and related projects to cause excessive soil erosion or sedimentation that would limit the likelihood and magnitude of potential short-term water quality degradation that could result in persistent turbidity above background levels and impair beneficial uses.

The proposed Phase 1 creek improvements would be constructed during the vegetation establishment period (2 to 3 years) of the upstream USFS restoration projects. The potential exists for disturbed areas related to the project and the upstream reaches to be exposed to high flows that could produce a violation of the Basin Plan, despite efforts to minimize risks. However, this potential also exists for areas where erosive forces have caused bank instability outside of all project limits.

As described in Section 3.8, “Hydrology and Water Quality,” the applicable standard used for the proposed project and past, present and reasonably foreseeable future projects focuses on visible turbidity along the receiving waters of Blackwood Creek, where degradation of a magnitude and duration that impairs aesthetic values is considered significant. The strictest criteria is if persistent visible turbidity is produced, particularly during the recreation season and especially during low flow, summer months when background conditions would

be expected to result in high water clarity. Visible turbidity that lasts after the initial disturbance ends, and/or disturbances that produce a recurring or chronic source of turbidity are considered significant and adverse. It is possible that these combined projects could generate a cumulative contribution to surface and/or groundwater degradation of a magnitude and duration that would impair beneficial uses of Blackwood Creek.

The channel adjustments in the form of streambed or streambank erosion from the proposed project combined with the upstream USFS restoration projects could produce turbidity effects. The potential magnitude and duration of water quality degradation (e.g., turbidity) associated with natural channel adjustments would vary along the project reaches depending on the type of feature installed and pre-project conditions, but the effects could violate water quality standards. The effects would be greatest within the immediate vicinity of project reaches, and would dissipate upon cessation of the flood event, but it is possible that turbidity might be detectable and extend downstream of the project reach, at least for short periods of time. Turbidity effects could occur during and just following peak seasonal streamflow (spring snowmelt) or during a large flood event (i.e., 25-year recurrence peak flow) when background turbidity would be elevated and aesthetic beneficial uses are lower than during the primary recreation season. The probability that project-related turbidity impacts would be substantially worse than under the existing flows and that they would impair beneficial uses outside the treatment reaches during the channel adjustment period would be low. Possible channel and floodplain damage that could result in persistent or chronic water quality degradation including fine sediment and organic matter mobilization in newly reactivated floodplain areas would be minimized by mitigation planned as part of the project (Mitigation Measures WQ-1 through WQ-3) which involves removing loose, unvegetated, or otherwise unstable fine sediment and/or organic material and revegetating loose, unvegetated and implementation of an adaptive management plan with specific data collection and monitoring protocols, decision-making processes, and thresholds for corrective actions. The residual impacts of the action alternatives would not be substantial on their own.

For the long-term, the upstream USFS restoration projects in the watershed would repair, restore, and/or reconstruct portions of the Blackwood Creek channel and would be expected to have a beneficial long-term overall effect on stream channel erosion rates, including the expectation that any potential localized increased erosion risks within their study areas or adverse effects on immediate upstream reaches would be controlled through design and/or implementation of on-site, project-specific mitigation measures. Minor interaction and combining benefits between reaches would be expected were project-generated changes in one reach could protect channel stability of adjacent upstream reaches and tributaries. Reduction of stream channel erosion within the project study area would be additive with other stream channel erosion reductions in terms of total benefit along Blackwood Creek. Improvements in the channel stability would only combine with other actions by preventing channel instability from migrating upstream. Therefore, implementation of the proposed project would be beneficial and would not contribute to a potentially significant cumulative adverse effect on stream channel erosion.

The proposed habitat enhancing bank stability structures, engineered debris jams, riparian and aquatic habitat enhancements, trail improvements, channel realignment, and sediment dispersal techniques (e.g., installation of floodplain benches and hydraulic roughness features) would reduce the effects of historical disturbances that have contributed to the degraded condition of the lower reaches of Blackwood Creek. Similarly, the upstream USFS restoration projects on Blackwood Creek would also improve nutrient and sediment retention for small and moderate flood events, related to the existing degraded conditions along their respective project reaches. Direct benefits to sediment and nutrient retention would be largely limited to each project are because return flows back from the floodplain to the channel would occur. Therefore, implementing the proposed project would not contribute to a potentially significant cumulative effect on fine sediment and nutrient retention during small to moderate flood events. The combined effect of the proposed restoration projects would be beneficial.

Implementation of the proposed project in combination with other related projects could increase flooding risks if substantial changes to hydrology or hydraulics of the Blackwood Creek watershed were to occur. However, the most relevant projects, the upstream USFS restoration projects on Blackwood Creek, would not be expected to

result in adverse changes to the 100-year floodplain storage capacity, flow routes, or boundaries. The proposed project would be designed so that flood flow velocities and water surface elevations would be expected to be similar to or lower than those under existing conditions, thus not increasing the potential for flooding off-site. Consistent with existing conditions, floods with return intervals greater than the 5-year flood event would be allowed to continue to overtop the channel at the farthest downstream bend of Reach 3 where the channel turns north. The upstream projects are expected to incorporate design features and/or mitigation, similar to the proposed project, to remain flood neutral from the 100-year flood because they are also mapped in FEMA special hazard zones. Furthermore, implementation of Mitigation Measures WQ-1 through WQ-4, discussed in Section 3.8, "Hydrology and Water Quality," would mitigate the proposed project's contribution and would consider the combined effects of upstream restoration projects on flooding such that the project would not contribute to a cumulatively considerable increase in flooding risks.

Highly uncertain climate change influences might overwhelm the possible long-term effects of the proposed project, or the upstream USFS restoration projects. It is possible that climate change may exacerbate impacts (e.g., further decrease coarse sediment delivery) or counteract them (e.g., lower lake levels). The net effects of these factors, given the uncertainty associated with climate change, is not yet practical to quantify with current scientific understanding, but they could range from worse than the existing degraded condition to a possible improvement in erosion rates. Given the uncertainty of future climate change-related existing conditions, consideration of project-specific effects and potential cumulative impacts remains too speculative for a meaningful cumulative significance conclusion.

LAND USE AND PLANNING

No Impact. Several of the cumulative projects related to the proposed project would affect existing land uses, including the *Homewood Mountain Resource Master Plan*, which is proposed to include new land uses. The project would not create any new impacts on land use because a goal of the project is to have no net change in land use and public access within the project area. Although future projects could contribute to cumulative land use impacts (new development), the project-related impacts would not add to those impacts because it would not affect existing land uses. Therefore, no cumulatively considerable land use impacts would occur with implementation of the project.

RECREATION

Less-than-Significant Impact. Of the cumulative projects related to the proposed project, two future Caltrans projects involve enhancing or relocating existing recreational facilities, and the *Homewood Mountain Resource Master Plan* is proposed to include new recreational facilities. The proposed project would not create any new impacts on recreation because a goal of the trail rehabilitation work is to have no net change in recreation use and public access within the project area. Although future projects could contribute to cumulative impacts on recreation, the project-related impacts would not add to those impacts. Therefore, no cumulatively considerable impacts on recreation would occur with implementation of the project.

TRANSPORTATION/TRAFFIC

Less-than-Significant Impact. Of the cumulative projects related to the proposed project, three future Caltrans improvement projects would affect existing transportation facilities (e.g., turnouts, turn lanes, and bicycle lanes), and the *Homewood Mountain Resource Master Plan*, which is proposed to include new land uses, would generate vehicle trips. The proposed project would not create any new impacts on transportation because a goal of the trail rehabilitation work is to have no net change in use and public access within the project area. Future projects could contribute to cumulative short-term impacts (from construction) and long-term traffic impacts (from new development and increased daily traffic). The proposed project would not generate long-term traffic and therefore, would not contribute to any long-term cumulative traffic impacts. The proposed Phase 1 creek improvements,

vegetation enhancement work, and trail rehabilitation work are not expected to add to cumulative short-term traffic impacts because these elements are expected to be constructed before the applicable cumulative projects. The Phase 2 creek improvements could coincide with the construction of applicable cumulative projects. Regardless, with implementation of the identified mitigation measures (TRA-1), which is designed to address project construction traffic, parking, and emergency access, the potential for the project to make a considerable contribution to a significant short-term cumulative traffic effect would be reduced to a less-than-significant level.

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

Less-than-Significant Impact. No project-related environmental effects were identified that would cause substantial adverse effects on human beings. As discussed herein, the project has the potential to create impacts related to water quality and biological resources during construction. However, with implementation of mitigation measures committed to by the Conservancy, these impacts would be reduced to less-than-significant levels.

4 TRPA INITIAL ENVIRONMENTAL CHECKLIST AND EXPLANATIONS

I PROJECT INFORMATION

Assessor's Parcel Numbers (APNs)/Project Location: 085-020-088 et al./Lower Blackwood Creek—the 4,000 linear feet of stream channel that begins 3,000 feet upstream (west) of State Route 89 (SR 89) and extends approximately 1,000 feet downstream (east) of SR 89 (see Exhibits 2-1 and 2-2 in Chapter 2, "Project Description").

Property Name: Lower Blackwood Creek

County/City: Placer County/Tahoe Pines

Brief Description of Project: See Chapter 2, "Project Description"

II ENVIRONMENTAL IMPACTS:

The following questionnaire will be completed by the applicant based on evidence submitted with the application. **All "yes" and "no, with mitigation" answers will require further written comments.**

1 LAND

Will the proposal result in:

a. Compaction or covering of the soil beyond the limits allowed in the land capability or Individual Parcel Evaluation System (IPES)?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The proposed project would not create additional land coverage; therefore, it would not compact or cover soils beyond limits allowed under the land capability system. The project includes upland trail rehabilitation elements that would restore the existing trail network and would improve drainage and control erosion to reduce sediment loading to Blackwood Creek, which is a beneficial effect of the project. Although some trails would be decommissioned and others would be realigned or rehabilitated, no net increase in coverage would occur.

A small amount of existing (unverified) coverage, including coverage within land capability districts 1a and 1b, would be relocated as part of the proposed trail rehabilitation work. The amount of coverage proposed for relocation meets the criteria on the list of qualified exempt activities on Conservancy land that are not subject to review and approval by TRPA (see MOU between TRPA and the Conservancy dated August 8, 1999). Section II.A, "Roads and Trails," of the MOU exempts reconstruction of trails as necessary to protect the environment. Relocation of coverage is allowed where the relocation is necessary to (in this case) reduce effects on SEZ or other environmentally sensitive situations. The relocated coverage is exempt "provided that [the] relocated land coverage does not exceed 10,000 square feet in land capability districts 1, 2, 3, or SEZ, nor exceed a total of 20,000 square feet in all land capability districts and is mitigated in compliance with Chapter 20 of the TRPA Code of Ordinances."

As described in Chapter 2, “Project Description,” the Conservancy would submit the forthcoming trail rehabilitation plan, including maps, to TRPA concurrent with submittal of the complete TRPA project application package—anticipated for the summer/fall of 2010. The proposed trail rehabilitation plan would be submitted with a certification and/or documentation stating that the proposed work does not result in the creation of additional land coverage or other permanent disturbance and is in conformance with the applicable provisions of TRPA Code.

b. A change in the topography or ground surface relief features of site inconsistent with the natural surrounding conditions?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Topography within the project area would be modified along the stream channel and trail system. However, these changes would be consistent with the natural surrounding conditions.

The proposed project is designed to reduce excessive levels of erosion and sediment inputs to Blackwood Creek, to promote depositional processes, and to increase roughness and diversity of hydraulic conditions. As part of the stream restoration features, terraced banks would be regraded to a gentler slope, and rock protection and woody debris structures would be added to direct flows away from eroding banks. The proposed project’s trail rehabilitation element involves rerouting portions of the existing trails and using other techniques to redirect runoff that currently flows into Blackwood Creek, soil stabilization techniques, and other erosion control BMPs described in Chapter 2, “Project Description,” that would reduce sediment deposition to the creek. These changes in topography and ground surface relief are beneficial changes that would reduce sediment and nutrient input to Lake Tahoe and be consistent with the natural surrounding conditions.

c. Unstable soil conditions during or after completion of the proposal?

Yes	No	No, with Mitigation	Data Insufficient
		X	

During construction, the proposed project could temporarily create unstable soil conditions and expose soil to potential wind and water erosion until the project site was effectively stabilized and revegetated. As discussed in item “a” in Section 3.8, “Hydrology and Water Quality,” in Chapter 3, “CEQA Environmental Checklist and Explanations,” the proposed project would be required to obtain and comply with the Lahontan Regional Water Quality Control Board’s (Lahontan RWQCB’s) National Pollutant Discharge Elimination System (NPDES) permit. The NPDES permit requires the applicant to file a notice of intent for stormwater discharges associated with general construction activities and to prepare and implement a storm water pollution prevention plan (SWPPP) before the start of any construction work, site grading, or excavation. The permit would address soil erosion and unstable soils. The SWPPP would identify grading and erosion-control best management practices (BMPs) and specifications necessary to avoid and minimize water quality impacts, to the extent practicable. Implementation of standard erosion-control measures (e.g., management, structural, and vegetative controls) would be required for all construction activities that expose soil. Grading operations would be required to eliminate direct routes for conveying potentially contaminated runoff to drainage channels. The SWPPP would

also identify specific measures to stabilize soils before the onset of winter. These standard erosion-control measures would be designed to reduce the potential for soil erosion and sedimentation. The general contractor(s) and subcontractor(s) conducting the work would be responsible for constructing or implementing, regularly inspecting, and maintaining the erosion-control and waste-discharge measures identified in the SWPPP.

Because the proposed project would implement permanent bank and soil stabilization measures, including construction related measures (see BMPs identified in Chapter 2, "Project Description," and Mitigation Measures WQ-1 through WQ-3 in Section 3.8, "Hydrology and Water Quality"), intended to address existing unstable soils and would be required to conform with all applicable regulations and permitting requirements of the Lahontan RWQCB and TRPA pertaining to unstable soils, this impact would be less than significant.

The long-term benefits of reducing erosion are discussed in item "b" above.

d. Changes in the undisturbed soil or native geologic substructures or grading in excess of 5 feet?

Yes	No	No, with Mitigation	Data Insufficient
X			

Grading depths associated with relocating and rehabilitating trails would be less than 5 feet. Grading for the creek restoration element would also be less than 5 feet in most places. However, as discussed in Chapter 2, "Project Description," terraced banks within lower Blackwood Creek would be regraded to a gentler slope, and rock protection and woody debris structures would be added to direct flows away from eroding banks. To match the existing bench, grading depths may exceed 5 feet. Because soils in the project area have been disturbed by historical land uses within the watershed (USFS 1998, 2002, 2003; USACE 2001), it is not expected that the project would result in changes in undisturbed soil or native geologic structures.

e. The continuation of or increase in wind or water erosion of soils, either on or off the site?

Yes	No	No, with Mitigation	Data Insufficient
		X	

Please see the discussion under item "c" above.

f. Changes in deposition or erosion of beach sand, or changes in siltation, deposition or erosion, including natural littoral processes, which may modify the channel of a river or stream or the bed of a lake?

Yes	No	No, with Mitigation	Data Insufficient
X			

The proposed project is designed to promote depositional processes and decrease erosional processes and includes modifications to the lower Blackwood Creek stream channel. As such, increased bank stability and deposition of

suspended sediments is anticipated to occur over the life of the project. Associated minor decreases are expected in the amount of fine sediment deposited within the creek channel or reaching the beach at the mouth of the creek and Lake Tahoe. However, the proposed creek alterations are beneficial changes meant to reduce the input of sediment and nutrients to Lake Tahoe by restoring natural fluvial processes. The project does not propose any components that would affect natural littoral processes of Lake Tahoe, including changes in deposition or erosion of beach sand.

g. Exposure of people or property to geologic hazards such as earthquakes, landslides, backshore erosion, avalanches, mud slides, ground failure, or similar hazards?

Yes	No	No, with Mitigation	Data Insufficient
	X		

As discussed in item "a" in Section 3.6, "Geology and Soils," the proposed project would not expose people or property to geologic hazards. No portion of the project site is located in the vicinity of a known earthquake fault, steep slopes, or area subject to ground failure. The proposed project would not involve construction of any new building structures, including housing, and would not expose people or structures to any such hazards.

2 AIR QUALITY

Will the proposal result in:

a. Substantial air pollutant emissions?

Yes	No	No, with Mitigation	Data Insufficient
		X	

Please note that air quality emissions from both short-term construction and long-term project operation are discussed below. Separate impact conclusions are provided for short-term and long-term air quality emissions. However, the most conservative impact conclusion listed below is provided in the box above.

SHORT-TERM CONSTRUCTION-GENERATED EMISSIONS

Construction emissions are described as short term or temporary in duration and have the potential to result in a significant impact with respect to air quality. The proposed project's construction of access roads and staging areas, vegetation thinning, bank stabilization, channel realignment, temporary water diversion activities, and trail rehabilitation work would temporarily generate emissions of several pollutants: reactive organic gases, oxides of nitrogen, carbon monoxide, oxides of sulfur, and respirable particulate matter with aerodynamic diameters of 10 micrometers or less and 2.5 micrometers or less (PM_{10} and $PM_{2.5}$, respectively). Such emissions would be generated from site preparation (e.g., grading, excavation, and land clearing); exhaust from construction equipment, construction workers' commute trips, and materials transport; and other miscellaneous activities. Implementation of Mitigation Measure AQ-1 (see the discussion under items "b" and "d" in Section 3.3, "Air Quality") would reduce construction-related emissions from mobile sources—emissions of the criteria air pollutants and ozone precursors listed above, generation of fugitive PM_{10} and $PM_{2.5}$ dust, and emissions of diesel particulate matter—to a less-than-significant level.

LONG-TERM OPERATIONAL EMISSIONS

Implementation of the proposed project would not result in the ongoing operation of any new emissions sources. The project would result in a limited number of new vehicle trips related to routine inspection and maintenance of the proposed creek restoration element. Conditions would generally remain unchanged. Thus, there would be no impact related to long-term emissions of criteria air pollutants and ozone precursors.

b. Deterioration of ambient (existing) air quality?

Yes	No	No, with Mitigation	Data Insufficient
		X	

Please note that air quality emissions from both short-term construction and long-term project operation are discussed below. Separate impact conclusions are provided for short-term and long-term air quality emissions. However, the most conservative impact conclusion listed below is provided in the box above.

SHORT-TERM CONSTRUCTION-GENERATED EMISSIONS

As discussed in item “a” above, construction emissions have the potential to result in a significant impact with respect to air quality. However, Mitigation Measure AQ-1 would reduce the emissions of criteria air pollutants, ozone precursors, and toxic air contaminants enough that such emissions would not contribute substantially to the deterioration of existing ambient air quality, an exceedance of standards set forth by the Placer County Air Pollution Control District and TRPA, or to an existing or projected air quality violation.

LONG-TERM OPERATIONAL EMISSIONS

As discussed in item “a” above, because the proposed project would not result in an increase in long-term operational emissions, the project would not contribute significantly to the deterioration of existing ambient air quality, an exceedance of standards set forth by the Placer County Air Pollution Control District and TRPA, or to an existing or projected air quality violation.

c. The creation of objectionable odors?

Yes	No	No, with Mitigation	Data Insufficient
		X	

Please note that odor sources from both short-term construction and long-term project operation are discussed below. Separate impact conclusions are provided for short-term and long-term sources of odors. However, the most conservative impact conclusion listed below is provided in the box above.

SHORT-TERM ODOR SOURCES

The occurrence and severity of odor impacts depend on numerous factors: the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies.

Project construction would result in emissions of diesel exhaust from on-site construction equipment. This exhaust, though intermittent and temporary, could drift within 100 feet of sensitive receptors (residences of Tahoe Pines) and could result in objectionable odors affecting these neighbors. As a result, this impact would be potentially significant. Implementation of Mitigation Measure AQ-1 would reduce short-term construction-generated emissions, and therefore the odor associated with diesel exhaust emissions, to a less-than-significant level.

LONG-TERM ODOR SOURCES

Project operations may generate sulfuric-type odors associated with stagnant water and anaerobic activity during periods when water levels are drying up on the site. However, the potential for this type of odor currently exists because of seasonal flooding and drying up of floodplains on the project site. Thus, because the proposed project would not introduce a new odor source or introduce a new odor type to the area, this impact would be less than significant.

d. Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?

Yes	No	No, with Mitigation	Data Insufficient
	X		

As discussed in item "c" in Section 3.3, "Air Quality," because the construction-related emissions associated with the proposed project would be temporary and finite in nature, and below the minimum standard for reporting requirements under AB 32, the project's greenhouse gas emissions (GHGs) would not be a considerable contribution to the cumulative global impact, and therefore, would be less than significant.

There would be no new mobile, area, or stationary sources of GHGs associated with the proposed project. Therefore, implementation of the proposed project would not result in a net increase of long-term operation-related GHG emissions from mobile, stationary, or area sources. Thus, project-generated operational emissions would not result in a cumulatively considerable net increase of GHGs. As a result, this impact is considered less than significant.

e. Increased use of diesel fuel?

Yes	No	No, with Mitigation	Data Insufficient
		X	

Please note that the use of diesel-fueled equipment from both short-term construction and long-term project operation is discussed below. Separate impact conclusions are provided for short-term use and long-term use of equipment that would use require the use of diesel fuel. However, the most conservative impact conclusion listed below is provided in the box above.

SHORT-TERM CONSTRUCTION USE OF DIESEL-FUELED EQUIPMENT

Construction of the proposed project would require the temporary use of diesel fuel for the operation of construction equipment. Use of diesel fuel during construction activities would be reduced by adhering to Mitigation Measure AQ-1.

LONG-TERM OPERATION USE OF DIESEL-FUELED EQUIPMENT

Long term operation of the project would not involve the use of any diesel-fueled equipment.

3 WATER QUALITY

Will the proposal result in:

a. Changes in currents, or the course or direction of water movements?

Yes	No	No, with Mitigation	Data Insufficient
X			

The proposed project is designed to reduce sediment sources and decrease rates of erosion by stabilizing banks and by rehabilitating and decommissioning trails; it also has been designed to increase localized floodplain connectivity, promoting depositional processes that would remove sediment and nutrients from overbank waters. Topography within the project area would be modified along the stream channel where terraced banks would be regraded to a gentler slope. Rock protection and woody debris structures would be added to direct flows away from eroding banks. The proposed project has been designed to maintain the rate and volume of surface runoff. Flood flow velocities and water surface elevations would be expected to be similar to or lower than those under existing conditions, thus not increasing the potential for flooding off-site. Consistent with existing conditions, floods with return intervals greater than the 10-year flood event would be allowed to continue to overtop the channel at the easternmost downstream bend of Reach 3, where the channel turns north. Debris jams have been observed near the overtopping location because of the relatively low elevation of the upper bank and the sharp bend. The proposed project would place large boulders and anchor large woody debris structures at this and other unstable bank locations within the creek channel, which would have a secondary benefit of capturing floating debris along all project reaches. By capturing floating debris at various points along the project reach, the project would likely reduce the frequency and severity of debris blockages at the culvert, which exacerbates flooding under existing conditions. Therefore, these engineered debris jams are expected to reduce the frequency and severity of flooding as a result of culvert blockage.

b. Changes in absorption rates, drainage patterns, or the rate and amount of surface water runoff so that a 20 yr. 1 hr. storm runoff (approximately 1 inch per hour) cannot be contained on the site?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Topography within the project area would be modified along the stream channel and trail system. These changes would not change absorption rates, drainage patterns, or the rate and amount of surface-water storage enough to prevent containing the runoff from a 20-year, 1-hour storm event on-site. Terraced banks would be regraded to a gentler slope, and rock protection and woody debris structures would be installed to direct flows away from eroding banks while improving localized floodplain connectivity. This improved connectivity would promote depositional processes that would remove sediment and nutrients from overbank waters. Trail rehabilitation techniques would include rerouting portions of the existing trails and adding improved drainage techniques as described in Chapter 2, "Project Description." The proposed project has been designed to maintain the rate and volume of surface runoff, and it would not increase the area of impermeable surfaces. No significant effect on the site's ability to retain runoff from a 20-year, 1-hour storm would occur.

c. Alterations to the course or flow of 100-year flood waters?

Yes	No	No, with Mitigation	Data Insufficient
		X	

The proposed project has been designed to maintain the rate and volume of surface runoff. Flood flow velocities and water surface elevations would be expected to be similar to or lower than those under existing conditions, thus not increasing the potential for flooding off-site. Consistent with existing conditions, floods with return intervals greater than the 10-year flood event would continue to overtop the channel at the easternmost downstream bend of Reach 3, where the channel turns north. Debris jams have been observed near the overtopping location because of the relatively low elevation of the upper bank and the sharp bend. The proposed project would place large boulders and anchor large woody debris structures at this and other unstable bank locations within the creek, which would have a secondary benefit of capturing floating debris along all project reaches. By capturing floating debris at various points along the project reach, the project would likely reduce the frequency and severity of debris blockages at the culvert, which exacerbates flooding under existing conditions. Therefore, these engineered debris jams are expected to reduce the frequency and severity of flooding as a result of culvert blockage.

To monitor the success of creek restoration elements and post-project conditions relative to flooding, Conservancy staff members would perform regular and ongoing post-project inspection and maintenance activities along lower Blackwood Creek to monitor condition and performance of the creek improvements, to protect features from human or other disturbances, and to evaluate whether debris needs to be removed from the channel. It should be noted that debris in the channel is a natural part of this system and debris would only be removed if it causes an increased risk of flooding or other environmental impact. A detailed monitoring and maintenance plan is under development. At a minimum, the plan would include bi-monthly visual inspections from April through November of log/debris jams, rock and log toe revetments, beaver impacts to the stream

channel and effects on flood risk, and areas near the mouth of the SR 89 culvert for the first 2 years following construction. Following the first 2 years after construction, Conservancy staff would perform visual inspections at least once annually after peak flows and immediately following significant flow events. As necessary, Conservancy staff or contracts would remove from the creek materials caught in these structures. If monitoring identifies an increase in flood risk as a result of tree cutting and woody debris input by beavers, measures to prevent tree cutting by beavers would be implemented. This monitoring and management would be part of the Conservancy's overall monitoring and maintenance program for the project, which is described in Chapter 2 ("Project Description"), Section 2.6.6 ("Ongoing Monitoring and Maintenance").

The proposed project would be designed to not increase the risk of flood hazards to persons or property. As part of project design, Northwest Hydraulic Consultants, the project engineer, modeled future flooding conditions and concluded that the project would not cause increased flooding risks (Conservancy and DGS 2007). Modeling data were compiled before initiation of the two USFS upstream creek restoration projects (see Table 2-5 in Chapter 2, "Project Description"). Failure to appropriately evaluate these projects in flood modeling could result in unanticipated increases in flood risk. This impact would be potentially significant. Implementation of Mitigation Measure WQ-4 (see the discussion under item "d" in Section 3.8, "Hydrology and Water Quality"), which would require reevaluation of flood conditions to include the upstream USFS restoration projects and final project design modifications, would reduce this impact to a less-than-significant level.

d. Change in the amount of surface water in any water body?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The proposed project would not change the amount of surface water in any water body. The project would, however, redistribute surface waters by placing rock protection and woody debris structures to direct flows away from eroding banks. Regrading the terraced banks may slightly increase retention time in these locations but would not alter the total amount of surface water present.

e. Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?

Yes	No	No, with Mitigation	Data Insufficient
		X	

Short-term adverse water quality impacts could occur as discussed in detail under item "a" in Section 3.8, "Hydrology and Water Quality," in Chapter 3, "CEQA Environmental Checklist and Explanations," and summarized below.

Short-term adverse impacts to water quality could result from construction-related disturbances occurring within and adjacent to the channel. Construction would disturb upland areas (primarily on the north side of the creek), as well as areas in the floodplain and active channel of lower Blackwood Creek. The extent of in-channel work varies with each phase and location along the project reaches. The proposed creek restoration elements would

require work in the active channel. Vegetation enhancement (conifer removal) and trail rehabilitation elements would be completed off-channel (outside of the active channel).

Several general construction management measures would be implemented to minimize environmental impacts, along with specific measures to protect water quality (see Section 2.6, “Construction Staging, Access Areas, and BMPs,” in Chapter 2, “Project Description”). Specific erosion control measures (or BMPs) are not defined at this time, but would likely include use of construction limit fencing, silt fences and coir logs, visqueen plastic and crushed rock, and a truck wash/inspection area (refer to Table 2-4 in Chapter 2, “Project Description”). Construction activities that must access the existing streambed or streambanks would require the diversion of surface water in the creek channel via temporary diversion dam structures and gravity flow pipelines, and where subsurface access is needed, temporary dewatering/pumping of groundwater that seeps into the work area would also be required. Construction dewatering would include the use of pumps coupled with temporary storage basins north of the creek where water would be stored and then pumped uphill for land application.

In general, efforts would be made to work as quickly as possible to move from initial disturbance through final revegetation, but it is possible that disturbed areas could be exposed to high flows during summer storm events occurring in the construction season.

All temporary stormwater erosion controls (BMPs) would be designed and sized to meet typical regulatory requirements (e.g., 20-year rainstorm for stormwater; 50-year peak streamflow), but could be overwhelmed by a larger event if it occurred during the construction period or for the first 2-3 years of vegetation reestablishment.

It remains possible that violations of water quality standards could occur, at least for short periods of time during the summer’s activities. The primary potential source of contamination would be the loosened soil materials, but other on-site sources of contamination during construction could include leaks or spills of fluids or fuels from vehicles and equipment, or miscellaneous construction materials and debris.

The applicable standard used for the proposed project is Lahontan RWQCB beneficial uses, with a focus on aesthetic values under Non-Contact Recreation Use designated in the Basin Plan (Lahontan RWQCB 1995). Visible turbidity is considered the primary concern along the receiving waters of Blackwood Creek, where degradation of a magnitude and duration that impairs aesthetic values is considered significant. The strictest criteria is if persistent visible turbidity is produced, particularly during the recreation season and especially during low flow, summer months when background conditions would be expected to result in high water clarity. Visible turbidity that lasts after the initial disturbance ends, and/or disturbances that produce a recurring or chronic source of turbidity are considered significant and adverse. It is anticipated that the Conservancy would request an exemption for potential violation of water quality turbidity standards from the Lahontan RWQCB as part of Clean Water Act compliance. However, it is possible that surface and/or groundwater degradation of a magnitude and duration that would impair beneficial uses of Blackwood Creek could result. This short-term impact as a result of construction related disturbances would be potentially significant.

A natural channel adjustment effect could occur where engineered designs are implemented. In particular, such adjustments would be expected as normal post-construction channel dynamics for areas where the selected restoration design does not impose the final channel size, shape, or bed and bank materials directly during construction. Expected channel adjustments would likely require at least a few years (approximately 2–3 years) where flows approach or exceed the geomorphic design flow to reach equilibrium. Natural channel adjustments would be expected in response to in-channel modifications and floodplain grading. Channel adjustments in the form of streambed or streambank erosion could produce turbidity effects. Normal channel adjustments would most likely occur during and just following peak seasonal streamflow (spring snowmelt) or during a large flood event.

Blackwood Creek is an unregulated creek, therefore, it would not be possible to avoid or control streamflow due to a large flood occurring while the project area was still adjusting to construction. While the probability of a

large flood flow in any given year would be relatively low, the project area could be vulnerable for a few consecutive years. Revegetation on graded floodplain benches and bank stabilization features that might be adequate to protect surfaces against typical small flood events shortly after construction might not yet be mature enough to withstand a large flood. A large flood, occurring within the first couple of years following construction could violate water quality standards within the study area, potentially extending downstream. A large flood event would most likely occur during winter storms, including rain-on-snow events when absorption rates are low and runoff rates are high. During these large events background turbidity tends to be extremely high and aesthetic beneficial uses are less prevalent. While unexpectedly large flows could damage the active channel and/or newly graded areas of the channel, causing instability that could continue beyond the initial flood event and/or propagate over time to affect additional locations, this could also occur under existing conditions. Under existing conditions a flood flow of this same magnitude would also produce streambed and streambank erosion that could mobilize sediment in areas of instability along the channel. However, the project would modify the specific locations, areal extent, and soil/vegetation conditions that would be exposed to flood flows in the channel or across floodplain benches and localized risks of increased erosion and sedimentation could occur. The effects would be greatest within the immediate vicinity of project reaches, and would dissipate upon cessation of the flood event, but it is possible that turbidity might be detectable and extend downstream of the study area, at least for short periods of time. This short-term impact on aesthetic beneficial uses during the channel adjustment period would be potentially significant.

With implementation of Mitigation Measures WQ-1 through WQ-3 identified in Section 3.8, “Hydrology and Water Quality,” the likelihood and potential magnitude of short-term water quality degradation that could persist and impair beneficial uses would be minimized, and the impact associated with the project construction and post-construction period would be reduced to less than significant.

f. Alteration of the direction or rate of flow of groundwater?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Groundwater data are not available for the project area; however, water tables generally slope toward the creek from the valley margins, and down the valley toward the lake. The proposed project would not consume substantial amounts of groundwater and would not affect any nearby groundwater users. Although groundwater encountered during construction would need to be extracted from the construction zone, this would not alter the groundwater flow direction and rates. Groundwater encountered during construction would be pumped into temporary storage basins north of the creek and then pumped uphill for sprinkling and infiltration back into the ground via land application. To the extent possible, water collected in the temporary storage basins would be used as irrigation water during vegetation reestablishment and for dust suppression. The minor effects on groundwater would be less than significant.

g. Change in the quantity of groundwater, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Please see the discussion under item "f" above.

h. Substantial reduction in the amount of water otherwise available for public water supplies?

Yes	No	No, with Mitigation	Data Insufficient
	X		

During construction, water for dust suppression would be provided via a metered Tahoe City Public Utility District hydrant or diverted from the dewatered areas and pumps from Blackwood Creek. Permits and meters for use of the water would need to be obtained as required by the Lahontan RWQCB and TRPA. No additional water would be needed during project operation. Because the Conservancy would be required to comply with all applicable permitting and metering requirements of the Lahontan RWQCB and TRPA pertaining to use of water for dust suppression, this impact would be less than significant.

i. Exposure of people or property to water related hazards such as flooding and/or wave action from 100-year storm occurrence or seiches?

Yes	No	No, with Mitigation	Data Insufficient
		X	

Portions of the project area are located within the 100-year floodplain of Blackwood Creek (see Exhibit 3-2 in Section 3.8, "Hydrology and Water Quality"). No bridges, culverts, homes, or other structures are proposed as part of the project. However, the project does propose several locations of rock protection and large woody debris components within the creek channel that is within the 100-year floodplain. These devices are designed to locally redirect flows away from specific eroding banks for restoration of the stream and habitat. Flows would not be impeded, and redirected flows would improve the natural function of the stream and riparian areas. As discussed in item "c" above, if project monitoring identifies an increase in flood risk as a result of tree cutting and woody debris input by beavers, measures to prevent tree cutting by beavers would be implemented.

As discussed in item "c" above, implementation of Mitigation Measure WQ-4 would reduce potential flooding-related impacts to a less-than-significant level.

The project does not propose any new development or modifications that could be affected by a seiche, tsunami, or mudflow. The site is exposed to seiches, which are natural standing waves in a lake, reservoir, or bay. The risk from a seiche would remain unchanged with implementation of the proposed project, however; therefore, the

proposed project has no impact related to inundation by seiches, tsunamis, or mudflows and would not expose people or structures to any such hazards.

j. The potential discharge of contaminants to the groundwater or any alteration of groundwater quality?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Please see the discussion under item "f" above.

k. Is the project located within 600 feet of a drinking water source?

The project area (Exhibit 2-2) is within 600 feet of Lake Tahoe. However, the proposed project is not located within 600 feet of a source of drinking water documented on the TRPA source water assessment maps (TRPA 2000).

4 VEGETATION

Will the proposal result in:

a. Removal of native vegetation in excess of the area utilized for the actual development permitted by the land capability/IPES system?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The project would not create any new land coverage; therefore, it would not remove more native vegetation than permissible under the land capability system. The amount of tree and shrub removal would be limited to the amount required for creek restoration, vegetation enhancement, and trail rehabilitation. Some native vegetation would be removed during creek restoration for realignment and regrading of the channel. Where possible, riparian vegetation removed would be salvaged and reused to revegetate the newly created banks and floodplain surfaces. The remaining newly exposed floodplains and banks would be replanted with native riparian plant species.

During implementation of the vegetation enhancement element, most conifers less than 30 inches in diameter at breast height (dbh) would be removed from within three aspen stands on the north side of lower Blackwood Creek upstream of SR 89. Thinning the existing dense, even-aged white fir in this area, in conjunction with the creek restoration goal of expanding Blackwood Creek's floodplain, would aid in the establishment and regeneration of aspen and cottonwood forest on low terraces in this area. To the extent possible, logs and slash from the thinning would be used in place for various creek restoration measures such as bank revetments, debris structures, and erosion control, or for trail rehabilitation work.

b. Removal of riparian vegetation or other vegetation associated with critical wildlife habitat, either through direct removal or indirect lowering of the groundwater table?

Yes	No	No, with Mitigation	Data Insufficient
X			

As described in Section 3.4, "Biological Resources," riparian vegetation along lower Blackwood Creek is associated with critical wildlife habitat. The specific goal of the proposed project is to improve stream habitat and riparian vegetation (see Chapter 2, "Project Description"). The present condition of riparian habitat along the lower reaches of Blackwood Creek is poor. The stands of riparian shrub that do exist are narrow, discontinuous, and outside of the active floodplain, and they have little structural heterogeneity (i.e., all the individual shrubs are even aged, with little herbaceous understory and little to no emergent tree overstory). Some riparian shrub and associated herbaceous species would be removed during the proposed restoration work for realignment and regrading of the channel. However, clumps and cuttings of riparian shrubs would be salvaged for revegetation on the new banks and floodplain surfaces, and riparian-associated herbaceous species would be replanted on the floodplain. In the long term, the proposed project would result in increased quantity and quality of riparian vegetation (i.e., continuous and more structurally diverse riparian vegetation, with emergent aspen and cottonwood cover, that is connected to an active floodplain).

c. Introduction of new vegetation that will require excessive fertilizer or water, or will provide a barrier to the normal replenishment of existing species?

Yes	No	No, with Mitigation	Data Insufficient
	X		

To the extent possible, plant material used for revegetation would be salvaged from areas graded for the creek channel realignment. Imported plant material would be selected to match the final elevations of the restoration site and the expected hydrologic conditions. Temporary irrigation may be required for revegetation plantings to successfully establish. Some areas would need soil amendments to improve plant establishment. The amendments could include topsoil salvaged from the site, compost from Conservancy operations, small amounts of fertilizer placed at the bottom of planting holes, and possibly topsoil salvaged from other locations in the Tahoe Basin. The revegetation would not require excessive fertilizer or water, nor would it provide a barrier to the normal replenishment of existing species. In contrast, the final regrading and recontouring of the creek would create additional surfaces for establishment of riparian plants.

d. Change in the diversity or distribution of species, or number of any species of plants (including trees, shrubs, grass, crops, micro flora and aquatic plants)?

Yes	No	No, with Mitigation	Data Insufficient
X			

See responses to items "a," "b," and "c" above. The proposed project would result in a beneficial increase in the diversity and distribution of wetland and upland grasses, forbs, shrubs, and trees. The diversity and distribution of existing riparian vegetation are limited by highly erodible, unstable banks. The proposed creek restoration would substantially improve the site's overall habitat quality, allowing for the establishment of a greater diversity and distribution of plant species.

e. Reduction of the numbers of any unique, rare or endangered species of plants?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Protocol-level surveys were conducted on July 22 and 23, 2007, for special-status plant species with the potential to occur in the project area. The results of these surveys were summarized in a technical memorandum prepared by EDAW on October 3, 2007, titled *Results of a Special-Status Plant Survey for the Blackwood Creek Stream Restoration Project* (EDAW 2007; see Appendix C). No special-status plant species were found in the project area. Therefore, the proposed project is not expected to result in the reduction in the numbers of any unique, rare, or endangered species of plants.

f. Removal of streambank and/or backshore vegetation, including woody vegetation such as willows?

Yes	No	No, with Mitigation	Data Insufficient
X			

See responses to items "a" and "b" above. Some woody streambank vegetation (willow, alders, and dogwood) along lower Blackwood Creek would be removed during channel recontouring and grading of the site. To reduce this impact, these shrubs would be transplanted within the project site to the extent practical. The proposed project would result in a beneficial long-term impact on streambank vegetation by increasing the amount and quality of on-site native vegetation.

g. Removal of any native live, dead or dying trees 30 inches or greater in diameter at breast height (dbh) within TRPA's Conservation or Recreation land use classifications?

Yes	No	No, with Mitigation	Data Insufficient
X			

One fir tree larger than 30 inches dbh is proposed for removal as part of the creek restoration element of the project. This tree is located within the proposed creek alignment, and thus its removal is unavoidable. No permanent road would be constructed for removal of this tree, which would be felled under the supervision of a registered professional forester. Logs and slash from the trees proposed for removal would be used in creek restoration measures such as bank revetments, debris structures, and trail features. Overall, the project is expected to result in a long-term benefit to the quality of riparian and upland forest habitat. The thinning of conifers as part of the vegetation enhancement element of the project is expected to a have a long-term benefit for aspen and cottonwood stands along the creek by providing the light and moisture conditions that would improve growth and regeneration.

h. A change in the natural functioning of an old growth ecosystem?

Yes	No	No, with Mitigation	Data Insufficient
	X		

No old-growth forest ecosystem exists within the project area. Therefore, the project would not cause a change in the natural functioning of an old-growth ecosystem.

5 WILDLIFE

Will the proposal result in:

a. Change in the diversity or distribution of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, insects, mammals, amphibians or microfauna)?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The specific goal of the proposed project is to improve stream habitat and riparian vegetation (see Chapter 2, "Project Description"). No adverse changes in diversity of animal species, population abundance, or species distributions are expected as a result of project implementation.

Implementing fish capture and translocation measures as part of the proposed project before beginning creek diversion and dewatering would minimize fish mortality that could otherwise occur from construction activities; however, some common benthic macroinvertebrates, terrestrial invertebrates, and other microfauna could be displaced or killed during construction of the creek restoration elements (i.e., during creek diversion and dewatering, channel excavation, cut and fill, trenching, and materials transport).

Activities within or adjacent to the riparian corridor (channel excavation, grading, vegetation removal, clearing, cut and fill, trenching, finishing, revegetation, cleanup, and materials transport) could also result in the temporary removal or disturbance of vegetation that could provide nesting habitat for birds. Construction could also result in noise, dust, and other disturbances to nesting birds in the vicinity, resulting in potential nest abandonment and mortality to eggs and chicks.

Project treatments in upland areas (enhancing aspen stands by removing conifers, and rehabilitating trails by hand) could temporarily displace, or possibly injure or kill, common terrestrial mollusks or other invertebrates, common birds or mammals, or other microfauna. However, because these species are common, and any project-related mortality is expected to be low, no long-term population reductions are expected.

In the long term, the project is expected to improve habitat quality and increase carrying capacity along Blackwood Creek for riparian birds and aquatic animals by increasing riparian vegetation cover, corridor width, hydrologic connectivity with the stream channel, shading, and instream habitat complexity. Also, upland vegetation enhancements are expected to improve the suitability of habitat for wildlife associated with aspen stands. The abundance of some riparian or aquatic animal species, as well as local species diversity, could increase as a result of this restoration project.

Potential effects of project implementation on sensitive animal species are discussed in response to item “b” below.

b. Reduction of the number of any unique, rare or endangered species of animals?

Yes	No	No, with Mitigation	Data Insufficient
		X	

Please note that project effects on species of wildlife and fish are discussed below. Separate impact conclusions are provided for wildlife and fish. However, the most conservative impact conclusion listed below is provided in the box above.

WILDLIFE

Two special-status wildlife taxa have been documented in the lower Blackwood Creek project area: California spotted owl (*Strix occidentalis occidentalis*) and waterfowl species (collectively). These species are not known to breed in the project area. Eleven additional special-status wildlife species were identified as having a moderate or high potential to occur within the lower Blackwood Creek project area (EDAW 2007):

- bald eagle (*Haliaeetus leucocephalus*),
- osprey (*Pandion haliaetus*),
- northern goshawk (*Accipiter gentilis*),
- Cooper’s hawk (*A. cooperii*),
- sharp-shinned hawk (*A. striatus*),
- long-eared owl (*Asio otus*),
- yellow warbler (*Dendroica petechia*),
- western red bat (*Lasiurus blossevillii*),
- hoary bat (*L. cinereus*),
- American marten (*Martes americana*), and
- Sierra Nevada snowshoe hare (*Lepus americanus tahoensis*).

Bald eagle, osprey, northern goshawk, and waterfowl are designated as special-interest species by TRPA. The regulatory status, habitat associations, known or potential presence on the project site, and potential response to project implementation of each of these special-status species are described in Section 3.4, "Biological Resources," of Chapter 3, "CEQA Environmental Checklist and Explanations."

Based on the analysis provided in Chapter 3, project implementation could cause the loss of individuals or nests, or disruptions to nesting attempts of yellow warbler. Also, if they occur on the project site, roost sites for western red bat or hoary bat could be removed or disturbed during project construction. However, protection for these species is provided in Mitigation Measures BIO-1 and BIO-2 (see the response to item "a" in Section 3.4, "Biological Resources"). Implementation of these mitigation measures would prevent project implementation from reducing the number of any unique, rare, or endangered species of animals. (Note: No detections [i.e., individuals or sign] of northern goshawks or spotted owls were recorded during protocol-level surveys conducted in the project study area during 2008 and 2009 [Holl 2009a]. It is expected that those surveys would have incidentally detected sharp-shinned hawk, Cooper's hawk, and long-eared owl if they were nesting in the area. See Chapter 3, "CEQA Environmental Checklist and Explanations," for a full discussion.)

FISH

Two special-status fish species, Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*) and Lahontan Lake tui chub (*Gila bicolor pectinifer*), were investigated for habitat requirements and proximity of occurrences to the project area to evaluate their potential for occurrence as described in Section 3.4, "Biological Resources," of Chapter 3, "CEQA Environmental Checklist and Explanations." In summary, suitable habitat does not exist in the project area for Lahontan cutthroat trout because of the presence of nonnative species found in Blackwood Creek; however, the shoreline and backwater segments of Blackwood Creek at the downstream extent of the project area may provide suitable habitat for Lahontan Lake tui chub.

Based on the analysis provided in Chapter 3, construction activities would disturb soils and could generate surface runoff, sedimentation, and increased turbidity in aquatic habitats downstream. Additionally, the use of construction equipment within the creek channel could result in the release and exposure of construction-related contaminants (such as fuels and lubricants). These construction-related effects could temporarily degrade the function and quality of downstream fish habitat. However, with implementation of the temporary BMPs identified in Chapter 2, "Project Description," and Mitigation Measures WQ-1 through WQ-3 discussed in Section 3.8, "Hydrology and Water Quality"), the reduction in numbers of any potentially occurring Lahontan Lake tui chub would be prevented.

c. Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?

Yes	No	No, with Mitigation	Data Insufficient
		X	

Project construction activities would occur in and around lower Blackwood Creek. During construction, the creek channel would be temporarily diverted and dewatered. This would result in a temporary barrier to migration and movement of fish and other aquatic organisms; however, none of the fish species that use Blackwood Creek would require movement or migration through the segment of creek that would be diverted and dewatered during project construction to complete their life history. Once construction within the channel was complete, the creek channel would be rewetted, and migration and movement would be restored. Ultimately, the restored creek channel would provide improved habitat conditions and would not result in a barrier to migration or movement of fish or other aquatic organisms.

The proposed project would not create barriers to the movement or migration of terrestrial animals. The potential for project implementation to create barriers or impede wildlife movements is discussed in item "d" of Section 3.4, "Biological Resources."

Animals potentially introduced to the project site would be limited to aquatic nuisance species that could travel via construction or surveyor equipment (e.g., New Zealand mud snail [*Potamopyrgus antipodarum*]). Implementation of Mitigation Measure BIO-4 would minimize the potential to introduce aquatic nuisance species to Blackwood Creek during project construction.

Mitigation Measure BIO-4: Clean and Decontaminate All Equipment Used in and Around Blackwood Creek.

To ensure that aquatic nuisance species are not transported into Blackwood Creek or Lake Tahoe, all equipment that has been used previously in other water bodies shall be cleaned and sanitized using a dilute quaternary disinfectant solution (or the equivalent) and allowed to dry before being used in Blackwood Creek.

d. Deterioration of existing fish or wildlife habitat quantity or quality?

Yes	No	No, with Mitigation	Data Insufficient
		X	

The specific goal of the proposed project is to improve stream habitat and riparian vegetation. Proposed construction activities could temporarily cause the loss or degradation of wildlife habitat through physical habitat alteration (e.g., removal, changes in structure) or other disturbance (e.g., noise, increased human presence). Creek diversion and dewatering, channel excavation, grading, vegetation removal, clearing, cut and fill, trenching, finishing, revegetation, cleanup, materials transport, and trail treatments could all result in this effect. However, with implementation of the temporary BMPs identified in Chapter 2, "Project Description," and Mitigation Measures WQ-1 through WQ-3 discussed in Section 3.8, "Hydrology and Water Quality," water quality–related effects of construction on aquatic habitats would be reduced to a less-than-significant level.

Additionally, the project site already experiences moderate levels of human disturbance from recreation and residential uses, and a temporary increase in disturbance levels during construction would be short term and negligible. Over the long term, this restoration project is expected to improve the quality of habitat for fish and wildlife species that occupy the project area, and it may provide additional habitat features or enhance conditions for species that do not currently use the site. For example, the proposed project would result in increased quantity and quality of riparian vegetation (i.e., continuous and more structurally diverse riparian vegetation, with emergent aspen and cottonwood cover, that is connected to an active floodplain) and instream habitat complexity. Also, upland vegetation enhancements are expected to improve the suitability of habitat for wildlife associated with aspen stands.

As discussed Section 2.5.2, "Vegetation Enhancement Elements," in Chapter 2, "Project Description," aspen stand enhancement could provide an improved food and materials source for beavers that presently use the project or upstream areas (e.g., through improved aspen regeneration and vigor). An increase in beaver activity and tree removal within enhanced aspen stands could impair the success of vegetation enhancement treatments and limit habitat functions for other wildlife species. To ensure the success of vegetation enhancement treatments, tree cutting by beavers in the project area would be monitored and vegetation protection measures would be implemented if needed. This monitoring and management would be part of the Conservancy's overall monitoring and maintenance program for the project, which is described in Section 2.6.6, "Ongoing Monitoring and Maintenance," in Chapter 2, "Project Description."

6 NOISE

Will the proposal result in:

a. Increases in existing Community Noise Equivalency Levels (CNEL) beyond those permitted in the applicable Plan Area Statement, Community Plan or Master Plan?

Yes	No	No, with Mitigation	Data Insufficient
		X	

Please note that noise levels from both short-term construction and long-term operational-source noise are discussed below. Separate impact conclusions are provided for on-site and off-site construction-related noise and for on-site and off-site operational noise. However, the most conservative impact conclusion listed below is provided in the box above.

SHORT-TERM CONSTRUCTION SOURCE NOISE

On-Site Construction Equipment

The project's proposed vegetation enhancement element, which would provide needed materials for other project elements, would occur in the area north of Blackwood Creek along Reaches 3–5 in mid to late summer 2010. Conifer removal in the most westerly stand north of Reach 2 would occur in the summer of 2011 and could overlap with the proposed creek restoration and trail rehabilitation work. The proposed creek restoration work would be completed in two distinct phases. Phase 1 would include the proposed creek improvements upstream of SR 89, and Phase 2 would include all improvements downstream of SR 89. The work associated with each phase of construction could be accomplished in a single construction season. The Phase 1 improvements are planned for summer 2011. Construction activities are expected to take up to 4 months within the May–October 15 time frame to complete. The proposed Phase 2 improvements are anticipated to be constructed 2 to 4 years after completion of Phase 1. The proposed trail rehabilitation work would occur in summer 2011 either concurrent with or subsequent to the proposed Phase 1 creek improvements.

Construction activities would generally include site preparation (e.g., excavation, grading, and clearing), construction of floodplains, channel realignment, water diversion and pumping, installation and construction of bank stability structures, installation of habitat features, revegetation, vegetation thinning, trail rehabilitation, and other miscellaneous activities. Specific on-site construction equipment is not known at this time, but project construction activities would typically include a grader, excavator, loader, water pumps, haul trucks, chippers, hand tools (such as chain saws), backhoes, and tractors. Thus, noise levels for individual equipment can range from 77 A-weighted decibels (dBA) to 85 dBA at 50 feet, as indicated in Table 3-8 in Section 3.11, "Noise," in Chapter 3, "CEQA Environmental Checklist and Explanations."

The simultaneous operation of the three noisiest pieces of on-site equipment identified above could result in combined intermittent noise levels up to approximately 90 dBA at 50 feet from the center of the site. Based on these equipment noise levels and a typical noise-attenuation rate of 6 dBA per doubling of distance, project construction could result in noise levels at sensitive receptors that exceed the maximum CNELs for the applicable Plan Area Statement (PAS), which are 55 dBA and 50 dBA CNEL for PASs 161 and 162, respectively, if feasible noise controls are not implemented.

In addition, water diversion pumping for construction dewatering in the creek channel would likely be required; in such cases, pumping could occur continuously for up to 24 hours. Any pumping that would occur would be limited to construction hours allowed for under permit – generally, this would be limited to daylight hours, but may included extended construction hours. It is not expected, but it is possible, that pumping could occur up to 24 hours on a given day. Construction dewatering would require two sets of pumps. The proposed dewatering plan for Phase 1 calls for the use of up to five portable submersible pumps to remove ponded groundwater and construction water in local excavation areas within the creek channel. These pumps would be portable such that they can be placed at any location in the construction site where pumping may be necessary. The pumped water would be discharged into two temporary storage basins constructed on the north side of the main access road (Exhibit 2-9). The second set of submersible pumps (two pumps) would be installed in a pumping pit near the primary storage basin and would be used to pump stored water to an upland land application area. Given the required distance and the need to pump water up a hill for upland irrigation, this second set of pumps would be larger than those used to pump construction water from the channel into the basins. These larger pumps are expected to require a 10-horsepower motor. Pumps of this size could generate noise levels of 97 dBA at 3 feet (Yanmar Corporation 2008) and result in unmitigated noise levels of approximately 73 dBA at 50 feet.

Construction activities between 8:00 a.m. and 6:30 p.m. are exempt from TRPA noise standards. All emergency work to protect life or property is except from applicable noise standards. Nevertheless, construction activities (e.g., operation of the dewatering pumps) could occur during the more noise-sensitive hours (evening, nighttime, and early morning, outside of the exempted hours). If this were to occur—or if construction equipment were not properly equipped with noise-control devices—construction noise could cause noise levels to exceed the maximum CNELs for the applicable PAS, could annoy and/or disrupt the sleep of occupants of existing noise-sensitive land uses in the project vicinity, and could create a substantial temporary increase in ambient noise levels. As a result, this impact would be significant. Implementation of Mitigation Measure NOI-1 (see the discussion under item “a” in Section 3.11, “Noise”) would reduce this impact to a less-than-significant level.

Off-Site Construction Traffic

Construction of the proposed project would require approximately 12 on-site employees at any given time. During trail rehabilitation work an additional 10–14 trail crew members from a contracted group (such as the California Conservation Corps) would be on-site. Assuming two total one-way trips per day per employee, four total one-way trips per day per crew, and up to 11 round trips per day associated with the transport of equipment and materials, project construction would result in a maximum of approximately 39 one-way daily trips. Typically, traffic volumes have to double before the associated increase in noise levels is noticeable (3 dBA CNEL) along roadways. Therefore, the addition of these daily trips to existing SR 89 daily volumes (approximately 6,900 average daily trips [Caltrans 2007]) would be a minor change. Consequently, construction of the proposed project would not result in a noticeable change in the traffic noise contours of area roadways. In addition, such increases in traffic would be temporary and would normally occur during the less noise-sensitive daytime hours. Thus, short-term noise from off-site construction traffic would not expose persons to or generate noise levels in excess of applicable standards or create a substantial temporary increase in ambient noise levels in the project vicinity. As a result, this impact would be less than significant. No mitigation is required.

LONG-TERM OPERATIONAL-SOURCE NOISE

On-Site Stationary Sources of Noise

Long-term operation of the proposed project would not result in any new sources of noise. Also, recreation is not expected to increase as a result of the project. Because no new sources would be created and use of the site would remain similar to use under existing conditions, no noise impact would occur from long-term operation of stationary sources of noise.

Off-Site Operational Traffic

The project would result in a limited number of new vehicle trips related to routine inspection and maintenance of the proposed creek restoration element of the project. Conditions would generally continue as they do today. Further, long-term operation of the proposed project would not add or change recreational traffic to area roadways. Therefore, no impact would occur.

b. Exposure of people to severe noise levels?

Yes	No	No, with Mitigation	Data Insufficient
		X	

As discussed under item "a" above, no long-term change in the noise environment would occur within the Blackwood Creek project area or vicinity. Implementation of Mitigation Measure NOI-1 would reduce the exposure of adjacent residences to construction noise to a less-than-significant level.

c. Single event noise levels greater than those set forth in the TRPA Noise Environmental Threshold?

Yes	No	No, with Mitigation	Data Insufficient
		X	

As discussed under item "a" above, no long-term change in the noise environment would occur within the Blackwood Creek project area or vicinity. In addition, as also discussed in item "a," short-term construction noise may exceed TRPA noise thresholds. However, with implementation of Mitigation Measure NOI-1, construction activities would be restricted to the hours exempted by TRPA from meeting the standards set forth in Chapter 23, "Noise Limitations," of the TRPA Code of Ordinances, including the single-event noise thresholds that address aircraft, marine crafts, motor vehicles, motorcycles, off-road vehicles, and over-snow vehicles. The only equipment that would be likely to require operation outside of the exempted hours would be dewatering pumps that may need to be run continuously for 24 hours a day, 7 days a week, during certain phases of the creek restoration work. TRPA's single-event thresholds do not apply to stationary sources such as dewatering pumps. Mitigation Measure NOI-1 sets a performance standard that requires that noise-reducing measures be implemented in conjunction with the use of the dewatering pumps to maintain the maximum CNEL standards of the applicable PAS. Thus, because no new long-term noise levels would be created and short-term noise levels would be restricted to hours exempted by TRPA, no exceedance of thresholds would occur.

7 LIGHT AND GLARE

Will the proposal:

a. Include new or modified sources of exterior lighting?

Yes	No	No, with Mitigation	Data Insufficient
	X		

No exterior lighting is proposed as part of the project; therefore, impacts on exterior lighting would be less than significant.

b. Create new illumination which is more substantial than other lighting, if any, within the surrounding area?

Yes	No	No, with Mitigation	Data Insufficient
	X		

As discussed in item "a" above, no exterior lighting is currently used on the project site and no new exterior lighting is proposed.

c. Cause light from exterior sources to be cast off-site or onto public lands?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Please see the discussion under items "a" and "b" above.

d. Create new sources of glare through the siting of the improvements or through the use of reflective materials?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The proposed vegetation enhancement, trail rehabilitation, and creek restoration elements would be consistent with the character of the surrounding area. Neither the conifer thinning nor the trail work would be visible from SR 89. Similarly, most of the proposed creek restoration work would be set back and/or screened from SR 89,

including the separated bicycle trail that runs on the east side of SR 89 on the Blackwood Creek overcrossing. Proposed creek restoration work would include natural materials and revegetation that would be consistent with the natural setting; therefore, no impacts related to glare as a result of the proposed project are anticipated.

8 LAND USE

Will the proposal:

a. Include uses which are not listed as permissible uses in the applicable Plan Area Statement, adopted Community Plan, or Master Plan?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The project site is not located within a TRPA-adopted community plan or master plan area. The project area is located within TRPA-designated PASs 161 and 162. According to Chapter 18, "Permissible Uses," of the TRPA Code of Ordinances, residential, commercial, public service, recreation, and resource management uses, including Stream Environment Zone (SEZ) restoration, are permissible throughout PAS 161; residential, public service, recreation, and resource management uses, including SEZ restoration, are permissible throughout PAS 162.

The proposed project would include bank stability structures, flood management features, riparian habitat enhancement, channel realignment, and sediment dispersal techniques that would reduce or eliminate the historical disturbances that have affected the lower reaches of Blackwood Creek. As noted above, a goal of the project is to have no net change in existing uses and public access within the project area. The project would effectively implement goals and policies of the TRPA Regional Plan. Specifically, the proposed project would partially implement several Environmental Improvement Program (EIP) projects (EIP Projects 27.4, 606, 657, 883, and 976) (Nielsen, pers. comm., 2008; TRPA 2007). In addition, the project would be consistent with specific policies and planning considerations of PASs 161 and 162 that address the importance of restoring Blackwood Creek and maintaining public access to the shorezone. Therefore, no impact would occur regarding uses that are not listed as permissible in the applicable PAS.

b. Expand or intensify an existing non-conforming use?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Please see the discussion under item "a" above.

9 NATURAL RESOURCES

Will the proposal result in:

a. A substantial increase in the rate of use of any natural resources?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Because the proposed project would involve restoration with limited hauling of materials, it would not use substantial amounts of fuel or energy, nor would it result in an increase in demand on existing energy sources or require the development of new sources. Energy in the form of diesel fuel, gasoline, oil, electricity, and natural gas may be consumed to operate heavy equipment and machinery during project construction. This consumption would be short term and less than significant.

b. Substantial depletion of any non-renewable natural resource?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Please see the discussion under item “a” above.

10 RISK OF UPSET

Will the proposal:

a. Involve a risk of an explosion or the release of hazardous substances including, but not limited to, oil, pesticides, chemicals, or radiation in the event of an accident or upset conditions?

Yes	No	No, with Mitigation	Data Insufficient
		X	

An environmental site assessment for the lower Blackwood Creek project area was conducted by the U.S. Army Corps of Engineers (USACE) in 2002. The results of the environmental site assessment, obtained through records research, telephone interviews, and visits to the site, did not confirm the presence of any known contaminants from hazardous, toxic, or radioactive waste (USACE 2002). Construction of the proposed project would involve the use of heavy construction equipment, which typically uses small amounts of hazardous materials such as oils, fuels, and other potentially flammable substances. Because no accidental-spill prevention and response plan is in place, this impact would be potentially significant. Implementation of Mitigation Measure HAZ-1 (see the

discussion under item “b” in Section 3.7, “Hazards and Hazardous Materials”) would reduce this impact to a less-than-significant level. (Note: The proposed project would also be required to conform with all applicable regulations and permitting requirements of the Lahontan RWQCB and TRPA pertaining to construction discharges and water quality standards discussed in item “a” in Section 3.8, “Hydrology and Water Quality.”)

b. Involve possible interference with an emergency evacuation plan?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The proposed project would not physically interfere with an emergency access route or response plan. No project-related construction activities would be located at an off-site location that could interfere with an emergency access route or response plan. Activities would be confined to the project site and would not block street or highway access. Vehicles and equipment would be staged on-site. Thus, project implementation would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, and there would be no impact.

11 POPULATION

Will the proposal:

a. Alter the location, distribution, density, or growth rate of the human population planned for the Region?

Yes	No	No, with Mitigation	Data Insufficient
	X		

b. Include or result in the temporary or permanent displacement of residents?

Yes	No	No, with Mitigation	Data Insufficient
	X		

a), b) The proposed project would not induce substantial population growth, either directly or indirectly, nor would it displace a substantial number of people. The project area is currently conservation land, and no residents would be relocated as a result of the proposed project. As a result, the project would not induce substantial population growth or displace people. Therefore, there would be no impact on population.

12 HOUSING

Will the proposal:

a. Affect existing housing, or create a demand for additional housing?

To determine if the proposal will affect existing housing or create a demand for additional housing, please answer the following questions:

(1) Will the proposal decrease the amount of housing in the Tahoe Region?

Yes	No	No, with Mitigation	Data Insufficient
	X		

(2) Will the proposal decrease the amount of housing in the Tahoe Region historically or currently being rented at rates affordable by lower and very-low-income households?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Number of Existing Dwelling Units: 0
Number of Proposed Dwelling Units: 0

b. Will the proposal result in the loss of housing for lower-income and very-low-income households?

a), b) The proposed project would not induce substantial population growth, either directly or indirectly, nor would it displace a substantial number of existing housing units or create or remove any homes. The project site is currently conservation land, and no houses would be relocated as a result of the proposed project. As a result, the project would not induce substantial population growth or displace people or housing. Therefore, there would be no impact on housing.

13 TRANSPORTATION/CIRCULATION

Will the proposal result in:

a. Generation of 100 or more new daily vehicle trip ends (DVTE)?

Yes	No	No, with Mitigation	Data Insufficient
	X		

According to Chapter 93, "Traffic and Air Quality Mitigation Program," of the TRPA Code of Ordinances, a project that would expand gross floor area or change the type of generator on the trip table (normally indicated by a substantial change in products or service provided) would be considered a "change in operation" that would result in additional trip generation and vehicle miles traveled (VMT). The proposed project would not result in additional trip generation because it would not change existing land uses. A goal of the project is to have no net change in recreation use and public access within the project area. Trip generation and VMT would remain the same. Therefore, no impact would occur.

For construction-related traffic impacts, please see the discussion under item "c" below.

b. Changes to existing parking facilities, or demand for new parking?

Yes	No	No, with Mitigation	Data Insufficient
	X		

A goal of the project is to have no net change in recreation use and public access within the project area. The proposed project would not result in significant long-term parking-related impacts because public use levels are, by intent, to be maintained at current levels. Therefore, parking demand would not increase as a consequence of the project.

c. Substantial impact upon existing transportation systems, including highway, transit, bicycle or pedestrian facilities?

Yes	No	No, with Mitigation	Data Insufficient
		X	

Although project uses would not result in significant traffic impacts, additional trips would be generated on a short-term basis during project construction. The proposed vegetation enhancement element, which would provide needed materials for other project elements, would occur in the area north of Blackwood Creek along Reaches 3–5 in mid to late summer 2010. Conifer removal in the most westerly stand north of Reach 2 would occur in the summer of 2011 and could overlap with the proposed creek restoration and trail rehabilitation work.

The proposed creek restoration work would be completed in two distinct phases. Phase 1 would include the proposed creek improvements upstream of SR 89, and Phase 2 would include all improvements downstream of SR 89. The work associated with each phase of construction could be accomplished in a single construction season. The Phase 1 improvements are planned for summer 2011. Construction activities are expected to take up to 4 months within the May 1–October 15 time frame to complete. The proposed Phase 2 improvements are anticipated to be constructed 2 to 4 years after completion of Phase 1. The proposed trail rehabilitation work would occur in summer 2011 either concurrent with or subsequent to the proposed Phase 1 creek improvements.

Construction hours would be limited to those required by TRPA and Placer County unless specific permitting allows for longer hours. Contractors would be required to follow all conditions of approval for extended work hours. As discussed in Section 3.11, "Noise," the hours of construction would primarily be limited to between 8:00 a.m. and 6:30 p.m.

It is anticipated that the heaviest truck traffic would occur over a 3-month period, during which trucks would be entering and leaving the site to haul away cut material and supply boulders, logs, and plants for restoration design. Construction equipment, materials, and employee vehicles would be staged on the north side of the creek and on the west side of SR 89 (Exhibit 2-9); only the proposed Phase 2 creek improvements would be staged on the east side of SR 89.. Construction traffic would access the project site from SR 89 and could generate construction-related traffic during peak summer periods. Traffic volumes in the Tahoe Basin are greater during summer months than during the rest of the year. The character of the vehicles would be different than the existing trips generated by the site; construction trips would be dominated by trucks and heavy equipment and existing trips are dominated by passenger vehicles. Five storage/staging areas would be located at various points around the site for temporary construction access to the project site: four north of the creek and one to the south. Storage/staging areas would be placed where minimal disturbance to existing vegetation would occur.

The creek elements of the proposed project would include channel aggradation and realignment, floodplain installation, bank stabilization, placement of debris and riprap, installation of riparian and shaded riverine aquatic habitat, and enhancement of recreational trails. The construction activities required for this work would include excavation, grading, vegetation removal, clearing, cut and fill, trenching, finishing, revegetation, cleanup, materials transport, and trail installation. The specific construction equipment required is not known at this time, but would likely include a loader, dozer/tractor, scraper, excavator, backhoe, grader, pump, generator, and trucks (haul and passenger). Several hand tools would also be used for construction.

Materials would need to be imported to the site for the proposed creek restoration elements. Preliminary estimates of material import quantities include approximately 351 cubic yards (cu. yd.) of logs, 1,220 cu. yd. of rock, and 1,346 cu. yd. of boulders. Assuming that the average haul truck would have the capacity to carry approximately 14 cu. yd. of material, the proposed project would generate approximately 208 truck trips related to materials import over the duration of project construction, including Phases 1 and 2.

Early estimates of cut-and-fill quantities indicate that the proposed project would result in approximately 8,400 cu. yd. of cut and 3,300 cu. yd. of fill. The on-site cut would be used as much as possible for fill; however, 5,100 cu. yd. of cut soil would still need to be removed from the site. Assuming that each haul truck would carry 14 cu. yd. of material, approximately 364 truck trips would be needed over the duration of the project to remove the excess material. The excess material would be either transported out of the Tahoe Basin to an undetermined site, likely in the Carson Valley of Nevada (approximately 45 miles one way), or used to fill an old upstream USFS borrow site or other site (with applicable permits and authorizations) within the Tahoe Basin. Priority would be given to an in-Basin location for the disposal/reuse of excess material.

Construction of the proposed project would require approximately 12 on-site employees at any given time. During trail rehabilitation work an additional 10–14 trail crew members from a contracted group (such as the California Conservation Corps) would be on-site and would arrive in a single large van or crew vehicle.

Trucks and equipment entering and leaving the storage/staging area north of Blackwood Creek and east of SR 89 for the proposed Phase 2 creek improvements could conflict with bicycle and pedestrian use on the shared-use (Class I) bicycle facility that runs parallel to and east of SR 89. The bicycle facility provides for bicycle travel on a right-of-way completely separated from SR 89. Trucks and equipment would need to cross the bicycle facility to access the storage/staging area. Construction of the proposed Phase 2 creek improvements would occur between May 1 and October 15 and could coincide with peak summer bicycle use. Crossing the bicycle path during peak usage could create potential short-term safety issues for bicycles and pedestrians using the trail system.

Although the proposed project would not result in significant long-term traffic impacts, short-term traffic impacts from construction vehicle traffic would be potentially significant. Implementation of Mitigation Measure TRA-1 (see the discussion under item "a" in Section 3.15, "Transportation/Traffic") would reduce construction-related traffic impacts to a less-than-significant level.

d. Alterations to present patterns of circulation or movement of people and/or goods?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The proposed project includes upland trail rehabilitation elements that would restore the trail network to a less erosive and more user-friendly condition, while contributing to improved creek conditions. The project is intended to promote recreation in a sustainable manner. Although some trails would be decommissioned, and others realigned and/or rehabilitated, a goal of the trail rehabilitation work is to have no net change in recreation use and public access within the project area. Therefore, no long-term impacts related to the patterns of circulation or movement of people and/or goods would occur.

e. Alterations to waterborne, rail or air traffic?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The project does not propose any alterations to waterborne, rail, or air traffic. The nearest airport to the project area is the Truckee Tahoe Airport, approximately 14 miles north of the project site. The project site is not located within any safety areas designated in the *Comprehensive Airport Land Use Plan*. No private airstrip exists in the vicinity of the project area. The nearest railroad is also located in Truckee. The project does not propose any activities that could interfere with waterborne traffic on Lake Tahoe, or with air or railroad traffic patterns in Truckee. Therefore, no alterations to waterborne, rail, or air traffic would occur.

f. Increase in traffic hazards to motor vehicles, bicyclists, or pedestrians?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Existing land uses would remain unchanged; therefore, the proposed project would not create hazards as a result of a design feature or incompatible use. No impact would occur related to an increase in traffic hazards to motor vehicles, bicyclists, or pedestrians.

14 PUBLIC SERVICES

Will the proposal have an unplanned effect upon, or result in a need for new or altered governmental services in any of the following areas?

a. Fire protection?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The proposed project would not result in any changes to the projected population of the area, nor would it involve the construction of any structures that would require additional fire protection services. The proposed project would not change the demand for fire protection services in the project area. Because demand for fire protection services would not increase, there would be no impact on fire services.

b. Police protection?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The proposed project would not increase the population in the project area, and public access to the project area would remain the same or be reduced from existing conditions. Therefore, the proposed project would not cause an increase in demand for police services beyond existing conditions.

c. Schools?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The project would not increase the population or housing in the project area; therefore, it would not increase the number of students in the project area. The project would have no impact on schools.

d. Parks or other recreational facilities?

Yes	No	No, with Mitigation	Data Insufficient
	X		

No recognized parks exist on the project site or in the surrounding area. Although recreation does occur on the project site, the proposed project would not increase the demand for parks or other recreational facilities beyond existing conditions. Therefore, the proposed project would have no impact on parks or other recreational facilities.

e. Maintenance of public facilities, including roads?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The proposed project would have no impact on other public facilities because no additional residences, businesses, or infrastructure beyond existing conditions would be constructed that could lead to increased demand on public facilities.

f. Other governmental services?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The proposed project would have no impact on other governmental services because no additional residences, businesses, or infrastructure would be constructed that could lead to increased demand on government services.

15 ENERGY

Will the proposal result in:

a. Use of substantial amounts of fuel or energy?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The proposed project would have no impact on other energy or fuel consumption because no additional power or fuel-dependent sources would be constructed that could lead to increased demand on energy resources. Please also see the discussion on diesel fuel use under item “e” in Section 2, “Air Quality,” earlier in this chapter.

b. Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The proposed project would have no impact on energy or fuel demand and development because no additional power or fuel-dependent sources would be constructed that could lead to increased demand on energy resources.

16 UTILITIES

Except for planned improvements, will the proposal result in a need for new systems, or substantial alterations to the following utilities:

a. Power or natural gas?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Because the proposed project would not generate long-term uses of power or natural gas, it would not require or result in the construction of, expansion of, or exceedance of existing facilities, such that significant environmental effects would result. Therefore, no impact would occur.

b. Communication systems?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Because the proposed project would not generate long-term uses of communication systems, it would not require or result in the construction of, expansion of, or exceedance of existing systems, such that significant environmental effects would result. Therefore, no impact would occur.

c. Utilize additional water which amount will exceed the maximum permitted capacity of the service provider?

Yes	No	No, with Mitigation	Data Insufficient
	X		

During construction, water for dust suppression would be provided via a metered Tahoe City Public Utility District hydrant or diverted from the dewatered areas and pumps from Blackwood Creek. Permits and meters for

use of the water would need to be obtained as required by the Lahontan RWQCB and TRPA. No additional water would be needed during project operation. Because the Conservancy would be required to comply with all applicable permitting and metering requirements of the Lahontan RWQCB and TRPA pertaining to use of water for dust suppression, this impact would be less than significant.

d. Utilize additional sewage treatment capacity which amount will exceed the maximum permitted capacity of the sewage treatment provider?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The project site is not directly served by any wastewater treatment facilities, nor would wastewater be generated at the project site; therefore, the project would not affect the capacity of any wastewater treatment facilities. No impact would occur.

e. Storm water drainage?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The proposed project would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. Therefore, no impact would occur.

f. Solid waste and disposal?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Because the proposed project would not generate long-term sources of solid waste, it would not require or result in the construction of, expansion of, or exceedance of existing facilities, such that significant environmental effects would result. Therefore, no impact would occur.

17 HUMAN HEALTH

Will the proposal result in:

a. Creation of any health hazard or potential health hazard (excluding mental health)?

Yes	No	No, with Mitigation	Data Insufficient
		X	

Please see the discussion under item "a" in Section 10, "Risk of Upset," above.

b. Exposure of people to potential health hazards?

Yes	No	No, with Mitigation	Data Insufficient
		X	

Please see the discussion under item "a" in Section 10, "Risk of Upset," above.

18 SCENIC RESOURCES/COMMUNITY DESIGN

Will the proposal:

A. Be visible from any state or federal highway, Pioneer Trail or from Lake Tahoe?

Yes	No	No, with Mitigation	Data Insufficient
X			

The proposed vegetation enhancement, trail rehabilitation, and creek restoration elements would be consistent with the character of the surrounding area. Neither the conifer thinning nor the trail work would be visible from SR 89. Similarly, most of the proposed creek restoration work would be set back and/or screened from SR 89, including the separated bicycle trail that runs on the east side of SR 89 on the Blackwood Creek overcrossing. Proposed creek restoration work would include natural materials and revegetation that would be consistent with the natural setting. Construction activity on the site would be visible from SR 89; however, these views would be temporary.

b. Be visible from any public recreation area or TRPA designated bicycle trail?

Yes	No	No, with Mitigation	Data Insufficient
	X		

No TRPA-designated public recreation areas that are listed in the *1993 Scenic Resources Evaluation* have views of the project site, although the segment of bicycle trail along SR 89 that bisects the study area is included as a scenic resource in this document (TRPA 1993). The site is visible from the section of bicycle trail that runs parallel to SR 89 between Timberland and Tahoe Pines. Neither the conifer thinning nor the trail work would be visible from the bicycle trail. Similarly, most of the proposed creek restoration work would be set back and/or screened from the bicycle trail. As discussed in item "a" above, proposed creek restoration work would include natural materials and revegetation that would be consistent with the natural setting and would maintain the scenic character as viewed from this section of bicycle trail.

c. Block or modify an existing view of Lake Tahoe or other scenic vista seen from a public road or other public area?

Yes	No	No, with Mitigation	Data Insufficient
X			

The proposed project would not affect views of Lake Tahoe. Views from SR 89 would be modified; however, changes would be consistent with the residential and forested character of the scenic roadway unit and would not adversely impact views in the long-term. Proposed creek restoration work would include natural materials and revegetation that would be consistent with the natural setting. There are filtered views of Lake Tahoe from the project site; however, the proposed work would not be visible from Lake Tahoe.

d. Be inconsistent with the height and design standards required by the applicable ordinance or Community Plan?

Yes	No	No, with Mitigation	Data Insufficient
	X		

No building structures are proposed that would be subject to TPRA height and design standards.

e. Be inconsistent with the TRPA Scenic Quality Improvement Program (SQIP) or Design Review Guidelines?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The project area would be partially visible from the TRPA scenic Roadway Travel Unit 12, Tahoe Pines. Construction on the project site would be visible from this scenic corridor; however, these views would be temporary.

Restoration activity to encourage regeneration of aspens would require the removal of trees. The area of proposed tree removal would not be visible from SR 89. Proposed creek restoration work would include natural materials and revegetation that would be consistent with the natural setting; therefore , long-term views of the project site would be consistent with the existing character of the SR 89 viewshed. Therefore, the proposed project would not be inconsistent with the SQIP or design review guidelines in the long term.

19 RECREATION

Will the proposal:

a. Create additional demand for recreation facilities?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The proposed project includes upland trail rehabilitation elements that would restore the existing trail network to a less erosive and more user friendly condition, while contributing to improved creek conditions (Exhibit 2-8). The project is intended to promote recreation in a sustainable manner. Although some trails would be decommissioned and others realigned and/or rehabilitated, a goal of the trail rehabilitation work is to maintain public access within the project area and to have no net change in recreation use or increase in persons at one time. No new population would be associated with the proposed project. Therefore, no impacts would occur related to an increase in demand for additional recreation facilities.

b. Create additional recreation capacity?

Yes	No	No, with Mitigation	Data Insufficient
	X		

As discussed under item “a” above, a goal of the trail rehabilitation work is to have no net change in recreation use or increase in persons at one time. No additional recreation capacity would be created. Therefore, no impacts would occur.

c. Have the potential to create conflicts between recreation uses, either existing or proposed?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Temporary closures of portions of the project area would have a short-term impact on existing recreational opportunities locally. However, because of the substantial amount of publicly held land in the Tahoe Basin, regional recreation facilities in the surrounding area can absorb the displacement of recreational activity from the project area. To the extent feasible and without compromising health and safety, portions of the project area would remain accessible to members of the public, potentially on a very limited basis. The accessibility of the area would vary depending on the stages of active construction, hauling of materials, and revegetation efforts that may require closure of areas until plantings are established. Because of the temporary nature of the closures associated with construction and the availability of alternate areas for dispersed recreation, no significant recreation conflicts would occur.

d. Result in a decrease or loss of public access to any lake, waterway, or public lands?

Yes	No	No, with Mitigation	Data Insufficient
	X		

The spur trails that lead to and are north of Blackwood Creek would be evaluated to determine whether they should be decommissioned or retained; however, a minimum of two creek access points would be retained and rehabilitated as a result of the proposed project. All remaining spur trails would be decommissioned. A dead-end trail leading toward Eagle Rock would be decommissioned and restored to a less erosive and more user-friendly condition. The power-line trail may be rerouted and would be rehabilitated. Although some trails would be decommissioned, and others realigned and/or rehabilitated, a goal of the trail rehabilitation work is to have no net change in recreation use and public access within the project area. Therefore, no decrease or loss of public access to any lake, waterway, or public lands would occur.

20 ARCHAEOLOGICAL/HISTORICAL

a. Will the proposal result in an alteration of or adverse physical or aesthetic effect to a significant archaeological or historical site, structure, object or building?

Yes	No	No, with Mitigation	Data Insufficient
		X	

Two known archaeological sites documented within or near the project area have not been evaluated for National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR) listing (Basque-

related aspen carvings: P-31-2806H [and the possibly associated trash scatter site CA-Pla-19654H]), and prehistoric bedrock mortar/historic-era refuse site CA-Pla-40/H. Although tree carvings are commonly encountered in the Lake Tahoe region, their context and historical significance needs to be addressed by a recognized expert in the field. Site CA-Pla-40/H would be avoided by project activities. Sites P-31-2806H and CA-Pla-1954H would be evaluated for NRHP/CRHR inclusion. Additional research and a NRHP/CRHR evaluation study for P-31-2806H and CA-Pla-1954H is presently being conducted by the USACE. In addition, the potential exists to encounter previously undiscovered cultural materials during project-related construction activities (i.e., grading or other earthmoving activities). Because project-related construction activities could disturb previously unknown, buried, and important cultural resources, this impact would be potentially significant. Implementation of Mitigation Measures CUL-1 and CUL-2 (see the discussion under items "a" and "b" in Section 3.5, "Cultural Resources") would reduce the project's potential for the disturbance of documented and potentially buried important cultural resources to a less-than-significant level.

b. Is the proposed project located on a property with any known cultural, historical, and/or archaeological resources, including resources on TRPA or other regulatory official maps or records?

Yes	No	No, with Mitigation	Data Insufficient
		X	

See discussion under item "a" above.

c. Is the property associated with any historically significant events and/or sites or persons?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Research undertaken as part of the cultural resources investigation for the proposed project did not reveal the property to be associated with significant events, persons, or sites. Consultation with the Native American community was initiated by EDAW in October 2001, with a letter to the Native American Heritage Commission (NAHC) requesting a list of local Native American representatives and/or tribal contacts. This letter also requested a search of the NAHC sacred lands file to determine whether any properties of cultural concern to the Native American community are situated within or near the project area. No such properties had been documented in the area.

Contact letters and follow-up phone calls were made by EDAW to Lynda Shoshone and William Dancing Feather of the Washoe Tribe, the only NAHC-recommended contact. Ms. Shoshone did not express any particular concerns regarding the project area. Mr. Dancing Feather stated that no Washoe-related traditional observances are held within the project area, nor did any properties of particular cultural significance to the Washoe exist within or near the project area.

In 2009 the USACE performed additional consultation with the Washoe Tribe. The USACE contacted Darrel Cruz, Tribal Historic Preservation Officer with the Washoe Tribe and arranged a project study area visit to explain the proposed project and confirm there were no known significant early Native American sites or other culturally sensitive properties in the study area. Mr. Cruz, USACE archeologists, and Conservancy staff conducted this study area visit on October 21, 2009. During this visit at least one potential piece of prehistoric lithic debitage

(stone flake[s] resulting from tool manufacture and/or maintenance) was detected within site CA-PLA-1927H (also referred to as CA-PLA-1953H). Mr. Cruz requested that a focused survey be conducted in the vicinity to determine if the find could represent a potentially significant (per NRHP/CRHR criteria) cultural resource. A subsequent survey by a USACE archeologist specializing in prehistoric stone artifacts, documented a total of five pieces of debitage within an area of approximately 300 square meters. A sketch map of their location and distribution was drawn and an assessment of artifact morphology was conducted. The USACE survey determined that this sparse surface scatter of debitage occurred within a heavily disturbed area and recommended that the find was not eligible to the NRHP/CRHR under Criterion A (NRHP)/1 (CRHR) (association with significant events), Criterion B (NRHP)/2 (CRHR) (association with significant persons), Criterion C (NRHP)/3 (CRHR) (distinctive characteristics, work of a master, high artistic value) and/or Criterion D (NRHP)/4 (CRHR) (data potential). The USACE has sought concurrence from the State Historic Preservation Officer on the eligibility recommendations.

d. Does the proposal have the potential to cause a physical change which would affect unique ethnic cultural values?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Please see the discussion under item “c” above. Research and Native American contact and consultation did not result in the identification of unique ethnic cultural values that could be affected by the project.

e. Will the proposal restrict historic or pre-historic religious or sacred uses within the potential impact area?

Yes	No	No, with Mitigation	Data Insufficient
	X		

Please see the discussion under item “c” above. Research and Native American contact and consultation did not result in the identification of prehistoric or historic religious or sacred uses of land within the project area.

21 FINDINGS OF SIGNIFICANCE

a. *Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California or Nevada history or prehistory?*

Yes	No	No, with Mitigation	Data Insufficient
	X		

Development of the proposed project would not substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; reduce or restrict the range of rare or endangered plants or animals; or eliminate important examples of the major periods of California or Nevada history or prehistory. As discussed earlier in this chapter, mitigation measures committed to by the Conservancy would reduce potential impacts on biological resources to less-than-significant levels.

b. *Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time, while long-term impacts will endure well into the future.)*

Yes	No	No, with Mitigation	Data Insufficient
	X		

Many of the environmental effects of the project would be short term (e.g., construction impacts), or are mitigated in such a way that the long-term environmental effects would be mitigated into the future (e.g., vegetation impacts). The long-term operational environmental effects of the project are not, therefore, anticipated to change over time, and the project would not result in long-term environmental impacts that conflict with environmental goals.

c. Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant).

Yes	No	No, with Mitigation	Data Insufficient
		X	

The project would involve the restoration of the lower reach of Blackwood Creek on the west shore of Lake Tahoe, as well as supporting elements of vegetation enhancement and trail rehabilitation that would also contribute to improved creek conditions. All of the project's impacts either would be less than significant or are mitigable to less-than-significant levels. Many project impacts are site specific (e.g., soils) and would not combine with the impacts of other cumulative projects in the area. This is true for the following resource areas: aesthetics, agricultural resources, geology and soils, hazards and hazardous materials, mineral resources, noise, population and housing, public services, and utilities and service systems.

Air quality impacts have regional implications and are not site specific. Short-term emissions of pollutants generated during construction are temporary in nature, but can contribute to air quality violations and nonattainment conditions. Emissions are primarily associated with heavy-duty construction equipment and fugitive emissions from ground disturbance and earth-moving activities. Unmitigated emissions associated with the proposed project are not expected to exceed the applicable significance thresholds (82 lb/day of ROG, NO_x, or PM_{10}). Therefore, the project would not result in a cumulatively considerable contribution to a short-term cumulative air quality impact. With the exception of a limited number of new vehicle trips related to on-going routine inspection and maintenance of the proposed creek restoration element, the proposed project would not generate any long-term operational emissions. Therefore, the proposed project would not contribute to a cumulative long-term regional air quality impact. (Note: global climate change and project-generated greenhouse gas emissions are discussed in item "c" in Section 3.3, "Air Quality.")

For certain resource areas—biological resources, cultural resources, hydrology and water quality, land use and planning, recreation, and transportation and traffic—considering the past, current, or probable future projects in the project vicinity identified in Table 2-5 of Chapter 2, "Project Description," is warranted. Potential cumulative impacts for each of these resource areas are described briefly below. Except for hydrology and water quality, the discussion below supports the finding that no past, current, or probable future projects were identified in the project vicinity that, when added to project-related impacts, would result in cumulatively considerable impacts. With mitigation, the identified potential effects on water quality and increased flooding risk would be reduced to a less-than-significant level.

The cumulative effects on biological resources, cultural resources, hydrology and water quality, land use and planning, recreation, and transportation/traffic are discussed below. Separate impact conclusions are provided for each resource area. However, the most conservative impact conclusion listed below is provided in the box above.

BIOLOGICAL RESOURCES

Other past, present, and reasonably foreseeable future actions identified in Table 2-5 include restoration projects whose long-term goals would be similar to the project's goal—namely, to improve the overall quality of habitat for fish and wildlife and enhance riparian vegetation. The proposed project would have a long-term beneficial effect on biological resources as discussed in Section 3.4, "Biological Resources." Therefore, the long-term cumulative impact on biological resources would be less than significant.

Implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-4 would fully mitigate the project's short-term contribution to cumulative impacts on biological resources. Therefore, the short-term cumulative impact on biological resources would be less than significant.

CULTURAL RESOURCES

Cumulative impacts on historic and unique archaeological resources are based on analysis of past, present, and reasonably foreseeable future actions in the project vicinity in combination with potential effects of this project. In general, archaeological resources within the Tahoe Basin are the result of thousands of years of human occupation. Previous development has disturbed, destroyed, or compromised numerous archaeological resources and has resulted in a certain amount of degradation of the surrounding cultural landscape. However, with implementation of the identified mitigation measures (CUL-1, CUL-2, and CUL-3), which are designed to eliminate or minimize impacts on documented and presently un-recorded cultural resources and human remains, the potential for the project to make a considerable contribution to significant cumulative effect would be reduced to a less-than-significant level.

HYDROLOGY AND WATER QUALITY

Implementation of the proposed construction activities could temporarily degrade water quality by directly releasing soil and construction materials into water bodies or exposing the soil surface to the erosive effects of wind, runoff, or overbank creek flows and stream flows. These effects would be additive with similar effects caused by other construction projects in the watershed of Blackwood Creek, and thus could result in a short-term cumulative effect on water quality. However, the proposed project and other past, present, and reasonably foreseeable future projects are required to comply with all ordinances, permitting requirements, and conditions of approval established by jurisdictional agencies (TRPA, the Lahontan RWQCB, USACE, and DFG). Implementation of standard erosion control measures (e.g., management, structural, and vegetative controls) would be required for all construction activities that expose soil; grading operations would be required to eliminate direct routes for conveying potentially contaminated runoff to drainage channels; and each project must identify measures to prevent or minimize the release of contaminants, along with methods of cleaning up releases if they do occur. The performance standards for BMPs for the reasonably foreseeable future projects would be expected to be the same as those for the mitigation identified for the proposed project, but it is possible that the BMPs could fail, particularly if infrequent runoff or streamflow conditions occur that exceed the BMP design capacity. Blackwood Creek has no dams or other flow-regulation facilities, and it is not possible to predict weather and runoff conditions before the onset of construction, especially construction that occurs over more than one season. The Blackwood Creek restoration projects would all be located along the same unregulated creek, and all would be scheduled without advanced prediction of future storm events. Construction related to the upstream USFS restoration projects on Blackwood Creek is anticipated to be completed in 2010; it is not expected that the proposed project would be constructed concurrently with those projects. However, all projects are expected to have an adjustment period after completion (approximately 2 to 3 years). Implementation of BMPs identified in Chapter 2, "Project Description," and Mitigation Measures WQ-1 through WQ-3 would reduce the potential for the proposed project and related projects to cause excessive soil erosion or sedimentation that would limit the likelihood and magnitude of potential short-term water quality degradation that could result in persistent turbidity above background levels and impair beneficial uses.

The proposed Phase 1 creek improvements would be constructed during the vegetation establishment period (2 to 3 years) of the upstream USFS restoration projects. The potential exists for disturbed areas related to the project and the upstream reaches to be exposed to high flows that could produce a violation of the Basin Plan, despite efforts to minimize risks. However, this potential also exists for areas where erosive forces have caused bank instability outside of all project limits.

As described in Section 3.8, “Hydrology and Water Quality,” the applicable standard used for the proposed project and past, present and reasonably foreseeable future projects focuses on visible turbidity along the receiving waters of Blackwood Creek, where degradation of a magnitude and duration that impairs aesthetic values is considered significant. The strictest criteria is if persistent visible turbidity is produced, particularly during the recreation season and especially during low flow, summer months when background conditions would be expected to result in high water clarity. Visible turbidity that lasts after the initial disturbance ends, and/or disturbances that produce a recurring or chronic source of turbidity are considered significant and adverse. It is possible that these combined projects could generate a cumulative contribution to surface and/or groundwater degradation of a magnitude and duration that would impair beneficial uses of Blackwood Creek.

The channel adjustments in the form of streambed or streambank erosion from the proposed project combined with the upstream USFS restoration projects could produce turbidity effects. The potential magnitude and duration of water quality degradation (e.g., turbidity) associated with natural channel adjustments would vary along the project reaches depending on the type of feature installed and pre-project conditions, but the effects could violate water quality standards. The effects would be greatest within the immediate vicinity of project reaches, and would dissipate upon cessation of the flood event, but it is possible that turbidity might be detectable and extend downstream of the project reach, at least for short periods of time. Turbidity effects could occur during and just following peak seasonal streamflow (spring snowmelt) or during a large flood event (i.e., 25-year recurrence peak flow) when background turbidity would be elevated and aesthetic beneficial uses are lower than during the primary recreation season. The probability that project-related turbidity impacts would be substantially worse than under the existing flows and that they would impair beneficial uses outside the treatment reaches during the channel adjustment period would be low. Possible channel and floodplain damage that could result in persistent or chronic water quality degradation including fine sediment and organic matter mobilization in newly reactivated floodplain areas would be minimized by mitigation planned as part of the project (Mitigation Measures WQ-1 through WQ-3) which involves removing loose, unvegetated, or otherwise unstable fine sediment and/or organic material and revegetating loose, unvegetated and implementation of an adaptive management plan with specific data collection and monitoring protocols, decision-making processes, and thresholds for corrective actions. The residual impacts of the action alternatives would not be substantial on their own.

For the long-term, the upstream USFS restoration projects in the watershed would repair, restore, and/or reconstruct portions of the Blackwood Creek channel and would be expected to have a beneficial long-term overall effect on stream channel erosion rates, including the expectation that any potential localized increased erosion risks within their study areas or adverse effects on immediate upstream reaches would be controlled through design and/or implementation of on-site, project-specific mitigation measures. Minor interaction and combining benefits between reaches would be expected were project-generated changes in one reach could protect channel stability of adjacent upstream reaches and tributaries. Reduction of stream channel erosion within the project study area would be additive with other stream channel erosion reductions in terms of total benefit along Blackwood Creek. Improvements in the channel stability would only combine with other actions by preventing channel instability from migrating upstream. Therefore, implementation of the proposed project would be beneficial and would not contribute to a potentially significant cumulative adverse effect on stream channel erosion.

The proposed habitat enhancing bank stability structures, engineered debris jams, riparian and aquatic habitat enhancements, trail improvements, channel realignment, and sediment dispersal techniques (e.g., installation of floodplain benches and hydraulic roughness features) would reduce the effects of historical disturbances that have

contributed to the degraded condition of the lower reaches of Blackwood Creek. Similarly, the upstream USFS restoration projects on Blackwood Creek would also improve nutrient and sediment retention for small and moderate flood events, related to the existing degraded conditions along their respective project reaches. Direct benefits to sediment and nutrient retention would be largely limited to each project are because return flows back from the floodplain to the channel would occur. Therefore, implementing the proposed project would not contribute to a potentially significant cumulative effect on fine sediment and nutrient retention during small to moderate flood events. The combined effect of the proposed restoration projects would be beneficial.

Implementation of the proposed project in combination with other related projects could increase flooding risks if substantial changes to hydrology or hydraulics of the Blackwood Creek watershed were to occur. However, the most relevant projects, the upstream USFS restoration projects on Blackwood Creek, would not be expected to result in adverse changes to the 100-year floodplain storage capacity, flow routes, or boundaries. The proposed project would be designed so that flood flow velocities and water surface elevations would be expected to be similar to or lower than those under existing conditions, thus not increasing the potential for flooding off-site. Consistent with existing conditions, floods with return intervals greater than the 5-year flood event would be allowed to continue to overtop the channel at the farthest downstream bend of Reach 3 where the channel turns north. The upstream projects are expected to incorporate design features and/or mitigation, similar to the proposed project, to remain flood neutral from the 100-year flood because they are also mapped in FEMA special hazard zones. Furthermore, implementation of Mitigation Measures WQ-1 through WQ-4, discussed in Section 3.8, "Hydrology and Water Quality," would mitigate the proposed project's contribution and would consider the combined effects of upstream restoration projects on flooding such that the project would not contribute to a cumulatively considerable increase in flooding risks.

Highly uncertain climate change influences might overwhelm the possible long-term effects of the proposed project, or the upstream USFS restoration projects. It is possible that climate change may exacerbate impacts (e.g., further decrease coarse sediment delivery) or counteract them (e.g., lower lake levels). The net effects of these factors, given the uncertainty associated with climate change, is not yet practical to quantify with current scientific understanding, but they could range from worse than the existing degraded condition to a possible improvement in erosion rates. Given the uncertainty of future climate change-related existing conditions, consideration of project-specific effects and potential cumulative impacts remains too speculative for a meaningful cumulative significance conclusion.

LAND USE AND PLANNING

Several of the cumulative projects related to the proposed project would affect existing land uses, including the *Homewood Mountain Resource Master Plan*, which is proposed to include new land uses. The project would not create any new impacts on land use because a goal of the project is to have no net change in land use and public access within the project area. Although future projects could contribute to cumulative land use impacts (new development), the project-related impacts would not add to those impacts because it would not affect existing land uses. Therefore, no cumulatively considerable land use impacts would occur with implementation of the proposed project.

RECREATION

Of the cumulative projects related to the proposed project, two future California Department of Transportation projects involve enhancing or relocating existing recreational facilities, and the *Homewood Mountain Resource Master Plan* is proposed to include new recreational facilities. The proposed project would not create any new impacts on recreation because a goal of the trail rehabilitation work is to have no net change in recreation use and public access within the project area. Although future projects could contribute to cumulative impacts on recreation, the project-related impacts would not add to those impacts. Therefore, no cumulatively considerable impacts on recreation would occur with implementation of the proposed project.

TRANSPORTATION/TRAFFIC

Of the cumulative projects related to the proposed project, three future California Department of Transportation improvement projects would affect existing transportation facilities (e.g., turnouts, turn lanes, and bike lanes), and the *Homewood Mountain Resource Master Plan*, which is proposed to include new land uses, would generate vehicle trips. The proposed project would not create any new impacts on transportation because a goal of the trail rehabilitation work is to have no net change in use and public access within the project area. Future projects could contribute to cumulative short-term impacts (from construction) and long-term traffic impacts (from new development and increased daily traffic). The proposed project would not generate long-term traffic and therefore, would not contribute to any long-term cumulative traffic impacts. The proposed Phase 1 creek improvements, vegetation enhancement work, and trail rehabilitation work are not expected to add to cumulative short-term traffic impacts because these elements are expected to be constructed before the applicable cumulative projects. The Phase 2 creek improvements could coincide with the construction of applicable cumulative projects. Regardless, with implementation of the identified mitigation measures (TRA-1), which is designed to address project construction traffic, parking, and emergency access, the potential for the project to make a considerable contribution to a significant short-term cumulative traffic effect would be reduced to a less-than-significant level..

d. Does the project have environmental impacts which will cause substantial adverse effects on human beings, either directly or indirectly?

Yes	No	No, with Mitigation	Data Insufficient
	X		

No project-related environmental effects were identified that would cause substantial adverse effects on human beings. As discussed herein, the proposed project has the potential to create impacts related to air quality, cultural resources, hazardous materials, noise, traffic, utilities, vegetation, water quality, and wildlife during construction. However, with implementation of mitigation measures committed to by the Conservancy, these impacts would be reduced to less-than-significant levels.

III CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this initial evaluation to the best of my ability, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

1-6-10

Date

Written Comments: (use additional sheets as necessary)

IV DETERMINATION (TO BE COMPLETED BY TRPA)

[Note: This page is intentionally left blank. TRPA staff will complete and sign this determination during review of the TRPA project application anticipated for submittal in summer/fall 2010.]

On the basis of this evaluation:

a. *The proposed project could not have a significant effect on the environment and a finding of no significant effect shall be prepared in accordance with TRPA's Rules of Procedure.*

Yes	No

b. *The proposed project could have a significant effect on the environment, but due to the listed mitigation measures which have been added to the project, could have no significant effect on the environment and a mitigated finding of no significant effect shall be prepared in accordance with TRPA's Rules and Procedures.*

Yes	No

c. *The proposed project may have a significant effect on the environment and an environmental impact statement shall be prepared in accordance with this chapter and TRPA's Rules of Procedure.*

Yes	No

_____ _____

Signature of Evaluator *Date*

_____

Title of Evaluator

5 LIST OF PREPARERS

LEAD AGENCIES

California Tahoe Conservancy

Adam Lewandowski ..... Wildlife Program Coordinator/Project Manager
Joe Pepi ..... SEZ Watershed Program Coordinator
Lisa O'Daly ..... Public Access and Recreation Program Coordinator
Judy Clot ..... Forestry Program Coordinator
Scott Cecchi ..... Environmental Planner
Stu Roll ..... Environmental Planner
John Kleinfelter ..... Environmental Planner
Nira Feeley ..... Staff Counsel

California Department of General Services

Brian Wilkinson ..... Senior Environmental Planner

Tahoe Regional Planning Agency

Mike Elam ..... Environmental Planner II
Ethan Casaday ..... Environmental Compliance Team Member

IS/MND AND IEC CONSULTANT

AECOM

Sydney Coatsworth, AICP ..... Principal-in-Charge
John Zanzi ..... Project Director
Nanette Hansel ..... Project Manager
Gretchen Eichar ..... Assistant Project Manager/Environmental Analyst
Brian Ludwig ..... Senior Cultural Resources Specialist
Angel Tomes ..... Cultural Resources Specialist
Jake Weirich ..... Air Quality and Noise Specialist
Kendra Ryan ..... Transportation/Traffic Analyst
Danielle Hughes ..... Hydrology and Water Quality/Geology Analyst
Julie Roth ..... Senior Biologist
Steve Henderson ..... Senior Biologist
Andy Hatch ..... Wildlife Biologist
Chris Fitzer ..... Fisheries Biologist
Mark Bibbo ..... Botanist
Julie Nichols ..... Editor
Amber Giffin ..... Document Preparation
Brian Perry ..... Graphic Artist

Northwest Hydraulic Consultants (nhc)

Ed Wallace, P.E. ..... Principal
Rob Odell, P.E. ..... Senior Engineer

This page intentionally left blank.

6 REFERENCES

CHAPTER 2, "PROJECT DESCRIPTION"

California Department of Transportation. 2008. Keeping Lake Tahoe Clear—Placer 89 Project Map. Available: <www.dot.ca.gov/dist3/projects/tahoe/pla89prj.htm>. Accessed July 8, 2008.

California Tahoe Conservancy and California Department of General Services. 2007 (November 29). *Highway 89 Culvert Options for the Blackwood Creek Restoration Project*. South Lake Tahoe, CA. Prepared by Northwest Hydraulic Consultants and EDAW. West Sacramento and Sacramento, CA.

————. 2008 (April). *Blackwood Creek Restoration Project Schematic Design Report.* South Lake Tahoe, CA. Prepared by Northwest Hydraulic Consultants. West Sacramento, CA.

Caltrans. *See* California Department of Transportation.

Conservancy and DGS. *See* California Tahoe Conservancy and California Department of General Services.

Placer County. 2008. CEQA Current Projects, July 2008. Available: <www.placer.ca.gov/Departments/CommunityDevelopment/EnvCoordSvcs/~/media/cdr/ECS/CurrentProjects/CurProjTeam.ashx>. Last updated July 2008. Accessed July 8, 2008.

Tahoe Regional Planning Agency. 2008. Caltrans and Nevada DOT—Tahoe Basin 2008 Construction Season Map. Available: <www.trpa.org/transportation/construction_2008.pdf>. Last updated March 2008. Accessed July 8, 2008.

TRPA. *See* Tahoe Regional Planning Agency.

U.S. Forest Service, Lake Tahoe Basin Management Unit. 2008 (April 10). *Wildlife and Aquatic Species Input for Threatened, Endangered, and Sensitive Species, Management Indicator Species, and Tahoe Regional Planning Agency Special Interest Species for Blackwood Creek Phase 3—Stream and Floodplain Restoration Project.* South Lake Tahoe, CA.

USFS. *See* U.S. Forest Service, Lake Tahoe Basin Management Unit.

CHAPTER 3, "CEQA ENVIRONMENTAL CHECKLIST AND EXPLANATIONS"

3.1 AESTHETICS

Placer County. 1998 (October). *West Shore Area General Plan.* Auburn, CA.

Tahoe Regional Planning Agency. 1993 (November). *1993 Lake Tahoe Scenic Resources Evaluation.* Zephyr Cove, NV. Prepared by Wagstaff and Brady. Berkeley, CA.

————. 2007 (April). *Draft 2006 Threshold Evaluation Report*. Available: <www.trpa.org/default.aspx?tabindex=1&tabid=174>. Accessed June 2008.

TRPA. *See* Tahoe Regional Planning Agency.

3.2 AGRICULTURAL RESOURCES

Tahoe Regional Planning Agency. n.d. *TRPA Plan Area Statements 162—Blackwood.* Available: <www.trpa.org/documents/docdwnlds/PAS/162.pdf>. Accessed November 6, 2008.

TRPA. *See* Tahoe Regional Planning Agency.

3.3 AIR QUALITY

ARB. *See* California Air Resources Board.

California Air Resources Board. 2008. *The California Almanac of Emissions and Air Quality, 2007 Edition*. Sacramento, CA.

California Division of Mines and Geology. 2000. *A General Location Guide for Ultramafic Rocks in California—Areas More Likely to Contain Naturally Occurring Asbestos*. Sacramento, CA.

California Geological Survey. 2006. *Special Report 190: Relative Likelihood for the Presence of Naturally Occurring Asbestos in Placer County, California*. Prepared by C. T. Higgins and J. P. Clinkenbeard. Sacramento, CA. Available: <www.conservation.ca.gov/cgs/information/publications/sr/Documents/Placer_County_SR190.pdf>. Accessed September 26, 2008.

CDMG. *See* California Division of Mines and Geology.

CGS. *See* California Geological Survey.

EPA. *See* U.S. Environmental Protection Agency.

Governor's Office of Planning and Research. 2008 (June 19). *Technical Advisory: CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review.* Sacramento, CA. Available at: <http://opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf>. Last updated June 19, 2008. Accessed October 6, 2009.

OPR. *See* Office of Planning and Research.

PCAPCD. *See* Placer County Air Pollution Control District.

Placer County Air Pollution Control District. 2003 (April 10). Rule 228, Fugitive Dust. Available: <www.placer.ca.gov/Departments/Air/~/media/apc/documents/rules/rule_228_fugitive_dust%20pdf.ashx>. Auburn, CA.

Rimpo and Associates. 2007 (June). URBEMIS 2007, Version 9.2.4. Sacramento, CA. Available: <http://www.urbemis.com/>. Accessed August 2008.

Salinas, Julio. Staff Toxicologist. California Office of Health Hazard Assessment, Sacramento, CA. August 3, 2004—personal communication with Kurt Legleiter of EDAW regarding exposure period for determining heath risk.

Tahoe Regional Planning Agency. 2007 (May). *TRPA 2006 Thresholds Evaluation Report*. Available: <http://www.trpa.org/default.aspx?tabindex=1&tabid=174>. Accessed June 2008.

TRPA. *See* Tahoe Regional Planning Agency.

U.S. Environmental Protection Agency. 2008. Carbon Monoxide Information. Available: <http://www.epa.gov/air/urbanair/co/hlth1.html>. Accessed June 2008.

Western Regional Climate Center. 2008. Monthly Data Run for South LT/Lake Tahoe. AP Calif. Available: <www.wrcc.dri.edu>. Accessed June 10, 2008.

WRCC. *See* Western Regional Climate Center.

3.4 BIOLOGICAL RESOURCES

Bloom, P. H., G. R. Stewart, and B. J. Walton. 1986. *The Status of the Northern Goshawk in California, 1981–1983.* Wildlife Management Branch Administrative Report 85-1. California Department of Fish and Game. Sacramento, CA.

Bolster, B. C. 1998. Western Red Bat, *Lasiurus blossevillii*. Unpublished data from 1998 Western States Working Group. Reno, NV.

Bull, E. L., A. L. Wright, and M. G. Henjum. 1989. Nesting and Diet of Long-Eared Owls in Conifer Forests, Oregon. *Condor* 91:908–912.

California Tahoe Conservancy. 2008 (September). *Draft Preliminary Delineation of Waters of the United States, Including Wetlands for the Lower Blackwood Creek Restoration Project.* South Lake Tahoe, CA. Prepared by EDAW, Inc. Sacramento, CA.

California Tahoe Conservancy and California Department of General Services. 2003 (March 6). *California Tahoe Conservancy Forest Habitat Enhancement Program Blackwood Creek Pilot Study Parcel: Biological Resources Report*. South Lake Tahoe, CA. Prepared by EDAW, Inc. South Lake Tahoe, CA.

Conservancy. *See* California Tahoe Conservancy.

Conservancy and DGS. *See* California Tahoe Conservancy and California Department of General Services.

EDAW, Inc. 2007a (November 28). *Results of a Reconnaissance-Level Survey for Special-Status Wildlife Species on the Blackwood Creek Stream Restoration Project.* Prepared for Northwest Hydraulic Consultants. Sacramento, CA.

————. 2007b (October 3). *Results of a Special-Status Plant Survey for the Blackwood Creek Stream Restoration Project*. Technical memorandum. Prepared for Northwest Hydraulic Consultants. Sacramento, CA.

Herron, G. B., C. A. Mortimore, and M. S. Rawlings. 1985. Northern Goshawk. In *Nevada Raptors: Their Biology and Management.* Biology Bulletin 8. Nevada Department of Wildlife. Reno, NV.

Heim, Susanne. Environmental Planner. Huffman & Carpenter, Inc. Reno, NV. May 27, July 19, and August 6, 2008—e-mails to Steve Henderson of EDAW regarding 2008 California spotted owl and northern goshawk surveys conducted on the Lower Blackwood Creek Restoration Project site.

Holl, Steve. Steve Holl Consulting. Folsom, CA. 2009a (August 12). *Blackwood Canyon Goshawk/Spotted Owl Surveys.* Letter report to Susanne Heim, Environmental Planner, Huffman & Carpenter, Inc. Reno, NV.

Holl, Steve. Steve Holl Consulting. Folsom, CA. December 3, 2009b—e-mail to Julie Roth of AECOM regarding detections of owl species, Cooper's hawk, and sharp-shinned hawk species during 2008 and 2009 protocol surveys for goshawks and spotted owls.

Keane, J. J. 1999. *Ecology of the Northern Goshawk in the Sierra Nevada, California.* Ph.D. dissertation. University of California, Davis. Davis, CA.

Marks, J. S., D. L. Evans, and D. W. Holt. 1994. Long-Eared Owl (*Asio otus*). In A. Poole and F. Gill (eds.), *The Birds of North America,* No. 133. Academy of Natural Sciences and American Ornithologists' Union. Philadelphia, PA, and Washington, DC.

Moyle, P. 2002. *Inland Fishes of California, Revised and Expanded.* University of California Press. Berkeley, CA.

Roth, Julie. Wildlife Biologist. U.S. Forest Service, South Lake Tahoe, CA. June 2007—telephone conversation with Heather Zeigler of EDAW regarding results of bat surveys conducted in Blackwood Canyon between 2003 and 2006.

Tahoe Regional Planning Agency. 1999 (August 8). Memorandum of Understanding between the Tahoe Regional Planning Agency and California Tahoe Conservancy. Available: <http://www.trpa.org/documents/MOUs/Appendix_B_CTC_1999.pdf>. Accessed November 18, 2008.

————. 2004 (December). *Regional Plan for the Lake Tahoe Basin: Goals and Policies*. Stateline, NV. Available: <http://www.trpa.org/documents/docdwnlds/goals.pdf>. Last updated December 2004. Accessed November 18, 2008.

————. 2007. *2006 Threshold Evaluation Report*. Stateline, NV. Available: <http://www.trpa.org/default.aspx?tabindex=1&tabid=174>. Accessed November 18, 2008.

TRPA. *See* Tahoe Regional Planning Agency.

U.S. Army Corps of Engineers. 2008 (January 28). *Process for Coordinating Jurisdictional Determinations Conducted Pursuant to Section 404 of the Clean Water Act in Light of the Rapanos and SWANCC Supreme Court Decisions.* Letter memorandum to Commander, Major Subordinate Commands, and District Commands. Prepared by Major General Don T. Riley, Director of Civil Works. Washington, D.C.

U.S. Fish and Wildlife Service. 2003 (December). *Blackwood Creek Section 206 Aquatic Ecosystem Restoration Project.* Prepared for the U.S. Army Corps of Engineers. Sacramento, CA.

U.S. Forest Service, Pacific Southwest Region. 2001. *Sierra Nevada Forest Plan Amendment Environmental Impact Statement and Record of Decision.* Vallejo, CA.

USACE. *See* U.S. Army Corps of Engineers.

USFS. *See* U.S. Forest Service, Pacific Southwest Region.

USFWS. See U.S. Fish and Wildlife Service.

Verner, J., K. McKelvey, B. Noon, R. Gutierrez, G. Gould, and T. Beck (tech. coords.). 1992. *The California Spotted Owl: a Technical Assessment of Its Current Status.* General Technical Report PSW-GTR-133. U.S. Forest Service, Pacific Southwest Research Station. Albany, CA.

3.5 CULTURAL RESOURCES

Arnold, A. B. 1957. *Archaeological Investigations on Federal Lands in Martis Valley, California*. On file at the North Central Information Center, California State University, Sacramento. Sacramento, CA.

California Department of Transportation. 2005. *Historical Archaeological Resource Evaluation Report for the Highway 89 Rehabilitation Project*. Sacramento, CA.

California Tahoe Conservancy and California Department of General Services. 2003 (March 13). *California Tahoe Conservancy Forest Habitat Enhancement Program Blackwood Creek Pilot Study: Cultural Resources*. South Lake Tahoe, CA. Prepared by EDAW, Inc. Sacramento, CA.

Caltrans. *See* California Department of Transportation.

Conservancy and DGS. *See* California Tahoe Conservancy and California Department of General Services.

D'Azevedo, W. 1986. Washoe. In W. D'Azevedo (ed.), *Great Basin. Handbook of North American Indians, Vol. 11.* Smithsonian Institution. Washington, DC.

Douglass, W. A., and J. Bilbao. 1975. *Amerikanuak: Basques in the New World*. University of Nevada Press. Reno, NV.

Elsasser, A. 1960. The Archaeology of the Sierra Nevada in California and Nevada. *University of California Archaeological Survey Reports* 51:1–93.

Elston, R., and J. Davis. 1972. An Archaeological Investigation of the Steamboat Springs Locality, Washoe County, Nevada. *Nevada Archaeological Survey Reports* 6(1):9–14.

Elston, R., J. O. Davis, A. Leventhal, and C. Covington. 1977. *The Archaeology of the Tahoe Reach of the Truckee River.* On file at the North Central Information Center, California State University, Sacramento. Sacramento, CA.

Farquhar, F. 1965. *History of the Sierra Nevada.* University of California Press. Berkeley, CA.

General Land Office. 1865. Survey Plat Map for Township 17 North, Range 17 East, Mount Diablo Meridian. On file at the U.S. Bureau of Land Management. Sacramento, CA.

GLO. *See* General Land Office.

Heizer, R., and A. B. Elsasser. 1953. Some Archaeological Sites and Cultures of the Central Sierra Nevada in California and Nevada. *University of California Archaeological Survey Reports* 12:1–42.

Hoover, M. B., H. E. Rensch, E. G. Rensch, and W. N. Abeloe. 1990. *Historic Spots in California*. Fourth edition, revised by D. Kyle. Stanford University Press. Stanford, CA.

Keesling, H. S., and J. J. Johnson. 1978. *Preliminary Test Excavations Conducted at Nev-199, Truckee, California.* California Department of Transportation. Sacramento, CA.

Kroeber, A. L. 1925. *Handbook of the Indians of California.* Bureau of American Ethnology Bulletin 78. Smithsonian Institution. Washington, DC.

Lindstrom, S. 2001. *Cultural Resources Inventory for the Real Estate and Ski Improvement Areas, Northstar-at-Tahoe, Truckee, Placer County, California*. Submitted to East West Partners, Truckee, CA.

Moratto, M. 1984. *California Archaeology.* Academic Press. San Francisco, CA.

Saucedo, G. J. 2005. Geologic Map of the Lake Tahoe Basin, California and Nevada. Regional Geologic Map Series, Map No. 4. California Geological Survey. Sacramento, CA.

UCMP. *See* University of California Museum of Paleontology.

University of California Museum of Paleontology. 2008. UCMP Locality Search. Accessed August 21, 2008. Berkeley, CA.

USACE. *See* U.S. Army Corps of Engineers, Sacramento District.

U.S. Army Corps of Engineers, Sacramento District. 2002 (October 13). *An Archaeological Survey of 1.5 Miles Along Blackwood Creek for the Proposed Blackwood Creek Aquatic Ecosystem Restoration Project.* Sacramento, CA.

3.6 GEOLOGY AND SOILS

Allwest Geoscience. 2007. *Reconnaissance Level Geotechnical Study Blackwood Creek Restoration Project, Lake Tahoe, California.* Prepared for Northwest Hydraulic Consultants, West Sacramento, CA.

California Geological Survey. 2005. Earthquake Shaking Potential Map for Portions of Eastern California and Western Nevada. Sacramento, CA.

CGS. *See* California Geological Survey.

Hart, E. W., and W. A. Bryant. 1999. Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zone Maps. California Division of Mines and Geology, Special Publication 42. Sacramento, CA.

Ichinose, G. A., S. Kenji, J. G. Anderson, R. A. Schweickert, and M. M. Lahren. 1999 (March 8). The Potential Hazard from Tsunami and Seiche Waves Generated by Future Large Earthquakes within the Lake Tahoe Basin, California-Nevada. *Geophysical Research Letters* 27:1203–1206, April 15, 2000. Available: <www.seismo.unr.edu/htdocs/WGB/LakeTahoeTsunami/>. Accessed July 26, 2006.

Kent, G. M., J. M. Babcock, N. W. Driscoll, A. J. Harding, J. A. Dingler, G. G. Seitz, J. V. Gardner, L. A. Mayer, C. R. Goldman, A. C. Heyvaert, R. C. Richards, R. Karlin, C. W. Morgan, P. T. Gayes, and L. A. Owens. 2005. 60 k.y. Record of Extension across the Western Boundary of the Basin and Range Province: Estimate of Slip Rates from Offset Shoreline Terraces and a Catastrophic Slide Beneath Lake Tahoe. *Geology* 33:365–368.

Lahontan Regional Water Quality Control Board. 2007. *Total Maximum Daily Load for Bedded Sediment, Blackwood Creek, Placer County, Draft Staff Report.* South Lake Tahoe, CA.

Lahontan RWQCB. *See* Lahontan Regional Water Quality Control Board.

Natural Resources Conservation Service. 2007. *Soil Survey for the Tahoe Basin Area, California and Nevada*. In cooperation with the U.S. Forest Service, the California Department of Conservation, and the University of California Agricultural Experiment Station. Available: <soildatamart.nrcs.usda.gov/Manuscripts/CA693/0/Tahoe_CA.pdf>. Accessed August 11, 2008.

NRCS. *See* Natural Resources Conservation Service.

Saucedo, G. J. 2005. Geologic Map of the Lake Tahoe Basin, California and Nevada. California Geological Survey, Regional Geologic Map Series, Map No. 4. Sacramento, CA.

Schweickert, R. A. and M. M. Lahren. 2002. *Glacial Geology of Blackwood Canyon, Lake Tahoe, California: Implications for Landslides and Tsumamis*. Geological Society of America 2002 Denver Annual Meeting, Session No. 59.

Schweickert, R. A., M. M. Lahren, R. E. Karlin, K. D. Smith, and J. F. Howle. 2000. Preliminary Map of Pleistocene to Holocene faults in the Lake Tahoe Basin, California and Nevada. Open-File Report 2000-4. Nevada Bureau of Mines and Geology. Carson City, NV.

Schweickert, R. A., M. M. Lahren, K. Smith, and R. Karlin. 1999. Holocene Megalandslides in Lake Tahoe Triggered by Earthquakes Along Active Faults. *Geological Society of America Abstracts with Programs* 31(6):A-93.

Seitz, G. G., and G. Kent. 2004 (November). *Closing the Gap Between On and Offshore Paleoseismic Records in the Lake Tahoe Basin*. U.S. Geological Survey External Research Support, Annual Project Summaries, Volume 46.

Smith, K. D., D. vonSeggern, G. Blewitt, L. Preston, J. G. Anderson, B. P. Wernicke, and J. L. Davis. 2004. Evidence for Deep Magma Injection beneath Lake Tahoe, Nevada-California. *Science* 305(5688):1277–1280.

State Water Resources Control Board and Lahontan Regional Water Quality Control Board. 2001 (March 27). *Report for Blackwood Creek TMDL Feasibility Project, Lake Tahoe, California.* Sacramento and South Lake Tahoe, CA. Prepared by Tetra Tech, Inc., Lafayette, CA.

SWRCB and Lahontan RWQCB. *See* State Water Resources Control Board and Lahontan Regional Water Quality Control Board.

U.S. Forest Service, Lake Tahoe Basin Management Unit. 1998 (December 8). *Blackwood Creek Watershed Restoration and Fisheries Habitat Improvement Plan Project Feasibility Study.* Draft Report. South Lake Tahoe, CA. Prepared by Tetra Tech, Lafayette, CA.

————. 2002 (April 11). *Blackwood Creek Stream Restoration Project Draft Design Report*. South Lake Tahoe, CA. Prepared by Swanson Hydrology and Geomorphology, Santa Cruz, CA, in association with Haen Engineering, HydroScience, River Run Fisheries and Hydrology, Western Botanical Services, Wildlife Resource Consultants, and Ecosynthesis.

————. 2003 (April 29). *Blackwood Creek Stream Restoration Project, Final Design Report*. South Lake Tahoe, CA. Prepared by Swanson Hydrology and Geomorphology, Santa Cruz, CA.

USFS. *See* U.S. Forest Service, Lake Tahoe Basin Management Unit.

3.7 HAZARDS AND HAZARDOUS MATERIALS

EPA. *See* U.S. Environmental Protection Agency.

USACE. *See* U.S. Army Corps of Engineers, Environmental Design Section.

U.S. Army Corps of Engineers, Environmental Design Section. 2002 (May). *Environmental Site Assessment Blackwood Creek, Tahoe Pines, California.* Sacramento, CA.

U.S. Environmental Protection Agency. 2005 (October 31). *EnviroMapper for Envirofacts.* Available: <http://134.67.99.122/enviro/emef.asp>. Accessed July 15, 2008.

3.8 HYDROLOGY AND WATER QUALITY

Allwest Geoscience. 2007. *Reconnaissance Level Geotechnical Study, Blackwood Creek Restoration Project, Lake Tahoe, California*. Prepared for Northwest Hydraulic Consultants, West Sacramento, CA.

California Department of General Services and California Tahoe Conservancy. 1997. *Blackwood Creek Fisheries Enhancement Study.* Sacramento, CA. Prepared by Hydro Science. Davis, CA.

California Department of Water Resources. 2004. North Lahontan Hydrologic Region (6) Tahoe Valley Groundwater Basin, Tahoe West Subbasin. *California's Groundwater,* Bulletin 118. Sacramento, CA.

California Tahoe Conservancy and California Department of General Services. 2007 (November 29). *Highway 89 Culvert Options for the Blackwood Creek Restoration Project*. South Lake Tahoe, CA. Prepared by Northwest Hydraulic Consultants and EDAW. West Sacramento and Sacramento, CA.

————. 2008 (April). *Blackwood Creek Restoration Project Schematic Design Report*. South Lake Tahoe, CA. Prepared by Northwest Hydraulic Consultants. West Sacramento, CA.

Coats, R. N., and C. R. Goldman. 2001. Patterns of Nitrogen Transport in Streams of the Lake Tahoe Basin, California-Nevada. *Water Resources Research* 37(2):405–415.

Conservancy and DGS. *See* California Tahoe Conservancy and California Department of General Services.

DGS and Conservancy. *See* California Department of General Services and California Tahoe Conservancy.

DWR. *See* California Department of Water Resources.

Federal Emergency Management Agency. 1998. Placer County, California and Incorporated Areas. An effective Flood Insurance Rate Map, map number 06061C0211 F, effective date June 8, 1998.

FEMA. *See* Federal Emergency Management Agency.

Freeze, R. A., and J. A. Cherry. 1979. *Groundwater*. Prentice-Hall, Inc. Englewood Cliffs, NJ.

Goldman, C. R. 1974. *Eutrophication of Lake Tahoe Emphasizing Water Quality*. EPA-660/3-74-034. U.S. Government Printing Office. Washington, DC.

Lahontan Regional Water Quality Control Board. 1995. *Water Quality Control Plan for the Lahontan Region*. South Lake Tahoe, CA.

————. 2007. *Total Maximum Daily Load for Bedded Sediment, Blackwood Creek, Placer County, Draft Staff Report.* South Lake Tahoe, CA.

Lahontan RWQCB. *See* Lahontan Regional Water Quality Control Board.

Reuter, J. R., and W. W. Miller. 2000. *Aquatic Resources, Water Quality and Limnology of Lake Tahoe and Its Upland Watershed*. In D. D. Murphy and C. M. Knopp, *The Lake Tahoe Watershed Assessment.* U.S. Forest Service; Tahoe Regional Planning Agency; University of California, Davis; University of Nevada, Reno; and Desert Research Institute.

Rowe, T. G., D. K. Saleh, S. A. Watkins, and C. R. Kratzer. 2002. *Streamflow and Water-Quality Data for Selected Watersheds in the Lake Tahoe Basin, California and Nevada, through September 1998.* U.S. Geological Survey Water Resources Investigations Report 02-4030. Carson City, NV.

Saucedo, G. J. 2005. Geologic Map of the Lake Tahoe Basin, California and Nevada. California Geological Survey, Regional Geologic Map Series, Map No. 4. Sacramento, CA.

Schweickert, R. A., and M. M. Lahren. 2002. *Glacial Geology of Blackwood Canyon, Lake Tahoe, California: Implications for Landslides and Tsumamis*. Geological Society of America 2002 Denver Annual Meeting, Session No. 59.

Simon, A. 2006 (May). *Estimates of Fine-Sediment Loadings to Lake Tahoe from Channel and Watershed Sources.* USDA-ARS National Sedimentation Laboratory Technical Report 52. Prepared for the University of California, Davis; the Nevada Division of Environmental Protection; and the Lahontan Regional Water Quality Control Board.

Simon, A., E. Langendoen, R. Bingner, R. Wells, A. Heins, N. Jokay, and L. Jaramillo. 2003. *Lake Tahoe Basin Framework Implementation Study: Sediment Loadings and Channel Erosion.* Prepared for the U.S. Army Corps of Engineers. Prepared by the U.S. Department of Agriculture, Agricultural Research Service, National Sedimentation Laboratory.

State Water Resources Control Board. 1990. *305(b) Water Quality Report for Water Years 1988–1989.* Sacramento, CA.

State Water Resources Control Board and Nevada Division of Environmental Protection. 2007 (September). *Lake Tahoe TMDL Pollutant Reduction Opportunity Report*. V1.01. Sacramento, CA, and Carson City, NV.

SWRCB. *See* State Water Resources Control Board.

SWRCB and NDEP. *See* State Water Resources Control Board and Nevada Division of Environmental Protection.

Tahoe Regional Planning Agency. 2004. *Annual Water Quality Report*. Stateline, NV.

————. 2007 (May). *TRPA 2006 Threshold Evaluation Report*. Available: <http://www.trpa.org/default.aspx?tabindex=1&tabid=174>. Accessed June 2008.

Thodal, C. E. 1997. *Hydrogeology of Lake Tahoe Basin, California and Nevada, and Results of a Ground-Water Quality Monitoring Network, Water Years 1990–1992.* Water-Resources Investigations Report 97-4072. U.S. Geological Survey.

TRPA. *See* Tahoe Regional Planning Agency.

USACE. *See* U.S. Army Corps of Engineers, Sacramento District.

U.S. Army Corps of Engineers, Sacramento District. 2001a (July). *Geomorphic Assessment and Topographic Survey, Blackwood Creek Aquatic Ecosystem Restoration, Placer County, California.* Sacramento, CA. Prepared by Tetra Tech, Inc.

————. 2001b (October). *Hydrologic, Hydraulic and Sediment Transport Analysis, Blackwood Creek Aquatic Ecosystem Restoration, Placer County, California.* Sacramento, CA. Prepared by Tetra Tech, Inc.

————. 2002 (September). *35% Feasibility Design Report, Blackwood Creek Aquatic Ecosystem Restoration, Placer County, California.* Sacramento, CA. Prepared by Tetra Tech, Inc.

————. 2003. *Lake Tahoe Basin Framework Study Groundwater Evaluation Lake Tahoe Basin, California and Nevada.* Sacramento, CA.

U.S. Forest Service, Lake Tahoe Basin Management Unit. 1998 (December 8). *Blackwood Creek Watershed Restoration and fisheries Habitat Improvement Plan Project Feasibility Study.* Draft Report. South Lake Tahoe, CA. Prepared by Tetra Tech, Inc., Lafayette, CA.

————. 2002 (April 11). *Blackwood Creek Stream Restoration Project Draft Design Report*. South Lake Tahoe, CA. Prepared by Swanson Hydrology and Geomorphology, Santa Cruz, CA, in association with Haen Engineering, HydroScience, River Run Fisheries and Hydrology, Western Botanical Services, Wildlife Resource Consultants, and Ecosynthesis.

————. 2003 (April 29). *Blackwood Creek Stream Restoration Project, Final Design Report*. Prepared by Swanson Hydrology and Geomorphology, Santa Cruz, CA.

USFS. *See* U.S. Forest Service, Lake Tahoe Basin Management Unit.

U.S. Geological Survey. 2002 (July). *Estimated Flood Flows in the Lake Tahoe Basin, California and Nevada.* USGS Fact Sheet FS-035-02. Carson City, NV.

————. 2008a. Water Data for Blackwood Creek. Available: <http://nwis.waterdata.usgs.gov/>. Last updated August 8, 2008. Accessed August 8, 2008.

————. 2008b (January 3). Facts About Lake Tahoe. Available: <http://tahoe.usgs.gov/facts.html>. Accessed November 10, 2008.

USGS. *See* U.S. Geological Survey.

Wilkins, Dan. Tahoe Pines Homeowners Association. July 29, 2008, e-mail to Danielle Hughes of EDAW regarding request for flooding information.

3.9 LAND USE AND PLANNING

Nielsen, Paul. Assistant Branch Chief. Environmental Improvement Program, Tahoe Regional Planning Agency. Stateline, NV. June 10, 2008—telephone conversation with Gretchen Eichar of EDAW regarding the proposed EIP project and which TRPA-referenced EIP project numbers include the project or elements of the project.

Placer County. 1998 (October). *West Shore Area General Plan.* Auburn, CA.

Tahoe Regional Planning Agency. 2007 (August). *Environmental Improvement Program Progress Report—August 2007.* Available: <trpa.org/documents/docdwnlds/EIP/EIPBook_FINAL_54-76.pdf>. Accessed November 7, 2008.

TRPA. *See* Tahoe Regional Planning Agency.

3.10 MINERAL RESOURCES

Loyd, R. 1995. *Mineral Land Classification of Placer County, California*. Open File Report 95-10. California Department of Conservation Division of Mines and Geology. Sacramento, CA.

3.11 NOISE

California Department of Transportation. 2004 (June). *Transportation- and Construction-Induced Vibration Guidance Manual.* Sacramento, CA.

————. 2007. Traffic and Vehicle Data Systems Unit. Available: <www.dot.ca.gov/hq/traffops/saferesr/trafdata/2007all.htm>. Accessed June 27, 2008.

Caltrans. *See* California Department of Transportation.

Federal Highway Administration. 2006 (January). Roadway Construction Noise Model Version 1.0. (FHWA RCNM V. 1.0.) Washington, DC.

Federal Transit Administration. 2006 (May). *Transit Noise and Vibration Impact Assessment.* Washington, DC.

FHWA. See Federal Highway Administration.

FTA. See Federal Transit Administration.

Placer County. 1994. Noise Element of the *Placer County General Plan.* Originally adopted November 25, 1994. Auburn, CA.

Tahoe Regional Planning Agency. 2002 (May 22). *TRPA Plan Area Statements*. Zephyr Cove, NV.

————. 2004. TRPA Code of Ordinances. Available: <http://www.trpa.org/default.aspx?tabindex=2&tabid=172>. Accessed June 24, 2008.

TRPA. *See* Tahoe Regional Planning Agency.

Yanmar Corporation. 2007. L100V Specifications. Available: <www.yanmar.com/store/item.asp?ITEM_ID=54&DEPARTMENT_ID=62>. Accessed August 4, 2008.

3.12 POPULATION AND HOUSING

California Department of Finance. 2008 (May). E-5 Population and Housing Estimates for Cities, Counties and the State, 2001–2008, with 2000 Benchmark. Sacramento, CA. Available: <www.dof.ca.gov/HTML/DEMOGRAP/ReportsPapers/ReportsPapers.php>. Accessed July 14, 2008.

DOF. *See* California Department of Finance.

3.13 PUBLIC SERVICES

Placer County. 2008a. Placer County Fire Agencies. Available: <www.placer.ca.gov/Departments/Air/fireagencies.aspx>. Accessed July 15, 2008.

————. 2008b. Placer County Sheriff-Coroner-Marshal. Available: <www.placer.ca.gov/Departments/Sheriff.aspx>. Accessed July 15, 2008.

Tahoe Truckee Unified School District. 2008. *Cold Stream Alternative School.* Available: <csa.ttusd.org/>. Accessed July 15, 2008.

3.14 RECREATION

EDAW, Inc. 2007 (October 10). *Recreation and Public Access Assessment for the Blackwood Creek Restoration Project.* Technical memorandum to Robert Odell of Northwest Hydraulic Consultants, prepared by John Zanzi, senior landscape architect/project manager.

————. 2008 (May 9). *Description of Trail Rehabilitation Techniques for the Blackwood Creek Restoration Project.* Technical memorandum to Robert Odell of Northwest Hydraulic Consultants, prepared by John Zanzi, senior landscape architect/project manager.

3.15 TRANSPORTATION/TRAFFIC

California Department of Transportation. 2007. Traffic and Vehicle Data Systems Unit. Available: <www.dot.ca.gov/hq/traffops/saferesr/trafdata/2007all.htm>. Accessed June 27, 2008.

Caltrans. *See* California Department of Transportation.

EDAW, Inc. 2007 (October 10). *Recreation and Public Access Assessment for the Blackwood Creek Restoration Project.* Technical memorandum to Robert Odell of Northwest Hydraulic Consultants, prepared by John Zanzi, senior landscape architect/project manager.

Placer County. 1998 (October). *West Shore Area General Plan.* Auburn, CA.

Tahoe Metropolitan Planning Organization. 2006 (October). *Final Report, Lake Tahoe Regional Bicycle and Pedestrian Master Plan*. Available: <www.trpa.org/default.aspx?tabindex=1&tabid=168>. Accessed November 9, 2008.

Tahoe Regional Planning Agency. 1986 (September 17). *Regional Plan for the Lake Tahoe Basin: Goals and Policies.* Printed December 2004. Available: <www.trpa.org/documents/docdwnlds/goals.pdf>. Accessed November 9, 2008.

Tahoe Regional Planning Agency and Tahoe Metropolitan Planning Organization. 2008 (August 27). *Final Mobility 2030: Lake Tahoe Regional Transportation Plan.* Available: <www.trpa.org/default.aspx?tabindex=0&tabid=334>. Accessed November 8, 2008.

TRPA. *See* Tahoe Regional Planning Agency.

TRPA and Tahoe Metropolitan Planning Organization. *See* Tahoe Regional Planning Agency and Tahoe Metropolitan Planning Organization.

3.16 UTILITIES AND SERVICE SYSTEMS

Beals, Marcia. Tahoe-Truckee Sanitation Agency, Truckee, CA. August 25, 2004—telephone conversation with Steven Huang of EDAW regarding wastewater service for the Vista Village Project.

NV Energy. 2008. NV Energy: About Us. Available: <www.nvenergy.com/company/>. Accessed November 14, 2008.

Ratto, Ron. Vice President. Tahoe Truckee Sierra Disposal, Tahoe City, CA. March 22, 2005—telephone conversation with Sarah Henningsen of EDAW regarding existing solid waste service in the project area, ability to serve the proposed project, and background information on practices/processes.

Southwest Gas Corporation. 2007. Southwest Gas Web site. Available: <www.swgas.com/>. Accessed April 18, 2008.

SWG. *See* Southwest Gas Corporation.

CHAPTER 4, "TRPA INITIAL ENVIRONMENTAL CHECKLIST AND EXPLANATIONS"

1 LAND

USACE. *See* U.S. Army Corps of Engineers, Sacramento District.

U.S. Army Corps of Engineers, Sacramento District. 2001 (July). *Geomorphic Assessment and Topographic Survey, Blackwood Creek Aquatic Ecosystem Restoration, Placer County, California.* Sacramento, CA. Prepared by Tetra Tech, Inc.

U.S. Forest Service, Lake Tahoe Basin Management Unit. 1998 (December 8). *Blackwood Creek Watershed Restoration and Fisheries Habitat Improvement Plan Project Feasibility Study.* Draft Report. South Lake Tahoe, CA. Prepared by Tetra Tech, Lafayette, CA.

————. 2002 (April 11). *Blackwood Creek Stream Restoration Project Draft Design Report*. South Lake Tahoe, CA. Prepared by Swanson Hydrology and Geomorphology, Santa Cruz, CA, in association with Haen Engineering, HydroScience, River Run Fisheries and Hydrology, Western Botanical Services, Wildlife Resource Consultants, and Ecosynthesis.

————. 2003 (April 29). *Blackwood Creek Stream Restoration Project, Final Design Report*. Prepared by Swanson Hydrology and Geomorphology, Santa Cruz, CA.

USFS. *See* U.S. Forest Service, Lake Tahoe Basin Management Unit.

2 AIR QUALITY

No references cited

3 WATER QUALITY

California Tahoe Conservancy and California Department of General Services. 2007 (November 29). *Highway 89 Culvert Options for the Blackwood Creek Restoration Project*. South Lake Tahoe, CA. Prepared by Northwest Hydraulic Consultants and EDAW. West Sacramento and Sacramento, CA.

Conservancy and DGS. *See* California Tahoe Conservancy and California Department of General Services.

Tahoe Regional Planning Agency. 2000 (June). *Lake Tahoe Source Water Protection Program, Project Report.* Zephyr Cove, NV.

TRPA. *See* Tahoe Regional Planning Agency.

4 VEGETATION

EDAW, Inc. 2007 (October 3). *Results of a Special-Status Plant Survey for the Blackwood Creek Stream Restoration Project*. Technical memorandum. Prepared for Northwest Hydraulic Consultants. Sacramento, CA.

5 WILDLIFE

EDAW, Inc. 2007 (November 28). *Results of a Reconnaissance-Level Survey for Special-Status Wildlife Species on the Blackwood Creek Stream Restoration Project.* Prepared for Northwest Hydraulic Consultants. Sacramento, CA.

6 NOISE

California Department of Transportation. 2007. Traffic and Vehicle Data Systems Unit. Available: <www.dot.ca.gov/hq/traffops/saferesr/trafdata/2007all.htm>. Accessed June 27, 2008.

Caltrans. *See* California Department of Transportation.

Yanmar Corporation. 2007. L100V Specifications. Available: <www.yanmar.com/store/item.asp?ITEM_ID=54&DEPARTMENT_ID=62>. Accessed August 4, 2008.

7 LIGHT AND GLARE

No references cited

8 LAND USE

Nielsen, Paul. Assistant Branch Chief. Environmental Improvement Program, Tahoe Regional Planning Agency. Stateline, NV. June 10, 2008—telephone conversation with Gretchen Eichar of EDAW regarding the proposed EIP project and which TRPA-referenced EIP project numbers include the project or elements of the project.

Tahoe Regional Planning Agency. 2007 (August). *Environmental Improvement Program Progress Report—August 2007.* Available: <trpa.org/documents/docdwnlds/EIP/EIPBook_FINAL_54-76.pdf>. Accessed November 7, 2008.

TRPA. *See* Tahoe Regional Planning Agency.

9 NATURAL RESOURCES

No references cited

10 RISK OF UPSET

USACE. *See* U.S. Army Corps of Engineers, Sacramento District.

U.S. Army Corps of Engineers, Environmental Design Section. 2002 (May). *Environmental Site Assessment Blackwood Creek, Tahoe Pines, California.* Sacramento, CA.

11 POPULATION

No references cited

12 HOUSING

No references cited

13 TRANSPORTATION/CIRCULATION

No references cited

14 PUBLIC SERVICES

No references cited

15 ENERGY

No references cited

16 UTILITIES

No references cited

17 HUMAN HEALTH

No references cited

18 SCENIC RESOURCES/COMMUNITY DESIGN

Tahoe Regional Planning Agency. 1993 (November). *1993 Lake Tahoe Scenic Resources Evaluation.* Zephyr Cove, NV. Prepared by Wagstaff and Brady. Berkeley, CA.

TRPA. *See* Tahoe Regional Planning Agency.

19 RECREATION

No references cited

20 ARCHAEOLOGICAL/HISTORICAL

No references cited

21 FINDINGS OF SIGNIFICANCE

No references cited

This page intentionally left blank.

APPENDIX A

Public Information Meeting Summary

Lower Blackwood Creek Restoration Project

PUBLIC INFORMATION MEETING—July 3, 2008
MEETING SUMMARY

The purpose of the July 3, 2008, public information meeting was to introduce and share information about the proposed Lower Blackwood Creek Restoration Project, answer questions and listen to concerns, provide project contact information, and identify opportunities for ongoing public input.

LOCATION AND TIME:

6:00 p.m., Thursday, July 3, 2008
Rideout Community Center, Room 6
740 Timberland Lane
Tahoe City, California

NOTIFICATION PROCESS:

A meeting flyer was distributed by mail and/or e-mail to all Technical Advisory Committee (TAC) members; relevant federal, state, and local agencies; interested organizations and environmental groups; and all property owners within 400 feet of the project area boundary. Notice of the meeting was also provided in the *Tahoe Daily Tribune.*

NUMBER OF ATTENDEES: 13

Sign-in sheet included as Attachment A.

MEETING AGENDA:

- Introductions 6:00–6:10
  - Introduction of team members
    - Adam Lewandowski, California Tahoe Conservancy
    - Stuart Roll, California Tahoe Conservancy
    - Jane Hershberger, California Department of General Services
    - Rob Odell, nhc, Project Engineer
    - Ed Wallace, nhc, Project Engineer
    - Nanette Hansel, EDAW, Project Planner
    - Jake Weirich, EDAW, Project Planner
  - Review goals for the meeting, project background
- Overview of Project and Environmental Review Process 6:15–6:45
  - PowerPoint presentation
  - Question and answer session
- Open House Discussion with Maps 6:45–7:30
  - Project area maps
  - Comment cards

MEETING SUMMARY:

The issues raised during the public information meeting were addressed in part at the meeting, and are responded to more fully below.

Public Information Meeting Comments and Responses	
Meeting Comment	Response
Project Design/Objectives/Alternatives	
1) Was flooding considered in the project objectives?	Flood control is not a project objective. As proposed, the project is designed to behave flood neutral and would neither increase nor decrease flood levels in the creek or on adjacent properties. Some project elements may have secondary benefits that could reduce flooding by capturing floating debris that would otherwise block the culvert.
2) Would bank stabilization help reduce culvert blockage?	The SR 89 culvert can become plugged with floating woody debris such as logs and branches during floods. Some of this debris could come from local trees rooted in steep unstable channel banks that eventually fall in the creek. However, a large portion of the woody material comes from upstream sources that would not be affected by the restoration project. Log and rock structures proposed as part of the project are designed to capture some floating debris before it reaches the culvert. This debris would be removed as needed by Conservancy crews.
3) Would more riprap in R3 help alleviate flooding south of the R3 bend?	Riprap cannot prevent overtopping of the banks in Reach 3. Riprap or some form of bank protection can be used to prevent additional erosion of the bank during future floods.
4) Can additional design work be done to reduce flooding on Interlochen?	Flood reduction options on Interlochen are not a part of the design. The project is intended to behave flood neutral.
5) What is proposed at the northern bend in R4?	The design proposes the realignment of the channel north onto Conservancy property. The banks of the new channel would be less steep and planted with vegetation. On the southern side, a new floodplain bench would be created and also planted with vegetation. The bench may include several log jam structures to provide shelter to aquatic species during flood events.
6) What is being done to address the 10-year flood risk?	The project is designed to be flood neutral. It would not increase or decrease flood levels during the 10-year flood.
7) Was there a hydrologic analysis of what would happen if the culvert was removed? What was the outcome of the analysis?	A preliminary analysis was performed to evaluate the downstream effects of replacing the SR 89 culvert with a full-span bridge. The results of the analysis indicate that additional channel widening upstream and downstream of the bridge would be necessary to maintain or decrease flood levels at all locations along the study reach.
8) Why were locals not asked for input earlier in the process?	Mailings were sent out in June 2006 to notify nearby residents of the project and to solicit input. An informal public meeting was held in the adjacent neighborhood in July 2006. A Conservancy representative has responded to several additional requests for information on the project. The first formal public informational meeting was scheduled for after conceptual plans were developed so that information could be shared on a feasible project design. Specific details were not available to share prior to the first public informational meeting. The Conservancy is happy to consider input from interested individuals or organizations at any time.

Public Information Meeting Comments and Responses	
Meeting Comment	Response
9) How long do log debris jams last?	The wood in debris jams usually last for 10 to 20 years. As a part of the design, the structures are backfilled and planted. Over time, the structures become filled with sediment and growing vegetation and the wood dissolves away in place, leaving the rock and soil behind, anchored in place by live vegetation.
10) Are debris jams postponing the inevitable?	The debris jams are intended to be dynamic but permanent structures. The rock in the debris jams is sized to remain in place indefinitely. The wood in the debris jams would last long enough for native vegetation to become established on the structure. Eventually the logs in the debris jam would rot in place and be replaced with live vegetation.
11) Would moving the channel north in R3 and R4 be possible?	Realignment of the channel in the lower part of Reach 3 is not a part of the proposed design. However, the project does include significant protection along the right bank to prevent further erosion here.
12) Are the designs available to public? Can they be put on a Web site?	The most recent designs and the basis of preliminary design report are available to the public. They can be found on the Conservancy's website at www.tahoecons.ca.gov, or they can be obtained at the Conservancy offices at 1061 Third Street, South Lake Tahoe, CA 96150.
13) Was any St. Michaels Ct. work done for flooding in conjunction with this project?	St. Michaels Ct. is outside of the project area and in a different watershed than Blackwood Creek. The project would not affect flooding conditions in the St. Michaels Ct. area.
Project Funding	
1) If Caltrans were willing and funding were available, would the culvert be replaced?	Caltrans recently conducted an assessment and determined the culvert is structurally sound for at least 10 years and not a priority for replacement. If the culvert were to be replaced Caltrans would have to conduct a hydrologic analysis to determine that a new culvert would not increase the flooding hazard for any private property. A new culvert would likely be sized the same as the existing culvert as a smaller culvert would be expected to increase the flooding hazard upstream of SR 89, and a larger culvert would likely increase the flooding hazard downstream of SR 89.
2) Does the Conservancy have the funding to replace the culvert?	The Conservancy does not have funding available for replacement of the culvert.
3) What is the project budget?	The proposed project construction is expected to cost approximately $2 million.
4) Who is funding this project?	The proposed project is funded by the Conservancy using voter passed bonds for habitat restoration and water quality improvement, and by the U.S. Army Corps of Engineers.
5) Who decided that the money for this project should go to this project?	The Environmental Improvement Program (EIP) is a multi-agency program administered by TRPA and endorsed by the federal government and the states of California and Nevada. The EIP identified priority projects needed to attain environmental thresholds in the Lake Tahoe Basin. The project was identified in the EIP as a priority and funding it is part of the State of California and Federal Governments commitment under the Lake Tahoe Restoration Act.
6) Who has the final say on this project's funding?	The California Tahoe Conservancy Board and the California State Public Works Board have final approval of the State bond funds for the proposed project. The U.S. Army Corps of Engineers Sacramento District has final approval of funding under the U.S. Army Corps of Engineers Section 106 program.

Public Information Meeting Comments and Responses	
Meeting Comment	Response
7) Would the project funding be better spent on flood control?	The funding sources are specifically designated for water quality protection and habitat enhancement. Flood protection would not be an allowable use of the funds. If an equivalent amount of funding were dedicated to flood protection at the site, it would probably not alleviate the flooding problem in the neighborhood.
8) Are there any studies that would show the cost and project needed to control flooding?	There is not a study that identifies a project and cost that would control flooding at the site.
Project Permitting/Approval/Management	
1) Who has the final approval of this project?	The project will be proposed to the California Tahoe Conservancy Board and the State Public Works Board for approval. In addition, permits must be granted from the following agencies in order for the project to be implemented: Tahoe Regional Planning Agency, Lahontan Regional Water Quality Control Board, California Department of Fish and Game, U.S. Army Corps of Engineers, Caltrans, and Placer County.
2) Are there community members on the TAC?	The Technical Advisory Committee (TAC) is comprised of technical experts from relevant agencies. Community members are not on the TAC because it would be impossible to find a community representative that expressed the views of the entire community. Allowing every individual to comment on the project seemed to be the fairest way to solicit community input rather than selecting one or two individuals to provide their comments in the TAC setting.
3) Is Mr. Lewandowski involved in the Tahoe Pines Erosion Control project?	Mr. Lewandowski is working with Placer County to make sure the Tahoe Pines Erosion Control Project is coordinated with the Blackwood Creek Restoration Project.
4) Who would be the best Conservancy person to contact regarding Conservancy land issues?	Shawn Butler, Land Management Program Manager, should be contacted for issues regarding Conservancy land use. He can be reached at (530) 543-6034.
5) Is there an annual maintenance schedule or plan?	A maintenance plan would be developed for the proposed project. The maintenance schedule would include monthly inspections for the first 2 years following construction, and then inspections at least twice per year plus additional inspections following significant runoff events for subsequent years. Inspections would identify any project-related maintenance needs, which would then be addressed by the Conservancy. Nearby residents are also encouraged to contact the Conservancy at (530) 542-5580 if they notice maintenance needs.
Project Construction	
1) When will project construction occur?	Initial vegetation enhancement activities are expected to occur as early as summer of 2010. The channel restoration and trail improvements are expected to occur between May and November of 2011.
2) Can the project be built in phases?	Some project phasing is possible and may be necessary if all of the necessary project construction funding is not available. Vegetation enhancement, creek restoration, and trail improvements can be completed in separate phases. Channel restoration downstream of SR 89 is also expected to be completed in a separate phase from the channel restoration upstream of SR 89.
3) Is the Conservancy marking trees yellow?	The California Department of Forestry and Fire Protection (Cal Fire) is marking trees for removal on Conservancy land using yellow paint.

Public Information Meeting Comments and Responses	
Meeting Comment	Response
4) Is the Conservancy marking on non-Conservancy property?	The Conservancy is not marking trees on non-Conservancy property.
Project Vegetation/Habitat Enhancement Elements	
1) Why are aspens targeted in the vegetation enhancement?	Aspens are targeted in the vegetation enhancement because they are a relatively rare ecological community in the Lake Tahoe Basin that has been reduced from their historic distribution, and they support high levels of biological diversity.
2) Why are we spending money on vegetation enhancement?	The vegetation enhancement activities would result in a net cost savings. Vegetation enhancement would be implemented by hand crews relatively cheaply and the logs and other materials generated in the enhancement would be used in bank revetments and other habitat features reducing the amount of materials that would have to be purchased and imported.
3) How will the aspens thrive with the new work?	The vegetation enhancement area contains mature aspens, which are being encroached by White Fir and other conifers. The presence of mature aspens indicates that a significant root system exists underground. By removing the conifers that are shading the aspens it would: 1) allow the existing aspens to flourish without competition from the conifers, and 2) allow natural recruitment of new aspens growing from the existing root system.
4) What species are the enhancement features meant to help?	The habitat enhancement features are not directed at individual species, but are intended to benefit the large number of aquatic and terrestrial species that use Blackwood Creek and the surrounding riparian habitat. Species potentially benefitting from habitat enhancement activities include, but are not limited to: Yellow Warbler (*Dendroica petechia)*, Rainbow Trout (*Oncorhynchus mykiss*), Brown Trout (*Salmo trutta*), Lahontan Cutthroat Trout (*Oncorhynchus clarki henshawi*), Lahontan Speckled Dace (*Rhinichthys osculos robustus*), Long-eared Myotis (*Myotis evotis*), Western Red Bat (*Lasiurus blossevillii*), Long-tailed Weasel (*Mustela frenata*), Western Jumping Mouse (*Zapus princeps*), Williamson's Sapsucker (*Sphyrapicus thyroieus*), Northern Flicker (*Colaptes auratus*), and Warbling Vireo (*Vireo gilvus*).
Related Projects	
1) Is the Tahoe Pines Erosion Control work included in this project?	The Tahoe Pines Erosion Control work is not included in this project. Placer County is implementing the erosion control work separately, but the two projects are being coordinated to ensure they are compatible.
2) What time frame is the Tahoe Pines Erosion Control work on?	The Tahoe Pines Erosion Control project would be constructed from 2009 – 2011 pending availability of funding.
3) Who is funding the erosion control?	The Tahoe Pines Erosion Control project is being implemented by Placer County with funding from the California Tahoe Conservancy and possibly the U.S. Forest Service.
4) What time frame is the Tahoe Pines Erosion Control work on?	The Tahoe Pines Erosion Control project will be constructed from 2009 – 2011 pending availability of funding.
5) Who is funding the erosion control?	The Tahoe Pines Erosion Control project is being implemented by Placer County with funding from the California Tahoe Conservancy and possibly the U.S. Forest Service.

ATTACHMENT A

July 3, 2008—Public Information Meeting
Sign-In Sheet

Lower Blackwood Creek Restoration Project

Public Information Meeting

6:00 p.m., Thursday, July 3, 2008
Rideout Community Center, Rm 5
740 Timberland Lane
Tahoe City, CA

WELCOME!

No.	Name (Please Print)	Mailing Address	Phone and E-Mail
	BOB CLINE	[redacted]	[redacted]
	Marshall + Nancy Kraus	[redacted]	[redacted]
	Suzanne Wilkins	[redacted]	[redacted]
	[illegible] Cowing	[redacted]	[redacted]
	Delphed Diamond Sierra	[redacted]	[redacted]
	Jim & Sony MATHEWS	[redacted]	[redacted]
	ED Hoag	[redacted]	[redacted]
	LINDA & HARRY TRABACK	[redacted]	[redacted]
	DENNIS SCHLUMPF	[redacted]	

columns hidden for confidentiality

APPENDIX B

Air Quality Modeling Results

8/19/2008 1:29:27 PM

Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\weirichj\Desktop\Blackwood 05110111.01\Air Quality\bwc aq modeling.urb924

Project Name: Blackwood Creek

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 7/1/2009-10/15/2009 Active Days: 77	**7.35**	**73.78**	**32.16**	**0.02**	**10.07**	**3.30**	**13.38**	**2.11**	**3.04**	**5.15**	**7,858.67**
Fine Grading 07/01/2009-10/15/2009	7.35	73.78	32.16	0.02	10.07	3.30	13.38	2.11	3.04	5.15	7,858.67
Fine Grading Dust	0.00	0.00	0.00	0.00	10.00	0.00	10.00	2.09	0.00	2.09	0.00
Fine Grading Off Road Diesel	6.34	59.48	23.85	0.00	0.00	2.77	2.77	0.00	2.55	2.55	5,873.75
Fine Grading On Road Diesel	0.87	14.07	4.55	0.02	0.06	0.53	0.59	0.02	0.49	0.51	1,781.45
Fine Grading Worker Trips	0.15	0.23	3.77	0.00	0.01	0.01	0.02	0.00	0.00	0.01	203.46

Phase Assumptions

Phase: Fine Grading 7/1/2009 - 10/15/2009 - Default Fine Site Grading Description

Total Acres Disturbed: 8

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 442.49

Off-Road Equipment:

1 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 8 hours per day

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Generator Sets (549 hp) operating at a 0.74 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

8/19/2008 1:29:27 PM

2 Pumps (53 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

APPENDIX C

Biological Resources Reports

EDAW | AECOM

EDAW Inc
870 Emerald Bay Road Suite 400, South Lake Tahoe, CA 96150
T 530.543.5100 F 530.543.5150 www.edaw.com

November 28, 2007

Mr. Robert Odell
Senior Engineer
Northwest Hydraulic Consultants
3950 Industrial Boulevard, Suite 100c
West Sacramento, CA 95691

Subject: Results of a Reconnaissance-level Survey for Special-Status Wildlife Species on the Blackwood Creek Stream Restoration Project

Dear Mr. Odell:

This report summarizes the methods and results of a reconnaissance-level survey conducted for special-status wildlife species on the California Tahoe Conservancy (CTC) property along the lower reach of Blackwood Creek. This property is approximately 73 acres in size and located near the towns of Tahoe Pines and Idlewild in Placer County. This reach of Blackwood Creek is being evaluated for a potential stream restoration project. The purpose of this reconnaissance survey was to identify the potential for special-status wildlife species to occur on the project site and be affected by restoration activities. The study area included the entire CTC parcel, but primary focus was placed on the riparian corridor where initial restoration activities would occur (Exhibit 1). The methods and results of the survey are summarized below.

Methods

Special-status wildlife species are those that are legally protected or that are otherwise considered sensitive by federal, state, or local resource conservation agencies and organizations. In this analysis, these are wildlife species that are:

- listed, proposed, or candidates for listing as threatened or endangered under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA);
- designated by California Department of Fish and Game (DFG) as Species of Special Concern;
- fully protected under the California Fish and Game Code;
- designated as sensitive by the Regional Forester in Forest Service Region 5; and
- designated as special interest or threshold species by the Tahoe Regional Planning Agency (TRPA).

A target list of special-status wildlife species with potential to occur on the project site was compiled by performing a database search of DFG's *California Natural Diversity Database* (CNDDB 2007); and reviewing (1) a list of taxa designated by TRPA as special interest species (TRPA 2007); (2) U.S. Fish and Wildlife Service's (USFWS's) list of *Federally Endangered, Threatened, or Candidate Species That May Be Affected by Projects in the Lake Tahoe Basin* (USFWS 2007); and (3) the U.S. Forest Service–Lake Tahoe Basin Management Unit's (LTBMU's) list of sensitive species. Along with the CNDDB,

LTBMU and TRPA lists, survey data and GIS databases were searched for existing records of special-status wildlife in the project vicinity. Additional information regarding occurrences of special-status wildlife species in the area was obtained through consultation with U.S. Forest Service wildlife biologists (Lyon pers. comm.; Zanetti pers. comm.).

EDAW wildlife biologists conducted a reconnaissance-level field survey on July 24, 2007 to evaluate habitat suitability for special-status wildlife species on the project site. The biologists also searched for other sensitive biological resources (e.g., sensitive habitats, significant roost sites) that could constrain or benefit from project implementation and require consideration in the upcoming environmental analysis for the project. The entire study area was evaluated, but special emphasis was placed on the riparian corridor along Blackwood Creek where the first phase of restoration activities would be concentrated.

RESULTS

The initial data review preliminarily identified 27 special-status wildlife species that could occur in the project region. One of these species, California spotted owl (*Strix occidentalis occidentalis*), has been documented on the project site. Fourteen of the species evaluated are not expected to occur, or have a low potential to occur, on the project site. Twelve species have a moderate to high likelihood to occur on the project site and in the vicinity. This determination was based primarily on (1) the types, extent, and quality of habitats on the project site documented during the field survey; and (2) the proximity of the project area to known occurrences of the species and the regional distribution and abundance of the species. Table 1 summarizes the potential for or known occurrence of each special-status wildlife species evaluated during this analysis.

No special-status wildlife species were detected during the field survey; however, no focused or protocol-level surveys were conducted for any wildlife species in 2007. A list of all wildlife species observed during the survey is included in Table 2. Before project implementation, focused surveys for northern goshawk (*Accipiter gentilis*) and California spotted owl may be recommended.

Eagle Rock occurs on the project site, approximately 300-400 feet north of the stream channel. This feature is a large rock outcrop with several crevices and ledges. Eagle Rock provides suitable roosting habitat for bat species, and could provide a significant roost site. The potential for significant roost sites to occur requires consideration in the environmental analysis for the project. However, due to the distance from restoration activities that would occur along Blackwood Creek during the initial project phase, bat roosting habitat at Eagle Rock is not expected to be affected by those activities.

If you have any questions regarding this submittal or require additional information, please do not hesitate to call me at (530) 543-5109.

Sincerely,

Heather Zeigler
Wildlife Biologist

REFERENCES

Bull, E. L., A. L. Wright, and M. G. Henjum. 1989. Nesting and diet of Long-eared Owls in conifer forests, Oregon. Condor 91:908-912.

California Natural Diversity Database (CNDDB). 2007 [October]. Rarefind: A Database Application for the Use of the California Department of Fish and Game's Natural Diversity Database. California Natural Heritage Division, California Department of Fish and Game, Sacramento, CA.

Grinnell, J., and A. H. Miller. 1944. Distribution of the birds of California. Pacific Coast Avifauna, No. 27. Berkely, CA.

MacWhirter, R. B., and K. L. Bildstein. 1996. Northern Harrier (*Circus cyaneus*) in A. Poole and F. Gill (eds.), The Birds of North America. The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.

Marks, J. S., D. L. Evans, and D. W. Holt. 1994. Long-eared Owl (*Asio otus*). *In* The Birds of North America, No. 133 (A. Poole and F. Gill, Eds.). Philadelphia: The Academy of Natural Sciences; Washington, D.C.: The American Ornithologists' Union.

Martin, J. W. 1987. Behavior and habitat use of breeding Northern Harriers in southwestern Idaho. J. Raptor Res. 21:57-66.

USDA Forest Service, Pacific Southwest Research Station (PSW). 2005. Unpublished data from surveys conducted for the Effects of Off-Highway Vehicles on Vertebrate Biota study.

Riparian Habitat Joint Venture (RHJV). 2004. The riparian bird conservation plan: a strategy for reversing the decline of riparian associated bird s in California. Version 2.0. *California Partners in Flight*.

Schlesinger, M. D., and J. S. Romsos. 2000. Vertebrate species of the Lake Tahoe Basin. Pages G1-G15 in D. D. Murphy and C. M. Knopp, editors. Lake Tahoe Watershed Assessment: Volume II. Appendixes. USDA Forest Service General Technical Report PSW-GTR-176.

Siegel, R. B. and D. F. DeSante. 1999. Version 1.0. The draft avian conservation plan for the Sierra Nevada Bioregion: conservation priorities and strategies for safeguarding Sierra bird populations. Institute for Bird Populations report to California Partners in Flight.

Tahoe Regional Planning Agency (TRPA). 2004. TRPA Code of Ordinances. Available online at http://www.trpa.org/default.aspx?tabindex=2&tabid=172. Last updated December, 2004. September 6, 2007.

Tahoe Regional Planning Agency (TRPA). 2007. *2006 Threshold Evaluation*. Tahoe Regional Planning Agency, Stateline, NV. Available at: http://www.tiims.org/Content/BasinTopics/thresholds.asp

U.S. Fish and Wildlife Service (USFWS). 2007. Endangered and threatened species that may be affected by projects in the Lake Tahoe Basin. Updated August 16, 2007. Sacramento Fish and Wildlife Office. Sacramento, CA.

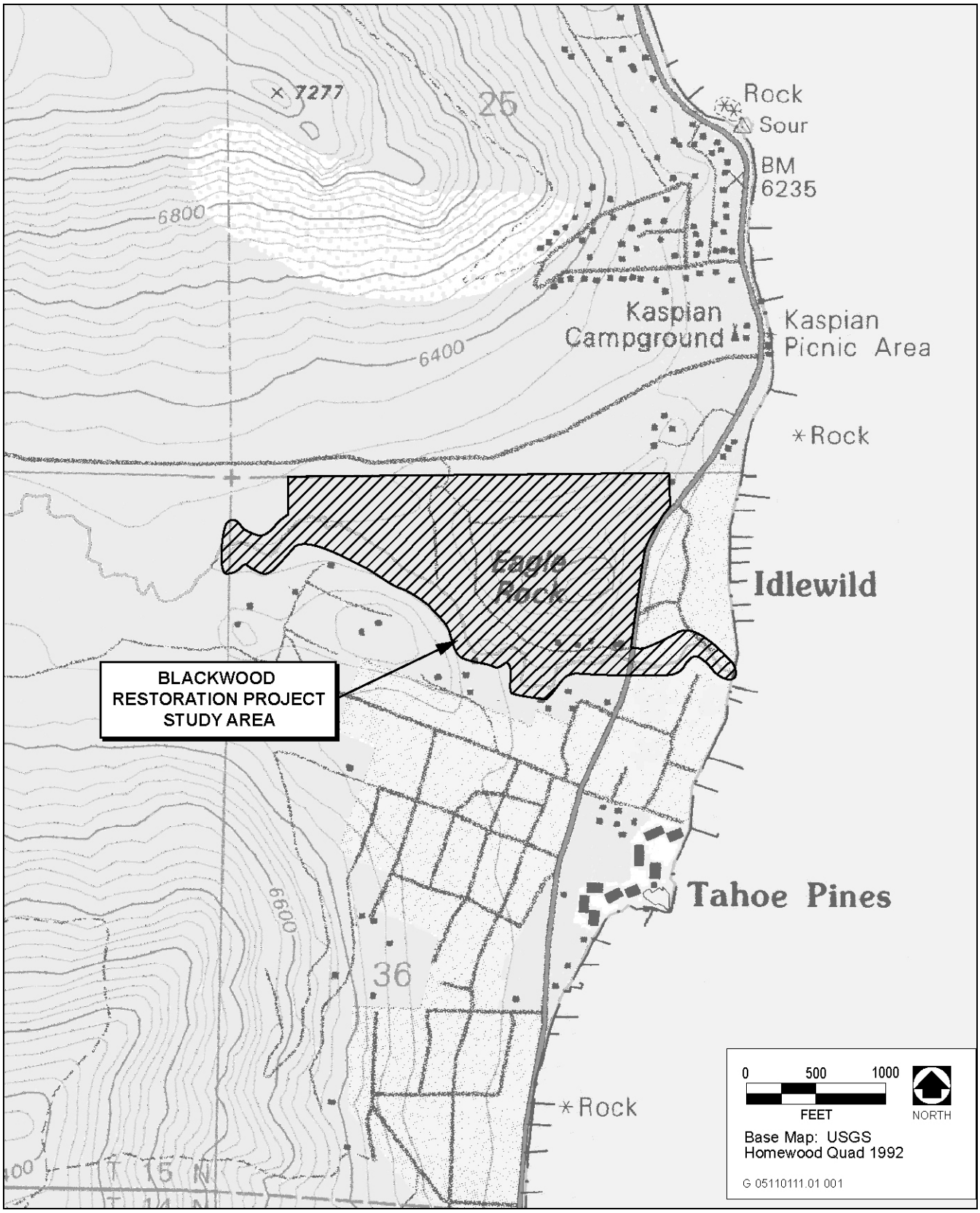
Zielinski, W. J., T. E. Kucera, and R. H. Ba. 1995. The current distribution of fisher, *Martes pennanti*, in California. California Fish and Game 81: 104-112.

PERSONAL COMMUNICATIONS

Julie Roth. Wildlife Biologist. U.S. Forest Service Lake Tahoe Basin Management Unit, South Lake Tahoe, CA. June, 2007—telephone conversation with Heather Zeigler of EDAW regarding results of bat surveys conducted in Blackwood Canyon between 2003 and 2006.

Shay Zanetti. Wildlife Biologist. U.S. Forest Service Lake Tahoe Basin Management Unit, South Lake Tahoe, CA. September, 2007—telephone conversation with Heather Zeigler of EDAW regarding habitat suitability for Sierra Nevada Mountain Beaver (*Aplodontia rufa californica*) in Blackwood Creek watershed.

Victor Lyon. Wildlife Biologist. U.S. Forest Service Lake Tahoe Basin Management Unit, South Lake Tahoe, CA. July and November, 2007—telephone conversation with Heather Zeigler of EDAW regarding special-status wildlife occurrences in and around the Blackwood Creek project area.



Source: Adapted by EDAW 2007

Project Study Area **Exhibit 1**

Table 1 Special-Status Wildlife Species Evaluated for the Blackwood Creek Restoration Project					
Common Name and *Scientific Name*	**Regulatory Status**			**Habitat Associations[1]**	**Potential for Occurrence[2]**
	Federal	**State**	**TRPA**		
Amphibians					
Yosemite toad *Bufo canarus*	FC	SC		Endemic California toad found in wet meadows between 4,000-12,000 feet in the Sierra Nevada from Alpine Co. south to Fresno Co.	**Not expected to occur**. The project site is outside the known range of this species.
Mountain yellow-legged frog *Rana muscosa*	FC, FSS	SC	P	Occurs in upper elevation lakes, ponds, bogs, and slow-moving alpine streams. Most Sierra Nevada populations are found between 6,000 and 12,000 feet elevation. Almost always found within one meter of water, and associated with montane riparian habitats in lodgepole pine, ponderosa pine, Jeffrey pine, sugar pine, white fir, whitebark pine, and wet meadow vegetation types. Alpine lakes inhabited by mountain yellow-legged frogs generally have grassy or muddy margin habitat, although below treeline sandy and rocky shores may be preferred. Suitable stream habitat can be highly variable, from high gradient streams with plunge pools and waterfalls, to low gradient sections through alpine meadows. Low gradient streams are preferred, since breeding and tadpole development cannot occur in streams with fast-moving water. Small streams are generally unoccupied and have no potential breeding locations due to the lack of depth for overwintering and refuge. While mountain yellow-legged frogs have been observed successfully breeding in shallow locations less than two meters deep, typically depth is an important factor for breeding locations since adults and larvae require overwintering habitat. For up to nine months, adults and larvae will live/hibernate below ice, or in non-frozen portions of ponds or lakes, so adequate depth (>2m) is necessary to avoid having the pond or lake freeze through.	**Not expected to occur.** Suitable habitat not present on the project site.

Table 1 Special-Status Wildlife Species Evaluated for the Blackwood Creek Restoration Project					
Common Name and *Scientific Name*	**Regulatory Status**			**Habitat Associations[1]**	**Potential for Occurrence[2]**
	Federal	**State**	**TRPA**		
Northern leopard frog *Rana pipiens*	FSS	SC		Usually occurs in permanent water with abundant aquatic vegetation. Associated with wet meadows, marshes, slow-moving streams, bogs, ponds, potholes, and reservoirs.	**Not expected to occur.** Suitable habitat not present on the project site.
Birds					
Bald eagle *Haliaeetus leucocephalus*		SE, FP	SI	Uses ocean shorelines, lake margins, and river courses for both nesting and wintering. Most nests are within 1 mile of water in large trees with open branches. Roosts communally in winter.	**Moderate**. Potential foraging habitat is present on the project site, especially at the stream mouth. Also, large trees that exist near the mouth may function as perch sites. Species does not nest on the site.
Osprey *Pandion haliaetus*		SC	SI	Associated strictly with large fish-bearing waters. Nest usually within 0.25 mile of fish-producing water, but may nest up to 1.5 mile from water. In the Tahoe basin, osprey nests are distributed primarily along the Lake Tahoe shoreline at the northern portion of the east shore and southern portion of the west shore. Other osprey nest sites in the Basin occur along the shorelines of smaller lakes (e.g., Fallen Leaf Lake), and in forest uplands up to 1.5 miles from lakes.	**Moderate.** Potential foraging habitat is present on the project site, especially at the stream mouth. Also, large trees that exist near the mouth may function as perch sites. Species does not nest on the site.
Northern goshawk *Accipiter gentilis*	FSS	SC	SI	In the Sierra Nevada, generally requires mature conifer forests with large trees, snags, downed logs, dense canopy cover, and open understories for nesting; aspen stands are also used for nesting. Foraging habitat includes forests with dense to moderately open overstories, and open understories interspersed with meadows, brush patches, riparian areas, or other natural or artificial openings. Goshawks reuse old nest structures and maintain alternate nest sites.	**High**. Potential foraging and nesting habitat exists on the project site along the stream corridor and in the upland areas, and the species has been documented within 800 feet of the project site as recently as 2002 (USFS data). However, disturbance levels in the area due to recreation and adjacent residential development may affect the potential of this species to use the project site for nesting. USFS has delineated a protected activity center (PAC) on its land adjacent to the project site.
Cooper's hawk *Accipiter cooperii*		SC		Nests in oak woodlands, other mixed evergreen forest, or coniferous forest. Forages in a variety of habitats-from open areas to dense forests.	**Moderate**. Potential nesting and foraging habitat exists throughout the project site. However, the level of disturbance on the project site may affect the potential for this species to use the site for nesting.

Table 1 Special-Status Wildlife Species Evaluated for the Blackwood Creek Restoration Project					
Common Name and *Scientific Name*	**Regulatory Status**			**Habitat Associations[1]**	**Potential for Occurrence[2]**
	Federal	**State**	**TRPA**		
Sharp-shinned hawk *Accipiter striatus*		SC		Nests in coniferous or mixed forests, usually selecting a conifer for the nest tree. Forages in a wide variety of coniferous, mixed, or deciduous woodlands.	**Moderate.** Potential nesting and foraging habitat exists within the upland areas on the project site. However, the level of disturbance on the project site may affect the potential for this species to use the site for nesting.
Northern harrier *Circus cyaneus*		SC		Found in a variety of open grassland, wetland, and agricultural habitats. Open wetland habitats used for breeding include marshy meadows, wet and lightly grazed pastures, and freshwater and brackish marshes. Breeding habitat also includes dry upland habitats, including grasslands, croplands, drained marshlands, and shrub-steppe in cold deserts. Winters throughout California where suitable habitat occurs. Wintering habitat includes open areas dominated by herbaceous vegetation, including grasslands, pastures, croplands, coastal sand dunes, brackish and freshwater marsh, and estuaries (Grinnel & Miller 1944, Martin 1987, and MacWhirter & Bildstein 1996).	**Not expected to occur.** No suitable habitat present on the project site.
Long-eared owl *Asio otus*		SC		Found in a variety of habitat types throughout its range. Nests in woodland, forest, and open (e.g., grassland, shrubsteppe, desert) settings. Occupies wooded and non-wooded areas that support relatively dense vegetation (trees, shrubs) adjacent to or within larger open areas such as grasslands or meadows (i.e., habitat edges) (Bloom 1994, Marks et al. 1994). This species has also been documented breeding in contiguous conifer forest habitat with heavy mistletoe infestation (Bull et al. 1989). Trees and shrubs used for nesting and roosting include oaks, willows, cottonwoods, conifers, and junipers (Marks et al. 1994).	**Moderate.** Suitable nesting and foraging habitat for this species may exist on the project site. This species is known to nest in different habitats throughout its range and preferred nesting habitat for long-eared owl in the Lake Tahoe Basin has not been well documented. However, the species has been documented in the region during the breeding season as recently as 2005 (PSW unpublished data).
California spotted owl *Strix occidentalis occidentalis*	FSS	SC	P	Occurs in several forest vegetation types, including mixed conifer, ponderosa pine, red	**Present.** Suitable nesting and foraging habitat is present on the project site, and

Table 1 Special-Status Wildlife Species Evaluated for the Blackwood Creek Restoration Project					
Common Name and *Scientific Name*	**Regulatory Status**			**Habitat Associations[1]**	**Potential for Occurrence[2]**
	Federal	**State**	**TRPA**		
				fir and montane hardwood. Nesting habitat is generally characterized by dense canopy closure (i.e., >70%) with medium to large trees and multi-storied stands (i.e., at least two canopy layers). Foraging habitat can include intermediate to late-successional forest with greater than 40% canopy cover.	the species was documented on the project site in 2004. However, the high levels of disturbance due to recreation and adjacent residential development may decrease the potential for the species to nest in the area. The USFS has delineated a protected activity center (PAC) and a home range core area (HCA) on its land to the north and west of the project site.
Great gray owl *Strix nebulosa*	FSS	SE		Found in Central Sierra mature mixed conifer forests near meadows. Scattered along the west slope of the Sierra between 4500-7500 ft from Plumas County to Yosemite National Park.	**Not expected to occur.** Suitable habitat not present on the project site. No confirmed occurrences in the Tahoe Basin.
Willow flycatcher *Empidonax traillii*	FSS	SE	P	In the Sierra Nevada, suitable habitat typically consists of montane meadows that support riparian deciduous shrubs (particularly willows) and remain wet through the nesting season (i.e., mid-summer). Important characteristics of suitable meadows include a high water table that results in standing or slow-moving water, or saturated soils (e.g., “swampy” conditions), during the breeding season; abundant riparian deciduous shrub cover (particularly willow); and riparian shrub structure with moderate to high foliar density that is uniform from the ground to the shrub canopy. Most breeding occurrences are in meadows larger than 19 acres, but average size of occupied meadows is approximately 80 acres. Although less common in the Sierra Nevada, riparian habitat along streams can also function as suitable habitat for willow flycatcher. However, those areas must support the hydrologic and vegetation characteristics described for suitable meadows (e.g., standing or slow-moving water, abundant and dense riparian vegetation).	**Not expected to occur.** Suitable nesting habitat.not present on the project site due to insufficient hydrology, geomorphology, and vegetation structure. Meadow upstream of project site could provide limited breeding habitat.

Table 1 Special-Status Wildlife Species Evaluated for the Blackwood Creek Restoration Project					
Common Name and *Scientific Name*	**Regulatory Status**			**Habitat Associations[1]**	**Potential for Occurrence[2]**
	Federal	**State**	**TRPA**		
Yellow warbler *Dendroica petechia*		SC	P	In the Sierra Nevada, yellow warblers typically breed in wet areas with dense riparian vegetation. Breeding habitats primarily include willow patches in montane meadows, and riparian scrub and woodland dominated by willow, cottonwood, aspen, or alder with dense understory cover. Localized breeding has been documented recently in more xeric sites, including chaparral, wild rose (*Rosa* spp.) thickets, and young conifer stands (Sisegel and DeSante 1999, RHJV 2004).	**Moderate.** Suitable breeding habitat is present on the project site, though it is patchy. However, additional larger patches of suitable habitat exist on the adjacent USFS land upstream of the project site. Restoration efforts on the project site that enhance and/or expand riparian vegetation will increase the potential for this species to occur on the project site.
Golden eagle *Aquila chrysaetos*			SI	Mountains and foothills throughout California. Nests on cliffs and escarpments or tall trees.	**Not expected to occur**. Suitable habitat not present on the project site.
Peregrine falcon *Falco peregrinus*	FSS	SE, FP	SI	Nests and roosts on protected ledges of high cliffs, usually adjacent to water bodies and wetlands that support abundant avian prey.	**Not expected to occur**. Suitable habitat not present on the project site.
Waterfowl species (collectively)			SI	Wetlands and waters such as lakes, creeks, drainages, marshes, and wet meadows.	**High.** Suitable foraging and resting habitat exists for several species of waterfowl at the stream mouth and in the backwater areas that remain at low stream flows. Also, waterfowl probably use the channel upstream of the mouth.
Mammals					
Pale Townsend's big-eared bat *Corynorhinus townsendii pallescens*	FSS	SC	SI	Ranges throughout California mostly in mesic habitats. Limited by available roost sites, such as caves, tunnels, mines, and buildings.	**Not expected to occur.** Suitable habitat not present on the project site. No occurrences haver been reported within the Lake Tahoe Basin (Schlesinger and Romsos 2000).
Western red bat *Lasiurus blossevillii*	FSS	SC		Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores).	**Moderate.** Suitable roosting and foraging habitat exists on the project site along the riparian corridor, and the species has been documented in the region. Restoration efforts to enhance and/or expand riparian habitat may increase the potential for this species to occur on the project site.
Hoary bat *Lasiurus cinereus*		SC		Diverse forest habitats with a mixture of forest and small open areas that provide	**High.** Suitable habitat is present and the species has been documented upstream

Table 1 Special-Status Wildlife Species Evaluated for the Blackwood Creek Restoration Project					
Common Name and *Scientific Name*	**Regulatory Status**			**Habitat Associations[1]**	**Potential for Occurrence[2]**
	Federal	**State**	**TRPA**		
				edges. Solitary and primarily roost in foliage of both coniferous and deciduous trees.	of the project site as recently as 2005 (Roth, pers.com)
California wolverine *Gulo gulo luteus*	FSS	ST, FP	P	Inhabits upper montane and alpine habitats of Sierra Nevada, Cascades, Klamath, and north Coast Ranges. Needs water source and denning sites. Rarely seen. Sensitive to human disturbance.	**Not expected to occur.** Suitable habitat not present on the project site. Very few documented occurrences in the region.
American marten *Martes americana*	FSS		P	Dense canopy conifer forest with large snags and downed logs. Prefers old growth stands with multiple age classes in vicinity.	**Moderate.** Suitable habitat exists on the project site. However, the high level of disturbance due to recreation and adjacent residential development may limit the potential for this species to occur.
Pacific fisher *Martes pennanti pacifica*	FC, FSS	SC	P	Inhabits stands of pine, Douglas fir, and true fir, in northwestern California and Cascade-Sierra ranges. Fishers are considered extirpated throughout much of the Central and Northern Sierra Nevada (Zielinski et al. 1995).	**Not expected to occur**. Species is considered extirpated from the Lake Tahoe Basin.
Sierra Nevada red fox *Vulpes vulpes necator*	FSS	ST		Inhabits upper montane and alpine habitats of Sierra Nevada, Cascades, Klamath, and north Coast Ranges. Needs water source and denning sites. Rarely seen. Sensitive to human disturbance.	**Not expected to occur.** Presumed extirpated from the Lake Tahoe Basin (Schlesinger and Romsos 2000).
Sierra Nevada mountain beaver *Aplodontia rufa californica*		SC	P	Sierra Nevada mountain beavers use riparian habitats with soft, deep soils for burrowing, lush growth of preferred food sources such as willow and alder, and a variety of herbaceous species for bedding material. Vegetation types include wet meadows and willow-alder dominated riparian corridors, typically near water sources. Suitable riparian habitats are typically characterized by dense growth of small deciduous trees and shrubs near permanent water. Mountain beavers are generally solitary except during their short breeding season, and spend a high proportion of their time in extensive underground burrow systems with multiple openings, tunnels, and food caches.	**Low**. In the Lake Tahoe Basin, this species tends to be associated with small streams with dense riparian vegetation structure (S. Zanetti pers.comm). Blackwood Creek is much larger than other watercourses on which this species has been found in the Lake Tahoe Basin, and the quality and quantity of riparian habitat along this stream reach is limited. Therefore, suitable habitat on the project site for this species is limited.

Table 1 Special-Status Wildlife Species Evaluated for the Blackwood Creek Restoration Project					
Common Name and *Scientific Name*	**Regulatory Status**			**Habitat Associations[1]**	**Potential for Occurrence[2]**
	Federal	**State**	**TRPA**		
Sierra Nevada snowshoe hare *Lupus americanus tahoensis*.		SC		In the Sierra Nevada, found only in boreal zones, typically inhabiting riparian communities with thickets of deciduous trees and shrubs such as willows and alders.	**Moderate.** Suitable habitat is present on the project site and the species has been documented in the region.
Mule deer *Odocoileus hemionus*			SI	Yearlong resident or elevational migrant, prefers a wide distribution of various-aged vegetation for cover, meadow and forest openings, and free water. In the Sierra Nevada, early to mid-successional forests, woodlands, and riparian and brush habitats are preferred due to the greater diversity of shrubby vegetation and woody cover. In addition to forage, vegetative cover is critical for thermoregulation. Suitable habitat includes a mosaic of vegetation including forest or meadow openings, dense woody thickets and brush, edge habitat, and riparian areas. Fawning habitat, used by does during birth and by newborn fawns is of critical importance for reproductive success. A diversity of thermal cover, hiding cover, succulent forage, and water are needed during fawning. Optimal deer fawning habitat has been described as having moderate to dense shrub cover near forest cover and water, such as riparian zones. A source of surface water (e.g., creek or river) is especially important to mule deer. Typical fawning habitat varies in size, but an area of 5-26 acres is adequate, with optimal fawn-rearing habitat of around 400 acres.	**Low.** Some suitable habitat is present on the project site. However, the level of disturbance due to recreation, adjacent residential development constricting the riparian corridor, and the presence Highway 89 may deter the species from migrating this far down in the watershed.

[1] **Regulatory Status Definitions**

Federal- U.S. Fish and Wildlife Service (USFWS):

FC = Candidate for listing under the federal Endangered Species Act

FSS= USDA Region 5 Sensitive Species (FSM 2672)

State- California Department of Fish and Game (DFG):

ST = Threatened

SE = Endangered

Table 1
Special-Status Wildlife Species Evaluated for the Blackwood Creek Restoration Project

Common Name and *Scientific Name*	Regulatory Status			Habitat Associations[1]	Potential for Occurrence[2]
	Federal	State	TRPA		

FP = Fully Protected
SC = Species of special concern

TRPA
SI = Special interest/threshold species
P = Proposed to be added as a special interest/threshold species

[2]**Potential for Occurrence Definitions**
Present – Species was observed on the site during site visits or was documented on the site by another reputable source.
High – All of the species' specific life history requirements can be met by habitat present on the site, and populations are known to occur in the immediate vicinity.
Moderate – Some or all of the species life history requirements are provided by habitat on the site; populations may not be known to occur in the immediate vicinity, but are known to occur in the region.
Low – Species not likely to occur due to marginal habitat quality or distance from known occurrences.
Not expected to occur – None of the species' life history requirements are provided by habitat on the site and/ or the site is outside of the known distribution for the species. Any occurrence would be very unlikely.

Table 2 Wildlife Species Observed on the Blackwood Creek Stream Restoration Project Site	
Common Name	**Scientific Name**
Birds	
Western-wood pewee	*Contopus sordidulus*
Olive-sided flycatcher	*Contopus cooperi*
Warbling vireo	*Vireo gilvus*
Steller's jay	*Cyanocitta stelleri*
Band-tailed pigeon	*Columba fasciata*
Dark-eyed junco	*Junco hyemalis*
American robin	*Turdus migratorius*
Western tanager	*Piranga ludoviciana*
Barn swallow	*Hirundo rustica*
Red-breasted sapsucker	*Sphyrapicus thyroideus*
Northern flicker	*Colaptes auratus*
Hairy woodpecker	*Picoides villosus*
Evening grosbeak	*Coccothraustes vespertinus*
Spotted sandpiper	*Actitis macularia*
Brewer's blackbird	*Euphagus cyanocephalus*
Mountain chickadee	*Poecile gambeli*
Song sparrow	*Melospiza melodia*
Golden-crowned kinglet	*Regulus satrapa*
White-throated swift	*Aeronautes saxatalis*
Belted kingfisher	*Ceryle alcyon*
Mammals	
Douglas' squirrel	*Tamius douglasii*
Chipmunk species	*Neotamius* spp.
Raccoon	*Procyon lotor*
Canid species [e.g., coyote or domestic dog]	*Canid* spp.
Beaver	*Castor canadensis*
Reptiles	
Western terrestrial garter snake	*Thamnophis elegans*
Alligator lizard	*Gerrhonotus multicarinatus*

EDAW | AECOM

EDAW Inc
2022 J Street, Sacramento, California 95811
T 916.414.5800 F 916.414.5850 www.edaw.com

October 3, 2007

Mr. Robert Odell
Senior Engineer
Northwest Hydraulic Consultants
3950 Industrial Boulevard, Suite 100c
West Sacramento, CA 95691

Subject: Results of a Special-Status Plant Survey for the Blackwood Creek Stream Restoration Project

Dear Mr. Odell:

This letter report provides the methods and results of a special-status plant survey on the California Tahoe Conservancy (CTC) property along the lower reach of Blackwood Creek near the towns of Tahoe Pines and Idlewild in Placer County. This stretch of Blackwood Creek is being evaluated for a potential stream restoration project. The purpose of this special-status plant survey was to identify occurrences of any special-status plant or lichen species that may occur in the project area and potentially be disturbed as a result of the proposed restoration activities. The study area included the entire 73 acre (approximate) CTC parcel with special emphasis given to the riparian corridor where initial restoration activities would take place (Exhibit 1).The methods and results of the survey are discussed in detail below.

METHODS

Pre-field Investigation

Before conducting the field survey, EDAW botanists conducted database searches and researched other existing environmental documentation to compile a target list of special-status plant species that have potential to occur in the study area. Special-status plants are defined as plants that are legally protected or that are otherwise considered sensitive by federal, state or local resource conservation agencies and organizations. Special-status plant taxa are species, subspecies or varieties that fall into one or more of the following categories:

- officially listed by the state of California or the federal government as Endangered, Threatened or Rare;
- a candidate for state or federal listing as Endangered, Threatened or Rare;
- taxa which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act (CEQA) Guidelines;
- designated as a sensitive, special interest, or threshold species by TRPA;
- designated as sensitive by the USFS Regional Forester in Region 5; and
- taxa considered by the CNPS to be “rare, threatened or endangered in California” (Lists 1B and 2).

The CNPS Inventory includes five lists for categorizing plant species of concern, which are summarized below. The plants listed on CNPS lists 1A, 1B, and 2 meet the definitions of Section 1901, Chapter 10 of the Native Plant Protection Act (NPPA) or Sections 2062 and 2067 (California Endangered Species Act [CESA]) of the California Department of Fish and Game Code and may quality for state listing. Therefore, they are considered rare plants pursuant to Section 15380 of CEQA. DFG recommends and local government agencies may require that they be fully considered during preparation of environmental documents pursuant to CEQA. Some of the plants constituting CNPS Lists 3 and 4 meet the definitions of Section 1901, Chapter 10 or Sections 2062 and 2067 of the DFG Code and are eligible for state listing, and many are also listed as sensitive species by the USFS. The CNPS lists are categorized as follows:

- List 1A - Plants presumed extinct in California;
- List 1B - Plants rare, threatened, or endangered in California and elsewhere;
- List 2 - Plants rare, threatened, or endangered in California but more common elsewhere;
- List 3 - Plants about which we need more information - a review list
- List 4 - Plants of limited distribution - a watch list

The primary sources of information in generating the target list of special-status plant species included the California Native Plant Society (CNPS) *Electronic Inventory of Rare and Endangered Vascular Plants* (CNPS 2007), the California Department of Fish and Game (DFG) California Natural Diversity Database (CNDDB 2007), the TRPA threshold list of sensitive species, and the U.S. Forest Service, Lake Tahoe Basin Management Unit's (LTBMU) list of sensitive species. The Homewood, Meeks Bay, Emerald Bay, King's Beach, Tahoe City, and Rockbound Valley U.S. Geological Survey (USGS) 7.5-minute quadrangles were included in the CNPS and CNDDB database searches. In addition to these sources, information was obtained from consultation with a US Forest Service botanist (Gross pers. comm.).

Table 1 contains information on all special-status plant species known from the vicinity or with potential to occur in the study area. Based on review of existing documentation, habitat types present, and the elevation of the study area, twenty-two of these special-status plant species have potential to occur. The other twenty-four species identified in Table 1 are unlikely to occur because suitable habitat for these species is not present in the study area. In preparation for the field surveys, a survey package including photographs or line drawings of each of the targeted special-status plant species was prepared to familiarize the field botanist conducting the surveys with the characteristics of these species.

Field Surveys

EDAW botanist, Mark Bibbo, scheduled surveys to coincide with the blooming periods of the target plant species. Field surveys of the study area were conducted on July 22 and 23, 2007, for a total of 12 person-hours. Surveys were conducted by walking meandering transects throughout the entire study area with special emphasis given to the riparian corridor along Blackwood Creek where the first phase of restoration activities would be concentrated. The protocol for the special-status plant surveys followed DFG's "*Guidelines for Assessing the Effects of Proposed Development on Rare, Threatened, and Endangered Plants and Plant Communities"* (DFG 2000) and U.S. Fish and Wildlife Service's (USFWS) *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants* (USFWS 2000), which involve using systematic field techniques in all habitats in the study area to ensure thorough coverage of potential impact areas. All plants encountered during the surveys were identified to the highest taxonomic level necessary for a rare plant determination. Nomenclature used follows the Jepson Manual Higher Plants of California (Hickman 1993).

RESULTS

Vegetation in the Blackwood Creek Stream Restoration Project study area is characterized by white fir forest on most of the upland sites and riparian shrub and cottonwood trees in linear stands along Blackwood creek. Small stands of Aspen occur around an herbaceous montane meadow in the western portion of the Conservancy property north of Blackwood Creek.

No special-status plant species were encountered during the focused surveys. A comprehensive list of all plant species observed during the survey is included in Table 2. The surveys were conducted during the appropriate time of year to identify the target species. Therefore, EDAW concludes that no special-status plant species are present in the study area at the present time, and no impacts are expected to occur as a result of project implementation. No additional mitigation for rare plants is required at this time.

If you have any questions regarding the methods and results of this special-status plant survey or require additional information, please do not hesitate to call me at (916) 414-5800.

Sincerely,

Mark Bibbo
Botanist
cc: 05110111.01 / Chron / John Zanzi
P:\2005\05110111.01 NHC Blackwood Creek Restoration\Document\Botany\Rare Plant Survey\SS Survey Letter report.doc

REFERENCES

California Department of Fish and Game (DFG). 2000. *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities*. (Revision of 1983 Guidelines) Sacramento, CA.

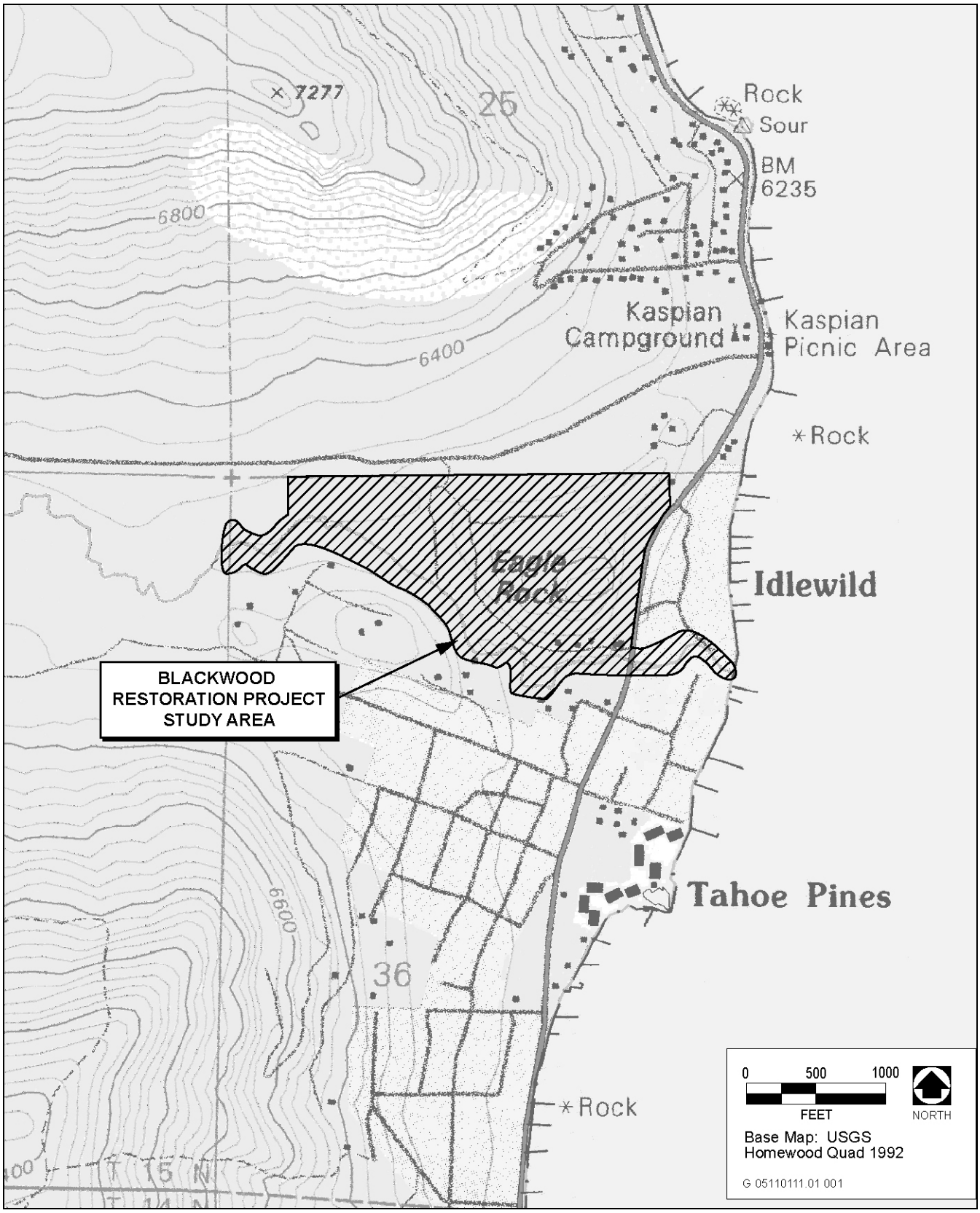
California Natural Diversity Database (CNDDB). 2007 [March]. Rarefind: A Database Application for the Use of the California Department of Fish and Game's Natural Diversity Database. California Natural Heritage Division, California Department of Fish and Game, Sacramento, CA.

California Native Plant Society. 2007. Electronic Inventory of Rare and Endangered Vascular Plants of California. Available: http://northcoast.com/~cnps/cgi-bin/cnps/sensinv.cgi. Last updated June 01, 2007. Accessed June 13, 2007.

U.S. Fish and Wildlife Service. 2000. *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants*. Sacramento, CA.

PERSONAL COMMUNICATIONS

Gross, Shana. Rare plant coordinator. U.S. Forest Service Lake Tahoe Basin Management Unit, South Lake Tahoe, CA. July 11, 2007—telephone conversation with Mark Bibbo of EDAW regarding surveying for potential sensitive species in the Blackwood Creek study area.



Source: Adapted by EDAW 2007

Project Study Area **Exhibit 1**

Table 1
Potential for Special-Status Plant and Lichen Species to Occur in the Blackwood Creek Stream Restoration Project Study Area

Scientific and Common Name	Listing Status[1]			Habitat and Flowering Period	Potential for Occurrence
	Federal	State	Local/CNPS		
Arabis rectissima var. *simulans* Washoe tall rockcress	I			Dry, sandy granitic or andesitic soils on gentle slopes within open mature Jeffery pine dominated forests, often on recovering lightly disturbed soils; 6,033 to 7,349 ft. Blooming period: May-July	***Unlikely to occur***. Suitable habitat on the site is highly disturbed.
Arabis rigidissima var. *demota* Galena Creek rockcress	S		TRPA/1B	Fir- pine-quaking aspen associations, meadow edges, usually on north-facing slopes and rocky outcrops; 7,021–10,019 ft. Blooms August.	***Unlikely to occur*.** Potential habitat in the study area is highly disturbed. Closest occurrences are along the north shore of Lake Tahoe.
Arabis tiehmii Tiehm's rock cress	S		1B	Granitic alpine boulder and rock fields; 9,744 to 11,778 ft. Blooming period: July-August	***Unlikely to occur*.** Typically found at higher elevations than the study area.
Botrychium ascendens Upswept moonwort	S		2	Grows in mesic lower montane coniferous forest; 4,921 to 7,496 ft. Blooming period: July-August	***Could occur***. Suitable mesic habitat occurs in the study area.
Botrychium crenulatum Scalloped moonwort	S		2	Freshwater marshes and swamps, meadows and seeps, bogs and fens, and lower montane coniferous forest; 4,921 to 10,761 ft. Blooming period: June-September	***Could occur***. Suitable mesic habitat occurs in the study area.
Botrychium lineare Slender moonwort	S		1B	Often disturbed upper montane coniferous forest; 8,530 ft. Blooming period: unknown	***Unlikely to occur*.** Typically found at higher elevations than the study area.
Botrychium lunaria Common moonwort	S		2	Upper montane coniferous forest, subalpine coniferous forest, and meadows and seeps; 7,480 to 11,154 ft. Blooming period: August	***Unlikely to occur*.** Typically found at higher elevations than the study area.
Botrychium minganense Mingan moonwort	S		2	Lower and mesic upper montane coniferous forest and bogs and fens; 4,921 to 6,742 ft. Blooming period: July-September	***Could occur***. Suitable mesic habitat occurs in the study area.
Botrychium montanum Western goblin	S		2	Lower and mesic upper montane coniferous forest; 4,921 to 6,988 ft. Blooming period: July-September	***Could occur***. Suitable mesic habitat occurs in the study area.
Carex limosa Shore sedge			2	Grows in upper and lower montane coniferous forest, meadows and seeps, and bogs and fens; 3,937 to 8,858 ft. Blooming period: June-August	***Could occur***. Suitable mesic habitat occurs in the study area.

Table 1
Potential for Special-Status Plant and Lichen Species to Occur in the Blackwood Creek Stream Restoration Project Study Area

Scientific and Common Name	Listing Status[1]			Habitat and Flowering Period	Potential for Occurrence
	Federal	State	Local/CNPS		
Carex mariposana Mariposa sedge (name changed from *C. paucifructus*)			TRPA	Red fir and subalpine coniferous fores, montane meadows; 3,960 to 10,560 ft. Blooming period unknown.	***Unlikely to occur*.** Where it occurs in the Tahoe Basin it is typically found at higher elevations than the study area.
Chaenactis douglasii var. *alpine* Alpine dusty maidens			2	Granitic alpine boulder and rock fields; 9,842 to 11,154 ft. Blooming period: July-September	***Unlikely to occur*.** Typically found at higher elevations than the study area.
Cryptantha crymophila Subalpine cryptantha			1B	Volcanic and rocky subalpine coniferous forest; 8,530 to 10,498 ft. Blooming period: July-August	***Unlikely to occur*.** Typically found at higher elevations than the study area.
Draba asterophora var. *asterophora* Tahoe draba	S		TRPA/1B	Grows in subalpine coniferous forest and alpine boulder and rock fields; 8,250 to 11,499 ft. Blooming period: July-August(September)	***Unlikely to occur*.** Typically found at higher elevations than the study area.
Draba asterophora var. *macrocarpa* Cup Lake draba	S		TRPA/1B	Grows in rocky subalpine coniferous forest; 8,202 to 9,235 ft. Blooming period: July-August	***Unlikely to occur*.** Typically found at higher elevations than the study area.
Epilobium howellii Subalpine fireweed	S		1B	Mesic subalpine coniferous forest and meadows and seeps; 6,561 to 8,858 ft. Blooming period: July-August	***Could occur*.** Suitable mesic habitat occurs in the study area.
Epilobium oreganum Oregon fireweed			1B	Mesic upper and lower montane coniferous forest and bogs and fens; 1,640 to 7,349 ft. Blooming period: June-September	***Could occur*.** Suitable mesic habitat occurs in the study area.
Epilobium palustre Marsh willowherb			2	Meadows and seeps and bogs and fens; 7,217 ft. Blooming period: July-August	***Could occur*.** Suitable mesic habitat occurs in the study area.
Erigeron miser Starved daisy	S		1B	Rocky upper montane coniferous forest; 6,036 to 8,595 ft. Blooming period: June-October	***Unlikely to occur***. Potential habitat on the site is highly disturbed and species is typically found at higher elevations in the Tahoe Basin
Eriogonum umbellatum var. *torreyanum* Donner Pass buckwheat	S		1B	Volcanic, rocky upper montane coniferous forest and meadows and seeps; 6,085 to 8,595 ft. Blooming period: July-September	***Unlikely to occur***. Minimal suitable habitat in the study area.

Table 1
Potential for Special-Status Plant and Lichen Species to Occur in the Blackwood Creek Stream Restoration Project Study Area

Scientific and Common Name	Listing Status[1]			Habitat and Flowering Period	Potential for Occurrence
	Federal	State	Local/CNPS		
Glyceria grandis American mannagrass			2	Bogs and fens, meadows and seeps, and streambanks and lake margins of marshes and swamps; 49 to 6,496 ft. Blooming period: June-August	***Could occur.*** Suitable mesic habitat occurs in the study area.
Hulsea brevifolia Short-leaved hulsea	S		1B	Granitic or volcanic, gravelly or sandy upper montane coniferous forest and lower montane coniferous forest; 4,921 to 10,498 ft. Blooming period: May-August	***Unlikely to occur***. Potential habitat on the site is highly disturbed.
Lewisia kelloggii ssp. *hutchisonii* Hutchison's lewisia	S		3	Openings and slate in upper montane coniferous forest; 4,799 to 7,004 ft. Blooming period: (June)July-August	***Unlikely to occur***. Potential habitat on the site is highly disturbed.
Lewisia kelloggii ssp. *kelloggii* Kellogg's lewisia	S			Sandy or gravelly, usually granitic or volcanic substrates; 4,265 to 7,874 ft. Blooming period:	***Unlikely to occur***. Potential habitat on the site is highly disturbed.
Lewisia longipetala Long-petaled lewisia	S		TRPA/1B	Grows in granitic subalpine coniferous forest and alpine boulder and rock fields; 8,202 to 9,596 ft. Blooming period: July-August	***Unlikely to occur.*** Typically found at higher elevations than the study area.
Polystichum lonchitis Holly fern			3	Grows in granitic or carbonate upper montane coniferous forest and subalpine coniferous forest; 5,905 to 8,530 ft. Blooming period: June-September	***Could occur.*** Suitable habitat occurs in the study area.
Potamogeton filiformis Slender-leaved pondweed			2	Grows in assorted shallow freshwater marshes and swamps; 984 to 7,053 ft. Blooming period: May-July	***Could occur.*** Suitable mesic habitat occurs in the study area.
Rorippa subumbellata Tahoe yellow cress	C/S	E	TRPA/1B	Grows in decomposed granitic beaches of meadows and seeps and in lower montane coniferous forests; 6,217 to 6,233 ft. Blooming period: May-September	***Unlikely to occur.*** A population is known to occur on a beach just north of the project area, but no suitable dune habitat is present in the study area.
Scirpus subterminalis Water bulrush			2	Grows in montane lake margins of marshes and swamps and in bogs and fens; 2,460 to 7,381 ft. Blooming period: July- August	***Unlikely to occur.*** Suitable lake margin habitat is not present within the study area.
Scutellaria galericulata Marsh skullcap			2	Lower montane coniferous forest, meadows and seeps, and marshes and swamps; 0 to 6,889 ft. Blooming period: June-September	***Could occur.*** Suitable mesic habitat occurs in the study area.

Table 1 Potential for Special-Status Plant and Lichen Species to Occur in the Blackwood Creek Stream Restoration Project Study Area					
Scientific and Common Name	Listing Status[1]			Habitat and Flowering Period	Potential for Occurrence
	Federal	State	Local/CNPS		
Utricularia ochroleuca Cream-flowered bladderwort			2	Lake margins of marshes and swamps and mesic meadows and seeps; 4,708 to 4,724 ft. Blooming period: June-July	***Could occur.*** Suitable mesic habitat occurs in the study area.
Moss					
Bruchia bolanderi Bolander's candle moss	S		2	Damp soil in upper montane coniferous forest, meadows and seeps, and lower montane coniferous forest; 5,577 to 9,186 ft.	***Could occur.*** Suitable habitat occurs in the study area.
Helodium blandowii Blandow's bog moss	S		2	Meadows and seeps and damp soil in subalpine coniferous forests; 6,108 to 8,858 ft.	***Could occur.*** Suitable habitat occurs in the study area.
Meesia longiseta Long-stalked hump-moss	I			Usually in fens, but sometimes along freshwater streams at high elevations.	***Could occur.*** Suitable mesic habitat occurs in the study area.
Meesia triquetra Three-ranked hump-moss	S		4	Grows in mesic and soil upper montane coniferous forest, subalpine coniferous forest, meadows and seeps, and bogs and fens; 4,265 to 9,688 ft.	***Could occur.*** Suitable mesic habitat occurs in the study area.
Meesia uliginosa Broad-nerved hump-moss	S		2	Grows in damp soil of upper montane coniferous forest, subalpine coniferous forest, meadows and seeps, and bogs and fens; 4,265 to 9,199 ft.	***Could occur.*** Suitable mesic habitat occurs in the study area.
Myurella julacea Myurella moss	I		2	Alpine boulder and rock fields and damp rock and soil of subalpine coniferous forest; 8,858 to 9,842 ft.	***Unlikely to occur***. Typically found at higher elevations than the study area.
Orthotrichum praemorsum Orthotrichum moss	I			Shaded, moist habitats of Eastern Sierra Nevada rock outcrops; up to 8,202 ft.	***Unlikely to occur***. Typically found at higher elevations than the study area.
Orthotrichum shevockii Shevock's moss	I		1B	Lower montane coniferous forest, pinyon and juniper woodland, subalpine coniferous forest, and granitic and rock of upper montane coniferous forest; 6,889 to 7,874 ft.	***Unlikely to occur***. Typically found at higher elevations than the study area.
Orthotrichum spjuttii Spjut's bristlemoss	I		1B	Lower montane coniferous forest, pinyon and juniper woodland, subalpine coniferous forest, and granitic and rock of upper montane coniferous forest; 6,889 to 7,874 ft..	***Unlikely to occur***. Typically found at higher elevations than the study area.
Pohlia tundrae Tundrae pohlia moss	I		2	Gravelly, damp soil of alpine boulder and rock fields; 8,858 to 9,842 ft.	***Unlikely to occur***. Precise microhabitat requirments are unknown (Gross pers. comm.) Suitable habitat unlikely.
Sphagnum spp. Sphagnum mosses	I			Usually in fens and bogs; sometimes very wet, nonacidic habitats that remain saturated.	***Could occur.*** Suitable mesic habitat occurs in the study area.

Table 1
Potential for Special-Status Plant and Lichen Species to Occur in the Blackwood Creek Stream Restoration Project Study Area

Scientific and Common Name	Listing Status[1]			Habitat and Flowering Period	Potential for Occurrence
	Federal	State	Local/CNPS		
Lichen					
Veined water lichen *Peltigera hydrothyria*	S			Lower to mid-montane elevations in small, fresh water, perennial streams with little fluctuation in water level and scouring.	***Could occur***; suitable habitat occurs in the study area.
Fungi					
Branched collybia *Dendrocollybia racemosa*	S			Older mixed coniferous forest.	***Could occur***; suitable habitat present in the study area.

[1]Legal Status Definitions

U.S. Fish and Wildlife Service (USFWS):

T	Federal Threatened
E	Federal Endangered
C	Candidate

California Department of Fish and Game (DFG):

R	Rare
T	Threatened
E	Endangered

California Native Plant Society (CNPS) Listing Categories:

1B	Plants rare, threatened, or endangered in California and elsewhere
2	Plants rare, threatened, or endangered in California but more common elsewhere
3	Plants for which more information is needed – a review list
4	Plants of limited distribution – a watch list

Lake Tahoe Basin Management Unit

S	Sensitive Species
I	Species of Interest

Table 2 **Plant Species Observed in the in the Blackwood Creek Stream Restoration Project Study Area**		
Scientific name	Common Name	Family
Heracleum lanatum	cow parsnip	Apiaceae
Ligusticum grayi	Gray's licorice-root	Apiaceae
Osmorhiza brachypoda	California sweet-cicely	Apiaceae
Osmorhiza chilensis	mountain sweet-cicely	Apiaceae
Perideridia lemmonii	Lemmon's yampah	Apiaceae
Sphenosciadium capitellatum	ranger’s buttons	Apiaceae
Achillea millefolium	common yarrow	Asteraceae
Artemisia douglasiana	Douglas' sagewort	Asteraceae
Artemisia tridentata	big sagebrush	Asteraceae
Aster occidentalis	western mountain aster	Asteraceae
Chrysothamnus nauseous	rabbitbrush	Asteraceae
Cirsium andersonii	rose thistle	Asteraceae
Cirsium vulgare	bull thistle	Asteraceae
Erigeron breweri	Brewer's fleabane	Asteraceae
Madia elegans.	common madia	Asteraceae
Madia exigua	small tarweed	Asteraceae
Madia glomerata	mountain tarweed	Asteraceae
Senecio integerrimus	lambstongue ragwort	Asteraceae
Solidago californica	California goldenrod	Asteraceae
Hackelia nervosa	Sierra stickseed	Boraginaceae
Cardamine oligosperma	Idaho bittercress	Brassicaceae
Lonicera conjugialis	purpleflower honeysuckle	Caprifoliaceae
Symphoricarpos albus var. *laevigatus*	common snowberry	Caprifoliaceae
Symphoricarpos mollis	creeping snowberry	Caprifoliaceae
Hypericum perforatum	common St. Johnswort	Clusiaceae
Carex aquatilis	water sedge	Cyperaceae
Carex canescens	silvery sedge	Cyperaceae
Carex douglasii	Douglas' sedge	Cyperaceae
Carex fracta	fragile sheath sedge	Cyperaceae
Carex lanuginosa	woolly sedge	Cyperaceae
Carex lenticularis	lakeshore sedge	Cyperaceae
Carex nebrascensis	Nebraska sedge	Cyperaceae
Carex subfusca	brown sedge	Cyperaceae
Carex utriculata	beaked sedge	Cyperaceae
Scirpus microcarpus	panicled bulrush	Cyperaceae
Pteridium aquilinum	brackenfern	Dennstaedtiaceae
Equisetum arvense	field horsetail	Equisetaceae
Arctostaphylos patula	greenleaf manzanita	Ericaceae
Lotus nevadensis	Nevada bird's-foot trefoil	Fabaceae
Lotus purshianus	Spanish lotus	Fabaceae
Lupinus fulcratus	green stipule lupine	Fabaceae
Lupinus lepidus ssp. *confertus*	clustered tidy lupine	Fabaceae
Lupinus polyphyllus	bigleaf lupine	Fabaceae
Trifolium cyathiferum	cup clover	Fabaceae
Trifolium kingii var. *productum*	King’s clover	Fabaceae

Table 2 Plant Species Observed in the in the Blackwood Creek Stream Restoration Project Study Area		
Scientific name	Common Name	Family
Trifolium longipes	longstalk clover	Fabaceae
Trifolium pratense	red clover	Fabaceae
Trifolium subterraneum	subterranean clover	Fabaceae
Quercus vacciniifolia	huckleberry oak	Fagaceae
Ribes cereum	wax currant	Grossulariaceae
Ribes inerme	whitestem gooseberry	Grossulariaceae
Ribes nevadense	Sierra currant	Grossulariaceae
Ribes roezlii	Sierra gooseberry	Grossulariaceae
Phacelia hastata	silverleaf phacelia	Hydrophyllaceae
Phacelia mutabilis	changeable phacelia	Hydrophyllaceae
Juncus balticus	Baltic rush	Juncaceae
Juncus effusus	common rush	Juncaceae
Juncus nevadensis	Sierra rush	Juncaceae
Juncus orthophyllus	straightleaf rush	Juncaceae
Monardella odoratissima	mountain monardella	Lamiaceae
Prunella vulgaris	common selfheal	Lamiaceae
Stachys ajugoides	bugle hedgenettle	Lamiaceae
Smilacina racemosa	fat Solomon's seal	Liliaceae
Veratrum californicum	California false hellebore	Liliaceae
Sidalcea sp.	checkerbloom	Malvaceae
Sidalcea oregana ssp. *spicata*	Oregon checkerbloom	Malvaceae
Pterospora andromedea	woodland pinedrops	Monotropaceae
Epilobium angustifolium ssp. *circumvagum*	fireweed	Onagraceae
Epilobium ciliatum ssp. *ciliatum*	fringed willowherb	Onagraceae
Gayophytum heterozygum	groundsmoke	Onagraceae
Oenothera elata var. hookeri	evening primrose	Onagraceae
Platanthera leucostachys	Sierra bog orchid	Orchidaceae
Paeonia californica	California peony	Paeoniaceae
Achnatherum lettermanii	Letterman's needlegrass	Poaceae
Agrostis exarata	spike bentgrass	Poaceae
Agrostis scabra	ticklegrass	Poaceae
Agrostis stolonifera	creeping bent	Poaceae
Bromus carinatus	California brome	Poaceae
Bromus ciliatus	fringed brome	Poaceae
Bromus inermis	smooth brome	Poaceae
Bromus orcuttianus	Orcutt's brome	Poaceae
Bromus tectorum	cheatgrass	Poaceae
Calamagrostis canadensis	bluejoint reedgrass	Poaceae
Dactylis glomerata	orchardgrass	Poaceae
Danthonia californica	California oatgrass	Poaceae
Deschampsia caespitosa	tufted hairgrass	Poaceae
Elymus elymoides	squirreltail	Poaceae
Elymus glaucus	blue wildrye	Poaceae

Table 2 **Plant Species Observed in the in the Blackwood Creek Stream Restoration Project Study Area**		
Scientific name	Common Name	Family
Glyceria elata	fowl mannagrass	Poaceae
Hordeum brachyantherum	meadow barley	Poaceae
Phleum pratense	timothy	Poaceae
Poa compressa	Canada bluegrass	Poaceae
Poa palustris	fowl bluegrass	Poaceae
Poa pratensis	Kentucky bluegrass	Poaceae
Vulpia octoflora	sixweeks fescue	Poaceae
Collomia grandiflora	grand collomia	Polemoniaceae
Phlox gracilis	slender phlox	Polemoniaceae
Polemonium occidentale	western polemonium	Polemoniaceae
Eriogonum nudum	naked buckwheat	Polygonaceae
Eriogonum umbellatum	sulphur-flower buckwheat	Polygonaceae
Rumex acetosella	common sheep sorrel	Polygonaceae
Rumex salicifolius	willow dock	Polygonaceae
Aconitum columbianum	Columbian monkshood	Ranunculaceae
Aquilegia formosa	Sitka columbine	Ranunculaceae
Thalictrum fendleri	Fendler's meadow-rue	Ranunculaceae
Ceanothus cordulatus	whitethorn ceanothus	Rhamnaceae
Ceanothus prostratus	squawcarpet	Rhamnaceae
Amelanchier alnifolia	serviceberry	Rosaceae
Horkelia fusca	pinewoods horkelia	Rosaceae
Potentilla glandulosa	sticky cinquefoil	Rosaceae
Rubus parviflorus	western thimbleberry	Rosaceae
Spiraea douglasii	rose spirea	Rosaceae
Galium aparine	stickywilly	Rubiaceae
Galium trifidum	threepetal bedstraw	Rubiaceae
Kelloggia galioides	milk kelloggia	Rubiaceae
Populus tremuloides	quaking aspen	Salicaceae
Salix lucida ssp. *lasiandra*	Pacific willow	Salicaceae
Saxifraga odontoloma	brook saxifrage	Saxifragaceae
Castilleja applegatei	pine Indian paintbrush	Scrophulariaceae
Castilleja miniata	scarlet paintbrush	Scrophulariaceae
Keckiella breviflora	bush beardtongue	Scrophulariaceae
Mimulus guttatus	seep monkeyflower	Scrophulariaceae
Mimulus kelloggii	Kellogg's monkeyflower	Scrophulariaceae
Mimulus primuloides	primrose monkeyflower	Scrophulariaceae
Penstemon gracilentus	slender penstemon	Scrophulariaceae
Penstemon rydbergii	meadow penstemon	Scrophulariaceae
Verbascum blattaria	moth mullein	Scrophulariaceae
Veronica americana	American speedwell	Scrophulariaceae
Veronica peregrina ssp. *xalapensis*	hairy purslane speedwell	Scrophulariaceae
Veronica scutellata	skullcap speedwell	Scrophulariaceae
Viola purpurea	mountain violet	Violaceae