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July 8, 2020

Re: Lakes Basin and Sherwins Area Trail Enhancement Project

This scoping comment letter on the Lakes Basin and Sherwins Area Trail Enhancement Project is submitted on behalf of the Sierra Club, the Sierra Club Range of Light Group, the Kutzadika Tribe, California Wilderness Coalition, Defenders of Wildlife, Sierra Forest Legacy, and Friends of the Inyo.

The **Sierra Club** represents over 3.8 million members who support getting people outdoors while balancing the needs of wildlife and preserving our natural resources and biodiversity. The fight for social justice is an explicit part of Sierra Club programs and initiatives. The use of public lands and public funds need to take into consideration the many recreational needs of a cross-section of Americans. Trade-offs that impinge on our natural resources for recreational benefits must be for a broad group of people.

The **Range of Light Group** (ROLG) within the Toiyabe Chapter of the Sierra Club has over 400 members in the Eastern Sierra. ROLG members participated actively in the Sherwins Working Group (SWG) which produced the Sherwins Area Recreation Plan (SHARP). Beginning in 2017, ROLG members also participated in several of the implementation projects for various SHARP recommended trails. The Sierra Club, both national and our regional group, was heavily involved in the development of the new Forest Management Plan for the Inyo National Forest (INF). The **Kutzadika Tribe**'s ancestral lands include the Mammoth Lakes area. The Tribe was seated on the Toiyabe Indian Health Project Board for more than 15 years and is also recognized by local federal agencies such as the National Park Service and United States Forest Service as a political entity to be consulted with on major federal undertakings affecting their aboriginal lands. The Tribe is currently seeking federal recognition.

The **California Wilderness Coalition** (CalWild) has been working to protect and restore the wildest natural landscapes and watersheds on federal public lands since 1976. CalWild has a long history of involvement in the INF, including the proposed ski area expansions in the Mammoth-June Lakes region. More recently, CalWild actively participated in the entire INF Land Management Plan revision process which was finalized in 2019.

Defenders of Wildlife (Defenders) is a national, non-profit conservation organization dedicated to protecting all wild animals and plants in their natural communities. To this end, we employ science, public education and participation, media, legislative advocacy, litigation and proactive on-the-ground solutions in order to impede the accelerating rate of extinction of species, associated loss of biological diversity, and habitat alteration and destruction. We currently have more than 1.8 million members and supporters in the U.S., approximately 279,000 of whom reside here in California.

Sierra Forest Legacy (SFL) is a regional environmental coalition with over 25 partner groups. SFL is focused on the conservation, enhancement and protection of old growth forests, wildlands, at-risk species, protection of the region's rivers and streams, and the ecological processes that shape the forest ecosystem of the Sierra Nevada. SFL is a leader in bringing together scientists and diverse interests on a wide range of forest issues including fire ecology, fuels management, protection of at-risk wildlife species, and socio-economic values associated with public forest management. SFL has been involved in projects and land management planning on national forests in the Sierra Nevada since 1996.

Founded in 1986, **Friends of the Inyo** (FOI) protects and cares for the lands of the Eastern Sierra. Our 1,000+ members and supporters care deeply about protecting and maintaining wild lands and wildlife habitat. FOI has over three decades of experience working with the INF on National Environmental Policy Act (NEPA) projects including forest planning, vegetation and fire, recreation, and travel management. FOI has a long history of engagement in seeking to protect the wildlife and wildland values of the Sherwin Inventoried Roadless Area and Solitude Canyon. We commented on the proposed Sherwin Ski Area Environmental Impact Statement (EIS) in 1990, and later successfully appealed the INF's decision to permit the ski area, which was never built. In 2009, we participated actively in the SWG, which

produced the SHARP. Especially over the last decade, we have been a strong partner to the INF in stewardship of Mammoth area trails, including founding the Summer of Stewardship volunteer events. For the fourth consecutive season, we have raised over \$100,000 each season to provide much needed trail work, Leave No Trace education, and interpretive events on the INF. With this historical context, it is well known that we support ongoing trail planning and implementation efforts on public lands adjacent to the Town of Mammoth Lakes (TOML).

Unfortunately, for the reasons set forth below, the organizations signed on to this letter do not support this project in its current form. *Our groups believe the Forest Service must re-scope and prepare an Environmental Assessment (EA) on the long section of multi-use trail proposed in Solitude Canyon and atop the Sherwin Ridge.* The groups are comfortable with the shorter sections of trail in the Mammoth Lakes Basin west of Lake Mary proceeding based on a Categorical Exclusion (CE).

I. The Solitude-Sherwins Trail was Identified by SHARP as Needing "Further Study"

Solitude Canyon has always been a controversial location for recreational development due to the potentially significant impacts of recreational development and use on this important wildlife area. This controversy dates back to the proposal for the Sherwin Ski Area. FOI successfully appealed INF's approval of development of a ski area based on the likely impacts of ski area development on wildlife.

More recently, the SWG, (in which FOI and Sierra Club ROLG actively participated), was convened and produced the SHARP document in 2009.¹ The Solitude Canyon trail (#19) was never identified as a priority trail.² The SHARP found that, because of the recognized importance of Solitude Canyon to wildlife, the idea of a trail in Solitude Canyon was a proposal that would "require(s) further study." The final report suggested the development of a "Solitude Canyon/Panorama Dome study group" (p. 16³); to our knowledge this group was never convened.

The INF's scoping letter does not articulate why a route through Solitude Canyon was chosen above the many other higher-priority projects identified in the SHARP, nor does it present any alternatives to a multiple use, class 3 trail proposed in this sensitive location.

¹ <u>https://mltpa.org/projects/planning/collaborative-processes/swg-2009</u>

² Nor was this trail identified in the Mammoth Lakes Trail System Master Plan Environmental Impact Report (2011). See <u>https://www.townofmammothlakes.ca.gov/371/Trails-System-Master-Plan</u>

³ https://mltpa.org/images/downloads/SHARP%20Report%20w%20Appendices.pdf

II. Environmental Issues of Concern Necessitate Preparation of an Environmental Assessment

Wildlife

Solitude Canyon is critical for the Mammoth area's wildlife. The INF's own EIS (1990) for the proposed Sherwin Ski Area that encompassed Solitude Canyon documented many important habitat characteristics and sensitive wildlife. The study concluded that Solitude Canyon played a critical role in providing high quality habitat for many species of wildlife in Mammoth, especially the Round Valley mule deer herd (called the Sherwin Mule Deer Herd in the EIS). The study found that this herd uses the Solitude Canyon migration corridor twice a year, in spring and fall as a staging area to access fawning grounds at high country meadows along the crest. Indeed a small number of deer do not migrate to higher elevations and reside summerlong in the Sherwin Lakes-Solitude area, with fawning documented in the area.⁴ The study also found that no alternatives to this migration corridor were apparent because of the steep rugged terrain. The study indicated that disturbing this corridor could negatively impact fawn survival, and therefore the health and vibrancy of the herd.

The Sherwin Ski Area Deer Study summarizes that "the enormity and importance of the Sherwin staging area should not be underestimated."⁵ As deer habitat and thus population numbers have declined across Mono County, in particular due to development and human disturbance, it is critical that responsible agencies ensure the protection of the herd's migration routes and fawning locations, as well as other key habitat use areas. The INF appears to be dismissing the findings of these previous studies, and without further research has apparently and erroneously written off this project as having no significant impacts to wildlife.

Additionally, appendix D of the Sherwin Ski Area EIS lists 33 mammals with the potential to occur in Solitude Canyon including the imperiled Sierra Nevada Red Fox, currently under consideration by the U.S. Fish and Wildlife Service for listing under the federal Endangered Species Act. The Sierra marten, an Inyo National Forest species of conservation concern,⁶ is likely to be found here due to the nearly 500 acres of old growth red fir and mixed conifer forest habitat present in Solitude Canyon.⁷ The appendix also lists 91 bird species, and seven species of amphibians and reptiles with the potential to occur in this area. Many of these animals are declining in our mountain environments and the integrity of their habitat needs to be considered before any significant recreation project is approved.

⁴ See Sherwin Ski Area EIS (Inyo National Forest, 1990); pp. III-24, Fig. III-8.

⁵ Taylor T., Sherwin Ski Area Deer Study Fall Report. December 1987, pg 15.

⁶ See <u>https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd662714.pdf</u>

⁷ Sherwin Ski Area EIS; p. III-20.

Although the Forest Service should utilize the Sherwin Ski Area EIS as baseline guidance to understand existing wildlife concerns, this does not obviate the need for more recent studies and data on the area for the Forest Service to be able to make an informed decision. The potential impacts of developing a class 3 trail need to be carefully considered in an area of such significance to wildlife. We will not know what the impacts of major trail development and human disturbance from the use of this trail may be until a thorough NEPA analysis is conducted.

Nor is it sufficient for the Forest Service to merely walk a flagged route to determine the presence or absence of certain animal species along the route. (The flagging that presumably marks the proposed trail is also inconsistent with the route delineated on the map attached to the agency's Scoping Letter, making it difficult to determine where surveys for plants and animals might be conducted.) To ensure sensitive species and their habitat are protected from harm, detailed studies of the entire canyon and crest environment need to be conducted that determine suitable habitat and the presence or absence of these species at key times of year (e.g., during breeding and/or migration season).

New studies⁸ are emerging on wildlife avoidance and displacement in recreational areas.⁹A. R. Taylor and R. L. Knight (2003) have examined wildlife responses to recreation and human activity. In a study in northern California, Reed and Merenlender (2008) found that protected areas with dispersed, non-motorized recreation had "a five-fold decline in the density of native carnivores and a substantial shift in community composition from native to nonnative species" over protected areas without recreation.

The possibility of significant unavoidable impacts on wildlife and wildlife habitat is one reason that major trail construction in this area is inappropriate for a CE. Construction of many miles of new trail in a very steep, erodible north facing canyon with elevations ranging from 8-10,000 feet, in an inventoried roadless area, is not a casual undertaking. The appropriate level of environmental analysis must be conducted by the Forest Service to ensure that this project does not irreversibly harm sensitive species that occur, or which may occur, in Solitude Canyon and on the Sherwin Crest.

Vegetation

The last comprehensive species list for plants occurring in Solitude Canyon was developed in 1973 and was used in the Sherwin EIS. The EIS documented potential habitat for nine sensitive plant species within the proposed ski area.¹⁰ The EIS also

⁸ Snetsinger, S.D. and K. White. 2009. Recreation and Trail Impacts on Wildlife Species Of Interest in Mount Spokane State Park. Pacific Biodiversity Institute, Winthrop, Washington. 60 p.
⁹ <u>https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0175134</u>

¹⁰ Sherwin Ski Area EIS; p. III-22, Table III-7.

documented important stands of mixed conifer old growth habitat, a habitat type "regionally scarce along the Eastern Sierra"¹¹ that occurs in Solitude Canyon.

As previously mentioned, a class 3 trail will entail significant ground disturbance both in the trail corridor and adjacent areas as crews work and bring in materials. Where switchbacks are required, an entire slope may be irreversibly disturbed by trail-building and ongoing maintenance activity. An EA should examine the proposed trail alignment and all plants that exist within the trail corridor/region; the Forest Service should also conduct rare plant surveys for species likely to occur in the region, particularly in the sensitive riparian and old growth forest habitats that occur in Solitude Canyon. Alpine fell-field habitat, which is particularly sensitive to disturbance¹² and which may harbor rare flora, is also within the proposed trail corridor. Alternatives must be considered that will minimize the impacts of major trail construction on the area's vegetation communities.

Climate Refugia

The impacts of climate change were not considered a major factor in the agency analyses of 30 and 40 years ago. Today, climate change plays a huge role in influencing where and how species adapt. Much research has been done, including by the Forest Service, on how to identify and preserve "climate refugia" for species.¹³ Given Solitude Canyon's north-facing aspect, its diversity of habitats including riparian and alpine areas, and the fact it is rugged and undisturbed, the canyon must be analyzed for its potential to play a role in providing climate refugia for plant and animal species that are sensitive to the impacts of climate change.

Soils and Geology

FOI staff's field assessments of the proposed trail alignment, (as represented by flagging and GIS route description provided by TOML staff), clearly indicate this is a trail that will require heavy equipment and sophisticated techniques for trail construction, as well as significant ongoing maintenance. The rough, steep terrain, including large boulders and unstable talus fields, will require shoring up and blasting to build, and the presence of significant crews for yearly maintenance. We also believe it poses significant public safety issues. See Appendix A, photos.

The proposed trail moves through very steep slopes that contain loose and unstable talus. The agency's Sherwin Ski Area EIS contains figures that indicate slope steepness and stability within the area. See Appendix A, Figures III-1 and III-2. The figure depicting slope analysis (Figure III-1) indicates that Solitude Canyon contains a mixture of slope angles ranging from "beginner" (0-20%) to "advanced/expert" (40%+) to cliffs. The figure depicting geologic conditions (Figure III-2) indicates many areas within Solitude Canyon that are considered "active/unstable rock

¹¹ Sherwin Ski Area EIS; p. III-20.

¹² See <u>https://www.fs.fed.us/psw/publications/millar/psw_2016_millar003.pdf</u>, p. 629 (mentioning mountain biking as one source of high elevation habitat degradation).

¹³ https://www.fs.usda.gov/ccrc/topics/climate-change-refugia

glaciers or talus deposits." The EIS notes (p. III-4) that:

"4) *Talus* - The upper portions and side slopes of the glacial valleys within the SSA are covered by talus. These deposits consist of angular rock fragments, up to boulder size, which collect at the base of steep, rocky cliffs. Active talus slopes are still being formed and are very unstable, constantly adjusting to changes in slope conditions. Older talus slopes are currently stable and will remain that way as long as they are not disturbed.
5) *Stability* - Most of the SSA is inventoried as having moderate or low landslide hazard potential. Two areas, one just west of Judge's Bench, the other off the north end of Solitude Plateau are inventoried as having high landslide potential. Within the SSA the greatest slope stability risk results from rockfalls, rock avalanches, and debris flows (Merrill and Seeley, 1981)."

(Emphasis added.)

Because this trail will require the development of switchbacks in multiple sections (as the map accompanying the scoping notice indicates), bank armoring and likely blasting, it is possible that construction activity and ongoing human use in this area could trigger slides of rock and/or earth during and after trail construction. The potential safety hazards of trail construction and use should be thoroughly considered in an EA.

From our experience hiking the proposed trail, we believe the equipment and techniques that will be necessary to build and maintain the trail will also have significant impacts to wildlife due to noise and disturbance. The impact of trail construction and ongoing maintenance on the area's unstable and delicate soils - not to mention impacts to wildlife and vegetation - must be adequately analyzed before a decision is made. The public should have the opportunity to comment on this analysis through preparation of an EA.

III. The Proposal is Inconsistent with the Inyo National Forest Land Management Plan

The Scoping Letter perplexingly cites the Inyo National Forest Land Management Plan (LMP) (2019) as providing "rationale for proposed trail improvements." Although the proposed Lake Mary trail segments fall under the category of trail improvements, the Solitude Canyon/Sherwin Crest trail most certainly does not the proposed trail does not constitute a trail improvement but, rather, entirely *new* trail construction.

After a thorough review of the LMP we found no evidence to support the development of new trails; in fact, Desired Conditions in the forest-wide recreation

section state: "New developed recreation infrastructure¹⁴ is located in ecologically resilient landscapes, while being financially sustainable, and responsive to public needs" (REC-FW-DC07). It is notable that the LMP calls for new recreation infrastructure to be developed in "ecologically resilient" landscapes. See LMP Chap. 2 at p. 54. The agency's own studies for the Sherwin Ski Area indicate that Solitude Canyon is in fact an ecologically (and geologically) fragile landscape.

Over the past 10 years, the INF has taken a conservative approach to the development of new trails, citing concerns about maintenance backlog and staffing. The portion of the project east of Lake Mary is completely at odds with this approach. As opposed to its description in the scoping letter, it is in reality a completely new trail. Not only that, it is proposed in steep rugged terrain, in an inventoried roadless area known to be sensitive to wildlife. Meanwhile, trails in the Lakes Basin and other public lands adjacent to the TOML require time and attention for deferred maintenance. Indeed these are the projects identified in the SHARP document as having the highest priority. See SHARP, page 8. Further, the Forest Service has guidance in the LMP's recreation Potential Management Actions to "Consider improving recreation opportunities at existing facilities prior to developing new ones." See LMP Chap. 2 at p. 56.

IV. The Scoping Letter is Inaccurate and Inadequate

The INF's Scoping Letter is inaccurate in its description of the project and is therefore inadequate to inform the public of the true nature and scope of the proposal. The project scope inappropriately lumps two distinct trail projects, in two different geographic areas, Lake Mary and Solitude Canyon, into one project. Further, the proposed work in the area west of Lake Mary is very different from the proposed work in Solitude Canyon and on the Sherwin Crest. While true for the short Lake Mary segments, the scoping notice's statement that "proposed trail improvements emphasize creation of new trails in areas of concentrated and existing use" is flatly untrue for the Solitude Canyon/Sherwin Crest trail. Solitude Canyon has no use trails (other than a few short animal trails which tend to be used by infrequent human visitors), and the canyon is currently rarely utilized for recreation in the summer months. In fact, Solitude Canyon is one of the last remaining, wild and relatively unvisited canyons in the Mammoth area. It is also the only canyon immediately surrounding Mammoth that does not have an existing road or trail in it, therefore keeping the level of human use low, to the benefit of wildlife.

The Scoping Letter leaves out essential information including the fact that the proposed Solitude/Sherwin trail is in an Inventoried Roadless Area and contains important wildlife species and diverse habitats. The Scoping Letter also fails to disclose that the proposed trail alignment may impact habitat for threatened,

¹⁴ The Plan defines national forest infrastructure as "roads, trails and campgrounds" (pg 151).

endangered or sensitive species that may be found in this area, including Sierra marten, American pika and Sierra Nevada red fox; and, the Scoping Letter fails to mention the importance of this canyon to regionally significant mule deer herds.

The Forest Service also incorrectly implies in the Scoping Letter that the Solitude Canyon trail project is not a major construction project. The letter states "work will be performed using hand tools and a small trail machine," falsely implying the construction of this trail is no big deal. As indicated above by the agency's own prior analysis, construction of this trail is a major undertaking that may have serious consequences for slope stability and public safety.

V. An Environmental Assessment is Required

The Forest Service should prepare an EA on this project; the circumstances demand it. Use of a CE for a project of this scope, with potentially significant impacts to wildlife, soils and other resources, is plainly inappropriate. A CE does not allow for the development and careful consideration of alternatives to the proposed action, including a "no action" alternative and the consideration of different trail alignments and/or alternate sites.¹⁵ Nor does it adequately disclose potential impacts of the proposed action, thereby allowing the decision-maker to make a reasoned and informed decision. That the agency is proposing a CE for a project in an area of known significance completely disregards the public's keen interest in this proposal. And, it dramatically reduces the public's ability to meaningfully participate in the NEPA process at the various stages of analysis. By proposing to issue a CE, the agency has made this scoping period the *only* opportunity for public comment prior to the Forest Service issuing a decision on this controversial project.

Forest Service regulations allow preparation of CEs except where extraordinary circumstances exist. Two of the listed "extraordinary circumstances" include projects proposed in Inventoried Roadless Areas and where a proposal may impact a listed species, including species proposed for listing and Forest Service sensitive species. See 36 C.F.R. 220.6(b)(1)(i) & (iv). We understand that there are "exceptions" to the extraordinary circumstances rule, however:

"It is the existence of a cause-effect relationship between a proposed action and the potential effect on these resources conditions, and if such a relationship exists, the degree of the potential effect of a proposed action on these resource conditions that determines whether extraordinary circumstances exist."

36 CFR 220.(b)(2). The Forest Service, in issuing an incomplete scoping notice and

¹⁵ For example, since it appears part of the intent of constructing this trail is to create a 50 mile "ultra" loop for mtn bikers and running events, there is an alternative: "If this section is found unusable by the Forest Service, the loop could be connected via Old Mammoth Road." See <u>https://thesheetnews.com/2019/03/20/one-trail-to-rule-them-all/</u>

proposing to use a CE rather than to even consider whether an EA may be warranted, has clearly not done its due diligence to determine there is no cause-effect relationship between the proposed action and potential impacts, in particular to sensitive wildlife species that inhabit this area.

The "extraordinary circumstances" requirements also are not exhaustive. 73 Fed. Reg. at 43091 states that:

"The extraordinary circumstances requirements include a list of resource conditions that 'should' be considered. 'Should' is used instead of 'shall' because 'should' underscores that the list is not intended to be exhaustive. The list of resource conditions is intended as a starting place and **does not preclude consideration of other factors or conditions by the responsible official with the potential for significant environmental effects**."

(Emphasis added.) Thus, the Forest Service can and *should* consider other environmental factors besides those listed in 36 CFR 226(b)(1), such as geological hazards like slope stability and the potential for rockslides and impacts to public safety. The regionally significant mule deer herd should also be considered as an "extraordinary circumstance" warranting preparation of an EA.

We are aware that trail construction *may* be allowed under CEs; see 36 CFR 220.6(e)(1).¹⁶ However, *the responsible official has the authority and the discretion to require that an EA be prepared*. And, in this specific instance, the agency not only has the discretion but the *duty* to prepare an EA based on the potential for significant impacts, including threats to the environment and public safety. Whether or not one supports the development of this trail, an EA must be prepared that ensures the proper level of analysis is conducted, impacts are fully disclosed, reasonable alternatives are provided, that allows for meaningful public comment and which provides a clear basis for choice among alternatives by the decision-maker.

NEPA directs that an EA be prepared if the impacts of a proposal on the environment *may* be significant. The Forest Services's NEPA regulations also direct the FS to:

"(c)Scoping. If the responsible official determines, based on scoping, that it is uncertain whether the proposed action may have a significant effect on the environment, prepare an EA."

(Emphasis added.) 36 CFR 220.6(c). It is abundantly clear in this case that an EA is warranted. An EA will help determine if an EIS is required. As we have shown above, impacts to wildlife and other resources deriving not only from construction but also

¹⁶ Although the examples given in this section of the regulations include "constructing or reconstructing a trail to a scenic overlook" and "reconstructing an existing trial to allow use by handicapped individuals;" constructing a major new trail in an IRA is hardly of the same ilk.

anticipated uses of the trail¹⁷ could, indeed, be significant.

Finally, the proposed trail through Solitude Canyon is not without controversy. The trail up through Solitude Canyon was controversial when it was first proposed, in the SHARP group. In part due to that controversy it was not ever designated as a "priority trail," including in the Mammoth Lakes Trail System Master Plan EIR. There have been many recent posts on social media about the proposed trail, with many posters expressing concern about environmental impacts. The controversy surrounding this trail project indicates that an EA should be prepared.

VI. Conclusion-An EA Must Be Prepared for the Solitude Canyon/Sherwin Crest Area

Regarding the Solitude Canyon/Sherwin Crest portion of the proposed project, as described in detail above, an EA must be prepared. The area provides important habitat for sensitive species, including possibly threatened, endangered and Forest-sensitive species. The proposal encompasses steep, rugged, high terrain with unstable talus slopes and large boulders that will require substantial earth-moving and possibly blasting in a geologically hazardous area. A community working group determined that recreational development in the area required "further study;" indeed, any recreational development in this area without the proper level of NEPA to ensure the region's wildlife are adequately protected will be controversial.

To enable work to begin on the non-controversial trail segments in the Lakes Basin west of Lake Mary, and to protect the ecosystem and wildlife of Solitude Canyon and the Sherwin Crest, the obvious best course of action is to split the project currently proposed in the scoping letter into two distinct projects

First, the much needed trail improvements west of Lake Mary should move forward under a CE. Second, the Forest Service should reissue a scoping letter for the Solitude/Sherwin Crest portion that accurately describes the proposed project, including that the trail is proposed within an IRA which is important to area wildlife; that it is characterized by steep, loose terrain that will necessitate sophisticated trail building techniques and heavy equipment; and that it will require significant ongoing maintenance. The EA should "rigorously explore and objectively evaluate" all reasonable alternatives so that a well-reasoned decision can be made.

Splitting the current proposed project as suggested would be a "win win" for the recreational and environmental communities. The Lakes Basin trail improvements can go forward while the Solitude Canyon-Sherwin Crest portion of this proposal is subject to the robust environmental analysis it merits.

¹⁷ See <u>https://thesheetnews.com/2019/03/20/one-trail-to-rule-them-all/</u>

Thank you again for the opportunity to provide comments on the Lakes Basin and Sherwins Area Trail Enhancement Project. Please do not hesitate to contact Wendy Schneider, Executive Director, Friends of the Inyo, with any questions.

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Appendix

Photo 1: This photo was taken at 9,199 ft, looking North, near the top of the first set of switchbacks, along the proposed trail that rises from Coldwater Canyon up to the Sherwin Crest. It shows a steep and unstable talus field with large rocks.



Photo 2: This photo was taken at 9,409 ft, looking North, along the proposed trail that would connect from Lake Mary to the portion of the trail running from Coldwater Canyon up to the Sherwin Crest. It shows another steep and unstable talus field with large rocks.



Photo 3: This photo, looking north, was taken at 9,078 ft on the proposed trail as it rises from Coldwater Canyon. It shows a steep, rugged slope with loose talus, rocks and large boulders protruding from the soil, posing significant issues for trail construction, and safety issues for trail users.



Photo 4: This photo was taken at 10,131 ft, looking northwest, where the proposed trail begins to traverse southeast. It shows large rocks scattered through the trees and across a steep, open slope.



Photo 5 (Left): This photo was taken at 8,543 ft, looking SSW, on the proposed trail that rises from the west side of Solitude Canyon up to the Sherwin Crest. It shows a marked tree that is surrounded by large boulders and fallen trees.

Photo 6 (Right): This photo was taken at 10,322 ft, looking east, near the highest point of the proposed trail as it traverses ESE, rising from Coldwater Canyon. This terrain would require heavy machinery, at the least, if not explosive blasting, to clear the large boulders.



Photo 7: This photo was taken at 10,318 ft looking northwest, near the highest point of the trail as it traverses ESE, rising from Coldwater Canyon. This terrain would also require heavy machinery, at the least, if not explosive blasting, to clear the large boulders.



Photo 8: This photo was taken at 9,045 ft, looking northeast, shows where the first set of switchbacks that rise from Coldwater Canyon would be. The terrain is very steep and the loose talus is very unstable and prone to slide.



SLOPE ANALYSIS FIGURE III- 1

NORTH

200

1000

0

Legend

Beginner 0% - 20% Intermediate 20% - 40% Advanced/Expert 40% + Cliffs

SHERWIN SKI AREA ENVIRONMENTAL IMPACT STATEMENT

GEOLOGIC CONDITIONS FIGURE III - 2

NORTH

2000

Legend

Bedrock Units

Granitic Rocks

Metamorphic Rocks

Surficial Units

R

- Glacial Till and Older Rock Glaciers Younger Rock Glaciers Glacial Moraine
 - Alluvium
 - Talus Deposits

Active/Unstable Rock Glaciers or Talus Deposits

SHERWIN SKI AREA ENVIRONMENTAL IMPACT STATEMENT