

Jumbo Glacier Resort Master Plan

Appendix 3-K

Letter re: Review of M. Austin's Analysis Report:
Potential Impacts of the Proposed JGR on the Central Purcell
Grizzly Bear Population

Prepared by
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TO: Oberto Oberti: Pheidias Project Management

FROM: Glenn Stewart: ENKON Environmental Limited

**RE: REVIEW OF MATT AUSTINS' ANALYSIS REPORT:
POTENTIAL IMPACTS OF THE PROPOSED JUMBO GLACIER ALPINE
RESORT ON THE CENTRAL PURCELL GRIZZLY BEAR POPULATION
AND OPPORTUNITIES FOR MITIGATION/COMPENSATION**

DATE: October 3, 2000

Further to our discussion and our meeting of September 14, 2000 please find attached ENKON Environmental Limited's comments on Matt Austins' report on grizzly bear impacts and opportunities for mitigation/compensation associated with the Jumbo Glacier Alpine Resort Development.

In general, ENKON Environmental Limited agrees in principle with the majority of Mr. Austins' conceptual assessment of the potential impacts and recommended mitigation/compensation for the Jumbo Glacier Resort project. ENKON also agrees with Mr. Austins' concluding statement that the impacts could be substantially addressed through a number of potential mitigative measures and provided that a comprehensive mitigation package was implemented may result in a "no net impact" to the Central Purcell grizzly bear population.

However, there are a number of instances that the assessment of impacts or the proposed mitigation/compensation opportunities for the Jumbo Glacier Resort project appear to be excessive or unnecessary, especially when compared to the Cayoosh Resort project impact analysis report (see comparison below) recently prepared by Mr. Austin.

Cayoosh Resort and Jumbo Glacier Resort Impact Analysis Comparison

In general, the potential impacts with and without suggested options for mitigation/compensation prepared by M. Austin for the Cayoosh and Jumbo Glacier Resort projects are very similar, with the exception that the Jumbo Glacier Analysis Report adds a 5th potential impact associated with "Habitat Fragmentation within the Purcell Mountains". The analysis of impacts or recommended mitigation/compensation do not recognize or acknowledge the substantial differences between the size and location

of the two resort projects (as outlined in ENKON's memo to Ray Crook dated June 14, 2000) or the differences in the status of the grizzly bear populations.

As stated previously, some of the obvious differences between the two projects include:

- a) Jumbo Glacier Alpine Resort development is proposed at 6,500-7,000 bed units compared to the approximate 16,814 bed units (upper and lower villages combined) proposed for the Cayoosh project (Cayoosh Resort Development Proposal, November, 1996);
- b) There is an existing two lane paved road from Invermere to Panorama Ski Resort and a well travelled two lane dirt road from Panorama to the proposed base area of Jumbo Glacier Resort. As of November, 1996 according to the Cayoosh Resort Development Proposal, there was no road access to Melvin Creek although an overgrown steep boulder access road of approximately 1 km in length provides horse access to a rough wilderness cabin. The access road to the proposed Jumbo Glacier resort base area is presently used during the spring, summer and fall by tourists, hikers and hunters. Snowmobilers also use the road to gain access into Jumbo Valley during the winter; and
- c) The grizzly bear population within and surrounding the Jumbo Glacier Resort project (Central Purcell Grizzly Bear Population Unit-GBPU) is a healthy, "viable" population compared to the "threatened" status of the grizzly bear population within and surrounding the Cayoosh Resort project (Stein-Nahatlatch Grizzly Bear Population Unit-GBPU).

Therefore, ENKON has noted below some of the discrepancies between the two reports associated with potential impacts or the type of mitigation/compensation recommended.

- a) Under "Mortality Risk Within the Jumbo Creek Drainage" ENKON agrees with Mr. Austins' recommendation that the risk of mortality within the Jumbo Creek drainage could be substantially reduced with the preparation of a "Bear Management Plan" and through the reduction in the grizzly bear harvest under existing provincial government policy. We assume that grizzly bear harvesting is presently not allowed in the Stein-Nahatlatch GBPU and that is why M. Austin did not mention it in the Cayoosh Analysis Report. ENKON agrees with M. Austin that there should be a province wide reduction or ban on grizzly bear harvesting. It seems counter productive to mitigate/compensate for the potential loss of grizzly bear habitat from resort developments while on the other hand allow harvesting of grizzly bears.
- b) Under "Mortality Risk Outside the Jumbo Creek Drainage" Mr. Austin recommends that the entire access road to the Jumbo Glacier Resort

Base be fenced to reduce the potential for grizzly bears to be struck and killed by vehicles. There is no mention of any fencing being required along the new 12 km paved access road to the Cayoosh Resort base. The risk of mortality from grizzly bear/vehicular collisions must be substantially greater for vehicle traffic generated from the approximate 16,800 bed unit Cayoosh Project compared to the 6,500-7,00 bed unit Jumbo Glacier project.

Based on review of the research literature, high volumes of traffic combined with fences can severely disrupt movements by adult female grizzly bears and to a lesser extent male grizzly bear movements. Gibeau (2000) concluded that the Trans Canada Highway (TCH) through the Bow Valley with summer traffic volumes of 21,000 vehicles per day formed a home range boundary for six (6) female grizzly bears. Highway 93, with summer traffic volumes of 3,530 vehicles per day bordered the home range of one adult female grizzly bear. Both The Bow Valley Parkway and Highway 40 with summer traffic volumes of 2,230 and 3,075 vehicles per day, respectively did not appear to restrict the home range of female grizzly bears. All four highways had observed traffic speeds ranging from 80-115 km per hour. McElhanney has conservatively estimated a 20 year average annual daily traffic (AADT) volume of 2,735 (lower for summer volumes) with design speeds of <80km per hour. Therefore, we do not feel that fencing is required during the early phases of the project and may not be required at final build-out if mitigation measures such as low speed limits and elongated approaches to bridge structures are implemented.

- c) Under “Habitat Loss and Deterioration of Habitat Effectiveness Within the Melvin Creek Drainage”, Mr. Austin states that the project will result in a direct loss of grizzly bear habitat. He also mentions that there will be a dramatic deterioration in the effectiveness of the remaining, currently highly effective grizzly bear habitat in the Melvin Creek drainage. However, under the same heading in the Jumbo Glacier Analysis, Mr. Austin states that there will also be a dramatic deterioration in the effectiveness of the remaining currently, moderately effective grizzly bear habitat in the Jumbo Creek drainage. This implies that the remaining habitat within the Melvin Creek drainage is of higher relative value compared to the remaining habitat within the Jumbo Creek drainage. However, even with the stated differences in the type of habitat within both valleys, the recommended mitigation measures are the same.

ENKON assessed grizzly bear habitat within the entire Jumbo Creek drainage based on Terrestrial Ecosystem Mapping conducted by Norecol in the early 1990’s, and found <25% of the habitat to be of

moderate-high value for grizzly bears (lower elevations adjacent to Jumbo Creek and some north/south facing avalanche chutes in the lower half of the valley). The majority of the habitat was rated as low value for grizzly bears.

- d) Under “ Deterioration of Habitat Effectiveness Outside the Melvin Creek Drainage” Mr. Austin states in his opinion the potential deterioration of habitat effectiveness in the area surrounding the project resulting from increased human activity represents a significant impact to the “threatened” Stein-Nahatlatch GBPU. Mr. Austin does not make this statement in the Jumbo Glacier Analysis Report, suggesting that the impacts from human activity may not represent as significant an impact to the “viable” Central Purcell GBPU. However, once again the recommended mitigation/compensation measures are similar for the two projects.
- e) Under “Habitat Fragmentation Within the Purcell Mountains”, Mr. Austin states that not only could the project result in the relatively contiguous nature of grizzly bear distribution in this area being seriously impacted, but it as well as unrelated future activities and developments could result in the remaining relatively intact north-south linkage provided by the Glacier Creek drainage becoming impaired. This could extend the fracture completely across the Purcell Mountains with implications for grizzly bears to the south including the threatened Yahk population.

Within the introduction of the Cayoosh Analysis Report, Mr. Austin states that four other threatened populations surround the Stein-Nahatlatch GBPU. In addition, the eastern and southern boundaries of the Stein-Nahatlatch GBPU are adjacent to extirpated GBPU’s (Lower Mainland and the Okanagan). In comparison, six “viable”, non-threatened populations surround the Central Purcell grizzly bear population.

If the primary issues of fragmentation are related to road development/traffic volumes, and human development/activity, the additional traffic on the Duffey Lake Road and/or Highways #1 and # 12 to the Cayoosh Resort project would pose more of a barrier than the existing Forestry Road (Phase 1) that would be potentially upgraded to a rural secondary highway (Phase 3) for the Jumbo Glacier project. In addition, with the development of the Cayoosh Resort project, there would be a string of east-west human developments including Squamish, Whistler, Pemberton, Cayoosh, Lillooet/Lytton and Cache Creek that would theoretically impact north-south movements between the six threatened GBPUs within and adjacent to the Cayoosh Resort project. This could create a contiguous fracture completely across the

Coast Mountains with implications for grizzly bears within all of the threatened GBPUs.

Therefore, once again it appears that potential impacts associated with the Jumbo Glacier Resort are considered more severe even though there are similar or more significant issues associated with traffic volumes, road development and cumulative human development/activity associated with the Cayoosh Resort project. This is also compounded by the status of the grizzly bear populations within and adjacent to the two projects.

In conclusion, ENKON feels that the Ministry's concerns and recommended mitigation/compensation should have been less comprehensive for the Jumbo Glacier Resort project for two reasons:

1. The grizzly bear population identified in the Central Purcell GBPU for the Jumbo Glacier Resort development is considered a healthy, "viable" grizzly bear population, compared to the "threatened" Stein-Nahatlatch Grizzly Bear Population Unit (GBPU) associated with the Cayoosh Resort development. As stated by Mr. Austin on Page 3 of the Cayoosh Report "...the loss of individual animals will have a greater conservation impact on a small, threatened population such as the Stein-Nahatlatch GBPU as opposed to a large, healthy population. Therefore, if "no-net-impact" is acceptable for the "threatened" grizzly bear population unit associated with the Cayoosh project, "some level of impact" should be acceptable to the Central Purcell "non-threatened" grizzly bear population unit associated with the Jumbo Glacier project.
2. The Jumbo Glacier Resort project is substantially smaller in scale as compared to the Cayoosh Resort development and as such should have less significant impacts from road access, traffic volumes, and human development/activity.

Should you have any questions or require clarification please give me a call.