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Dear Marilyn,

Introduction

The following attachments apply. The "Summit Map" clearly shows the location of the three blocks that obviously drain to the southeast and the northwest. The "Avis Creek" map (Chatwin, Perry Ridge Stream Channel Survey, 1999) clearly shows that there is a high risk for debris flows in the creeks flowing easterly from the ridge crest. Similarly, the "Terrain and Channel Hazard" map shows high terrain hazards on the northwest side of Perry Ridge Lake. The "Hope Creek" map and accompanying DVD illustrate the fact that road drainage was poor, many culverts were plugged, catch basins were too small and inside ditches needed to be improved. Despite IHP's advice, in late 2002, to improve road drainage, IHP's inspection in June 2003 showed that nothing had been done by either the contractor or the Ministry of Forests. The accompanying DVD also shows that, in June 2003, a large sediment plume exited from an unnamed creek opposite Cascade Creek, into the Lardeau River. This would have impaired fish habitat, and possibly killed a number of fish. A similar plume could enter the Slocan and/or the Little Slocan Rivers, not only impairing fish habitat, but also affecting important archeological sites (Sinixt Concentration" map).

Extracts from Summit Environmental Consultants Report (January 13, 2009)

The following extracts and comments by IHP (noted in boldface) apply to the "Summit Report", produced for the Ministry of Forests (Jan. 13, 2009).

"B.C. Timber Sales (BCTS) Kootenay Business Area is planning the development of Timber Sales Licence (TSL) A80073 on Perry Ridge, near Slocan, B.C. Perry Ridge has been a focus of much attention since the 1990's when plans for logging were announced and the Forest Service Road was constructed. Numerous investigations and assessments have been conducted on Perry Ridge, commissioned both by the Ministry of Forests and private stakeholders. This work has addressed hydrology, terrain hazards and ecological concerns both on and downslope of the ridge. BCTS is aware of the issues raised over the years and is committed to minimizing risks associated with forest development. This assessment is one step toward this goal." (p. 1)

"TSL A80073 is comprised of three blocks located on the north end of Perry Ridge. The blocks lie partly within several small watersheds that drain to both the east and west of the ridge. Two of these watersheds (Dragonfly Creek and Andrew Brook) are provincially licensed domestic watersheds, which supply water to one or more users. Andrew Brook has two domestic licences and Dragonfly Creek has one licence." (p. 1)

Note that Summit agrees that the blocks drain both east and west of the Ridge. Also, Dragonfly Creek and Andrew Brook have domestic water licences on them.

"Several small watersheds drain the study area to both the east and west side of the ridge (Map 3). Two of these watersheds, Dragonfly Creek on the west and Andrew Brook on the east, have mapped domestic points of diversion, and due to their size are classified as Class 2 Domestic Watersheds according to the Domestic Watershed Guidelines of the Kootenay/Boundary Land Use Plan (KBLUP 1997)." (p. 3)

Summit repeats the information contained on page 1.

"Block 3 is located both on the eastern side and the western side of Perry Ridge. Access to Block 3 is via the Perry Ridge FSR, which separates the eastern and western portions of the block." (p. 9)

Summit repeats the information contained on page 1.

"Drainage through block 3 occurs primarily via groundwater which may preferentially occur in several draws. Several gently sloping bedrock controlled benches are also present on the eastern portion of block 3 which tend to decentralize surface drainage." (p.5)

"The ridge dividing the east and west drainages runs parallel with and near to the western block boundary, and most of Block 1 is located on the eastern side of this divide. The majority of the block drains via groundwater to the east, and portions of Block 1 are located within drainages E l, E2, E3 and E3." (p. 7)

"The NCD continues to the northern edge of Block 2 (approximately 100 m from Perry Ridge Lake), beyond which evidence of surface flow ceases and flow becomes groundwater before discharging to Perry Ridge Lake." (p. 8)

"A drainage divide runs roughly northeast-southwest through the western part of the block. Areas west of the divide are drained primarily via groundwater flow as no evidence of surface flow exists. Poorly defined draws were observed on the western portion of the block however no evidence of recent surface flows or erosion was observed. Surface flows are not likely generated in this area due to its proximity to the ridge top." (p. 9)

"Approximately 100 m up slope of the road crossing, the channel becomes more incised and 30

to 50 year old trees were observed growing in and on the banks of the channel (photo 7). It is likely that flows occur as groundwater in this area for much of the year." (p. 10)

"Along the lower elevations of the W1 drainage, groundwater was observed emerging from a cut bank along the FSR and infiltrating into the ditch (photo 8, observation point 3)." (p. 10)

"This area is gently sloping and it is likely that the majority of surface water reaching the colluvial deposits continues downslope as groundwater flow." (p. 10)

"In general, most of the study area within the proposed blocks is drained via groundwater flow which may preferentially occur along the many draws and swales. In such cases, a key management goal is to minimize disturbance to the near-surface groundwater patterns." (p. 12)

Note that there are eight references to groundwater but no formal groundwater studies were done by Summit.

"Perry Ridge Lake is 1.65 ha in size and is surrounded by forest. Dragonfly Creek begins at the outlet of the lake. This area was investigated and found to be swampy and choked with woody debris, and it has a very low gradient. Downstream, the channel increases in gradient and has coarser sediment along its bed (Photo 3). At a break in slope north of Perry Ridge Lake, Dragonfly Creek flows into a steep bedrock-controlled gully with abundant talus and woody debris Photo 4)." (p. 8)

Perry Ridge Lake is extremely small. It is also choked with woody debris and this woody debris can move into the heads of the steep bedrock-controlled gullies, thereby creating the potential for debris flow/torrent events.

"Perry Ridge Lake acts as buffer between inflows and outflows and breaks the direct connection between precipitation events or snowmelt and resulting runoff. The lake has some capacity to store inflows which attenuates peak flows in Dragonfly Creek, while likely improving outflow water quality." (p. 6)

"It is unlikely Perry Ridge Lake will be negatively impacted by harvesting under TSL 480073, and the lake serves to lessen possible downslope impacts. As previously mentioned, evidence of surface flow disappears before entering the lake as any runoff likely moves as groundwater; therefore any sediment load carried by the NCD will likely be deposited well before reaching the lake. The lake also acts as a buffer for outflows, and serves to attenuate peak flows."(p. 8)

Perry Ridge Lake is too small to act as an effective buffer.

"Due to the poor connectivity of the block to the minor streams downslope, it is our opinion that a post-harvest ECA of 15.0% is unlikely to have a significant effect on flow regime, drainage or channel stability. However, recommendations for maintaining existing drainage patterns in Block

1 are provided below."(p. 6)

ECA is a minor factor compared to poorly drained roads. Many slides are caused by interception, diversion and concentration of water.

"Regarding the NCD leading to Perry Ridge Lake, it is apparent that surface flows are at least periodically present, and harvesting in the area has the potential to increase channel instability and erosion. Recommendations are provided below which will minimize these effects." (p. 8)

In light of the foregoing, this statement appears contradictory, since Summit now focusses on surface flows, that have the potential to increase channel instability and erosion.

"Observations of several drainages on the west side of Perry Ridge were made at lower elevations along the Little Slocan FSR. Low elevation portions of the drainages on the east side of Perry Ridge were not accessed." (p. 10)

One might question why Summit did not assess low elevation portions on the east side, since this is where most of the dwellings are located.

"No hydrological concerns were noted during the field reconnaissance, however several recommendations have been provided to further reduce the small likelihood of post-harvesting impacts." (p. 12)

It is puzzling that Summit concludes that there are no hydrological concerns.

The Ministry of Forests has produced site plans for all three blocks that lay out the details of the proposed timber harvesting. These site plans will be evaluated in detail at a later date.

Yours Truly

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