

Highway 742 – Rummel Creek Cut Slope (North)

This site is located a short distance northbound of the highway crossing of Rummel Creek, approximately 35 km southbound from the junction between Highway 742 and Three Sisters Parkway in Canmore, AB and roughly 30 km northbound from the junction between Highway 40 and Highway 742 near Lower Kananaskis Lake. The site location is shown on Figures A1 and A3 in Appendix A. The site coordinates are listed in Table A1 in Appendix A.

The site inspection was performed on October 18, 2008 by Mr. Andrew Bidwell, P.Eng. of AMEC.

Background

AMEC is not aware of any previously reported problems at this site.

A general description of the physical setting and conditions around this site is presented in Section 4.2 of this report.

Site Observations

- There is an approximately 150 m long rock cut slope along the east side of the highway at this site. The cut slope is up to 8 m high at variable inclinations of up to 70°. Photo 742-49 shows the cut slope.
- The east road ditch along the toe of the cut slope is approximately 3 m wide and typically 0.5 m deep. Photos 742-50 and 742-51 show views of the east ditch.
- The rock exposed in the cut slope is bedded with a strike of 320 and a dip of 60° down to the northeast. The bearing of the road at this site is approximately 340. The rock structure is favorable relative to the west facing cut slope because the bedding dips down into the cut slope.
- At the time of the site inspection, there was up to boulder-sized rockfall debris in the ditch. Photos 742-50 and 742-51 show the debris in the ditch.

Assessment

The rockfall catch ditch design chart shown on Figure C1 in Appendix C suggests a ditch approximately 4.6 m wide by 1.2 m deep for a cut slope of this height and inclination. The existing 3 m wide and 0.5 m deep ditch does not meet these criteria. However, based on the observations from the October 2008 site inspection there is relatively little rockfall volume into the ditch and little, if any, of the rockfall debris appears to bounce or roll onto the road.

Risk Level

The recommended Risk Level for this site, based on AT's rock fall geohazard risk matrix, is as follows:

- Probability Factor of 13 to reflect the active rockfall conditions with several rock falls occurring each year.
- Consequence Factor of 1 based on the apparent ability of the existing ditch to contain the rock fall debris.

Therefore, the recommended Risk Level for this site is 13.

Recommendations

The accumulated rock fall debris should be cleaned from the ditch as necessary to keep the ditch near maximum capacity. This should be done as part of the regular maintenance program for the highway.

No other work or additional mitigative measures are recommended at this time.

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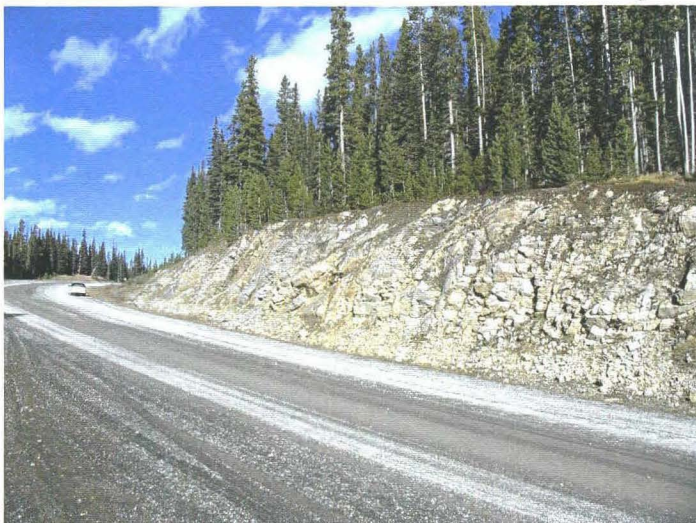


Photo 742-49 (top) – Typical view of the cut slope a short distance northbound of the Rummel Creek crossing.



Photo 742-50 (middle) – Facing southbound along the east road ditch and roughly along the strike direction of the bedding in the exposed rock. Note the favorable bedding plane dip relative to the cut slope, i.e. the bedding dips away from the cut slope face. Note also the minor amounts of rockfall debris in the ditch.

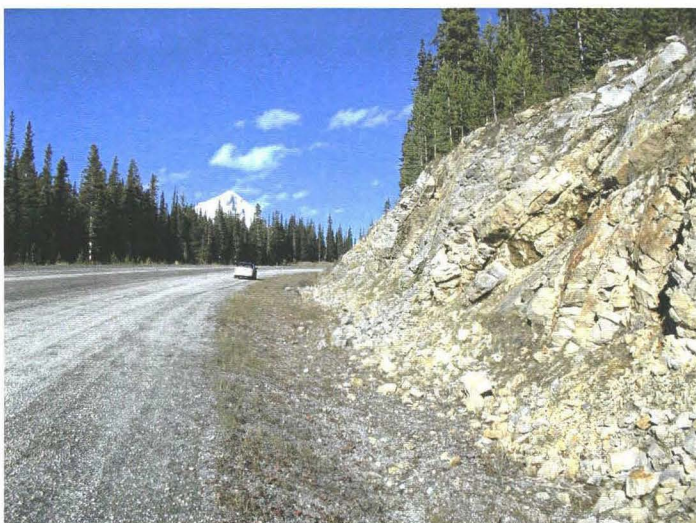


Photo 742-51 (bottom) – Facing northbound along the east road ditch.