

Highway 940 – Km 16.5 Cut Slope

This site is located approximately 16.5 km northbound along Highway 940 from the intersection between Highway 940 and Highway 3, in Coleman, AB. The site location is shown on Figures B1 and B3 in Appendix B. The site coordinates are listed in Table B1 in Appendix B.

The site inspection was performed on September 27, 2008 by Mr. Andrew Bidwell, P.Eng. of AMEC.

Background

AMEC is not aware of any previously reported problems or repair work at this site. The September 2008 site inspection was performed as part of the Highway 940 geohazard corridor review.

A general description of the geological and climatic conditions in this area is presented in Section 5.2 of this report.

Site Observations

- The segment of the highway at this site runs across the upper portion of the south slope of the Vicary Creek valley. This site is located along a curve in the road as it contours along the upper valley slope before descending to the embankment across a tributary creek channel.
- There is a rock cut slope along the south (upslope) side of the road at this site. Photos 940-13 and 940-14 show the cut slope. The cut slope is in the order of 100 m long and exposes weak bedrock that weathers into both gravel-sized pieces of dark grey shale and fine grained soil that wash down into the upslope road ditch.
- The maximum cut slope height is approximately 10 to 12 m, at an overall angle of approximately 33°.
- The upslope road ditch is greater than 5 m wide and typically 0.8 to 1 m deep relative to the road surface.
- Eroded material from the cut slope was visible along the ditch. No debris had reached the road surface at the time of the inspection.

Assessment

The cut slope angle of 33° is gentle enough to prevent eroded material from falling and bouncing down towards the road. The existing ditch appears to be sufficient to contain eroded material without becoming blocked.

Risk Level

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

- Probability Factor of 3 based on rockfall activity on a cut slope of this inclination being improbable.
- Consequence Factor of 1 based on the negligible impact of the cut slope erosion on the road surface.

Therefore, the current recommended Risk Level for this site is 3.

Recommendations

No work is recommended for this site. The accumulated debris may need to be cleaned out from the ditch at some point in the future, however the accumulation of debris to date has not significantly reduced the ditch capacity and it is judged that this can be handled during the course of routine road maintenance for this area.

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Photo 940-13 (top) – Facing northbound along the ditch adjacent to the cut slope. The shadow on the cut slope mostly obscures the weak bedrock that is exposed in the cut. This bedrock weathers into gravel-sized pieces of dark grey shale and fine grained soil.



Photo 940-14 (bottom) – Facing southbound along the ditch adjacent to the cut slope.