S10 – Highway 762 Miscellaneous Sites

These three sites along Highway 762 were visited on July 8, 2003. Photographs from this site visit are included in Appendix S10, along with a detailed discussion of the visits. This discussion has also been submitted in separate unbound sheets for inclusion in Appendix B of the Highway 762 Miscellaneous sites binder. The following is a brief summary of the assessments.

The cracking area at Site A had been patched since the May 2002 inspection. Since the patching, additional cracks have formed along the same pattern as previously noted – indicating that settlement of the road surface is continuing.

Sites B and C had been repaved shortly before the site inspection, therefore it was not possible to observe whether additional cracking had occurred since the previous inspection. The overall conditions at both sites had not appeared to have changed significantly since the May 2002 inspections, however it was not clear if the repaving had been required due to recent movement at either site.

The Risk Level at Site A has been increased from 16 to 24 in order to reflect the confirmation of ongoing movement via the cracking in the road surface that was patched after the May 2002 inspection. The Risk Levels at Sites B and C have been kept at 16 and 20, respectively. AMEC recommends that the annual assessments at these sites be continued.

1.0 Site Visit

The Annual Inspection site visits for these sites were conducted on July 8, 2003. At the time of the visits, the weather was clear with a light breeze.

The sites are all located along Highway 762. Sites A and B are 12.4 km and 29.2 km south of the intersection with Highway 22, respectively. Site C is 550 m north of the intersection with Highway 549.

2.0 Significant Observations

The following observations, considered to be relevant to the stability of the road embankments at each of the sites were made:

Site A

- Patched since the May 2002 inspection. Cracks noted in the patched area with the same overall crack pattern as previously noted (Photos 1 to 4, 6). This indicates the same pattern of slope movement occurring below the road.
- The slope profile below the road showed subtle indications of previous slope movement (Photos 5, 7). No signs of significant recent movement – it is possible that this slope profile is related to the slide that damaged the southbound lane in 1999, therefore it may not represent ongoing movement.

Site B

- This site had been repaved a few hours before the site inspection (Photos 8, 9 and 10), therefore it was not possible to check for additional cracking since the May 2002 inspection.
- Visual inspections downslope of the patched area did not indicate any other signs of movement.

Site C

- The settlement area on the road had been repaved a few hours before the site inspection (Photos 11, 12).
- The ditch to the west of the road has not been regraded since the May 2002 inspection, and presumably still ponds water during wetter times of the year. This may indicate that seepage is occurring below or through the road fill. There was no evidence of a groundwater spring or other outlet on the east side of the road fill.

3.0 Changes from Previous Visit

Site A

- As noted above, the site has been repaved since the May 2002 site inspection. Some cracking of the repaved area has occurred, along the same pattern as before.

Site B

- As noted above, this site was repaved a few hours before the inspection. Could not tell if any additional cracking/settlement had occurred beyond what was noted during the May 2002 inspection.

Site C

- As noted above, this site was repaved a few hours before the inspection. Could not tell if any additional cracking/settlement had occurred beyond what was noted during the May 2002 inspection.

4.0 Discussion

Sites A and B are similar in that they appear to have been circular type failures. Both of these appear to have been repaired by replacement of the road fill with more competent material. To date the repairs seem to have been generally effective, although cracking and minor settlement has continued at Site A.

If cracking in the patched area at Site C continues, the cause is not entirely clear. There does not appear to be any overall stability issues, however, the creek valleys in the area are known to contain glaciolacustrine clays. It is possible that there is a relatively weak foundation, which is resulting in localized failure of the road fill. It is also possible that seepage through or below the fill is causing a loss of ground below or in the fill. The grading of the west ditch is a concern, as it has the potential to continue to pond water during wetter times of the year.

5.0 Assessment

Site A appears to be actively settling at a relatively slow rate, therefore the Probability Factor should be taken as 6, which is an increase from 4 in last year's assessment. Full reactivation of this site could result in a loss of at least one lane of traffic. Therefore, the Consequence Factor should remain at 4. On this basis, the Risk Level is equal to 24, which is an increase from 16 in the 2002 assessment.

Currently, Site B appears to be relatively inactive with periodic maintenance requirements. Reactivation of either of this site could result in a loss of at least one lane of traffic. Given the relative inactivity, the Probability Factor at Site B should be kept at 4. The Consequence Factor should remain at 4. On this basis, the Risk Level is equal to 16, which is unchanged from the 2002 assessment.

Assuming that the cracking at Site C is continuing (could not check directly due to the repaving prior to the site inspection), the cause is uncertain and the movement pattern undetermined. Therefore, the Probability Factor at Site C should be kept at 5. The Consequence Factor should remain at 4. On this basis, the Risk Level is equal to 20 for Site C, which is unchanged from the Spring 2002 assessment.

6.0 Recommendations

The Annual Assessment program already in place should be continued.

The surface conditions of the road at these locations should be carefully monitored by maintenance personnel. Any significant changes at these sites should be reported.

The west ditch at Site C should be cleaned out/regraded as necessary to drain the ponded water. Depending on the existing gradient in the ditch, the installation of a French drain could also be considered.