



THURBER ENGINEERING LTD.

GEOTECHNICAL • ENVIRONMENTAL • MATERIALS

December 4, 2007

File: 15-85-66

Alberta Infrastructure and Transportation
Unit 2, Jewell Building
3603 – 53 Street
Athabasca, Alberta
T9S 1A9

Attention: Mr. Arthur Kavulok

**NORTH CENTRAL REGION GEOHAZARD ASSESSMENT
HWY 754:02 KM 10.4, KM 10.5, KM 10.55 AND KM 10.68 (NC 41)
NORTH OF SLAVE LAKE
2007 ANNUAL INSPECTION REPORT**

Dear Sir:

This letter documents the 2007 annual site inspection of slope instability of the above noted areas located along Hwy 754:02 north of Slave Lake, Alberta (refer to Figure NC41-1, Section F). Thurber Engineering Ltd. (Thurber) undertook this inspection in partial fulfillment of our Geotechnical Services for Geohazard Assessment, Instrumentation Monitoring and Related Work contract (CE143/2006) with Alberta Infrastructure and Transportation (INFTRA).

Mr. Don Proudfoot, P.Eng. and Mr. Masud Karim, M.Sc. of Thurber undertook the inspection on May 24, 2006 in the presence of Mr. Roger Skirrow, P. Eng., Mr. Arthur Kavulok and Dr. Rocky Wang of INFTRA.

1. BACKGROUND

Thurber last visited the site in May 2006 and the site condition at that time is described in our Part B assessment letter in the site binder. Additional information for the site is provided in our call-out report (erosion assessment) dated July 11, 2001, included in Section E of the binder.

2. SITE OBSERVATIONS

2.1 General

Four erosion gullies were viewed along this section of the highway, which is flanked on the southeast by Cabin Creek. The geohazard site locations were more accurately determined this year and have been modified as follows:

- Km 10.4 (formerly noted as km 10.0);
- Km 10.5 (formerly noted as km 10.2);
- Km 10.55 (formerly noted as km 10.45); and
- Km 10.68 (formerly noted as km 10.8).

The changes in conditions noted at each of the sites since last year are shown on the site sketch plan, Figure NC41-1, attached for inclusion in Appendix F of the binder. Selected photographs taken during the visit are also attached.

The site features have already been described in our previous reports. There were no major changes at these sites compared to last year except young trees appeared taller in previously cleared gully areas. As usual, no signs of instability of the highway side slope were evident. The changes in the site specific features compared to the last year are described for each location separately in the following sections.

2.2 Location km 10.4

No changes in site features were observed compared to the 2006 inspection.

2.3 Location km 10.5

No changes compared to last year.

2.4 Location km 10.55

Moderate flow from the culvert was flowing through the channel and spreading out nicely into the bush. The energy from the culvert water flow was being dissipated by the gulley before reaching the channel and no significant channel erosion was observed compared to last year.



2.5 Location km 10.68

No changes compared to last year except that power pole post #327904 was tilted slightly (2 degrees) towards the highway.

3. ASSESSMENT

Overall, the sites looked good. As usual, there were no signs of cracks on the highway pavement, indicating the erosion gullies are not impacting the highway at the present time.

In addition there was no retrogression of the upper portions of the erosion gullies noted. However, there is a risk that the gullies may retrogress toward the highway in the future.

4. RISK LEVEL

The risk level for the location km 10.5 has been assessed as follows:

$$PF (7) * CF (2) = 14$$

A risk level of 14 is considered applicable to this site (compared to 18 last year), based on a Probability Factor of 7 (Inactive, moderate probability of future erosion) and a Consequence Factor of 2 (a small volume slide affecting the roadway could be triggered by future erosion).

The rating has been lowered compared to last year due to favourable condition observed at this site this year.

The other locations have a lower risk level.

5. RECOMMENDATIONS

5.1 Short Term

In the short term the site should be regularly inspected by the MCI to determine the progression of the erosion gullies.

A guard rail should be installed at km 10.55 and a guard rail and end dumped gravel wedge should be installed at km 10.5 to protect traveling motorists from these geohazards that are encroaching close to or into the clear zone.

5.2 Long Term

Since there have been no significant changes at the sites over the last year, the remedial measures recommended in the previous report can be put on hold for the time being.

6. CLOSURE

We trust this assessment and recommendations meet with your needs at this time. Please contact the undersigned should questions arise or if the slide condition worsens.

Yours very truly,
Thurber Engineering Ltd.
Don Proudfoot, P.Eng.
Review Principal

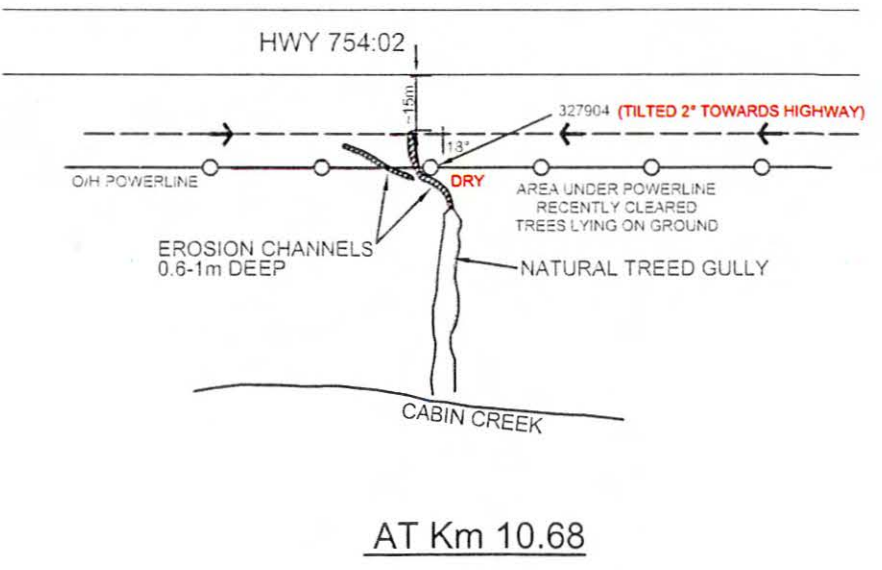
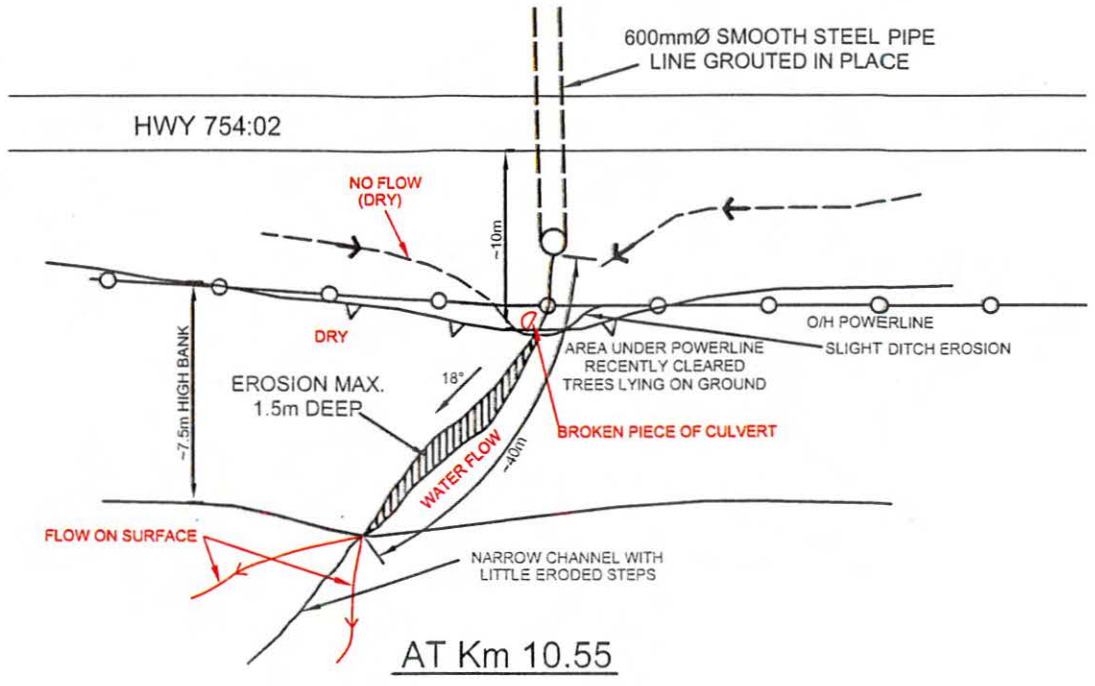
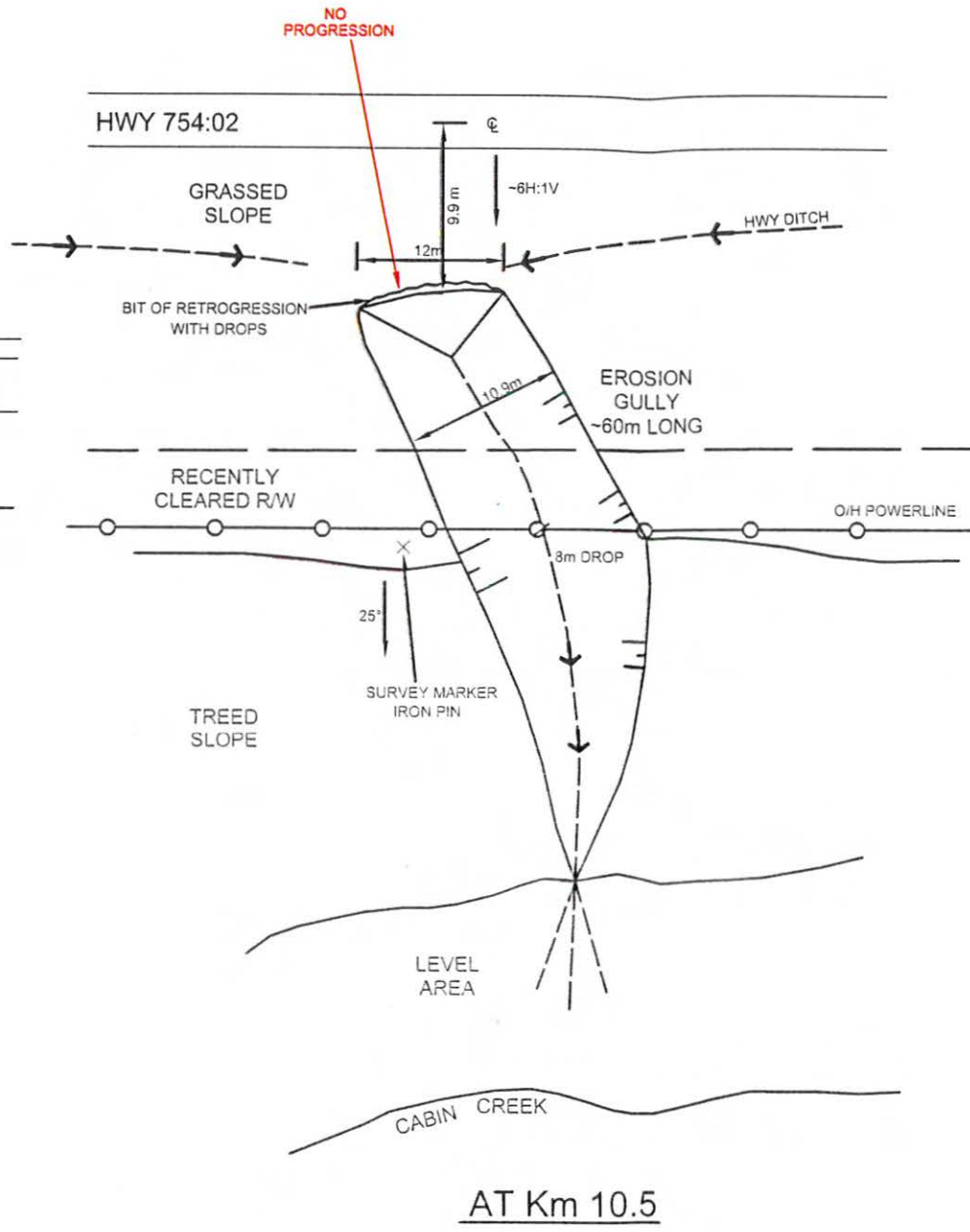
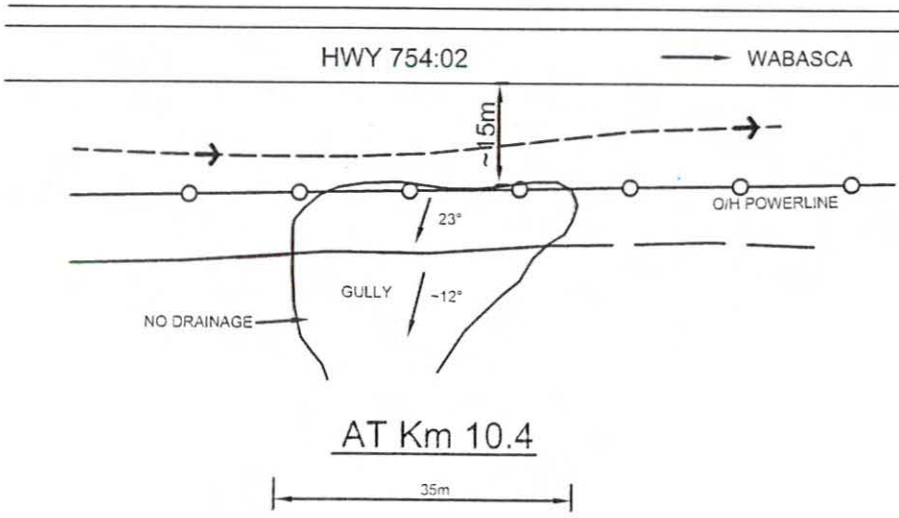


Masud Karim, M.Sc.
Project Coordinator
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Attachments

cc: Mr. Roger Skirrow, P.Eng.
Director, Geotechnical Services (INFTRA)

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OBSERVATIONS IN 2007 ARE SHOWN IN RED

FIGURE NC41-1 SKETCH SITE PLANS NC41- HWY 754:02 - Km10.4, 10.5, 10.55, AND 10.68



Photo 1 & 2 -Looking at the Gully at km 10.4, May 24, 2007.



Photo 3 & 4 -Looking at the Gully at km 10.5, May 24, 2007.



Photo 5 & 6 -Looking at the Gully at km 10.55, May 24, 2007.



Photo 7 & 8 Looking at the Gully at km 10.68, May 24, 2007.