



January 17, 2008

File: 15-85-73

Alberta Infrastructure and Transportation
Room 301, Provincial Building
9621 - 96 Avenue
Peace River, Alberta
T8S 1T4

Attention: Mr. Ed Szmata

**PEACE REGION (SWAN HILLS AREA) GEOHAZARD ASSESSMENT
HWY 2A:54 GUNN'S CREEK SLIDE (SH 15)
2007 ANNUAL INSPECTION REPORT**

Dear Sir:

This letter documents the 2007 annual site inspection of an area of former slope instability located along Hwy 2A:54 about 9 km east of Hwy 49, west of High Prairie, Alberta. Thurber Engineering Ltd. (Thurber) undertook this inspection in partial fulfillment of our Geotechnical Services for Geohazard Assessment, Instrumentation Monitoring and Related Work contract (CE047/2004) with Alberta Infrastructure and Transportation (INFTRA).

Mr. Barry Meays, P.Eng. and Mr. Gurpreet Bala, M.Sc. of Thurber undertook the inspection on June 13, 2007 in the presence of Mr. Roger Skirrow, P. Eng., Mr. Rocky Wang, Mr. Ron Konowalyk, Mr. Brett McPhedran and Mr. Bruce Henderson, all of INFTRA.

1. BACKGROUND

The original slide was located in the south facing slope of an 18 m high embankment fill over Gunn's Creek. The lower part of the slope was buttressed by a 3 to 4 m high berm of about 16 m in width. The slide was present in the 14 m high 4H:1V upper slope above the berm.

Remedial measures were carried out in the fall of 2002 consisting of subexcavating all of the slide material down to intact clay fill and/or clay till and reconstructing the slope with pit run gravel. A subdrain was installed at the base of the excavation prior to installing the gravel backfill. Some of the better quality clay

fill that was removed from the slide area was used to rebuild the outer portion of the slope to help reduce the amount of gravel required for the repair. The scour bowl of the creek area around the outlet of the culvert and the location of ditch scouring were lined with Class 2 rip rap placed over geotextile. An existing surface half culvert was removed and a high flow soil covering was placed in the same location over the rebuilt slope. Design drawings for the slide repairs and test hole logs are included in Section F of the Binder. The estimated cost for slide repairs, including engineering was about \$331,000.

Additional riprap was placed in along the creek banks and bottom in February 2006 at a cost of \$49,000.

Further descriptions of the site and site history are summarized in our 2004 Geotechnical File Review included in Section A of the binder.

2. SITE OBSERVATIONS

The changes in condition since last year are shown on the attached site sketch plan and discussed below. Selected photographs taken during the visit are also attached. A slump measuring about 40 m by 20 m occurred on the north side slope of the highway. A separate call out report was issued for this slump.

The south sideslope and outlet area of the creek was in generally good condition. Slow seepage was noted emanating from the bedding gravel under the subdrain pipe outlet. The riprap that was added at the outlet of the culvert appeared to be performing well. There was additional slumping in the natural creek banks further downstream of the riprap section.

3. ASSESSMENT

The south slide rehabilitation appears to be performing well at this stage. There are no current concerns on the south side of the highway. However, the slide in the north sideslope of the embankment will need to be remediated as discussed in our June 2007 callout report.

4. RISK LEVEL

The remedial measures for the main slide appear to be working well and hence a risk level was not assigned to the south side of the site this year. However, a Risk Level of 36 was assigned to the recent slide located in the north sideslope of the highway.



5. RECOMMENDATIONS

The south sideslope may be removed from the annual geo-hazard assessment program. However, the north sideslope of the highway should now be included.

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

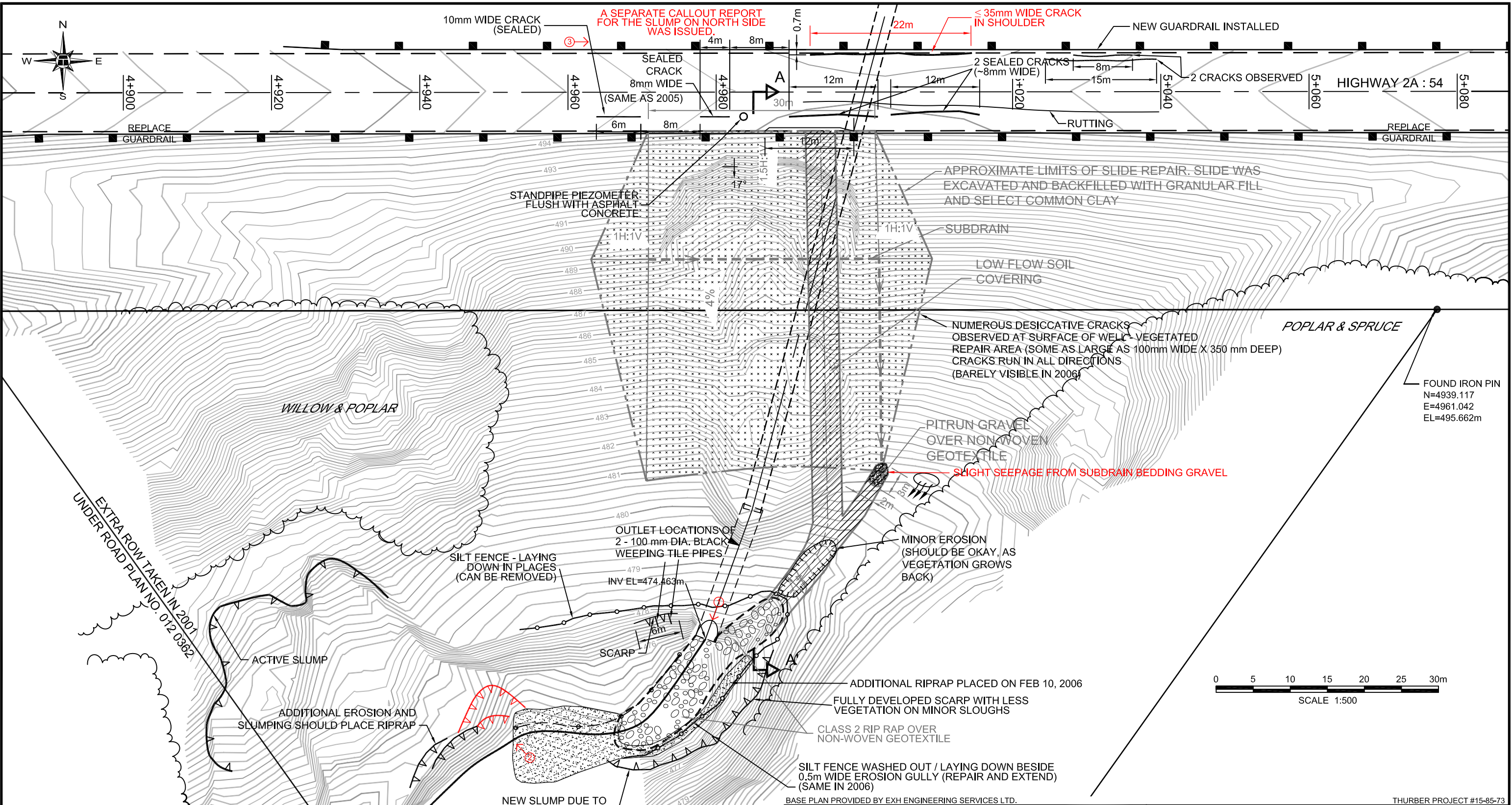
Barry Meays, P.Eng.
Project Engineer

Gurpreet Bala, M.Sc.
Project Coordinator
/dw

Attachments

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

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LEGEND

- ***** GRANULAR FILL COVERED WITH SELECT COMMON CLAY FILL
- ↙ DESIGN SLOPE OF UNDERSIDE OF GRANULAR FILL ZONE
- SUBDRAIN
- ▲ LANDSLIDE SCARP
- ⚡ EROSION
- ③ PHOTO AND DIRECTION
- CRACKS

- NOTES :**
1. FEATURE LOCATIONS ARE APPROXIMATE.
 2. PREVIOUS OBSERVATIONS SHOWN IN BLACK
 3. JUNE 13, 2007 OBSERVATIONS SHOWN IN RED

ALBERTA INFRASTRUCTURE AND TRANSPORTATION

**ANNUAL GEOHAZARD ASSESSMENT
UPDATED SITE PLAN**

Highway 2A:54 West of Gunn's Creek HIGH PRAIRIE, AB

THURBER ENGINEERING LTD.
 GEOTECHNICAL • ENVIRONMENTAL • MATERIALS

ENGINEER: GSB	DRAWN: HH	APPROVED:
DATE: JUNE 2006	SCALE: 1:500	DRAWING No. 15-85-73-SH15-1



Photo 1 - Looking south along culvert outlet riprap, June 13, 2007.



Photo 2 - Southwest view of the slumping at culvert outlet, June 13, 2007.



Photo 3 – East view along north guardrail, June 13, 2007.