GEOHAZARD ASSESSMENT PROGRAM

PEACE RIVER / HIGH LEVEL AREA

2010 INSPECTION

Government of Alberta ■ Transportation

THURBER ENGINEERING LTD.
GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS

Site Number	Location	Name	Hwy	km
PH57	North of Red Earth, AB	Wabasca River Crossing	88:16	Approx. 52
Legal Description		**UTM Co-ordinates**		
NW1/4 22-102-09-W4M		11V N 6415765 E 595814		

	Date	PF	CF	Total
Previous Inspection:	May 20, 2009	12	2	24
Current Inspection:	June 04, 2010	12	2	24
Road AADT:	260		**Year:**	2009
Inspected By:	(Don Proudfoot and Gustavo Padros, Thurber Engineering) (Roger Skirrow, Neil Kjelland, Ted Prue and Ed Szmata, Alberta Transportation)			
Report Attachments:	☑ Photographs ☑ Plans ☐ Maintenance Items			

Primary Site Issue:	Back slope failures		
Dimensions:	See drawing		
Date of any remediation:	None in the last year		
Maintenance:	None in the last year	**Worsened?**	
Observations	**Description**	**Yes**	**No**
☐ Pavement Distress		☐	☐
☑ Slope Movement	Shallow slope failures in backslope	☑	☐
☑ Erosion	Erosion caused by water runoff and continued seepage has attenuated due to growth of vegetation	☐	☑
☑ Seepage	Continued seepage from the water bearing sand and gravel layer located at the top of the slide	☐	☑
☐ Bridge/Culvert Distress		☐	☐
☐ Other		☐	☐

Instrumentation:

None

Assessment (Refer to Figure PH57-1)**:**

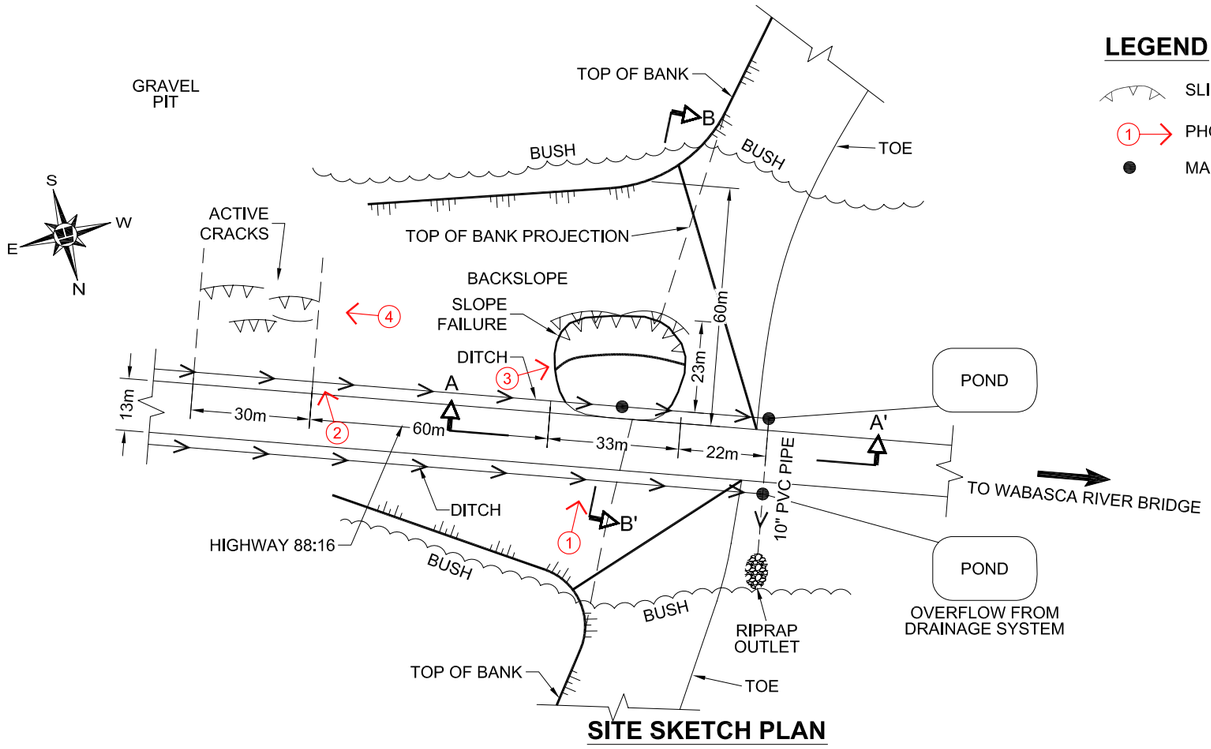
The slump appears to be a shallow slope failure produced by erosion and saturation of the clay till caused by seepage from water bearing sand and gravel layers located over the clay till. The seepage that drains from the gravel pit to the north towards the Wabasca River appears to be intercepted by the south backslope of Highway 88. This condition is supported by the observation of the discharge draining in the south highway ditch and subdrain system, which was considerably greater than the discharge draining on the north ditch and subdrain.

Recommendations:

Seepage mitigation measures are recommended. These may consist of gravel drains installed in the south backslope to conduct the water downslope from the gravel and sand layer into the south subdrain system. For this purpose, trenches 1 m wide and 1.5 m deep could be excavated and backfilled with washed gravel enveloped in non-woven geotextile. The surficial 0.3 m of the excavated trenches should be backfilled with clay and topsoil and seeded. The gravel drains should be spaced about 7.5 m center-to-center across the backslope through the slump area. The upslope end of the gravel drain should extend at least 6 m (on 3H:1V inclination) upslope of the observed seepage zone. The water from the gravel drains would discharge into perforated stub pipes connecting into the top of the south ditch subdrain system at an estimated depth of about 1.5 m to 2 m. Details of the existing drainage system should be reviewed in developing the design.

After the slope drains have been installed and the slide area has dried, the slide material should be removed (taking care not to disturb the drains) and the lower slope benched and rebuilt to its original line with salvaged, moisture conditioned clay till. It should then be promptly topsoiled and seeded.

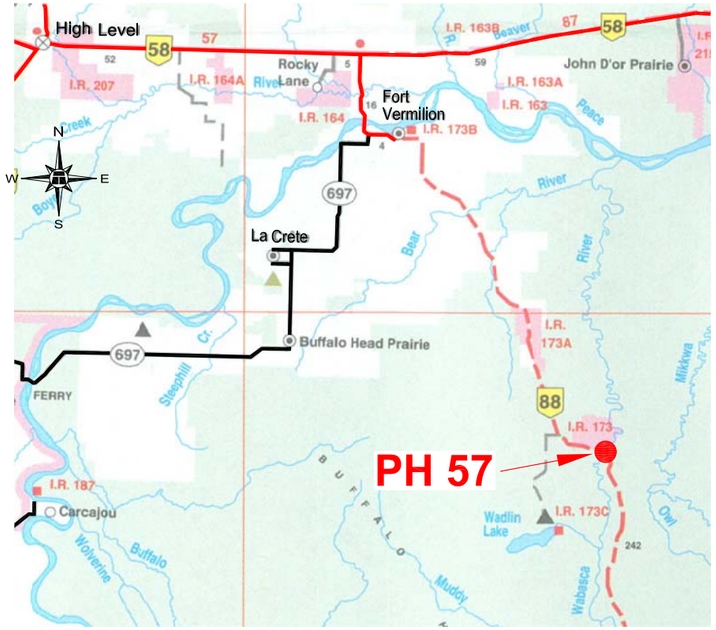
Z:\15\15-16-250\15-16-250_PH57-1.dwg - Layout1 - Nov. 08, 2010



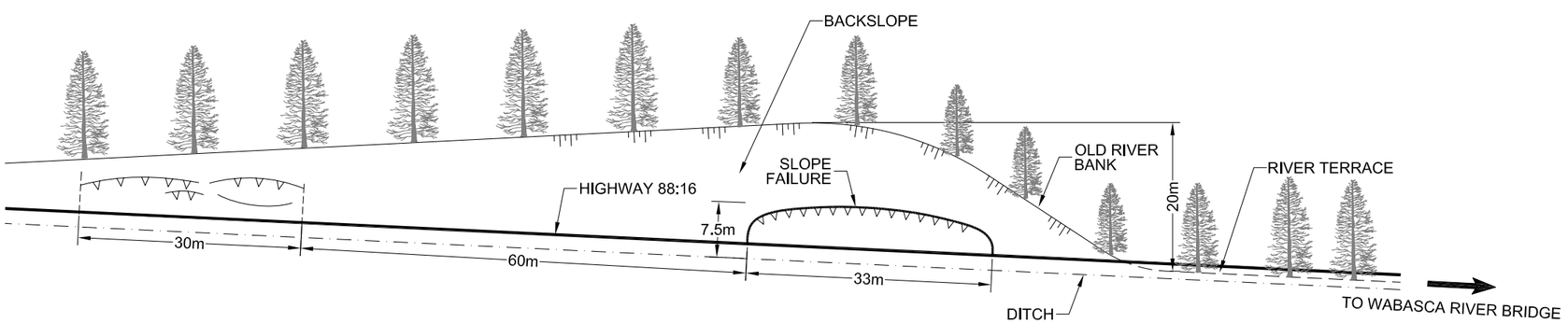
SITE SKETCH PLAN
1:1500

LEGEND

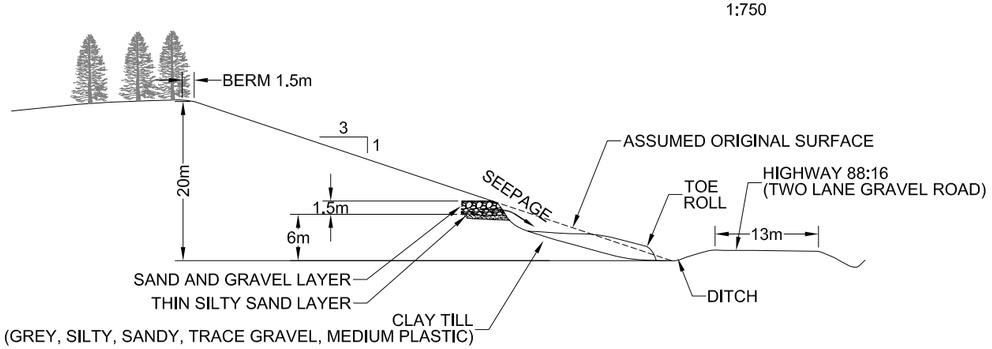
- SLIDE BACKSCARP
- PHOTO AND DIRECTION
- MANHOLE



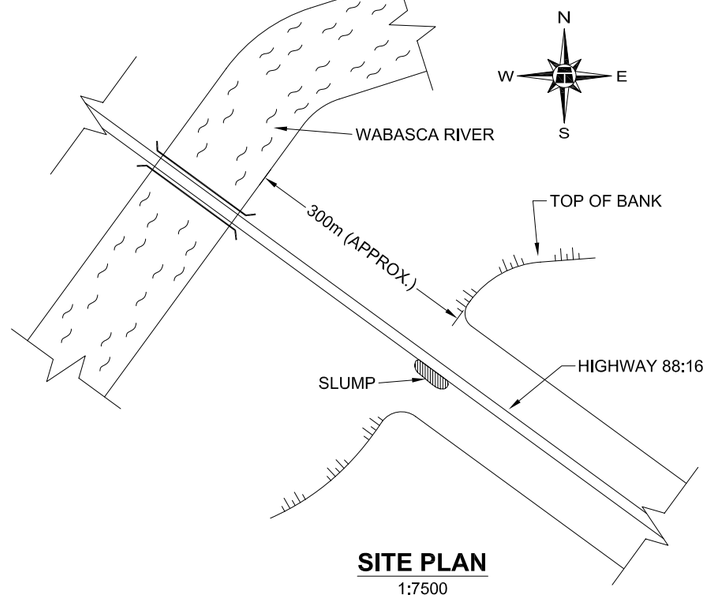
SITE MAP
NOT TO SCALE



CROSS-SECTION A-A'
1:750



CROSS-SECTION B-B'
1:750



SITE PLAN
1:7500

NOTES :

1. FEATURE LOCATIONS ARE APPROXIMATE.
2. PREVIOUS OBSERVATIONS SHOWN IN BLACK
3. JUNE 2010 OBSERVATIONS SHOWN IN RED

FIGURE PH57-1
PH57 : HWY 88:16 - EAST OF WABASCA RIVER CROSSING
PEACE REGION (PEACE RIVER / HIGH LEVEL) GEOHAZARD ASSESSMENTS

DATE : JUNE 2010
THURBER PROJECT # 15-16-250

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Photo 1 - View of slope failure on south backslope, looking south.

Photo 2 - View of active cracks east of main slump, looking south.

Photo 3 - View of backslope, looking west.

Photo 4 - View of cracks east of the site, looking east.