

## GEOHAZARD RISK MANAGEMENT PROGRAM

### North Central Region – Edson / Stony Plain Area

#### 2017 Inspection Report

<b>Site Number</b>	<b>Site Name</b>		<b>Hwy</b>	<b>km</b>
NC85	Pembina River Slide		16A:08	11.74
<b>Legal Land Description</b>	SW 29-53-7-W5M			
<b>UTM Coordinates (NAD 83)</b>	Zone 11U	N5941379	E632506	
<b>Operational Site Instrumentation</b>	<b>Slope Inclinometers</b>		0	
	<b>Pneumatic Piezometers</b>		0	
	<b>Vibrating Wire Piezometers</b>		0	
	<b>Standpipe Piezometers</b>		0	
<b>Date of Last Instrumentation Readings</b>	N/A			

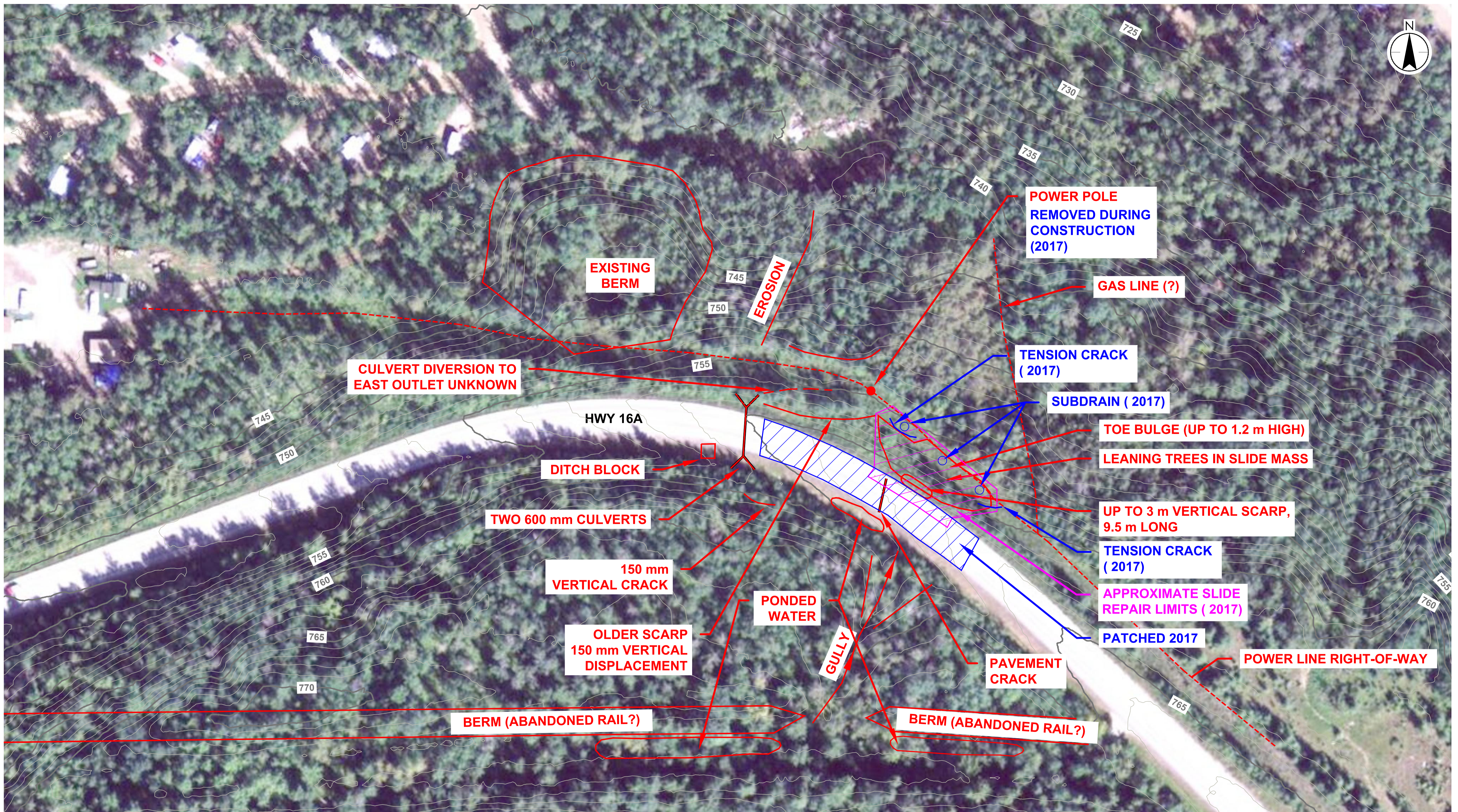
<b>Risk Assessment</b>	<b>Date</b>	<b>PF</b>	<b>CF</b>	<b>Risk Ranking</b>
<b>Current Inspection</b>	July 12, 2017	6	3	27
<b>Previous Inspection</b>	November 2, 2016 (Call-Out)	15	6	90
<b>Report Attachments</b>	<input checked="" type="checkbox"/> Photographs (4 photos)		<input checked="" type="checkbox"/> Site Plan (1 page)	

	<b>Stantec</b>	<b>Alberta Transportation</b>
<b>Inspected By</b>	Carrie Murray and Leslie Cho	Roger Skirrow, Ali Khalid, and Kathleen Davis
<b>Date of Remediation</b>	March 2017	
<b>Recent Maintenance</b>	Patched May 2017	

Primary Site Issue	High groundwater table with high plastic clay within the fill and possibly native subgrade		
Observations	Description and Location	Change from Previous Inspection	
<input type="checkbox"/> Pavement Distress		<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Culvert Distress		<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Bridge Distress		<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input checked="" type="checkbox"/> Slope Movement	Tension cracks on east end of remediation limits. Tension crack upslope from west-most subdrain.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Erosion		<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input checked="" type="checkbox"/> Seepage	Ditch on south side of highway contains ponded water upslope of the culvert.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<input type="checkbox"/> Other		<input type="checkbox"/> Yes	<input type="checkbox"/> No

<b>Discussion</b>	<p>On October 31, 2016, a landslide was observed by the Maintenance Contractor along the westbound lane of HWY16A. Stantec completed an emergency call-out inspection on November 2, 2016. Observations during the call-out inspection included a vertical scarp parallel to the westbound lane of the highway with a maximum height of 3 m. The guardrail was noted to be unaffected, however, three guardrail posts were exposed over a length of 9.5 m. No significance subsidence or cracking was noted on the pavement surface. Ponded water and saturated ground surface were observed in the south highway ditch near the landslide area. The landslide was subsequently repaired in March 2017.</p> <p>Based on discussion with Alberta Transportation (AT), the highway was noted to have been patched in May 2017 as shown in Photo 1.</p> <p>Tension cracks were noted near the eastern limits of the slope remediation as shown in Photo 2. Tension cracks were also observed upslope from the west-most subdrain as shown in Photo 3. Vegetation appears to be growing well over the slope. An overall view of the slope is shown in Photo 4.</p>
<b>Assessment</b>	<p>Although the slope was recently repaired, there were tension cracks observed near the east limits of repair. It is possible that the repair area did not fully encompass the slide limits or that sufficient compaction at the transition between native ground and fill was not achieved.</p> <p>The tension cracks are potential locations where water can infiltrate the slope. During periods of wet weather, increased slope movements may be anticipated.</p>

<b>Recommendations</b>	<p>It is recommended that minor regrading of the slope to fill in the tension cracks be completed to reduce surface water infiltration into the slope.</p> <p>It was decided by AT and Stantec during this site inspection that the site be removed from the annual inspection list unless issues arise from the Maintenance Contractor.</p>
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**NOTES**

1. FEATURE LOCATIONS ARE APPROXIMATE
2. 2016 OBSERVATIONS SHOWN IN RED (NOV. 2016 CALL-OUT INSPECTION)
3. 2017 OBSERVATIONS SHOWN IN BLUE
4. APPROXIMATE SLIDE REPAIR LIMITS (2017) IN MAGENTA

**REFERENCE**

CONTOURS: 2007 LIDAR DATA BE\_MOSAIC WAS PROCESSED NOVEMBER 19, 2016.  
2012 IMAGERY © 2016 VALTUS IMAGERY SERVICES



STANTEC CONSULTING  
10160-112 STREET  
EDMONTON ALBERTA CANADA

ALBERTA TRANSPORTATION  
GEOHAZARD MONITORING PROGRAM  
NC85 HWY 16A:08 - PEMBINA RIVER NEAR ENTWISTLE  
SITE PLAN

DRAWN	MK	CHECK	CDM	APPROVE	ID
DATE	12 SEP. 2017	SCALE	AS SHOWN	PROJECT #	123312435

FIGURE -1

August 14, 2017

Reference: 2017 Annual Inspection Photographs at NC85 – Pembina River Slide  
File Number: 123312435



**Photo 1:** Highway 16A recently patched. Looking north.



**Photo 2:** Tension crack near eastern remediation limits. Looking south

August 14, 2017

Reference: 2017 Annual Inspection Photographs at NC85 – Pembina River Slide  
File Number: 123312435



**Photo 3:** Tension crack upslope from sub-drain. Looking down.



**Photo 4:** Overall view of the repaired slope. Looking east.