Government of Alberta ■
Transportation

STONY PLAIN REGION
GEOHAZARD RISK ASSESSMENT
SITE INSPECTION FORM

SITE NUMBER AND NAME:	HIGHWAY AND KM:	PREVIOUS INSPECTION DATE:	INSPECTION DATE:
NC 2 - Pavement Cracking	Hwy 22:30, km 3.64	June 2, 2009	May 20, 2010
LEGAL DESCRIPTION:	**NAD 83 COORDINATES:**	**RISK ASSESSMENT:**	
SE 11-49-7-W5M	-60737 E, 5897694 N	PF: 10 CF: 4 **TOTAL: 40**	

SUMMARY OF SITE INSTRUMENTATION:	INSPECTED BY:
Slope Inclinometers: 4 (one of which is located outside of landslide area) Pneumatic Piezometers: 1 Standpipe Piezometers: 2	Adam Gmeinweser, P. Eng. (EBA) Chris Gräpel, P. Eng. (EBA) Fred Cheng, P. Eng. (TRANS) Sabhago Oad, P. Eng. (TRANS) Wilf Cousineau (TRANS)
LAST READING DATE: May 10, 2010	
PRIMARY SITE ISSUE: Landslide dating back to 1960's.	
APPROXIMATE DIMENSIONS: 200 m long	
DATE OF REMEDIAL ACTION: Pavement overlay in 2004.	

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Cracking present in eastbound lane. Dip in pavement observed	X	
Slope Movement	X		Continued movement north of Hwy 22		X
Erosion		X			
Seepage		X			
Culvert Distress		X			

COMMENTS:
Location and site plan shown on Figure NC2-1.
Site conditions shown in Photo 1.
Risk level unchanged from 2009.

eba

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SITE OBSERVATIONS:

- Magnitude of crack in pavement has increased from last year. Dip in pavement has developed and is suspected to be in relation to embankment movement. Continued movement could greater deflection in the pavement surface.
- Sealant appears to have failed which may contribute to cracking of the pavement.
- Instrumentation observed near the creek, north of Hwy 22. Suspected to have been installed as part of proposed highway realignment.
- Recent tree clearing for access road in area, possible conducted as part of geotechnical assessment for proposed highway realignment.

RECOMMENDATIONS:

- A fill slope design for twinning of Hwy 22 should consider the presence of the existing slide.
- Each horizontal drain near the creek should be exposed and its outlet covered with coarse drainage rock to prevent clogging. Proposal to conduct this work has been submitted.
- A slope inclinometer should be installed near the creek to monitor toe movement.
- Inoperable slope inclinometers should be replaced.
- Use existing LiDAR data to establish contours across the landslide site. Survey all instrument locations, horizontal drain outlets and landslide features with hand held GPS and add to site plan with LiDAR data.
- Pavement cracks which formed in 2004 should be sealed regularly to minimize infiltration.
- The deflection in the pavement that has developed should be monitored and may require patching if dip increases in size.
- Additional investigation may need to be conducted to should slope movements or pavement deformations begin to accelerate.
- The ditches and culvert inlet/outlets should be inspected for debris or beaver activity impeding water flow.

KEY MAP
N.T.S

LEGEND

- ASPHALT PATCH
- SCARP
- SLOPE INCLINOMETER (SI)
- STANDPIPE PIEZOMETER (SP)
- PN PNEUMATIC PIEZOMETER
- SLOPE INCLINOMETER (SI) DESTROYED

NOTES

1. FEATURE LOCATIONS ARE APPROXIMATE.
2. PREVIOUS OBSERVATIONS SHOWN FOR REFERENCE
3. ACTIVE SLOPE INCLINOMETER SHOWN IN RED
4. BASE DRAWING PROVIDED BY THURBER ENGINEERING LTD.

0 50
Scale: 1: 1 500 (metres)

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EBA Engineering Consultants Ltd.

North Central (Stony Plain)
Geohazard Risk Management Plan
NC-2 Wiley West Park

SITE PLAN

PROJECT NO.	DWN	CKD	REV
E12101085.002	TK	CG/MW	0
OFFICE: EDM	DATE: July 2009		

Figure NC2-1

Photo 1
Crack and dip in pavement on eastbound lane

SUMMARY OF MAINTENANCE RECOMMENDATIONS
2010 GEOHAZARD RISK ASSESSMENT
NORTH CENTRAL STONY PLAIN REGION

NC-02 HWY 22:30 WILLEY WEST

Based on the observations made during the 2010 GRMP site inspection, the following maintenance procedures should be implemented to improve current slope conditions.

1. Locate and expose all horizontal drains near the creek with a small tracked excavator and place coarse drainage rock over the outlets. This will ensure that the drain outlets are not clogged or impeded by soil or organic debris. A proposal to conduct this work has been submitted.
2. Pavement cracks which formed in 2004 should be sealed regularly to minimize infiltration.

Evidence of cracking through 2004 overlay along eastbound lane

3. Patch the dip that has occurred due to slope movement.
4. Inspect for beaver activity.