PEACE REGION – SWAN HILLS
GEOHAZARD RISK ASSESSMENT
SITE INSPECTION FORM

SITE NUMBER	SITE NAME	HIGHWAY & KM	PREVIOUS INSPECTION DATE	INSPECTION DATE
SH 27A	Judy Creek Ditch Erosion	HWY 32:12 KM 48.1	02 July 2014	24 June 2015
LEGAL DESCRIPTION LSD 06-15-64-10-W5M	**UTM NAD 84 COORDINATES** N 6044314 E 601633	**PREVIOUS RISK ASSESSMENT** **PF:** 12 **CF:** 3 **TOTAL:** 36		
		CURRENT RISK ASSESSMENT **PF:** 12 **CF:** 3 **TOTAL:** 36		

SUMMARY OF SITE INSTRUMENTATION:

No Instruments

LAST READING DATE: N/A

INSPECTED BY:

Amec Foster Wheeler: Curtis Treen, Dustin McLachlan, Vincent Huang
Alberta Transportation: Ed Szmata, Rishi Adhikari

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Geotechnical Engineer

Dustin J. McLachlan, P.Eng.
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Reviewed by:
Curtis R. Treen, M.Eng., P.Eng.
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Amec Foster Wheeler Environment & Infrastructure
Permit Number: P 04546

PRIMARY SITE ISSUE:

Erosion gully in the west ditch along Highway 32:12 (Photos 1 to 3). Retrogression and widening of the erosion gully could undermine the highway. An underground fibre optic cable has been exposed by the gully in 2013.

Note: Refer to 2013 call out report for further details

APPROXIMATE DIMENSIONS:

- See plan attached
- Erosion gully extended ~20 m along the fall of the slope of the ditch to the north, parallel to the road, and then turned to the northwest and extended a further 20 m along the fall of the slope to the northwest;
- At its start, the erosion gully has formed a vertical drop. In 2014, the erosion gully was ~2.5 m deep and 8 m wide near the start of the gully;
- The erosion gully was ~5.7 m from the white line on the west side of the highway at its closest location.

DATE OF ANY REMEDIAL ACTION:

None to date

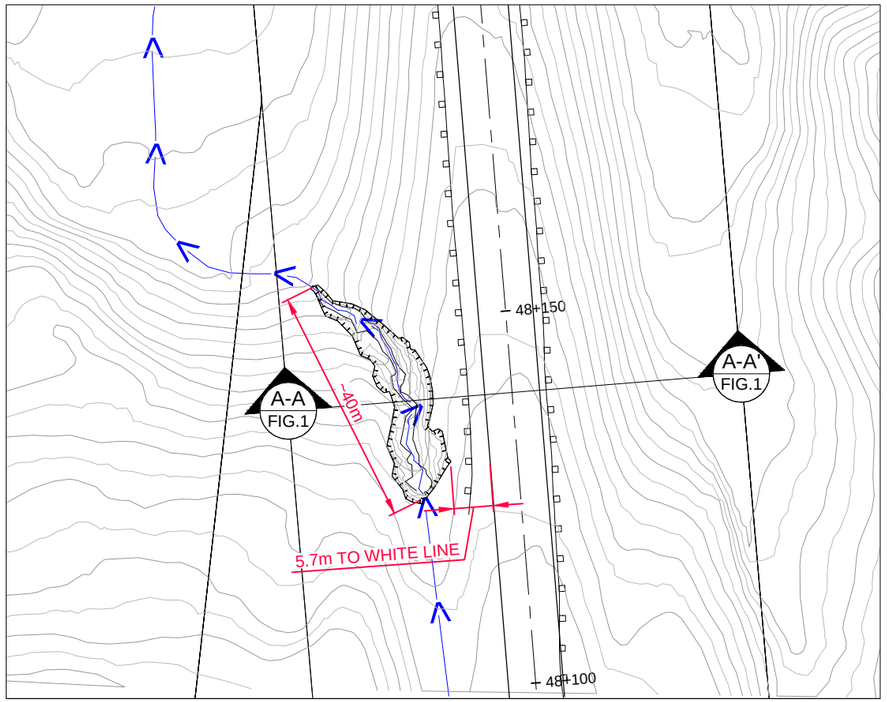
ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION		
	YES	NO		YES	NO	SEE COMMENTS
PAVEMENT DISTRESS		X				
SLOPE MOVEMENT		X				
EROSION	X		Erosion gully within west ditch of highway. The gully had retrogressed 0.6 m along the ditch line between the 2014 and 2015 site inspections. No change in proximity between the highway and gully was noted.	X		X
SEEPAGE		X				
OTHER	X		Underground fibre optic cable is exposed.		X	

COMMENTS/RECOMMENDATIONS:

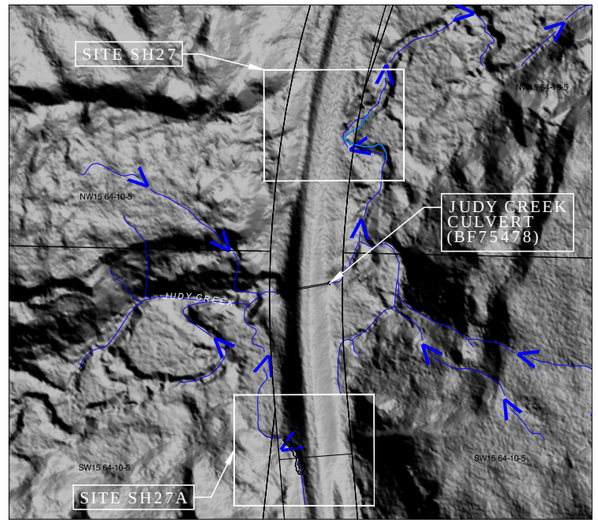
During the 2014 inspection, a survey stake (labelled SH27A-SP1) was installed south of the start of the gully to allow for monitoring of retrogression of the gully along the ditch line. The stake was offset from the start of the gully by an initial distance of 6.7 m. During the 2015 inspection, the distance between the stake and the head of the gully was 6.1 m, indicating 0.6 m of retrogression along the ditch line. There was no measureable retrogression of the gully towards the highway and the closest distance between the gully and the white line on the west side of the highway remained ~5.7 m.

The soils within the gully are considered highly erodible and although there has been no impact to the highway, the erosion is expected to continue and could accelerate during high ditch flow. Although the likelihood of sudden and total closure of the highway at this location is considered relatively small under normal ditch flow conditions, the rate of retrogression, widening and down cutting of the gully would be greater under high flow conditions which would increase the risk of undermining the highway.

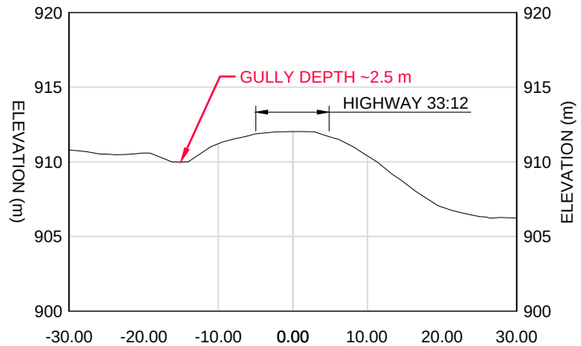
Designs works to repair the erosion gully were completed in summer 2015 with construction expected to commence later in 2015 under the High Water Mitigation Works for the Swan Hills Region. The design consists of installing a perforated sub-drain, reconstructing the ditch grade with compact granular material, and armouring the gully with riprap. For further details, refer to the design documents in Part F of the site binder.



SITE PLAN



KEY PLAN



CROSS-SECTION A-A' AT ~KM48+140

LEGEND:

- FLOW DIRECTION
- GUARDRAIL
- EROSION

NOTES:

1. DRAWING BASED ON AMEC FOSTER WHEELER PROJECT NO. EG10246, DRAWING NO. EG10246.SH27-001.
2. JUNE 24, 2015 OBSERVATIONS SHOWN IN RED.

CLIENT: Alberta Transportation

amec foster wheeler
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DWN BY:	VH
CHK'D BY:	DJM
DATUM:	NAD 83
PROJECTION:	3TM 114°
SCALE:	NOT TO SCALE

PROJECT: GEOHAZARD ASSESSMENT
PEACE REGION (SWAN HILLS)

TITLE: SH27A DITCH EROSION NEAR JUDY CREEK
HIGHWAY 33:12, KM 48.1
SITE LOCATION, PLAN AND CROSS-SECTION

DATE:	AUGUST, 2015
PROJECT No.:	EG10030
REV. No.:	A
FIGURE No.:	FIGURE 1

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Photo 1: (looking south)
Erosion and slumping in west ditch of Highway 32. Erosion gully was approximately ~5.7 m from the white line of the highway.

Photo 2: (looking north)
Note depth of erosion gully and erosion of highway embankment fill.

Photo 3: (looking east)
Note depth of erosion gully, erosion of highway embankment fill, and exposed cable.