

**PEACE REGION – GRANDE PRAIRIE
GEOHAZARD RISK ASSESSMENT
SITE INSPECTION FORM**

SITE NUMBER GP-38	SITE NAME Kakwa R. North Slide at a bridge culvert loc. (2 km north of bridge)	HIGHWAY & KM Hwy 40:42 (2 km north of Kakwa River)	PREVIOUS INSPECTION DATE <i>New Site</i> <i>no inspection previous</i>	INSPECTION DATE May 29, 2014
LEGAL DESCRIPTION -W6M	NAD 83 COORDINATES N 5,442,991 E 118,557	RISK ASSESSMENT PF: 11 CF: 6 TOTAL: 66		
		CURRENT 2014 RISK ASSESSMENT PF: 11 CF: 6 TOTAL: 66		

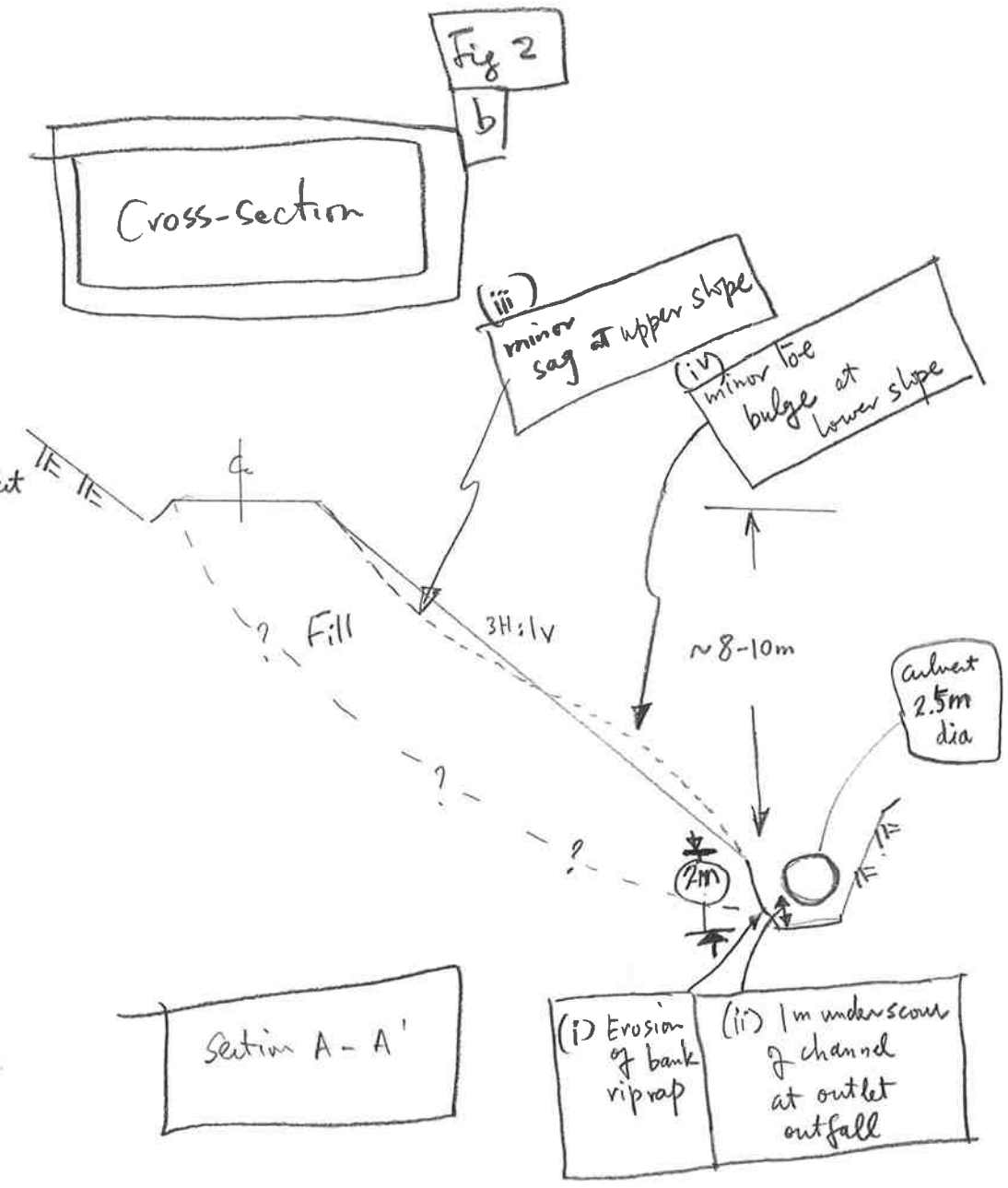
SUMMARY OF SITE INSTRUMENTATION: No Instrumentation	INSPECTED BY: Ed Szmata, Ted Prue, Rocky Wang of AT & Karl Li, Justin Kei of KarlEng
PRIMARY SITE ISSUE: a) Sliding movement of Creek bank slope together with adjacent Fill embankment at a bridge culvert outfall location b) Slide regime remains to be investigated by instrumentation	
APPROXIMATE DIMENSIONS: About 60m stretch of roadway	
DATE OF ANY REMEDIAL ACTION: n/a	

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
PAVEMENT DISTRESS	x		Pavement cracking and minor subsidence (2 to 3 inches observed in July 2013)	x	
SLOPE MOVEMENT	x		- Sliding movement towards creek bank (will investigate) - Outfall from culvert (2m dia) can be substantial to cause erosion creek bank with time		x
EROSION	x		Erosion of creek bank ongoing but substrate like of bedrock type		
SEEPAGE			n/a		
CULVERT DISTRESS	x		Downcutting of channel bed of 1-2m at culvert outlet		

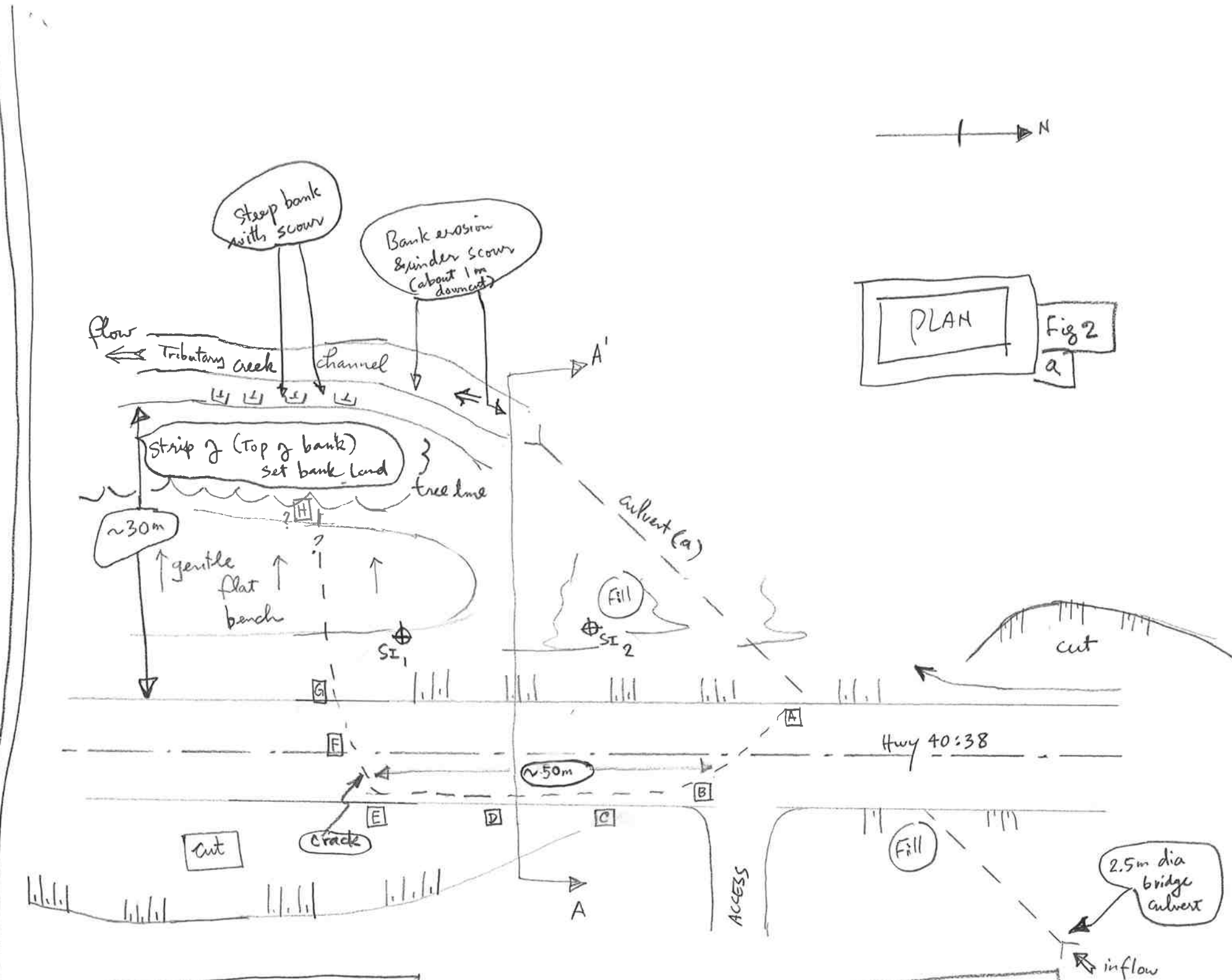
COMMENTS

- 1) This site was new site inspected in July 2013 callout inspection.
- 2) Current 2014 did not observed any deterioration of site since improved milling and patching has covered up the major crack and subsidence areas.
- 3) Should consider instrumentation monitoring
- 4) Continue road patching maintenance
- 5) Advise to inspect site again next year to monitor conditions.

END



N.T.S.



	note:-
(i) crack pattern	A B C D E F G H is the crack pattern as heads up shown in site photos
(ii)	SI ₁ SI ₂ suggested SI locations

July 2013
KL

Figure 2 slide detail sketch
Hwy 40:38 Slide at 2.5km North of Kakua Kuer Bridge



Figure 1
Aerial Photo
Site Location Plan

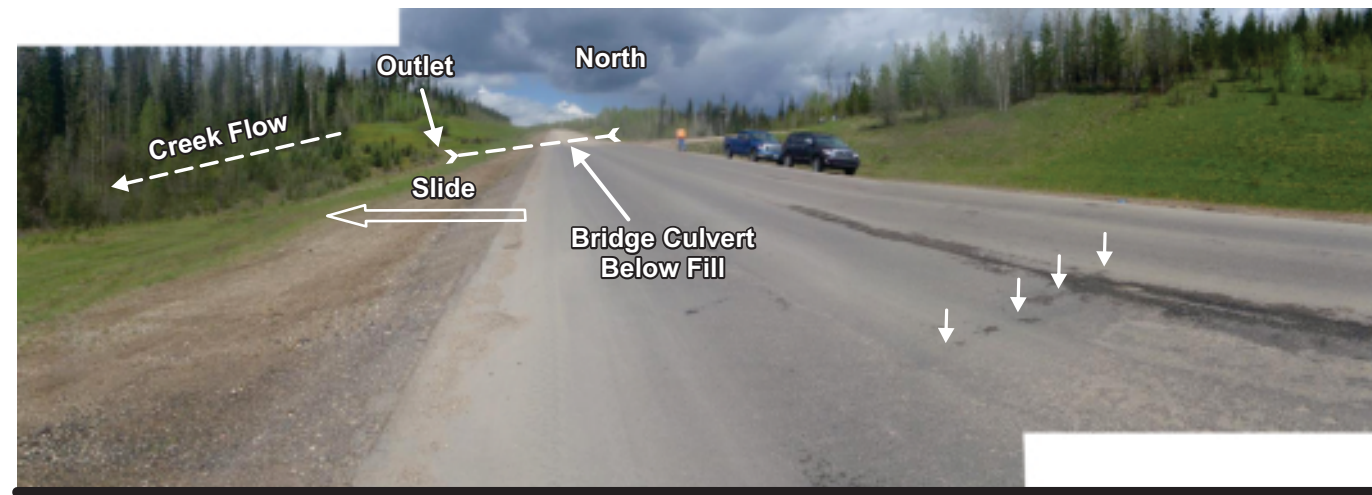


Photo 1

Looking north upgrade (away from Kakwa River bridge)

- Slide movement (likely partly movement of fill and partly movement of creek bank slope adjacent downstream) at outlet of a bridge culvert
- A bridge culvert I-II was constructed below this fill across a creek bed. This is a tributary creek to Kakwa River.
- Movement from right to left of photo
- Patching overlay has covered off most of cracks
- But some minor cracking started to reflect back and still visible



Photo 1a
 Cracks – Closeup



Photo 1b
 Cracks – Closeup



Photo 1c

Another view of pavement

- Patching overlay has covered off most of cracks
- Will monitor to observe reflection recurrence of the cracks

Note: Photos taken on May, 2014



Photo 2

Outlet and outflow of bridge culvert

- Vast outflow of culvert and erosion with downcut of channel at outlet zone evident
- About 1.5m erosion downcut of bank (and toe of fill slope) was evident and riprap stone along bank was eroded
- Minor toe rolling and some lateral spreading (at upper portion) of fill embankment can be observed



Photo 2a

Outlet and outflow of bridge culvert

- Vast outflow of culvert and erosion with downcut of channel at outlet zone evident
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Photo 2b

Channel condition just downstream of culvert outlet

Note: Photos taken on May, 2014