Alberta TRANSPORTATION

Karl Engineering Consultants Ltd.

PEACE REGION – GRANDE PRAIRIE
GEOHAZARD RISK ASSESSMENT
2010 SITE INSPECTION FORM

SITE NUMBER	SITE NAME	HIGHWAY & KM	PREVIOUS INSPECTION DATE	INSPECTION DATE
GP-18	Sturgeon Creek	Hwy 49:12	June 9, 2009	May 18, 2010

LEGAL DESCRIPTION	NAD 83 COORDINATES	RISK ASSESSMENT
LSD 13-35-70-22-W5M	N 6,107,120 E 483,726	PF: 2 CF: 1 TOTAL: 2**(after repair 2010) PF: 10 CF: 4 TOTAL: 40 (prior to 2010 repair)

SUMMARY OF SITE INSTRUMENTATION:	INSPECTED BY:
No Instrumentation at this site.	(i)KarlEng: Karl Li (ii) AT: Ed Szmata, Roger Skirrow

PRIMARY SITE ISSUE:

I) **Repairs to the slide were constructed and completed in July 2010 under AT Contract 7568/09 by In-Line Contractors. With completion of the repairs, no major issue remains for this site.

Prior to the construction of repairs, the issues were

II) Sliding of sliver fills (i.e. previous highway widenings) occurred at 6-8 locations of approach fills on both (upstream and downstream) sides of Sturgeon Creek (concrete arch culvert). Two slides have their headscarp encroached close to pavement edge (rendering overhang of guardrail) to require urgent repairs.

III) High groundwater seepage conditions rendered adverse effect on stability of fills. Possible deleterious fills from previous construction malpractices maybe contributory issues for historic upgrades from local roads.

Note:
Refer to previous 2008 Slide Tour and earlier reports for details.

APPROXIMATE DIMENSIONS:

Prior to the construction of repairs, there were a total of 7 slides at this site located at SE, SW and SW of culvert location:

Slides (area in sq.m.) -- SE-1(@723), SE-2(@612 sq.m.), SE-3(@295)
SW-1(@243), SW-2(@383), SW-3(@401)
NE-1(@1354)
(Note☺
(Slides SE-3 and SW-3 are at backslope cuts, the rest are at sideslope fills)

DATE OF ANY REMEDIAL ACTION:

Repairs to the slide were constructed and completed in July 2010 under AT Contract 7568/09 (by In-Line Contractors). KarlEng provided the design and construction management of the repair construction.

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
PAVEMENT DISTRESS		x	Sliding of sideslopes have not affected roadway pavement yet		x
SLOPE MOVEMENT	x	x	i)Movement of fills constructed over river flood plain and the fills maybe of sliver fills of deleterious nature used for roadway widening construction ii)Groundwater seepage is adverse influence to fill stability iii)** Repair to slides was completed in July 2010. New slope were reconstructed.	**	x
EROSION		x	n/a		x
SEEPAGE	x		(i)Seepage along SE ditch (ii)Seepage obvious exiting from weepholes of walls concrete culvert (iii)Strong groundwater regime in the area (iii)** weeping drain tiles installed at base of fills	**	x
CULVERT DISTRESS		x	(i)There was up-thrust scour hole along basal slab of concrete arch culvert (this was repaired around 2002) (ii) No basal up-thrust distress observed since last 2002 repair		x

COMMENTS:
In current 2010 site visit, it was reviewed that

1) Over previous year 2009/2010, the repair the several slides was satisfactorily constructed and completed.
2) Site inspection should be continued for one more year (i.e. in year 2011) to observe performance of the repaired slopes. Then, this site can be deleted off the list of geohazard sites.

Important Note:
This form assessment is an update for current year only. Please refer to the detailed assessment provided as in the 2008 Annual Assessment (letter report) and other earlier Reports for background understanding of this site.

END

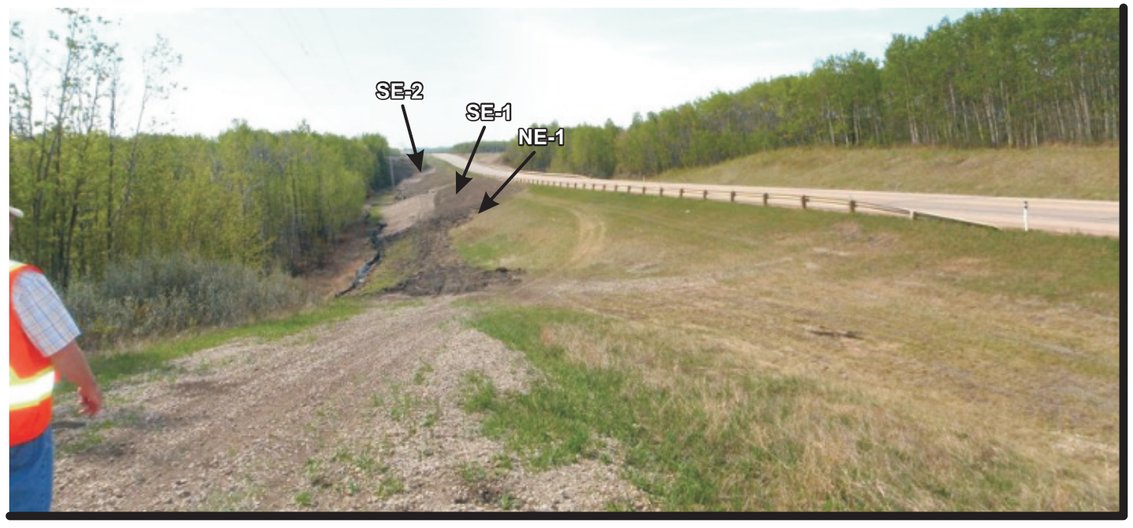

Photo 1
Looking south along east (downstream) sideslope
Repaired Slides NE-1, SE-1 and SE-2. General view along east ditch

Photo 1a
Closed up view

Photo 1b
Closed up view

Note: Photos taken on May 2010

Photo 2
Looking west at outlet of culvert (downstream) and sideslope
Another view of Repaired Slides NE-1, SE-1 and SE-2

Photo 2a
Another view at top elevation of culvert outlet
Repaired Slides NE-1 & SE-1

Note: Photos taken on May 2010

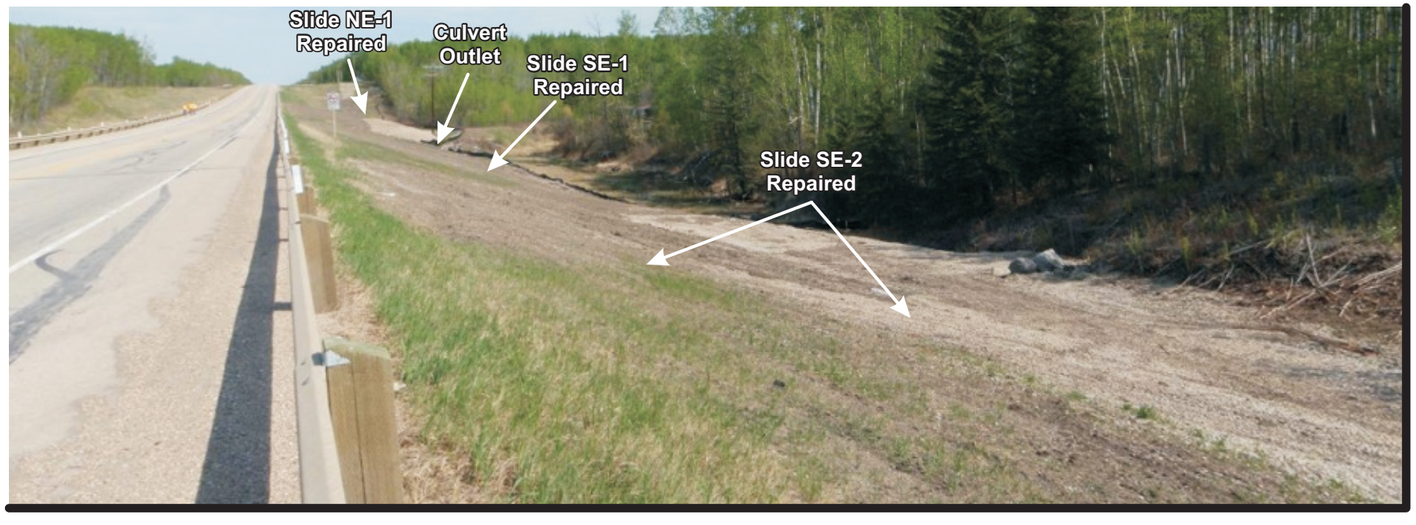

Photo 3
Looking north along east (downstream) sideslope of approach fill embankment across Sturgeon Creek from south (near upland) edge of this crossing
A series of 3 Repaired Slides (NE-1, SE-1, SE-2) along the east sideslope of fill embankment

Photo 3a
Looking south (at top of upland) along east ditch
Repaired (SE-3) Slide at upland verge
Repaired (SW-3) Slide at upland verge at opposite ditch

Note: Photos taken on May 2010

Photo 4
Looking west at upstream (south) bank adjacent to culvert inlet
Repaired Slide (SW-1) just adjacent to bank and above headwall

Photo 5
Looking south along west ditch (upstream side of culvert) culvert inlet
A view of SW-1, SW-2 Repaired Slides

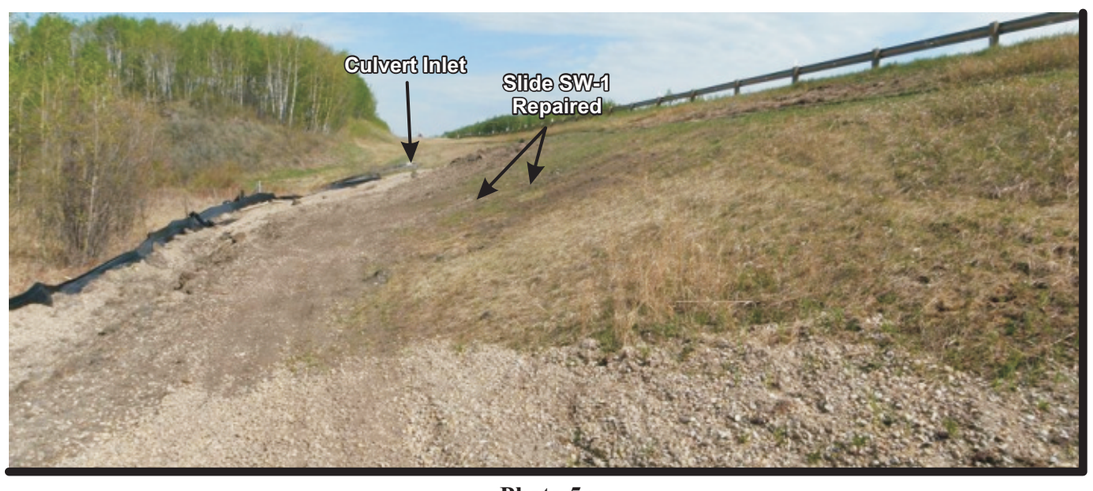

Photo 5a
Looking north along west ditch (upstream side of culvert) culvert inlet
SW-1 just adjacent to Wing-wall of culvert

Note: Photos taken on May 2010

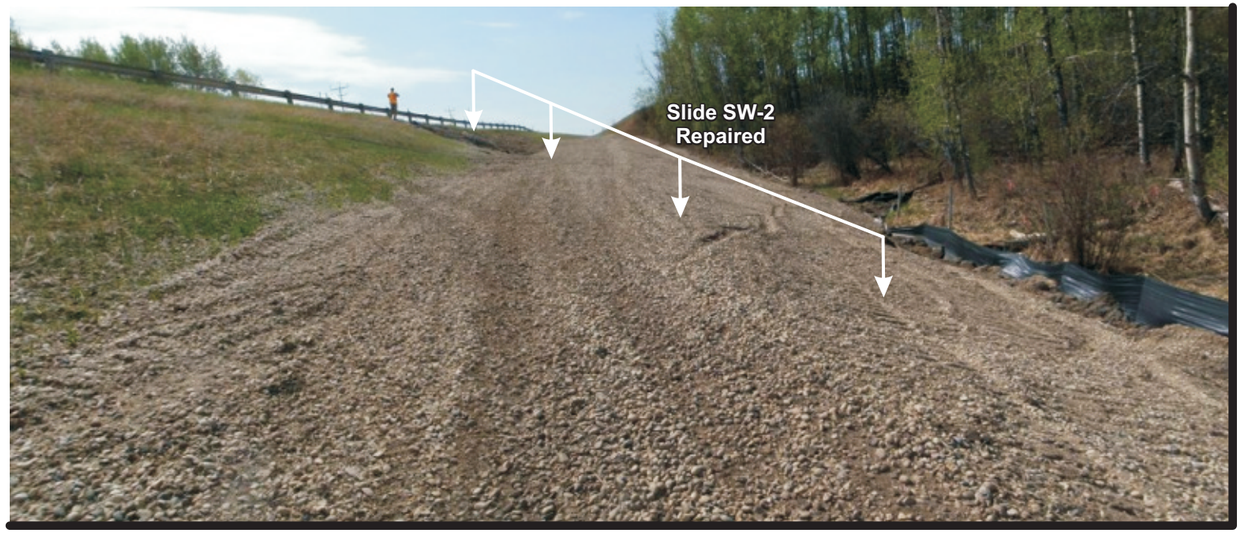

Photo 5b
Looking south along west ditch
SW-2 along sideslope
SW-3 along verge of valley wall

Photo 5c
Looking south along west ditch
SW-2 along sideslope
SW-3 along verge of valley wall

Photo 5d
Looking south along west ditch
SW-2 along sideslope
SW-3 along verge of valley wall

Note: Photos taken on May 2010