

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

SITE NUMBER GP-30-a	SITE NAME Iosegun River valley crossing West backslope- Catchwater ditch slide	HIGHWAY & KM Hwy 43:12	PREVIOUS INSPECTION DATE May 21, 2013	INSPECTION DATE May 27, 2014
LEGAL DESCRIPTION LSD 2-35-61-18-W5M	NAD 83 COORDINATES N 6,018,494 E 526,876	PREVIOUS RISK ASSESSMENT PF: 10 CF: 3 TOTAL: 30 (downdrain failure)		
		CURRENT 2012 RISK ASSESSMENT PF: 10 CF: 3 TOTAL: 30 (downdrain failure)		

SUMMARY OF SITE INSTRUMENTATION: No instrumentation.	INSPECTED BY: (i)KarlEng: Karl Li, Justin Kei (ii) AT: Ed Szmata, Ted Prue. Bruce Henderson, Rocky Wang
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PRIMARY SITE ISSUE:
In 2011,

i) Leakage of a buried down drain “Big O” pipe has occurred during spring 2010 causing the erosion scouring of slope. The buried down drain pipe was recently installed in Fall 2010 and its performance was not successful. For a period of 2 year since the pipe has been leaking, the erosion damage and movement of slope was observed non-substantial.
It is desirable to observe the leakage condition for a few years further prior to deciding on a redesign and new construction on a new channeling device for drainage outfall of the waters from backslope catchwater ditch (as originally intended for the buried downdrain pipe).

As noted in previous reports:

ii) The sliding of backslope occurred because of over-spillage of surface water from a catchwater ditch (on top of backslope) that is lacking in hydraulic capacity (grade is too flat and channel section too small).

iii) For drainage of waters from catchwater ditch, a buried pipe was opted to conduct flows down the 3H:1V slope. This construction was attempted in Fall 2010 but it performance was unsatisfactory.

Note:
Refer to previous 2010 Slide Tour and earlier Reports for details.

APPROXIMATE DIMENSIONS:
As a result of this 2011 leakage failure of the buried downdrain pipe,

i) 110m of buried “Big O’ downdrain pipe needs to be excavated and replaced with other

<p>drainage option.</p> <p>Prior to Oct 2010 repair with use of downdrain pipe, the slide distress area entail</p> <p>ii) Slide area 50mx30m, backslope @3H:1V at about 30m slope height. This slide area was remediated by regarding the slope and installing finger drains at seepage spots.</p> <p>iii) About 300m (Sta. 420 to Sta.720) length of backslope ditch was assessed too flat and was regraded (Elev. 850m to Elev.835) to outflow into the downdrain pipe.</p>
<p>DATE OF ANY REMEDIAL ACTION:</p> <ul style="list-style-type: none"> - Oct 2010, the following construction were constructed. <ul style="list-style-type: none"> o Regrading of catchwater ditch to sufficient hydraulic efficiency. o Installation of a buried and anchored “Big O” downdrain to carry confined outflow from catchwater ditch down to highway ditch o Installation of a splash pad at downdrain outlet o Installation of finger drains to tap to seepage zones o Regrading of slope with simonizing of escarpment zones for slope reconstruction. - Spring 2011 <ul style="list-style-type: none"> o Failure (leakage and joint separation) of buried and anchored “Big O” downdrain was observed to caused soil erosion along slope face.

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
PAVEMENT DISTRESS		x	n/a		
SLOPE MOVEMENT	a), b**))		(a) Previous sliding movement of backslope was remediated by regrading of slope in Fall 2010, (b) Due to leakage failure of downdrain, <u>**new slide movement may likely</u> evolve from erosion (spring snow runoff) and remains to be observed	**	
EROSION	x		Leakage of a buried “Big O” downdrain pipe (2010 Fall) occurred to cause erosion of slope Its effect remains to be observed	x	
CULVERT DISTRESS	x		Leakage of a buried “Big O” downdrain pipe creating erosion of slope		x

COMMENTS:
 In current 2014 site visit, it was reviewed that

1) No obvious deterioration of site occurred. The pipe leakage did not aggravate instabilities of backslope and its backslope stability can be assessed adequate. Despite severance and squash

damage to pipe causing its leakage, wash flow is still transmitting to outflow from its end to ditch. It is apparent the water flow has found its path with no obvious detrimental effect to stability of the backslope

Reiterate from previous reports

- 2) Over preceding year (2011/2013), the leakage along the leaking pipe (and erosion thereof generated) has not deteriorated to create adverse soil movements (internal erosion or cavitation) of the backslope. Good grass catch has established over some leakage erosion areas.
 - 1a) Water is outflowing at outlet from the leaking pipe (despite it was separated and swashed at several sections. No serious erosion or slumping of grounds has evolved as result of the pipe leaking.
 - 1b) It is advisable to further observe if any natural stabilization can evolve for a drainage path to establish itself down this slope.
- 3) Options to repair the leaking pipe should be postponed and observation of recuperation of the site should take precedence at this time. It is advisable to delay the option of designing an open channel gabion chute (down the 3H:1V backslope) to replace the failed down drain "Big O pipe"(Fall 2010) as was intended previously.

Important Note:

This form assessment is an update for current year only. Please refer to the detailed assessment provided as in the 2011 Annual Assessment and earlier Reports for background understanding of this site.

END

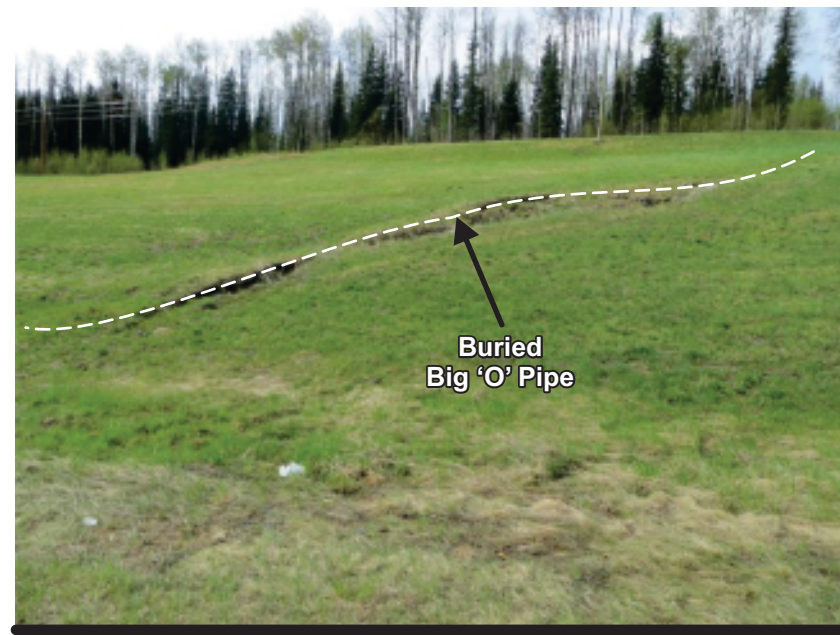


Photo 1

Looking west upgrade at backslope along eastbound lane

- Location of buried buried Big “O” (Elephant Trunk) pipe
- Which has suffered separation at joints and swashing at some sections



Photo 1a

Another view

- Looking south (towards WhiteCourt)

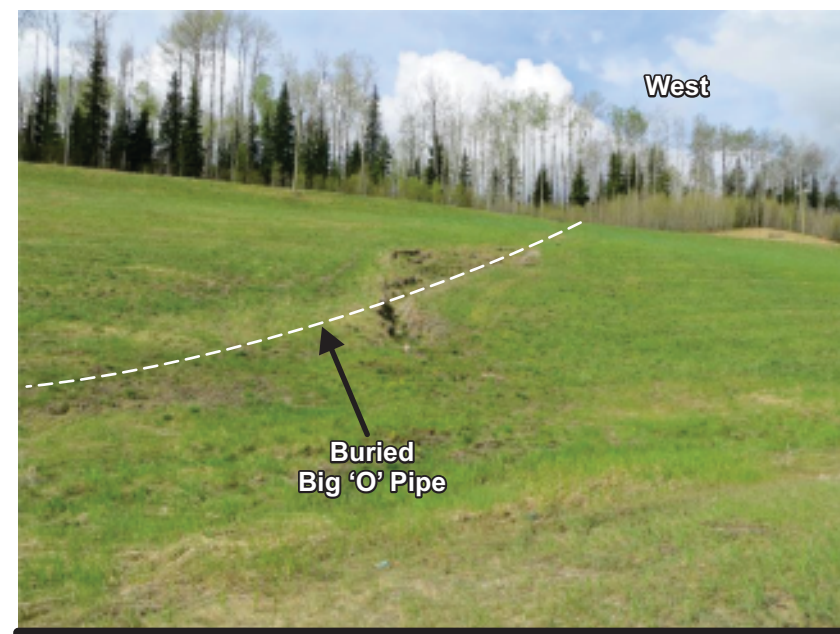


Photo 1b

Another View

- Subsidence of ground along buried pipe alignment have stabilized and not deteriorating



Photo 1c

Outlet of buried Big “O” pipe

- Water outflow onto ditch
- Water passage is functioning despite pipe damages

Note: Photos taken on May, 2014

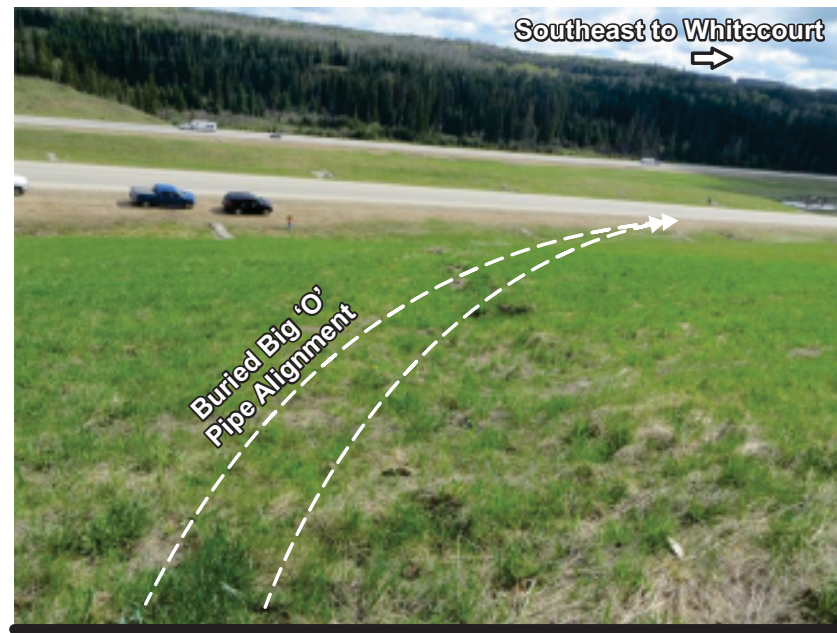


Photo 2

Looking from catchwater ditch from top of backslope

- Backslope not too affected by minor subsidence of soil due to erosion washout from separation of pipe sections
- Backslope in survivable acceptable conditions



Photo 2a

Catchwater Ditch and pipe inlet conditions



Photo 2b

Catchwater ditch section (top of backslope) at its westerly section prior to flow entry into pipe



Photo 2c

Catchwater Ditch and pipe inlet conditions

Note: Photos taken on May, 2014