

GEOHAZARD ASSESSMENT PROGRAM

PEACE RIVER / HIGH LEVEL AREA

2014 INSPECTION

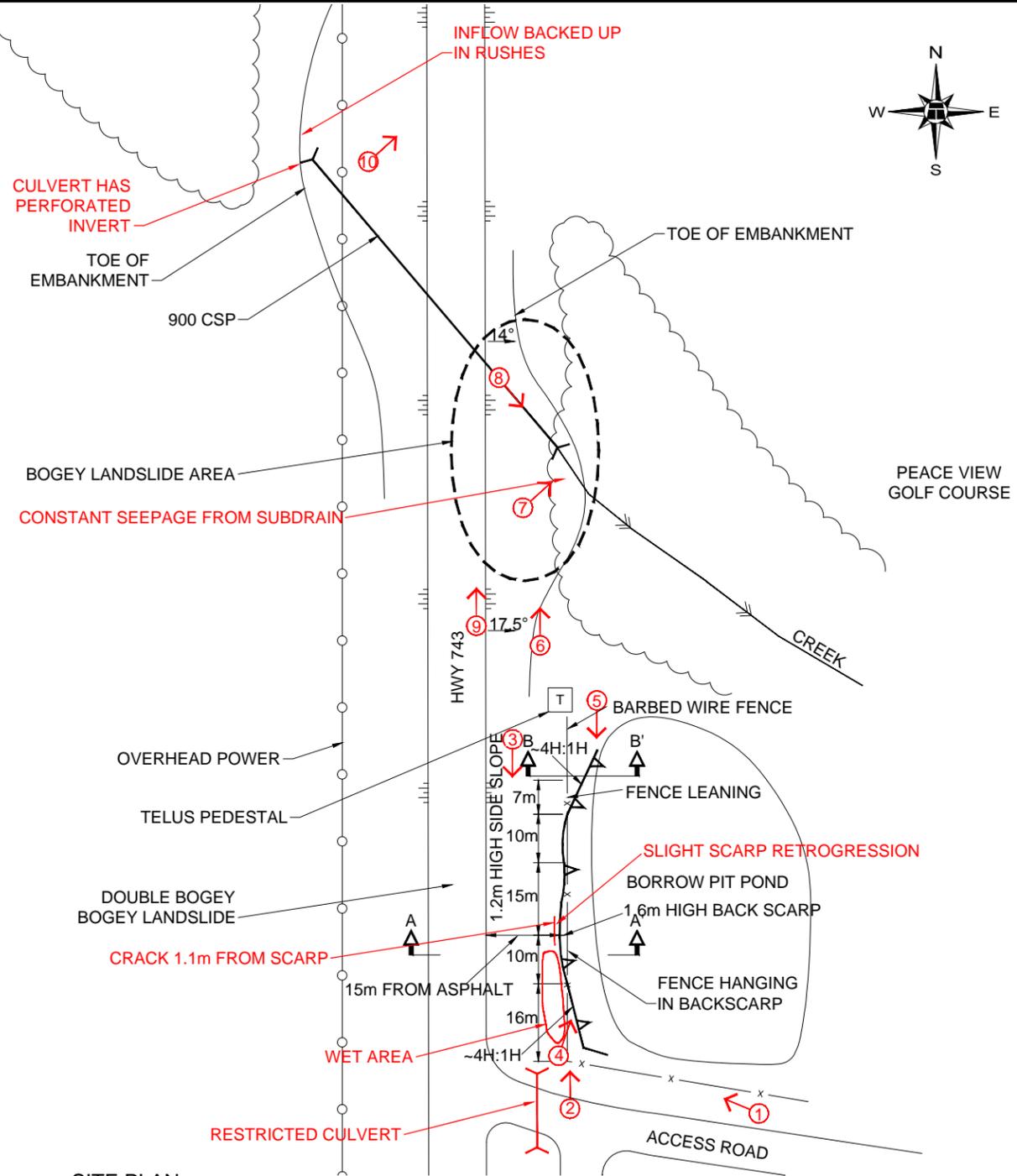


Site Number	Location	Name	Hwy	km
PH68	North of Town of Peace River	Bogey and Double Bogey Landslides	743:02	Approx. 3.6
Legal Description		UTM Co-ordinates		
12-84-22-5		11V N 6235659	E 478510	

	Date	PF	CF	Total
Previous Inspection:	May 30, 2013	4	4	16 Bogey Slide
		13	2	26 Double Bogey Slide
Current Inspection:	June 10, 2014	4	4	Bogey Slide
		13	2	Double Bogey Slide
Road AADT:	3280	Year:		2014
Inspected By:	(Don Proudfoot and Shawn, Thurber Engineering) (Rocky Wang and Ed Szmata, Alberta Transportation)			
Report Attachments:	<input checked="" type="checkbox"/> Photographs <input checked="" type="checkbox"/> Plans <input checked="" type="checkbox"/> Maintenance Items			

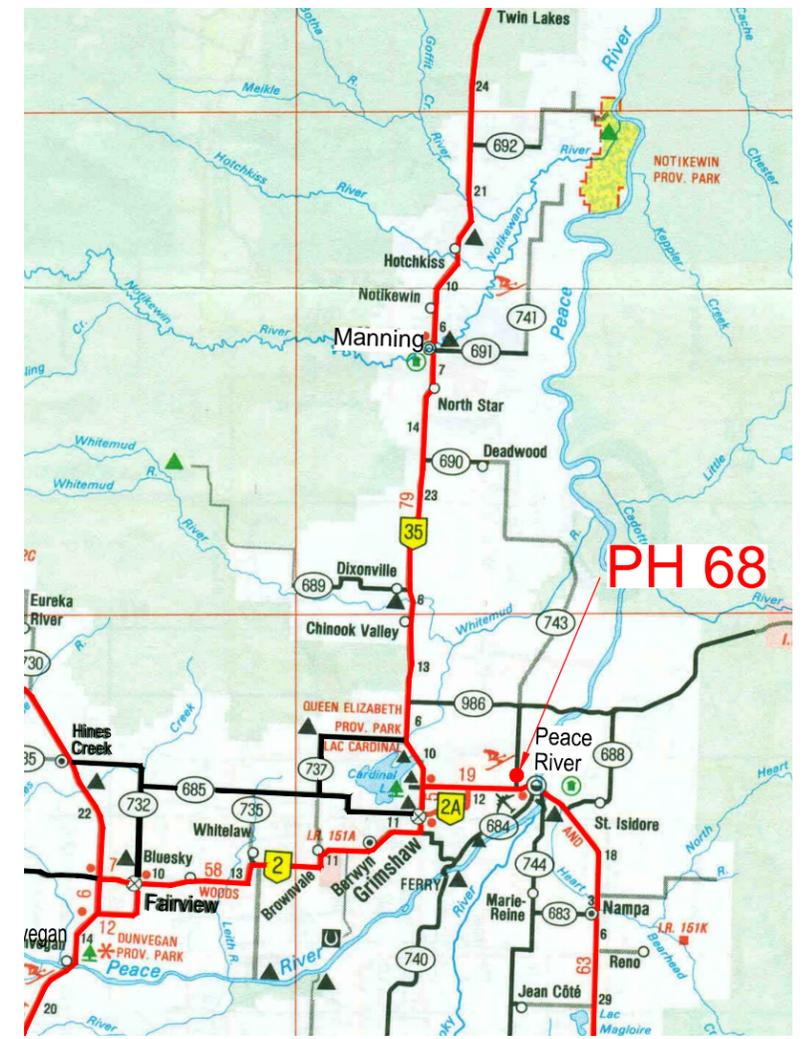
Primary Site Issue:	The Bogey slide first occurred in 2004 – 2005. Site issue was slope movement affecting highway. The Double Bogey Slide occurred in 2012 – 2013 in the cutslope of a borrow pit pond, south of original Bogey slide.		
Dimensions:	See drawings		
Date of any remediation:	Highway paved in 1988/1989 which included grade widening and profile improvement. Overlaid in 2000 with 170 mm of Asphalt. The Bogey slide was repaired in 2011 and paved in 2012.		
Maintenance:		Worsened?	
Observations:	Description	Yes	No
<input checked="" type="checkbox"/> Pavement Distress	Bogey Slide Minor cracks observed on the asphalt. Double Bogey Slide No impact on pavement.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Slope Movement	Bogey Slide Side slopes stable. No cracks. Double Bogey Slide 1.6 m back scarp in the cutslope of the borrow pit pond, has extended 4 m into highway R/W and has retrogressed by about 1.1m since 2013.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Erosion		<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Seepage	No seepage observed at both locations.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Culvert Distress	Inlet of Centerline Culvert at Bogey Slide on west side of Hwy 743 is obstructed with Rush overgrowth and should be properly cleaned to allow better water flow.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Golf course access road culvert located south of the Double Bogey Slide is obstructed. Culvert should be cleaned and outlet should be graded to reduce ponding.		
<input type="checkbox"/> Other		<input type="checkbox"/>	<input type="checkbox"/>
Instrumentation: None at this site.			
Assessment Bogey Slide The side slopes and the highway at the Bogey slide location were repaired in the fall of 2011, and no signs of movement were observed during the site visit of spring 2013 (Photos 6 to 10). Double Bogey Slide A landslide developed in the cutslope of the borrow pit pond. The back scarp was measured to be about 1.6 m deep. The scarp was about 15 m from the edge of the asphalt. The barb wire fence was observed leaning at the scarp location (Photos 1 to 5). The potential cause is cyclic filling and draining at the pond combined with a high groundwater table, and weathering and progressive loss of cohesion in the clay cut slopes. The cutslope angle of 2.2H:1V is steeper than usual for high plastic clay in this area.			
Recommendations: Bogey Slide The Bogey slide should be observed for stability and highway performance as part of the site visits for the Double Bogey Slide. Rushes and small shrubs are restricting the flow into the Hwy 743 centerline culvert inlet on the west side of the highway embankment, and should be periodically trimmed, (Photo 10). Double Bogey Slide Culvert should be cleaned and outlet should be graded to reduce ponding at the private entry culvert south of the slide area. In order to repair the back scarp of the borrow pit dugout one of the following recommendations may be considered: Option 1 <ul style="list-style-type: none"> ▪ Cut back the pond slope to about 6H: 1V. This involves further encroaching into the highway right of way. ▪ Install French drains at a spacing of 5 m centre to centre to drain the groundwater from the road into the pond. Option 2 <ul style="list-style-type: none"> ▪ Over-excavate the slump and reconstruct the cut slope with geogrid reinforced gravel, incorporating a gravel shear key at the base of the excavation. This would allow the repair to stay within the highway right of way. Either of the above remediation measures will need to be undertaken within the highway right of way. The ballpark cost for either option is \$175,000 to \$225,000.			



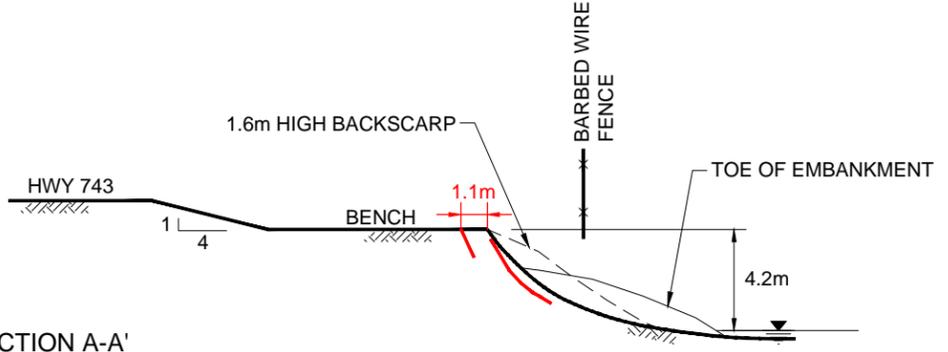
NOTE:
JUNE 2014 OBSERVATIONS SHOWN IN RED

LEGEND
 (1) → PHOTO AND DIRECTION
 [Symbol] SLIDE BACKSCARP

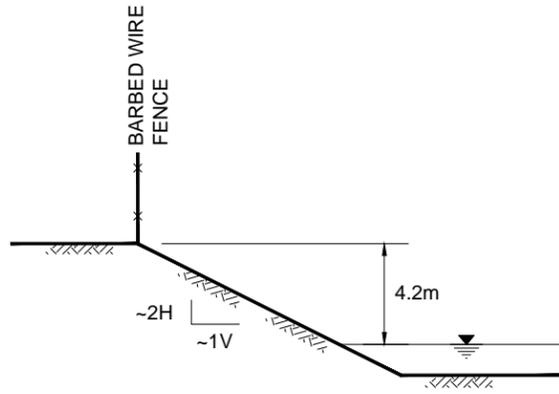


SITE LOCATION PLAN
N.T.S.

SITE PLAN
APPROX SCALE 1:1250



CROSS SECTION A-A'
APPROX SCALE 1:300



CROSS SECTION B-B'
APPROX SCALE 1:300



PEACE REGION (PEACE RIVER / HIGH LEVEL)

BOGEY SLIDE - HWY 743, 3.6 km NORTH OF PEACE RIVER GEOHAZARD ASSESSMENTS

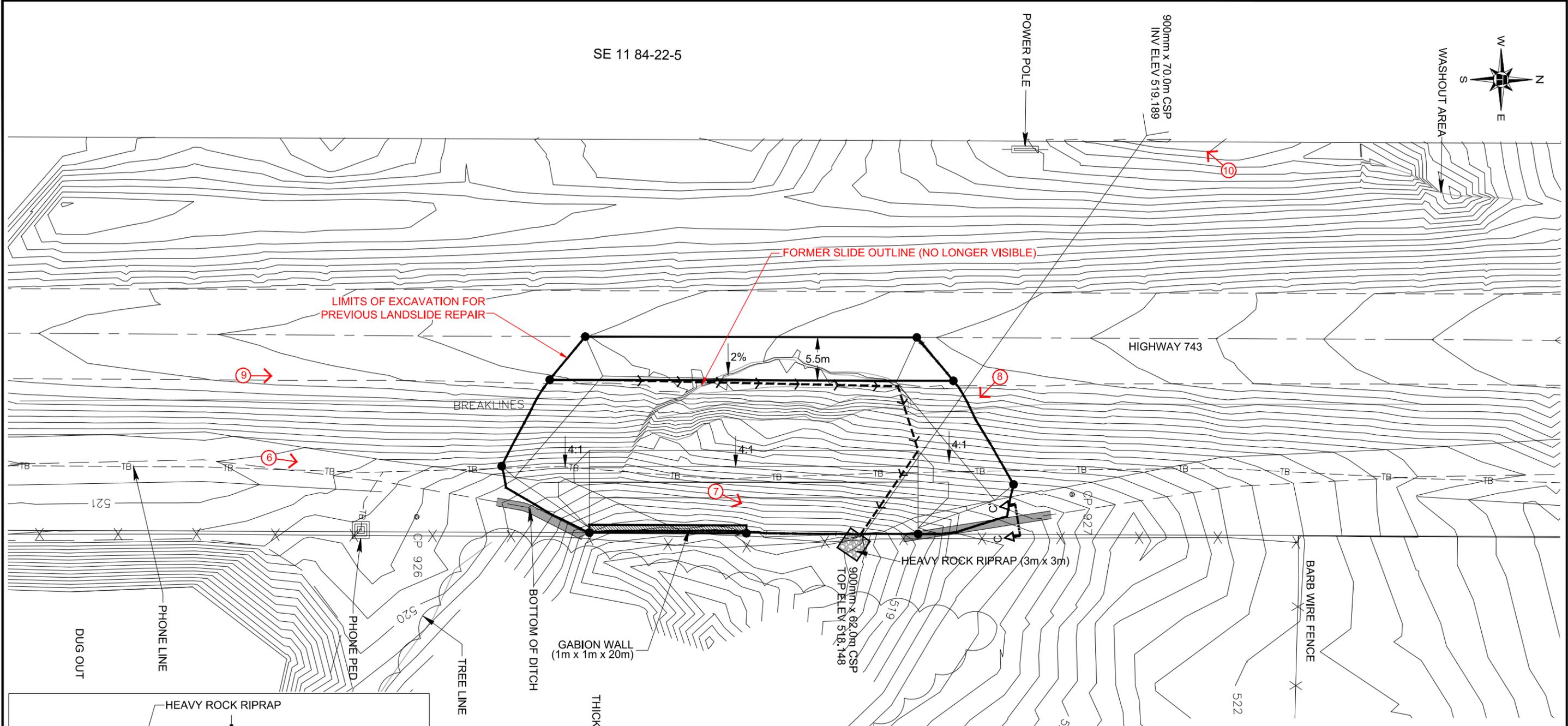
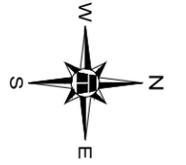
FIGURE PH68-1

DRAWN BY	ML
DESIGNED BY	SGR
APPROVED BY	DWP
SCALE	AS SHOWN
DATE	JUNE 2014
FILE No.	15-16-305

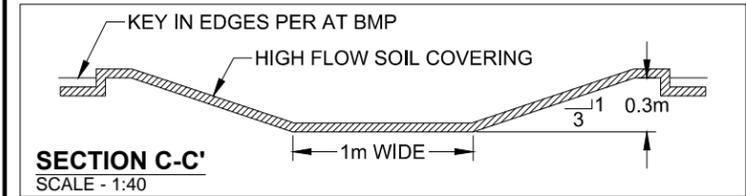
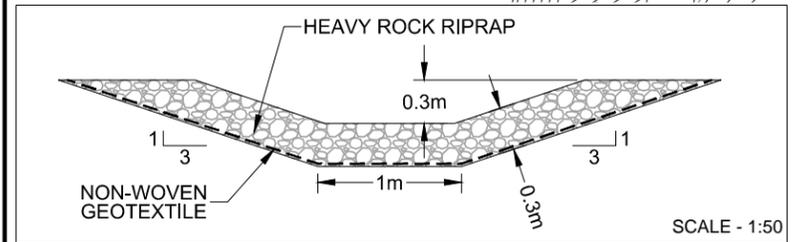


Z:\1515-16-305\SGR\15-16-305_PH68-2.dwg - Layout1 - Dec. 12, 2014

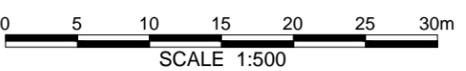
SE 11 84-22-5



SW 12 84-22-5



LEGEND
① → PHOTO AND DIRECTION



PEACE REGION (PEACE RIVER / HIGH LEVEL)

BOGEY SLIDE - HWY 743, 3.6 km NORTH OF PEACE RIVER GEOHAZARD ASSESSMENTS

FIGURE PH68-2

DRAWN BY	ML
DESIGNED BY	SGR
APPROVED BY	DWP
SCALE	AS SHOWN
DATE	JUNE 2014
FILE No.	15-16-305

THURBER ENGINEERING LTD.



Photo 1.
Looking northwest at
Double Bogey
landslide dugout
scarp.



Photo 2.
Looking north at
Double Bogey
landslide dugout
scarp.



Photo 3.
Looking south at Double Bogey landslide golf course access road culvert inlet.



Photo 4.
Looking northeast at Double Bogey landslide dugout scarp.



Photo 5.
Looking south at
Double Bogey
landslide dugout
scarp and leaning
fence.



Photo 6.
Looking north at
Bogey landslide east
sideslope repair.



Photo 7.
Looking northeast at
Bogey landslide
centerline culvert
outlet.



Photo 8.
Looking southeast at
Bogey landslide
culvert outlet rip rap.



Photo 9.
Looking north at
Bogey landslide
highway
embankment repair.



Photo 10.
Looking northwest at
Bogey landslide
centerline culvert
inlet.