

**ALBERTA TRANSPORTATION  
GEOHAZARD ASSESSMENT PROGRAM  
PEACE REGION – GRANDE PRAIRIE DISTRICT  
2019 CALL OUT**



<b>Site Number</b>	<b>Location</b>	<b>Name</b>	<b>Hwy</b>	<b>km</b>
Call Out	Wanyandie Creek	Bin Wall Slump	40:36	37.9
<b>Legal Description</b>		<b>UTM Co-ordinates (NAD 83)</b>		
SE21-59-6-W6		11U N 5,997,170	E 380,027	

	<b>Date</b>	<b>PF</b>	<b>CF</b>	<b>Total</b>
<b>Previous Inspection:</b>				
<b>Current Inspection:</b>	May 28, 2017	9	2	18
<b>Road AADT:</b>	900	<b>Year:</b>		2018
<b>Inspected By:</b>	Don Proudfoot, Nicole Wilder (Thurber) Ed Szmata, Rocky Wang, Dwayne Lowen, (AT)			
<b>Report Attachments:</b>	<input checked="" type="checkbox"/> Photographs <input checked="" type="checkbox"/> Plans <input type="checkbox"/> Maintenance Items			

<b>Primary Site Issue:</b>	An approximate 70 m wide landslide scarp that was partially grown over was observed adjacent to the existing bin wall.	
<b>Dimensions:</b>	The approximate width of the landslide was about 70 m; however, there were no signs of a toe roll to distinguish the length.	
<b>Date of any remediation:</b>		
<b>Maintenance:</b>		
<b>Observations:</b>	<b>Description</b>	<b>Worse?</b>
<input type="checkbox"/> Pavement Distress		<input type="checkbox"/>
<input checked="" type="checkbox"/> Slope Movement	There is a scarp in the east side slope that extends about 70 m southwest from near the south side of the bin wall which extends up to the guardrail. The scarp did not appear to have fresh soil movement. There were also overgrown scarps in the west backslope observed from previous instabilities. A scarp in the backslope adjacent to the rock face outcrop has its toe roll extending into part of the upslope ditch.	<input type="checkbox"/>
<input checked="" type="checkbox"/> Erosion	Active erosion activity is occurring on the north side of the existing bin wall and some surficial erosion above scarp.	<input type="checkbox"/>
<input checked="" type="checkbox"/> Seepage	There was water flowing in the upslope ditch as well as springs and seepage noted in several areas in the backslope and in one location below the downslope scarp.	<input type="checkbox"/>
<input checked="" type="checkbox"/> Bridge/Culvert Distress		<input type="checkbox"/>
<input type="checkbox"/> Other		<input type="checkbox"/>
<b>Instrumentation:</b> None		
<b>Assessment:</b>		
<p>Slope movement occurred on the south side of the bin wall on the downslope side of the highway which was constructed at a slope of about 3H:1V. The scarp at the time of the inspection appeared to be somewhat grown over and there were also some overgrown scarps in the backslope. A manhole was observed on the bench in the backslope. From discussions with AT, horizontal drains had previously been installed from a bench in the backslope and the manhole might have been an access for cleanout.</p>		

The bin wall itself looks to be in good condition and the exposed bin wall face ranges from 1.5 m to 5.5 m in height. There was seepage noted below the side slope scarp indicative of a high or at surface ground water table and springs and seepage observed in several locations in the backslope and ditch which contribute loading to area and is a driving mechanism for slope instability.

The side slope scarp does not appear to be very active; however, if the slide mass moves down it could reduce the passive support of the bin wall and could also retrogress towards the highway as the scarp currently extends up to the guardrail.

**Recommendations:**

**Short Term:**

The site should be monitored annually to ensure the side slope slide does not become highly active and retrogress towards the highway and that the backslope instability does not further black the ditch and direct ditch water on to the highway or erode the shoulder.

**Medium Term:**

Backslope:

Consideration should be given to installing some more horizontal drains or French drains in the backslope area and plant some deep-rooted trees at the sliding area to help dewater the ground and improve its stability by developing a root system.

**Ballpark Cost ~ \$200,000**

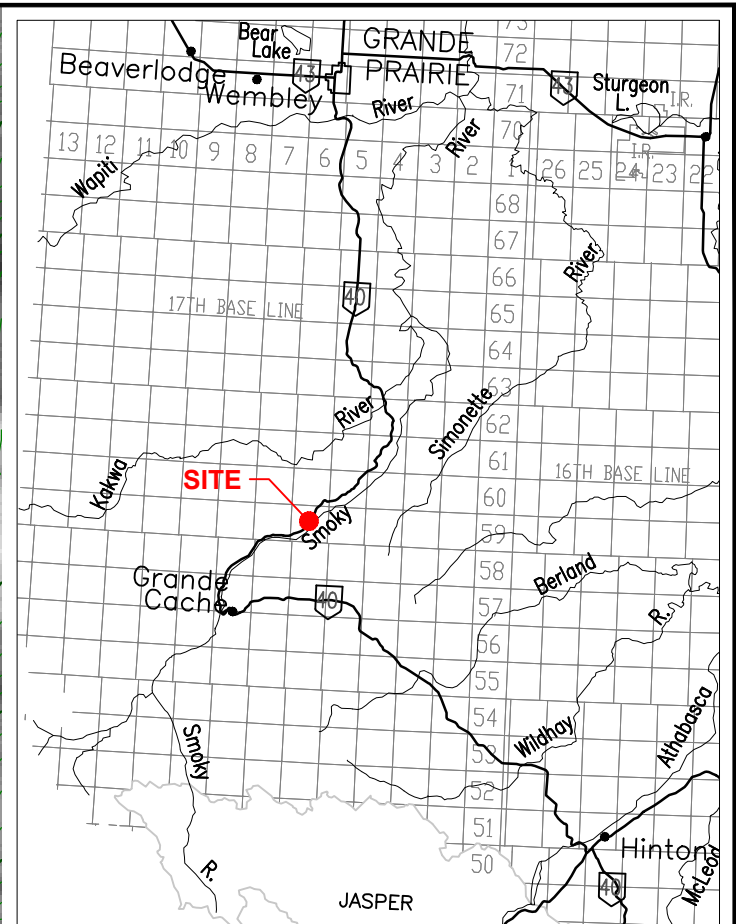
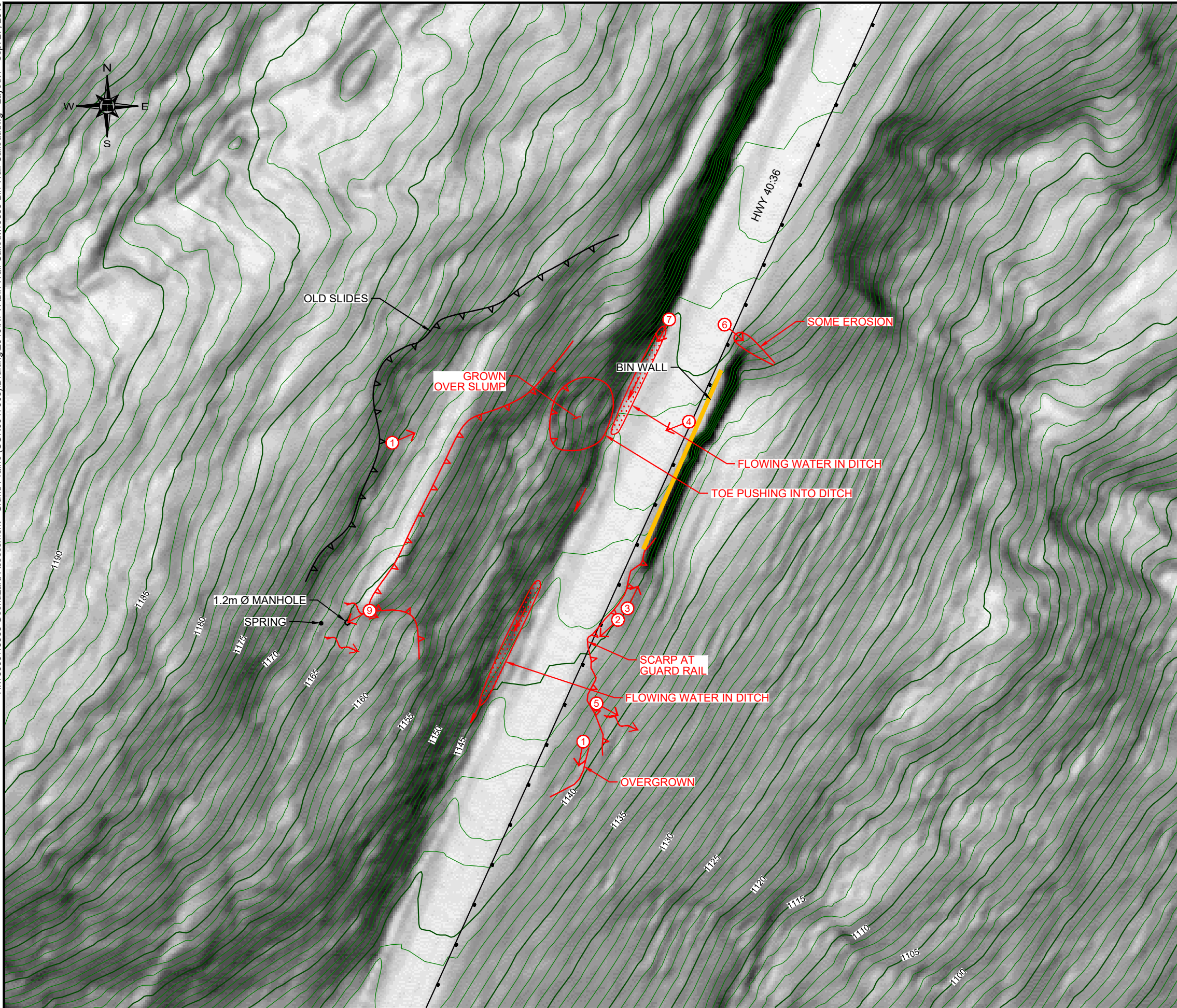
**Long Term:**

Side slope:

The bin wall could be extended approximately 40 m further south to protect the shoulder of the highway.

**Ballpark Cost ~ \$300,000**

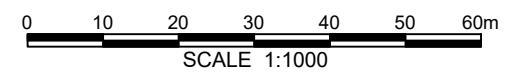
H:\13000\13353 Geohazard Assessment - Grand Prairie (CON0017603)\Drafting\2019\NPW\Bin Wall Callout\13353 Bin Wall Callout.dwg - Layout1 - Sep. 27, 2019



**SITE LOCATION MAP**  
SCALE 1:2 000 000

**LEGEND**

- SCARP
- GUARD RAIL
- SEEPAGE
- DIRECTION AND NUMBER OF PHOTO



**2019 CALLOUT - HWY 40:36 KM 37.9  
WANYANDIE CREEK**

**SITE PLAN**

**DWG No. 13353-CALLOUT**

DRAWN BY	KLW
DESIGNED BY	NPW
APPROVED BY	DWP
SCALE	1:1000
DATE	SEPTEMBER 2019
FILE No.	13353







**Photo 1.**  
Looking south at  
subdued scarp  
slightly west of the  
main scarp.



**Photo 2.**  
Looking southwest  
at scarp heading  
towards guardrail.





**Photo 3.**  
Looking north at  
scarp extending  
towards the bin  
wall.



**Photo 4.**  
Looking west  
towards the  
backslope and at  
manhole.





**Photo 5.**  
Looking south of  
the bin wall at  
ponded water  
downslope of  
scarp.



**Photo 6.**  
Looking at some  
surficial erosion  
that occurred  
above bin wall on  
north side.





**Photo 7.**  
Looking south at  
the backslope ditch  
with water ponding.



**Photo 8.**  
Backslope area  
that had overgrown  
scarps.



**Photo 9.**  
Backslope area  
looking towards the  
manhole.