

SITE INSPECTION FORM

SITE NUMBER AND NAME: GP030 Iosegun River Valley Crossing		HIGHWAY & KM: 43:12, 16.726	PREVIOUS INSPECTION DATE: June 18, 2020	INSPECTION DATE: June 16, 2022
LEGAL DESCRIPTION: SW 35-61-18-W5M	NAD 83 COORDINATES: UTM Northing Easting 11 6018758 526645		RISK ASSESSMENT: PF: 8 CF: 2 TOTAL: 16	
AVERAGE ANNUAL DAILY TRAFFIC (AADT): 6290 (west) & 6020 (east) (Reference No. 37630, 2021)			CONTRACT MAINTENANCE AREA (CMA): 504	

SUMMARY OF SITE INSTRUMENTATION: Inoperable: Four slope inclinometers (SIs), twelve pneumatic piezometers (PNs), eleven vibrating wire piezometers (VWPs), and one vibrating wire settlement gauge. LAST READING DATE: N/A	INSPECTED BY: Chris Gräpel (KCB) Courtney Mulhall (KCB) Ed Szmata (AT) Kristen Tappenden (AT) Max Shannon (AT)
PRIMARY SITE ISSUE: Slope failure in backslope along west side of Hwy 43:12. Failure developed on west side of a buried 960-mm diameter “Big O” pipe, which carries water from the catchwater/diversion ditch along the backslope crest to the west highway ditch (inlet at WP230 and outlet at WP234, approximately 110 m to 120 m long). The “Big-O” pipe is separated and the material above it is settling and slumping over its entire length. Slope failure likely developed due to a high groundwater table in the slope and expanded when the diversion ditch berm failed at the crest of the backslope. The site is located approximately 580 m west of the Iosegun River crossing.	
APPROXIMATE DIMENSIONS: Failure approximately 120 m long. Backslope approximately 25 m high with a 5H:1V slope.	
DATE OF ANY REMEDIAL ACTION: 2010 – “Big O” pipe installed, diversion ditch along backslope crest deepened and regraded, diversion ditch berm constructed along crest of backslope, and previous slump location regraded.	

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress		X	None observed at time of 2022 inspection.		X
Slope Movement	X		Slope failure on west side of buried “Big O” pipe. Extends from backslope crest to west highway ditch. Portion of backscarp along diversion ditch at crest of backslope. Portion of toe roll in west highway ditch, but not currently impeding flow or impacting check dams.	X	
Erosion	X		Sinkholes at WP231 and WP233 above “Big O” pipe on backslope indicating possible piping erosion. Rill and gully erosion above “Big-O” pipe on backslope (at widest/deepest approximately 3.0 m wide by 1.5 m deep).	X	
Seepage	X		Seepage into/out of “Big-O” pipe on slope.		X
Culvert Distress	X		“Big-O” pipe separated confirmed via video in 2011.		X

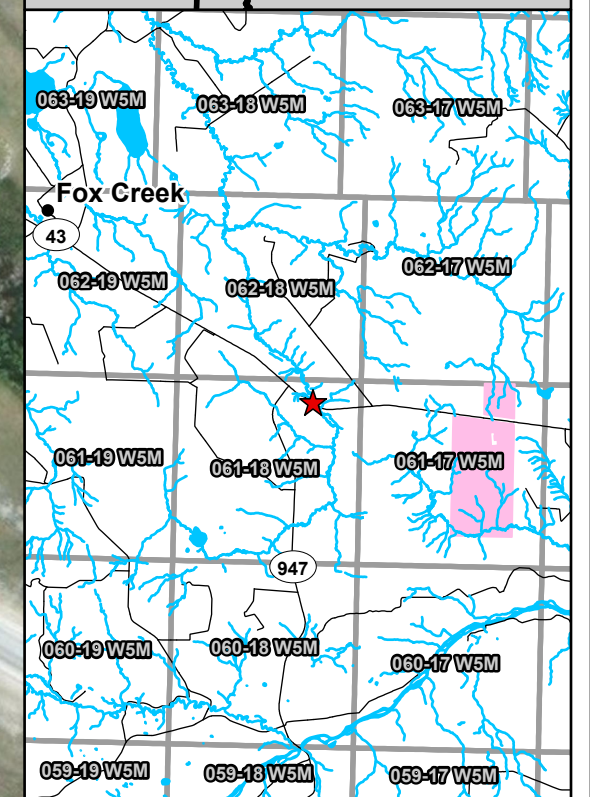
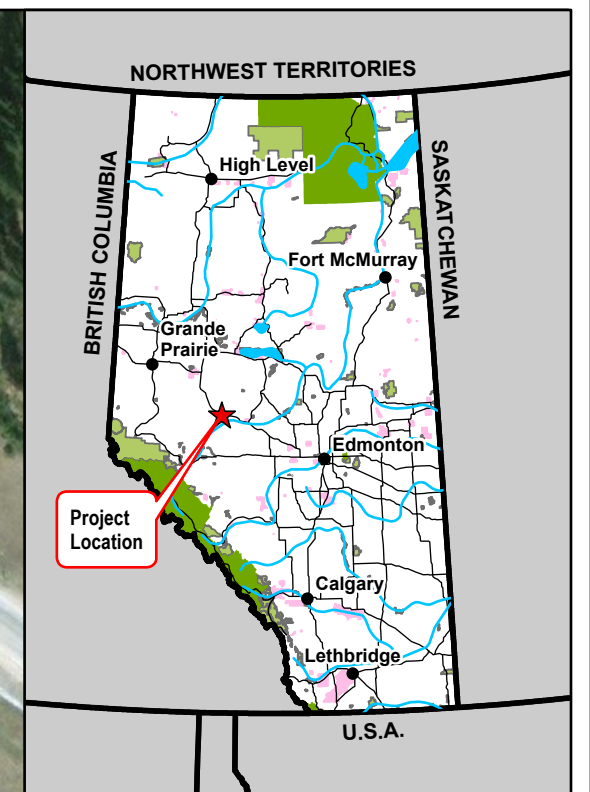
COMMENTS
Slope well vegetated.
Slope failure has intercepted the diversion ditch at the crest of the backslope resulting in intercepted surface water flow from the west of the “Big-O” pipe inlet being discharged onto the slope.
Cracking from slope movement to the west of the “Big-O” pipe has caused movement across the diversion ditch at the crest of the backslope. Diversion water is likely infiltrating into the slope via cracks in the base of the diversion ditch.
The smaller backslope failure along and below the “Big-O” pipe alignment may have been triggered by leakage from the “Big-O” pipe. Water appears to be discharging from the separated joints to ground surface where it flows along the pipe trench, causing erosion. AT recalls that when the pipe separated soon after construction, the joint had separated by approximately 0.5 m.
Seepage observed below outlet of “Big-O” pipe (approximately 0.5 L/minute) could indicate that the trench installed over the slope might be intercepting groundwater. The inlet of the “Big-O” pipe was observed to be dry.
<p><u>Maintenance/Repair/Monitoring Recommendations:</u></p> <ul style="list-style-type: none"> • A series of finger drains (approximately 4 m deep and spaced approximately 10 m apart) backfilled with gravel could be constructed into the backslope to intercept groundwater. Estimated cost: \$50,000 to \$100,000. • Another “Big-O” pipe or slope drain could be constructed to convey water from the diversion ditch to the west highway ditch. Estimated cost: \$50,000 to \$75,000. • Slack power-pole guy wire at crest of backslope at WP229. Anchored adjacent to slide backscarp. Relocated power pole.
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PEACE REGION
(GRANDE PRAIRIE DISTRICT – SOUTH) GRMP
SITE INSPECTION FORM



<p>Chris Gräpel, M.Eng., P.Eng. Senior Civil Engineer, Associate</p>	
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Legend

- GPS Waypoint (June 16, 2022)
- GPS Track (June 16, 2022)
- Erosion
- Toe Roll
- Culvert
- Backscarp



NOTES:
 1. HORIZONTAL DATUM: NAD83
 2. GRID ZONE: UTM ZONE 11N
 3. IMAGE SOURCE: 2022 MICROSOFT CORPORATION, 2022 MAXAR CNES, DISTRIBUTION AIRBUS DS

CLIENT

PROJECT
 PEACE REGION (GRANDE PRAIRIE DISTRICT-SOUTH)
 GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE
 Site Plan
 GP030 - Iosegun River Valley Crossing
 Hwy 43:12, km 16.726

SCALE 1:2,000 PROJECT No. A05116A01 FIG No. 1

Inspection Photographs

Photo 1 Overview of GP030 site along Hwy 43:12. Photo taken June 16, 2022, with unmanned aerial vehicle (UAV) facing northwest.



Photo 2 Slope failure in backslope along west side of Hwy 43:12. Note toe roll in west highway ditch, and slide backscarp and slack power-pole guy wire (circled in white) at WP229 along backslope crest. As well as material slumping, settling, and eroding above “Big-O” pipe (alignment indicated with dotted white line, inlet at WP230 and outlet at WP234). Photo taken June 16, 2022, facing with UAV facing west.

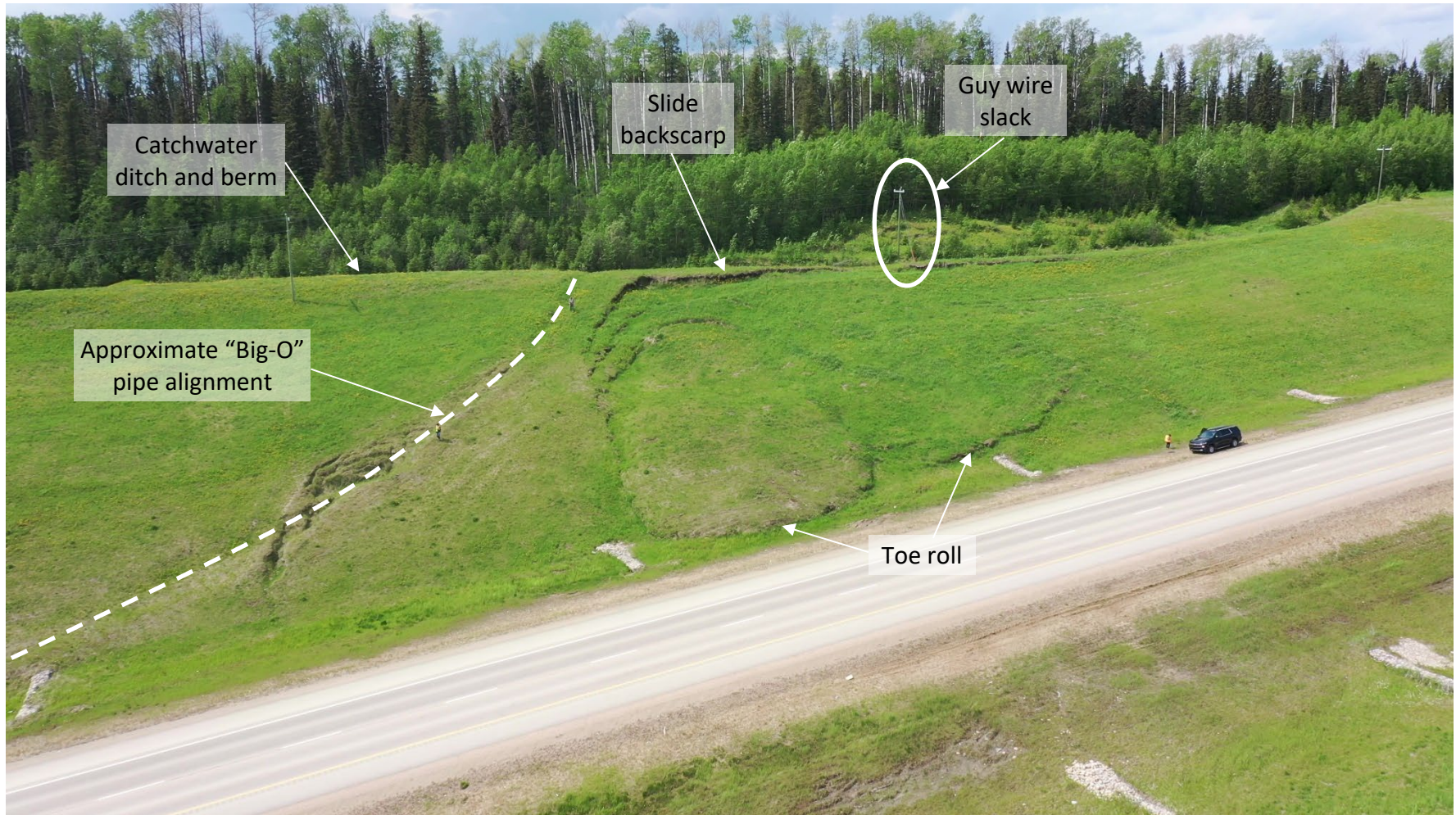


Photo 3 Slack power-pole guy wire at crest of backslope at WP229. Guy wire anchored adjacent to slide backscarp. Photo taken June 16, 2022, facing northwest.



Photo 4 Inlet of “Big-O” pipe at crest of backslope at WP230. Photo taken June 16, 2022, facing northwest.



Photo 5 Slide backscarp at crest of backslope. White arrow indicates where diversion ditch intercepted by backslope slide near “Big-O” pipe inlet. Photo taken June 16, 2022, facing southeast.



Photo 6 Material slumping, settling, and eroding above “Big-O” pipe on backslope along west side of Hwy 43:12. Photo taken June 16, 2022, facing west.



Photo 7 Outlet of “Big-O” pipe in west ditch of Hwy 43:12 at WP234. Photo taken June 16, 2022, facing northwest.



Photo 8 Toe roll in west ditch of Hwy 43:12. Photo taken June 16, 2022, facing southeast.

