



**PEACE REGION  
(GRANDE PRAIRIE DISTRICT – SOUTH) GRMP**



**SITE INSPECTION FORM**

<b>SITE NUMBER AND NAME:</b> GP003-I and II Cutbank River Slides (South) (Roseham Creek)		<b>HIGHWAY &amp; KM:</b> 40:38, 52.134	<b>PREVIOUS INSPECTION DATE:</b> June 15, 2022	<b>INSPECTION DATE:</b> <b>June 11, 2024</b>
<b>LEGAL DESCRIPTION:</b> NE 16-65-05-W6M SE-16-65-05-W6M	<b>NAD 83 COORDINATES:</b> UTM Northing Easting 11 6054593 391085		<b>RISK ASSESSMENT:</b> PF: 11 CF: 4 TOTAL: 44	
<b>AVERAGE ANNUAL DAILY TRAFFIC (AADT):</b> 2,300 (north) & 2,280 (south) (Reference No. 7000761, 2023)			<b>CONTRACT MAINTENANCE AREA (CMA):</b> 504	

<b>SUMMARY OF SITE INSTRUMENTATION:</b>  Operable: One slope inclinometer (SI) and two pneumatic piezometers (PNs) installed between 1997 and 1998.  Inoperable: Five SIs and one PN installed between 1997 and 1998.  LAST READING DATE: May 24, 2024	<b>INSPECTED BY:</b> Chris Gräpel (KCB) Courtney Mulhall (KCB) Robert Senior (TEC) Rishi Adhikari (TEC) Babatunde Awokunle (TEC)
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**PRIMARY SITE ISSUE:** A series of slides/slope failures between Hwy 40:38 and Roseham Creek. Highway fill placed in a side-hill arrangement along west bank of creek. Slide movements exacerbated by creek erosion at toe of slope, high groundwater table, seepage, and low-strength glacio-lacustrine deposits. Roseham Creek is a tributary of Cutbank River. The site is located just south of the Cutbank River Bridge.

**APPROXIMATE DIMENSIONS:** Entire site is approximately 1.0 km long. At north end of site, slide scarps are close to and roughly parallel to the highway over an approximate 500 m length. At south end of site, slide scarps are approximately 50 m away from pavement edge. West creek bank along east side of highway up to approximately 15 m deep below pavement surface with an approximate slope of 2H:1V to 2.5H:1V. Backslope along west side of highway up to approximately 25 m high above pavement surface.

**DATE OF ANY REMEDIAL ACTION:** Winter 1996 – berm constructed. September 1997 – highway realigned west into backslope in combination with use of lightweight “hog fuel-wood waste” as fill. Summer 2000 – reconstruction of slope to remove hog fuel-wood waste (due to perceived environmental reasons) and install drainage layer at base and edge drains at sides. 2003 – approximately 10 rock weir barriers and live stakes installed along creek channel, which were subsequently washed out, and a subdrain installed along west highway ditch and possibly a catchwater ditch (location unknown). 2016 – overlay placed in former location of tension crack. 2019/2020 – backslope cut back and flattened to widen highway for third (passing/climbing lane).

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Tension and alligator cracking (due to high groundwater) previously observed by others. No cracking visible at time of 2024 inspection in recent overlay completed in 2016, except for cracking above likely culvert alignment (see below).		X
Slope Movement	X		Series of slides/slope failures between highway and Roseham Creek that continue to retrogress towards and expand laterally along highway (Photos 1, 2, 5, and 6). Retrogression (up to approximately 2 m to 3 m since previous inspection) most notable within north end of site where slides are closest to highway (see below).	X	

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Erosion	X		Ongoing erosion and channel degradation along Roseham Creek (Photo 7, see below). Some rill erosion along backslope, upper portion of highway embankment (unvegetated gravelly material), and west highway ditch.	X	
Seepage	X		High groundwater table and seepage previously resulted in wet subgrade leading to alligator cracking in pavement surface.		X
Culvert Distress	X		Culvert outlet on east side of highway blocked with soil, deflected (more than previous inspection), and disconnected (Photo 3). Inlet not visible in west highway ditch but pavement surface cracked above likely culvert alignment (Photo 4). Slide continues to retrogress around culvert outlet (approximately 1 m to 2 m since previous inspection). Some seepage previously observed around outlet.	X	

**COMMENTS**

North Side of Site:

- Closest slide scarp approximately 3 m from guardrail.
- Reference/survey stake with flagging placed approximately 1 m from slide scarp and 2 m from guardrail to monitor slide retrogression towards highway. Previous reference/survey stake placed in 2022 had fallen down and could not be found.

South Side of Site:

- Former hog fuel removal area well vegetated with no signs of movement, except along creek channel (Photos 8 and 9).

Base of creek channel narrow with slopes squeezing in from either side, and in some locations partially blocked by fallen trees (Photo 7). Active erosion occurring along creek channel, resulting in steep sides slope (approximately 5 m high) adjacent to creek. Many leaning trees near base of creek channel.

Maintenance/Repair/Monitoring Recommendations:

- Continue to maintain and clean existing subdrain system.
- Monitor seepage around culvert outlet on east side of highway. Monitor for signs of sinkhole activity in west highway ditch where inlet of culvert could be buried.
- Slides continue to retrogress towards and expand laterally along highway. Some slides appear to have retrogressed up to approximately 2 m to 3 m towards highway since previous inspection and are closest to highway within north half of site. Slides within north half of site (closest slide scarp approximately 3 m from guardrail) could begin to impact highway soon and TEC should begin to assess repair options for those slides. To support a repair design, a site investigation should be completed within north half of site that includes boreholes with instrument installations. A previous investigation completed between 1997 and 1998 only included south half of site. Estimated cost of drilling and instrumentation program: \$50,000 to \$100,000.



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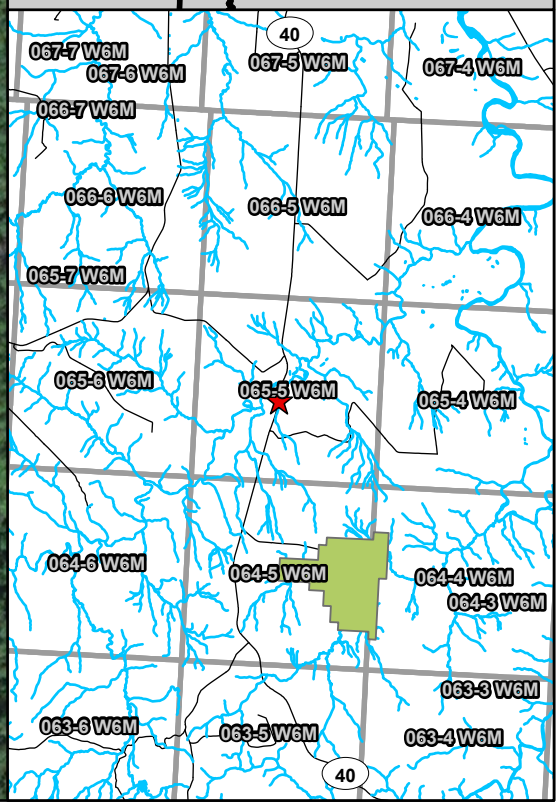
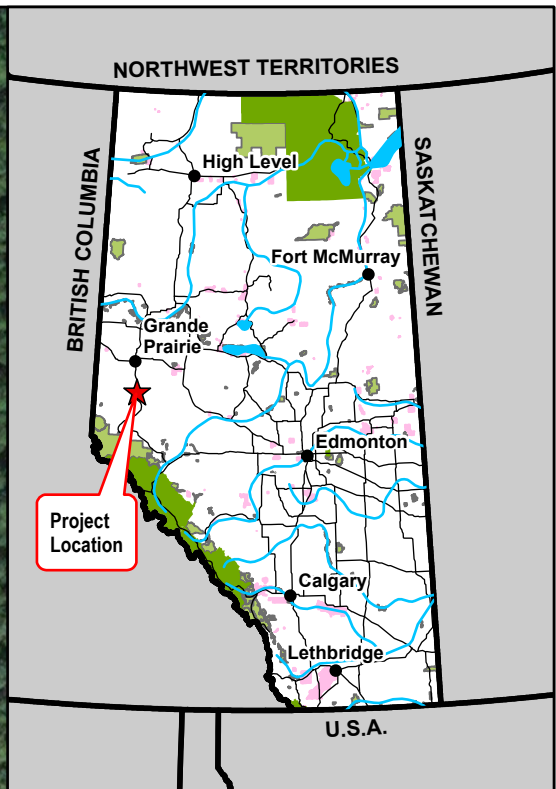
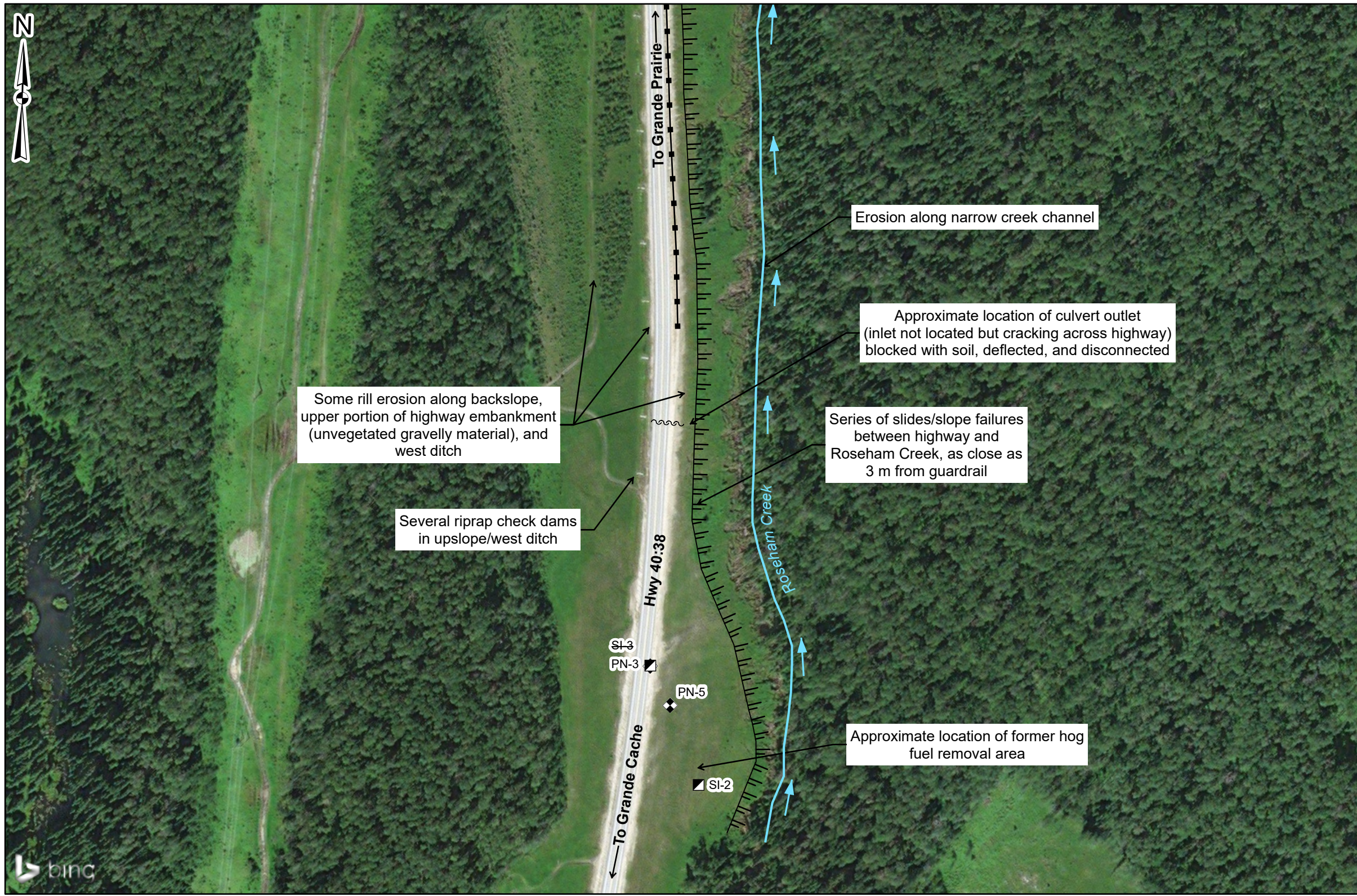
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Courtney Mulhall, M.Sc., P.Eng.  
Geotechnical Engineer





**Legend**

- ◆ Approximate Pneumatic Piezometer Location
- Approximate Slope Inclinometer Location
- Guardrail
- ▶ Flow Direction
- Watercourse
- ⊥ Scarp
- ~ Crack



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

CLIENT




PROJECT	PEACE REGION (GRANDE PRAIRIE DISTRICT-SOUTH) GEOHAZARD RISK MANAGEMENT PROGRAM	
TITLE	Site Plan GP003-I and -II - Cutbank River Slides (South) Hwy 40:38, km 52.134	
SCALE	PROJECT No. A05116A01	FIG No. 1



## Inspection Photographs

**Photo 1** Slope failure and slide scarps near creek on east side of Hwy 40:38. Photo taken June 11, 2024, facing north.

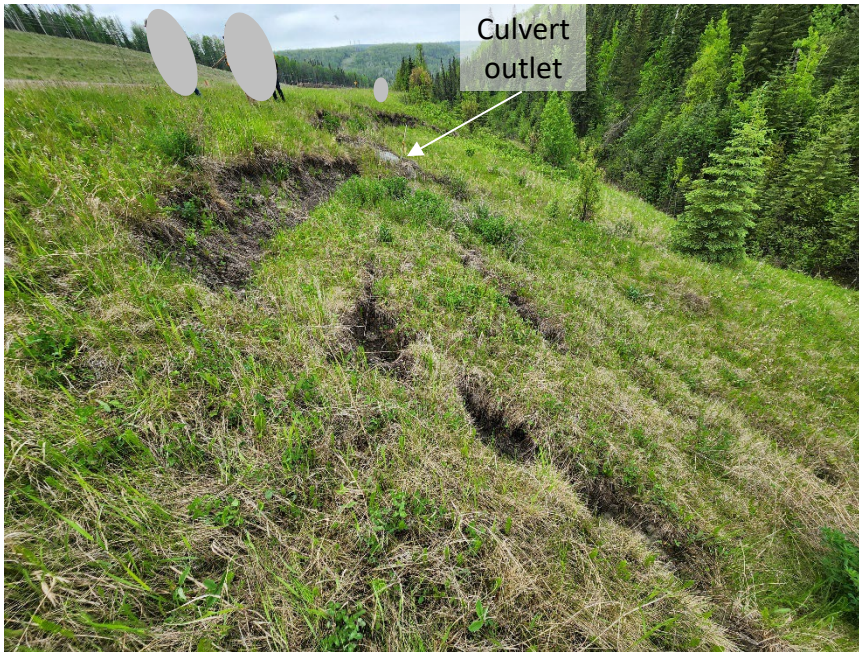


**Photo 2** Slope failure and slide scarps between Hwy 40:38 and Roseham Creek. Photo taken June 11, 2024, facing north.





**Photo 3** Slope failure and slide scarps between Hwy 40:38 and Roseham Creek. Note culvert outlet, see next photo. Photo taken June 11, 2024, facing north.



**Photo 4** Culvert outlet on east side of Hwy 40:38 deflected, disconnected, and blocked with soil. Culvert inlet not visible in ditch on west side of highway. Photo taken June 11, 2024, facing northwest.





**Photo 5** Culvert inlet not visible in ditch on west side of highway, but pavement surface cracked above likely culvert alignment. Photo taken June 11, 2024, facing northwest.



**Photo 6** Slope failure and slide scarps between Hwy 40:38 and Roseham Creek. Note rill erosion on upper portion of slope (unvegetated gravelly material) and reference/survey stake with flagging (circled in white) to monitor retrogression of slide scarp. Photo taken June 11, 2024, facing south.





**Photo 7** Slope failure and slide scarps between Hwy 40:38 and Roseham Creek. Photo taken June 11, 2024, facing south near north end of site.



**Photo 8** Roseham Creek. Note narrow channel width and slopes squeezing in from either side. Photos taken June 11, 2024, facing north and south, respectively.





**Photo 9** Former hog fuel removal area at south end of GP003 site. Photos taken June 11, 2024, facing north and south, respectively.



**Photo 10** Former hog fuel removal area at south end of GP003 site. Photos taken June 11, 2024, facing north and south, respectively.





**Photo 11** Backslope on west side of Hwy 40:38. Note riprap check dams and rill erosion in/along ditch channel. Photos taken June 11, 2024, facing southwest and northwest, respectively.



**Photo 12** Pavement surface of Hwy 40:38. Note rill erosion on upper portion of slope (unvegetated gravelly material). Photos taken June 11, 2024, facing southwest and northwest, respectively.

