

<b>SITE NUMBER AND NAME:</b> C047 Hwy 27 Ditch Erosion		<b>HIGHWAY &amp; KM:</b> 27:10, 22.762 to 25.496	<b>PREVIOUS INSPECTION DATE:</b> N/A	<b>INSPECTION DATE:</b> <b>June 19, 2024</b>
<b>LEGAL DESCRIPTION:</b> 03-15-31-21-W4	<b>NAD 83 COORDINATES:</b> UTM    Northing    Easting 12       5723911    368294		<b>RISK ASSESSMENT:</b> PF: 3    CF: 2    TOTAL: 6	
<b>AVERAGE ANNUAL DAILY TRAFFIC (AADT):</b> 1650 (east) & 1680 (west) (Ref No. 106260 & 108260)			<b>CONTRACT MAINTENANCE AREA (CMA):</b> 517	

<b>SUMMARY OF SITE INSTRUMENTATION:</b>  There is no instrumentation at the C047 site.  LAST READING DATE: N/A	<b>INSPECTED BY:</b> Chris Gräpel (KCB) James Lyons (KCB) Tony Penney (TEC) Rocky Wang (TEC)
<b>PRIMARY SITE ISSUE:</b> Ditch erosion, exacerbated by dispersive soil, in the south (eastbound) ditch east of the Morrin Bridge.	
<b>APPROXIMATE DIMENSIONS:</b> The overall length of the site is approximately 2.5 km.	
<b>DATE OF ANY REMEDIAL ACTION:</b> As part of the Morrin Bridge replacement project in the early 2020s, the erosion gullies in the south ditch (west of the Morrin Bridge) and in the north and south ditches (east of the Morrin Bridge) were repaired using a combination of gabion baskets, riprap armouring, and articulated concrete blocks (Armourflex type armouring).	

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress		X	N/A – none observed during the 2024 inspection.		X
Slope Movement		X	N/A – none observed during the 2024 inspection.		X
Erosion	X		The primary geohazard at the site, before the repair work, was ditch erosion due to the dispersive nature of Red Deer River valley soils.		X
Seepage		X	N/A – none observed during the 2024 inspection.		X
Culvert Distress		X	N/A – none observed during the 2024 inspection.		X

**COMMENTS**

West of the Bridge:

- The gabion baskets installed along the south (eastbound) ditch appear to be in good condition (Photo 1). The gabion baskets were installed in a channel shape and are performing well (Photo 2).
- There were sandstone particles observed in the gabion baskets, but KCB estimates they only make up around 5% of the riprap particles within the gabions (Photo 3).
- The riprap armouring downstream (south) of the gabion baskets shown in Photo 1 and 2 is in good condition and appears to be performing well (Photo 4 and 7).
- Minor rill erosion was observed along the west (eastbound) highway embankment slope (Photo 5).
- Minor erosion was observed in the east (westbound) highway ditch (Photo 6). It appears as though the ditch may have previously been repaired with a rolled erosion control product (RECP), and the recent erosion has exposed the RECP.

- The articulated concrete blocks installed at the downstream extent of the repair are in good condition and are performing well (Photo 8). Grass was observed growing between the concrete block during the inspection.
- The riprap energy dissipated structure appears to be in good condition. The riprap is rounded fieldstone and KCB estimates it is Class 3 riprap (Photo 9).

East of the Bridge:

- The gabion baskets in the south (eastbound) ditch (approximately 350 m long) east of the bridge are in good condition and appear to be performing well (Photo 10 and 11). The gabion baskets were installed in a channel shape and grass was observed to be growing on the ditch slide slopes.
- Riprap armouring in the north (westbound) ditch (approximately 1.2 km long) is in good condition and appears to be performing well (Photo 12).

Maintenance/Repair/Monitoring Recommendations:

- The site should be regularly inspected by TEC's MCI, particularly after precipitation events (spring freshet or heavy or prolonged rainfall).
- The site should be removed from the active list of Central Region GRMP sites and no longer inspected as part of the Section B Inspections.

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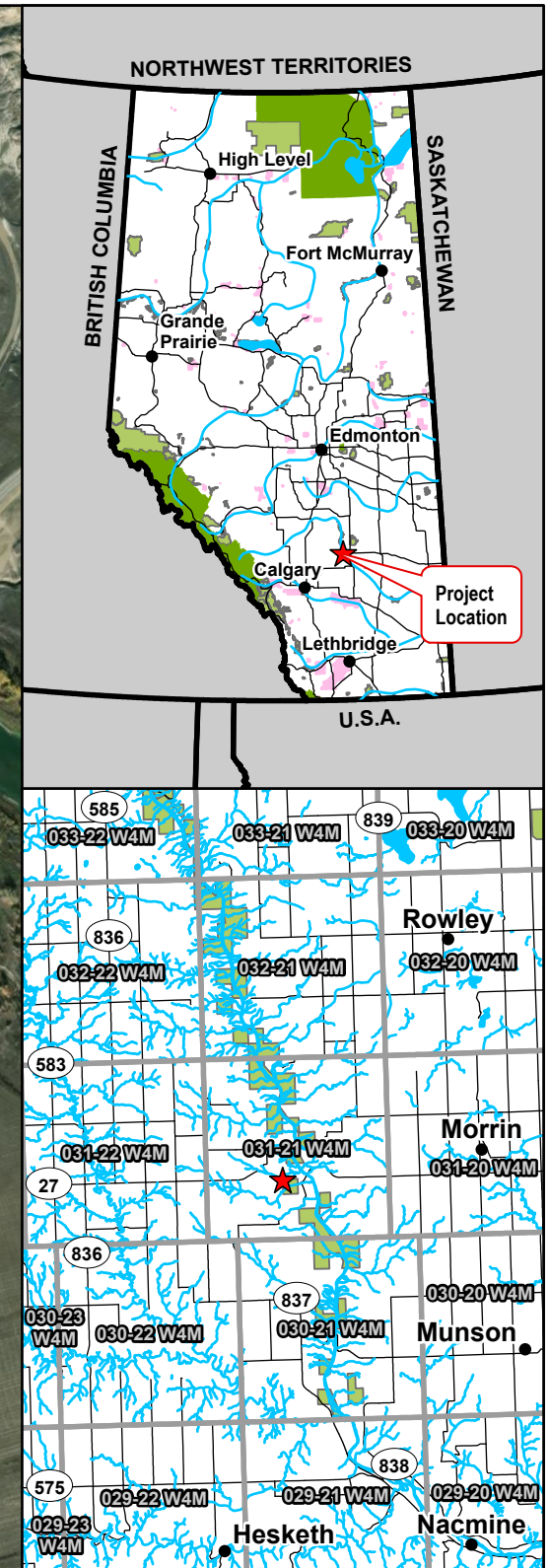
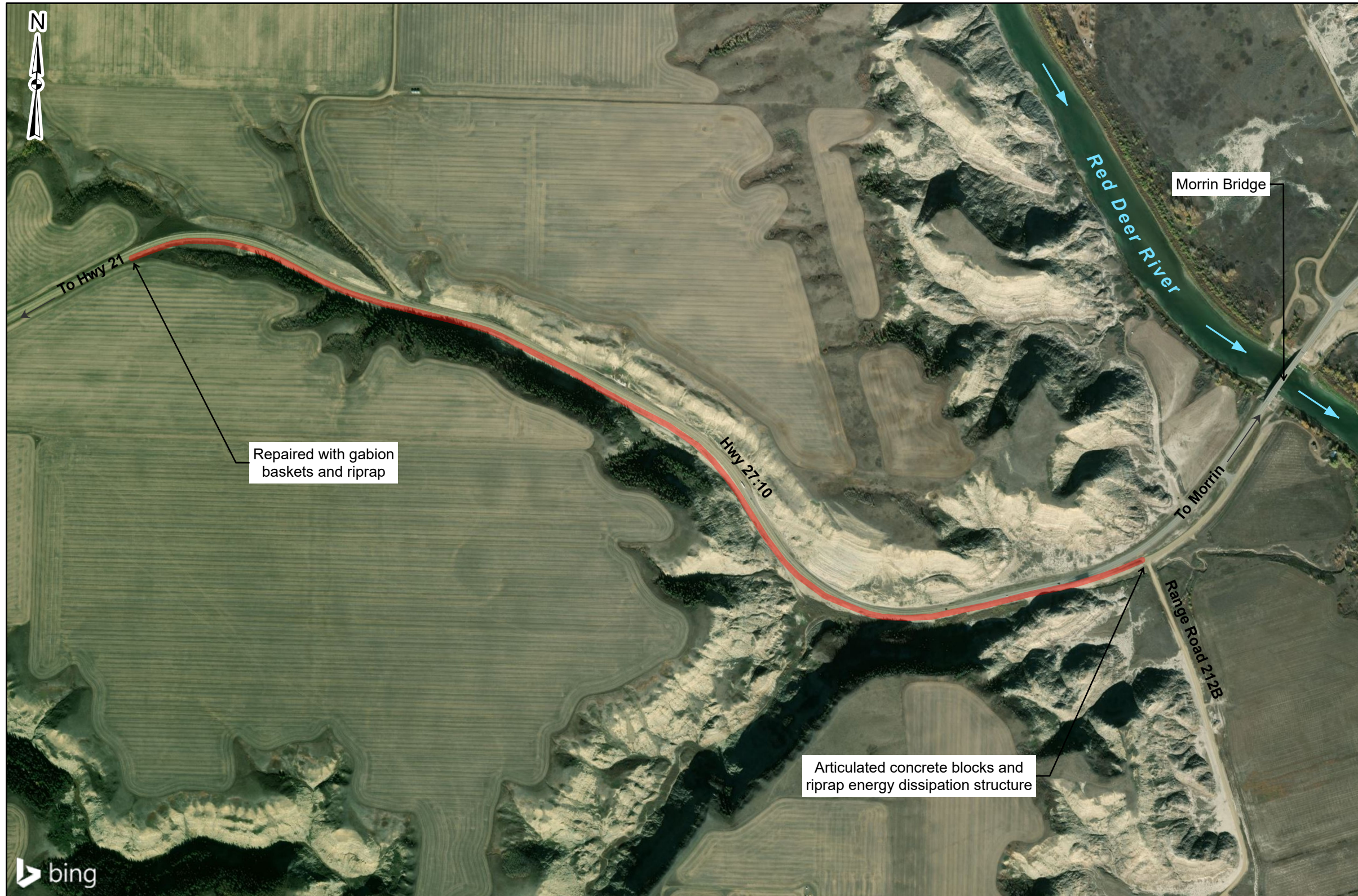
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James Lyons, P.Eng.  
Civil Engineer

File: Z:\A\EDM\A05116A02\ABT\_CentralRegion\_GRIPIR400 Drawings\GIS\02\_ProFiles\2024\Section B\AT\_CentralRegion\_SectionB\_240627\AT\_CentralRegion\_SectionB\_240627.aprx Date: Time: Creator: EQuine



- Legend**
- Previous Ditch Erosion (repaired)
  - Flow Direction



NOTES:  
 1. HORIZONTAL DATUM: NAD83  
 2. GRID ZONE: UTM ZONE 12N  
 3. IMAGE SOURCE: 2024 MICROSOFT CORPORATION, MAXAR, CNES DISTRIBUTION AIRBUS DS.

CLIENT

*Alberta*

**Klohn Crippen Berger**

PROJECT  
CENTRAL REGION GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE  
Site Plan  
C047 - Ditch Erosion  
Hwy 27:10, km 22.762 to km 25.496

SCALE 1:10,000 PROJECT No. A05116A01 FIG No. 1



**West of the Morrin Bridge:**

**Photo 1** Gabion baskets installed along the west (eastbound) ditch west of the Morrin Bridge.  
Photo taken June 19, 2024, facing north.



**Photo 2** Gabion baskets were installed to achieve a channel shape and are performing well.  
Photo taken June 19, 2024, facing north.



**Photo 3** Sandstone riprap particles were observed throughout the riprap gabion baskets along the length of the repair. Photo taken June 19, 2024.



**Photo 4** Riprap armouring downstream (south) of the gabion baskets. Photo taken June 19, 2024, facing south.



**Photo 5** Rill erosion observed along the west highway embankment slope. Photo taken June 19, 2024, facing north.



**Photo 6** Minor erosion observed in the east (westbound) highway ditch. It appears as though the ditch was previously repaired with a rolled erosion control product. Photo taken June 19, 2024, facing north.



**Photo 7** Transition from riprap armouring to articulated concrete blocks along the west (eastbound) ditch near the east extent of the repair. Photo taken June 19, 2024, facing west.



**Photo 8** Length of ditch repaired using articulated concrete blocks. Photo taken June 19, 2024, facing southwest.



**Photo 9** Riprap energy dissipation structure consisting of Class 3 riprap at the east extent of the south (eastbound) ditch repair. Photo taken June 19, 2024, facing southeast.





**East of the Morrin Bridge:**

**Photo 10** Gabions baskets installed in the south (eastbound) ditch east of the Morrin Bridge.  
Photo taken June 19, 2024, facing east.



**Photo 11** Gabions baskets installed in the south (eastbound) ditch east of the Morrin Bridge.  
Photo taken June 19, 2024, facing northwest.



**Photo 12**      **Riprap armoring in the north (westbound) ditch east of the Morrin Bridge. Photo taken June 19, 2024, facing north.**

