

DRUMHELLER, ALBERTA



TYPE OF PROJECT
Soil Nailing

YEAR OF CONSTRUCTION
2024

CLIENT
ALBERTA
TRANSPORTATION

CONTRACTOR
PME INC, MARATHON
UNDERGROUND
CONSTRUCTORS

DESIGNER
KLOHN CRIPPEN BERGER

PROD. RELATED
MacMat R (2000)

Challenge

A section on highway 575:04, located northeast of Drumheller in Alberta's Canadian Badlands, experienced persistent slope instability driven by steep, erodible geology and progressive [weathering](#). At **C017-I** and **C017-III** (Hwy 575:04, km 26.631–26.050), progressive slope failures threaten the carriageway on the steep **~2H:1V** Red Deer River valley side-hill. **C017-I** is a shallow embankment failure **~30m** wide extending **~15m** downslope from the crest; the highway sits on a **24m** side-hill sliver fill over a natural slope. **C017-III** is a moderately deep-seated slide (**~5–6m** deep via 2019 inclinometer), **~60m** wide and propagating **~25m** down a **~50m-high** slope. Badlands **saline-sodic soils** and winter maintenance debris in the ditches severely limit revegetation, compounding erosion and stability risks. The project must **arrest slide movement**, **protect the road**, and **minimize disturbance** in challenging geotechnical and environmental.

Klohn Crippen Berger (KCB) was retained to assess the site and recommend a long-term stabilization and protection strategy for the failing slope.

Solution

KCB assessment recommended **hollow steel-bar soil nails** (Ø 200mm, 14 m long) at **10°** to the slope face, on a grid **1.5 m (v) × 2.0 m (h)**—**three rows at C017-I, four rows at C017-III**. KCB wanted to go with a composite system which had high tensile strength and Turf Reinforcement Mat (TRM) and hence Maccaferri's MacMat R1 Steel was specified. The total area covered with TRM was 1500 sqm.



OPEN GOOGLE MAPS



OPEN GOOGLE EARTH



OPEN VIDEO