

## D440 REHABILITATION PORT SHEPSTONE , KWA-ZULU NATAL , SOUTH AFRICA

### Mass Gravity Retaining Walls

#### Problem

D440, a district road located in the Oslo Beach area on the South coast of KZN, is heavily trafficked. The frequent movement of industrial vehicles has led to various surface failures along the road's entirety. Additionally, the region's excessive rainfall led to erosion failure of the embankment supporting a specific section of the road, resulting in partial erosion and undercutting.

Compounding the challenges, the Port Shepstone locale lies within the Dwyker group Tillite formation, and the existing fill contained pockets of clay-like material. The road segment's downhill slope, coupled with inadequate drainage, exacerbated the water ingress into the fill beneath the road.

#### Solution

To address the multiple issues on the road, Maccaferri proposed a gabion mass gravity retaining wall on a pioneer layer of rock incorporating a drainage component to manage excess water buildup within the fill material behind the wall.

The gabions were manufactured to SANS 23-3 (EN 10223-3) using Class A Galfan (Zn 95Al5 alloy) steel wire. Given the area's corrosion susceptibility, Polimac® coating (to EN10245-1) with a nominal thickness of 0.50 mm was applied to provide added protection. The gabions were reinforced with Macdrain® W1051 drainage composite tied into a subsoil drainage detail featuring outlets at 10m intervals.

The construction of the gabion wall allowed for the successful reinstatement of the layerworks and ultimately the road pavement design, providing a durable and effective solution to mitigate the surface failures and erosion challenges along the road segment.

**Client:** KZN Department of Transport

**Designer / Consultant:** KZN Department of Transport

**Contractor:** Dlamcon Civils

#### Products used (Qty.)

- Gabions	220m <sup>3</sup>
- Drainage Geocomposites	215m <sup>2</sup>
- Nonwoven Geotextiles	200m <sup>2</sup>

**Date of construction:** 02/2023 - 06/2023

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Before Construction



Foundation Preparation



During Construction



Construction Completed



Construction Completed