

P179 ROAD UPGRADE PHASE II ESTCOURT, KWA-ZULU NATAL , SOUTH AFRICA

Mass Gravity Retaining Walls

Problem

The P179 Road Upgrade Project in the northern region of Kwazulu Natal aimed to connect the Ntabamhlophe and surrounding areas to the main road leading to the town of Estcourt. During the summer season, commuters faced difficulties utilizing this approximately 12 km long partially gravel road due to the presence of significant streams formed by the collection of water from the nearby Drakensberg Mountains, ultimately flowing into the Wagendrift Dam.

The primary objective of the project was to upgrade the road from a gravel surface to an asphalt surface to accommodate the increasing traffic demands. There were several challenges that needed to be addressed along a 4.5km stretch of the road, where substantial areas required filling. These sections ranged from 1 to 3 meters in height and necessitated measures for erosion protection and water management to ensure the stability and longevity of the road.

Solution

The proposed solution included the construction of mass gravity walls to retain and prevent erosion around culvert pipes and control erosion in certain sections. Considering the topography of the area, Maccaferri proposed the use of 3x1x1m gabions and 3x1x0.3m Reno mattresses. As opposed to reinforced concrete structures, the gabions allowed the flexibility to accommodate differential settlement that may have occurred during and after installation, as well as allowing for the employment of local unskilled labourers for the construction.

All Maccaferri's Gabions and Reno Mattresses are manufactured to SANS 23-3 (EN 10233-3) with double twisted hexagonal mesh. The steel wire is manufactured according to SANS 675 with Class A Zinc wire to SANS 1580. Where required, Polimac coating with a nominal thickness of 0,50 mm in compliance with EN 10245-1 protects the wire from aggressive environments.

Client: Kwazulu Natal Department of Transport

Designer / Consultant: Xariba Enterprises cc t/a Nankhoo Engineers

Contractor: WJ Siyakha Construction CC

Products used (Qty.)

- Gabions	1530 m ³
- Nonwoven Geotextiles	1800 m ²

Date of construction: 04/2021 - 03/2023

[Google Maps](#)

[Google Earth](#)



During Construction



During Construction



During Construction



Project Completed