

CATO MANOR PIPELINE & ROAD PROTECTION
BELLAIR ROAD, CATO MANOR, KZN

GEOTECHNICAL / GRAVITY RETAINING WALLS

Product: Gabions & Terramesh® System

Problem

Heavy rains, experienced during October 1999, caused the Umkubaan and Umbilo rivers that flow through Cato Manor to rise to abnormal levels. This resulted in excessive erosion and subsequent failure of the eastern embankment along the Bellair road, just north of the Umbilo river bridge. The rise in the water table beneath the road resulted in further instability of the embankment compromising the road and a bulk water pipeline.

Solution

Maccaferri was asked to propose a structure that would retain the affected road embankment. The proposed structure was a combination of a gabion Mass Gravity wall, to a height of 6,5m, and a Terramesh® System to a height of 2m. The total height of the structure was 8,5m, spanning a length of 52 linear metres with a foundation of 2,5m including a gabion key, which was sufficiently anchored into the river bed. A geotextile was used at all mesh/soil interfaces to act as a separation layer.

Benefits

Firstly, gabions are permeable (30% voids) and allow water to pass freely through them, thereby eliminating the possibility of pore water pressures behind the structure.

Secondly, due to the expansive nature of soils in this area, the wall had to be flexible and had to adapt to differential settlement. Gabions are ideal for these conditions.

Thirdly, as gabions are labour intensive, local labour was used for the packing operation creating much needed employment in the area.



Before construction

Date: Nov 1999



During construction

Date: Nov 1999



After construction

Date: Jan 2000

Client name:

DURBAN METRO

Main contractor name:

NASHRAVE

Consultant:

DURBAN METRO

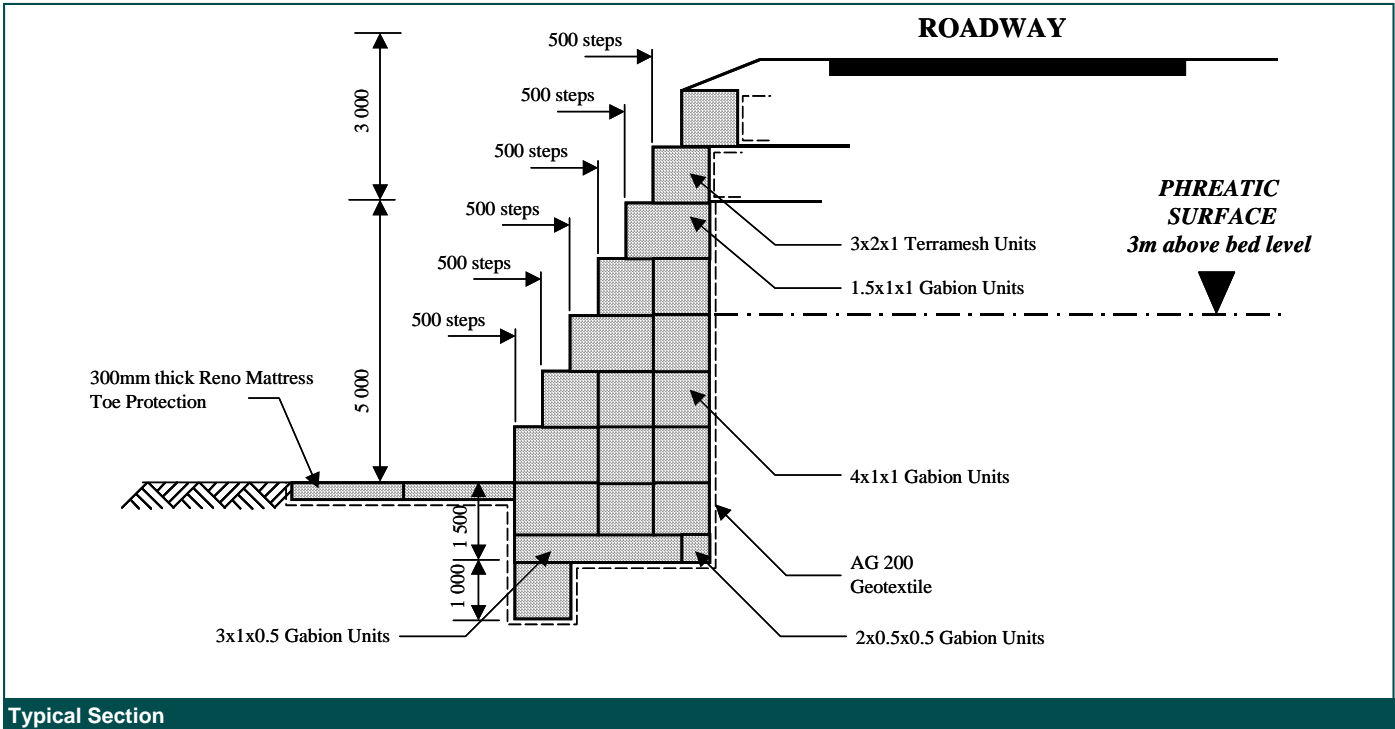
Product used:

GABIONS, TERRAMESH® SYSTEM

Construction info:

Construction date:	November 1999
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Completion date:	December 1999
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Engineering a Better Solution

