

BOOTH ROAD CANALISATION
CATO MANOR, KZN

HYDRAULIC & EROSION CONTROL / CHANNEL LININGS

Product: Reno Mattresses & Gabions

Problem

With an anticipated 1:50 year flow volume of 500m³/s, the Booth Road Canal was expected to flood the main arterial road and surrounding residential areas. Critical velocities along the river course were expected to reach 4,79m/s. The construction of a formalised canal, with bank protection, was therefore necessary.

An additional complication in the design was that the culvert downstream of the canal was smaller than the upstream culvert. A further concern was theft of the lids of the mattresses by the surrounding inhabitants.

Solution

A 580m long canal was constructed to handle the 1:50 year flood volume. The 1:1,5 canal side slopes were lined with our AG200 geotextile under 300mm thick Reno mattresses and the toe of the bank protected by a reinforced concrete slab. A 1m x 1m gabion anchored the mattress at the crest of the slope.

The channel bed slope was increased near the downstream culvert to allow the same flow at a higher velocity. To reduce the impact of the structure on the environment and to conceal the mattress lids (to minimise the potential for theft), the mattresses were soil filled and seeded. The design was verified by the Macra 1™ software.



During construction

Date: Early 1997



Immediately after construction

Date: Early 1998

Client name:

CATO MANOR DEVELOPMENT ASSOCIATION

Main contractor name:

ERBACON

Consultant:

DURBAN METRO

Product used:

RENO MATTRESSES, GABIONS

Construction info:

Construction date: 1997

Completion date: 1998



After construction

Date: 2000

Benefits

The construction of the canal has meant that 9 hectares of land has been reclaimed from the 1:50 year flood plain. This land is now available for development which will allow business establishment and this growth will create much needed employment for locals.

Gabion construction is labour intensive and this project employed more than 50 locals - 75% of which were women. This use of local labour also instilled a sense of pride and ownership in the community, which reduced the risk of vandalism or theft.

The vegetation will also increase the life expectancy of the structure as has been shown in our structures which are over 100 years old.

(In November 1998, Durban Metro was awarded the Maccaferri Award for Environmental Engineering Excellence.)



Aerial view of Booth Road canal during construction



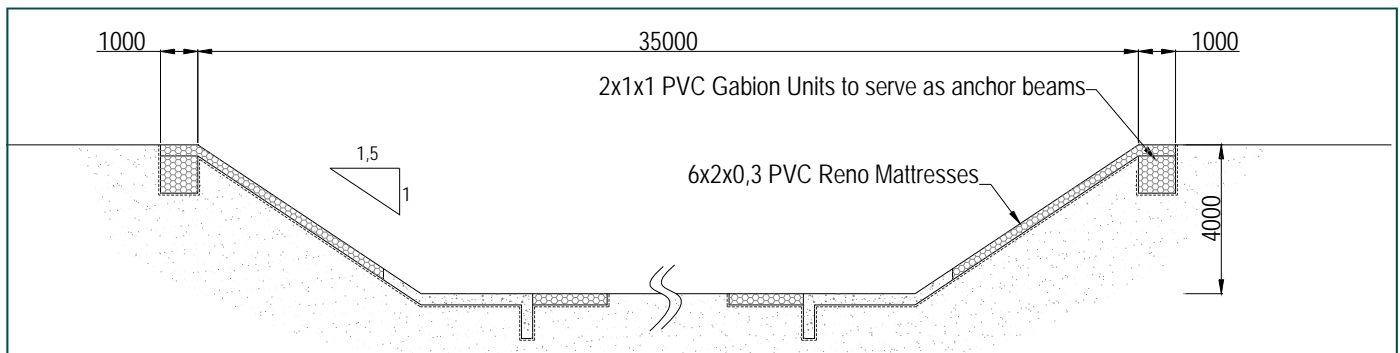
During construction

Date: Early 1997



After completion

Date: May 2003



Typical Section

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