

## BANK PROTECTION FOR RIVER TAPI, SURAT SURAT, GUJARAT, INDIA

### Longitudinal Protection

#### Problem

Tapi River is one among the most important peninsular rivers of India. It originates in Satpura Ranges in the Betal District of Madhya Pradesh (Central India) and flows into Arabian Sea, forming estuaries (estuaries are sharp edged mouth of rivers devoid of any deposits. Regions of high tides and rift valleys witness estuaries).

Tapi flows in a rift valley parallel to Narmada River and its basin covers part of Madhya Pradesh, Gujarat and Maharashtra. It gets mainly its water from rains and hence is seasonal. During dry season, it may get completely dried up. At the time of rainy season, river flows at high speeds and causes heavy erosion on the banks.

Surat is one of the major townships on the banks of Tapi and the bank erosion was an important concern for the people of Surat as well as to the Authorities.

#### Solution

The conventional methods were not able to provide a technically and commercially viable solution to the heavy erosion problem. The consultant CWPRS first advocated for the use of handmade wire crate lining as protection. However, the client and the contractors got convinced by the technical advantages as well as the cost effectiveness of Maccaferri's mechanically woven gabions and mattresses and they enquired for the opinion of CWPRS. CWPRS River Engineering section who were well aware of the merits of these products from their previous experience gave positive recommendation and hence Maccaferri's gabion mattress of 0.6mX1m size were used as bank lining in this project.

There were two main contractors, Yojaka Marine and Venkariya. On the site of Yojaka Marine where during the construction time, water was present at the toe of the lining. The soil beneath the lining was mainly clayey silt. On Venkariya's site, the construction was done mainly in the dry season during which the river was almost empty.

**Client:** Surat Municipal Corporation

**Designer / Consultant:** Maccaferri (Designer)/ CWPRS, Pune

**Contractor:** M/S D.P Venkariya & M/S Yojaka Marine Pvt Ltd

#### Products used (Qty.)

- Gabion 4x1x1&1.5x1x0.6-  
Qty NA

**Date of construction:** 04/2006 - 08/2006



Photo 1: During construction at Yojaka Marine's site



Photo 2: Construction completed, site of Yojaka Marine





Photo 3: Construction at Venkariya's Site was mainly in dry season



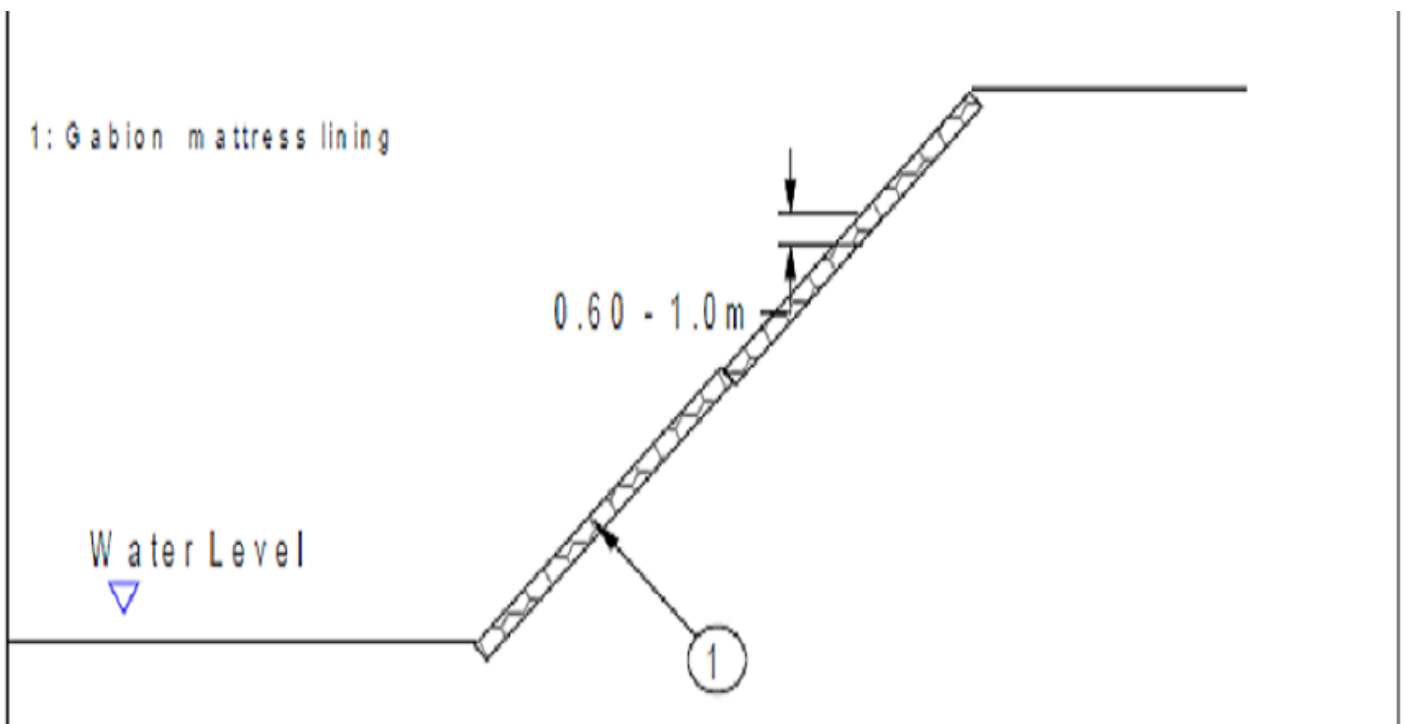
Photo 4: Venkariya's site during construction



Photo 5: During construction at Venkariya's site



Photo 6: During construction at Venkariya's site



Typical cross sectional drawing