

EROSION PROTECTION WORKS ALONG BANKS OF BRAHMAPUTRA RIVER ROHMORIA, ASSAM, INDIA

ENVIRONMENTAL / HYDRAULICS / EROSION PROTECTION

Product: Gabion, Geotextile Bags

Problem:

Brahmaputra River is one of the major and aggressive rivers in Asia. It flows in countries of China, India and Bangladesh. In India it enters North East state of Arunachal Pradesh and then widens as high as 10km in the state of Assam. Over the past 20 years, the river has destroyed many paddy fields, homes, schools and plantations in the village of Rohmoria.

Brahmaputra channel belt is highly dynamic due to the incessant structural changes in the basin part and the basin margin areas as well as the sediment load dumping patterns. Rohmoria, in the upper reaches of the Brahmaputra River in Assam, is an area most severely affected by river erosion. This area is located about 20 to 30 km away from Dibrugarh town in the upstream direction of the south bank of Brahmaputra River. The area has witnessed erosion for the last sixty years and more than 25 villages have been wiped out by erosion.

To mitigate this problem, Water Resource Department of Assam had proposed bank protection works. The anti-erosion works are being implemented in a nine kilometer stretch along the Brahmaputra River from Bogoritolia to Kasuoni that has been identified as highly affected zone.

Solution :

Water Resource Department has suggested the use of MacBags for the bank protection, which is one of the most practical and viable solutions.

Maccaferri MacBag™ is a geotextile bag filled with sand and commonly adopted for hydraulic protection works. These geotextile bags are produced from either woven or non-woven polypropylene geotextile or non-woven polyester geotextile.

The height of slope was approximately 5.5m. The bank and bed protection were carried with MacBags placed on geotextile filter layer. Peripheral strips of Steel Gabion and PP rope gabions filled with layers of geotextile bags were placed at regular intervals to impart further stability to the scour protection measure.



Photo 1 Scouring of the banks of Brahmaputra River



Photo 2 Dressing of slope



Photo 3 Filling & transportation of MacBags™

Client: Water Resources Department, Assam

Contractor: Maccaferri Environmental Solution Pvt

Product used:

MacBags - 800,000 no.s

Polypropylene Rope Gabion - 2600 no.s

Gabion (Zn+PVC) - 3300 no.s

Non Woven Geotextile - 64300 sqm

Start of construction: October 2011

End of construction: April 2012



Photo 4 Unloading of MacBags™ on the river bank



Photo 5 Placement of MacBags™ on the river bank



Photo 6 Placement of MacBags™ on the river bank



Photo 7 Condition of MacBags™ & River Bank during Flood



Photo 8 & 9 : Condition of MacBags™ & River Bank after flood

Present Status of the Project :

In June 2012, the flood situation in Assam deteriorated more than 1,000 villages and water level in other villages was about five feet high. The anti-erosion work constructed in April 2012 was totally submerged under water and in some part flood water passed over the protection work. The erosion protection measures constructed with MacBags™ survived the flood and protected the banks. After flood, considerable amount of silt deposits was noted which is an indication of success of anti-erosion works along the river banks.



Photo 10, 11 & 12 : Condition of MacBags™ after 2 years

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