

GABION RETAINING WALLS AT GODA PARK NASHIK, MAHARASHTRA, INDIA

Longitudinal Protection

Problem

The project involved the protection and lining of the bank of river Godavari near to Goda park. It was suggested to stabilize the embankment on the left side of the river. The banks were subjected to erosion due to flow of river. The embankment had to be protected from instability at the toe from scouring. The existing soil was soft clay (black cotton soil), hence it was difficult to construct a rigid structure. The surcharge slope on the embankment was 1:2 which needed protection against erosion.

Solution

A gabion wall for retaining the earth was constructed. The main function of a bank protection structure is to provide a substantial interface between the water flow and the containing ground.

As the founding soil was soft clay, the gabion retaining wall was the perfect solution for the proposed site due to its advantageous characteristics like:

1. Cost Effectiveness.
2. Simplicity in Construction.
3. Flexibility.
4. Durability.
5. Drainage and permeability
6. Environmental compatibility.

The top slope of the embankment was protected with 0.3m thick Reno mattresses.

Among the various advantages of gabions and mattresses, the most striking feature which prompted Nashik Municipal Corporation to adopt this solution was flexibility. The flexibility of the structures help to cope with the alternate expansion and contraction characteristics of soil.

The soil at the site was very soft clay which shows very poor shear characteristics. Angle of internal friction of native soil was 15 degrees and cohesion not more than 25 kpa. The initial proposal suggested by consultant was for reinforced concrete retaining wall which needed elaborate foundation arrangement. The gabion solution was adopted as it is a flexible structure which can be founded even in poor ground without extensive ground improvements.

The speed to be attained for the construction was very fast and critical as the whole project had to be finished before the Kumba Mela of 2004. The whole construction was finished before the schedule.

Client: Nashik Municipal Corporation

Designer / Consultant: Maccaferri / Consulting Engineers Services Ltd

Contractor: M/s Pawar Patkar Construction

Products used (Qty.)

- Gabion 5,000 cum

Date of construction: 02/2002 - 03/2003



Photo 1: Gabion retaining wall along the river bank



Photo 2: Reno Mattress for protection of top slope



Photo 3: Lining of river bank with gabion retaining wall



Photo 4: Gabion retaining wall

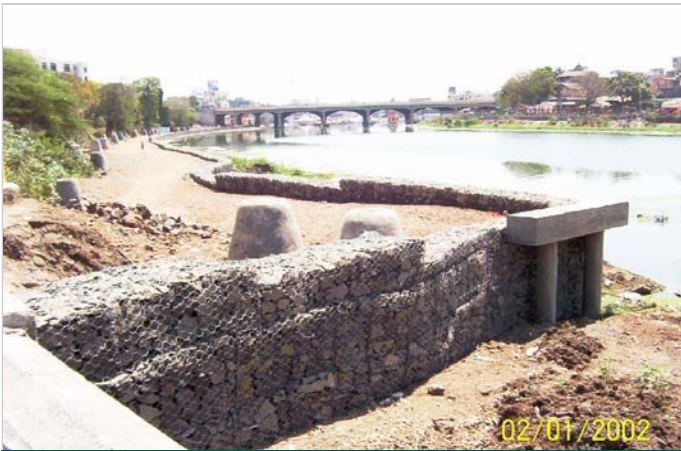


Photo 5: Completed structure



Photo 6: Completed structure