

**REHABILITATION & WIDENING OF NH-09 HYDERABAD TO VIJAYAWADA SECTION
HYDERABAD - VIJAYAWADA, ANDHRA PRADESH, INDIA**

Weirs, Culverts and Transverse Structures

Problem

National Highway 09 (NH-09) is one of the major national highway in India, spanning through the states of Maharashtra, Karnataka and Andhra Pradesh.

The stretch from Vijayawada to Hyderabad was in a bad condition, NHAI had plans for widening on lake side for 96km and there was a need of retention for about 800m.

The natural lake used to receive heavy rains due to which it would be full of water during monsoons and dry in summers. Gabions were found suitable for such conditions and a cheaper option as well. The project was sanctioned under the National Highway Development Program, Phase III. Due to the presence of ground water table at very shallow depth, it was a challenge to retain the slope filling. In addition to this, presence of water on one side and restriction of way on the other side restricted excavation, dewatering and erection of any form of work.

Solution

Gabion retaining walls were provided as the solution for the problem mentioned. The maximum height of retention for road embankment was 5m. Due to the presence of ground water table, it was suggested to create a base of rubble soling of 0.5m thickness with layers of gabion above it. Non-woven geotextile was provided as the filter media.

Maccafferri gabion baskets are made from high quality steel wire, which is heavily galvanised to provide long term corrosion protection. An additional protective polymeric coating is also applied for gabions that are to be used in more aggressive environments, or where a longer design life is required.

Key Reasons for selecting the Maccafferri solution were :

- 1) Flexibility- Accommodates ground settlement without any compromise in structural integrity.
- 2) Permeability and durability- Gabion wall allows free drainage which becomes an added advantage as the structure is adjacent to ground water table.
- 3) Simplicity in construction- The construction of gabion wall does not involve deep excavation, dewatering of trenches, erection of formwork.
- 4) Cost-effectiveness- Maccafferri's gabion solutions are economical than rubble wall and R.C.C. wall.

Client: National Highways Authority of India

Designer / Consultant: Maccafferri (Designer) / ICT Consultants

Contractor: GMR Group

Products used (Qty.)

- Gabion 2,330 cum
- MacTex N 2,250 sqm

Date of construction: 02/2011 - 06/2011



Photo 1: Before construction



Photo 2: Before construction



Photo 3: During construction



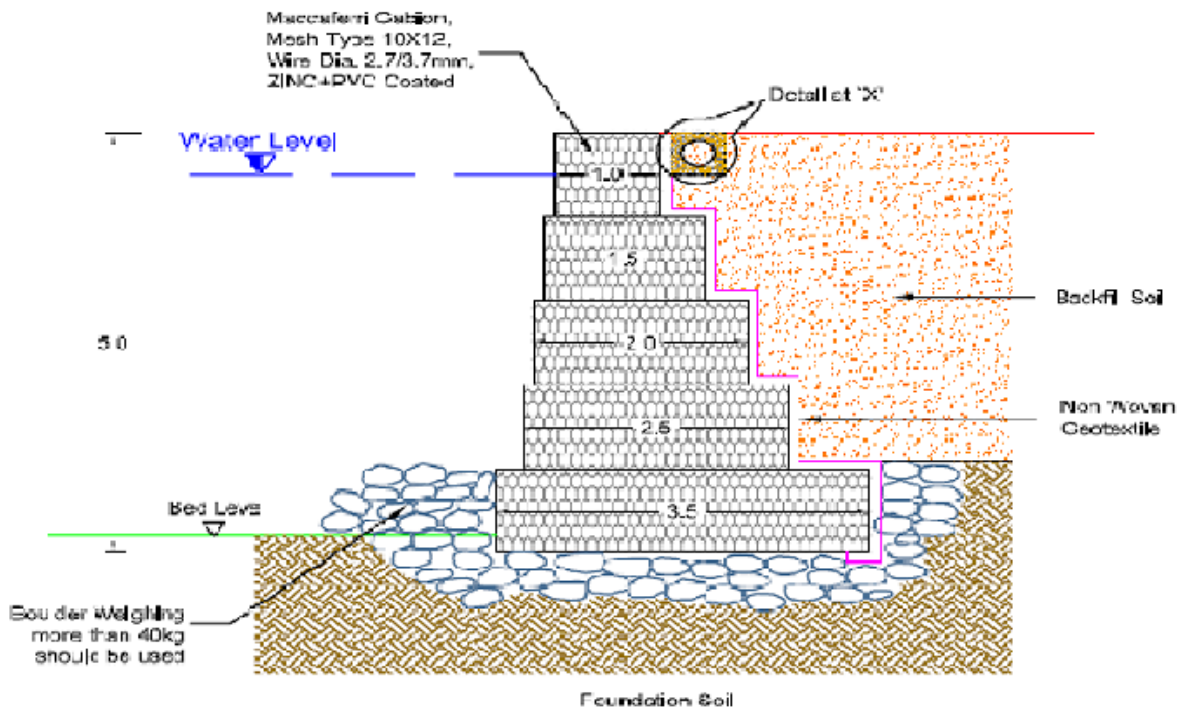
Photo 4: Foundation placing for gabion wall



Photo 5: Completed gabion structure



Photo 6: Completed gabion structure



Proposed cross section drawing