

CASE HISTORY

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CONSTRUCTION OF REINFORCED SOIL WALL & GABION RETAINING WALL FOR SOIL STABILIZATION AT MUDKHED, MAHARASHTRA

MUDKHED, MAHARASHTRA, INDIA



Soil Stabilization

Client:	Products used & Quantity supplied:
PUBLIC WORKS DEPARTMENT	• TECHFAB METAL GABIONS ZINC+PVC COATED • TECHGEO NONWOVEN GEOTEXTILE PR20 • KNITTED & PVC COATED PET GEOGRIDS
Main contractor:	
SHARDA CONSTRUCTION & GANESH ENTERPRISE	
Design Concept:	
BEST GEOTECHNICS PVT LTD.	
Manufacturer & Supplier:	Year of construction:
TECHFAB (INDIA) INDUSTRIES LTD.	

Problem:

There is a requirement for Retaining structure for Rail over bridge at Mudkhed, near by the water body. It is mandatory to protect the wall against scouring. Considering the structure alignment near by the water body, need arises for detail analysis and designing of retaining wall which can withstand the water current and also to be protected against scouring. Reinforced soil wall is the cost effective solution for the retaining wall. For protection against scouring gabion wall has been proposed in front of Reinforced soil wall, near by the water body. Reinforced soil wall founded above the embankment protected with Gabion retaining wall is designed as shown in the photographs, below.



TechFab Metal Gabion - Longitudinal View



TechFab Reinforced soil wall - Installation

The Solution:

Gabion Retaining walls are constructed, to protect against scouring are flexible structures which are very suitable in case of retaining structures for protection, near by the water body. Gabions can take settlement which may occur in such regions. Walls of varying height of (2.0m to 5.0m) were proposed. TechGeo Nonwoven Geotextile PR 20 was placed at the rear end of gabion wall which acts as filter.



TechFab Metal Gabion



TechFab Reinforced soil wall

Reinforced Soil Wall is constructed for Rail over bridge at Mudkhed. Walls of varying height of (2.0m to 10.0m) were proposed using square panels (1500x1500mm). RS Wall has been proposed considering the minimum foundation depth of 1 meter in the compacted sub grade. Outside RSW, is protected with Gabion wall. Height of the Gabion wall is decided considering the HFL. Gabions are suitable for energy dissipation against water current and also protect the wall against scouring. Engineered fill with design consideration are provided as per the drawings and methodology for the RSW and Gabion wall.

Benefits of Reinforced Soil Wall and Gabion Wall over Conventional RCC Retaining Wall, for such application:

TechFab Metal Gabion was suggested for retaining and scouring protection purposes in lieu of the conventional R.C.C Retaining Wall for achieving the following advantages:

- Flexible structure compare to R.C.C Retaining wall.
- Easy in construction, as it does not require skilled labourers.
- Does not require curing time as in case of R.C.C Retaining wall.
- Energy dissipation is possible due to the voids in the boulders, and also accommodates differential settlement very well due to its flexibility.
- Cost incurred is very less compared to conventional retaining structures.

Benefits of TechGeo Nonwoven Geotextile:

- Acts as a “Filter” by preventing the backfill material from being washed out through Gabion face.
- Acts as a “Separator” between the backfill material and the Gabion facia and thereby prevents the mixing of the tow.

Conclusion:

TechFab Metal Gabion and Reinforced Soil Wall satisfied all the technical parameters for their effective usage. The execution was successfully completed in time.

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