

**BYTCO JUNCTION ROB**  
**NASHIK, MAHARASHTRA, INDIA****Vertical Walls with Concrete Facing Panels****Problem**

Nashik Municipal Corporation had proposed a rail over bridge at Bytco junction to divert the traffic of Nashik City. Nashik area is mostly covered with black cotton soil. Black cotton soils are clays of high plasticity. The shear strength of the soil is extremely low. The soil is highly compressible and have low bearing capacity. For the approach of ROB, Nashik Municipal Corporation and the consultant (Consulting Engineering Services Ltd.) jointly agreed to adopt reinforced soil wall instead of conventional retaining wall so that extensive foundation improvement can be avoided.

**Solution**

Reinforced Soil Wall with discrete concrete panel as fascia and Double Twisted Hexagonal mesh as reinforcement was selected as the system. Square discrete concrete panel were used as fascia, some special end panels and corner panels were also used.

The connection between the panels & reinforcement was done by embedding the small length of reinforcement in the panel during the casting of panel and then lacing the required reinforcement length with embedded small length of reinforcement. Zinc + PVC coated Double twisted hexagonal mesh was used as reinforcement.

As the founding soil has low bearing capacity, it was suggested to replace the existing soil with good frictional fill. Replacement was up to 1m depth for wall height of 6m to 12m and 0.5m for wall below 6m height.

The maximum height of wall was 12m and varies up to 3m. The reinforced soil wall design was carried out according to British Standard 8006. The live load surcharge was considered as per the Indian code (Indian Road Congress 6 Class AA loading condition). The structure gives a very pleasing appearance and well appreciated.

Some field studies and lab studies were conducted during the construction to understand the suitability of the system. The field studies were to check the stress-strain behavior of the reinforcing mesh at different levels and the global deformation of structure as a whole. The lab studies included the analysis of mesh reinforcement under different loading and end conditions while the rupture and pullout strength of the material were being tested.

**Client:** NASHIK MUNICIPAL CORPORATION**Designer / Consultant:** CONSULTING ENGINEERING SERVICES LTD**Contractor:** M/s PETRON CIVIL ENGINEERING CO.**Products used (Qty.)**

- MacRes	3,500 sqm
- DT Mesh	75,500 sqm

**Date of construction:** 10/2002 - 06/2003**Photo 1: Concrete Panels ready for construction****Photo 2 : Erection of fascia panels**



Photo 3: Laying of DT mesh



Photo-4: During Construction



Photo 5 : Completed Structure