

## SLOPE PROTECTION AT KOTESHWAR MAHADEV TEMPLE GANDHI NAGAR, GUJARAT, INDIA

### Longitudinal Protection

#### Problem

Koteshwar Mahadev temple is 500 years old shrine situated in Koteshwar, in Gandhinagar district of Gujarat. It is situated on the bank of Sabarmati River. Koteshwar temple trust was been consigned with the work of protecting the surrounding area of Koteshwar Mahadev temple with retaining structures. The trust had planned of constructing a new temple itself in place of the existing old historic temple. The temple is known for the natural formation of shivlingas and attracts thousands of devotees every year. A huge fair is held at the temple on the day of Mahashivratri and people from all across the country visit the temple during the fair. As the temple is situated on the bank of Sabarmati river, erosion of surrounding area resulting from the high flood level was a constraint.

According to the soil and field investigations carried out, it was found that the soil strata was of a very hard and dense compressing yellow hard murrum type soil. The height of the river bank which was to be protected varied from 7.5m to 15m. The length of the slope to be protected was approximately 150m. Due to the high velocity of Sabarmati river, the river banks are continuously eroding.

#### Solution

As the temple was located in high flood zone it was necessary to provide retaining structure which is permeable and free draining.

Taking in to consideration the critical position on site, Maccaferri adopted Terramesh systems (TMS) solution. The sedimentation of soil transported by water would take place in the voids between stones. The eventual appearance of the vegetation increases monolithicity, improving the static characteristics of the structure over time. In order to protect the other sides of the temple, gabion retaining walls were constructed. Gabion parapet walls are also constructed above the TMS structure.

This system was being adopted by the Koteshwar Mahadev temple trust as it serves the purpose of stabilizing the bank slope without developing hydrostatic pressure as well as the reclamation of the land could be done in an appropriate manner by the temple trust.

**Client:** Koteshwar Mahadev Temple Trust

**Designer / Consultant:** Maccaferri Environmental Solutions Pvt Ltd

**Contractor:** Maccaferri Environmental Solutions Pvt Ltd

#### Products used (Qty.)

- Gabion	Not available
- Terramesh	Not available
- ParaLink	Not available
- MacTex N	Not available

**Date of construction:** 05/2010 - 02/2011



Photo 1: Before construction- stretches to be protected



Photo 2: Before construction- stretches to be protected



Photo 3: During construction- Laying of geotextile-Terramesh system



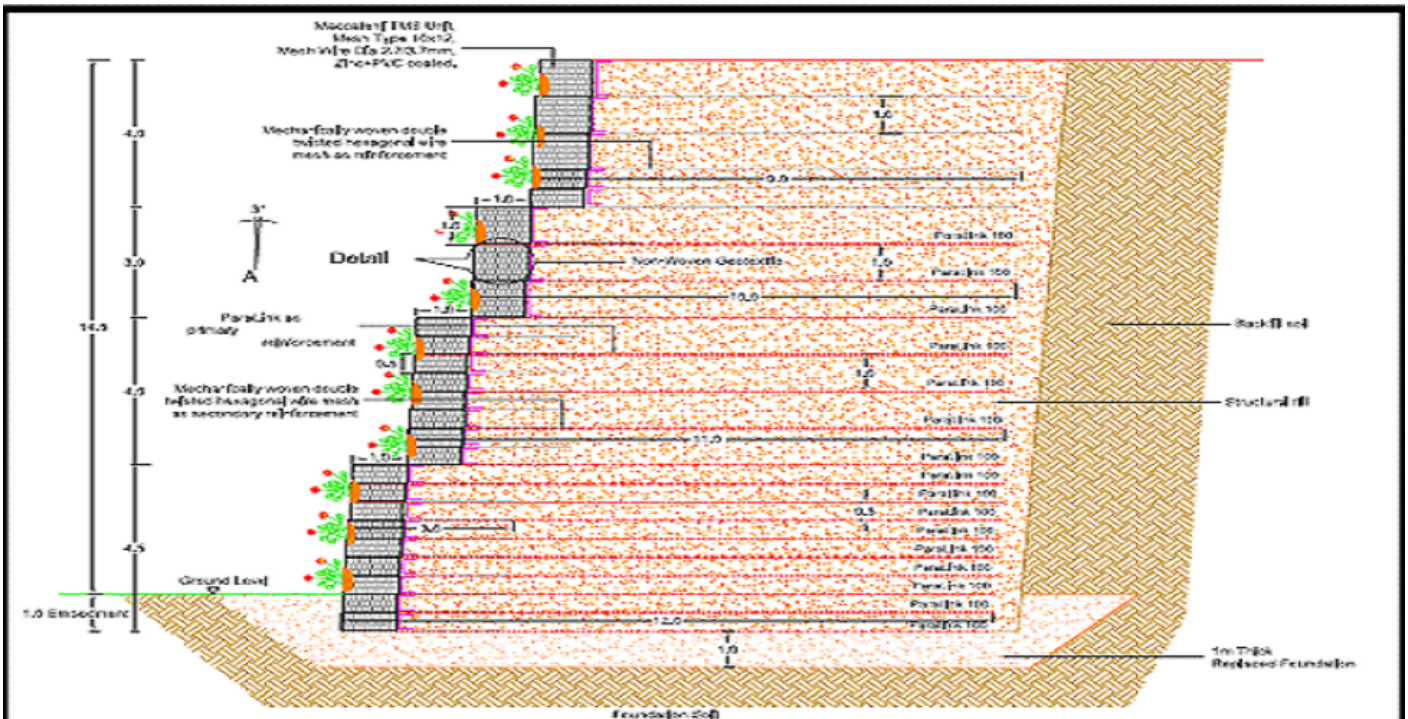
Photo 4: During construction- Laying of ParaLink-Terramesh system



Photo 5: Completed structure



Photo 6: Completed structure



Cross sectional drawing