

BANK PROTECTION WORK AT GATHA BHADERWAH, J&K BHADERWAH, JAMMU & KASHMIR, INDIA

Mass Gravity Retaining Walls

Problem

The valley of Bhaderwah in Himalayas is endowed with nature and surrounded by beautiful mountains, snow capped peaks. Neeru river- a tributary of Chenab River, flows through the central part of the village. Along the left Bank of river Neeru is a offers great views to the visitors. Bhaderwah Development Authority decided to develop the tourism in the area through construction of a recreation park. The soil in the district is generally loose and sandy with very low moisture. So, the incidence of soil erosion is very high during rainy season due to flash floods in Neeru river. Therefore, Bhaderwah Development Authority was looking for innovative flood protection measures to protect the tourism related infrastructure.

Solution

Gabions were proposed to construct the retaining wall because of its free draining nature and speed in construction. Another advantage of gabions was that stones from near vicinity were utilized for the filling of gabion boxes. The random rubble wall and concrete wall were ruled out as they are rigid, exert too much pressure at the base and necessitate the requirement of separate drainage arrangements. Gabion wall of approximately 3m height was constructed. Geotextile is also provided as a filter behind the retaining wall.

The main advantages for selecting the above solution were:

- 1) Flexibility- Flexibility of system helps the structure to accommodate differential settlement without any compromise in structural integrity.
- 2) Simplicity in construction- The construction of gabion wall is simple and does not involve deep excavation, dewatering of trenches and erection of formwork.
- 3) Cost-effectiveness-The total cost of gabion solution is less than rubble wall and R.C.C. wall. Also, minimum foundation is required.
- 4) Permeability- The ability to combine drainage and retention functions makes it an ideal structure. The conventional methods are not able to provide this advantage.

The project was completed successfully.

Client: Bhaderwah Development Authority/JKPCC

Designer / Consultant: Maccaferri Environmental Solutions Pvt Ltd

Contractor: HSL Enterprises

Products used (Qty.)

- Gabion

Not available

Date of construction: 02/2008 - 04/2008



Photo 1: Site location



Photo 2: Filling of gabion boxes with stones



Photo 3: Gabion wall erection with underneath geotextile



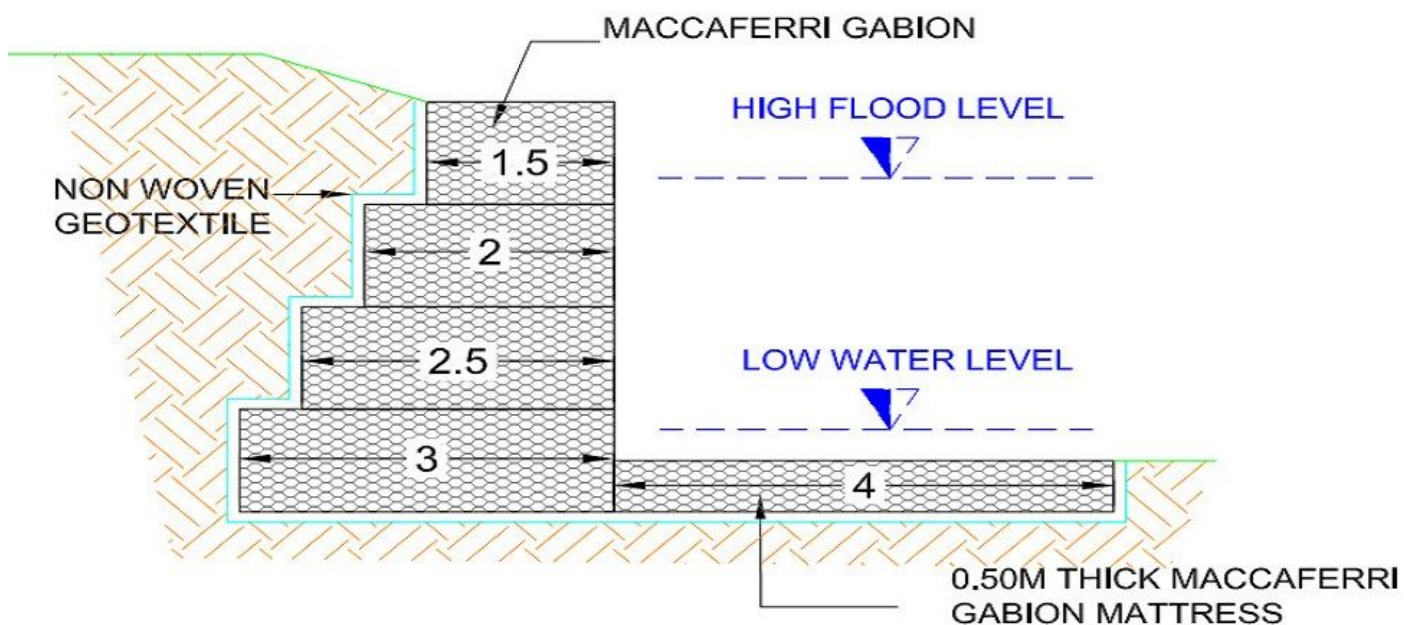
Photo 4: Completed structure



Photo 5: Completed structure



Photo 6: Completed structure



Cross sectional drawing