MACCAFERRI

CASE HISTORY

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REINFORCED SOIL WALL AT ABUTMENT OF BRIDGE- 43 IN REASI, J&K

DIST. REASI, KATRA, JAMMU & KASHMIR, INDIA

Mass Gravity Retaining Walls

Problem

Udhampur-Srinagar-Baramulla Rail link Project (USBRL) is a project of national importance under Indian Railways with a view to provide an alternative and a reliable transportation system to Jammu & Kashmir. 272 Km long railway line from Udhampur to Baramulla joining the Kashmir valley is proposed which will entail the most challenging works undertaken post-independence by Indian Railways. The alignment of USBRL involves construction of a large number of tunnels and bridges in highly rugged and mountainous terrain with most difficult and complex Himalayan geology.

At one of the locations near Katra (Chenab bridge), there was a requirement of earth retaining structure at Bakkal (Jammu) side for abutment of bridge no 43 to support the installation cranes for world's highest railway bridge from Bakkal (Jammu side) to Kauri (Srinagar side) at Chenab river in the Reasi district of Jammu and Kashmir India.

The client was looking for a system which is economical and fast to construct.

Solution

Based on the site conditions and specific requirements of the client, Terramesh units made of gabion fascia along with an integrated tail as reinforcement of length 2m which is made of mechanically woven, double twisted, hexagonal shaped steel wire mesh was used. On the upper reaches of the structure, Green Terramesh units consisting of double twisted hexagonal shaped steel woven wire mesh along with a biodegradable erosion control blanket and a welded mesh panel with three steel tie rods were installed.

For composite soil reinforcement system on which cranes could work, high strength flexible geogrids made of polyester core with polyethylene coating, ParaLink were installed as a primary reinforcement. Drainage composite, MacDrain W was used for drainage purposes between two different fills. Polyester needle punched non woven geotextile, MacTex was used as a filter media behind gabion facia units and wrapped around PVC pipe which allowed free movement of water and prevented backfill soil from entering in the voids between stone filling. Further, continuous threaded anchors of min. 3m length were embedded into the rock strata. Paralink was connected with anchors.

Client: Indian Railways-USBRL

Designer / Consultant: Maccaferri / KRCL

Contractor: AFCONS Infrastructure Ltd

Products used (Qty.)

- Terramesh	1,075 numbers
- Green Terramesh	145 numbers
- ParaLink	12,548 sqm
- MacDrain W	1,453 sqm
- MacTex Non-woven Geotextile	1,412 sqm
- Anchor Bar	133 numbers

Date of construction: 08/2018 - 11/2018

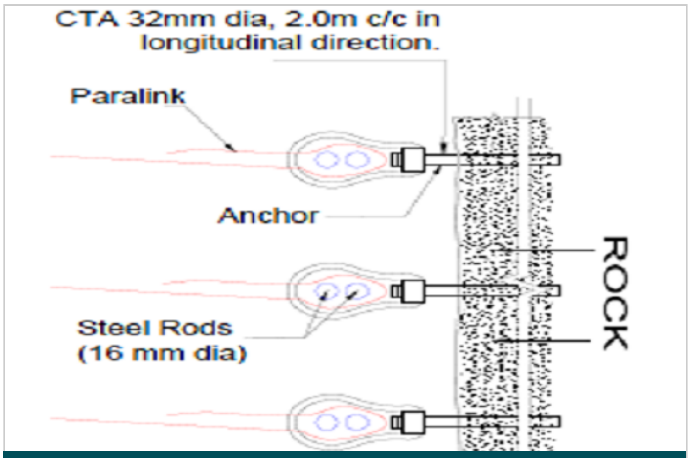
Photo 1:Site preparation

Photo 2: During construction- Laying of ParaLink

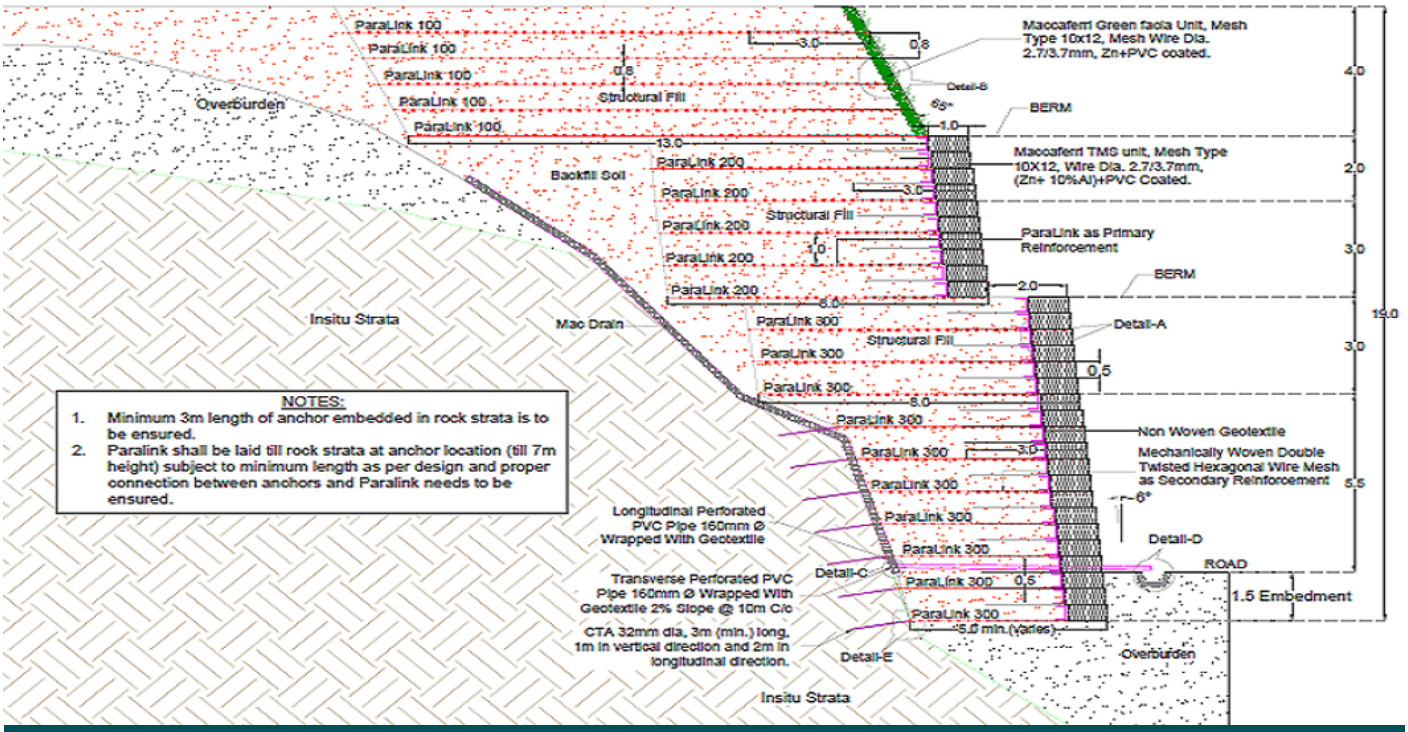
Photo 3: During construction- assembly of Terramesh units

Photo 5: Installation of Green Terramesh units

Photo 5: Cranes working on the completed structure for works on main structure



Drawing 1: Anchor connected with Paralink has been used in the construction



Drawing 2: Cross sectional drawing

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