

ARTVIN DAM TERRAMESH SYSTEM WALL APPLICATION ARTVIN, KARADENİZ, TURKEY

Reinforced Soil Walls and Slope Reinforcement

Problem

Artvin Dam was built 30 km to Yusufeli, under the contractor of Doğu İnşaat A.Ş., with the build-operate-transfer which Doğu Enerji A.Ş. was the investor. Demirkent village road was in the Artvin Dam lake basin and was to be flooded, so the new road filling from the slope had to be supported. On the slope, which is generally made up of slope rubble, walls with a height of up to 25 meters were needed. Alternative retaining systems have been used in this geography since classical retaining system solutions are not possible due to the flow of groundwater from the slope depending on the season.

Solution

Geosynthetic reinforced Terramesh System retaining walls were preferred in the design of the embankments of the Demirkent village road in the area between the T7 - T8 tunnels, due to its flexible and drain-allowing structure, which is also economical. Due to the high performance of this hybrid structure, which consists of a combination of geogrids and double-twisted wires, against deformation and settlement, it has been frequently used in reinforced embankment structures exceeding 15m. This Terramesh system retaining walls, which is the first application of its kind on highways, were designed by Maccaferri Turkey. The geogrids used in wall manufacturing are ParaGrids with a different strength, and they are planar working reinforcement products with geosynthetic strip alignment in two directions. The tapes consist of polyester fibers with high tensile strength covered with polyethylene. The Terramesh system unit consists of a back panel and partition diaphragm elements connected to the base unit. Terramesh System Facade structure is obtained by filling the prismatic cells formed by the connection of the specified elements with appropriate stones. During the design, the tunnel mat was used during the construction of the walls designed on the assumption that the backfill will be made with borrow material. The ground where the walls sit is slope rubble, and the wall foundations are placed on solid ground by digging. In this project, a total of 8 walls were built. A total of 11,010 square meters of Terramesh system wall has been fabricated and Paragrid has been used.

Client: DSİ GENEL MÜDÜRLÜK

Designer / Consultant: MACCAFERRI TURKEY

Contractor: DOĞU İNŞAAT A.Ş.

Products used (Qty.)

- Terramesh	11010
- ParaGrid	70000

Date of construction: 05/2014 - 02/2015



Figure 1



Figure 2



During construction



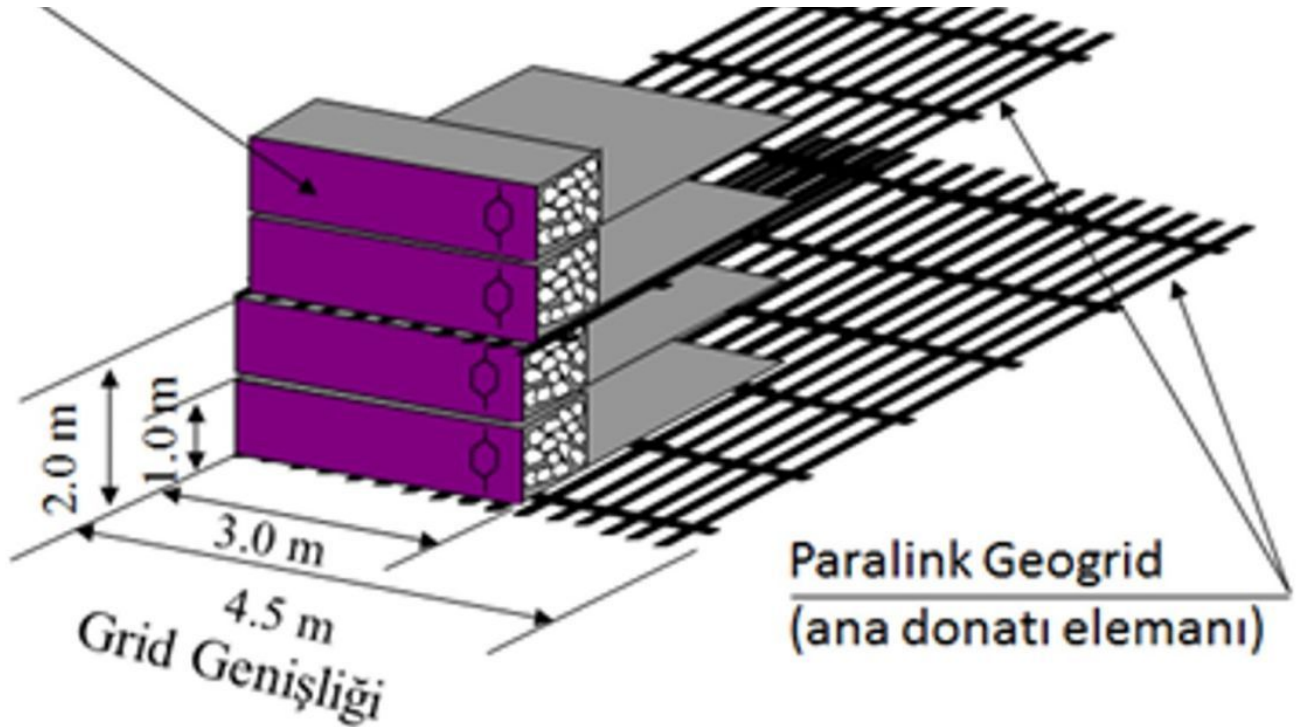
Culvert Detail



Aerial view



Terramesh System



Terramesh System Unit