Geotechnical specialists, Maccatheri has designed what is thought to be amongst the tallest reinforced earth retaining walls ever to be built in Europe, for a motorway construction project in Albania.

It is one of 30 reinforced earth retaining walls, all over 15m tall, designed by Maccatheri for Joint Venture Construction Partners Bechtel-Enka, builders of the 171km long motorway, which crosses the country through spectacular mountainous terrain from the Adriatic Sea to Kosovo in the north east.

The largest wall retains over 140,000 cum of backfill and has a face area of approximately 3,500 sqm. With a wall length of 200m and height of 38m, it makes this one of the tallest reinforced earth structure of its type in Europe.

The walls are constructed as hybrid reinforced earth geogrid wrap-around structures, built in conjunction with hard, stone-filled, Gabion Terramesh facings. Paralink 300 uniaxial polyester geogrid is the principal reinforcing element, sandwiched at 500mm or 1000mm vertical increments between layers of compacted backfill.

The Terramesh system comprises a continuous horizontal panel of woven steel-wire mesh geogrid with an integral gabion fascia unit. This makes the system efficient and economical to construct as there is no complex connection between grid and fascia element. Installation is quicker and there is less potential risk of errors and omissions during construction.

The fascia unit is filled with hard, rock-fill in the same manner as a gabion and the geogrid tail is then sandwiched between layers of compacted granular fill. Subsequent courses of Terramesh units are constructed to form a near vertical, typically, a 9 degree batter reinforced soil retaining structure, in this case, 38m in height. The structure has the aesthetics of a gabion wall, with the robustness of soil reinforcement.

As many sections of the motorway run alternatively through large, steep embankment-fill sections and slope cuts, the availability of large quantities of rock fill from the slope excavations made the choice of reinforced earth embankments a more cost effective alternative to the construction of viaducts.

The Maccatheri / Bechtel - Enka partnership arrangement for the Albania Motorway construction project is typical of the direction Maccatheri is taking with complex international projects as they increasingly become global specialists in this field. In the UK, the company has offices in Oxford, Perth and Belfast and operates over a wide range of geotechnical and civil engineering disciplines.

Construction of the Albanian Motorway project was completed in Summer, 2009.

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