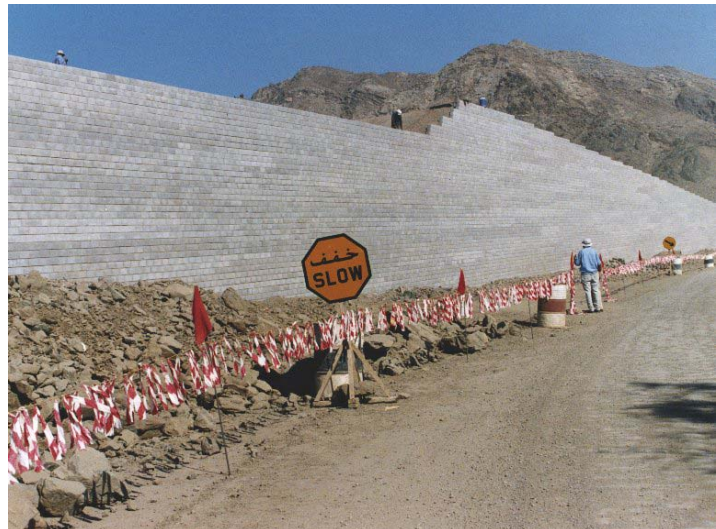




Retaining Walls for Dibba Idhn Tawaian Highway, UAE, 2003



Tensar Wall system built in harsh desert conditions with heights over 18m.

BENEFITS OF THE TENSAR SOLUTION

The Tensar Wall System (TWS) proved to be both the most economical solution considered but also the most practical for the harsh desert conditions. It required no heavy plant, as all components are easy to handle manually, minimal in-situ concrete and used locally won fill.

PROJECT BACKGROUND

The new 29.5km long by 22m wide highway crosses rugged, steeply undulating terrain, necessitating approximately 45,000 m² face area of retaining wall, with heights in excess of 18m and averaging 15m. The solution had to overcome serious logistical problems including impractical access for heavy plant, such as cranes as well as problems of in-site concreting involving shortage of water and air temperatures approaching 50 deg C

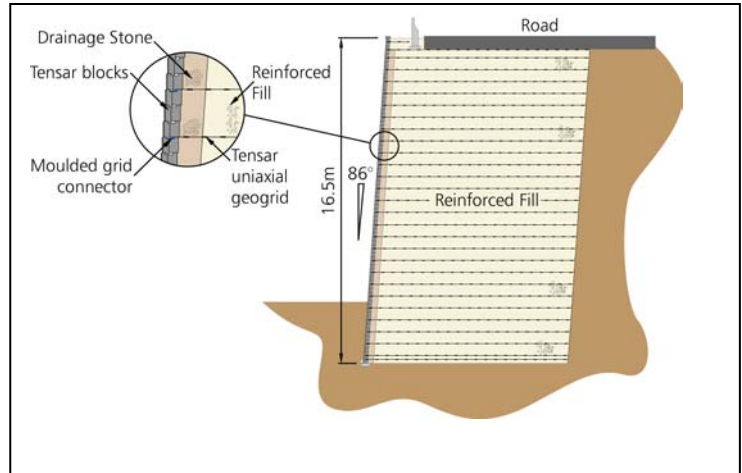
THE TENSAR SOLUTION

The TWS was able to accommodate the severe terrain and climate conditions. TWS consists of dry hand laid concrete blocks, manufactured at a local pre-casting factory, rapidly attached on site, via special high strength polymer connectors to Tensar RE geogrids which reinforce the local graded fill.

PROJECT DESCRIPTION

The route of the new Dibba Idhn Tawaian Road was through remote, rugged and elevated terrain, with extreme exposure to wind and high temperatures. Numerous gullies and steep sided valleys formed by heavy rainfall events cut across the landscape. Therefore, extensive retaining wall construction was required to achieve the required grades. The logistical difficulties would have made a conventional reinforced concrete solution very impractical and expensive.

About 45,000 m² of face area of Tensar Wall System (TWS) were built. 2.5 million m³ of site-won fill material and 1 million tonnes of imported fill were used to complete the project.



TWS was also used to form wing walls to approach embankments for bridge crossing over valleys. In wadi areas the TWS had large skewed culverts built into them, for stormwater control. The walls were designed to accommodate varying water levels during floods and the normal embedment of the footing below external ground level was increased considerably to prevent the risk of scour in these areas.

With the TWS, there are many advantages including:

- all components are easily handled (no site shuttering or propping)
- no specialist construction skills necessary
- the only in-situ concrete is for the thin footing, so reducing difficulty with site concreting caused by climate and water supply
- use of site-won fill materials
- facing units delivered to the point of installation from a local pre-casting factory
- full strength face-geogrid connection allows optimum design efficiency

CONTRACT DETAILS

Consultant:
Jacobson Gibb

Contractor:
National Wheel J&P

Client:
Ministry of Public Works



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