EMBANKMENT FOR BLAST PROTECTION AND ENVIRONMENTAL MITIGATION, AL UDEID AIR BASE, QATAR

RETAINING WALLS & SOIL REINFORCEMENT
Product: Green TerraMesh®, ParaGrid®, MacTex®

Problem:
The client was looking for a solution to protect a traffic tank area of an airport, to reduce effect for possible blast, with the possibility also to reduce the environmental impact of the structures hiding the artificial constructions. The area where is located the airport is close to the desert. In this area, the high temperature and arid climate do not allow the growth of vegetation or trees, neither the eventual greenery of the facing which would require a huge maintenance costs. Even a stone finishing was not suggested because in Qatar there are no stone quarries and the soil is mainly composed by limestones. The client was interested to make a natural finishing and hence other options like a concrete wall, fence or blocks finishing was ruled out.

Solution:
For the above reasons the solution selected by the client was to build an embankment using the same soil material available in the job site, one side with steep side to reduce the possible effect of a blast on the tanks side. The use of Maccaferri’s Green TerraMesh® units allow to make a steep slope almost vertical. In order to guarantee the durability of the structure without the vegetation of the facing, was the use of shotcrete for the facing.

Design Concept:
The design of Green Terramesh® Wall was done as per BS:8006 and AASHTO's FHWA guidelines. Two types of load cases were considered for checking the stability of the Green TerraMesh wall, namely Static Load Case and Seismic Load Case. Static Load Case is done referring to BS: 8006-2010 and Seismic Load Case is done as per AASHTO-FHWA. The Reduction Factor has been considered in calculating the long term design strength of ParaGrid® geogrid reinforcement from its short term ultimate tensile strength.

Green TerraMesh® (GTM) considered was with Galmac Plus Class-A (10%Al) coating. Mesh Size was 80mm x 100mm.
Photographs of Reinforced Earth Embankment in Various Angles (During & After Construction)

After Completion of All Works

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