

CASE HISTORY

Road widening and reconstruction of Tarif-Madinat-Liwa Contract 2A Tarif interchange

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| PRODUCT | TENAX LBO 303 SAMP geogrids |
| LOCATION | Tarif-Madinat-Zayed-Liwa Emirate of Abu Dhabi |
| OWNER | Emirate of Abu Dhabi Public Works Department |
| PROJECT | Ove Arup & Partners |
| CONTRACTOR | Saif Bin Darwish Civil Engineering |

PROBLEM

In order to increase the traffic flow on the main highway connecting the Emirate of Abu Dhabi with the Saudi Arabian border, it was decided to widen the existing highway from four to eight lanes.

Due to the poor underlying soil conditions and the cost of importing engineered fill material the designers looked at geotechnical solutions that would increase both the bearing capacity of the subsoil and decrease the thickness of the fill material, that would normally be required.

Due to the aggressive nature of the fill material the chosen geosynthetic product had to demonstrate a high degree of resistance to mechanical damage. The existing subgrade soil was identified as a typical Subkha soil with a low bearing capacity. To enable the project to be completed on time, ease of installation was also of prime importance.

SOLUTION

To stabilize the road embankments and to avoid differential settlement, the consultant engineers opted for an integral extruded PP geogrid offering both high junction strength and resistance to mechanical damage. The same product has been used also to reinforce and decrease the thickness of imported fill of the slip roads.

As TENAX LBO 303 SAMP geogrids met in full the project and design requirements, the product was proposed by the contractor and approved by the engineers.

TENAX LBO 303 SAMP geogrids are specifically designed for base reinforcement through uniform load distribution. The geogrid reinforces the soil through two main mechanisms: direct resistance to tensile stresses and interlocking, which prevents any lateral movement of the soil.

To extend the road width, excavations were made on either side of the existing road and TENAX LBO 303 SAMP geogrids were installed at the base and special rock fill, between 0,25 m and 0,40 m thick depending on the area, was then placed and compacted. For the slip roads TENAX LBO 303 SAMP geogrids were installed for the full width of the new road base, back filled and compacted with the special rock fill. In total, in excess of 700,000 m² of TENAX LBO 303 SAMP geogrids were installed on the project.

CONCLUSIONS

The consultants and contractor were pleased with both the efficiency of the product and the technical service supplied by TENAX. Working to a very tight schedule, delivery and service was of prime importance to the



Geogrid layers during rock fill operation.
The overall project required 700,000 m² of TENAX LBO 303 SAMP



Geogrid installation by easy unrolling and overlapping



TENAX geogrids rolls are 100 m long and are ideal for highway projects with all soil conditions



TENAX geogrids are design to interlock with large aggregate rock fill and do not suffer construction damages

contractor. TENAX set up an in-house logistics team working in close contact with the contractor to ensure that all deliveries were made on time. Including TENAX LBO 303 SAMP geogrids within the design allowed the engineers to:

- Increase the bearing capacity of the Subkha subgrade;
- Decrease the required thickness of the special fill material without reduction in long term performances;
- A reduction in construction time due to the ease of installation of TENAX LBO 303 SAMP geogrids;
- A reduction in cost due to the savings incurred in the reduction of the special fill material.