

Project summary

Hulayla Industrial Park Marina, Ras Al Khaimah, UAE



Client: H H Sheikh Saud bin Saqr Al Qasimi, Crown Prince and Deputy Ruler of Ras Al Khaimah
Consultants: Halcrow International
Contractor: China Harbour Engineering Company LLC
Product: **GEOfabrics HPS4**
Quantity used: 225,000m²
Product functions: Filtration and separation

This marina development, 15km north of Ras Al Khaimah city, is expected to be complete by January 2010 and the associated Hulayla Industrial Park is due for completion two years later. The marina complex will enable Ras Al Khaimah to be relatively independent in terms of sea trade and less dependent on Dubai.

The project involved the dredging of a 2.5km-long channel to provide direct access between the industrial park and the Persian Gulf which will allow ships to berth close to the industrial park. 5.6Mm³ of dredged sand will be used for reclamation of surrounding land for industrial development.

A temporary earth dam was constructed on one (seaward) side of the proposed marina and seawater was then pumped from the area. A 5km long quay was constructed around the perimeter along the remaining three sides. The 7m to 9m high wall was constructed using 30t pre-cast concrete units. Once the quay was complete the dam was breached to allow the marina to flood.

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GEOfabrics Limited
Skelton Grange Rd, Stourton
Leeds LS10 1RZ
United Kingdom

Telephone: +44 (0)113 202 5678
Facsimile: +44 (0)113 202 5655
E-mail: info@geofabrics.com
Website: www.geofabrics.com



GEOfabrics HPS4 was used to stabilise a free-draining 0.5t to 0.75t rock backfill to the walls and to maintain separation between the rock and the sand subgrade. This geotextile filter was selected as it is manufactured from black polypropylene fibres - polyester was thought to be inappropriate being in contact with concrete and sea water. HPS4's high elongation, its thickness & its robustness are prerequisite properties for filters deployed beneath large rock.



Lengths of HPS4 were anchored below the lowest course of units and then laid up the face of the existing 1:2 slope at the rear of the wall. The void was then backfilled with the rock. This detail would prevent the build up of hydrostatic pressure behind the walls, and the geotextile would prevent leaching of sand and silt particles.

The HPS4 was supplied during 2008/2009 by Technomax MEEL, distributors of GEOfabrics' products in the United Arab Emirates.