

JABEL HAFEET POND FOR STORM WATER NETWORK PROJECT IN AL AIN AL AIN, MIDDLE EAST, U.A.E.

Longitudinal Protection

Problem

M/s. Abu Dhabi General Services Company PJSC (Musnada), on behalf of the M/s. Abu Dhabi Housing Authority (ADHA) appointed M/s. CORE Engineering Consultancy LLC to do a detailed design of External Storm and Irrigation Connection to Jebel Hafeet and Ain Al Faydah Developments. Accordingly, the designer proposed concept design options of stormwater discharge ponds strategy to the relevant project stakeholders, which mainly involved the construction of two massive ponds within Ain Al Fayda & Jebel Hafeet locations, near to the ongoing Emirati Housing Development project. The size of the pond is significant due to the large volume of stormwater expected from a 1 in 25 years storm as well as from groundwater recharge.

The proposed Jebel Hafeet pond is rectangular with dimensions 250m x 75m (length x width). The pond design was to be done entirely as a trench by excavating 6m from the existing ground level. Since the original groundwater level is approximately 3m below the current ground level at the pond location and that the total wall height is 6m, the lining solution has a pivotal role of allowing groundwater recharge into the pool without developing pore water pressure within the backfill side. However, the original tender answer was a Segmental block reinforced soil wall system, which is ineffective due to the lack of flexibility and porosity of its facia.

Solution

Being the pioneer for hydraulic works with double twisted wire mesh products, the contractor approached Maccaferri Middle East to propose a suitable reinforced soil wall solution for the pond bank lining. Maccaferri proposal was to replace the segmental block reinforced soil wall with Terramesh system and ParaGrid geogrid. Both Terramesh and Paragrid are BBA (British Board of Agreement) certified construction materials. The drainage requirement of the wall was managed without adopting AASHTO # 57 aggregate as backfill; thanks to the flexible and porous stone-filled gabion face of the Terramesh system.

Maccaferri was involved in design, supply and site assistance of the project. The installation began in January 2019 and completed in July 2019.

Client: Al Ain Municipality

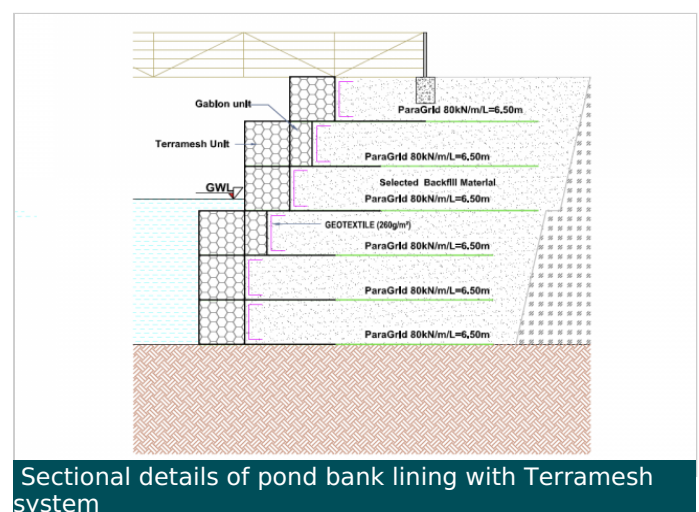
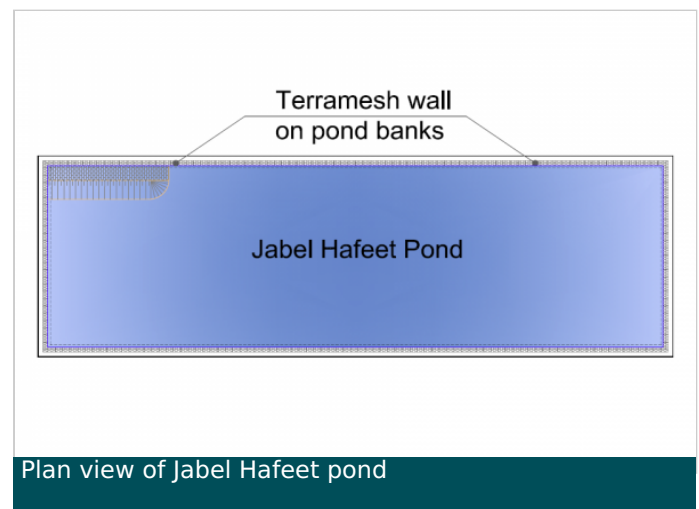
Designer / Consultant: CORE LLC

Contractor: MACE LLC

Products used (Qty.)

- Terramesh	4000 m ²
- ParaGrid	28000 m ²

Date of construction: 01/2019 - 07/2019





During construction : Excavation for pond construction



During construction : Geotextile & Paragrid geogrid installed



During construction : Terramesh wall in progress



Completed pond : Before discontinuance of de-watering



Completed pond : Drone view

Maccaferri Middle East
Dubai PO box 502594
United Arab Emirates
Tel: +97143608958
E-mail: info.ae@maccaferri.com