



Building the Palm Island in Dubai

SURE-GRIP® CASE STUDY

“Palm Jumeirah Core” by Alexander Heilner



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Project Overview

Project name: Palm Island

Project date: 2006-2007

Products: Sure-Grip®

In 2006, Sure-Grip® concrete protective liners were used in the construction of the Palm Islands in Dubai.

Situation

Built to help sustain the economy after the depletion of the country's oil reserves, the Palm Islands in Dubai present an incredible engineering feat. As the largest manmade island in the world, the reclaimed land was designed to resemble a palm tree topped with a crescent. Naturally, the construction of this megastructure required extensive infrastructure.

Agru was heavily involved as early as the technical planning and design stages of this massive project. Together with BMC Gulf, the stringent specification requirements were mapped out and realized, and only the highest quality products were selected for construction materials.

Solution

In particular, Agru HDPE Sure-Grip® liner was selected to protect the bridges' concrete pilings from seawater corrosion, and Agru's PE flex geomembranes were used for a waterproof maintenance tunnel and bridge undercrossing. These products were chosen for the Palm Island because of their high quality and durability.

Fulfilling the highest requirements for concrete protection, the Sure-Grip® liner with patented anchor stud design has been effectively installed worldwide for more than 20 years. Since 2006, it has been available with a unique seamless width of 5 meters.



Figure 1: The Palm Jumeirah

Outcome

A tunnel was constructed between the main island and the ring island at a width of 300 meters with 30 meter high sheet pile walls. The construction site was dewatered using high-capacity pumps, and the process was executed as a cut-and-cover construction with 1.5 meter thick waterproof concrete, inside and outside water stops and a remedial grout injection system.

We supplied toe external water stops for the construction and expansion joints to seal the cast-compartments for each concrete section. This allowed expansion and contraction of the concrete tunnel construction. Moreover, the water stops were used to thermally connect the Agru PE flex liner, which was the primary means of sealing the construction from seawater infiltration. After the completion of the project in 2007, the four-lane maintenance tunnel to the ring island remains operational at approximately 25 meters under the water level.



Figure 2: View of the Burj Khalifa



Figure 3: Connection to the Mainland

For more information on Agru Sure-Grip® and other Agru America products, please reach out to us.



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