SOAPBERRY WWTP

Kingston, Jamaica

GEO PRODUCTS, LLC | ENVIROGRID® GEOCELL

Background

Jamaica is the third largest island in the Caribbean with a land area of 10,990km2. The National Environmental Planning Agency commissioned a special study of the islands' domestic wastewater sector. The results were disturbing with low levels of basic compliance and high discharge of improperly treated wastewater effluent into the ocean with a main contributor to coastal degradation in Jamaica. Construction of the Soapberry WWTP was a critical part of repairing the fragile ecosystem. The main objective was to find a solution to protect a 1 mm HDPE geomembrane liner to withstand high UV exposure, high temperatures, high wind and potential impact from objects during hurricane season.

Technical Information

MATERIALS USED:

- EnviroGrid® EGA 40 3" (75cm) 1,040,126 SF (96,631m2)
- Tendon Anchoring System
- 1mm HDPE geomembrane

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Site Conditions

Jamaica is located within the hurricane belt of the Atlantic Ocean which contributes to the high seismic activity and potential winds over 156 mph (251 kph), and extensive rainfall of 47-70 in (120 cm) per year.

Construction Overview

Geo Products was chosen as part of the team for the construction of Soapberry WWTP in the capital of Kingston. The facility is comprised of 16 interconnected effluent ponds with single and double berms that are lined with an HDPE smooth geomembrane and protected with a 7.5cm EnviroGrid® EGA 40 product. Geo Products played an integral role in the redesign of the project that changed the liner form a 1.5mm thickness to 1mm. The liner thickness was reduced because of the integrity and protection that the concrete-filled EnviroGrid® Geocell system provided.

Results

After 12 years in use, EnviroGrid® has withstood the harsh environmental impacts of the Caribbean, including category 5 Hurricane Dean with winds of 174 mph (280 kmp) as the installation of the system was being completed. The use of geosynthetic materials, including the EnviroGrid® Geocell system was the best solution for the complex needs of this project.