

Coastal Resilience Achieved in Belize City with Triton® Marine Mattress Solution



Yarborough Pump Station Revetment Foundation

CHALLENGE

The Yarborough Pump Station project, part of the 2017 Climate Vulnerability Reduction Program, focused on reducing flooding in vulnerable areas of Belize City through upgraded drainage infrastructure. To protect the new pump station, the project team required a rock revetment capable of resisting coastal erosion under challenging ground conditions.

Very soft sandy silt with low bearing capacity at the site created a significant stability challenge. The proposed limestone revetment, with a crest elevation of +2.3 m MSL, required a foundation system that could improve bearing capacity, limit settlement, and provide uniform support—without relying on traditional, costly construction methods.

TENSAR SOLUTION

After evaluating the site, Tensar recommended the TRITON® Marine Mattress System to serve as both a filter layer and a foundation beneath the rock revetment. The system protects the seabed from erosion, distributes loads, increases bearing capacity, and creates a stable base in very soft soils.

Tensar provided on-site training for mattress assembly and installation so the contractor could use standard equipment and crew. Since early 2023, the TRITON solution has performed as designed, protecting the Yarborough Pump Station from coastal erosion while maintaining long-term stability. This illustrates Tensar's commitment to help owners achieve resilience objectives while improving constructability and cost-efficiency.

Tensar®

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PROJECT DETAILS

Owner

Ministry of Infrastructure Development and Housing

Partner

Inter-American Development Bank

Consultant

BAENT Engineering, LLC (USA)

General Contractor

Medina's Construction LTD. (Belize)



Very soft sandy silt with low bearing capacity, posed significant challenges for stability.



Despite having no prior experience, the contractor pre-fabricated the TRITON® mattresses and completed installation using standard construction equipment and crew.

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