

The Innovative Applications of Geotextile Tube in River and Marine Engineering

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ABSTRACT

Geotextile tube comprises high-strength, high-permeability geotextile. Dredged material is pumped into the tube. Demand for geotextile tubes in river and marine engineering has boomed in recent years, due to easy installation, utilization of in-situ material, cost-effectiveness and eco-friendliness.

This article presents two projects:

- 1) Coastal oil pipes in Dos Bocas, Mexico in serious danger of breakage due to the beach erosion. PEMEX chose geotextile tube technology involving two parts: (a) tubes beneath the pipe as support; and (b) tubes as a submerged breakwater along 1.9km of coastline with 62000m³ of beach nourishment.
- 2) An erosion problem of the Zhuoshuixi River, the longest in Taiwan, with 24000m³/sec peak rainy season discharge. The River Management Office chose flexible material to prevent the loss of the groyne foundation, combining geotextile tube with concrete groynes to prevent gravel gabions being swept away: it also enhanced the structural foundation.

This paper describes how geotextile tube is successfully solving engineering problems and eliminating damage to local eco-resources.

Keywords: Geotextile tube, erosion protection, oil pipes protection, beach nourishment, groyne, river and marine engineering