Flood mitigation structures using TenCate Geotube® GT Marine
Almacen River, Bataan, Philippines

Project Data

<table>
<thead>
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<th>Project</th>
<th>Almacen River Improvement Project</th>
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<td>Client</td>
<td>Department of Public Works and Highways Region III</td>
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<tr>
<td>Contractor</td>
<td>Horam-Abi Builders Inc.</td>
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<td>Completion Year</td>
<td>2016</td>
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<td>Material</td>
<td>TenCate Geotube® GT750M</td>
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Overview

Almacen River is one of the two major rivers in Bataan, Philippines. Its headwaters in the Natib mountains extends down to Hermosa and exits through the Orani Channel to Manila Bay. Yearly flooding along the areas of Orani, Hermosa, and Dinalupihan Bataan during the rainy seasons raises concern among the villagers. This is due to the river’s severe siltation caused by the lahar deposit in the upstream river heading to Mt. Pinatubo.

Solution

To immediately and effectively address the problem of severe siltation the Public works initiated the used of Geotube® as a silt depo to be laid at the river mount and dredge the 4.0 km river of lahar deposit to help deepen the river channel. This accommodates a more significant volume of water during the rainy season and help address the perennial problem of severe flooding in the surrounding municipalities of Hermosa and Orani, Bataan.

Project Description

The use of Geotube® GT 750M as riverbank protection for the Almacen River Improvement project allows the usage of dredged material along the river as filling soil for the river embankment and slope protection. The installed Geotube® GT 750M serves as an onsite spoil bank area thereby saving the project from using offsite materials to create one. The dredging project and improvement of waterways leading to the Almacen River would thus divert flood waters away from the farmlands in the villages.

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Construction

The work consists of furnishing and lying Geotube® GT 750M, scouring apron and protection geotextiles with a primary function as a revetment protection structure that acts as a mass gravity structure that is erosion resistant to harsh weather conditions.

The Geotube® GT 750M are filled by hydraulically pumping sand slurry through the filling ports. To allow flow of fill material, the fill is in the form of sand/water slurry. Supply of water is free and abundant at the site as river water may be used to create the sand/water slurry. The Geotube®, being permeable, allows the excess water to pass through the geotextile skin while sand is retained within the Geotube®. The installed Geotube® GT 750M acts as gravity massed building blocks for erosion protection along the river.

The use of Geotube® GT 750M speeds up the completion of the project with less man power requirement as the installation is fully mechanical.