

WAY LOLA KECIL RIVER BANK PROTECTION
SERAM ISLAND - MALUKU, INDONESIA

RIVER BANK PROTECTION AND EROSION CONTROL

Product: Gabions, Reno Mattresses, MacTex MXL

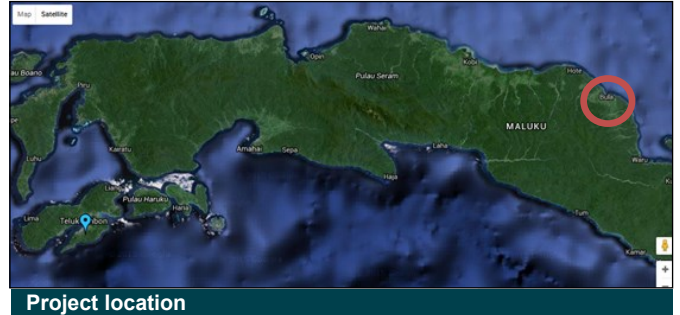
Problem

Way Lola Kecil is located in the North-East of Seram Island, Maluku Province of Indonesia. An unconfined river body was threatening the surrounding areas, populated by the local community, with frequent floods coming during the rainy season.

The objective was to build a dike in order to confine the high water flow level avoiding thus the flooding of the areas in its vicinity. The dike was planned to be build with locally available loose soil (mainly silty sand).

Solution

The Public Works Department decided therefore to build the dike and to cover it in with a durable and flexible revetment system to prevent the erosion of the fine soil particles. It has been decided to line the entire dike using Gabions and Reno Mattresses (refer to the typical dike section). Reno Mattresses allow tangential river flow velocities up to 6m/s without any substantial damage (according to the test results gathered during the Colorado State University hydraulic test campaign). Mattresses are also very flexible modular elements which allow high levels of deformation and settlements without compromising the lining integrity. During the construction phases, the Mattresses lining experienced a severe flood without any visible damage. Reno Mattresses have shown to be a valid alternative to the traditional lining systems used in Indonesia (rip-rap or masonry walls) both in terms of flexibility, durability and cost effectiveness.



Project location



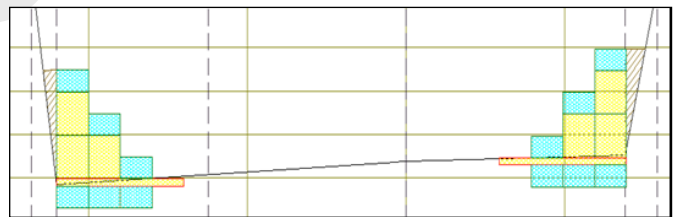
River condition before the intervention



River condition before the intervention

Area 2 and 3

The river banks are protected with stepped gabion walls coupled with Reno Mattresses extended in the river body as scour protection.



Area 2 and 3 typical section



Area 2 and 3 after construction

Client:

INDONESIAN MINISTRY OF PUBLIC WORKS

Designer:

PT MACCAFERRI INDONESIA

Products used:

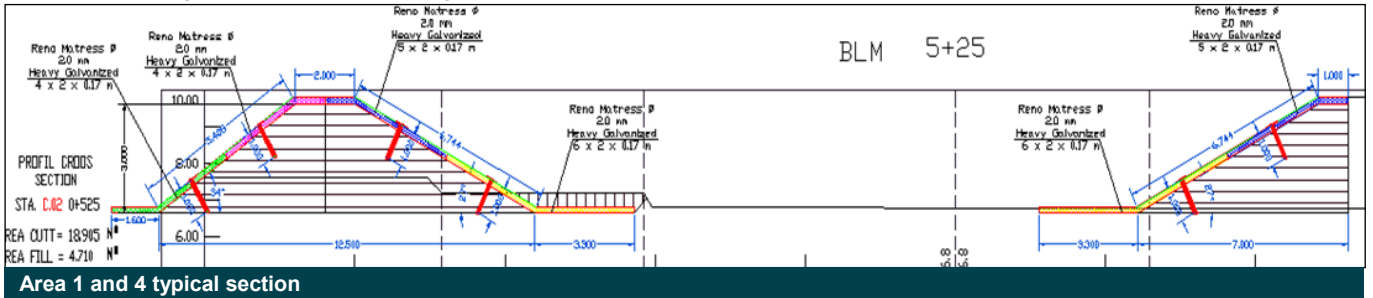
GABIONS, RENO MATTRESSES, MACTEX MXL

Date of construction

JUL 2015 — DEC 2015

Area 1 and 4

The new construction dikes are totally covered with Reno Mattresses (anchored with 1m steel bars). The protection has been extended in the river body for approximately 3,5m in order to minimize the scour at the toe of the dike. All the products have been installed together with a nonwoven geotextile (MacTex MXL) with filtration function.



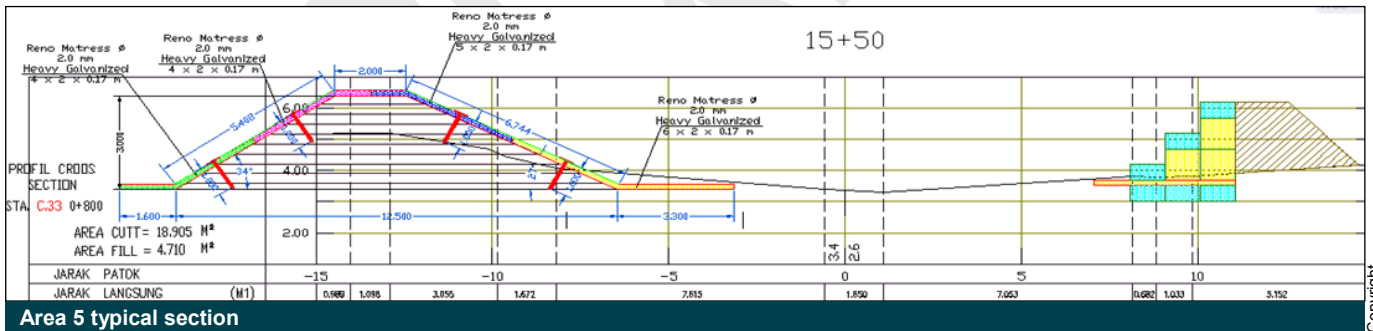
Area 1 and 4 typical section



Area 1 and 4 after construction

Area 5

The new construction dike on the left bank is totally covered with Reno Mattresses (anchored with 1m steel bars) and extended in the river body for approximately 3,5m as scour protection. The right bank has been protected with a gabion wall coupled with Reno Mattresses as toe scour protection. All the products have been installed together with a nonwoven geotextile (MacTex MXL) with filtration function.



Area 5 typical section



Area 5 after construction

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