

## INDOCEMENT FACTORY RIVERBANK PROTECTION CIBINONG, WEST JAVA, INDONESIA

### Channelling Works

#### Problem

Indocement factory is located in the South of Jakarta and it is the second-largest cement producer in Indonesia.

PT Indocement Tunggal Prakarsa Tb in cooperation with Heidelberg Technology Center aimed to provide protection against the erosion affecting the banks of the river flowing adjacent to their cement production plant. During the rainy season, the riverbanks were severely damaged by erosion processes which were threatening the plant structures nearby (conveyor belts and storage tanks).

The ongoing erosion had to be minimized through an engineered river lining.

#### Solution

The solution proposed by Maccaferri involved mainly Gabion structures coupled with Reno Mattresses used as toe scouring protection. The solution, if compared to traditional stone masonry walls, is more flexible, permeable and durable. In addition, all the areas interested by occasional floods were protected using a 100% natural biomat (Maccaferri BioMac) along with the manual application of mulching in order to rapidly establish the vegetation.

The solution proposed is designed in order to withstand a maximum water velocity equal to 3,0 m/s.

The riverbank protection designed and build is approximately 1,0 km long and divided in the following stretches:

Chainage 0+400 - 0+650: BioMac + Mulching as riverbank erosion control.

Chainage 0+650 - 1+250: Gabion wall + Reno Mattresses as scour protection

Chainage 1+250 - 1+320: Reno Mattresses

All the factory outflow structures are protected using Reno Mattresses supported by Gabions.

All the double twisted products involved are Galfan (Zn+Al) and PVC coated in order to guarantee high durability when used in river training works.

All the stability checks of the Gabions and Reno Mattresses structures were performed using the internally developed Maccaferri software (MacStars W 4.0). Furthermore, Maccaferri provided the Client with job site supervision and the Contractor with installation assistance in order to ensure that the highest construction and installation standards were followed.

**Client:** PT Indocement Tunggal Prakarsa Tbk in cooperation with Heidelberg Technology Center

**Designer / Consultant:** PT. Barunadri - PT. Maccaferri Indonesia

**Contractor:** PT. Anugerah Alpha Omega

#### Products used (Qty.)

- Gabion	N/A
- Reno Mattress	N/A
- Biomat natural	N/A
- MacTex Non-woven Geotextile	N/A

**Date of construction:** 03/2016 - 08/2016



Existing riverbank condition



Factory outflow structure before the intervention

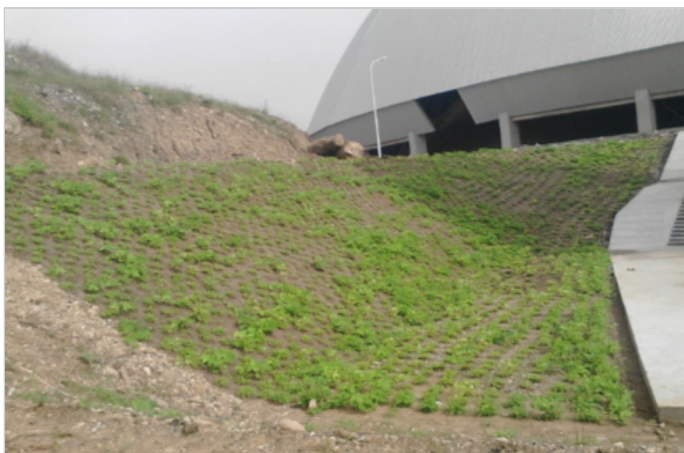




Riverbank lining using a Gabion Wall



Gabion and Reno Mattress as riverbank protection



Erosion control with BioMac



Reno Mattresses combined with BioMac, after vegetation establishment



Indocement riverbank protection after construction

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