

TVI BALABAG GOLD PROJECT SPILLWAY BALABAG, ZAMBOANGA DEL SUR, REGION IX, PHILIPPINES

Weirs, Culverts and Transverse Structures

Problem

TVI Resource Development (Phils.) Inc. operates a gold and silver mine in Sitio Balabag, Barangay Depore, Municipality of Bayog, Zamboanga del Sur, Philippines. A hydraulic spillway structure has been designed to support the excess runoff from the residual storage impoundment (RSI) earth dam of the mining company. A practical and economical design of the spillway was required that will dissipate the flow and reduce the water velocity downstream. Our integrated solution of Terramesh® System, reinforced with MacGrid Geogrids, and gabions were used to build the spillway structure. The back of the Terramesh® units were lined with MacTex® non-woven geotextiles.

Solution

Maccaferri's gabions and Terramesh® units were used in the design. The Terramesh® units were mainly used for the construction of the drop structures and the side walls while the gabions were installed as lining of the bottom landings of the spillway and as termination of the walls. The Terramesh® System units were reinforced with MacGrid® geogrids, to provide the required tensile mechanical strength of the wall structure. The MacGrid® geogrids used have a tensile strength of 100 kN/m.

The cascading steps and landing portions were capped with concrete for abrasion protection. The top portion of the spillway measures 20m wide and succeeding drop heights vary from 3m to 5m. Both Terramesh® System and gabion units were filled with head-sized boulders which are available on site. MacTex® nonwoven geotextiles were also used to line the rear of the Terramesh® units with a 150 gsm non-woven geotextile (MacTex® MXL35) to prevent migration of the backfill to the spillway structure.

The completed spillway structure has a low carbon footprint that services the requirement of the RSI as it naturally blends with the environment. Succeeding phases of the spillway will be constructed as the height of the RSI is increased.

Client: TVI Resource Development (Phils.) Inc.

Designer / Consultant: GHD

Contractor: TVI Resource Development (Phils.) Inc.

Products used (Qty.)

- Gabion	4x2x0.5 Zinc: 220pcs
- Terramesh	4x1x2x1 PVC Zinc: 416 pcs
- MacGrid WG	14 rolls
- MacTex N	MXL 35 30 rolls

Date of construction: 01/2022 - 09/2022



Image 1



Image 2



image 3



Image 4



Completed