TENCATE Polyfelt®

PROJECT REFERENCE

# Polyfelt PEC reinforcing geotextile
## Vertical dump wall for PT Kaltim Prima Coal - East Kalimantan, Indonesia

### Project Data

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| **Project** | : PT Kaltim Prima Coal – Dump Wall |
| **Consultant** | : Golder Associates – Brisbane Australia |
| **Client** | : PT Kaltim Prima Coal – East Kalimantan |
| **Contractor** | : PT Petrosea Indonesia |
| **Products Used** | : Polyfelt PEC 150 – 15,000m$^2$<br>Polyfelt PEC 200 – 15,000m$^2$<br>Polyfelt TS 50 – 25,000m$^2$ |

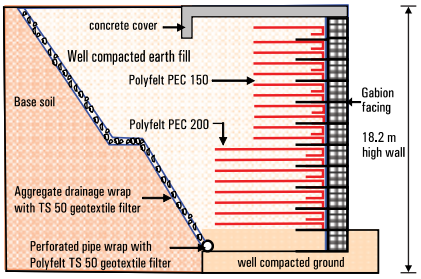


*Figure 1: Cross section of vertical gabion faced dump wall with Polyfelt PEC reinforcement*

### Overview

PT Kaltim Prima Coal is one of the biggest coal mining companies in Indonesia. Due to expansion of their mining operations, they were required to build a vertical dump wall to facilitate the handling of the mined coal.

### Application

Construction of a 18.5m-high vertical dump wall was carried out with stone filled gabion facing and Polyfelt PEC 150, and PEC 200, reinforcement behind the gabions. Polyfelt TS 50 non-woven geotextile was used to wrap around the aggregate of the cut off drain and also placed behind gabions to prevent soil piping through the stone.

Polyfelt PEC high strength geotextile is a composite geotextile consisting of high tenacity polyester yarns and continuous filament non-woven geotextile. The high tenacity yarns provide the tensile strength required for reinforcement while the non-woven geotextile facilitates in-plane drainage and optimum reinforcement/soil friction interface.

Due to the unavailability of granular soil backfill on the site, the design required backfill with residual soil comprising a high percentage of fines. Polyfelt PEC's suitability to interact and reinforce such soils was the deciding factor as its choice as the reinforcement material.

The complete package of stone gabion, residual soil, and Polyfelt PEC reinforcement was also the most cost effective option when the comparison with alternatives were made.

### Installation

Before laying of Polyfelt PEC reinforcement geotextile, a well compacted platform was prepared. Polyfelt PEC high strength geotextile was then laid with yarns facing the ground. Pre-tensioning of Polyfelt PEC high strength geotextile was done by placing across a 200mm deep x 300mm wide trench and backfill.

Joining of Polyfelt PEC high strength geotextile was done by stitching or overlap of 300mm. Compaction of backfill material was done using 10 ton compactor to achieve 90% proctor compaction. A tramping compactor was used to compact at the edge of gabions boxes. The vertical spacing of each layer of Polyfelt PEC high strength geotextile was 0.5m.

The installation was successfully completed on time and within budget.

*Figure 2: Plan view of base layers*

*Figure 3: Construction of wall in progress*

*Figure 4: Typical sample of a completed Polyfelt PEC reinforced gabion dump wall*



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