

BASAL REINFORCEMENT AT EMBUNG AJI RADEN LAMARU, EAST BALIKPAPAN, EAST KALIMANTAN, INDONESIA

Basal Reinforcement

Problem

Embung Aji Raden was planned to be constructed above soft soil. The existence of soft soil has the potential to cause non-uniform settlement, and if not prevented immediately will cause long-term problems in the stability of the embankment above. Thus, basal reinforcement is needed below the embankment to distribute embankment load to the soil and to reduce differential settlement potential.

Solution

Soil replacement was decided to replace 1m of soft soil below the embankment. Before backfilling the excavated area, basal reinforcement was laid, together with the geotextile as a separator layer between the soft soil and the fill material. Basal reinforcement is the use of geosynthetic reinforcement elements to stabilize embankments on soft soil.

Geosynthetic reinforcement is used at the embankment-subgrade interface to increase the stability of the embankment to avoid damage due to excessive deformation, shear in the foundation and provide/enhance global stability. Geogrid is used as geosynthetic reinforcement which functions to distribute the load evenly from the embankment to the foundation soil so that differential settlement can be minimized.

The Geogrid that is used for Embung Aji Raden Basal Reinforcement Project is ParaLink® 300 that has already been certified on the British Board of Agrément (BBA) Certificate. BBA is a certificate containing approval and acknowledgment that the material has gone through a series of tests and calculations thoroughly so that it can be used in general according to its function. The geogrid was installed in biaxial direction, both transversal and longitudinal to accommodate tensile forces in both directions along with to evenly distribute embankment load to the soil.

ParaLink® products from Maccaferri also have an Environmental Product Declaration (EPD) certification as a manifestation of our commitment to nurturing the world of tomorrow - harmonizing life and nature through innovative solutions, Maccaferri pursues excellence and continuous improvement.

Client: BWS (BADAN WILAYAH SUNGAI) KALIMANTAN III

Designer / Consultant: BWS (BADAN WILAYAH SUNGAI) KALIMANTAN III

Contractor: PT KHARISMA BINA KONTRUKSI - PT. HASTA PRAJAT

Products used (Qty.)

- ParaLink 63,000 sqm

Date of construction: 09/2020 - 01/2021



Excavated and Compacted Area



Geotextile Laying



Geogrid Laying in Biaxial Direction



Geogrid Laying in Biaxial Direction



Final Embankment