Geosynthetics

KAYTECH
ENGINEERED FABRICS

Reinforcement
Basal Reinforcement
Mondi Effluent Treatment Plant, KZN

Case Study

Project:	Mondi Effluent Treatment Plant, Richards Bay		
Client:	Mondi	**Date:**	November 2004
Consultant:	ARQ Consulting Engineers	**Product:**	**Rockgrid® PC**
Contractor:	Grinaker/LTA	**Quantity:**	3 000 m^2

Problem

Before construction could begin on the new effluent reservoir near the pulping plant, the site was found to have a poor quality, soft, silty and clayey sub-grade material. It would provide insufficient bearing capacity to support the working platform for the piling rigs. A high perched water table exacerbated the problem. Large settlements were expected and piling rigs would be unable to access the site until a suitably reinforced working platform was constructed.

Clearing the vegetation

Solution

The twofold solution recommended would provide the piling rigs with a working platform and control the allowable settlements.

Installation of the basal reinforcement consisted of a layer of warp knit polyester composite geogrid overlain by a sand blanket over the entire area.

*Installing **Rockgrid® PC** reinforcement*

Installation

First the area was cleared of vegetation. **Rockgrid® PC** was then placed over the prepared substrate. This geotextile is a warp knit polyester composite geogrid having a biaxial Ultimate Tensile Strength of 50 x 50 kN/m.

A 1.0 m sand blanket was then end-tipped over the entire reinforcement geotextile layer before being compacted and levelled. Care was taken not to drive the earthmoving equipment directly onto the geogrid by end tipping and pioneering the material forward in front of the plant.

*Sand blanket - **Rockgrid® PC** - Substrate*

Geosynthetics

KAYTECH
ENGINEERED FABRICS

Reinforcement
Basal Reinforcement
Mondi Effluent Treatment Plant, KZN

Case Study

Project: Mondi Effluent Treatment Plant, Richards Bay

Client: Mondi

Consultant: ARQ Consulting Engineers

Contractor: Grinaker/LTA

Date: November 2004

Product: **Rockgrid® PC**

Quantity: 3 000 m^2

The ground was then ready to receive the piling rigs.

At the required points for the piles, sections of the sand blanket were excavated down to expose the geosynthetic layer and cut it open with a cross-cut to enable easy installation of the driven precast concrete piles.

Tipping sand blanket over reinforcement geogrid

Benefits

The **Rockgrid® PC** 50/50 kN/m geogrid increases the bearing capacity of the sub-grade, prevents loss of the drainage aggregate into the soft sub-grade, prevents the ingress of fines into the sand layer and facilitates dissipation of pore water.

The costly alternative of excessive volumes of dump rock to establish a working platform into the soft sub-grade was avoided and construction of the piled foundations for the new treatment plant commenced within a shorter time frame.

Excavation for precast piling

Installation of piling

Construction underway