CASE STUDY

Basal Reinforcement

Project: New Parallel Runway, Brisbane Airport
Date: 2014
Client: Brisbane Airport Corporation
Location: Brisbane Airport

GEOFABRICS®

Mirafi® PET High Strength Geotextiles

Geofabrics is pleased to have supplied over **370,000m²** of **Mirafi® PET high-strength woven geotextiles** to Brisbane Airport's New Parallel Runway Project.

The Brisbane Airport continues to experience rapid growth. In 2009 it handled around 20 million passengers, and this number is expected to increase to around 45 million by 2029. To meet this growth, Brisbane Airport Corporation (BAC) is well underway with the building of a new $1.3 billion runway. The New Parallel Runway will be 3.3km long, 2km west and run parallel to the existing main runway. It is expected to take up to 8 years to build the new runway.

The new runaway is being built at sea level over the Brisbane River delta. The underlying soil consists of very soft, waterlogged mud and silt. In order to provide a solid foundation, a sand platform was placed over the site to compress & stiffen the underlying soft swampy soils.

Over 11 million cubic metres of sand has been dredged from Moreton Bay and placed on the new runway site by Dredging Specialists, Jan De Nul. It is estimated that it will take up to four years to achieve the required settlement before construction of the runway can begin. Some sections of the site are expected to settle up to two metres during this process.

Mirafi® PET high-strength woven geotextiles were specified by BAC to stabilise and limit differential settlement of the dredged sand platform over the soft swampy soils below.

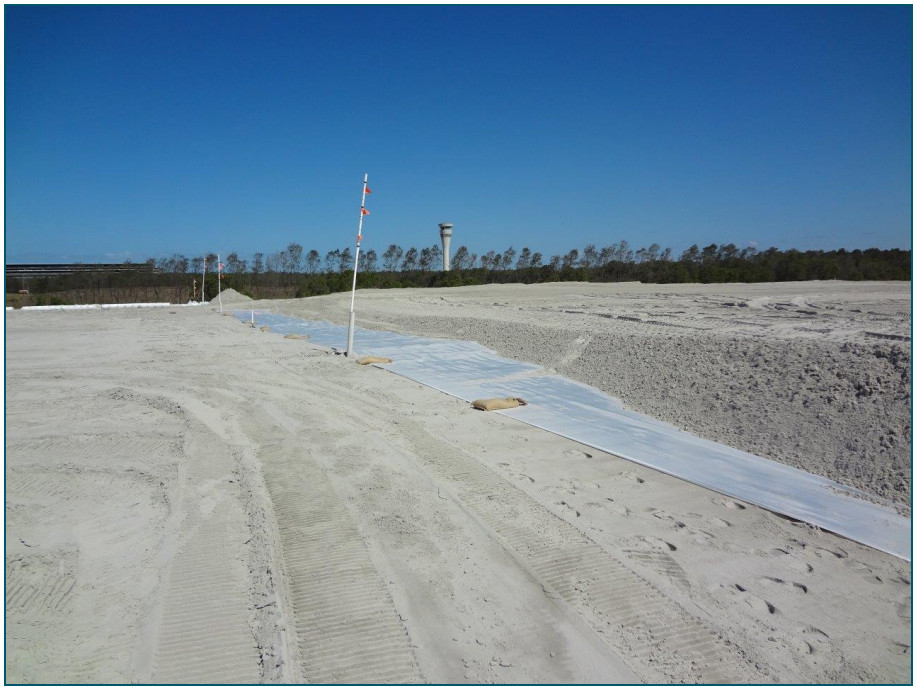
Mirafi® basal reinforcement layers provide short term stability for the sand platform to enable it to be constructed to the required design height, and then maintain stability, until the soft foundation has consolidated and can support the construction of the runway.

Depending on the height of the sand platform, the depth and strength of the soft swampy soils, **Mirafi® PET** woven geotextiles of strengths 100kN/m, 200kN/m, 300kN/m, 400kN/m and 800kN/m were used.

Geofabrics were engaged early in the New Parallel Runway project to provide ongoing technical & construction support. Beneath the main runway section, over **45,000m²** of **Mirafi® PET 800** was supplied (60m x 680m). Geofabrics was able to offer custom roll lengths, with short lead times, allowing for the PET 800 to be installed without the need to any cutting of the rolls, as well as no wastage due to off-cuts. This allowed for cost savings in both material supply and installation.

BAC faced another challenge with installing their permanent, sub-surface drainage system (at the bottom of the sand platform) in very soft soils. Geofabrics once again provided technical and construction support to help overcome this problem.

Nearly **9,000lm** of **Megaflo® Panel Drain** was specified & supplied to overcome this unique problem where traditional trenching methods were not possible (Refer Brisbane Airport - Megaflo® Case Study, May 2015).



How TenCate Mirafi® PET works

TenCate Mirafi® PET high-strength geotextiles are woven geosynthetics comprised of high tenacity and high molecular weight polyester yarns which provide excellent creep resistance, strength, and soil interaction.

The **Mirafi® PET** woven geotextile is especially applied as a basal reinforcement for earthen embankments on weak soils and piled foundations.

Mirafi® PET is designed for long service, in most cases more than 100 years. The woven high-strength polyester geotextiles are used to provide stability and limit differential settlement when constructing embankments over soft soils.

The difference **Mirafi® PET** woven high-strength polyester geotextiles make:

- Higher long term design strengths per local road authorities requirement.
- Soil confinement for greater load distribution.
- Cost-effective for reinforced soil structures.
- Ease of installation.

System Solutions:

- Mechanically stabilised earth.
- Embankments over soft soils.
- Void spanning.
- Pile capping.

Mirafi® PET provides excellent reinforcement for projects where long-term performance is an important consideration. It is supplied on steel cores for easy, risk-free installation.