

Atlantis®
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St Mary Primary School

Project Location

Beaudesert, Queensland, Australia

Atlantis Application

Permeable Surface

Project Overview

St Mary Primary School required additional vehicle parking that could not proceed as a conventional impermeable car park.

A permeable grass pavement was constructed using Atlantis Turf Cell® 52 mm at the surface, combined with Flo-Cell® 30 mm beneath the pavement profile. The configuration provided a trafficable vegetated surface while allowing rainfall to move vertically through the pavement and excess subsurface water to drain laterally toward side drains.

Technical Summary

Project	St Mary Primary School
Location	Beaudesert, Queensland
Application	Permeable Surface
Completion	February 2014
Surface Use	Car Park
Atlantis System	Turf Cell®

Design Challenge

The proposed school car park needed to accommodate regular vehicle traffic without creating a conventional impermeable pavement. The grassed parking surface therefore needed to combine permeability, vegetation and vehicle loading while incorporating management of excess subsurface water.

01 Provide a functional vehicle parking area.

02 Maintain a permeable vegetated surface rather than conventional sealed pavement.

03 Protect the growing medium from direct vehicle-induced compaction.

04 Support establishment and continued growth of the turf within the parking surface.

05 Allow rainfall to infiltrate vertically through the pavement profile.

06 Provide a controlled pathway for excess subsurface water to move laterally toward side drains.

Solution

The pavement was constructed as a layered permeable system combining surface reinforcement with subsurface drainage.

Following excavation, the subgrade was compacted and Flo-Cell® 30 mm was installed directly over the prepared formation to provide a continuous drainage layer toward the side drains. Atlantis geotextile was installed above the Flo-Cell® layer.

A compacted layer of permeable soil was placed above the geotextile, followed by Turf Cell® 52 mm. The cells were filled with topsoil before turf was installed over the cellular pavement.

Palmetto Buffalo Grass was used for the finished surface and the installed turf was rolled with a heavy roller after placement.

Benefits

- Trafficable vegetated parking surface.
- Turf Cell® 52 mm reinforced the surface pavement.
- Flo-Cell® 30 mm provided a dedicated subsurface drainage layer.
- Rainfall could move vertically through the vegetated pavement profile.
- Excess subsurface water could move laterally toward side drains.
- Geotextile separated the drainage layer from the overlying permeable soil.
- Topsoil within the Turf Cell® profile supported the turf surface.

Considerations

The documented pavement build-up incorporated two distinct water-management paths. Rainfall moved vertically through the Turf Cell® and permeable soil profile, while the underlying Flo-Cell® 30 mm layer provided lateral drainage for excess water toward the side drains.

The surface installation also included topsoil within the Turf Cell® profile, Palmetto Buffalo Grass and heavy rolling of the turf following placement.

Project Outcomes

- Permeable grass parking provided in place of a conventional impermeable car park.
- Turf Cell® 52 mm used to reinforce the vegetated vehicle surface.
- Flo-Cell® 30 mm incorporated as a dedicated subsurface drainage layer.
- Geotextile separated the drainage layer from the overlying permeable soil.
- Topsoil incorporated within the Turf Cell® profile.
- Palmetto Buffalo Grass installed as the finished surface.
- Heavy rolling used following turf installation.
- Surface infiltration combined with lateral drainage toward side drains.

The completed pavement combined vehicle use, a vegetated permeable surface and subsurface drainage within the same car park profile.

Did You Know?

The St Mary pavement incorporated both vertical infiltration and lateral subsurface drainage.

Rainfall entered through the Turf Cell® vegetated surface and permeable soil profile, while the underlying Flo-Cell® 30 mm layer provided a separate pathway for excess water to move laterally toward side drains.











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Thank You For Your Attention



Contact Us

Phone Number:
+61 (2) 9417 8344

Website:
www.atlantiscorporation.com.au

Email Address:
info@atlantiscorp.com.au