

Atlantis®
GREEN CITIES FOR LIFE

Silkstone State School

Project Location
Queensland, Australia

Atlantis Application

Permeable Surface

Project Overview

Silkstone State School required additional sealed parking within an area occupied by a large established tree. Removing the tree would have maximised the available parking area, while retaining open ground around its root system would have preserved rainfall infiltration but resulted in the loss of approximately six parking spaces.

Atlantis Gravel Cell® 52 mm was incorporated around the existing tree to create a trafficable, permeable parking surface. The system was filled with 10 mm gravel, allowing the area surrounding the tree to accommodate vehicles while maintaining rainfall infiltration through the pavement toward the underlying root zone.

Technical Summary

Project	Silkstone State School
Location	Queensland, Australia
Application	Permeable Surface
Completion	September 2013
Size	6 Parking Spaces
Surface Use	Vehicle & Pedestrian Access
Atlantis System	Gravel Cell®

Design Challenge

The proposed parking area contained a large established tree positioned directly within the area required for the new car park. The pavement design needed to reconcile parking capacity, vehicle access, tree retention and permeability within the same footprint.

01 Retain the existing mature tree within the proposed car park.

02 Provide six usable parking spaces around the tree.

03 Create a trafficable surface capable of accommodating parked vehicles

04 Maintain a permeable surface over the designated area surrounding the tree.

05 Allow rainfall to pass through the pavement toward the underlying root zone.

06 Integrate the permeable area with the surrounding sealed car park.

Solution

The surrounding car park was constructed as sealed pavement, while the area immediately surrounding the existing tree was configured as a permeable parking and access zone.

Atlantis Gravel Cell® 52 mm modules were laid across this area and mechanically interconnected to form a continuous cellular pavement structure. The cells were filled with 10 mm gravel to create the finished permeable trafficable surface.

The configuration provided three parking spaces on each side of the tree together with a driveway across the front.

Design Benefits

- Existing mature tree retained within the car park layout.
- Six parking spaces maintained around the tree.
- Permeable pavement incorporated within the designated area surrounding the tree.
- 10 mm gravel used as the finished permeable surface.
- Cellular confinement stabilised the gravel within the vehicle-accessible area.
- Parking, vehicle circulation and rainfall infiltration accommodated within the same footprint.

Considerations

The Gravel Cell® system was confined specifically to the area surrounding the retained tree rather than extending across the entire car park. The 52 mm cells were laid and mechanically connected before being filled with 10 mm gravel.

The project therefore incorporated two pavement conditions within the same car park: conventional sealed pavement across the broader parking area and permeable cellular pavement within the area surrounding the tree.

Project Outcomes

- Existing mature tree retained within the completed car park.
- Six parking spaces provided around the tree — three on each side.
- Vehicle driveway maintained across the front of the tree.
- Gravel Cell® 52 mm incorporated within the designated permeable pavement area.
- Cells filled with 10 mm gravel.
- Rainfall able to infiltrate through the gravel pavement toward the underlying root zone.
- Permeable and sealed pavement areas integrated within the same car park layout.

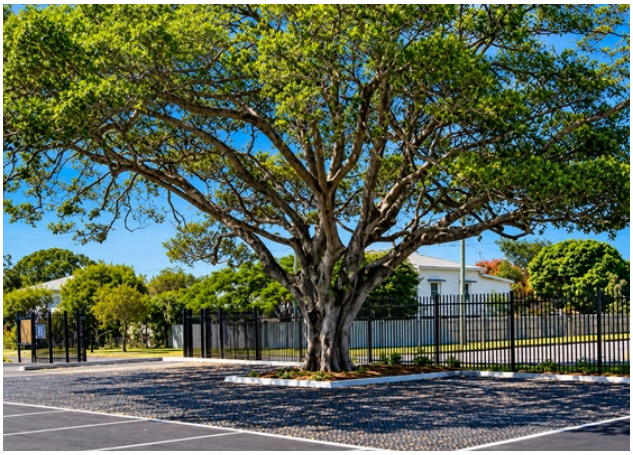
The completed project demonstrates the use of a localised permeable pavement treatment to address a specific site constraint without requiring the entire car park to adopt the same pavement system.

Did You Know?

The permeable pavement was limited to the area where it was required.

At Silkstone State School, the broader car park remained conventionally sealed while Gravel Cell® 52 mm was concentrated around the existing mature tree. This allowed the same area to provide vehicle parking while maintaining a permeable surface toward the underlying root zone.













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Thank You For Your Attention



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