

Atlantis®
GREEN CITIES FOR LIFE

Granville High-End Apartment

Project Location

Granville, NSW, Australia

Atlantis Application

Void Fill

Project Overview

Completed in April 2017, the Granville high-end apartment development incorporated extensive landscaping, including large planter boxes with trees and decorative planting across the high-rise development and penthouse terraces. The planter boxes were approximately 1.2 m deep, creating significant soil volume and associated loading requirements.

Atlantis Flo-tank® modules were installed within the bases of the planter boxes as void fill, reducing the amount of soil required while also providing drainage. The estimated total void-fill volume exceeded 220 m^3, and the planter boxes were also designed to function as a stormwater detention system.

Technical Summary

Project	Granville High-End Apartment
Location	Granville, NSW, Australia
Application	Void Fill
Completion	April 2017
Size	220m3
Surface Use	Landscaped planter boxes
Atlantis System	Flo-Tank®

Design Challenge

The development incorporated extensive vegetation and large planter boxes, including substantial landscaped areas associated with the penthouse terraces. With planter boxes approximately 1.2 m deep, filling the full depth with soil created two specific project concerns: the quantity and cost of soil required and the resulting weight loading on the penthouse planter-box floors.

The planter boxes also required effective drainage while maintaining sufficient soil above the void-fill system for the landscaped areas. In addition to their landscape function, the planter boxes were intended to operate as a stormwater detention system.

The design therefore required a configuration that could occupy a substantial proportion of the planter-box depth without relying entirely on soil, while integrating drainage and stormwater detention within the landscaped building areas.

01 Accommodate planter boxes approximately 1.2 m deep.

02 Reduce the volume of soil required within the deep planter boxes.

03 Reduce weight loading on the penthouse planter-box floors associated with the required soil volume.

04 Provide effective drainage within the planter boxes.

05 Incorporate more than 220 m^3 of void fill across the project.

06 Enable the planter boxes to function as a stormwater detention system.

Solution

Atlantis Flo-tank® modules were installed as void fill within the bases of the planter boxes, reducing the amount of soil required to fill the approximately 1.2 m-deep structures. The estimated volume of Flo-tank® void fill across the development exceeded 220 m³.

The Flo-tank® modules were covered with a layer of hydrophilic needle-punched non-woven geotextile, followed by a layer of washed river sand and then the soil profile. This configuration integrated the void-fill modules beneath the planting media while providing the drainage function required for the landscaped planter boxes.

The resulting planter-box configuration reduced the amount of soil required and addressed the associated loading on the penthouse planter-box floors. The planter boxes also functioned as a stormwater detention system.

Benefits

- More than 220 m³ of Flo-tank® void fill incorporated within the planter boxes.
- Reduced soil volume required within planter boxes approximately 1.2 m deep.
- Reduced weight loading on the penthouse planter-box floors associated with the soil volume.
- Drainage incorporated beneath the planter-box soil profile.
- Hydrophilic needle-punched non-woven geotextile and washed river sand incorporated between the Flo-tank® modules and soil.
- Planter boxes configured to also function as a stormwater detention system.

Considerations

The Atlantis Flo-tank® modules were installed at the bases of the planter boxes to form the void-fill layer. The planter boxes were approximately 1.2 m deep, with an estimated total void-fill volume exceeding 220 m³.

Above the Flo-tank® modules, the installation incorporated a layer of hydrophilic needle-punched non-woven geotextile, followed by washed river sand and soil. This established the documented material sequence between the modular void-fill system and the landscaped planting profile.

Project Outcomes

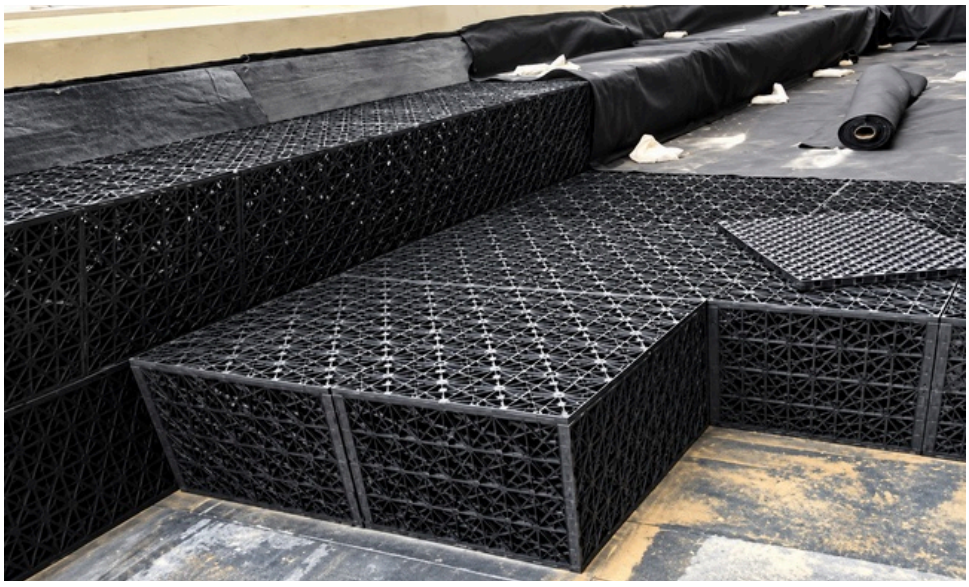
- More than 220 m³ of Atlantis Flo-tank® void fill incorporated across the development.
- Flo-tank® modules installed within planter boxes approximately 1.2 m deep.
- Soil volume reduced through the use of modular void fill.
- Associated weight loading on the penthouse planter-box floors reduced by decreasing the amount of soil required.
- Drainage incorporated beneath the landscaped soil profile.
- Planter boxes configured to function as a stormwater detention system.

The principal design issue was the relationship between planter-box depth, soil volume and structural loading. Using more than 220 m³ of Flo-tank® modules as void fill reduced the soil volume required within planter boxes approximately 1.2 m deep, addressing the associated floor loading while integrating drainage and stormwater detention beneath the landscaped profile.

Did You Know?

More than 220 m³ of Atlantis Flo-tank® modules were used as void fill within planter boxes approximately 1.2 m deep, reducing the amount of soil required within the landscaped development.














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Thank You For Your Attention



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