

Atlantis®
GREEN CITIES FOR LIFE

Queens Park

Project Location

Queens Park, Western Australia, Australia

Atlantis Application

Underground Infiltration Tanks

Project Overview

A compensating basin at Elshaw Street, Queens Park occupied valuable council land while presenting potential health and safety hazards. The project sought to reclaim this area by replacing the open basin with an underground stormwater storage and infiltration system, allowing the surface to be converted to a public carpark for a daycare centre.

The Atlantis system provided 53 m³ of underground storage and was designed for a 1 in 20 year ARI event and highway loading. The installation also incorporated an entry chamber with a silt trap and system access through a manhole.

Technical Summary

Project	Queens Park
Location	Elshaw Street, Queens Park, WA, Australia
Application	Underground Infiltration Tanks
Completion	October 2006
Size	53 m³ storage
Surface Use	Public carpark for daycare centre
Atlantis System	Flo-Tank®

Design Challenge

The existing compensating basin represented an underutilisation of council land and was identified as both unsightly and a potential health and safety hazard. The engineering objective was therefore not limited to stormwater management: the existing basin needed to be replaced while retaining the required stormwater function and enabling the area above to become usable public space.

The replacement system required 53 m³ of underground storage, with capacity designed for a 1 in 20 year ARI event. Because the reclaimed surface was intended to operate as a public carpark, the underground system was also required to cater for highway loading.

01 Replace the existing compensating basin with an underground stormwater system.

02 Provide 53 m³ of stormwater storage.

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04 Incorporate stormwater infiltration as part of the underground system.

05 Cater for highway loading.

06 Reclaim the surface for use as a public carpark for a daycare centre.

Solution

An Atlantis underground stormwater storage/infiltration system was installed to replace the compensating basin and provide 53 m³ of storage below the reclaimed surface. The system was designed for the specified 1 in 20 year ARI event and to cater for highway loading, enabling the area above to function as a public carpark.

The underground installation incorporated an entry chamber with a silt trap and a manhole with system entry, providing pretreatment and access within the stormwater system. The Atlantis tanks were wrapped in geotextile as part of the installation.

Benefits

- 53 m³ of underground stormwater storage provided in place of the open compensating basin.
- System capacity designed for a 1 in 20 year ARI event.
- Underground system designed to cater for highway loading.
- Existing council land reclaimed for use as a public carpark.
- Silt trap incorporated at the system entry.
- Geotextile incorporated around the underground tank installation.

Considerations

The underground tank installation incorporated geotextile wrapping around the Atlantis tanks. An entry chamber with a silt trap formed part of the stormwater system, together with a manhole providing system entry.

The completed underground system was required to support the conversion of the former compensating basin into a public carpark and was therefore designed to cater for highway loading.

Project Outcomes

- 53 m³ of underground stormwater storage provided.
- Stormwater system designed for a 1 in 20 year ARI event.
- Underground installation designed to cater for highway loading.
- Existing compensating basin replaced with an underground storage/infiltration system.
- Former basin area reclaimed for use as a public carpark.
- Silt trap and system access incorporated into the underground stormwater installation.

The defining engineering requirement was to retain the site's stormwater function while converting an open compensating basin into usable land. Placing 53 m³ of storage underground, with design capacity for a 1 in 20 year ARI event and highway loading, enabled the same area to accommodate stormwater infrastructure below ground and a public carpark at surface level.

Did You Know?

The Queens Park system was designed for a 1 in 20 year ARI event while also catering for highway loading, allowing 53 m³ of stormwater storage to be located beneath the reclaimed carpark area.







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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