

Atlantis®
GREEN CITIES FOR LIFE

UNSW Village Green

Project Location

UNSW Village Green

Atlantis Application

Underground Infiltration Tanks

Project Overview

The UNSW Village Green project incorporated stormwater harvesting and infiltration to recharge and balance groundwater supplies beneath the university campus. Initiated by UNSW Facilities as part of development consent conditions, the system diverts runoff from 65% of the campus through gross pollutant traps before directing it to an Atlantis infiltration tank buried beneath the sportsground.

The infiltration chambers were designed to reconnect up to 160 ML/year of runoff from impermeable campus surfaces to natural underground storage within the Botany sand aquifer. The project also reduced the volume of stormwater entering Kensington's stormwater pipes by directing water into the aquifer.

Technical Summary

Project	UNSW Village Green
Location	Kensington, NSW, Australia
Application	Underground Infiltration Tanks
Completion	July 2006
Size	Up to 160 ML/year of runoff
Surface Use	Sportsground
Atlantis System	Flo-Tank® Triple

Design Challenge

The project required a stormwater system capable of diverting runoff from a substantial proportion of the UNSW campus and reconnecting it to the underlying groundwater system. Runoff from 65% of the campus, including impermeable surfaces, needed to be collected, pretreated and directed underground to recharge the Botany sand aquifer.

The infiltration chambers were designed to reconnect up to 160 ML/year of runoff to natural underground storage. The system also needed to operate beneath the Village Green sportsground while incorporating gross pollutant traps upstream of the infiltration tank.

Groundwater conditions introduced an additional technical consideration. Monitoring identified variations in groundwater quality with both aquifer depth and monitoring location, including differences in nitrate levels, pH and thermotolerant coliform levels. Ongoing monitoring of percolation chamber water levels and long-term rainfall was required to determine the volume of additional water harvested and recharged.

01 Divert and manage runoff from 65% of the UNSW campus.

02 Reconnect up to 160 ML/year of runoff from impermeable surfaces to the Botany sand aquifer.

03 Incorporate gross pollutant traps upstream of the infiltration tank.

04 Install the infiltration system beneath the sportsground.

05 Recharge and balance groundwater supplies through stormwater infiltration.

06 Incorporate ongoing monitoring of percolation chamber water levels and long-term rainfall to determine additional water harvested and recharged.

Solution

Runoff from 65% of the campus was directed through gross pollutant traps to a large underground Atlantis Flo-Tank® Triple installed beneath the sportsground. The infiltration chambers were designed to reconnect up to 160 ML/year of runoff from impermeable campus surfaces to natural underground storage within the Botany sand aquifer.

The Flo-Tank® Triple tank was assembled on site, wrapped in geotextile, installed underground and backfilled. The resulting configuration allowed the stormwater infiltration infrastructure to be incorporated beneath the Village Green sportsground.

Groundwater and system performance were supported by monitoring of groundwater quality at different depths and monitoring bores, together with percolation chamber water levels and long-term rainfall monitoring.

Benefits

- Runoff from 65% of the campus incorporated into the stormwater diversion and infiltration system.
- Infiltration chambers designed to reconnect up to 160 ML/year of runoff to natural underground storage.
- Gross pollutant traps incorporated before runoff enters the Atlantis infiltration tank.
- Stormwater used to recharge and balance groundwater supplies within the Botany sand aquifer.
- Underground installation accommodated beneath the sportsground.
- Reduced stormwater discharge to Kensington's stormwater pipes by directing captured runoff into the aquifer.

Considerations

The Atlantis Flo-Tank® Triple was assembled on site before being installed beneath the Village Green sportsground. The tank system was wrapped in geotextile and subsequently backfilled as part of the underground installation.

The infiltration system was integrated downstream of gross pollutant traps, which receive runoff from 65% of the campus before it enters the underground tank.

Project Outcomes

- Runoff from 65% of the UNSW campus diverted through the infiltration system.
- Infiltration chambers designed to reconnect up to 160 ML/year of runoff from impermeable campus surfaces to the Botany sand aquifer.
- Gross pollutant traps incorporated upstream of the underground infiltration tank.
- Atlantis Flo-Tank® Triple installed beneath the sportsground.
- Stormwater redirected into the aquifer rather than Kensington's stormwater pipes.
- Monitoring incorporated to assess groundwater quality and determine the volume of additional water harvested and recharged.

The project combines a substantial campus catchment with an underground infiltration strategy designed specifically for aquifer recharge. By directing runoff from 65% of the campus through pretreatment and into an Atlantis infiltration tank beneath the sportsground, the system was designed to reconnect up to 160 ML/year of runoff from impermeable surfaces to the Botany sand aquifer while retaining the surface use of the Village Green.

Did You Know?

The UNSW Village Green infiltration chambers were designed to reconnect up to 160 ML/year of runoff from impermeable campus surfaces to natural underground storage within the Botany sand aquifer.











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Thank You For Your Attention



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