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RAAF Base Williamtown

Project Location

Williamtown, NSW, Australia

Atlantis Application

Underground Infiltration Tanks

Project Overview

The RAAF Base Williamtown works formed part of a $1.5 billion infrastructure upgrade incorporating a 600 m runway extension, additional taxiways and new buildings. As part of the development, underground infiltration channels were required beneath roadway and car park areas.

Due to heavy vehicle movements within the base and the presence of aircraft on adjacent runways and taxiing bays, 7-plate Atlantis modules were selected. The infiltration infrastructure was constructed using two Flo-Channel® configurations combining double 7-plate Flo-Channel® and Flo-Tank® modules, hydrophilic geotextile and clean sand surround.

Technical Summary

Project	RAAF Base Williamtown Upgrade
Location	Williamtown, NSW, Australia
Application	Underground Infiltration Tanks
Completion	Commenced mid-2016; staged works ongoing at time of original case study
Size	Not specified
Surface Use	Roadways and Car Parks
Atlantis System	Flo-Channel® & Flo-Tank® – 7 Plate Configuration

Design Challenge

The base upgrade required underground infiltration infrastructure within operational areas subject to demanding surface-use conditions.

01 Provide underground infiltration channels beneath roadway and car park areas.

02 Accommodate areas used by heavy vehicles within the RAAF base.

03 Account for the presence of aircraft operating on adjacent runways and taxiing bays.

04 Configure the modular infiltration system using 7-plate Atlantis® modules selected for the project conditions.

05 Provide two infiltration-channel configurations to suit the required underground arrangement.

06 Support staged construction while reducing installation time on site.

Solution

Two underground infiltration channel configurations were used across the project. Flo-Channel® Type 1 comprised two double 7-plate Atlantis Flo-Channel® modules positioned side by side. The modules were wrapped in Atlantis™ 125 gsm hydrophilic non-woven punched polypropylene geotextile and surrounded by clean sand.

Flo-Channel® Type 2 incorporated a central core of two double 7-plate Atlantis Flo-Channel® modules positioned side by side, with one double 7-plate Atlantis Flo-Tank® module installed on each side of the central core. The complete assembly was wrapped in the same 125 gsm hydrophilic non-woven punched polypropylene geotextile and surrounded by clean sand.

The double modules were pre-assembled in Sydney and transported to RAAF Base Williamtown in truckloads of 126. Although this increased freight costs, the project documentation records that pre-assembly significantly reduced installation time on site.

Benefits

- Underground infiltration provided beneath roadway and car park areas.
- 7-plate module configuration selected in response to heavy vehicle use and adjacent aircraft operations.
- Two modular configurations used to form the required infiltration channels.
- Flo-Channel® and Flo-Tank® modules combined within the Type 2 configuration.
- Modules enclosed within hydrophilic non-woven polypropylene geotextile.
- Clean sand used around the infiltration channel assemblies.
- Off-site module assembly reduced installation time at RAAF Base Williamtown.

Considerations

The documented infiltration system incorporated:

- Double 7-plate Atlantis® Flo-Channel® modules.
- Double 7-plate Atlantis® Flo-Tank® modules within the Type 2 configuration.
- Atlantis™ 125 gsm hydrophilic non-woven punched polypropylene geotextile.
- Clean sand surrounding the modular channels.
- Two distinct channel configurations.
- Pre-assembled double modules transported to site in truckloads of 126.
- Staged construction commencing in mid-2016.

Project Outcomes

- Underground infiltration channels were incorporated beneath roadway and car park areas as part of the wider RAAF Base Williamtown upgrade.
- Double 7-plate modules were used for the project.
- Type 1 used two double Flo-Channel® modules positioned side by side.
- Type 2 expanded this arrangement with a double Flo-Tank® module positioned on each side of the central Flo-Channel® core.
- Both configurations were wrapped in 125 gsm hydrophilic non-woven punched polypropylene geotextile and surrounded by clean sand.
- Modules were pre-assembled in Sydney before transport to Williamtown.
- Pre-assembly increased freight cost but significantly reduced installation time on site.
- Construction commenced in mid-2016 and was proceeding in stages when the original case study was produced.

The project demonstrates the use of different modular infiltration-channel arrangements within the same infrastructure upgrade, with configuration determined by the required underground layout and site conditions.

Did You Know?

The Atlantis® modules were pre-assembled in Sydney before being transported to RAAF Base Williamtown.

The double modules were shipped in truckloads of 126 units. The original project documentation notes that although this increased freight costs, the approach significantly reduced installation time on site.


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