

PIER PENETRATION PROTECTORS

A heavy-duty polypropylene reusable cover that completely secures the top of a freshly excavated pier penetration until concrete is poured.

The Pier Penetration product has been trialled at the Eltham Car Parks project, with positive feedback that indicated a reduced risk to workers on site.

It is a simple yet innovative product, that offers safety for workloads of up to 200kg and penetrations no larger than 450mm diameter. It has 4 teeth that grab the earth around the pier penetration in order to make the cover secure.



Live survey monitoring during installation of steel girder (left).
Test lift load cell collection during fabrication (right).

The Situation

Works within the civil industry require extensive piling works and regular service proving through hydro-excavation. These works are fast becoming the preferred method of non-destructive digging (NDD), to avoid service strikes.

One of the main hazards associated with these works is that they leave an unprotected penetration once completed. This penetration presents the workforce with an increased risk of falls, trips and slips.

Some options identified across industry to cover the penetrations include:

- The use of plywood, however this is time consuming to construct and can not be fixed into position.
- Non-rated mesh segments, however these are not highly visible or appropriate as fall prevention.

Recent developments with strong plastic manufacturing has created alternatives for pier penetration and NDD penetration protection.

The Solution

The project team decided on a heavy-duty polypropylene (PP) reusable cover that completely secures the top of a freshly excavated pier penetration until concrete is poured or backfilled. The process is quick, simple and covers the penetration without the need for additional protection put in place – e.g. star pickets, plywood covers.

This product assists in compliance with the Victorian Excavation Compliance Code as a control for open excavations. The protectors eliminate cost and time-consuming alternatives as once the penetration is dug, it can be placed over immediately.

The protectors avoid violating construction workplace health and safety laws by leaving an excavation open and uncovered for any length of time, regardless if the site is secure (as per OHS Act and Part 5.1 of the OHS Regulations associated with excavation work).

Benefits and learnings

The penetration cover reduces the onsite risks with:

- Falls
- Trips
- Injury
- Rubbish and debris entering
- The risk of penetration filling with water from unexpected weather or other forms of direct water flow.

The product is made from a heavy-duty PP with UV protection, which means it is fit for purpose in Civil works. It is also suitable for use with penetrations no larger than 450mm diameter (internal measurements), which makes it ideal for NDD works.

Designed for use on natural earth ground that has been excavated.

Additional product features includes:

- 200kg safe workload (FEA tested and RPEQ certified)
- Centre grab points to secure teeth into ground
- 100% owned and manufactured in Australia
- Able to be made from 100% recycled or virgin material (which can then be recycled).

Program Office: Level Crossing Removal Project
Work Package: MRPA
Principal Contractor: Fulton Hogan
Solution Vendor: Danterr Australia

Contact: Barbara Pitsos
0400 747 842
barbara.pitsos@fultonhogan.com.au

Adam Bermingham
0499 701 201
adam.bermingham@fultonhogan.com.au