

Polyethylene tanks



Installation Requirements

1 Design & Approvals

1.1 Permits and Approvals

The Polyethylene vessel shall be installed in compliance with local Regulations, Commercial & Industrial Services group requirements, the Health Regulations and all relevant codes of practice.

2.0 Detailed Design & Installation Requirements

2.1 General

2.1.1 Location

The Polyethylene vessel is to be installed in a location that will not cause a nuisance, will not obstruct fire access, and in which it will not be damaged by vehicles or traffic or vandalised and which allows ease of access for maintenance. It is preferred to have the Polyethylene vessel installed externally below ground with a gravity inlet and gravity outlet.

2.1.2 Surcharge Relief Point

The Polyethylene vessel must not be used as a surcharge point. An extra surcharge gully or reflux valve may be required.

2.1.3 Sampling Points

Sampling points shall be provided at the inlet and outlet of the Polyethylene vessel. If below ground, risers shall be extended to ground level and fitted with a gas tight inspection box. The sampling points can also be used for clean up points.

2.1.4 Piping Material

Copper pipe and fittings shall not be used in trade waste installation as per AS/NZS 3500.

2.1.6 Non Standard Installations

Certain installations or position of installations that are unusual due to particular circumstances or matters not covered by this specification or local codes may be submitted to Halgan for consideration. Local Authorities approval for these situations will be considered on an individual basis.

2.1.7 Health Requirements

The Polyethylene vessel shall be designed and installed in such a way as not to cause a danger to health arising from leakage, blockage or surcharging.

2.1.8 Fire Resistance Level

The Polyethylene vessel is to be installed to maintain the Fire Resistance Level (F.R.L.) as specified in the Building Code of Australia.

2.1.9 Safety

The carrying out of work covered in this Technical Manual shall comply with the safety requirements of the relevant Authorities.

2.2 Installation Requirements

2.2.1 General

The Polyethylene vessel is to be installed in a location that will not cause a nuisance, obstruct fire access, cannot be vandalised or be damaged by vehicles. The Polyethylene vessel must have ease of access to pumpout point for maintenance. A hose tap fitted with a Back Flow Protection Device (as per AS/NZS 3500) must be provided within 5 m of the MGT for cleaning purposes.

2.2.2 Installation above ground

The Polyethylene vessel is to be supported on a 100 mm thick concrete pad or on 98% compacted level ground with 20 mm sand base. The Polyethylene vessel does not require a stand. All pipes connecting to the Polyethylene vessel shall be fully supported, there should be no stress on the tank connections. All storm water must be diverted away from Polyethylene vessel to prevent undermining of supports or foundations.

2.2.3 Installation below ground

All connections to the Polyethylene vessel shall be in accordance with the appropriate authorities. Any excavation exceeding 1.5 m in depth shall comply with the construction safety Acts and Regulations. Before backfilling, the Polyethylene Trap must be filled with water.

2.2.3.1 Excavation dimensions

The excavated whole width shall be kept as narrow as practicable. The depth shall be not greater than 150 mm than the required depth. A 75 mm clearance is required at the sides of tank.

2.2.3.2 Over excavation

Where an excavation has been deeper than necessary, the excess depth shall be filled either with bedding material compacted to achieve a compaction of 98% or concrete.

2.2.3.3 Installation in mine subsidence, filled, unstable or water charged areas

A qualified engineer is required to certify this application.

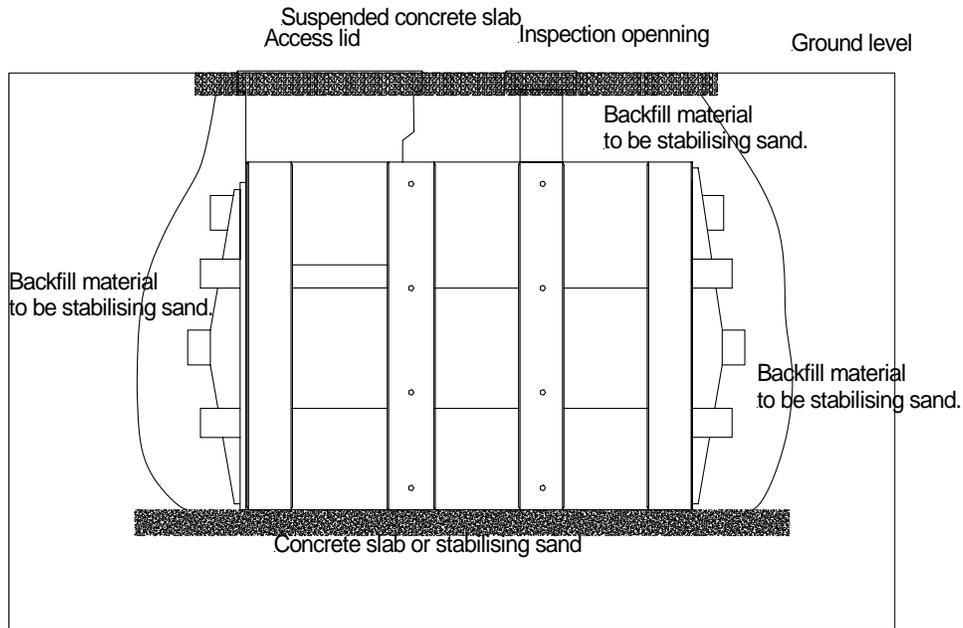
2.2.3.4 Bedding material

The bedding material shall be 1 part Portland cement to 5 parts clean sand. The bedding shall be thoroughly compacted by tamping at 300 mm layers. The bedding material shall encase the whole tank.

2.2.3.5 Final Backfill

The final backfill material shall comply with the following:

- (a). Spoil from the excavation of the trench may be used.
- (b). Foreign material such as builder's waste, bricks, and concrete shall not be used.
- (c). The backfill shall be compacted to restore the excavated hole as near as practicable to the normal ground.



2.2.4 Relief Overflow Point

The Polyethylene vessel is not to be used as a surcharge point. An extra surcharge gully may be required or a reflux valve installed. Refer to figure in AS/NZS 3500 Part 2. The drainage line upstream from the MGT shall have an overflow relief gully as per the AS/NZS 3500.

2.2.5 Protection Barricades

The protection barricades shall be installed to protect the Polyethylene vessel from physical damage. The posts shall be manufactured from 80 mm galvanised tube (refer to material specification) with a sealing cap at the top. A 400 mm white strip shall be painted at the top of the post. The posts will be 1300 mm long and approximately 800 mm apart.

- Concrete Installation - The post shall be 1300 mm long with a 200 mm x 200 mm base plate fixed to the concrete with four 12 mm x 50 mm concrete anchors.

- Installation in Bitumen & In Ground - A hole shall be excavated 400 mm x 400 mm x 400 mm deep. The base shall be encased in concrete. The post will be 1700 mm long and have bituminous paint applied to the section enclosed in concrete. The concrete shall be finished in a way that water cannot settle around the base.

2.2.6 Venting

Refer to AS/NZS 3500 Part 2.

2.2.7 Vacuum Pumpout Line (optional extra)

Note: Consult with pumpout contractor and Customer Service Representative for correct location.

The vacuum pumpout line is used by the cleaning contractor to pump out the Polyethylene vessel in restricted site applications. A 50 mm M.I. quick release coupling with dust caps is supplied with the unit. The vacuum line has to be extended to the external of the building for ease of access. The lines must be as straight and short as possible. Where bends are necessary, only long radius bends should be used. The size of the vacuum line pipe can be 50 mm for the first 6 metres and 80 mm thereafter. The piping and fittings material can either be class 12 pressure pipe or galvanised pipe (refer to material specification). A 600 mm long x 600 mm wide x 200 mm deep access area is required around the quick release coupling for ease of connection.

2.2.8 Access Lids (refer to Engineers drawing appendix 1)

General - The Polyethylene vessel with the polypropylene lid can be installed in a non trafficable areas, eg above ground.

Duty of Access Lids -

All covers are manufactured to Australian Standards 3906 and comply with the required design loading.

For above ground or non-pedestrian application the access lid is 600 mm in diameter and manufactured from high density polyethylene lid.

All other application the access lid shall be 600 x 600 square, cast iron, gas tight, concrete infill lid and frame.

All handles are as per Sydney Water requirements 1999.

2.2.9 Installation of Cast Iron Access Covers.

Introduction

In the IN-SITU method, the cover set is supported by the formwork or the Polyethylene vessel Access Lid until the in-situ concrete is strong enough to withstand construction loads. ***The in-situ concrete must support the full width of the frame.***

Halgan covers are individually fitted to ensure a gas-tight fit. Covers and frames are not intended to be rated at not less than 28 Mpa for the supporting walls and for cover infilling.

Preparation

Ensure that the usage class is suitable for the traffic application – refer to AS3996.

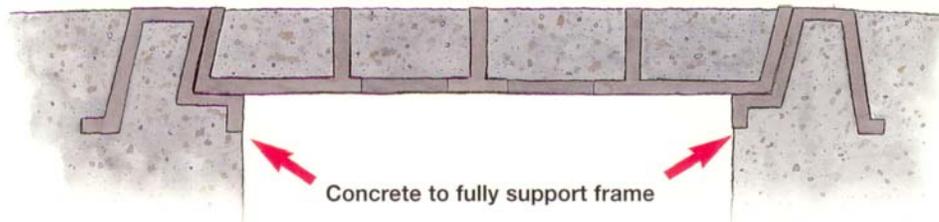
Before fixing the cover into position on the formwork, clean and grease all mating surfaces of

the cover set and check that the product is correctly assembled.

If the cover is bolted or rivetted to the frame, the cover may be supported directly by the formwork, otherwise, nails can be driven into the formwork so that the frame is supported at the correct level.

Before concreting commences, check that the cover is fully seated in the frames.

If the cover was fitted by installation bolts, these will have to be removed prior to the infilling covers. This means that infilling will have to be delayed until the concrete supporting the frame has cured.



Concreting

Place the concrete in-situ and vibrate well so that the concrete which supports the full width of the frame and fills the frame cells is well compacted and will reach the specified Mpa. Honeycombed or bony concrete under the frame will reduce the capacity of the cover and may cause it to fail at relatively low loads. If infill covers are supplied the concrete infilling is at the same time.

Screed off the excess concrete and finish the surface as required. The ribs and edges of the cover and frame should be visible.

Allow the concrete to cure before removing the cover and the formwork – premature stripping may damage the supporting concrete and distort the frame.

After the concrete has cured, remove the cover, mark the pit number on the underside of the cover (do not mix the covers) and strip the formwork.

Clean and grease all mating surfaces of the cover and frame before replacing the cover.

2.2.9 Vented Chambers

Refer to AS/NZS 3500.