Product Information

ECO-PIPE

100% RECYCLED PLASTIC

Minimum Requirments for Private Property Installation
For use under Victorian Public roads please refer to AS/NZS 2566.2 Part 2 "Installation"

Installation

Trenches should be excavated as narrow as practical to allow efficient installation. All rocks, tree roots and other hard objects should be removed. When installation is under an embankment the same precautions as above should be adopted where possible.

Trench Depth
Minimum cover depths are determined by the proposed load that you intend the pipes to handle. The depths shown below are for legal axle loads as advised by State or Federal road authorities.

Trench Width
The width of the trench should be kept to the minimum necessary to ensure safe working whilst ensuring stable compaction and reduce installation costs. If you have unstable soil conditions it may be necessary to shore up trench walls or cut a sub-trench in the floor of your main trench.

Eco-Pipe Diameter	Minimum Cover over crown of pipe (mm)	Recommended Trench Width (mm)
250 mm (10″)	300 mm	500 mm
300 mm (12″)	350 mm	500 mm
375 mm (15″)	450 mm	700 mm
450 mm (18″)	600 mm	700 mm
525 mm (21″)	700 mm	800 mm
600 mm (24″)	800 mm	900 mm

Bedding Material
Wherever necessary bedding material must be added to the bottom of the trench to ensure uniform support along its entire length. Holes should be dug under the bell-mouth ends or joints to provide even support along the pipe. Bedding should be laid in a continuous layer, 75mm thick, of materials, which comply with the following:

a) Gravel or crushed rock of suitable grading no larger than 15 mm in size.
b) Sand on a 13 mm sieve that contains no rocks, hard or sharp objects.
c) The excavated material can be used providing provided that it meets with the essential requirements of (a) and/or (b) and it is free of rocks.

Trenches should be free of any groundwater and in unstable soils additional bedding material and geofabric may be required to ensure pipes are installed with a sound foundation.

Side Support
For a successful installation it is critical to achieve correct compaction of materials for side support. **Recommended compaction is to 95% dry density**. Incorrect embedment of side support materials may cause instability.

- Build up side compaction evenly to avoid disturbing the pipe alignment.
- Materials used for side support should comply with the requirements listed for Bedding Material.
- Side support material should be evenly tamped in layers of between 75mm and 150mm (dependant upon pipe size) to an even surface finish.
- Side support material compaction should be continued over the height of the pipe to a minimum of 200mm. This overlay protects the pipe during final backfill.
- In embankment installations the side fills should be brought up evenly on both sides and continued to sur-round the pipe by 300mm or twice the diameter of the pipe; whichever is the greater.

Backfill
The remainder of the trench or embankment can be filled with excavated materials providing it does not contain large rocks, hard or sharp objects and is evenly compacted in 200mm increments. Backfill should not be used to dump rubbish or unwanted materials. Failure to backfill correctly may contaminate your installation with rocks or other sharp objects leading to pipe invasion or breakage.

Pipe Deflection
Pipe deflection should always be checked on completion of installation and any noticeable deflection (over 5%) requires immediate review of the compaction, bedding materials and installation techniques used.

Correct installation procedures, bedding, side support, overlay and backfill materials are essential for a successful installation and the long-term life and performance of your pipe. Particular care must be taken if you have unstable soils or high levels of ground water trench contamination.
DO IT RIGHT...DO IT ONCE
Failure to follow all of the above procedures will void all written or implied warranties for **Eco-Pipe**.

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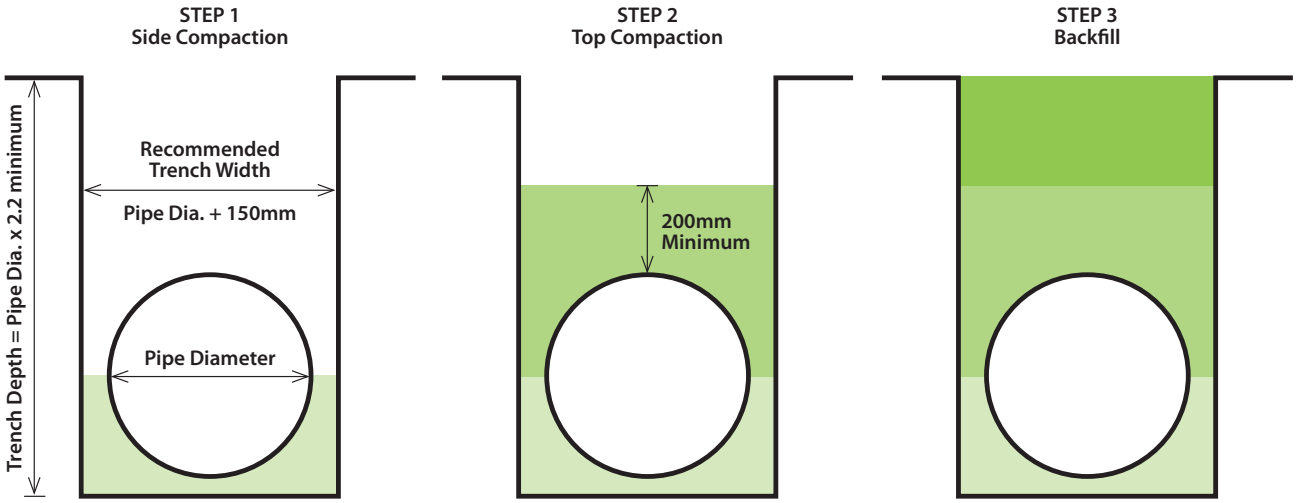
Step by Step Installation Guide



Ensure **Eco-Pipe** is fully compacted on bottom and sides to 50mm above centre line with sand or crushed rock no greater than 15mm in size.

Continue compaction in layers of 75mm to 100mm thickness to a minimum of 200mm above the pipe with the same material.

Fill remainder of trench with excavated material ensuring frequent compaction and no heavy loads until trench is full.

Installed correctly to these instructions will ensure satisfactory performance of Eco-Pipe in culvert application.
Failure to follow these instructions may result in the pipe collapsing under heavy loads and may void any warranty.

Test Data

Specimin Type	Physical / Design Property	Value	Test Method
MGP 300mm	Density	906 Kg/m³	N/A
	Stress at yield	7 MPa	Determination of tensile properties AS 1145.1 – 2001, AS 1145.2 - 2001
	Strain at yield (%)	3	
	Stress at ultimate	13 MPa	
	Stress at ultimate (%)	8	
	Stiffness number	4	Determination of pipe stiffness AS/NZS 1462.22:1997
	Initial Ring Bending Modulus	1005 MPa	Determination of initial ring bending modulus AS/NZS 2566.1:1998, AS 3572.10:2002
	Long-term Ring Bending Modulus	243 MPa	Determination of long-term ring bending modulus A/NZS 2566.1:1998

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Head Loss in Metres of Water & Flow Rates

The following tables give typical head loss and flow rates on Eco-Pipe at the given flow rates per 100 metres of pipe length. These losses assume:

- The Pipe is full of water.
- There are no bends or fittings.
- The pipe is relatively clean.

Note: Eco-Pipe is sold as a low-pressure pipe and normally uses a bell-mouth and 'O' ring connection. Under these conditions a head loss of 2.5 metres would be considered the maximum pressure. If flow rates dictate a greater head loss then either a larger diameter pipe should be used or pipe joints should be welded. Welded pipe joints could allow up to 20 metres of head loss.

Head Loss in Meters of Water

Flow Rate	kl/min	1.0	3.0	5.6	8.0	12.0	16.0	20.0	24.0	28.0
	ml/day	1.44	4.32	8.06	11.52	17.28	23.0	28.8	34.6	40.3
Pipe Size. Nom. i/d	Loss per 100 metres									
250mm (10")	**0.1**	**0.3**	3.3	6.8	15.3					
300mm (12")	**0.0**	**0.5**	**1.3**	**2.6**	5.8	10.4	16.2			
375mm (15")	**0.0**	**0.2**	**0.5**	**0.9**	**2.1**	3.8	5.9	8.5	11.6	
450mm (18")	**0.0**	**0.1**	**0.1**	**0.3**	**0.7**	**1.2**	**1.9**	**2.7**	3.7	
600mm (24")	**0.0**	**0.0**	**0.0**	**0.1**	**0.1**	**0.3**	**0.4**	**0.6**	**0.8**	

Light font = Welded joints **Bold font = Bell-mouth joints**

Flow Rate in Mega Litres/Day

Pipe Size. Nom. i/d	0.5m Head of Water	1.0m Head of Water	2.0m Head of Water
250mm (10")	2	3	4.6
300mm (12")	4.3	6.5	9
375mm (15")	8	12	17
450mm (18")	13	20	30
600mm (24")	30	46	–