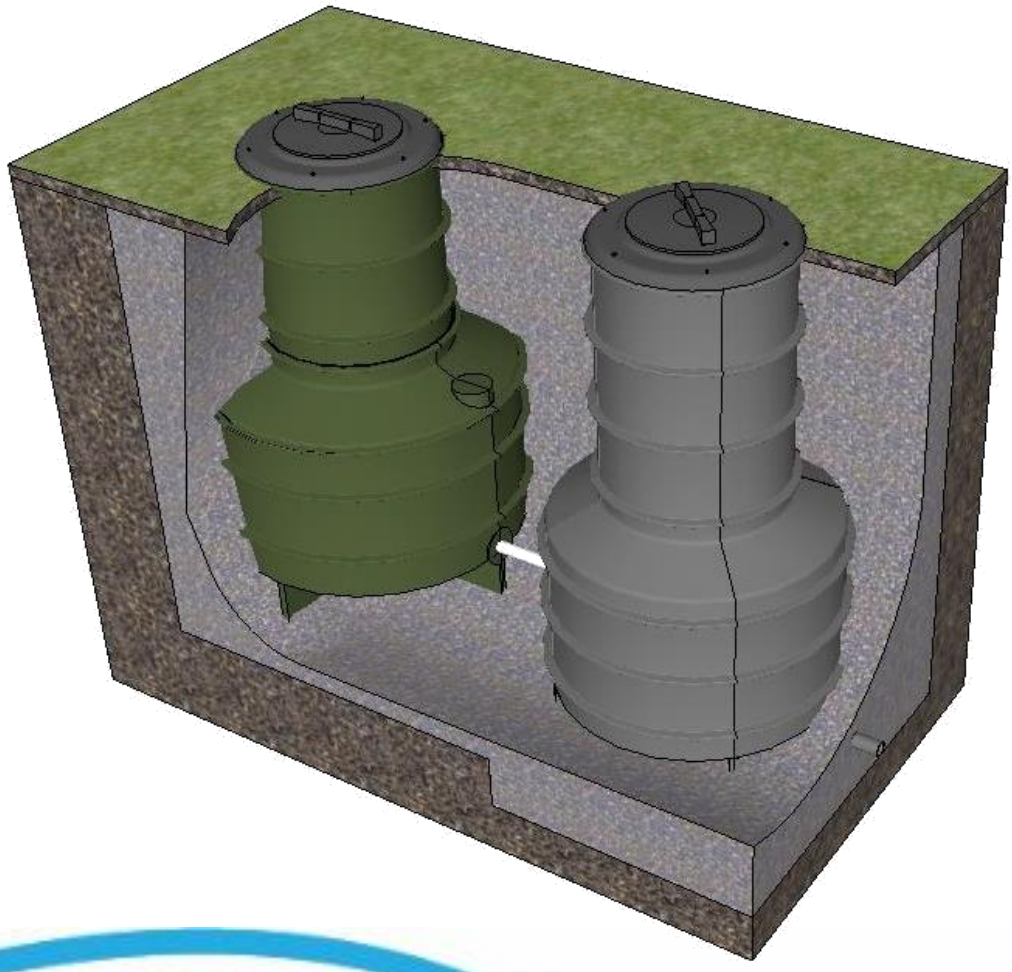
naturalflow
eco-wastewater & sewage systems
by Waterflow NZ Ltd

Grey Water Series GW2000 Treatment System

System Specifications & Installation Instructions



Compliance Requirements

All NaturalFlow Treatment Systems meet the requirements of the NZ Building Code G13-VM4.

Section 9 of AS/NZS 1546.1:2008 state that tanks constructed to these Standards will meet the requirements of the Code for Clauses B1 and B2, structure and durability.

Compliance with Section 9 of AS/NZS 1546.1:2008 and also Clauses G13.3.4 relating to on-site treatment and disposal systems and G14.3.1 and 14.3.2 relating to the control of foul water as an industrial waste are covered in the 'NaturalFlow Compliance Requirements' document.

Please feel free to ask for a copy of this complete document, if required.

The Treatment Process

The NaturalFlow Grey Water GW2000 Treatment System comprises of a 1.2m diameter by 1.1m high treatment module and a Dose Chamber module.
The grey water (which includes water from showers, baths, laundry sink, dishwasher, washing machine and hand basins), is separated at its source from the black water (from toilets and kitchen sink), and flows first into the initial treatment chamber, that retains the bulk of the scum and solids; trickles through the media layers before being finally filtered through an aerating matrix filter in the dose chamber.
This water, which is treated to Secondary level criteria of 20/30 BOD/TSS, is then reintroduced into the receiving environment in accordance with AS/NZS 1547:2012.
This Grey Water GW2000 Treatment module has a buffering capacity of 1000ltrs to contain any surge flows that may be initiated.
The size and extent of the disposal systems are determined by the receiving environment and the expected flow volumes. Factors such as soil types, slope and the proximity of potentially sensitive environments and constraints such as creeks, bores, wells etc determine the extent, location and type of disposal system chosen.
The SXL-3000 has a reserve capacity of 1000ltrs where pump loading is necessary to allow for 24hrs emergency storage should a pump fail. The Grey Water GW2000 Treatment System is capable of treating 14000ltrs per week of grey water.

Grey Water Module & Dose Chamber Specifications

Tanks are made of Cotene 9050 which is a linear medium density polyethylene, designed specifically for rotational moulding of large tanks and products that require a high level of rigidity. It contains a fully formulated long term UV stabilization package (with a minimum UV8 rating) and is suitable material for wastewater treatment containment meeting all the requirements of Section 4.3.3 of AS/NZS 1547:2012 which cross references the structural performance requirements of its section 2.4.2.3 back to the relevant provisions of AS/NZS 1546.1, which for plastic septic tanks constructed via by rotational moulding using thermoplastics (polyethylene) are set out in Section 9 of that Standard. These tanks have an expected lifespan of 50 years.

GREY WATER SERIES GW2000 TREATMENT SYSTEM

System Specification & Installation Instructions

New Zealand's Leaders in Eco-Sustainable, Odourless Wastewater and Sewage Systems

Grey Water Module
1000ltrs Nominal capacity
1200mm Diameter
1400 mm O/A height

Dose Chamber
1500ltrs Nominal capacity
1200mm Diameter over main body
732mm Riser Diameter
2125mm O/A height

Installation Location and Certification

These tanks are not designed for vehicle loads and shall be located no closer than 1.50m to a driveway, road frontage or a building. If for any reason the tank is located where vehicle traffic may drive over the tank or approach closer than 1.50m, or where it may be trampled on by farm stock then the tank should be protected by a concrete slab designed to support these loads. Surface water must also be diverted from flowing into the installation.

Installation must be certified to AS/NZS 1547:2012, the certificate to be issued and held by the regulatory authority.

High Water Table Installations

All tanks have been engineered and designed with support ribbing for maximum strength, in accordance with the NZC 3604. Clauses B1 and B2 for structure and durability, to withstand any hydraulic pressures, both lateral and uplift, created by high water table conditions, even when the tanks are completely empty at install stage.

As per the NaturalFlow Systems installation instructions, in these conditions, tanks must be anchored in with concrete around base, as per the installation instructions, to height as specified.

Plumbing Pipes and Fittings

All internal plumbing is done with PVC pipes with appropriate connections according to AS/NZS 1260 and AS/NZS 4130.

Backfill and Bedding

Place and bed to NZBC G13/AS2, using compacted granular metal, in layers not exceeding 100mm.

Electrical

Where a pump is required on a flat site electrical connection must be installed according to AS/NZS 3000 and the control and alarm system must be in a weatherproof housing located in a readily visible position.

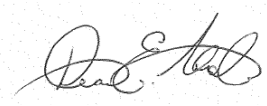
Warranty

WATERFLOW NZ LTD warrants that the NaturalFlow System will be free from defects in material and workmanship for the following periods of time from the date of installation as set out in the following conditions:

1. Roto-Molded tanks 15yrs
2. Filter media 15yrs
3. Dosing float/and or pumps 2yrs
4. WATERFLOW NZ LTD will at its discretion replace or repair such components that prove to be faulty with the same or equivalent part at no charge.
5. Warranty of operation covers the performance of the NaturalFlow systems as connected to the effluent inflow for which they are designed, and also installed to the criteria as set out in the relative installation instructions and procedures.

Warranty excludes defects due to:

A) Failure to use the system in accordance with owner's manual.
B) A force majeure event outside the reasonable control of WATERFLOW NZ LTD such as (but not limited to) earthquake, fire, flood soil subsidence ground water table variations or plumbing fault.
C) Modifications to surrounding landscape contours after installation
D) The actions of a third party
E) The system required to bear loads (either hydraulic or biological) greater than that for which it was designed
F) Any modifications or repairs undertaken without the consent of WATERFLOW NZ LTD
G) Failure, where applicable, to fence and plant land application system (disposal field)



1st June 2014
Dean Hoyle
Managing Director

Gravity Dose System Install

The NaturalFlow system is to be installed or signed off by a registered Drain layer to the design specified by Waterflow NZ Ltd.

The following installation instructions and procedures followed correctly will ensure System performance is not compromised in any way.

1. Excavate a 1.4m (wide) x 1.6m (long) level platform for the Grey Water Module at the appropriate depth, so when it is placed there is adequate fall to inlet from its source.
2. Excavate a 1.4m (wide) x 1.6m (long) level platform, below the Grey Water platform, for the Dose Chamber and placed so that the Dose Chamber is centered to Grey Water Module
3. Lay 100mm of bedding metal on platforms and place Grey Water Module then Dose Chamber.
4. Fit the short length of DWV50 supplied, in outlet hole, in base of Grey Water Module
5. Analyze where Grey Water is to enter Dose Chamber and mark center of UNISEAL® @ 790mm high from base of Chamber. Very carefully drill a 62.7mm hole with a holesaw at marked center and fit 50mm Uniseal (see Uniseal instruction details appendix B below)
6. Apply some lubrication to the UNISEAL® and carefully connect Grey Water Module and Dose Chamber with DWV50, fitted to Wormorator®. (see UNISEAL® instructions appendix B) N.B. pipe to protrude 50mm through UNISEAL®
7. Where possible excavate a trench away from System and lay drain coil and drainage metal at the base of the system to drain away any surface or ground water. On a flat or high water table site System must be bedded in as per appendix A below
8. Trench from Dose Chamber outlet to disposal field, ensuring there is a constant fall from outlet to disposal field
9. Connect Grey Water from source to Module
10. Take a minimum of 2 photos at this point to show correct installation for sign off.
11. Back fill around tanks with pea metal. DO NOT back fill with soil or clay of any type as this can cause point pressure on the modules and could cause distortion.

Caution: System must be protected from excessive super imposed loads both lateral and top loads. E.g. loads from vehicular traffic. There needs to be at least 2m of clearance maintained around system.

Pump Dose System

The NaturalFlow system is to be installed or signed off by a registered Drain layer to the design specified by Waterflow NZ Ltd.

The following installation instructions and procedures followed correctly will ensure System performance is not compromised in any way.

1. Excavate a 1.4m (wide) x 1.6m (long) level platform for Grey Water Module at the appropriate depth, so when it is placed there is adequate fall to inlet from its source.
2. Excavate a 1.4m (wide) x 1.6m (long) level platform, below the Grey Water platform, for the Dose Chamber and placed so that the Dose Chamber is centered to Grey Water Module.
3. Lay 100mm of bedding metal on platforms and place Grey Water Module then Dose Chamber.
4. Fit the short length of DWV50 supplied, in outlet hole, in base of Grey Water Module
5. Analyze where Grey Water is to enter Dose Chamber and mark center of UNISEAL® @ 790mm high from base of Chamber. Very carefully drill a 62.7mm hole with a hole saw at marked center and fit 50mm Uniseal (see Uniseal instruction details appendix B below)
6. Apply some lubrication to the UNISEAL® and carefully connect Grey Water Module and Dose Chamber with DWV50, fitted to Wormorator®. (see UNISEAL® instructions appendix B) N.B. pipe to protrude 50mm through UNISEAL®
7. Where possible excavate a trench away from System and lay drain coil and drainage metal at the base of the system to drain away any surface or ground water. On a flat or high water table site System must be bedded in as per appendix A below
8. Analyze where Grey Water is to enter Dose Chamber and mark center of UNISEAL® @ 550mm high from base of Chamber. Very carefully drill a 127mm hole with a hole saw at marked center and fit Uniseal (see Uniseal instruction details appendix B below)
9. Connect Grey Water from source to Dose Chamber
10. Take a minimum of 2 photos at this point to show correct installation.
11. Back fill around tanks with pea metal. DO NOT back fill with soil or clay of any type as this can cause point pressure on the modules and could cause distortion.
12. Connect pump with fittings supplied and lay feed line to disposal field.

Caution: System must be protected from excessive super imposed loads both lateral and top loads. E.g. loads from vehicular traffic. There needs to be at least 2m of clearance maintained around system.

Appendix A

High Water Table: For installation in high water table areas, make sure you have a pump to pump away ground water whilst installing. Excavate a pump cavity to one side of the platform and pump ground water away during entire installation process .Half fill dose tank with water, this will flow back into Wormorator as well and will help with resisting the hydraulic uplift (ensure that Wormorator is not completely flooded). Either lay 2-3m^3 of concrete around the base of the tanks or mix 3 bags of cement/cube of GAP20 (or similar) metal to form a mass to stop any hydraulic uplift. Leave water in tanks for at least 12 hours after installation is completed and then pump out to allow Wormorator to dry out.

Appendix B

Instructions for fitting UNISEAL®

1. Cut hole to the Hole saw size indicated for the UNISEAL® you are using. Either 127mm hole for a 4”/100mm pipe or 67.2mm hole for a 2”/50mm pipe.

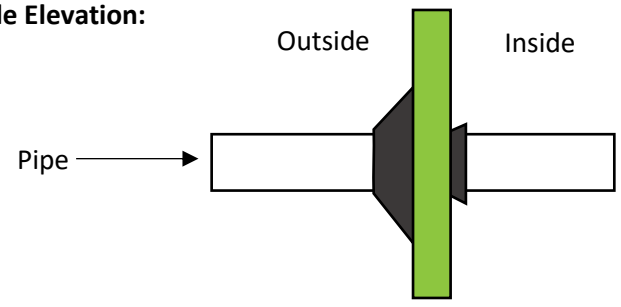
2. Ensure that the hole is clean cut with sharp edges. Irregularities could cause poor seating and ultimate leakage.

3. Insert the UNISEAL® into the hole with the wide side facing the pipe to be inserted.

4. Make certain that the pipe end to be inserted is clean cut. File the edges so that there are no sharp points to cut UNISEAL®.

5. Using Detergent, lubricate the outside of the pipe end to be inserted, then push the pipe through the UNISEAL® from the large flange side. The detergent will be squeezed off as the pipe passes through the UNISEAL®. The co-efficient of friction of the rubber holds the pipe tightly in place.

Side Elevation:



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