General Installation Guide for

Underground Vessels

Recommended for use with

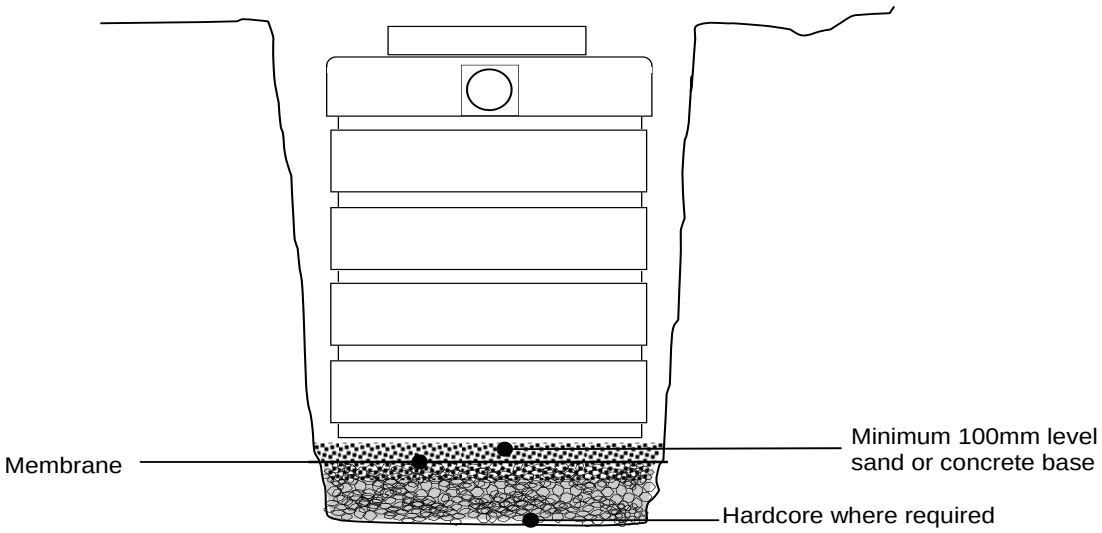
Niagara Pump Systems
Duo Septic Tanks
Modulas Treatment Plants
Silt Guardian Range
Vertical Storage Range
GS Grease Range

3 . Excavation

As shown below excavate a hole to allow for a minimum of 150mm backfill surround to tank including the base plus any allowance for a hard-core base where necessary. If the base of the excavation below the unit is in unstable ground, running sand, loose gravel or standing water, lay 200-300mm of hard-core. Consolidate the hard-core and cover with a polythene membrane.

Shuttering Excavations

In situations where the excavation will not maintain a vertical wall, it will be necessary to shore up the sidewalls of the excavation with suitable trench sheets and possibly bracing systems to maintain a vertical wall from the bottom to the top of the excavation.



Dewatering an Excavation

In areas where the water table is above the bottom of the excavation and/or the excavation is liable to flooding, the excavation should be dewatered using suitable pumping equipment.

1. Form a pump well in one corner of the excavation and ensure that the ground water is discharged away from the excavation. Remove all water from the excavation before commencing the installation. In addition to placing a polythene membrane to the base of the excavation, line the sidewalls also.
2. Dewatering should continue until the installation is complete with the concrete having reached initial set and sufficient to prevent and ground water creating voids in the concrete surround.

Please Note : The installation advice offered in this document is a guide only. We do not accept any responsibility for concrete surround or installation. This must be determined by a qualified engineer, taking into account the prevailing site conditions, potential imposed loads, buoyancy etc. Failure to adhere to the princi-pals outlined in this installation guide however may invalidate any warranty on the tank.

4. Installation

Stage 1. Lay a **minimum** 100mm base of concrete. A Steel mesh reinforced base should be installed according to site conditions, use a 200mm bed for this. Bed the unit into the concrete. During this stage care should be taken to ensure that the bottom of the unit is uniformly supported so that point loads to the base are avoided. Connect the incoming and outgoing pipe work preferably using couplings, rocker pipes or flexible joints adjacent to the tank to allow for settlement. If you are installing one of our systems that has multiple tanks interconnecting couplings will be provided. This includes our Duo Septic and Modulas Sewage Treatment Range. Please ensure all the units are connecting properly and have correct levels, ensure no negative falls are in the system before connection to inlet and outlet pipes.

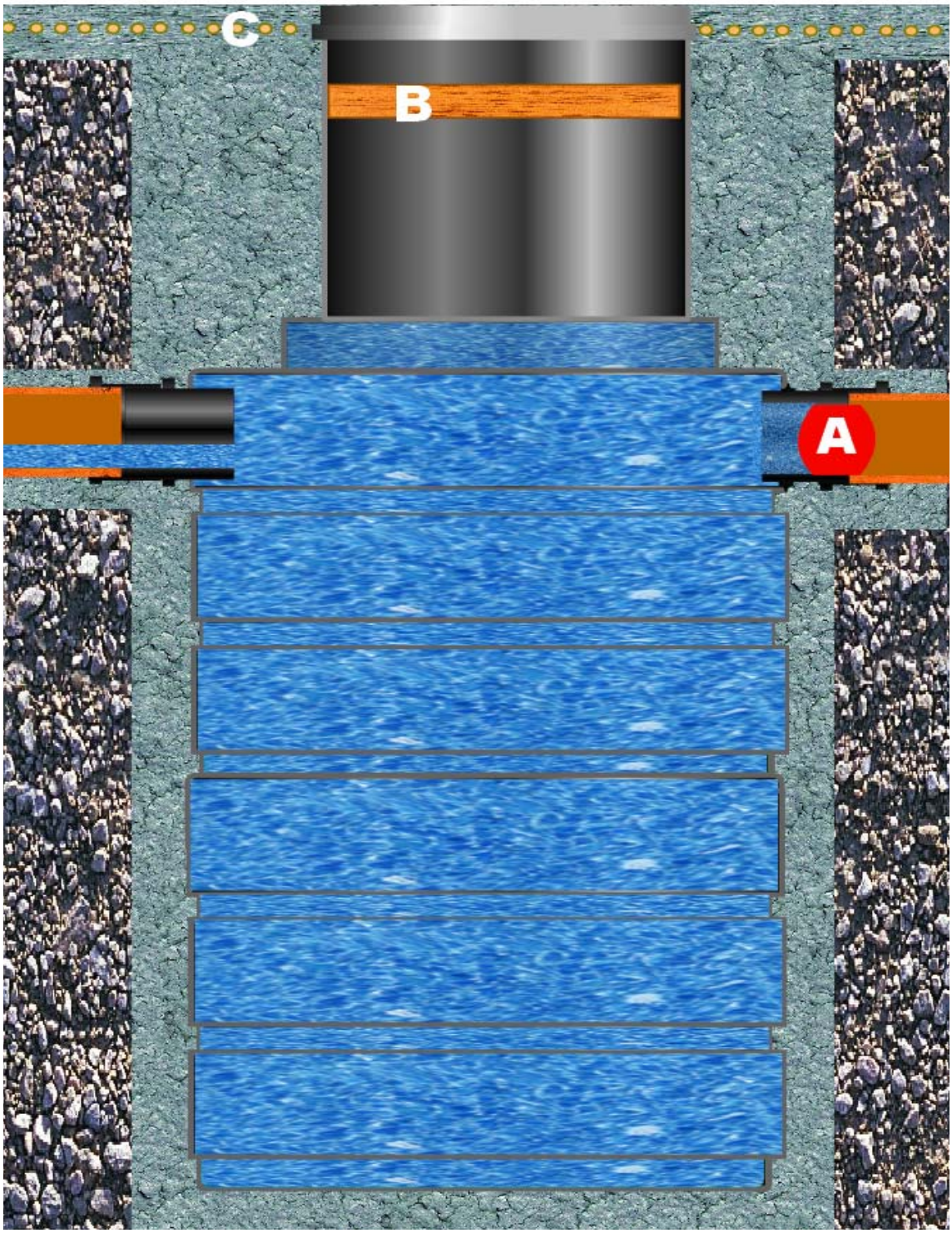
Stage 2. Ensure there is an adequate water supply available. It is recommended that the unit is at least half filled with water for ballast and to stop the unit floating Blank off the outlet pipe with an expandable drain test plug A or block off the in flow to the vessel upstream. Fill with water from either the upstream manhole or from the top of the unit, until the top chamber level reaches the base of the outlet pipe .Then pour concrete around the sides of the tank with a minimum **150mm** of concrete around the unit making sure that concrete is packed into the ribs. This will take you to just below the pipework . **Do not use vibrating pokers to consolidate the concrete.**

Stage 3. Should one of our extensions be fitted to accommodate extended inverts. This also should be backfilled with concrete as detailed above. As shown in the illustration we recommend the use of a timber wedge B across the internal diameter of a hdpe extension to stop distortion of the extension when compacting concrete. Please note extensions can only be supplied to 500mm in line with Building Regulations and Health and Safety. Deeper inverts should be accommodated by use of our Access Chambers (Please ask for more details if you are unsure

Stage 5. In an area with heavy traffic, a reinforced concrete slab C would have to be designed to take the maximum expected vehicle load thereby avoiding imposing such a load upon the tank.

Stage 6. For separators, silt guardian and treatment plants only.
It is important to check the unit has been filled **(PRIMED)** with reasonably clean water up to the bottom invert or waterline of the outlet pipe. This is the separator's normal water level when at rest. Check all pipe connections are clear from obstructions.

Please note : If you have a storage vessel or pumping system then this should be emptied before use



Specification References:

Concrete : 20n/mm^2, 20mm aggregate – 30mm to 50mm slump mix or 35n/mm²

Polythene membrane : 500 gauge building quality dpm**.**

Please Note It is a common occurrence that cement and other such materials enter the unit during or after installation, this material could harden inside the unit and could seriously damage its function . Please ensure that the unit is checked regularly whilst construction is