



Technical items.

After you have perused this document we hope you will share our enthusiasm for our product, which has been designed without compromise. No shortcuts have been taken in its design or manufacture to deliver the finest quality product possible.

It is the simple, clever things that make the difference.

Consider:

Often a generic concrete tank of any design, may seem good value until the installation cost is considered and what is involved with that installation. Our goal in designing a superior product at the outset, is to make the customer experience and installation as simple as possible, resulting in very good costs savings, whilst delivering a quality result.

If professional contractors are used, the time it takes to install the product is critical, owing to the high cost of labour. As with generic tanks it is not necessary with Landscape tanks to tighten hose fittings, seal joints, water test the seals in a time consuming exercise, (drain tanks and repeat if leak found) or carry out other concrete works to secure tanks into position.

We are conscious that all this takes time and money.

Cost saving with D.I.Y installation.

At Landscape Tanks, we are all about saving you money. Paying contractors to install your tanks can be costly. We are proud of the fact that our Landscape Tanks are easy and hassle free to install in a D.I.Y situation for a home owner.

Because the tanks are easy to install, but in the event that a professional contractor is used, their time on site, will be much less than inferior designed products.

Strength and thickness of concrete – no compromises.

The Landscape Tanks are made from high grade 50mpa concrete:

All tanks measure 2800mm x 1100mm so less units are required for the job.

✓ Small unit -2.5 tonnes	(2,800mm x 1,100mm x 1,050mm)	1,750 litres
✓ Medium unit - 3.25 tonnes	(2,800mm x 1,100mm x 1,300mm)	2,250 litres
✓ Large unit 4.00 tonnes	(2,800mm x 1,100mm x 1,600mm)	3,150 litres

These weights are considerable and are designed to make the installation simple and easier owing to the strength and weight of the product. That means we have a high degree of tolerance built into the product.

SL62 steel mesh is used in a “cage” around the product for both the tanks and the planter tops. The top edge of the tank and the planter top also has a 10mm thick steel bar running around exposed edges for added strength and versatility.

Placing tanks into position.

(In a design feature having the planter top separate to the tank base allows for “correction” of irregularities in the level of the base tanks during installation. Some concrete tanks have a +/- 5mm, which in the case of a structural retaining wall would be unacceptable. There is the possibility the +/- could end up 10mm per tank. Landscape Tanks design has an inbuilt feature of adjustable removable tops to overcome any of these issues)



A real feature of our Landscape Tanks is their enormous weight and strength and separate planter top.

Because of this enormous strength in the concrete tank and top structure customer is required to simply prepare a 50 kpa level base, and spread around 40mm of loose (10mm to 20mm) crushed rock (road base) on the day of installation and then place tanks into position.

The wall strength and thickness of the tanks and weight ensures no further works are required – the tanks do not need any other footings or structural support.

Levelling of the tanks on the day is a simple process. Place all the tanks into position first, on level base and then add the planter tops. If any irregularity is found in the level of the tanks, when placing the planter tops into position, a small chip, wedge or spacer may be placed between the planter top and the tank to keep the tops nice and level. This can also be done at any time after installation, should any small movement be encountered and joint filled and painted as required for a perfect precision result.

See installing the planter top for added features.

Internal cast in “O” ring (patent accepted) seals.

We are particularly proud of our innovative and clever (patent accepted) cast in “O” ring seals.



Face of concrete tank with seal cast in during manufacture



Watertight and seals at severe angles. No water testing during installation required.



Easy DIY push through fit. Allow ten seconds.

These great “O” ring seals are cast into the walls of the tanks during manufacture and have been proven in the field for over ten years and many thousands of D. I. Y. installations.

(To demonstrate the innovative significance of the above seal to our system and why they are so critical. Some concrete tanks use inferior flanges or other low pressure “sewer” flange type seals, which often require stainless steel bands to be carefully fitted and tightened. In a retaining wall situation of say, ten tanks or more that can be a substantial amount of time. The tanks then need to be water tested after fitting. This requires the tanks to be filled with water, with garden hose in a hugely time-consuming exercise, to make sure you have tightened the bands correctly and that the tanks do not leak. (If a leak is found, the tanks need to be emptied, leak identified, seals tightened and process repeated. All this while the plumber and delivery contractor are on site waiting for the tanks to fill again via a domestic hose. Only when all checks have been completed can the tops then be placed into position. Water is also not available on many new estates during construction).

The Landscape Tanks seals offer a significant advantage - simply push a length of PVC pipe (provided) into the seals from either direction during installation – allow 10 seconds - that's it. These very high-quality, sturdy and strong EPDM rubber seals are expected to last a lifetime (as are the tanks themselves) and are trouble and leak free.

No water testing of seals required - you can trust these seals to work every time - all the time.

The inflow and overflow 90mm pipes may be inserted into the seals after the installation in another fast and effective operation.

Planter top – engineering integral to the structure.

All units come with either a standard or large planter top (835Kg or 1,075 Kg), which are a



complete separate structure from the tanks and sit independently on top of the tank underneath.

The planter top bases are 100mm thick and sit on the top wall of the lower tank.

Drainage is to the rear of the planter and external to the tank underneath.

(In another significant design feature, which may not be evident and apart from providing upper tank strength, is that if the planter tops were incorporated inside the top walls of the tank itself, potential exists for contaminants such as fungicides or fertilisers to leach into the water tank underneath, which is very undesirable.)



The very heavy planter top has several functions and provides stability against “tipping” in a retaining wall situation.

The planter tops add additional weight at the top of the tanks adding enormous strength to the structure. The planter top is simply placed on top of the tank by delivery contractor (or on-site contractor) and is not reliant on installers to seal the top into position for it to function effectively.

This removes the necessity for trades people to install the tanks and planter tops. The planter top is easy to place into position and cannot be placed incorrectly or cause issues through bad installation and does not require any preparation time prior to placing into position.

Planter top drainage.

(drain hole is cast into tanks during production. In some cases, concrete tanks require drain holes to be drilled by on site contractors at additional cost)

The internal base of the planter top has a slope to a rear sump, which has a drain hole for drainage to the outside rear of the tanks (see below).

The planter boxes drain to the rear and not into the tank underneath.

Soils may be “heaped” in the centre of the planter tops, which will give a soil depth height of around 250mm to 300mm for the standard planter top unit. A large planter top upgrade (optional extra) is available as required and that can give a depth of heaped soil of around 350mm to 450mm.

Access to the tank underneath



Knock out.



Threaded coupling.

This may be made via two “knock outs” which are located at each end of the rear of the planter top. Simply knock out the thin layer of concrete with a hammer and insert a threaded coupling (seal with Sikaflex) and insert a thread cap. This will provide access for hosing out the tanks as required. Generally, it will only be the first tank in the row receiving roof water that a knock out will need to be installed, but given all the planter tops have this knock out built in, the option is there to fit a coupling to all the tops.

The “knock out” and threaded coupling may also be used to access the water level via a gauge if required.

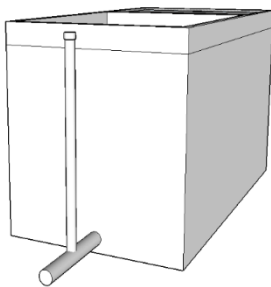


Larger access ports if required.

In some cases customers may wish to have clear access to the tank underneath through the planter top. This is achieved via casting a manhole (600mm x 600mm – larger if required) access cover in the planter top itself. The manhole cover is then isolated from the rest of the planter top by one or two concrete 50mm thick baffles. Location of the baffles is based on where the manhole is required.

Isolating the manhole cover from the rest of the planter top reduces the risk of any contaminants making its way to the tank underneath. The manhole cover also has a groove or shelf to accommodate an “O” ring or any rubber seal around the edge of the manhole cover. This means the tanks may be accessed without the need to re- Sikaflex the access lid each time as this can be an arduous time-consuming task.

Determining water levels in the tank.

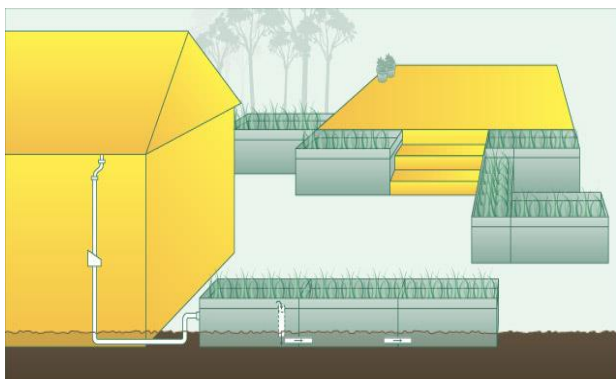


This process is best done outside the tank by placing a “T” piece in the PVC line anywhere in your system, which is level with the tanks. This “T” may have a clear PVC tube fitted to it so you can easily see at a glance the water level in the tank.

The “T” piece may be located anywhere convenient.

The “T” may also have a normal PVC pipe inserted to a level higher than the tanks and a loose cap fitted. A measuring stick may also be placed in that pipe for quick and easy access with markers. Hardware stores also stock gauges, which may be fitted to threaded coupling cap.

Plumbing ideas and options – see part numbers chart on following page.



The Landscape Tanks plumbing is identical to a normal rain water tank.

The tanks have many different part numbers to provide options to accommodate a range of different configurations. Tanks may be placed end to end to create a wall - fence effect or at right angles and even U shape or spaced apart to suit steps.

Please see below the most common ways to plumb the Landscape Tanks under several difference options. Check the one suits you or ring Landscape Tanks friendly staff for further assistance.

Open vented system for when tanks are against a house or pergola.



This is where the water simply flows straight from the downpipe into the top of the planter top and out to storm water.

Usually we have one inflow and overflow per five tanks. Rows of tanks may have multiple inflow and overflow tanks in the system.

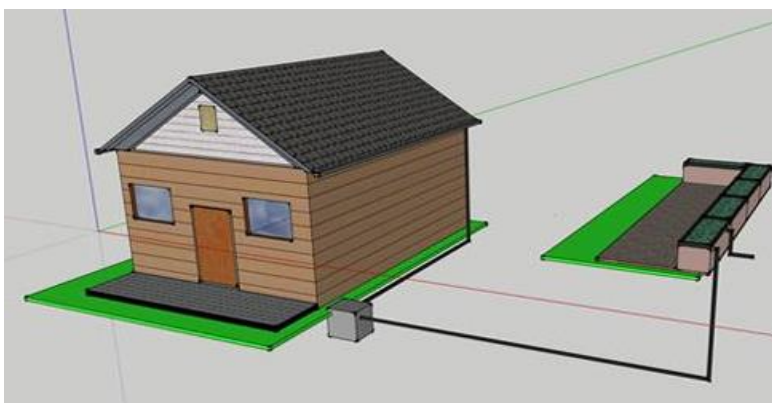
Charged (wet) system.



This system is the most popular as it takes the unsightly downpipes underground from the roof to the tanks. Most water tanks are plumbed this way as customers like to have their water storage away from the house. It is also possible to have the tanks quite some distance from the house by this means.

The distance the tanks may be placed away from the tanks is all governed by the guttering height. Generally, if the guttering height is around 3m then it is quite acceptable to have the tank up to 20m or even more from guttering. The hydraulic pressure of the water drives the water in the pipes into the tanks during a rain event. The PVC downpipes need to be sealed all the way to the guttering to prevent leakage and this is called a “charged” or “wet system”.

When tanks are higher than the house



Infrequently, there will be occasions when the house is lower than the front fence or where the new retaining wall is to be built.

In this case a "sump or pit " is installed into the ground to accommodate the stormwater manifold before it goes the street.

This sump collects all the roof water and a submersible pump is placed in the sump to pump the rainwater into the tanks until full. The advantage of this system is that it potentially collects 100% of rain water from the roof. Once the pump transfers the water to the higher tanks there will usually then be enough "head or tank water pressure" created by this pumping to higher ground, which will enable you to water the rest of the garden and provide water to the house, without the use of another pump.

Tank part numbers and dimensions. (90mm Inflow/overflow – 100mm optional)

Landscape Tanks Pty. Ltd — Configurations Vs 4 June 2016					landscape tanks	
Base Part No 001						
Base Part No 002						
Base Part No 003						
Base Part No 004						
Base Part No 005						
Base Part No 006						
Base Part No 007						
Base Part No 008						
Base Part No 009						
Base Part No 010						
Base Part No 011						
Base Part No 012						

90mm inflow and overflow
 50mm equalising port or pump access
 Large planter top—DT 016
 Standard planter top—ST 015

Most of these tanks on the above chart are manufactured on a regular basis and are usually available within a reasonable lead-time. We are happy to manufacture a custom configuration, which is not shown on the list as required.

The OSD system tanks may involve a HED (High Early Discharge) tank and may take a little longer. Your hydraulics engineer will need to be involved in this process to ensure all the plumbing fittings and orifice sizes are in the correct position. We also have the option of 100mm "O" ring seals for OSD systems (if required), which may be placed in the top or bottom of the tank. Allow a little extra time for this option.

Note. The blue dots at the bottom represent the standard 50mm "O" ring seal at the bottom of the tanks and the yellow/green dots at the top represent the standard 90mm "O" ring seal to accommodate a standard downpipe.

Inflow and overflow pipes.



Always ensure adequate inflow and overflow tanks for your system – i.e. matching inflow and overflow sizes. Consult your hydraulics engineer or plumber. It is important to have the same number and sizes of inflow and overflow pipes in your system.

We always have the inflow and overflow in the same tank (for ease of plumbing) with the water equalising to the other tanks in the system through the 50mm pipes at the bottom.

This works very effectively as the hydraulic pressure quickly builds up and pushes the water to the other tanks. You may have multiple inflow and overflow tanks in your system to suit roof size and hydraulic requirements.

In the picture above the water is collected from of the building behind the tanks and passes underground (charged system) and then back up into the tanks. Note the inflow and overflow go into the same tank and equalise to the other tanks through a 50mm equalising port. 50mm pump connections may be at either end.

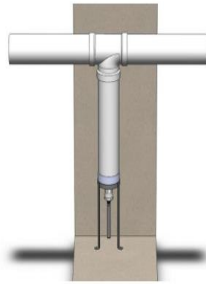
Sloping sites.



Tanks may be coupled to suit any site and configuration. They may also be stepped down to follow the contour of a slope if required.

This configuration requires additional plumbing but is straight forward.

Keeping roof water clean.



It is always a good policy to keep your incoming tank water as clean as possible. There are many devices for this purpose and they fall into two categories. The leaf guard, which collects leaf matter from the downpipe before it reaches the tank.

First flush diverters should be considered as they collect the first say 100 litres of water from each rain event and dump to waste via a small orifice. They then allow the rest of the cleaner water to go to the tanks. (Dozens of options available)

Tanks sizes.

Standard unit – external dimensions - nominal	
Length:	2,800 mm
Width:	1,100 mm
Height:	1,055mm including standard planter top
Weight:	2,495 kg including standard top (835kg)
Capacity:	1,750 litres
Medium sized unit – external dimensions	
Length	2,800mm
Width	1,100mm
Height	1325 including standard planter top
Weight	3,200 Kg including standard top (835Kg)
Capacity	2,250 litres
Large unit – external dimensions	
Length:	2,800 mm
Width:	1,100 mm
Height:	1,655 mm including standard planter top
Weight:	3,945 kg including standard top (835kg)
Capacity:	3,150 litres
Standard top measurements (standard with all units)	
External:	200mm
Internal bed:	170mm (Recessed base has thickness of 90mm)
Large planter top measurements – upgrade optional	
External:	300mm
Internal bed:	270mm (Recessed base has thickness of 90mm)

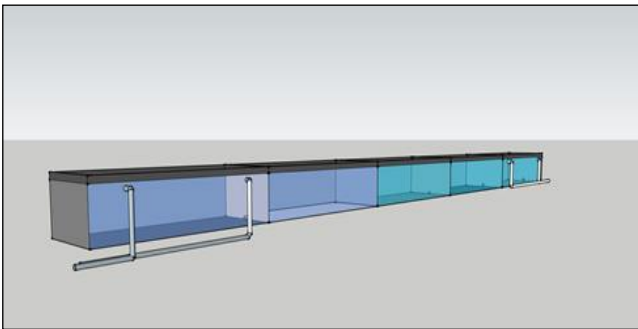
Installing the overflow.



The rubber “O” ring seal external measurement is quite large (200mm) so it is not possible to cast the seal into the wall of the tanks too close to the top.

In a very easy process an elbow (supplied) facing upwards is placed into position during installation on the inside of the tank water receiving tank raising the water level to correct height.

Rows of tanks.



It is possible to locate the tanks some distance apart so long as the tops are level to accommodate steps or footpaths and the like.

If multiple tanks are used in a system they do not all have to be joined together.

If a customer wants to use one end of the tanks as water tanks and the other end as an onsite detention system or isolated from the other end of tanks they do not have to be joined together at that point.

The integrity of the wall or structural retaining wall is still maintained as the tanks are all engineered empty (empty) for this purpose. One end of the row of tanks may be empty while the other end is full.

Installation.



Despite the tanks being very heavy installation is remarkably simple as there is a wide and diverse range of equipment available to handle heavy objects in even in the most challenging environments. Landscape Tanks Pty. Ltd. staff will be happy to discuss all aspects of installation and design layout with customers and offer advice as appropriate.

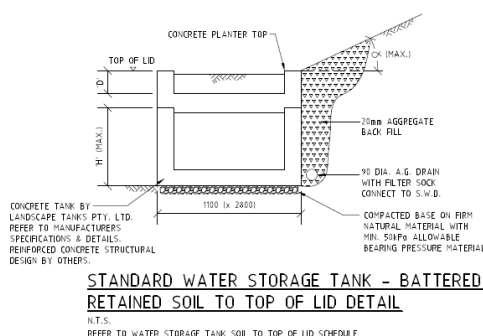
Placing tanks and tops into position can usually be completed in around 20 minutes each depending upon site condition in a simple and efficient process. The Landscape Tanks do not require traditional footings but they do need a firm level base of at least 50kpa. Never place tanks on soft soil or fill as they are heavy and may move over time.

We also recommend a layer of loose (non - compacted) crushed rock/road base (40mm) be placed on the base (raked level) on the day of installation to help "bed in" the tanks. The delivery contractor will place the tanks into position and if they are not perfectly level (spirit level) they can lift again and customer can spread the crushed rock/road base until level.

When Landscape Tanks are used as retaining walls they will need to have Aggie pipe located at the rear. This will drain any surplus water away the same as a traditional retaining wall. This Aggie pipe is encased in a "sock" and back filled over the top with aggregate in a straightforward process the same as a conventional retaining wall.

In most cases, customers can do these themselves.

Retaining Walls – 50kpa minimum soil density required:



Comprehensive pre-engineered structural retaining wall drawings are available upon request to assist any site-specific engineering requirements.

Drawings are suitable to hand to your builder, architect, building surveyor or council as appropriate.

As with any retaining wall (most often overlooked) it is also desirable to create a spoon drain at the top of the retained soil to take the surface water away from the

retaining wall to stop storm water running down behind the retaining wall, which can quickly block the Aggie pipe as they are designed to take seepage only

Council permits

Council permits are usually not required where works are less than 1m in height. However always check your local council for details as their regulations change frequently and vary state to state. Councils are encouraging the use of water tanks, which also helps. In Melbourne, the major water companies City West Water and Yarra Valley Water promoted the use of Landscape Tanks to over 1m residents recently. Council permits where required, (usually for larger units) are almost certainly forthcoming.

Handling the tanks – lifters and swift clutches – pics.



Tanks and planter top all come with four anchor points cast into the product. Standard Swift Clutch knuckles are used to lift the tanks and tops.

The three most popular delivery and placement vehicles are:

Crane trucks. (Hiab)



Provided you can get a truck to the area required, crane trucks (Hiab) are ideal as they can lift the tanks over fences, garages or carports and the like, when other access may be limited.

Depending upon the size they do however need to get reasonably close to the drop area (usually around 8 to 10m)

All terrain forklift or telehandler.



Both these units offer similar performance. Small units can go through carports and garages and around tight access areas that a crane truck cannot access. Requires 2m x 2m access.

Excavators.



Excavators are probably the most popular and are ideal for placing the tanks into position. They have tracks and can go almost anywhere, even on fresh soil. On many occasions, customers will already have excavators on site and save on costs.

Manufacturing.



The Landscape Tanks are made from the highest quality 50 mpa high grade concrete to Australian Standard A/S 3600/2001.

These standards state that goods made to this standard have a conservative “implied” lifespan of over 60+ years.

We expect the tanks to last well in excess of 100 years. The rubber “O” ring seals are made from EPDM rubber and in clean water and as such should last well in excess of 100+ years also. Tanks are supplied in raw concrete and customers are free to select the colour of render or paint that suits their decor.

Storage and transport.

Always place timbers under lifting anchor points at each end of the tank directly above each other, particularly if travelling large distances.

