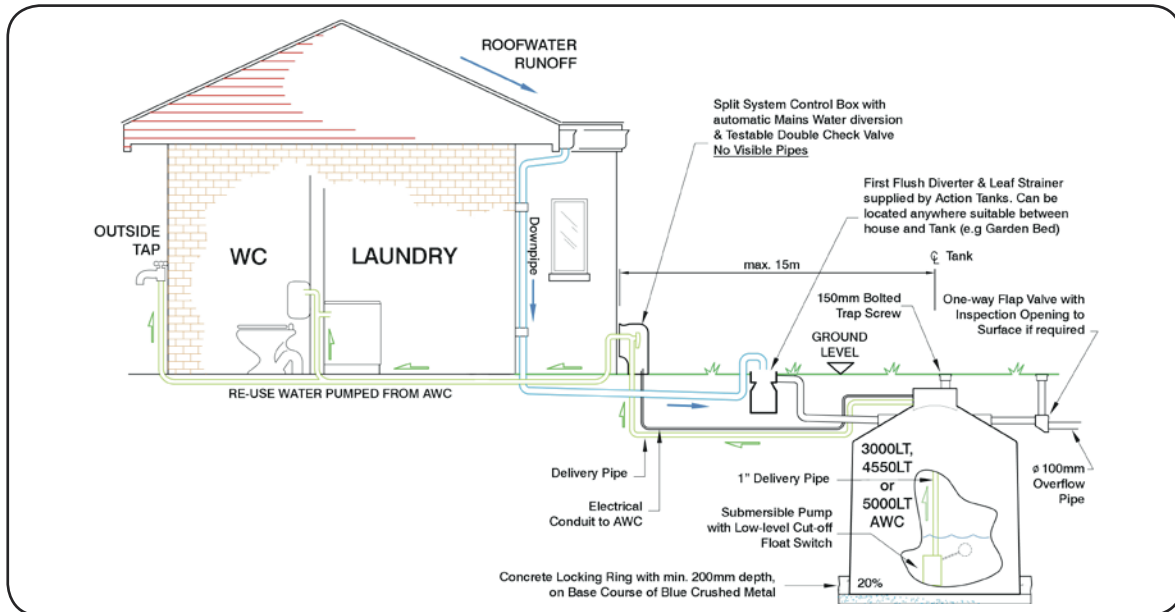


Split Master

UNDERGROUND RAINWATER HARVESTING SYSTEM
WITH MAINS DIVERSION AND CONTROL BOX



Correct installation of this Action Tank by a qualified tradesman, licensed in the state and local authority in which the system is to be installed, is mandatory for warranty and the quality of water stored.

The installation must be undertaken with due consideration given to the attached Action Tanks - OH&S Risk Assessment form and the Excavation Code of Practice.

CHECK THAT THESE INSTRUCTIONS CORRELATE TO THE TANK MODEL TO BE INSTALLED

STEP 1 - EXCAVATION - Refer to Excavation Code of Practice and OH&S Risk Assessment attached.

1. Excavation using the specified minimum excavation size (see table below).

Using minimum excavation size enables the top of the tank to be 100mm below **finished ground level**. (Please determine final finished ground level with your builder/ installer).

Tank Type	Min. Excavation Width	Min. Excavation Depth (Master)	Min. Excavation Depth (Servant)
5000lt Split Master	2.4m x 2.4m sq	2.4m	2.4m
4550lt Split Master	2.2m x 2.2m sq	2.4m	2.4m
3000lt Split Master	2.2m x 2.2m sq	1.9m	1.9m

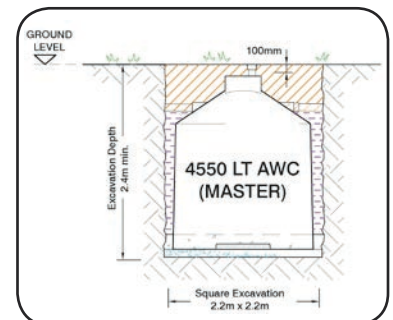


Figure 1: Excavation

STEP 2 - PLACEMENT

**Materials needed: a) 100mm of 5 to 7mm crushed blue metal or recycled concrete below base of tank
b) 200mm concrete locking ring approximately 1/2 m³ per tank**

- Backfill excavation** with a minimum of **100mm** of 5 to 7 mm **Crushed Blue Metal** or **Recycled Concrete** (free of rocks), before placement of tank. **NOTE:** the depth of the tanks underground is up to the designer.
- Before placing the tank into the excavation**, check that the 50mm bung at base is tight (for single systems).

LIFTING OF TANKS each system weighs approx. 270 kg. You must ensure your lifting gear is in good condition and capable of lifting more than 270 Kg. The excavator used to install the tanks must have a capacity greater than 270 kg, at its full extension.

3. **Place Action Tank** on a level 100 mm base of 5 - 7mm Crushed Blue Metal OR Recycled Concrete.
 4. **Position tank in the hole** to suit desired site connections **using lifting lugs** on the Action Tank.
 5. **Multiple tanks** - If being installed with additional servant tanks, position other tanks. Remove 50mm bungs at their bases and make the interconnection between the tanks with 50mm high pressure poly pipe (at the base of the tanks). Tighten all connections (refer to figure 2) and surround with aggregate.
 6. **Completely fill the tank with water.** These requirements apply to both Master and Servant Tank.
 7. **Pour a 200mm min. thick ring of concrete around the base of the tank** (approx. $\frac{1}{2}$ m³ per tank).
- NOTE:** No one is to enter the excavation unless the excavation has been benched or battered to reduce the depth of the excavation to less than 1.5 m.

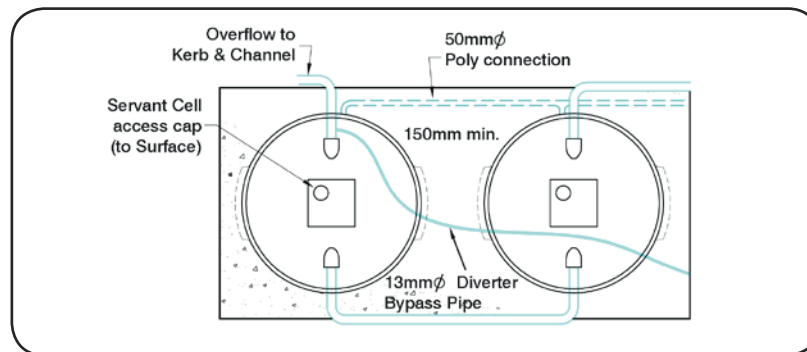


Figure 2: Tank Interconnection

STEP 3 - BACKFILLING

Materials needed: 5 - 7 mL Crushed Blue Metal or Reecycled Concrete approx. 8 tonne per tank

The use of specified backfill is important to prevent floatation and minimise soil settlement and the risk of connection failure resulting in water contamination.

1. **Backfill evenly around the Action Tank with 5 to 7 mm Crushed Blue Metal or Recycled Concrete, up to the under side of overflow outlet.**

DO NOT Dump, Fill Material, On One Side Of The Tank At A Time Or Use Mechanical Compaction Or Wheel Rolling (To do so will void warranty and may reduce the Action Tanks capacity).

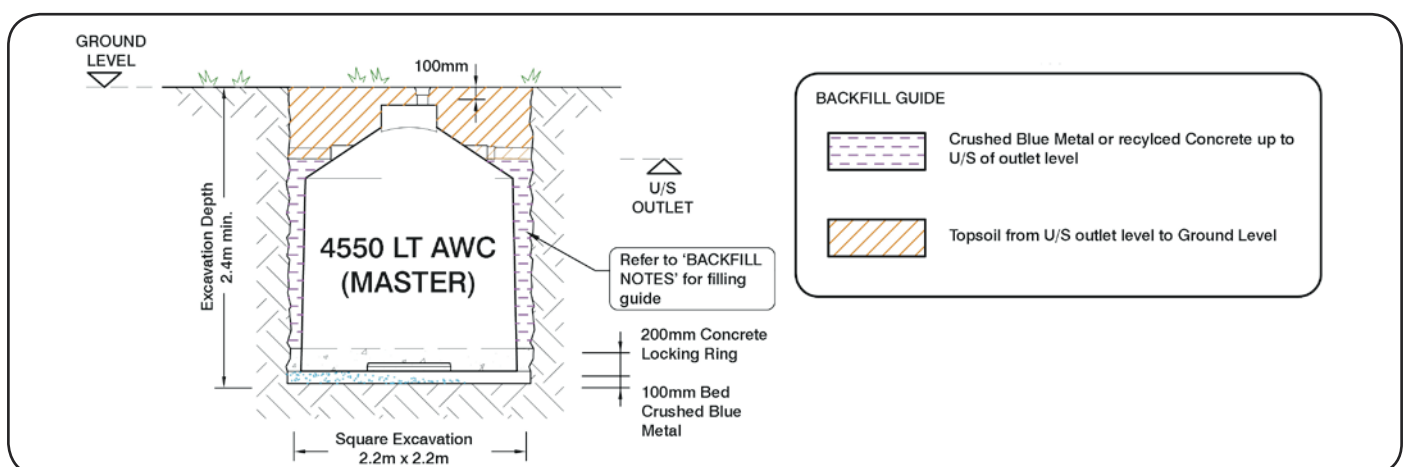


Figure 3: Back filling

The Action Water tank has been tested and certified by a geotechnical Engineer, not to lift out of the ground when installed in accordance with these installation requirements, even when the cell is empty and the external ground water level is 200mm from the top of the Action Tank.

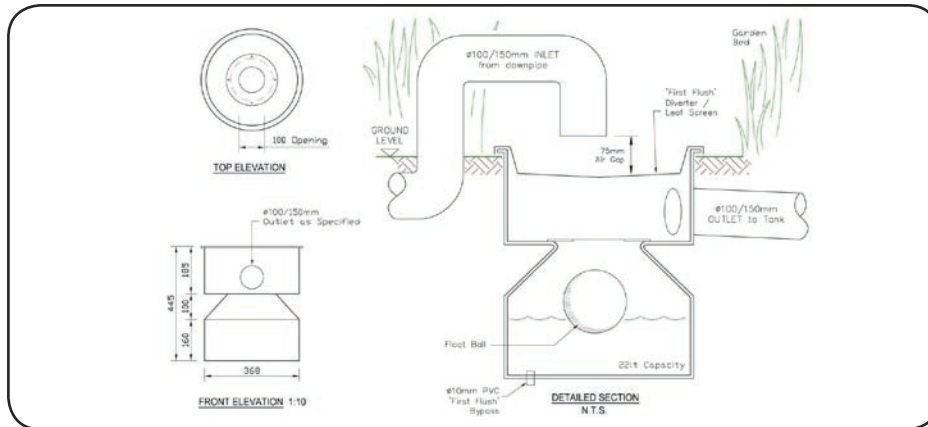
STEP 4 - CONNECTIONS (TANK)

Inlet

- 1st flush Diverter Leaf Screen** is designed to be installed at a higher RL level than the water tank inlet and be located away from house and tank in an esthetically pleasing position i.e garden bed.
- Connect roof water from downpipes to 1st flush diverter / leaf screen** (optional – supplied separately, see diagram below). The 100mm inlet stormwater pipes from the downpipes should rise up out of the ground and empty into the top of the 1st flush diverter / leaf screen. This pipe should be deflected in the leaf screen with a non glued 45 degree bend with enough clearance to allow for the easy removal of the 1mm leaf screen for cleaning.
- Install the diverter** so that the leaf screen is above all landscaping material and soil. Landscaping should make provision for over flow from the strainer during peak periods of rainfall.
- Connect** (black) 13mm poly pipe or 3/4" Rehal from underside of first flush diverter nipple to nipple on the tank overflow 100mm non-return valve. Alternatively dig deep and place the diverter on a bed of coarse aggregate to allow it to act as an absorption pit.

Outlet

- Install 100mm non-return valve** (provided with 1st flush diverter) next to the tank overflow outlet, down stream from the tank (check direction of flow).
- Run 100mm outlet pipe** from this point, at minimum 1 degree grade, to kerb or easement.

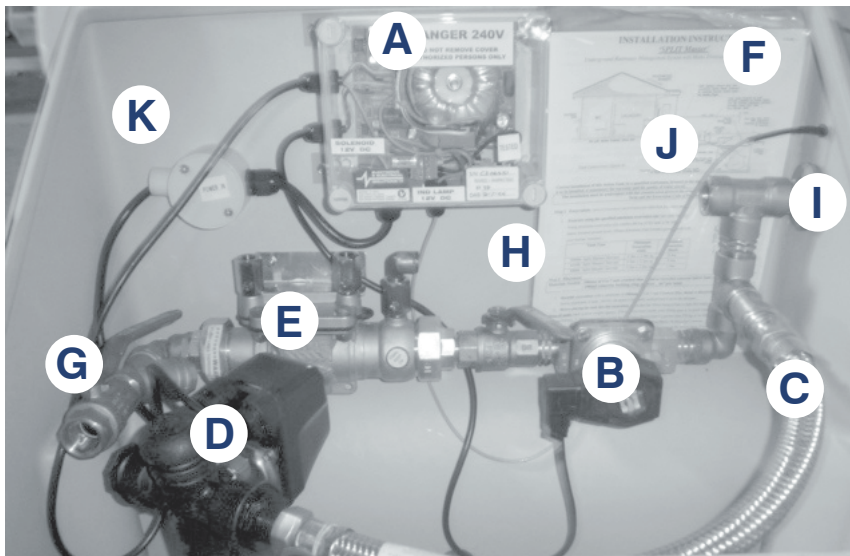


First Flush Diverter

STEP 5 - CONTROL BOX / PUMP INSTALLATION

Loose items in Action control box (these are required for tank system commissioning).

- | | | |
|-------------------------------|---|-----------------------------|
| 1 x Submersible Pump | 1 x Plumb Easy Hose (braided silver) | 1 x Nut & Tail |
| 1 x Dog Clip | 1 x Poly Tee & pressure switch | 2 x Hose Clamps |
| 1 x 'D' Shackle | 1 x Stainless Steel wire (Pump Support) | 1 x Poly Fitting (for pump) |
| 1 x Yellow high pressure hose | 1 x 100mm non-return valve | |



- A:** Action controller
- B:** 3/4 inch solenoid valve
- C:** 1 x Plumb Easy Hose (braided silver)
- D:** Poly Tee & pressure switch
- E:** 3/4 inch testable double check valve
- F:** Installation instructions
- G:** Mains water inlet
- H:** Shut-off valves for testing
- I:** Outlet to tap
- J:** Outlet to house
- K:** Electrical mains connection box

NOTE: Status indicator light
FLASHING RED = mains water use
OFF = rainwater in use

Figure 4: Control Box

1. **Check contents** in the control Box
2. **Check installation instructions.** Make sure they correspond to the tank model you have purchased and are installing.
3. **Remove the new pump** - ensuring to clip float switch into position at top of pump.
NOTE: It is recommended that you DO NOT leave the pump submersed in the tank for longer than 2 weeks prior to commissioning.
5. **Connect non-return valve (supplied) directly on top of pump.**
4. **Unfurl the 'yellow' high pressure hose** and connect to the pump, using nut and tail poly fitting and hose clamps.
6. **Connect the s/steel suspending wire** to the pump via the s/s 'D'shackle.

Go to the tank

6. **Remove the blue/ yellow cap** from the 150mm snap lock fitting located on top of the tank.
7. **Locate the stainless steel 'Dog Clip'** at the end of the s/s wire. **Reach into the tank** via the 150mm access, secure clip to the stainless steel hook inside the top of the tank (this wire will support the pump)
8. **Remove brass fitting from side of tank and connect 'yellow' flexible hose to brass elbow (fitting supplied).**
9. **Holding the 'yellow' high pressure hose, gently lower the pump** into the tank through the 150mm access, ensuring you dont dislodge the float switch.
10. **Re-fit brass fitting into tank wall** making sure pipe work is vertical.
11. **Cut off pump electrical 3 pin plug (if necessary) and feed the end of the pump electrical cable out through the PVC conduit connector** (supplied by electrician) in the side of the top of the tank and coil the cable on top of tank for electrician to connect to control box.

STEP 6 - PUMP / ELECTRICAL DELIVERY PIPES BETWEEN TANK AND CONTROL BOX

1. **To interconnect 'Control Box' and tank, dig trench 500mm deep between 'Control Box' and tank** (as per electrical requirements) The **ELECTRICIAN** will most likely need to lay a 40mm pvc conduit in this trench along with the pump water pipe. Both the 1" pump water pipe and 40mm electrical conduit should be ended with a 90 deg bend, 300mm off the wall, 200mm apart, to the right of the mains water supply inlet pipe, under the location of the control box.
2. **Connect the pump delivery pipe to the brass thread on the outside of the top of the tank** (1" is recommended). Run this pipe in the trench to where you are going to locate the control box beside the house.
3. **ELECTRICIAN to connect 40mm conduit** and run to 'Control Box' through which the pump electrical cable is to be fed.
NOTE: cable may need to be extended if 'Control Box' is further than 8m from tank.

STEP 7 - FIT-OFF OF CONTROL BOX

1. **Using standard hole saws, cut 5 holes in the base or back of the control box for the,** pump delivery pipe, the electrical conduit from the tank, plus the mains water inlet, mains power supply and tank water feed to house.
NOTE: You must ensure that the bottom back lip of the box does not cover any weep holes or cover any termite visible barrier. The control box can be placed upon any type of surface and can be fixed back to the wall of that structure if necessary, making sure the lid can still close.
2. **Flush all pipes** and connect the pipes to the pump box. Feed mains water to thread labelled 'Mains Water' inside the 'Control Box'
3. **At connection labelled 'House', install a 'Stop Cock/Valve' and then connect it to the WC, laundry and garden** with 1" or ¾" pipe work.

STEP 8 - POLY TEE / PRESSURE SWITCH – FIT OFF

1. **Fit a 1" BSP Female thread to the pump delivery pipe from the tank** then screw to 1" male on base of the poly tee.
2. **Connect the side outlet of the poly tee to the inlet thread labelled 'Pump',** with the braided Plumb-ezy (provided).

ELECTRICIAN

3. **Connect 3 pin plug to pump lead and then plug into underside of Action Controller box labelled 'Pump'.** Electrician to hard wire 240V mains power to round electrical connection box, situated on the Action Controller. The pump cable may need to be extended by you, if so, it is recommended to leave a minimum of 3m of slack in the tank, to allow for easy removal of the pump should the need arise. The electrician should not work on live wires when connecting system.

STEP 9 - COMMISSIONING & TESTABLE DOUBLE CHECK VALVE

1. **Install a suitably colour coded hose tap to the brass thread on the top right hand outside of the control box.** This may be used as an irrigation outlet or block off and do not use.
2. To **commission system** - power up and turn on mains water, leave gate valves closed on double check valve, then turn hose tap on, check that all fittings are tight **and allow sufficient water out of the tap to flush the delivery line. Check system performance by turning outside tap.** If surging in flow is noticed after 60secs, return to control box and adjust 'Pressure Switch' located on black poly tee. Open Pressure Switch hosing and tighten the small spring until surge disappears (Approx. 2 turns). **IMPORTANT!!** Shut off tap and make sure that the pump light in controller switches off after 30secs, if not, small spring has been over tightened and will need to be backed off until pump light turns off.
3. To **test mains water diversion**, unplug the pump from the underside of Action Controller. Check that you have mains water coming out of the same hose tap while the pump power is turned off. Then switch off mains power at house switch box to confirm mains water diversion still occurs.
4. **Check that all strainers are clear of wrapping and other obstructions** and that all signage as required by the relevant local authority has been installed. i.e. 'Rainwater Water'.
5. **PLUMBER: Test and commission 'Testable Double Check Valve'. This needs to be done after mains water has been connected to the sytem. A copy of the test report must be submitted to the council.**

STEP 10 - OWNERS MANUAL

1. **IMPORTANT Complete the 'Owners Manual' enclosed** with the warranty sheets in the control box making sure that the serial number of the Action Tank has been entered in the manual (this number is on the inside of the lid of the control box).
2. **PLEASE CHECK: The installation instructions correlate with the tank you have purchased and installed.**
3. **PASS THE COMPLETED HOMEOWNERS MANUAL ONTO THE PROPERTY OWNER OR BUILDER.**

****It is very important that the attached OH&S Risk Assessment form is referred to prior to the commencement of installation works****

Additional information is available on our web site www.actiontanks.com.au
Action Tanks (Qld) 07 5442 4242 (NSW) 02 9453 0300 (Vic) 0409 861 197



Version SM-01-07.
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RISK ASSESSMENT

INSTALLATION OF UNDERGROUND ACTION RAINWATER HARVESTING SYSTEM

Project Name:

Date:

Person completing form (Name):

(Signature):

Please tick all appropriate boxes

Equipment to be used

Ladders		Shovels	
Excavator			
Power Tools			
Power Leads			
Wheelbarrow			

Personal Protective Equipment

Hard Hat		Safety Harness	
Safety Boots		Safety vest	
Safety Vest		Gloves	
Hearing protection		Barrier Cream	
Safety Glasses			

Activities

Excavation of earth		Cement Work	
Back filling excavation			
Drainage			
Plumbing			
Landscaping			

Incident codes

CLASS 1: (High Risk) Permanently diasable or kill	
CLASS 2: (Medium Risk) Temporarily disable or serious injury	
CLASS 3: (Low Risk) Cause minor injury	

Potential Hazards

Possible Controls

Fall into Excavation	Do not allow persons into excavation for single tank installs. When required to enter the excavation for multiple tank installations, ensure that excavation is battered or benched as per code and/or that safety precautions are taken to ensure the excavation does not collapse. Refer below.
Collapse of Excavation	Ensure that the excavation is supervised by a qualified person. Make sure that spoil from excavation is placed a safe distance away from edge. Enter excavation only during multiply tank installations. Batter or Bench excavation, if required, in accordance with code. Provide stops/barriers to stop machinery approaching too close to the edge of the excavation. Be aware of zone of influence to other structures
Slip, trip & falls	Area clear of building material, good working surface available, ensures you are working from stable ground.
Cuts	Ensure all sharp edges are protected Glass or broken materials are removed. Gloves are worn to protect hands; All sharp material is stacked and removed from site
Lack of Supervision	As installation of Action Tank can be achieved within a few hours never leave excavation unattended without barricading or roping off with safety tape. Continually monitor the works to ensure that conditions remain safe and that excavation does not become water logged or encroached upon by other building works. If excavation is left overnight, barricades and safety fencing must be erected.
Injury Caused by Machinery	Ensure that high visibility safety clothing is worn and good communication with a competent machine operator is maintained.
Machinery flipping over	Ensure the excavator is working on stable ground. Plant inspections are carried out. Operator is trained in safe use of the plant. Look for electrical hazards.
Contact with Electricity	Watch for overhead powerlines. Turn off any power that is capable of being cut or touched during excavation, before starting work, ensure all power tools are protected by RCD, Ensure all power tools and leads are tested and tagged.
Manual Handling	Ensure good manual handling techniques are used when lifting, pushing, pulling, twisting and stretching. If the load is heavy use two man lifts or mechanical devices.
Safe use of PPE	Ensure correct PPE is being used for the task at hand. Hearing protection, Safety glasses, safety harness, safety boots, high visibility safety clothing.
Drowning	If there is a risk that the excavation may collect or retain water, ensure fall protectionis in place, qualified person is available to perform EAR or CPR. Floatation devices are worn.