Installation Manual

for RainTech® Indirect commercial rainwater harvesting systems

June 2019

Calf Way, Bisley, Gloucestershire GL6 7BX 01452 772000

ON COMPLETION OF INSTALLATION PLEASE CONTACT US TO ARRANGE COMMISSIONING BY OUR ENGINEERS

CONTENTS

Section 1

Receipt of goods and off-loading procedure

Receipt of Goods

Deliveries to site will be arranged where possible to fit in with customer requirements, but we cannot always delivery precisely when required. We will always however arrange deliveries with the site supervisor. NOTE THAT IN GENERAL THE TANK AND FILTER(S) WILL BE DELIVERED DURING THE GROUNDWORKS STAGE OF THE DEVELOPMENT, WITH THE REMAINING M&E EQUIPMENT BEING CALLED OFF AT A LATER DATE.
The site supervisor is advised to ensure that all goods are thoroughly checked against delivery documents. Any missing or damaged items must be reported within 3 working days of delivery.
In particular it should be noted that the condition of the tank becomes the responsibility of the site supervisor once unloading has commenced.

Off-loading of tanks

Please read and understand the following instructions fully before commencing off-loading. These instructions are provided as a general guide and do not allow for non-standard site-specific issues which may arise. Failure to adhere to these instructions may compromise the structural or operational integrity of the product, which will be deemed outside the responsibility of Rainharvesting Systems Ltd. or the tank manufacturer.

Disclaimer:
These notes are for guidance only. Rainharvesting Systems Ltd are not contracted for the offloading and installation activities of the product. It is the responsibility of the customer and their designated contractor to ensure safe and proper offloading and installation. We can not accept liability for this activity.

THESE INSTRUCTIONS ARE OFFERED FOR GUIDANCE ONLY.

- OFF-LOAD THE UNIT USING SUITABLE MECHANICAL EQUIPMENT OPERATED BY TRAINED PERSONNEL.
- THE EYELETS ON TOP OF THE TANK ARE FOR GUIDE ROPES ONLY. DO NOT LIFT THE TANK BY THE EYELETS!
- LIFTING STRAPS – THE TANK SHOULD BE HOISTED USING CERTIFIED WEBBING STRAPS WHICH MUST BE SUFFICIENTLY RATED FOR THE WEIGHT OF THE UNIT BEING LIFTED. DO NOT EXCEED THE LIMIT STATED FOR THE WEBBING STRAPS USED.
- LIFTING STRAPS SHOULD BE OF EQUAL LENGTH.
- ONLY LIFTING STRAPS ARE PERMITTED TO BE IN DIRECT CONTACT WITH THE UNIT (NO CHAINS). CHAINS CAN ONLY BE USED BETWEEN THE STRAPS AND CRANE IF CERTIFIED.
- LIFTING STRAPS ARE NOT PERMITTED TO BE PULLING IN ON THE BODY OF THE UNIT. PLEASE ENSURE THAT THE SLINGING ANGLE DOES NOT EXCEED 60O AT THE HOOK IN ORDER TO ELIMINATE EXCESSIVE COMPRESSIVE LOADS ON THE SIDE OF THE UNIT.
- DO NOT LIFT THE TANK IF IT CONTAINS ANY WATER

- USE GUIDE ROPES TO MAINTAIN LATERAL CONTROL OF TANK WHEN LIFTING UNIT
- DO NOT SUBJECT THE TANK TO SHARP IMPACTS
- THE GRAVITATIONAL BALANCE OF THE UNIT SHOULD BE TESTED BY THE CRANE MAN AND BANKS MAN BY TRIAL LIFTING THE UNIT NO MORE THAN 6 INCHES BEFORE COMMENCING ANY POSITIONAL ACTIVITY.
- THE WEIGHT OF THE TANK DEPENDS ON THE MODEL AND THE INCLUSION OF OPTIONAL EXTRAS. PLEASE CONTACT US IF YOU NEED TO DETERMINE THE WEIGHT OF YOUR UNIT.

STORAGE

- DURING STORAGE ON SITE THE TANK SHOULD BE PLACED ON LEVEL GROUND AVOIDING ALL POSSIBILITY OF ACCIDENTAL DAMAGE.
- ALL OPENINGS TO THE TANK MUST REMAIN COVERED TO PREVENT INGRESS OF UNWATED MATERIAL
- THE TANK SHOULD BE TIED DOWN DURING PERIODS OF HIGH WINDS. IF THE TANK DOES NOT CONTAIN STABILISING FEET THEN IT SHOULD BE CHOCKED WITH SUITABLE MATERIALS TO PREVENT IT ROLLING.
- DO CHECK THAT ALL ITEMS DELIVERED CORRESPOND WITH THE PACKING NOTE - IF IN DOUBT WITH REGARD TO ANY ASPECT OF THESE INSTRUCTIONS, PLEASE CALL FOR ASSISTANCE.

Section 2

Health and Safety

PLEASE READ CAREFULLY THIS ENTIRE SECTION OF THE DOCUMENT BEFORE COMMENCING WORK.

We advise that all relevant Health & Safety precautions applying to such works are implemented and that risk assessments and method statements are prepared as required.

Rainharvesting Systems Ltd. can provide generic risk assessments and method statements on request.

IMPORTANT: It is the installers' responsibility to ensure that the installation is carried out in accordance with:

- Health & Safety at Work Act
- Water Supply (Water Fittings) Regulations 1999
- WRAS Guidelines - esp. Guidance note 9-02-05 Marking & Identification of Pipework
- BS EN 16941-1:2018 Rainwater Harvesting Systems - Code of Practice (formerly BS 8515)
- EN 1717 Protection against pollution of potable water (Category 5 air gap)
- The Building Regulations Part G - Sanitation, hot water safety and water efficiency
- The Building Regulations Part H - Drainage and waste disposal

All electrical work must be carried out by a qualified electrician.

Section 3

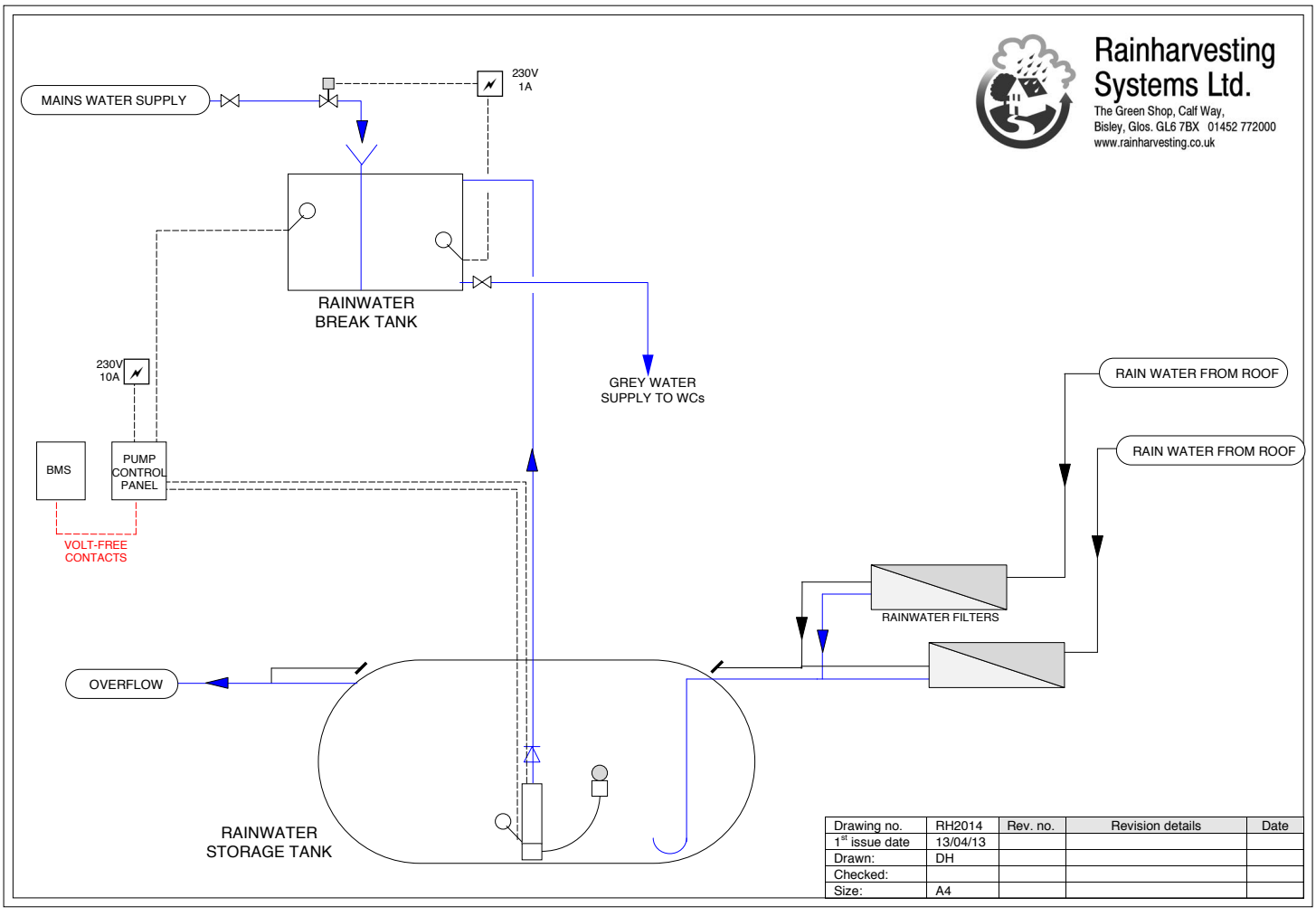
General Principles and Preparatory Notes

Operating Principles

It is essential to have a general understanding of the operating principles of a rainwater harvesting system in order to ensure a simple and successful installation. The diagram below gives a schematic example of the system.

Water is collected from the buildings' roof drainage system via a filter unit, into a tank. The filter removes all particles greater than 0.28mm. The filtered water then enters the tank through a special calmed inlet to reduce turbulence. If there is too much water, the tank overflows through a special overflow trap that incorporates a non-return device. This prevents water from the storm drain flowing back in to the tank in the event of a surcharge..

The collected water is then pumped on demand to a smaller break tank at high level, and from here is gravity fed to the appropriate outlets (usually WCs, irrigation taps etc.). If insufficient rainwater is available, the system provides a back-up supply to this tank from the mains cold water supply. This ensures uninterrupted service to the outlets until rainwater becomes available again following the next rainfall.



Connections between external tank and building

- 32mm MDPE from tank to building, then 28 or 22mm riser to header / break tank
- 100mm service duct from tank to building. – This takes the cables from the submersible pump and the dry-run protection float switch, and also the cable from the level transducer if the system includes a level gauge.

Note:

- The pump is of the submersible type, to be located within the external tank
- The pre-tank filter(s) is a self-contained unit and normally located adjacent to the tank
- Mains water must not connect directly to rainwater (or any other non-potable source)
- The mains water top-up unit incorporates a 'Type AA' air gap in compliance with Water Regulations. The unit must be mounted such that the tundish (the air gap) is above the level of the top of the header tank. It must never be fitted within the tank!!
- The mains water supply connected to the top-up unit must have a flow rate at least equivalent to the maximum flow rate of the down service out of the tank.

It is very important that any water entering the tank should be as clean as possible and this is ensured by use of high quality rainwater filters. It must therefore be observed that the filter elements are only removed for cleaning purposes and that this is done when no water is flowing through the unit (i.e. in dry weather!)

It is essential that this filter is kept clean and this should be done on a regular basis approximately every two months.

Important

Please read and understand these notes fully and plan where each of the components will be fitted before commencing work.

Plan pipe runs and levels carefully before commencing work. Note that tank has an overflow connection, which must connect to soakaway or storm drain.

Rainwater downpipes should connect directly to the underground drainage pipes. Do not have open gullies connected to the system. This avoids the risk of undesirable materials entering the tank (e.g. painters slops, pesticides residues).

Once the tank is on site ensure all openings are kept covered until the installation is completed. DO NOT allow soil or other material to enter the tank, and keep the inside of the tank as clean as possible.

If the tank is to be installed within an area subject to vehicular traffic, the appropriate cover and shaft arrangement must be used (enquire for further details.

The MDPE pipe carrying rainwater to the building must be black with green stripes to distinguish it from the mains water supply. Standard blue pipe must only be used for mains water.

Interior pipework should also be clearly identified as non-potable. We stock self-adhesive marker tape for this purpose, as well as valve tags and appliance labels.

WC cisterns should be fitted with low pressure inlet valves where fed by gravity supply (i.e. non-boosted).

Section 4

System Components

THE MAIN COMPONENTS OF YOUR SYSTEM. NOTE IMAGES ARE NOT TO SCALE!

RainTech® GRP rainwater storage tank

Submersible pressure pump with floating suction filter.

Wisy® WFF150 Vortex filter to fit 160mm pipe

Rainwater delivery pipe. 32mm OD x 25m coil of MDPE pipe for pumped supply from storage tank to break tank

Pump control panel. Switches the pump on and off, and provides dry-running protection

Precision float switch c/w clamp for attaching to pump to enable dry-run protection.

Break tank with pipework and connections.

RainSava® mains water top-up unit. Solenoid valve opens when level control float switch drops. The tundish provides the statutory air gap to comply with Water Regs.

Level control float switch. Two of these are pre-fitted into the break tank to control the pump and the mains water top-up unit. The fixed position permits precise switching points

OPTIONAL level gauge to read water level in storage tank

Section 5

Suggested work schedule

Phase 1 - Civils

These works constitute part of the buildings drainage system and are normally carried out at groundworks stage.

- Ascertain depth of excavation for storage tank. This is dependent upon the invert level of the incoming stormwater drain, the type of filter used, and the size of tank. Particular attention should be paid to this in order that the tank is installed at the correct depth.
- Excavate hole and install tank (refer to manufacturers installation guide)
- Excavate hole and install filter(s) (refer to manufacturers installation guide)
- Connect stormwater pipe(s) to filter inlet(s)
- Connect pipe from filter outlet(s) to tank inlet
- Connect tank overflow and filter waste outlet(s) to soakaway or storm drain
- Install service duct from tank to building (e.g. plant room). N.B. – ensure that a suitable draw cord is laid into the duct in order to pull the cables through at a later stage.
- Install the MDPE pump delivery pipe through the service duct and into the building (e.g. plant room at the other end)

Phase 2 – Mechanical and Electrical

The following works constitute part of the mechanical and electrical installation and are normally carried out at the final stage of building.

- Install the pump and suction filter/float switch assembly into the tank.
- Connect the outlet of the pump to the MDPE pipe using the hose & connectors provided.
- Pull the pump and float switch cables (and transducer cable if level gauge is included) through the duct, using the draw cord.
- Install riser pipework within the building from the MDPE up to the break tank.
- Fit the pump control panel in the desired location with the building and connect up the cables from the pump and dry-run float switch.
- Install the break tank in the desired location and connect the pumped rising main to it.
- Fit the mains water top-up unit to the break tank and connect to the water supply.
- Connect the two float switches in the break tank; one to the control panel and one to a fused outlet along with the cable from the solenoid valve (top-up unit)
- Connect control panel to power supply.
- Commission the system.

Section 6

Installation – External Works

Rainwater storage tank and Vortex filter. Please read this entire section before commencing work.

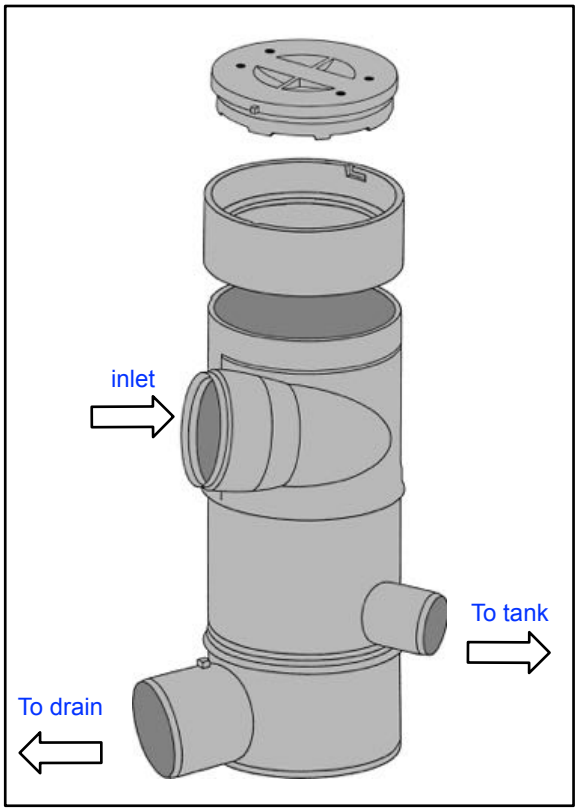
PLEASE PAY PARTICULAR ATTENTION TO THE FOLLOWING NOTES:

- It is very important that the tank is installed at the correct depth to allow the installation of the pre-tank filter unit(s). There is always a difference between the inverts of the filter inlet and outlet connections.
- The tank will normally have three connections; the inlet, the overflow and a third connection on the access shaft, which is to act as a service duct for the pump delivery pipe(s) and/or cables.
- The service duct connection accepts standard 110mm underground drainage pipe. It is important that when the pipe that is to act as duct is installed, it should be as straight as possible and that any bends are 'slow' or long-radius bends. One or more draw-cords must be fed through the duct as it is being laid.
- It is important that **no site material or dirty water** is allowed to enter the tank. As soon as the tank is installed, all connecting pipes must be sealed wherever there is an open end to prevent this from happening. The tank must have its' access cover fitted and must not be left open.
- The same applies to the pre-tank filter unit(s). The filter element must be in place to prevent leaves etc. or any other debris entering the tank.
- The pipes that connect into the system upstream of the filter and tank must ONLY carry rainwater collected from roof surfaces. No grey water or water from paved or trafficked areas should be allowed to enter the system.

1. Plan the pipe runs to and from the filter and tank, and the pipe to carry mains water top-up plus the pipe to act as a cable duct. Ensure that the pipe carrying mains water has a fall of at least 1:100.

2. Decide upon the location of the storage tank and filter unit, bearing in mind pipe runs and invert levels.

3. Install the Wisy® WFF Vortex filter according to the instructions supplied with it. Ensure that the two outlet connections of the filter are connected to the appropriate pipes. The large inlet must connect to the incoming rainwater pipe, the upper of the two outlets must connect to the tank, and the lower outlet near the base of the filter must connect back to the storm drain (overflow). If more than one filter is being installed we recommend the upper outlets should combine in to a single pipe in order to connect to the tank.



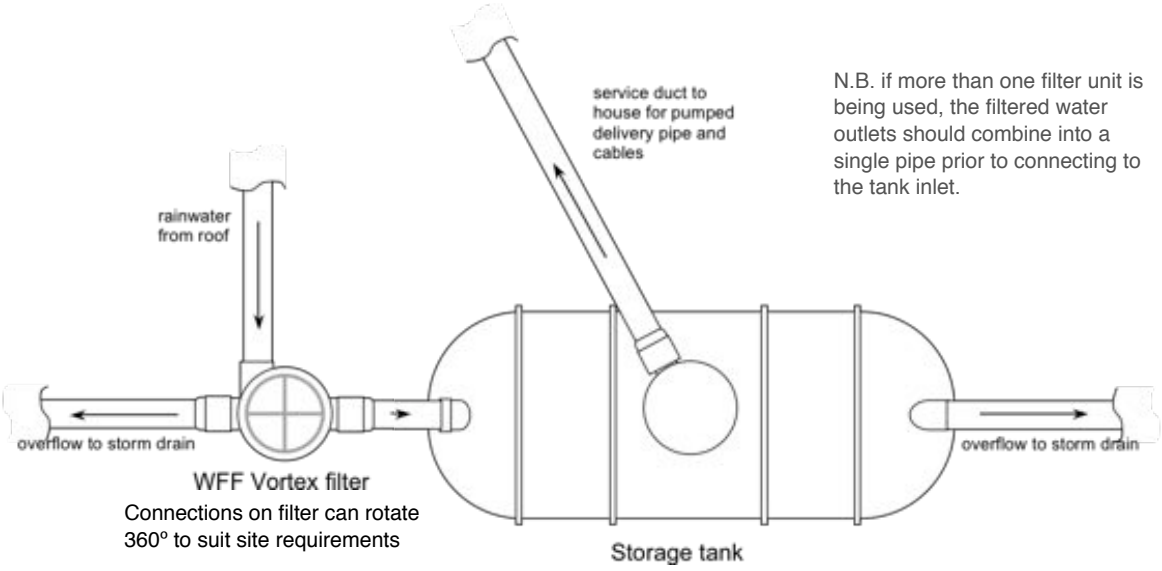
4. Install the tank in the ground allowing for sufficient fall from the filter outlet. *RainTech*® tanks supplied by ourselves are supplied with full installation instructions; it is very important that these instructions are followed strictly.

5. Lay the pipework to and from the filter and from the tank to the soakaway. Rainwater down-pipes should join directly to drainage pipes via drain connectors and not via gully traps. This avoids the risk of someone inadvertently pouring undesirable liquids into the system, resulting in contaminated water. (e.g. painters slops, garden chemicals etc.) The pipe leading into the filter must only be connected to rainwater downpipes and must not receive surface water run off.

6. In high ground water conditions, where there is a risk of water backing up from the soakaway into the filter unit, we recommend the use of an inline flap valve on the waste outlet pipe from the filter unit. The tank is already protected by the inclusion of the special anti-backflow overflow trap.

SUGGESTED PIPEWORK LAYOUT FOR UNDERGROUND STORAGE TANK AND SINGLE VORTEX FILTER

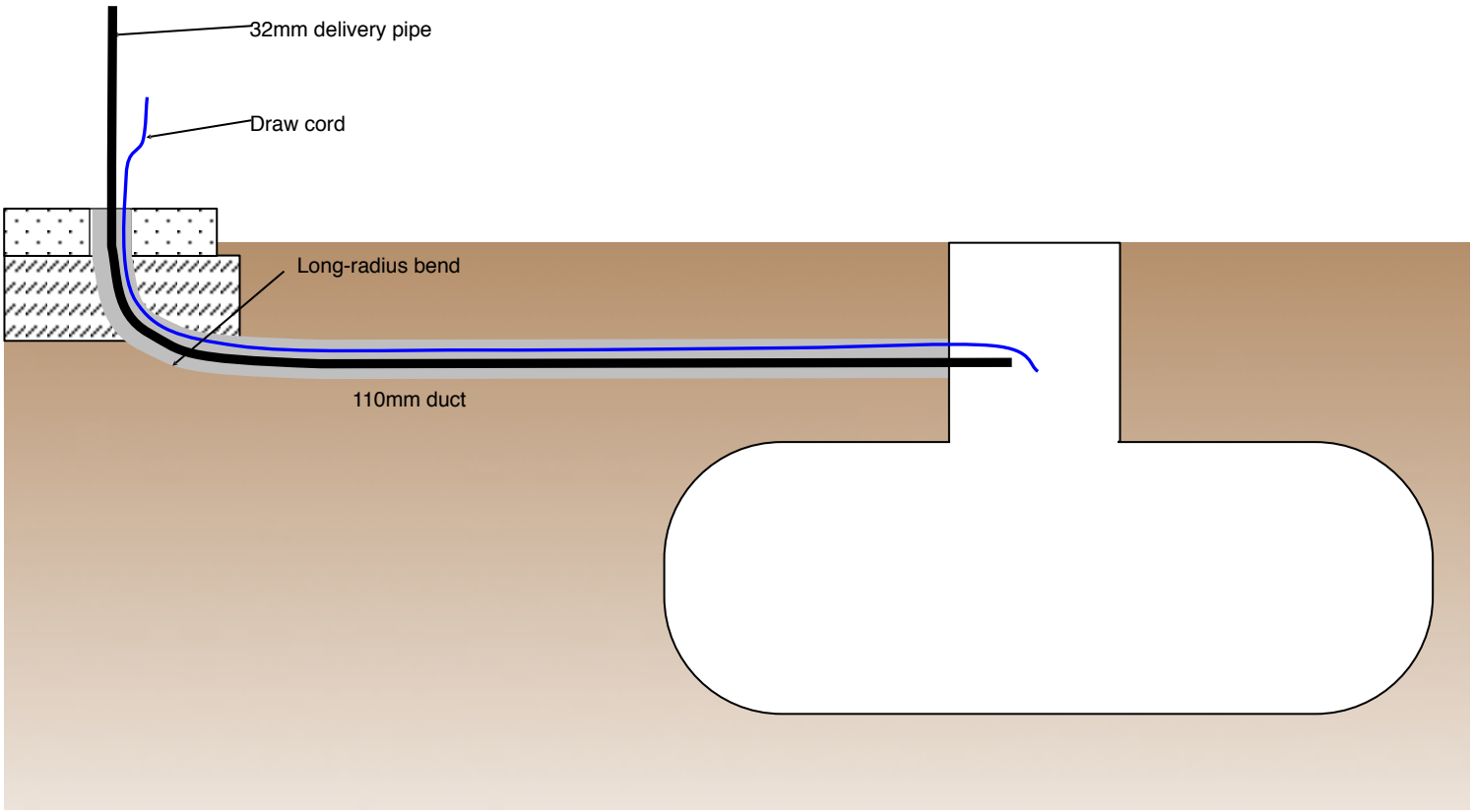
NOTE SERVICE DUCT ON TANK CAN BE FACTORY FITTED TO FACE REQUIRED DIRECTION



7. Lay the 110mm pipe to act as a service duct from the house to the connection on the access shaft of the tank. This pipe must be as straight as possible and where any bends are required they should be of the long-radius or ‘slow’ type. As the pipe is laid, ensure that 2 suitable draw-cords are laid through the pipe. These will be used to pull the electrical cables through, and the 32mm MDPE rainwater pipe from the submersible pump.

8. Ensure both ends of the MDPE pipe are capped off or sealed with tape or similar, to prevent dirt and debris from getting in to the pipe. Now feed the MDPE pipe through the duct from one end, using one of the draw cords to pull it from the opposite end. There should be about 15cm of pipe protruding in to the shaft of the tank. The pipe must reach the plant room and can be extended if necessary.

9. N.B. The other draw cord needs to remain in place for when electrical cables are pulled through.



Important notes

Plan pipe runs and levels carefully before commencing work. Note that both the filter unit and the tank have overflow connections, which must connect to soakaway or storm drain.

Rainwater downpipes should connect directly to the underground drainage pipes. Do not have open gullies connected to the system. This avoids the risk of undesirable materials entering the tank (e.g. painters slops).

Rainwater should only be collected from roof surfaces. Do not collect water from ground level paving etc. We do not recommend collecting water from planted ‘green’ roofs.

Pipe carrying mains top-up water should join the pipe that connects the filter to the tank as per the sketch on the preceding page.

Once the tank is on site ensure **all openings** are kept covered until the installation is completed. Do not allow soil or other material to enter the tank, and keep the inside of the tank as clean as possible.

If the tank is to be installed within an area subject to vehicular traffic, a reinforced slab must be cast over the top of the tank such that it spans the excavation. Consult a structural engineer if necessary.

Section 7

Installation – Submersible pump

RainTech® submersible pump with suction filter and float switch

The submersible pump will be supplied with float switch and either fixed or floating suction filter, depending on tank size. The suction filter protects the pump in case any debris gets in to the tank, and avoids water being drawn from the very base of the tank. The float switch attaches to the pump, and provides dry-running protection via the systems' control panel.

1. The pump is supplied complete with four rubber anti-vibration mounts and a lifting rope. Begin by fitting the mounts to the base of the pump with the nuts and washers supplied. Clip the lifting rope on to the small hook at the top of the pump.

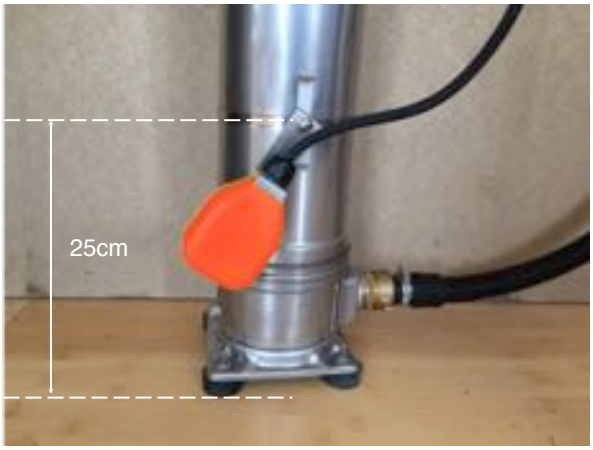
2. Fit the suction filter to the pump inlet port (bottom of pump):

   i) If you have the fixed suction filter, this simple needs to be screwed directly into the pump inlet

   ii) If you have the floating type, first assembly it by pushing the flexible hose on to the filter nozzle, then connect the other end to the pump inlet

3. Fit the float switch. This fits around the body of the pump using the worm-drive clamp. The float should be fitted with the clamp about 25cm from the bottom of the pump. Ensure the clamp is firmly fastened and free to move without being obstructed by the suction filter. As the float is mounted on the swivel pin, it provides very accurate switching. It is useful to attach the cable to the pump body using cable ties, but make certain there is sufficient cable slack to allow free movement.

The assembled pump should now look like this:

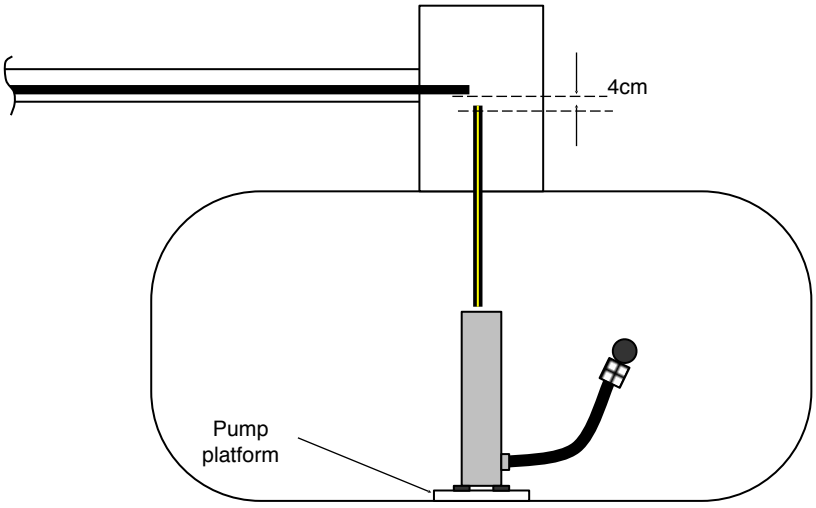


4. Fit the stainless steel non-return valve nozzle into the outlet (top) port of the pump. Now fit the 1” rubber hose to the nozzle and secure with one of the stainless steel jubilee clips. Ensure all joints are tight. N.B. this hose will have to be trimmed to length later (see below)

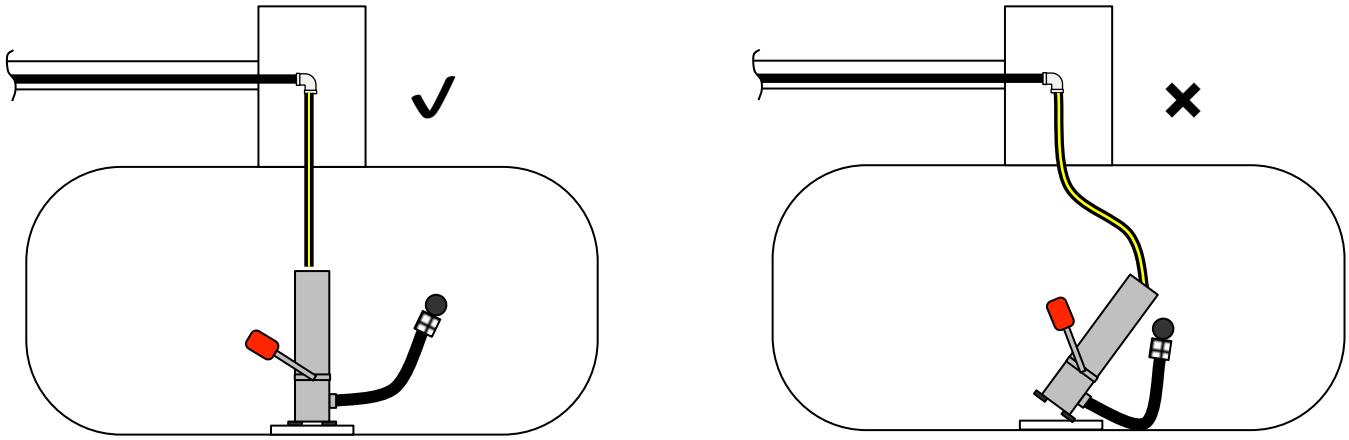
5. At this point it is wise to clip the pump and float switch cable together with the hose at about 20cm intervals, making sure not to pinch the hose. This keeps things neat and prevents cables becoming tangled.

6. Now carefully lower the entire assembly down into the tank, taking care to ensure that the weight of the pump is taken by the lifting rope. !DO NOT USE THE CABLES TO LOWER THE PUMP!

7. The rubber hose must now be trimmed to length so that it can be joined to the MDPE pipe that was installed earlier and should now be protruding from the service duct; with the pump in place, mark the hose approximately 4cm lower than the bottom of the MDPE pipe:



8. DO NOT leave the hose too long, as this will cause lateral pressure at the top of the pump. This can result in the pump leaning sideways, causing stress on the hose and connections. In extreme cases it can cause the pump to topple over, trapping the float switch or damaging the suction filter.

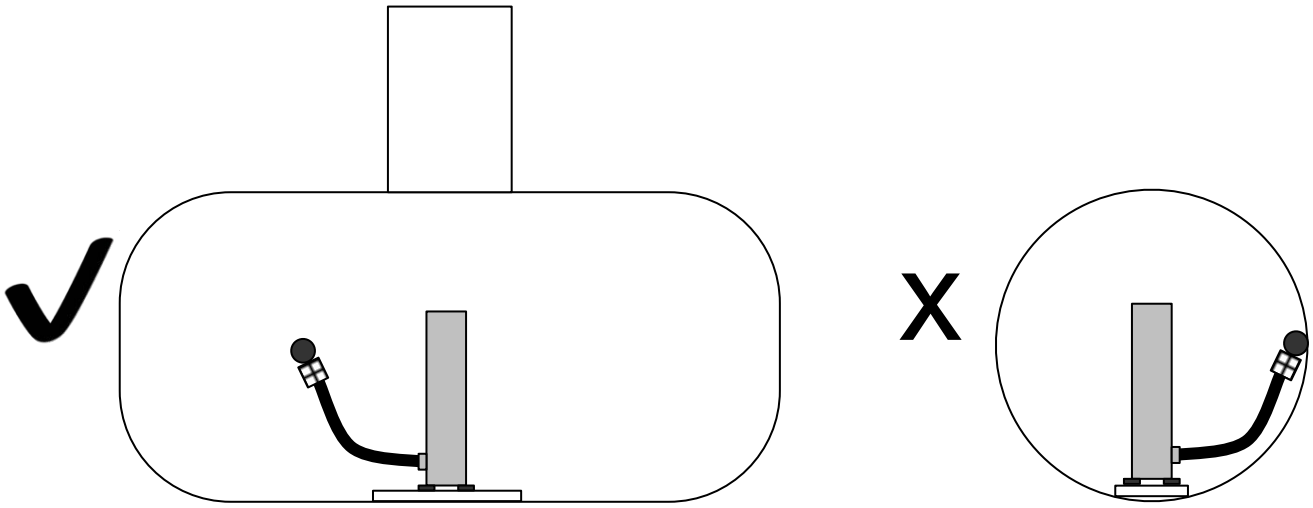


9. Lift the pump back up to ground level, and cut the hose where you marked it earlier. The end of the hose can now be fitted with the other jubilee clip and the brass hose barb (see diagram on next page). Ensure joints are water-tight and threads are sealed.

   ☺ *Useful tip: a smear of vaseline or similar in the end of the hose makes it easy to push it on to the brass hose barb.*

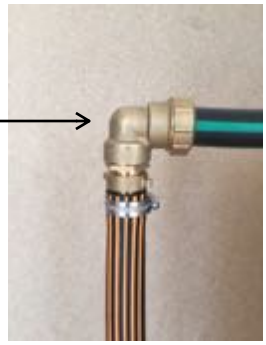
10. Carefully lower the pump back in to the tank again so that it sits upright on the pump platform.

11. Rotate the pump so that the suction filter is facing along the length of the tank, and let the pump gently rest on the platform in the base of the tank. This prevents the risk of the suction filter getting caught on the side of the tank:



12. Ensure the float switch is free to move and will not be obstructed.

13. With the pump in its final position, connect the vertical hose to the MDPE pipe using the fittings as shown below →

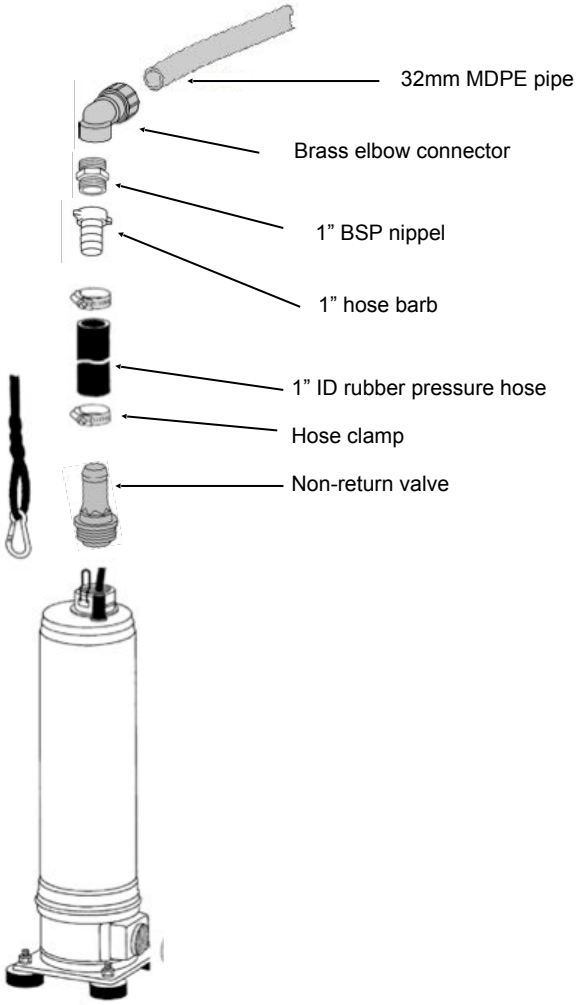


    Ensure joints are sealed.

14. Ensure that the free end of the lifting rope is secured for future use (we provide a stainless steel hook for this purpose). Secure it so that the rope is slightly taut (but not tight!)

15. OPTIONAL If the system includes a digital level gauge, install the submersible depth transducer in to the tank. The cable should be suspended so that the tip of the transducer is approximately 5cm above the bottom of the tank. If you need to extend the cable, ensure this is done using cable of the same type.

16. The cables from the pump and float switch (and depth transducer if level gauge is being used) can now be pulled through the service duct using the second of the draw cords. The cables are the same length so can easily be taped together. Fix the cables to the draw cord SECURELY (e.g. Gaffa tape or similar) and pull carefully through the duct. – this is best done with two people; one pulling gently at the top end; the other at the tank end ensuring the cables are not getting tangled or caught on anything.



Important notes

Plan pipe runs and levels carefully before commencing work. Note that both the filter unit and the tank have overflow connections, which must connect to soakaway or storm drain.

Rainwater downpipes should connect directly to the underground drainage pipes. Do not have open gullies connected to the system. This avoids the risk of undesirable materials entering the tank (e.g. painters slops).

Once the tank is on site ensure all openings are kept covered until the installation is completed. Do not allow soil or other material to enter the tank, and keep the inside of the tank as clean as possible.

If the tank is to be installed within an area subject to vehicular traffic, a reinforced slab must be cast over the top of the tank such that it spans the excavation. Consult a structural engineer if necessary.

Section 8

Installation – Internal Works

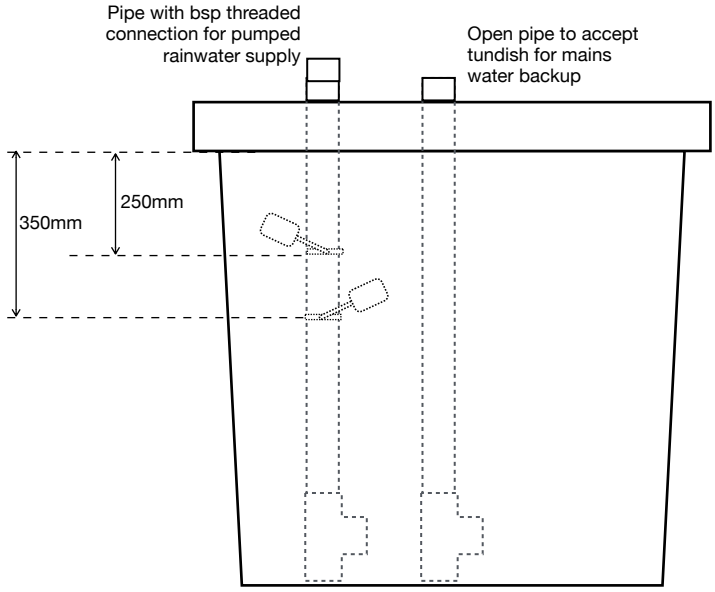
RainTech® system control panel, tank contents gauge and break tank with mains water top-up unit

BREAK TANK

1. The break tank is the interface between the pumped rainwater supply and the mains water supply that will serve as the back-up in the event of there being no rainwater available. The tank is designed to only use mains water when the rainwater supply is used up or the pump is not operating.

2. Install the break tank in the desired location on to a suitable base as per the tank manufacturers instructions. Ensure to orientate the tank with the inlets and overflow as required.

3. The break tank is supplied with the necessary fittings and connectors; - inlets, overflow, warning pipe, outlet(s) and vent. These are supplied loose to avoid damage during transport. Assemble these in to the appropriate cut-outs on the tank, including the internal calming pipework. These pipes are to reduce turbulence as the water enters the tank. They also provide a simple method of securing the float switches.



Note: there are two types of tank; either with or without a raised valve box. If your tank has a valve box fitted then it will have a float valve for controlling the mains water supply. If no valve box is present then the mains water is supplied via a tundish & solenoid valve assembly.

Break tank with raised valve box for mains water float valve e.g. Keraflo

Type AB air gap

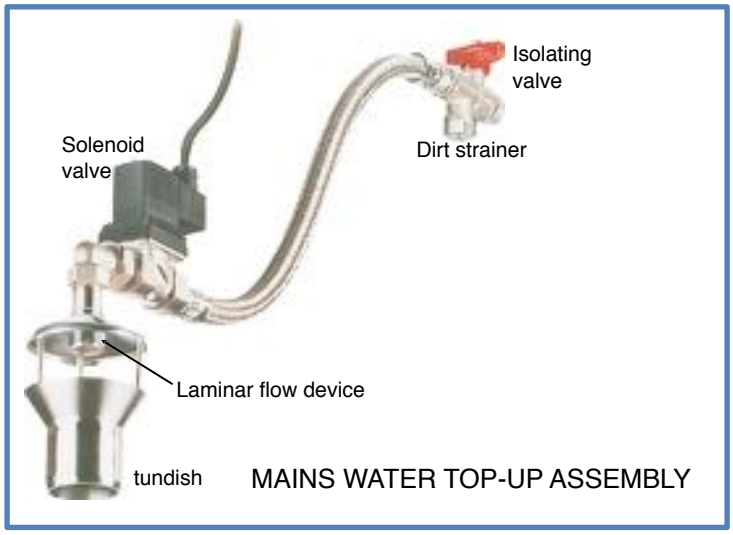
Break tank with open inlet pipe to accept mains water tundish

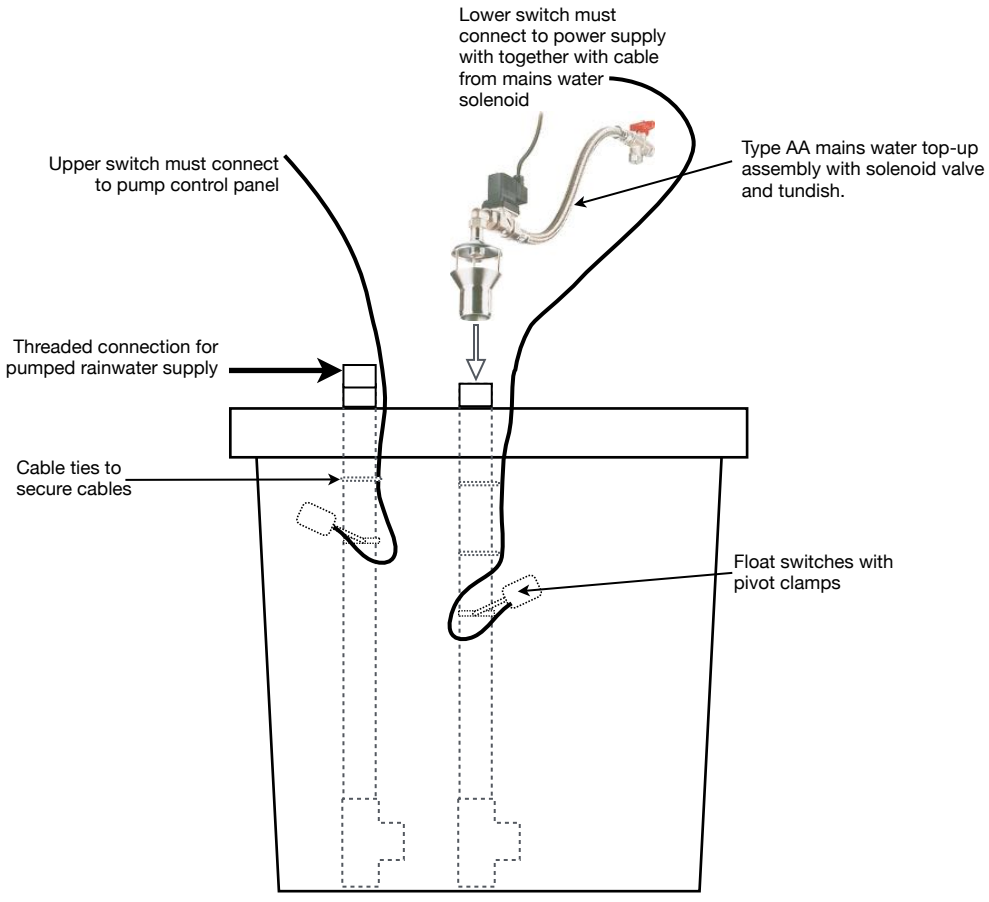
Type AA air gap

4. If using a float valve then install this as per the manufacturers instructions. If using the solenoid valve / tundish assembly the tundish simply sits in to the open plain pipe.

The mains water top-up unit is an assembly comprising a normally-closed solenoid valve, a tundish with laminar flow device, a short braided hose, and a manual isolating valve with integral dirt strainer.

Note the purpose of the tundish is to provide prevention against backflow of rainwater to the mains water supply, and is required by law under the Water Regulations Act





5. Fit the two float switches to the pipework using the stainless steel clamps. They are identical but must be fitted at different levels such that the upper one activates before the lower as the water levels goes down. Note that the upper switch must wire back to the control panel in order to control the pump as shown in wiring diagram SP-105. The LOWER switch is used to control the mains water solenoid and is independent of the control panel (i.e. separate circuit) as shown in wiring diagram SP-101. Fit cable glands to top of tank to pass the cables through. *N.B. if using a Keraflo valve for the mains water supply, only one switch is required for the pumped rainwater supply.*

6. The top-up unit is supplied with a short cable for the solenoid valve. One end of this cable has a small square plug, the other has a round 2-pin plug which should be removed. DO NOT REMOVE THE SQUARE PLUG!

7. Connect the cable with the square plug to the solenoid valve above the tundish, not forgetting the square gasket, and fix with the securing screw.

8. Connect a mains water supply to the top-up assembly (or Keraflo valve if used). Ensure that the pipe is fully supported to prevent any lateral strain on the tundish.

9. Connect the pumped supply from the rainwater tank to the threaded inlet on the break tank.

10. Connect overflow and warning pipe if fitted.

11. Connect the outlet to the down service to supply the WCs etc.

12. Test the mains water supply turns on and off when the appropriate float switch is lowered and raised.

CONTROL PANEL

13. Decide upon a suitable location for mounting the control panel inside the building - e.g. plant room.

14. The control panel controls the pump in response to a signal from one of the float switches in the break tank. It also provides pump dry run protection and has volt-free contacts for remote alarm. The panel has connections for the following components:
    - Pump
    - Dry-run protection float switch
    - Pump demand float switch
    - BMS common fault alarm

The panel requires a 10A single phase 230v power supply.

N.B. - The supply must be from a separate isolator.

For internal electrical connections refer to the wiring diagram SP-105.

15. Connect the cable from the pump into the control panel as shown in wiring diagram

16. Connect the cable from the dry-run float switch into the control panel as shown in the wiring diagram

17. Connect the cable from the UPPER float switch in the break tank into the control panel as shown in the wiring diagram

18. Connect the control panel to the mains electrical supply via an appropriate isolator.

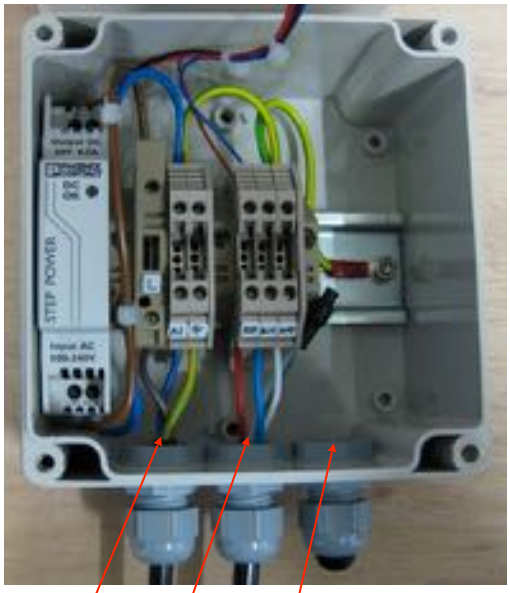
TANK LEVEL GAUGE (OPTIONAL)

The tank level gauge is a digital process meter with analogue scale to provide a real time display of the level of water in the main rainwater tank, from information transmitted by the depth transducer in the tank (see section 7).

19. Fit the gauge in the desired location, mounting securely to a wall.

20. Connect the cable from the depth transducer to the terminals inside the gauge as shown.

21. Connect the gauge to a fused & switched power supply as shown on the wiring diagram.



240 V Power via cable gland to labelled terminals

Cable from 4-20mA transducer in the tank
Red +ve supply
Blue -ve supply
White ground
Green screen (can also be connected to earth)
via cable gland to labelled terminals

Spare cable gland for 4-20mA output from terminals on APM meter if required.

Electrical requirements:		
Component	Voltage	Current
Pump control panel	230v 1~	10A
Mains water top-up unit	230v 1~	1A
Tank level gauge (if used)	230v 1~	1A
**N.B. – an additional power supply will be required if a solenoid valve / time switch is used to operate the backwash function of the filter unit.*		

PIPE & VALVE IDENTIFICATION

Apply adhesive identification tape to all pipes that are used to convey rainwater to WCs and other outlets. All outlets should be labelled appropriately. Adhesive tape and labels are supplied with each system:

150mm x 33m roll of self adhesive pipe banding tape. Complies with WRAS Guidelines and BS 8515

75 x 100mm rigid sign as per WRAS guidelines

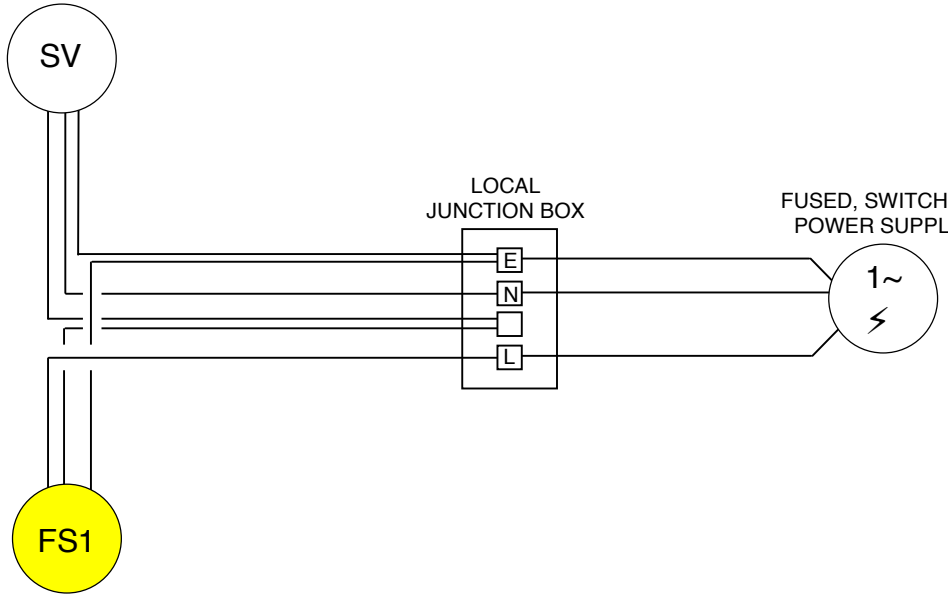
80mm x 30mm valve tags with chain

Additional items are available on request.

When all mechanical and electrical connections have been made and tested, and both mains water supply and electrical supply are live, the system is now ready for commissioning by a Rainharvesting Systems engineer.

Call us to arrange this on 01452 772000. Note that we require a minimum of two weeks' notice.

SOLENOID VALVE
(MAINS WATER TOP-UP UNIT)



VOLTAGE	CURRENT
240 VAC 1 PHASE	1A

LOWER DEMAND FLOAT
SWITCH IN BREAK TANK

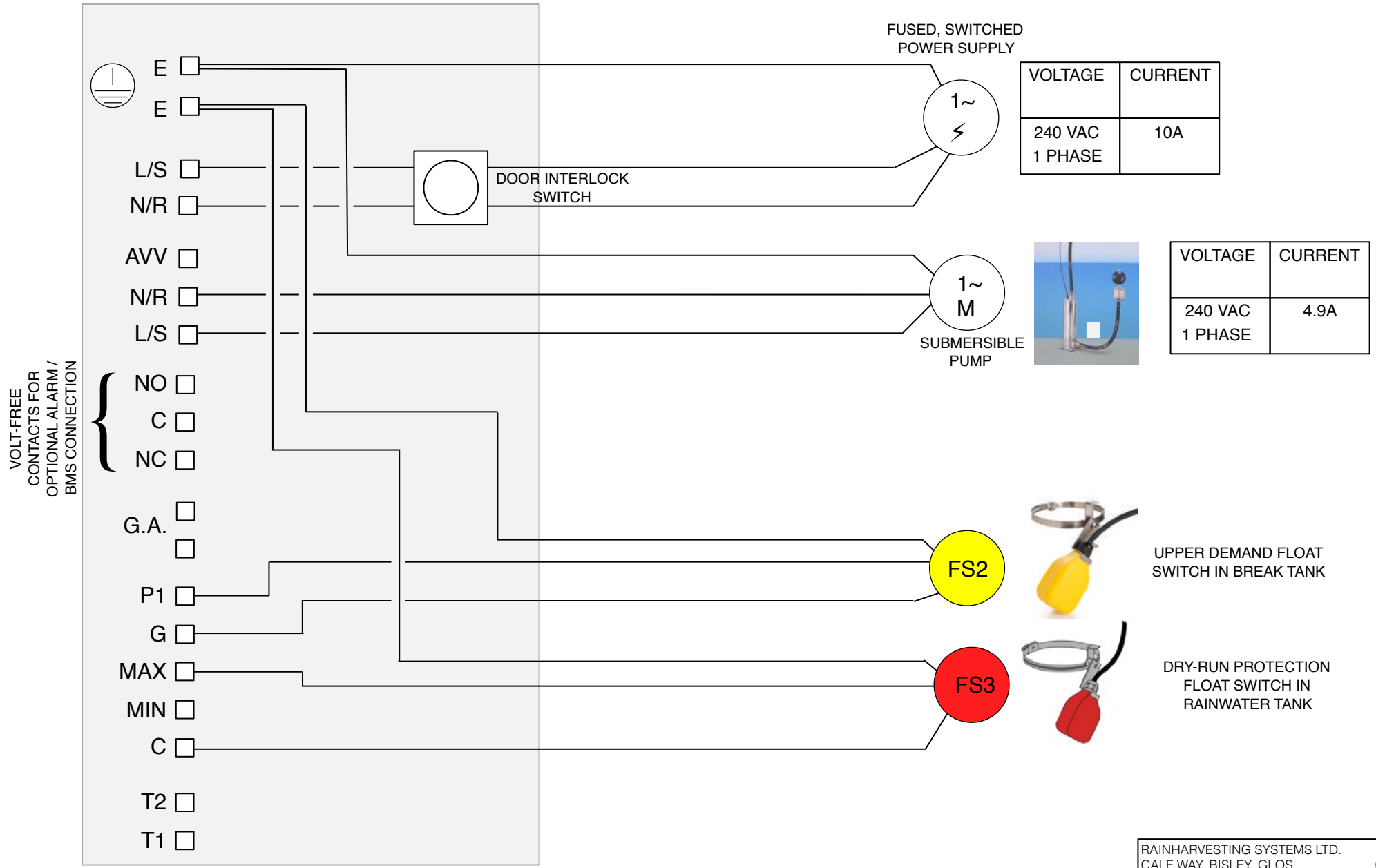
WIRING SCHEMATIC FOR MAINS WATER SUPPLY TO BREAK TANK VIA SOLENOID VALVE AND DEMAND FLOAT SWITCH

REFER ALSO TO DRAWING SP-100

RAINHARVESTING SYSTEMS LTD.
CALF WAY, BISLEY, GLOS.
TEL: 01452 772000
www.rainharvesting.co.uk

DRAWING NO.	REV.	DATE
SP-101		15/7/15

CONNECTIONS WITHIN SMART EVO-1 SINGLE PUMP CONTROL PANEL



VOLTAGE	CURRENT
240 VAC 1 PHASE	10A

VOLTAGE	CURRENT
240 VAC 1 PHASE	4.9A

WIRING SCHEMATIC FOR SINGLE PUMP CONTROL PANEL MODEL SMART EVO-1

WIRED FOR PUMP WITH DRY-RUN PROTECTION SWITCH AND DEMAND FLOAT SWITCH MOUNTED IN BREAK TANK

REFER ALSO TO DRAWING SP01 AND TO MANUFACTURERS MANUAL

RAINHARVESTING SYSTEMS LTD.
CALF WAY, BISLEY, GLOS.
TEL: 01452 772000
www.rainharvesting.co.uk

DRAWING NO.	REV.	DATE
SP-105		07/08/18

SMART EVO-1 SINGLE PUMP CONTROL PANEL