INSTALLATION, OPERATING & MAINTENANCE GUIDELINES FOR 3000 litre - 6000 litre SMALL (1.2M & 1.4M DIAMETER) RAINWATER TANKS

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HEALTH & SAFETY

These warnings are provided in the interest of safety. You must read them carefully before installing or using the equipment.

It is important that this document is retained with the equipment for future reference. Should the equipment be transferred to a new owner, always ensure that all relevant documents are supplied in order that the new owner can be acquainted with the functioning of the equipment and the relevant warnings.

Installation should only be carried out by a suitably experienced contractor, following these guidelines.

We recommend the use of a dust mask and gloves when cutting GRP components.

Electrical work should be carried out by a qualified electrician.

Any person carrying out maintenance on the equipment should wear suitable protective clothing, including gloves. Good hygiene practice must also be observed.

Access covers should be selected with reference to the location of the unit and traffic loads to be accommodated. These are not (normally) part of the units supply.

When covers are removed precautions must be taken against personnel falling into the unit.

Should you wish to look into the tank, please observe all necessary precautions, including those listed below, which apply to maintenance procedures.

Ensure that you are familiar with the safe working areas and accesses. Ensure that the working area is adequately lit.

Take care to maintain correct posture, particularly when lifting. Use appropriate lifting equipment when necessary. Keep proper footing and balance at all times. Avoid any sharp edges.

MAINTENANCE

The correct ongoing maintenance is essential for the proper operation of the equipment.

The removal of solids which accumulate in the unit should be carried out by a contractor. The contractor should refer to the guidelines in this document.

This tank is designed to collect and store rainwater. It should not be used for any other purpose without the agreement of Klargester

PLEASE SEE SEPARATE INSTRUCTIONS PROVIDED FOR THE CONNECTION AND INSTALLATION OF THE PUMP AND ELECTRONIC EQUIPMENT

1.0 Introduction

These guidelines represent Best Practice for the installation of the above Klargester Units. Many years of specialist experience has led to the successful installation of thousands of units it must be noted, however, that these Guidelines are necessarily of a general nature. It is the responsibility of others to verify that they are appropriate for the specific ground conditions and in-service loads of each installation. Similarly, a qualified specialist (e.g. Civil engineering consultant) must verify any information or advice given by employees or agents of Klargester regarding the design of an installation.

The unit is designed to be installed underground, as a minimum on a concrete slab with a concrete backfill - unless the height of the water table means that additional hold down straps are required.

2.0 Handling & Storage

2.1. Care must be taken to ensure that units are not damaged during delivery and handling on site.

2.2. The design requirements of Klargester products will frequently mean that the centre of gravity of the unit is “offset”. Care must therefore be taken to ensure that the unit is stable when lifting. Rainwater may also collect inside units, particularly if they have been stored on site prior to installation, adding weight and increasing instability. Check units before lifting and pump out any excess water.

2.3. When lifting units, use webbing slings of a suitable specification. DO NOT USE CHAINS.

2.4. A suitable spreader bar should be used to ensure that units are stable and that loads are evenly distributed during lifting. When lifting units, a spreader bar should be used where the slings would otherwise be at an angle > 30 degrees to the vertical.

2.5. Lifting equipment should be selected by taking into account the unit weight, length and the distance of lift required on site.

2.6. Klargester Environmental Limited accept no responsibility for the selection of lifting equipment.

2.7. Whenever Klargester units are stored or moved on site, ensure that the storage location is free of rock, debris and any sharp objects, which may damage the unit. The units must be placed on ground, which is flat and level to evenly support the base of the unit. Do not roll units.

3.0 Site Planning

The following points should be considered before installation of the equipment:

3.1. Position the unit at a minimum distance of 5 metres from the face of the building, so as not to affect either the structural integrity of the building or the tank

3.2. Consider placing inspection points in the feed line before and the overflow after the unit.

3.3. Ground conditions and water table level should be assessed. If the water table will be above the base of the unit at any time of the year, then you must strap the unit to a concrete base slab or provide adequate concrete backfill to avoid flotation.

3.4. If the overflow discharge is to a soakaway, a porosity test should be carried out as part of the assessment of suitability for sub-soil drainage. The soakaway must not drain back into the tank environs.

3.5. Do not install the unit deeper than necessary, ensure that you purchase any required extension neck with the tank. Units installed with an invert greater than 1.0m will require a civil design specific to the installation.

3.6. Adequate access to the unit must be provided for routine maintenance.

3.7. Vehicles should not be permitted within a distance equal to the depth of the unit, unless suitable structural protection is provided to the installation.

3.8. Installation should only be carried out by suitably qualified and experienced contractors in accordance with current Health and Safety Regulations.

3.9. Electrical work should be carried out by a qualified electrician, working to the latest edition of IEE.

4.0 Installation – General

4.1. When units are installed in unstable ground conditions where movement of the surrounding material and/or unit may occur, the connecting pipework should be designed to minimise the risk of damage from differential movement of the unit(s) and/or surrounding material.

4.2. For units with burial depths greater than 1000mm from cover level to the top of the unit, specific site conditions should be taken into consideration and the backfill designed to bear any loads which may be applied during and after installation to prevent the tank being subjected to these loads.

4.3. The excavation must be deep enough to provide bedding and cover depth as determined by the type of surface pavement and loading. Asphalt and concrete pads should extend a minimum of 300mm horizontally beyond the unit in all directions.

4.4. In situations where the excavation will not maintain a vertical wall, it will be necessary to shore up the side walls of the excavation with suitable trench sheets and bracing systems to maintain a vertical wall from the bottom to the top of the excavation. DO NOT completely remove the shoring system until the backfilling is complete. These sites should be considered as wet sites.

4.5. In areas where the water table is above the bottom of the excavation and/or the excavation is liable to flood, the excavation should be dewatered using suitable pumping equipment and this should continue until the installation is complete.

4.6. During installation care must be taken to ensure that the body of any unit is uniformly supported so that point loads through the unit are avoided.

4.7. Concrete Specification SK296 is a *general* specification. It is not a site specific installation design.

GENERAL CONCRETE SPECIFICATION IN ACCORDANCE WITH BS EN 206-1 (BS 8500-1)		
TYPE OF MIX		(DC) DESIGN
PERMITTED TYPE OF CEMENT		BS 12 (OPC): BS 12 (RHPC): BS 4027 (SRPC)
PERMITTED TYPE OF AGGREGATE (coarse & fine)		BS 882
NOMINAL MAXIMUM SIZE OF AGGREGATE		20 mm
GRADES:	C25 /30 C25 /30 C16 /20	REINFORCED & ABOVE GROUND WITH HOLDING DOWN BOLTS REINFORCED (EG. FOR HIGH WATER TABLE) UNREINFORCED (NORMAL CONDITIONS)
MINIMUM CEMENT CONTENT	C30 C20	270 - 280 Kg/M^3 220 - 230 Kg/M^3
SLUMP CLASS		S1 (25mm)
RATE OF SAMPLING		READY MIX CONCRETE SHOULD BE SUPPLIED COMPLETE WITH APPROPRIATE DELIVERY TICKET IN ACCORDANCE WITH BS EN 12350-1
NOTE: STANDARD MIXES SHOULD NOT BE USED WHERE SULPHATES OR OTHER AGGRESSIVE CHEMICALS EXIST IN GROUND WATER		

5.0 Unit Installation

5.1. Excavate a hole of sufficient depth, length and width to accommodate the tank, the pipework and an minimum of 150 mm depth concrete base slab.

5.2. Construct a suitable concrete base slab appropriate to site conditions. Ensure that the slab is flat and level. Fit angles (your supply) into slab to retain webbing hold down straps.

5.3. Fit the external bends to the tank, ensuring that the stainless steel mesh is fitted within the overflow pipe. Orientate the external pipework to suit the incoming and overflow pipework

5.4. When the concrete base slab has set enough to support the installed load, apply a concrete haunch and lower the unit onto the haunch using suitable webbing slings and lifting equipment. Ensure the unit is level.

5.5. Attach suitable hold down webbing ties (your supply) to iron angles and secure the tank to the concrete slab. The straps should be a minimum width of 75mm and should not be able to cut into the tank. When fitted they should not allow the tank to move if the excavation fills with water at any time following installation.

5.6. Pour no more than 300mm depth of clean water into the unit, avoiding shock loads, the unit is not designed to be completely filled with water whilst unsupported.

5.7. Fill the excavation with concrete backfill ensuring that it is packed around the tank.

5.8. Continue adding water and backfilling , keeping the internal water level no more than 300mm above the concrete backfill level at all times, until the backfill is just below the underside of the overflow pipe, giving sufficient room to connect the inlet and overflow pipework.

5.9. Connect inlet and overflow when safe access to the backfill can be gained.

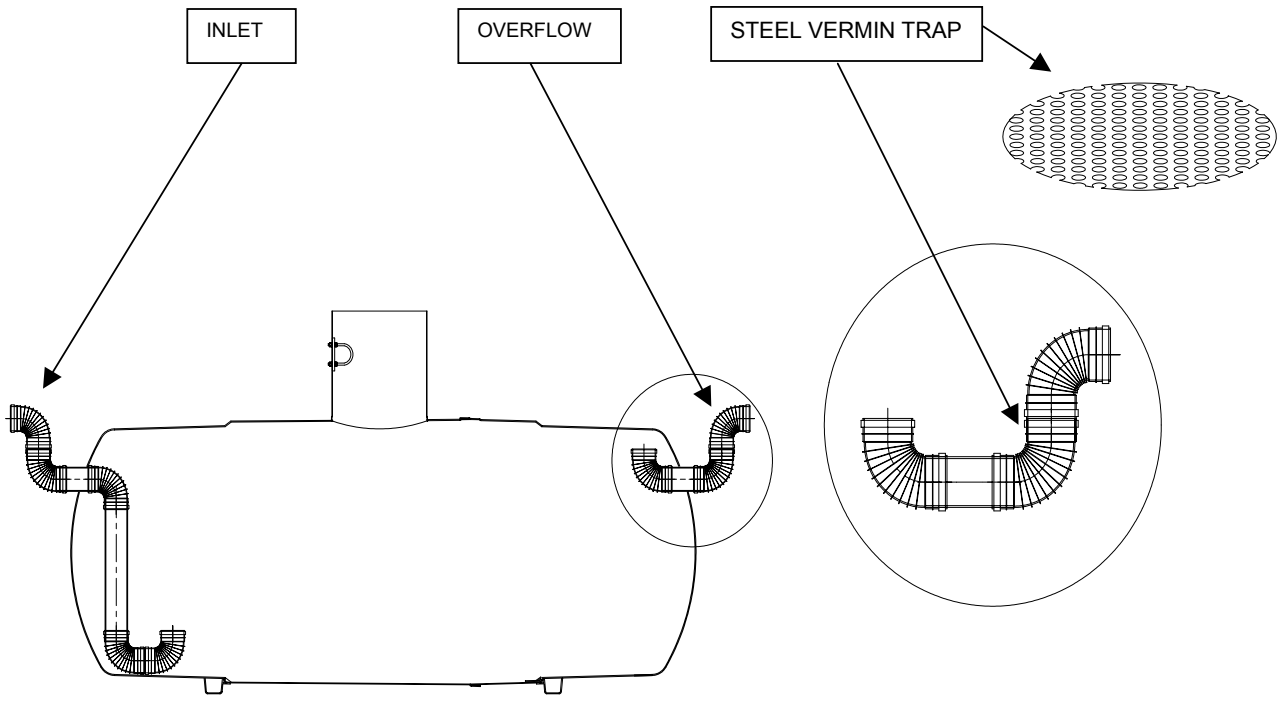
5.10. Fit 40mm diameter ducting (your supply) into the predrilled hole within the neck and seal with a proprietary solvent mastic. Ensure that there is a draw cable fitted so as to allow sensor cable to be pulled through at a later time.

5.11. Supply and connect 25mm diameter medium density polyethylene pipe to the 25mm tank connector

5.12. Temporarily strut the access shaft to avoid distortion whilst backfilling and laying the slab for the access cover and frame.

5.13. The access cover top slab should bear on a suitable foundation to prevent superimposed loads being transmitted to the unit and access shafts. Loads applied to covers and frames must bear on the top slab, not the access shaft.

5.14. The overflow pipe includes a stainless steel mesh as a vermin guard. This is to be fitted by the customer into one of the 90 degree (female in–female out) bends at the overflow end of the tank. Note:- the internal grommet inside the 90 degree bend has to be removed enabling the trap to slide right down then put back, this is so the other bend will fit properly on top of it.



6.0 Operation

Please see the separate manual which describes the fitting of the pump, and describes the operation of the Rain water management system.

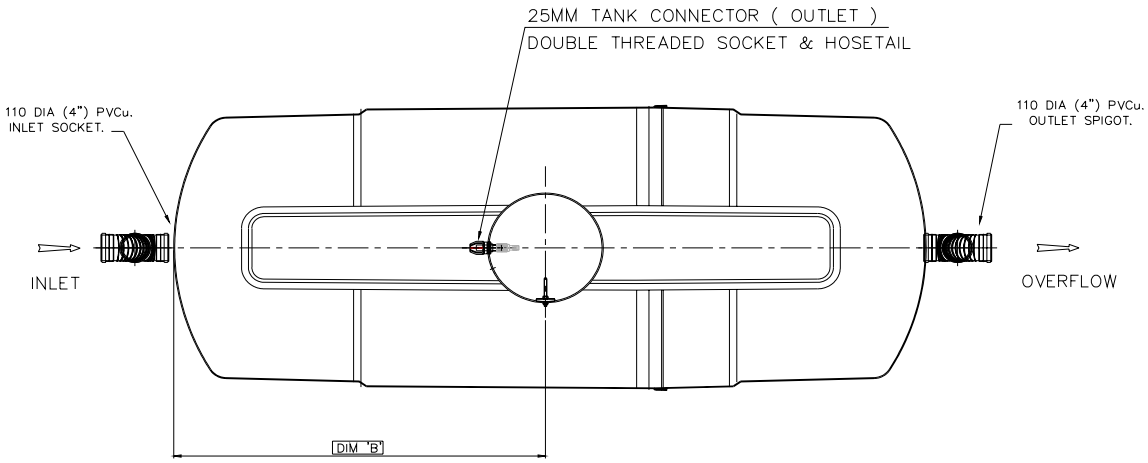
Should excess water be collected within the tank, it will automatically overflow into the discharge pipe which must be connected to a suitable drainage or soakaway system . A water trap is included within the tank to act as seal.

7.0 Maintenance

The tank may accumulate solids, the amount accumulated and retained should be checked by the maintenance engineer who checks the pump operation. It may require emptying periodically. The period between emptying depends upon the condition of the surface being flushed.

UNIT DIMENSIONS

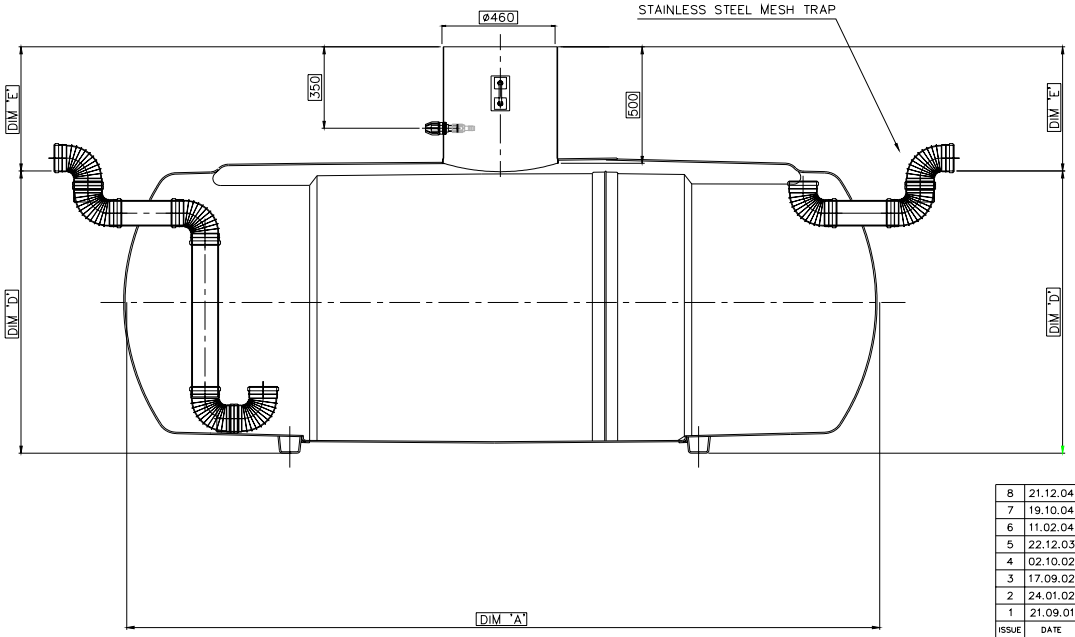
CAPACITY	3000 litre	6000 litre
LENGTH	3060 mm	4530 mm
DIAMETER	1225 mm	1445 mm
MAX. HEIGHT (Not Including Deeper Inverts)	1743 mm	1960 mm
INLET INVERT HEIGHT inc EXTERNAL BEND	1210 mm	1434 mm
OVERFLOW INVERT	1210 mm	1434 mm
NECK DIAMETER	460 mm	460 mm

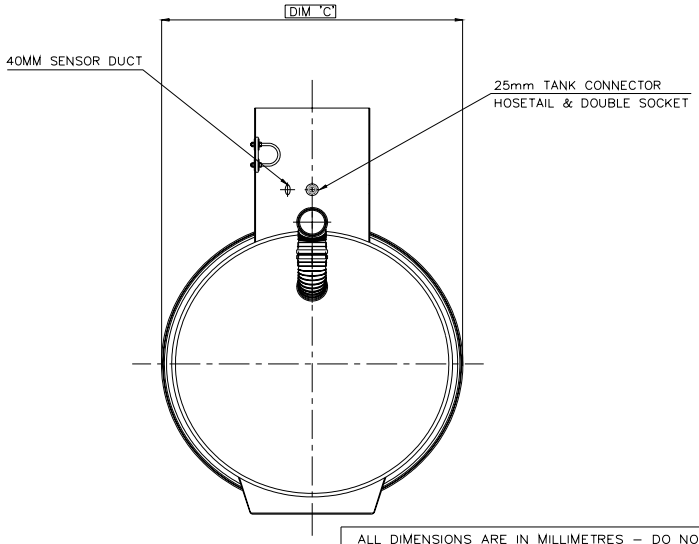


NOTES :–

1. STANDARD INLET/OUTLET PIPES ARE PVCu UNDERGROUND DRAINAGE TO BS4660,
2. IT IS ESSENTIAL THAT THIS DRAWING IS READ IN CONJUNCTION WITH DOCUMENT PD0326 (SUPPLIED WITH UNIT) GIVING INSTALLATION DETAILS. THIS DRAWING SHOULD BE USED FOR DIMENSIONAL INFORMATION ONLY
3. EXTERNAL PIPES ARE SUPPLIED LOOSE AND SHOULD BE FITTED AS SHOWN TOGETHER WITH STAINLESS MESH TRAP.

UNIT	DIM 'A'	DIM 'B'	DIM 'C'	DIM 'D'	DIM 'E'	WORKING CAPACITY.	APPROX EMPTY WEIGHT
3000 LITRE TANK	3060	1533	1225	1210	533	3000 Litres	130 Kg
6000 LITRE TANK	4530	2265	1440	1390	571	6000 Litres	160 Kg





ISSUE	DATE	DRAWN	MODIFICATION
8	21.12.04	A.L.	DOUBLE THREADED SOCKET & HOSETAIL ADDED
7	19.10.04	A.L.	DRAWING UPDATE
6	11.02.04	A.L.	DRAWING UPDATE
5	22.12.03	A.L.	BORDER UPDATE
4	02.10.02	A.L.	DIMENSIONS AMENDED
3	17.09.02	A.L.	FEET AMENDED
2	24.01.02	A.L.	NECK & INLET / OVERFLOW DIMENSIONS ALTERED
1	21.09.01	A.L.	INITIAL ISSUE

THIRD ANGLE PROJECTION

ALL DIMENSIONS ARE IN MILLIMETRES – DO NOT SCALE

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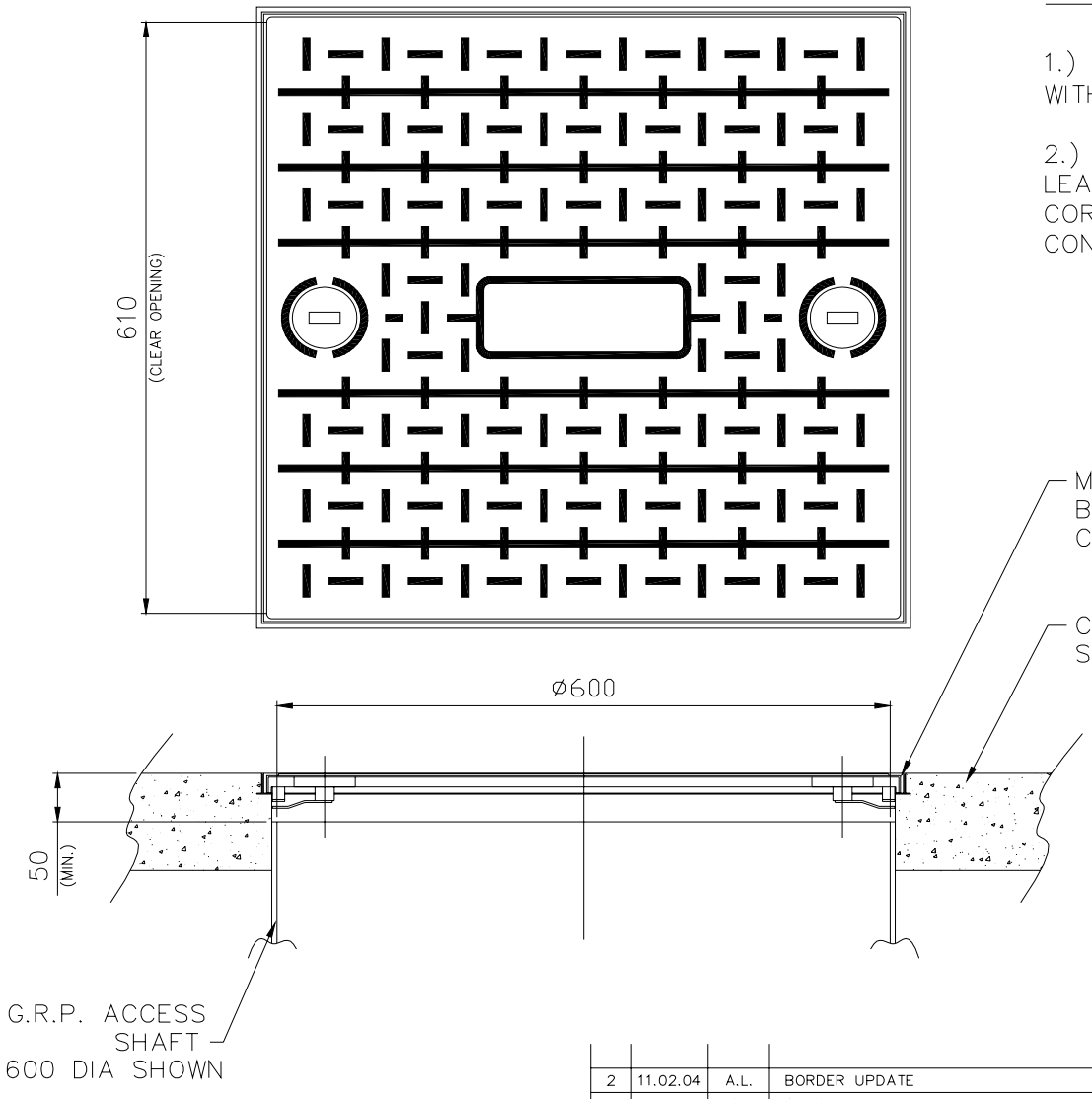
TITLE
RAIN WATER STORAGE TANKS 3000L / 6000L CUSTOMER DRAWING

SCALE 1:10 | SHEET SIZE A1

DRAWING No. DS0621 | ISSUE 8



NOTES: –

1.) MANHOLE COVER AND FRAMES ARE SUPPLIED WITH A LIFTING KEY (PART No. G905).

2.) THE G.R.P. ACCESS SHAFT MUST BE TRIMMED AT LEAST 50mm SHORT OF GROUND LEVEL TO ALLOW CORRECT BENCHING OF MANHOLE FRAME ONTO CONCRETE.

ALL DIMENSIONS ARE IN MILLIMETRES – DO NOT SCALE

ISSUE	DATE	DRAWN	MODIFICATION
2	11.02.04	A.L.	BORDER UPDATE
1	16.05.01	J.A.H.	INITIAL ISSUE

THIRD ANGLE PROJECTION

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TITLE
600 x 600 MANHOLE COVER AND FRAME CUSTOMER DRAWING

SCALE 1:5 | SHEET SIZE A3

DRAWING No. DS0610 | ISSUE 2