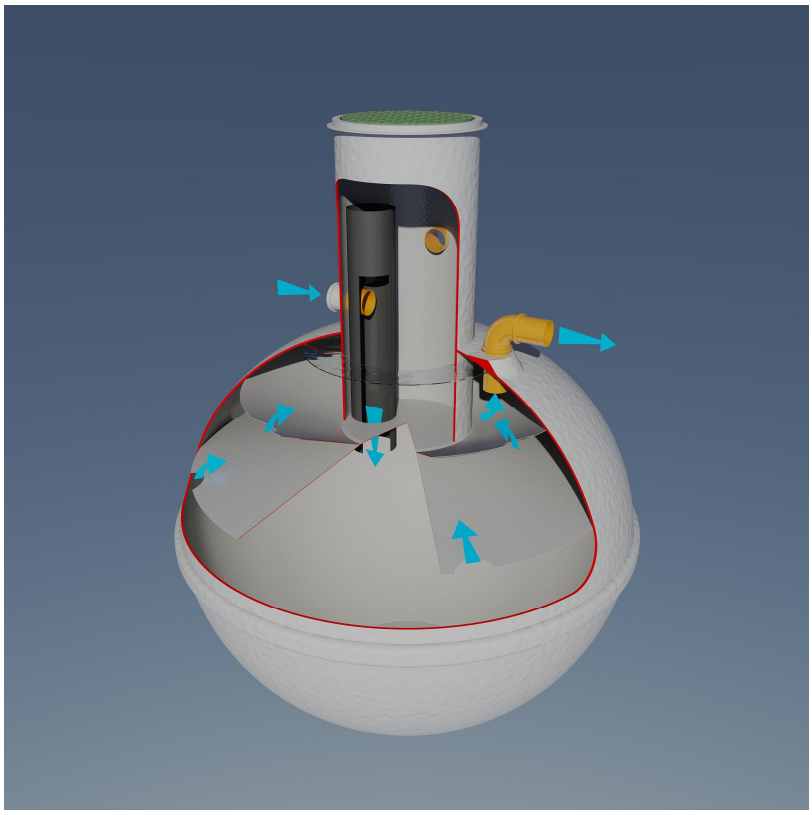
Anua GRP Tank

Installation Manual



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Installation Manual

1 GENERAL INFORMATION

Before working on the GRP Tank, please read this manual in its entirety, paying special attention to section 2 relating to Health and Safety. Normal safety precautions should be taken at all times, as well as the appropriate procedures to avoid the occurrence of accidents.

Anua offer a wide range of storage tanks to cater for your every need. Typical applications are:

- Sewage Storage
- Stormwater Attenuation
- Potable Water Storage
- Silage Effluent
- Settlement Tanks
- Bespoke Holding Solutions (such as chemical toilet wastewater)

The Anua storage tanks are manufactured at our dedicated facility from GRP (Glass Reinforced Plastic) to the highest standards, in accordance with BS EN 4994, and in compliance with BS EN 12566-1. Anua's storage tanks are fully sealed to prevent any discharge to the surrounding area and can be supplied with internal liners to suit your storage requirements. Anua offer storage tanks in either a spherical or horizontal configuration. Our range of horizontal Storage Tanks offers large storage capacities typically up to 100,000L with multiple tanks available for any capacities above this.

Typically the Anua range of storage tanks is supplied with a 1m inlet invert, however we can also manufacture tanks to suit deep inverts to meet with your site requirements. For added peace of mind, our deep invert tanks are suitably reinforced to suit additional ground pressures and potential high water tables.

Anua's range of storage tanks is also available for above ground installations. Our above ground tanks have been designed to help minimise installation costs – a level concrete base is all that is required.

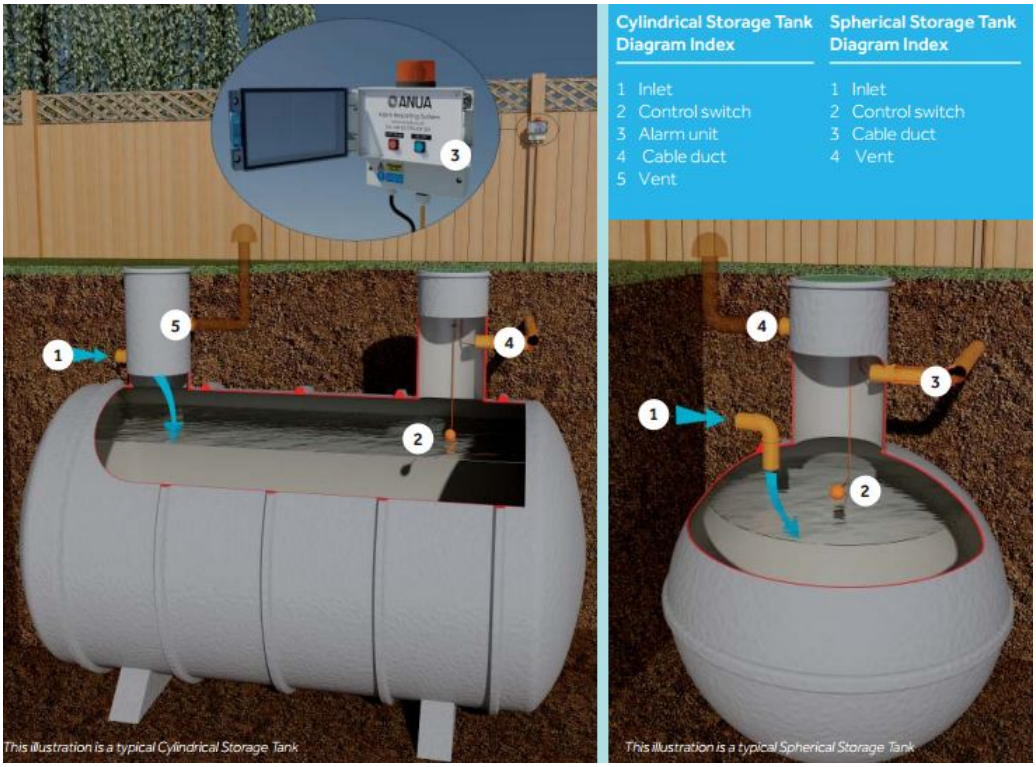

Figure 1 – Typical Cylinderical and Spherical GRP Storage Tanks

Spherical Storage Tank		
Tank Capacity (litres)	Diameter (metres)	Overall Height (metres)
2800	1.8	2.7
3800	1.99	2.8
4500	2.2	2.9
6000	2.3	3.4
Cylindrical Storage Tank		
Capacity (litres)	Diameter (metres)	Overall Length (metres)
7500	1.8	3.8
9000	1.8	4.3
12000	1.8	5.5
18000	2.64	4.1
25000	2.64	5.5
30000	2.64	6.6
36000	2.64	7.8
40000	2.64	8.6
45000	2.64	9.6
50000	2.64	10.7
54000	2.64	11.5
60000	2.64	12.7
70000	2.64	14.7
80000	2.64	16.8
90000	2.64	18.9
100000	2.64	20.9

Table 1 – Storage Tanks Size Details

2 SAFETY

These instructions contain basic information on the installation of the Anua GRP Tanks and should be followed carefully. For this reason it is essential that these instructions are carefully read and understood before installation or commissioning by both the installation crew as well as those responsible for the operation and maintenance of the plant. The operation instructions should be readily available at the location of the plant. It is the responsibility of the owner to ensure that the plant is operated and maintained correctly and in a safe manner at all times.

2.1 QUALIFICATIONS OF PERSONNEL

The personnel responsible for the installation, inspection and maintenance must posses the required qualifications for the work.

2.2 PERSONAL PROTECTIVE EQUIPMENT [P.P.E.]

Personnel carrying out work on the plant are responsible for ensuring that the have all the necessary PPE before installing/inspecting/maintenance/repair on the plant. All PPE must be in good condition and be fit for it's intended purpose.

Typical PPE [Where required] –

- Waterproofs
- Overalls
- Safety footwear
- Eye, ear and respiratory protection
- Face visors are particularly effective against splashes.

2.3 GRP TANK

The tank may contain very low levels of oxygen. Tanks have 'manholes' to be used only when cleaning and inspecting from the outside.

The following are safety issues with buried tanks.

- Never enter the tank unless you have the necessary "Confined Space" training certification.

Caution –

After working on any part of the Anua Tank always perform the following:

- Wash hands thoroughly.
- Wash hands before eating, drinking or smoking.
- Change clothes before entering homes, food stores, restaurants, etc.

Disused or abandoned tanks should be demolished, filled in or sealed so that accidental entry is impossible.
Having a trained professionals work on your wastewater treatment system is the safest way of having repairs performed.

2.4 ELECTRICS

All power isolation switches should be turned off [Follow Lock-out/Tag-Out Procedure] before any maintenance/inspection work is done at the tank. All connections to the Controller panel should only be made by competent qualified personnel only. If a cable is damaged, it should be replaced immediately to prevent electrical shock or damage to the electrical equipment.

Each control panel is supplied with a set of Electrical Schematics which will allow your qualified electrician to make all the electrical connections. If the schematics are missing, please contact your local Anua office to obtain the specific schematics for your Platinum Unit.

3 INSTALLATION OF THE GRP TANK

3.1 OFF-LOADING OF THE UNIT

The following instructions are offered for guidance only. Anua cannot accept any responsibility for incorrect off-loading or installation.

The client is responsible for off-loading all items of equipment with due regard to the following:

- ONLY LIFT THE UNIT WITH CERTIFIED WEBBING STRAPS
- DO NOT WRAP CHAINS AROUND THE UNIT
- DO NOT LIFT THE TANK IF IT CONTAINS ANY WATER
- DO NOT SUBJECT THE TANK TO SHARP IMPACTS
- DO CHECK THAT ALL ITEMS DELIVERED CORRESPOND WITH THE PACKING NOTE

The GRP Tank is provided with some eyes on the outside of the unit. These are NOT intended for lifting/relocating of the units. The unit should be lifted using slings of equal length. Please ensure that the slinging angle does not exceed 60^{o} at the hook in order to eliminate excessive compressive loads on the side of the unit. The weight of the tank depends on the model and the inclusion of optional extras. Please contact your local Anua Office to determine the weight of your tank.

Figure 2 – Large Cylindrical Tank being installed

When working in deep excavations, make sure that all necessary safety precautions are taken to ensure the stability of the excavations and provide safe working conditions for all site personnel. The only time anyone needs to be working at the bottom of the excavation is when levelling the base and ensuring that the first back-fill is correctly placed. It is the responsibility of the customer to determine the thickness and strength of concrete required to suit the ground conditions taking into account the buoyancy of the unit when being de-sludged, external forces exerted by the ground water, back-fill, traffic loading etc. (minimum depth without consideration for external forces is 200mm).

NOTE:
If installed in areas of traffic or if superimposed loadings will be applied above the tank, a suitably designed reinforced concrete slab should be constructed to dissipate any of these loadings from the unit. A suitably compressible material will be required between the slab and the unit if the slab is constructed directly above the tank.

High Water Table or Heavy Wet Ground

For sites where the water table is high or the ground is non free-draining heavy clay, consult the site engineer to increase the thickness of concrete to suit site conditions. Provide de-watering to keep to ground drained of water until the concrete has fully set.

3.2 SITING THE TANK

The recommended minimum distance of separation of the Unit from dwellings, wells, watercourse, site boundary etc must be as set out in EPA Manual (Treatment Systems for Single Houses/Small Communities Systems) or in accordance with Local Authority/County Council planning conditions for the site.

3.3 ITEMS REQUIRED FOR INSTALLATION

The installation should be carried out in accordance with the requirements of the Construction and Building Regulations. For sampling purposes a sampling chamber can be provided (optional extra).

During the course of the installation, the following minimum equipment will be required by the Installer:

- Normal construction equipment and plant for off-loading, excavation, backfilling, water tankering etc.
- Concrete to C20P [Minimum] and semi-dry to 30mm sump to BS:5328
- An adequate supply of water to fill the tank at the same rate as back-filling
- De-watering equipment as necessary
- Set of certified lifting straps of correct length and adequate SWL

3.4 PREPARING THE ESCAVATION FOR THE PLATINUM WWTP

The GRP tanks as standard have been designed for 1000mm invert with a 110mm inlet pipe, deeper Inverts can be accommodate with the installation of additional risers. An invert level greater than 1m may require strengthening, and can be designed to meet specific site conditions.

NOTE:
GRP Tanks must be encased with suitable concrete with a minimum thickness of 225mm.

For sites where the water table is high or the ground is non free-draining heavy clay, consult the site engineer to increase the thickness of concrete to suit site conditions. Provide de-watering to keep to ground drained of water until the concrete has fully set.

Excavate to the tank's dimensions allowing a minimum clearance of 225mm between the tank and the excavation sides. Excavate to the appropriate depth for the installation i.e. invert level of incoming drain plus depth of the tank to invert of inlet pipe connection plus 300mm minimum concrete thickness (actual thickness should be calculated by the customer's engineer to suit ground conditions).

Spherical Storage Tank		
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80000	2.64	16.8
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100000	2.64	20.9

Table 2 - Tank Dimensions

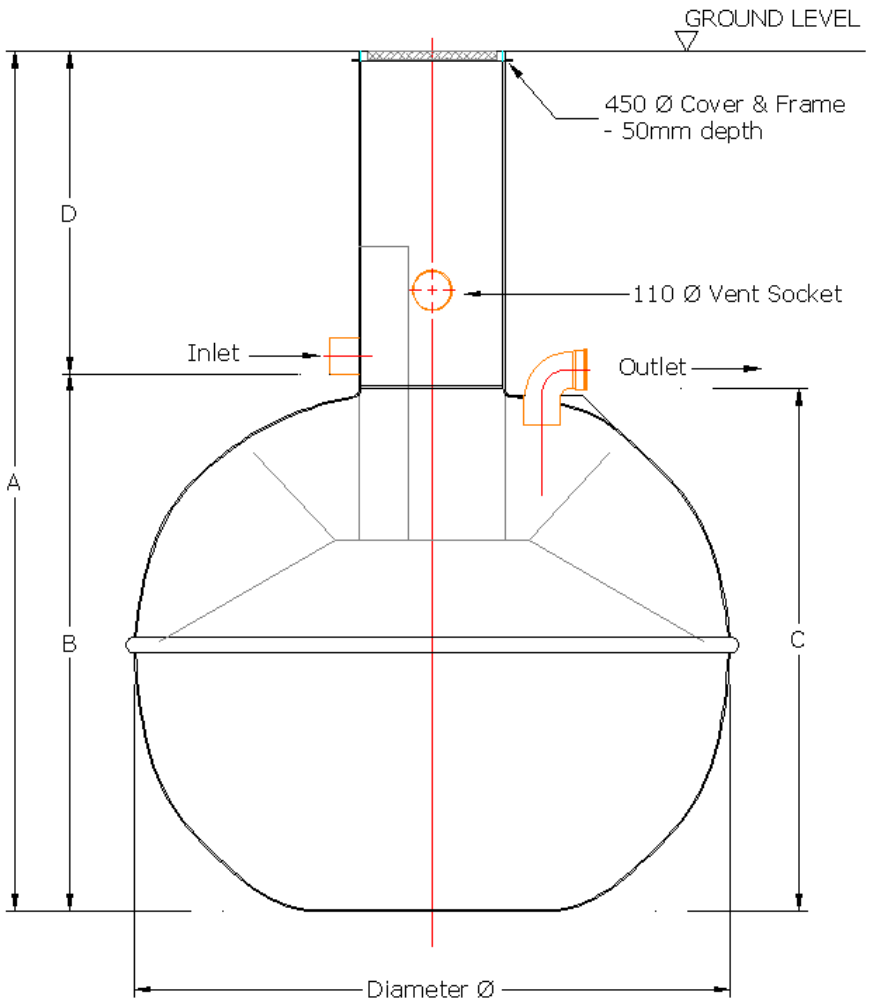

Figure 3 - Spherical GRP Tank – Elevation View

Spherical Septic Tank Dimensions - mm				
Dimension	**AST28S**	**AST38S**	**AST45S**	**AST60S**
Overall Height - A	2665	2765	2910	3400
Below Inlet - B	1665	1765	1910	2400
Below Outlet - C	1620	1785	1955	2375
Max Above Inlet - D	1000	1000	1000	1000
Diameter Ø	1850	1985	2000	2300

Table 3 - Spherical GRP Tank Dimensions

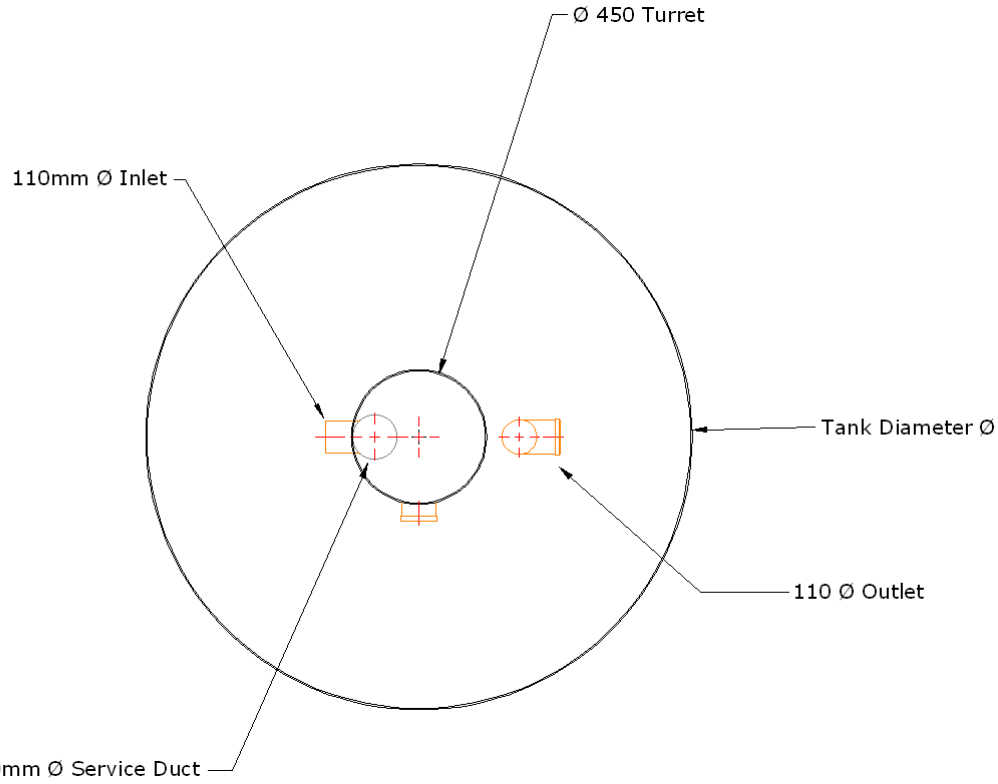

Figure 4 - Spherical GRP Tank - Plan View

Lay and level the concrete base for the tank to a minimum of 300mm thickness (the customer's engineer should confirm the base thickness required to suit the specific site conditions).

Lift the tank into position with a suitably sized machine with certified slings, one on each end of the tank, taking care not to damage any external flanges or pipework. Ensure correct orientations of the inlet and outlet pipework. Check that the tank is level in all directions. Commence back-filling with concrete in 500mm lifts, and at the same time, fill each tank compartment with water ensuring that the progressive concrete and water levels are approximately equal. The concrete must be evenly distributed around the tank, ensuring spigot connections are not covered at this stage.

NOTE:

- NEVER WHOLLY FILL THE TANK WITH WATER BEFORE SURROUNDING IT WITH CONCRETE
- NEVER WHOLLY SURROUND THE TANK WITH CONCRETE BEFORE FILLING IT WITH WATER
- DO NOT USE VIBRATING POKERS TO COMPACT THE CONCRETE

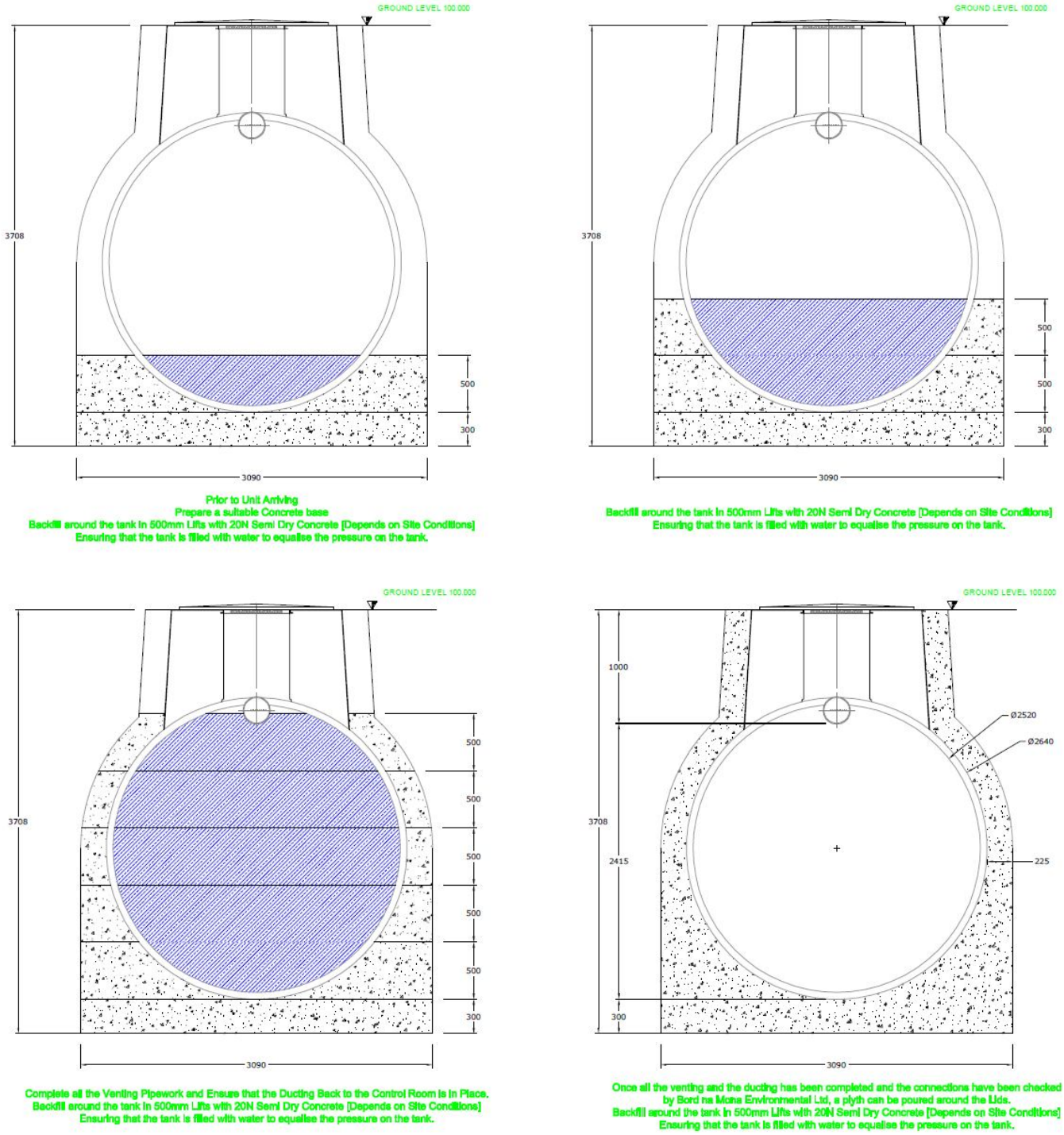

Figure 5 – Back filling the Tank in 500mm lifts

NOTE:

Prior to encasing the Upper section of the tank in concrete, ensure that you complete all venting and ducting.

3.5 VENTING

In accordance with BS:6297-1983 all sewage treatment plants should be adequately vented. A low level vent should be installed on the Inlet Pipe-work entering the plant. {See Figures 14 & 15} There is a minimum of 1 No 110mm UPVC socket connection fitted to the side of the unit, which is to be used for the High Level Vent, which ideally should be 2m in height from Ground level. It is essential that there is a free flow of air through the plant. The finished location of the vents should be away from public interaction and all vent pipe work should have cowls installed to prevent any objects being placed into vent pipe work.

Figure 6 – Example of Units Vent Pipework

3.6 DUCTING

All tanks have clearly labelled sockets for the provision of the installation of 110mm Ducts which is used for both electrical cables and air delivery pipework.

Figure 7 - Socket for 110mm Ducting

4 ANUA SERVICE INSPECTION AGREEMENTS

Anua offers a range of Services to suit you and your treatment system, from 1 to 10 year service inspection contracts through a nationwide service and maintenance team. To Organise a Service Inspection, please contact us on 045 439580 or email us at - env.csu@anua.ie

A typical Service Inspection Agreement Includes the Following items where applicable:

1. System will be inspected by agreed arrangement with the customer.
2. On the day of inspection a written report will be provided to the customer indicating status of:
    a. Pump chamber :
    b. Confirmation that the electrical control panel is connected and operational
    c. Confirmation that the float switch is operational
    d. Confirmation that the pumps/blowers are operational
    e. Condition of media
    f. Any obvious water infiltration into any part of the system (at the time of inspection)
    g. General appearance and condition of the system and the surrounding ground area
3. Full inspection labour is covered (including any immediate minor system adjustment required). This Service Agreement does not cover the cost of any labour or materials that may arise as a result of this inspection.
4. Components replaced will be billed on the day.
5. Inspection of systems will be scheduled within the last 3 months of each 12 month period of the agreement.
6. Inspection of new systems will normally be scheduled within the first 7 to 12 months of the agreement period (unless otherwise required by the customer).

Free Sludge Level Assessment and Desludging Recommendation:
Anua will assess the sludge level in your WWTP free of charge when they carry out the service system inspection. Based on this assessment we will then advise you when you should have your unit needs to be desludged. The EPA guidelines on Treatment Systems for Single Houses recommend that you should desludge your septic tank a minimum of once per year or when: scum is noticeable in the second chamber of the tank and/or the depth of sludge in the second compartment is greater than 400mm.

4.1 ANUA CONTACT DETAILS

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