

HumeGard® GPT Installation guide

Issue 2



Purpose of this guide

This guide outlines the construction procedures and requirements for the installation of the HumeGard® GPT. This document should be reviewed by supervisory personnel prior to commencing any HumeGard® GPT installation.

The following information is of a general nature only and is not intended to be exhaustive or impose or imply any particular requirements and should be read in conjunction with project-specific documents including the contract, project specifications and project drawings. This guide is not a substitute for the project documentation.

For typical installation requirements please refer to the Humes general assembly standard drawings or Humes project-specific drawings. These are system assembly drawings only and do not constitute and should not be construed as a site layout; the site layout should be specified in project documents provided by the consulting engineer who has been engaged by the asset owner.

Where the contents of this guide differ from project specifications and drawings, supervisory personnel should consult with a Humes engineer. In the event of any conflict between the information in this guide and local legislative requirements, the legislative requirements will take precedence.

It is the responsibility of the site owner and its contractors and consulting engineers to determine the site's suitability for construction, including access for plant, equipment and other issues.

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Safety advice

The HumeGard® GPT must be installed in accordance with all relevant health and safety requirements, including the use of PPE and fall protection where required.

Confined space entry

Installation of the unit may require confined space entry. All equipment and training must comply to SHE regulations. It is the responsibility of the contractor or person/s entering the unit to proceed safely at all times.

Personal safety equipment

The contractor is responsible for the provision of appropriate personal protection equipment including, but not limited to safety boots, hard hat, reflective vest, protective eyewear, gloves and fall protection equipment. Make sure all equipment is used by trained and certified personnel, and is checked for proper operation and safety features prior to use.

Handling

The customer is responsible for unloading of the precast components from the delivery vehicle. The customer should familiarise themselves with the site conditions, having regard for suitable space above and around the excavation in order to install the unit safely. Particular attention should be given to safety hazards such as overhead power lines and other services in the vicinity when considering positioning of cranes.



1. Excavation

Excavate to form a trench allowing adequate space to accommodate the HumeGard® GPT. Shore or bench the excavation if required.

If this is a retrofit installation, once excavation reaches the level of the pipeline, carefully remove a number of pipe lengths in order to provide an unobstructed opening for further excavation. This practice will ensure pipe ends are not damaged during lowering of the HumeGard® GPT into the trench.



2. Bedding

It is important that the base of the excavation is properly prepared with regard to line, level and degree of compaction.

Humes recommends the use of 200 mm minimum depth of compacted crushed rock as adequate bedding for the HumeGard® GPT in most situations. It is important to ensure that the bedding layer is well compacted and levelled correctly so that the openings in the HumeGard® GPT will accurately coincide with the inlet/outlet pipes once fully installed.

The correct level of the bedding layer can be established via the dimension depicted on the project drawing (vertical distance from pipe invert to surface of bedding layer).



3. Delivery

In most cases, the HumeGard® GPT will be delivered in the following parts:

- a main chamber (encasing the boom, weir, baffles, retention comb, internal slab). In the case of high chamber mass (over 15 t) the main chamber may consist of two parts (base and top section)
- a lid
- access covers and frames
- in the case of a two part chamber, loose stainless steel retention comb components

A crane and lifting gear will be required to unload the delivery vehicle. The crane must be of adequate capacity to lift and lower the components into position. The crane should be located to allow manoeuvrability of the components into their correct position.

The main chamber and lid are designed for a maximum sling angle of 60 degrees preferably using a differential spreader beam connected via four lifting anchors on the component. The size of the lifting anchors is shown on the HumeGard® product drawing and must be advised to the crane operator when booking the crane.



4. Placing the components

The chamber is supplied with inlet and outlet sides clearly marked and the pipe ends should be cut to suit. The position of the pipe centreline should be marked on both the pipe end and the chamber surface to ensure correct alignment relative to line and level through the HumeGard® GPT.

It is important for the operation of the unit that the base of the unit remains level and square horizontally after positioning in the excavation. This should be carefully checked particularly in the case of two part chambers where dimensions of each part are measured before set out and lowering into the excavation.

For two part chambers a sealed joint must be created between the bottom and top sections. This can be accomplished by placing either a mastic bead or a two part epoxy resin (either will be supplied), along the joint surface of the bottom component. The epoxy resin should be approximately 80 mm wide and at least 6 mm thick.

5. Initial backfill

Once the main chamber is correctly positioned within the excavation, backfill the sides of the excavation with a suitable material to just below the inlet and outlet openings. This will create a safe working platform to enable the installation of the inlet and outlet pipes and fitting of rubber connectors (if supplied).



6. Inspection of internal elements

For HumeGard® models that are supplied with some or all of the stainless steel components separate, a Humes representative should be consulted regarding their correct fitting and adjustments.

7. Lid alignment and sealing

The lid must be joined to the main chamber using a cement mortar layer approximately 10 mm in thickness or suitable mastic sealant over the entire top surface of all bearing walls. This will secure the lid to the main chamber and ensure an even transfer of load stresses down through the unit. The openings in the lid must be positioned relative to the inlet and outlet sides of the chamber as shown on the construction drawing supplied with the large opening above the storage /retention area on the inlet side.



8. Completing the installation

Once the lid is secure, if required, access chambers can be constructed from the level of lid openings to the finished surface level. Unless clearly stated otherwise, the supply of these items is not included with the HumeGard® components. The contractor is required to fit, cast-in or bolt the access covers supplied to the top of access chambers.



On most occasions the penetrations for the inlet and outlet pipes will have sufficient clearance to allow the pipes to be inserted easily. The resultant gap between the pipe wall the wall of the HumeGard will need to be filled with a non-shrink cementitious grout.

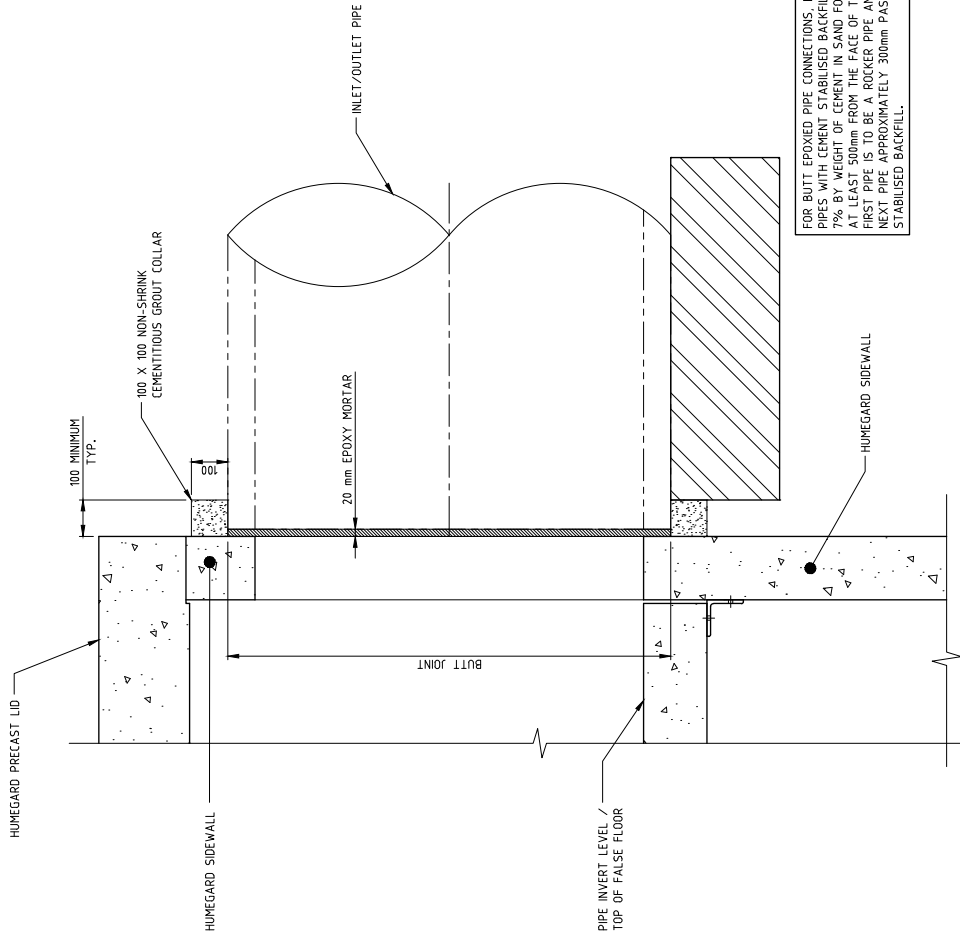
On some occasions it might be necessary to supply the HumeGard® with penetrations that only match the inside diameter of the pipes; this might be due to structural needs or limited depth to invert levels. If this is the case an epoxy butt joint connect will be required between the pipe and the HumeGard®. An example of an epoxy butt joint connection is included in the Appendix. As always, the installation contractors should liaise with the design consulting engineers to check this connection detail for suitability.

The remainder of the excavation can now be backfilled and suitably compacted to the finished surface level.

Appendix

Epoxy butt joint connection example

DETAILS OF ALTERATIONS		
ISSUE	OWN	DATE
0	YHL	19-06-20



FOR BUTT EPOXY PIPE CONNECTIONS, BACKFILL BENEATH PIPES WITH CEMENT STABILISED BACKFILL COMPRISED OF 7% BY WEIGHT OF CEMENT IN SAND FOR A DISTANCE OF AT LEAST 500mm FROM THE FACE OF THE DEVICE WALL. FIRST PIPE IS TO BE A ROCKER PIPE AND JOINED TO THE NEXT PIPE APPROXIMATELY 300mm PAST THE CEMENT STABILISED BACKFILL.

TYPICAL BUTT EPOXY PIPE CONNECTION

SCALE 1:10

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	DWN: KRB DWN COO: STK DWN: YHL APP: PJE	19-06-20 19-06-20 19-06-20 19-06-20	SIZE 1:1 1:1	FABRICATION DETAILS DWN NO: A2EP-HG-PIPE-01 ISSUE: 0

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