

3/2021/1269



GW5803: Ground loop alternatives for 60kW heat pump

1 Loops in open excavation

45m x 50m x 1m deep. Total material excavated 2,250m³



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2 Loops in individual trenches

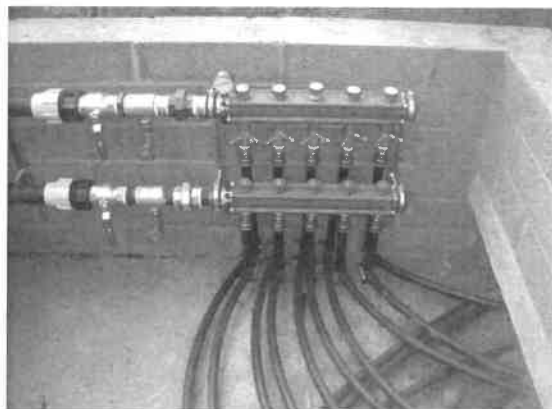
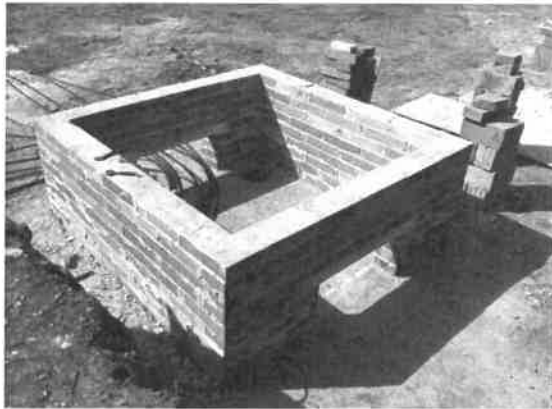
30 trenches each 50m long x 0.5m wide x 1m deep. Minimum spacing between trenches 1m. In practice a wider spacing between trenches may be required of say 1.5m to 2m to allow space to deposit spoil and the size of excavator being used. Total volume excavated 750m³.



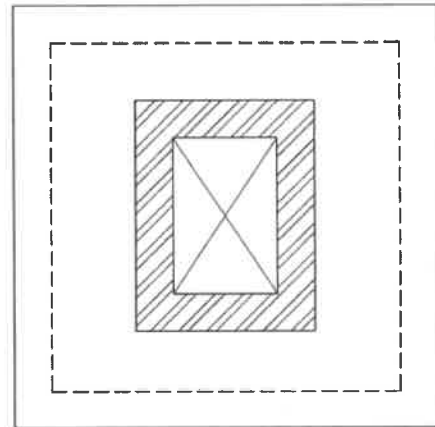
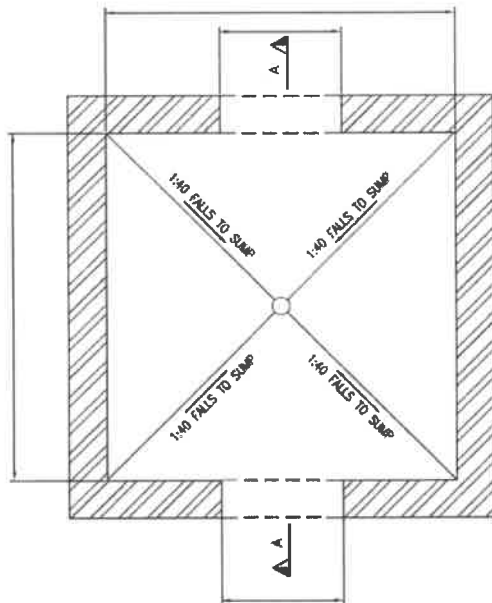
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Manifold chambers

3 manifold chambers are required for the horizontal loop system. The manifold chambers need to be positioned along one of the shorter edges of the excavation closest to the plant room or where individual trenches converge. The chambers should have minimum internal dimensions of 1500mm x 1500mm and be 1000mm deep; a lintel arrangement at either end is needed to allow pipes to get in and out; later the chamber should be finished with a cover slab and manhole cover. Round concrete chamber rings may be acceptable alternatives.

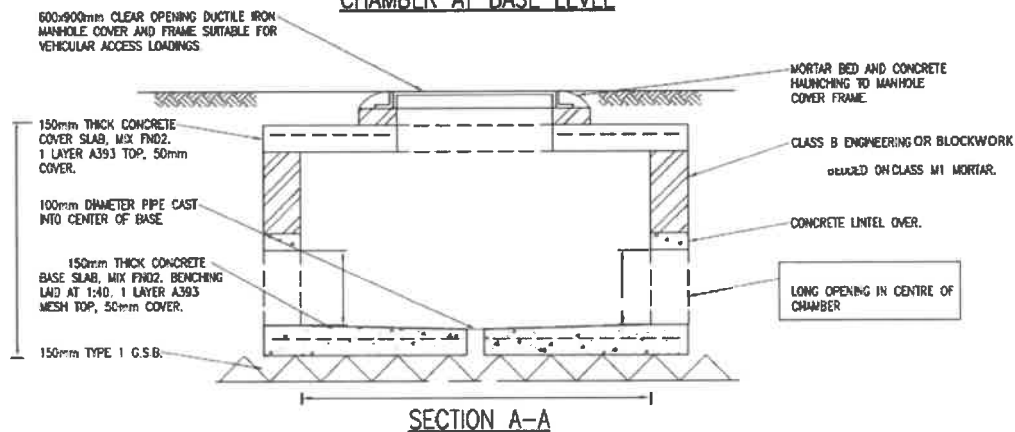


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PLAN ON MANIFOLD
CHAMBER AT COVER LEVEL

PLAN ON MANIFOLD
CHAMBER AT BASE LEVEL



Disclaimer

The above is a suggested method of chamber construction. Others must check the suitability for the site in question in particular the load bearing properties of the chamber construction, cover slab and cover.

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After completion of the ground loop laying and installation of manifolds by Geowarmth a cover slab and suitable removable lid (for example 600 x 600 double manhole cover) should be fitted over the manifold chamber. The chamber needs to remain accessible.



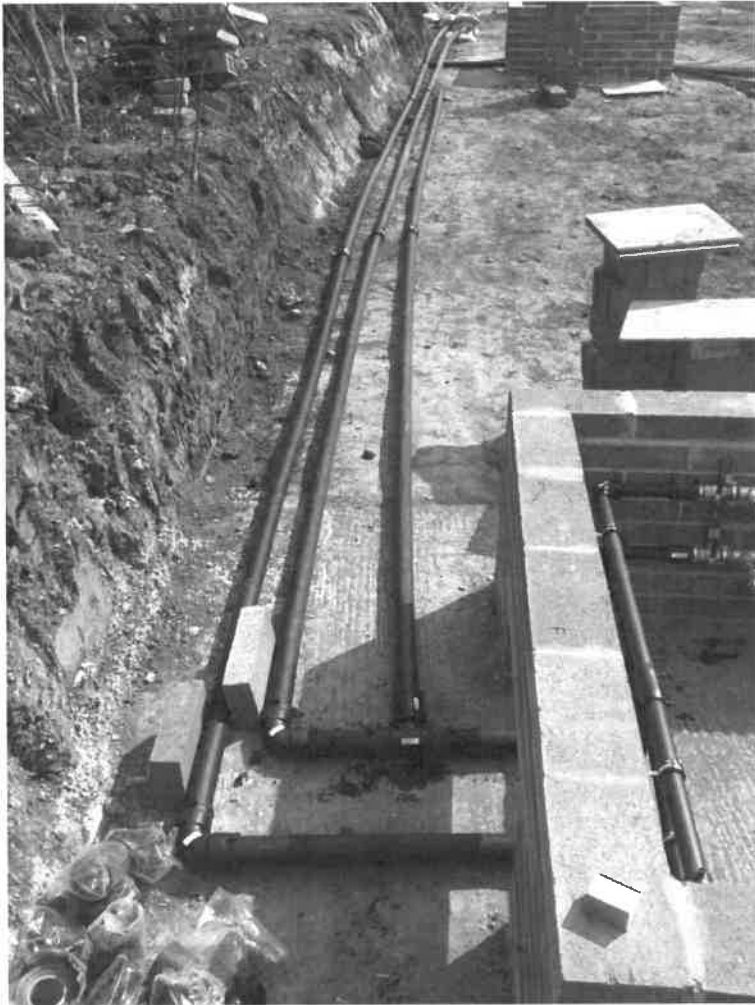
A round concrete chamber ring can be an acceptable alternative to a block work chamber.

The chamber ring should be 1500mm in diameter and 1000mm high to match the depth of excavation. A solid concrete base is required with a sump hole. 3 to 4 slots each around 300mm x 150mm should be cut in the walls of the chamber to allow access for our pipework. A cover slab with a 600 x 600mm opening is then fitted over the top and finished with a manhole cover.



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From the manifold chambers a header trench just behind each chamber connecting the chamber to the plant room is needed. Trench to be reasonably straight with any corners in sweeping curves. Trench depth minimum 1,000mm and width 1,000mm.



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Subsequent backfilling of trenches after we have installed ground loop pipes. Ensure material in contact with pipes is gravel, sand, soil or suitable soft material, not sharp rocks. Best practice would be to lay a 50mm bed of sand on bottom of the excavation then cover the pipes with a further 50mm of sand. Alternatively reserve some topsoil during excavation and use this around ground loop pipes.

Suitable ducting or an opening to get the ground loop pipes in to plant room: 200mm plastic drainage pipe / ducts with long radius (slow) sweeping bends and draw strings.



