Fact Sheet

Placing Manifolds Underground

Facts at a glance:

Position of Manifold
Ideally these should be placed on the side of buildings, either in a recess or with an enclosure built around it.

Burying Manifolds
Care needs to be taken regarding effective working space and prevention of flooding.

Slinky Lengths
Slinkies should remain the same to equalise the pressure drop through them and hence the flow. Balancing valves can be used however it is more efficient and simpler to keep the pipes the same length.

Design of Manifold Pits
This is a Civils item and will depend on site conditions. The manifold is usually placed 1 meter below ground and Kensa will happily provide advice.

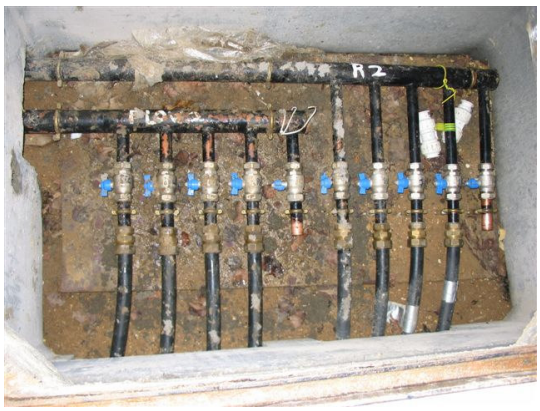
All manifolds should be sited on the side of the building. Some Architects have a problem with this from a visual perspective, and try to persuade the M&E project team to bury the manifolds. Burying manifolds can be done, but it is not recommended unless there really is no other option.

The "normal" method of installing these manifolds is into a recess into the blockwork on the side of the building, so that there is no visual evidence of the manifold from the outside, and an Architect should have no problem at all with this approach. On schools for example, the Architects really like this feature, as it encourages pupils to understand where the heat for their school is coming from. Some schools have even put thermometers on the pipes, and used it for a school project. Of course, the doors to these recesses stay locked shut under normal circumstances.

Putting the manifolds on the outside of the building is the cheapest, easiest, quickest approach. Burying the manifolds in chambers is likely to cost significantly more money, and result in a system that is not as well engineered as putting the manifolds on the side of the building.

Burying manifolds entails the possibility that they might end up underwater – and no amount of “tanking” is realistically going to prevent this happening, as the pipes cannot really be sealed into the tanking without difficulty. The manifolds are made of brass and copper, and, in theory at least, immersion does not particularly harm them.

The worry is that if corrosion set in at a later date, then the entire manifold chamber might have to be excavated. The following two photos show a typical installation of a buried manifold.



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The likelihood of being able to achieve much effective work down inside such a small chamber is not high. If any of the pipe joints onto the manifold leak, then repairing these will be difficult.

The pipe lengths need to be the same for ALL the slinkies. If there are several slinky manifolds, then the length of pipe between these slinky manifolds and the header manifolds must also be the same length. Each slinky comes with a 20 m header on it - any excess length needs to be coiled back up in the slinky trench, and NOT cut off. Different lengths of slinky can lead to uneven flow. Generally, there are no balancing valves used in ground arrays – although this is possible, closing off flow to one of the circuits will be at the expense of water pump power. On a multiple installation, it is possible to try to get around this by using one water pump for each of the slinky manifolds, but this would increase costs.

The situation is the same no matter whether you have slinkies, straight pipe or boreholes, or how they are arranged.

Specifying the sizes of the manifold chambers is a Civils item, which is different on each site. They are usually built from brick or block, although large concrete ring drain sections can be used, placed on their ends.

It is usual to dig a pit, put in a concrete base and put the manifold on it, couple it up, and then build the manifold chamber around it afterwards – which is how the manifold chamber in the photos over was constructed. If placed in chambers, manifolds should be about 1 metre below ground level, with the header trenches that bring the pipes into the chambers at about 1.2 m below ground level. Allowing an appropriate working clearance around the manifolds, the size of the manifold chambers required can be determined.