

Trench and Ducting Guide - for New Connections only (see separate guide for Service Alterations)

For customers who wish to pre-excavate (for a reduced charge)

This option is only available when there is private land between the required meter position and the gas main.

If you prefer, Cadent will complete all work including any excavation and reinstatement work as part of the installation process. The discounted costing will not apply if Cadent complete all work. Please select 'Cadent' when completing your application.

For safety reasons Cadent has specific requirements which must be followed for ground works related to new supplies. Failure to follow these requirements may not only put safety at risk, but also lead Cadent to abort its visit to alter the service pipe creating a delay to your works programme, or require a variation of the contract; in either eventuality you will be charged at the appropriate rate. The specific conditions for ground works are set out in this document.

Customers requesting a new gas service pipe to be installed to their premises have the option to pre-excavate the route of the pipe across land in their ownership or control for a discounted charge.

If you wish to provide a pre-excavated trench please ensure you select '*Arrange 'Other' Option*' when completing your application. You may contact Cadent for more information on **0800 074 5788** (charged at local rate if calling from a landline, mobile phones may differ, contact your contract provider) or connectionshelp@cadentgas.com

- Customers can only excavate on their own property (private land).
- Cadent will excavate any public highways, roads and footpaths.
- Excavation is not available for owners of flats, maisonettes and other shared residency buildings.
- The trench must be suitable and adhere to current legislative duties.

General

Before excavation, review and understand the safe digging practices that are contained in Health and Safety document HS (G) 47 entitled "Avoiding Danger from Underground Services." The above documents can be downloaded for free, or a hard copy purchased, from the HSE website <http://www.hse.gov.uk/pubns/books/hsg47.htm> or HSE Books, PO Box 1999, Sudbury, Suffolk, CO10 2WA and is also available from other retailers. You must comply with all stated terms and conditions contained in the document.

The route for the service pipe

If you choose to complete the excavation, you must excavate the full length of the supply route within your property boundary in order for the discount to apply. Any excavations by Cadent, which may become necessary to install the supply, will be charged at the appropriate rate.

Please note that you are responsible for ensuring that the excavation site is safely guarded and offers adequate protection to any person who may have access to your property. Cadent cannot accept responsibility for ensuring the excavation is left in a safe condition for other property users.

Specification for the trench

- The trench must be excavated from the property wall at the point of the new meter position and terminate at the edge of your property boundary. The pipe must not be laid indoors or underneath any building, including garages, sheds, porches and conservatories etc. The pipe route should avoid drains, manhole covers and other obstructions. The pipe route should be laid in a straight line. Any bends should not exceed the permitted radii detailed in Table D8 and Figure D2d – see Installation requirements section below
- The trench must be excavated to a depth of 425mm (17") and must be between 200–300 mm wide (8" and 12"). The bottom of the trench must be level and free from all sharp and/or stone materials which may damage the service pipe. In any ground containing sharp stones, it will be necessary to excavate a further 3" (75mm) and fill this space with fine material e.g. sand or stone dust to lay the new pipe on. Cement based materials must not be used as a fill material around the pipe. More information regarding fill materials and grading can be found in BS (British Standard) EN 12620: 2002. Excavated soil must be a minimum of 300mm (12") away from the side of the trench.
- Gas pipes should be laid a minimum of 300mm (12") from electricity cables and 250mm (10") from other utilities apparatus (e.g. water, BT, TV cables, drains, etc.). These clearance distances are for along the entire length of the service pipe and must be taken into account when the trench is being excavated.
- If scaffolding or similar temporary structures are being used, the trench must be as far away from any of the vertical supports to minimise the risk of a collapse. Ideally ducting should be installed and the ground reinstated prior to any scaffold being erected, see below. Cadent will **NOT** work beneath any scaffold or similar temporary structures where the trench is too close to any vertical support(s) or if other personnel are working overhead.
- The person/organisation you appoint to carry out the excavation is also responsible for ensuring that the excavation site is safely guarded. This should be done through the use of an appropriate, protective barrier system and offers sufficient protection to any person who may have access to your property.

Making the Excavation Safe

- Please note that you are responsible for ensuring that the excavation site is safely guarded and offers adequate protection for any person who may have access to your property. This should be done through the use of an appropriate, protective barrier system. Cadent cannot accept responsibility for ensuring the excavation is left in a safe condition for other property users.
- Please ensure that all excavated soil is stored a minimum of 300mm (12") away from the side of the trench. This reduces the risk of debris falling in to the trench as well as reducing the stress on the side of the trench
- In order to ensure that the excavation is as stable as possible, please ensure that the vertical sides of the excavation are straight and that the edges are not undermined (Digging underneath the adjacent ground).

Specification for backfill and reinstatement of the trench

- You are responsible for arranging the backfill of the trench, compacting of the material, levelling and reinstating the surface materials and to remove any surplus material.
- The backfill and reinstatement requirements include restoration of the trench and any associated surfaces, such as driveways, paths, lawns, flowerbeds and specialist/ornate tiling, etc.
- During the backfill process "Gas Pipe Below" warning tape must be installed a minimum of 75mm above the crown of the gas service pipe.
- Mechanical compaction equipment must not be used within 200mm (8") of the crown of the gas service pipe. Layers of backfill material must be hand rammed until this depth of cover is achieved.

Specification for installation of ducting (as applicable)

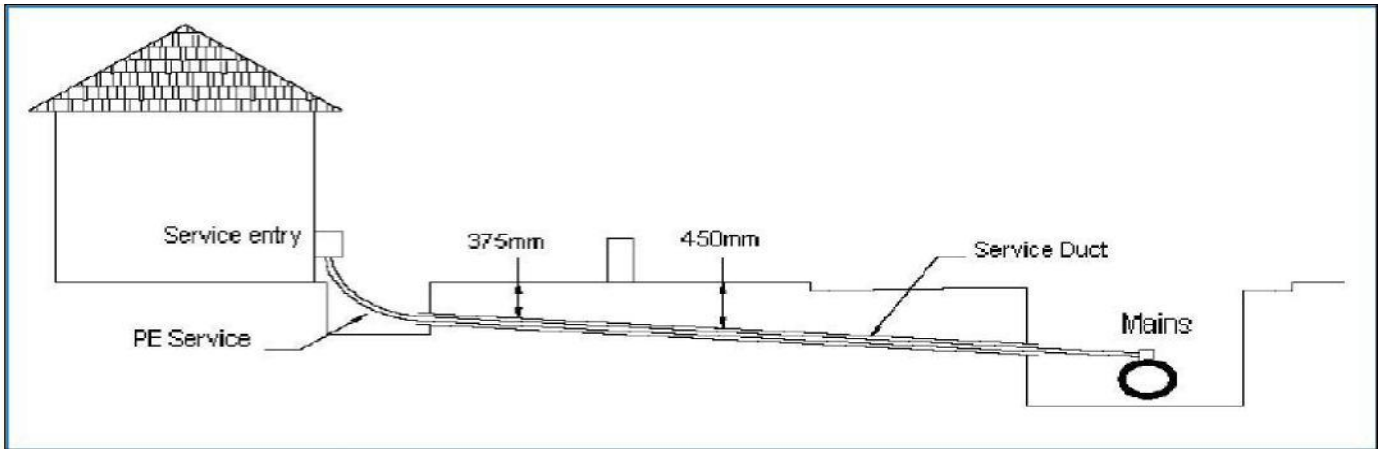
- A pre-laid service duct may be used for PE service pipe laid external to the property. Under normal domestic situations this enables the developer to continue with any associated ground work in advance of the service work being completed however the developer will be required to allow access for the service termination and connection points.
- The service ducting specification is currently BS 4962 'Specification for plastic pipes and fittings for use as sub soil field drains'; therefore it should be overlaid with gas caution tape to allow for future identification. The

duct should be of the perforated type to allow for any potential gas ingress to disperse and not track to a nearby property.

Installation Requirements

- Service pipe ducting for domestic properties shall be yellow in colour and Gas marker tape, installed a minimum of 75mm above the duct over its entire length to avoid interference damage to gas pipes.
- PE gas or water pipe shall not be used as a duct.
- The ducting should wherever possible be laid perpendicular (thus to maintain a predictable route) in a straight line to the meter position. Any bends should not exceed the permitted radii detailed in Table D8 and Figure D2d.
- For ease of insertion, the internal diameter of the duct should be sufficient to allow insertion of the PE pipe without damage.
- The external ducting should terminate adjacent to the service entry point, allowing a minimum 1 metre of pre-excavated ground to assemble entry fittings.
- The mains connection excavation shall be left open (wherever reasonably practical), with sufficient ducting to receive the service pipe.
- A check should be made to ensure that the proposed finish levels, to allow the ducting and PE service, are at the correct depths. This information should be provided to the developer/builder.
- The ducting should be laid on a prepared bed or soft ground and the first 75mm backfilled with suitable or imported fine fill.

- To avoid injury to the engineers, there should be a break in the ducting length approximately every 20 metres. This will cut down the resistance of pushing long lengths of piping through.



Pipe Diameter	Minimum Duct size
25-32mm	60mm for services
63mm	150mm for services

Table D7 – Minimum Duct Sizes

Note: Commercially available PVC ducting is available to around 200mm diameter. However, it should be noted that it may be more practical to lay a length of PE pipe (for larger diameters) left in position, capped and a positive air pressure to suit site conditions.

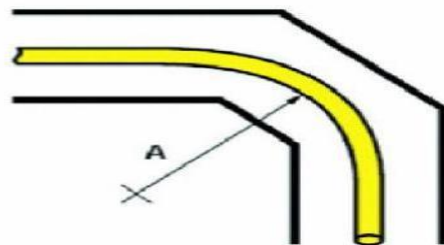
If it is necessary to lay pipe / ducting around bends, Table D8 & D7 should be followed to ensure that the minimum bend radius is not exceeded.

Care should be taken to ensure that the PE pipe does not exceed the minimum bend radius (15x external diameter) see Table D8 and Figure D3.

The minimum bend radii for pipes larger than 63mm diameter shall not exceed 15 x diameter

Pipe Diameter	Minimum Bend Radius
20mm	0.3m
25mm	0.4m
32mm	0.5m
63mm	1.0m

Table D8 – Minimum Bend Radius



Minimum bend radius - 15 x pipe outside diameter

Figure D3 – Minimum Bend Radius

Access

Access to sites and to Cadent apparatus must be provided at all times. Please ensure that any temporary structures (portakabins, welfare facilities, silos etc.) or spoil heaps are not placed over Cadent pipes as this may block access and cause excess loading on the pipes. For further advice, contact the Cadent Plant Protection Team on **0800 688 588**.

Crossing Cadent's plant

The placing of heavy construction plant, equipment, materials or the passage of heavy vehicles over Cadent apparatus is prohibited unless specially agreed protective measures (i.e. the construction of reinforced crossing points) have been carried out. This is particularly important where reductions in side support or ground cover are planned.

For free downloads of our 'Safe Excavation' film and other safety publications, please visit <http://www.cadentgas.com/>