Northern Gas Networks

Safe working and land development in the vicinity of NGN High and Intermediate Pressure Gas Plant

Requirements for third parties

we are the network

October 2023

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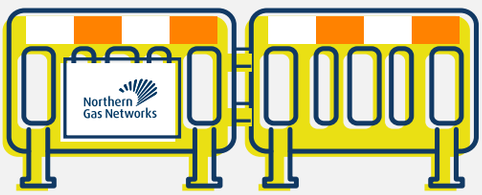


Foreword

This document was approved by the appropriate Technical Authority Level (TAL) and Standards Steering Group (SSG) for use throughout Northern Gas Networks Limited (NGN).

NGN documents are revised, when necessary, by the issue of new editions. Users should ensure that they are in possession of the latest edition by referring to the NGN Register of Documents available on NGN intranet.

Compliance with this document does not confer immunity from prosecution for breach of statutory or other legal obligations.

Contractors and other users external to NGN should direct their requests for further copies of NGN documents to the department or group responsible for the initial issue of their contract documentation.

Disclaimer

This safety and engineering document is provided for use by NGN and such of its contractors as are obliged by the terms and conditions of their contracts to comply with this document. Where this document is used by any other party it is the responsibility of that party to ensure that this document is correctly applied.

Mandatory and non-mandatory requirements

In this document:

Must:	Indicates a mandatory requirement
Should:	Indicates best practice and is the preferred option. If an alternative method is used then a suitable and sufficient risk assessment must be completed to show that the alternative method delivers the same, or better, level of protection.

Safe working and land development in the vicinity of NGN High Pressure and Intermediate Pressure Gas Pipelines and Associated Installations

Introduction

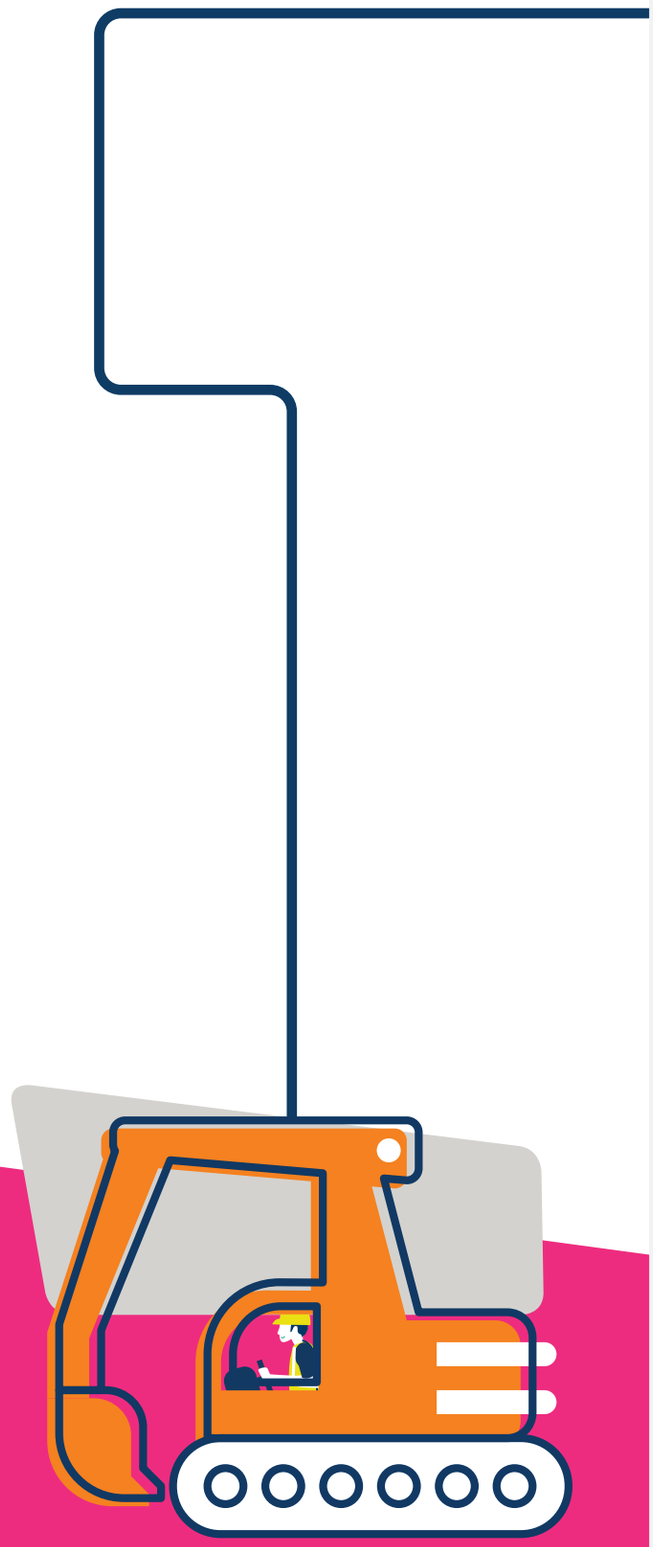
This work procedure is for issue to third parties carrying out work in the vicinity of NGN's gas assets (pipelines, Above Ground Installations, mains, etc.) and is provided to ensure that individuals planning and undertaking work take appropriate measures to prevent damage.

Any damage to a gas asset can affect its integrity and can result in failure with potential serious hazardous consequences for individuals located in the vicinity of the asset. It is therefore essential that the procedures outlined in this document are complied with when working near a gas asset. If any work is considered by NGN to be in breach of the requirements stipulated in this document, then the NGN responsible person will suspend the work until the non-compliances have been rectified.

The Pipelines Safety Regulations state that "No person shall cause such damage to a pipeline as may give rise to a danger to persons" (Regulation 15). Failing to comply with these requirements could therefore also result in prosecution by the Health and Safety Executive (HSE).

The requirements in this document are in line with the requirements of the IGEM (Institution of Gas Engineers and Managers) recommendations IGEM/SR/18 Edition 3 and the HSE's guidance document HS(G)47.

It is the responsibility of the third party to ensure that any work carried out also conforms with the requirements of the Construction (Design and Management) Regulations 2015 and all other relevant health and safety legislation.



When carrying out work in the vicinity of a gas asset, you must adhere to the following process:

Important: This flowchart should be used in conjunction with this document in its entirety and not in isolation, and if at any time during the works the pipeline is damaged, even slightly, then observe the precautions in Section 8 of this document.

Contact Us

Call: **0800 040 7766**

Or send an email to the Before You Dig team at:
beforeyoudig@northerngas.co.uk

Step 1
Contact NGN

Contact NGN to obtain formal consent – Section 2 of this document.
Note: At Least 14 days notice, prior to commencement of the work is normally required

Step 2
Consider Safety

Consider the Safety Requirements – section 3 of this document

Step 3
Inform NGN and Request Pipeline Location

Inform NGN prior to carrying out work and arrange for NGN to locate the pipeline – section 4 of this document.
Note: At Least 14 days notice is normally required

Step 4
Observe Restrictions

Observe NGN restrictions on the allowed proximity of mechanical excavators and other power tools and the measures to protect the pipeline from construction vehicles when carrying out the work – Sections 5, 6 and 7 of this document.

Note: NGN may wish to supervise the work, consult with NGN to ascertain if this is the case

Step 5
Specific Activities

If work involves any of the activities specified in section 7 of this document, comply with the requirements indicated

Step 6
Consult NGN

Consult NGN prior to any backfilling over, alongside or under the pipeline and obtain NGN's agreement to proceed. NGN require at least 48 hrs notice prior to backfilling – section 7.2 of this document.

IF IN DOUBT CONTACT NGN

1. Scope

This work procedure sets out the safety precautions and other conditions affecting the design, construction and maintenance of services, structures and other works in the vicinity of NGN pipelines and associated installations operating above 2 bar, located in both negotiated easements and public highways.

2. Formal consent

Pipelines are generally laid across country within an easement agreed with the landowner or within the highway.

As the required arrangements for working within an easement and working within the highway differ, this document has been structured to highlight the specific requirements for these two types of area where work may be carried out.

Generally, normal agricultural activities are not considered to affect the integrity of the pipeline, however consult NGN prior to undertaking deep cultivation in excess of 0.5m.

In all other cases no work shall be undertaken in the vicinity of the pipeline without the formal written consent of NGN.

Any documents, handed to contractors on site by NGN, must be signed for by the site manager. NGN will record a list of these documents using the form in Appendix A, and the contractor should maintain a duplicate list.

2.1 Within an easement

The promoter of any works within an easement must provide NGN with details of the proposed works including a method statement of how the work is intended to be carried out.

Work must not go ahead until formal written consent has been given by NGN. This will include details of NGN's protection requirements, contact telephone numbers and the emergency telephone number.

On acceptance of NGN's requirements, the promoter of the works must give NGN 14 working days notice before commencing work on site. If agreed with NGN, shorter notice could be required.

2.2 Within the highway

Work must be notified to NGN in accordance with the requirements of The New Roads and Street Works Act (NRSWA) and HS(G)47.

The promoter of any works within the highway should provide NGN with details of the proposed works including a method statement of how the work is intended to be carried out. This should be submitted 14 working days before the planned work is to be carried out or shorter, only if agreed with NGN. If similar works are being carried out at a number of locations in close proximity, a single method statement should be adequate.

Work should not go ahead until formal written consent has been given by NGN. This will include details of NGN's protection requirements, contact telephone numbers and the emergency telephone number.

3. EH&S considerations

3.1 Safe Control of Operations

All working practices must be agreed by NGN prior to work commencing. All personnel working on site must be made aware of the potential hazard of the pipeline and the actions they should follow in case of an emergency. The Plant Protection Control Form (Appendix A) should be used to record the list of relevant documents that have been provided by NGN to the contractor.

3.2 Deep excavations

Special consideration should be given to the hazards associated with deep excavations. The HSE website provides further guidance, particularly at http://www.hse.gov.uk/construction/safetytopics/excavations.htm.

3.3 Positioning of plant

Mechanical excavators must not be sited or moved above the pipeline unless written authority has been given by the NGN responsible person.

Mechanical excavators must not dig on one side of the pipeline with the cab of the excavator positioned on the other side.

Mechanical excavators and other traffic must be positioned far enough away from the pipeline trench to prevent trench wall collapse.

3.4 General

Activities associated with working in the vicinity of pipelines may have impact on the safety of the general public, NGN staff and contractors, and may affect the local environment. Contractors must carry out suitable and adequate risk assessments prior to the commencement of work to ensure that all such issues are properly considered and risks mitigated.

4. Pipeline location

Where formal consent to work has been given, the third party should give 14 working days notice.to ensure that the pipeline is suitably located and marked out by NGN prior to the work commencing. If agreed with NGN, shorter notice could be required.

Prior to work commencing on site the pipeline must be located and pegged or suitably marked, **where assets are Intermediate or High Pressure this should be done only by NGN personnel**. In exceptional circumstances, with the prior agreement of NGN, the locating and marking out of Intermediate and High Pressure Pipelines could be carried out by competent third parties on behalf of the contractor so long as NGN is assured of their competence and the procedures to be followed.

Safe digging practices, in accordance with HSE publication HS(G)47, should be followed as both direct and consequential damage to gas plant can be dangerous both to employees and to the general public.

Previously agreed working practices should be reviewed and revised based on current site conditions. Any changes must be agreed by the NGN responsible person.

The requirements for trial holes to locate the pipeline or determine levels at crossing points must be determined on site by the NGN responsible person.

The excavation of all trial holes in the vicinity of Intermediate and High Pressure assets must be supervised by the NGN responsible person.

5. Slabbing and other protective measures

Protective measures including the installation of concrete slab protection should only be installed over or near to the NGN pipeline with prior permission from NGN. NGN will need to agree the material, the dimensions and method of installation of the proposed protective measure. The method of installation must be confirmed through the submission of a formal written method statement from the contractor to NGN.

Where permanent slab protection is to be applied over the pipeline NGN will normally carry out a survey of the pipeline to check that there is no existing damage to the coating of the pipeline prior to the slab protection being put in place. NGN must therefore be contacted prior to the laying of any slab protection to arrange for them to carry out this survey.

The design of concrete protection slabs must be approved and appraised as necessary by NGN or NGN nominated civil consultants.

The safety precautions detailed in Sections 6 to 9 of this document should also be observed during the installation of the pipeline protection.

6. Working in the vicinity of an Above Ground Installation (AGI)

Where excavations are to be made within 10m of the perimeter of an AGI, appropriate protection methods should be determined and recorded by NGN.

NGN will determine whether it is necessary for a representative to attend site when specific activities are being undertaken that may affect the operation of the AGI.

Access to the AGI must be maintained at all times.

If work is being carried out in breach of NGN requirements then work will be suspended within the NGN easement until agreement is reached.

7. Working in the vicinity of a High Pressure / Intermediate Pressure gas asset

7.1 General

NGN may need to be present to monitor the excavation work.

Any reported damage to a gas asset should be investigated and assessed by NGN to determine whether replacement or repair is required. See Section 8.

This work procedure should be read in conjunction with HSG47.

Where works are proposed to be carried out in an easement, specific consent from NGN is required to ensure any specific requirements are adhered to.

A new service should not be laid parallel to an asset within an easement unless otherwise agreed with NGN.

If work is being carried out in breach of NGN requirements, then work will be suspended within the NGN easement until agreement is reached.

7.2 Excavation

Removal of bituminous or concrete highway surface layer by mechanical means should be restricted to a depth of 300m. This must be subject to prior confirmation of existing adequate depth of cover.

Considerations should be given to any projections off NGN's assets e.g. valve spindles, pressure points etc. These features may be identified on NGN's maps and/or by the presence of features such as valve boxes on site.

The use of chain trenchers should not be permitted within 3m of the asset.

NGN will determine the level of monitoring that is required.

Removal of the bituminous or concrete highway surface layer below 300mm deep should be by hand-held power assisted tools under supervision of NGN's responsible person.

NGN may permit a reduction of these limits with agreement and whilst they remain on site.

Excavation with a powered mechanical excavator should not be carried out closer than 3m to an asset and, with hand-held power assisted tools, no closer than 1.5m. Any fitting, attachment or connecting pipework should be exposed by hand. Excavation within 1.5m of an asset should be by hand.

Any mechanical excavation should utilise a banksman/signaller.

With agreement, NGN may reduce these agreements whilst they remain on site.

Lower risk excavation methods, for example, vacuum excavators should be encouraged subject to risk assessment.

When relaxation is applied, a powered mechanical excavator should not be allowed to excavate closer than 600 mm to the nearest part of the asset. This should only be undertaken while NGN's responsible person remains on site.

Where sufficient depth of cover exists following evidence from trial holes, light, tracked vehicles should be permitted by NGN to strip topsoil to a depth of 250 mm.

Topsoil or other materials should not be stored within the easement without NGN's written permission.

Trenchless techniques should not be used to cross an asset, unless it has been exposed to enable the safe passage of the new service to be observed.

Note: For trenchless techniques see section 7.7.

No new service shall be laid parallel to the asset within the easement. In special circumstances, and only with formal written agreement from NGN, this may be relaxed for short excursions where the service shall be laid no closer than 0.6 metres

Where a new service is to cross above or below an asset, a clearance of 600 mm should be maintained. This distance may be reduced at NGN's discretion and subject to adequate protection being provided.

Where works are proposed to be carried out in an easement, specific consent from NGN is required to ensure any specific requirements are adhered to.

Whenever an asset is exposed, it should be protected by matting and timber cladding. The exposed asset should be suitably supported. Where assets are proposed to be exposed and unsupported, the promoter should discuss with NGN, the need to undertake a stress analysis to determine support requirements. All temporary supports should be removed prior to backfill.

Promoters should give operators at least 48 hours of intent to backfill over, under or alongside an asset. Any damage to the asset coating should be reported immediately to NGN so that repairs can be made prior to backfilling. NGN may request to be in attendance when these works are carried out.

All reinstatement materials and techniques should comply with NGN standards and NRSWA prior to being applied.

An asset should not be encased in concrete and concrete should not be positioned within 300 mm of the asset.

Fires should not be allowed in the vicinity of an asset without prior consultation with NGN.

Note: If there is evidence of a fire being present in close proximity to an asset, NGN may consider the need for a coating survey (where appropriate) and leakage survey.

Following works, the level of cover over an asset should be the same as that prior to works commencing, unless agreed otherwise with NGN.

Mechanical excavators should not be sited or moved above an asset unless written authority has been given by the NGN.

Note: For construction traffic, see section 7.3.

Mechanical excavators and any other powered mechanical plant shall not dig on one side of the asset with the cab of the excavator positioned on the other side.

Mechanical excavators and other traffic should be positioned far enough away from the trench to prevent trench wall collapse.

A change in ground conditions should be noted, as of the finer grain backfill when reinstating near a pipeline.

7.3 Construction traffic

Construction traffic should cross an asset only at previously agreed locations with NGN. All crossing points should be fenced on both sides with a post and wire fence, and with the fence returned along the easement for a distance of 6m.

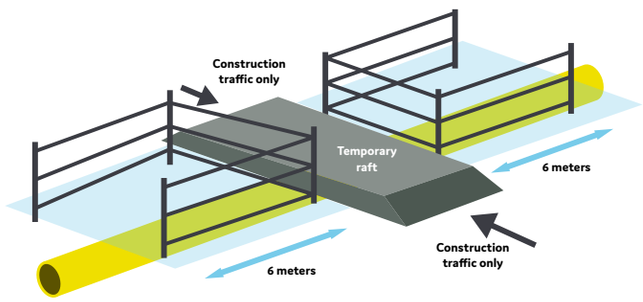


Figure 1 - Construction traffic crossing points (High Pressure / Intermediate Pressure)

The asset should be protected at the crossing points by a suitable method agreed with NGN, e.g. temporary rafts of either sleeper or reinforced concrete construction, constructed at ground level.

Ground conditions, vehicle types and crossing frequency should determine the type of raft required. An integrity assessment on the gas asset may be required as instructed by NGN.

Consideration should be given to conducting a leakage survey over any susceptible asset, before works commence and at appropriate intervals during the work.

Notices, directing traffic to the crossing points, should be erected. Speed restrictions may be applied at the crossing point.

7.4 Change in depth of cover

A pipeline integrity assessment is required for situations involving a final cover depth exceeding 2.5 metres. This assessment should take due account of both soil 'dead' loading and ground settlement due to earthworks.

Proposals for embankment construction over pipelines should be reviewed to confirm any necessary measures to prevent instability of the embankment.

No action would normally be required for pipelines with an existing depth of cover exceeding 2.5 metres. However, if an increase in cover depth has occurred without notification or approval by NGN then an integrity assessment should be required.

7.5 Crossing over an asset (open cut)

This Process must be agreed with NGN representative on site, prior to works commencing

Where a new service is to cross over an asset, a minimum clearance of 600mm should be maintained. If this cannot be achieved, a reduction, in agreement with NGN, may be permitted otherwise it will have to cross below the asset.

7.6 Crossing below an asset (open cut)

This Process must be agreed with NGN representative on site, prior to works commencing

Where a new service is to cross below an asset, a minimum clearance of 600mm should be maintained.

7.7 Trenchless techniques

This Process must be agreed with NGN representative on site, prior to works commencing

7.7.1 Crossing High Pressure / Intermediate Pressure assets using trenchless technique

Initial trial holes should be undertaken to ensure that sufficient clearance exists between the gas asset and the proposed product pipe (or the pipe to be split if a pipe splitting technique is being used).

The minimum product pipe clearance between the underground gas asset should, be 600 mm.

Note: Clearances may need to be increased due to the following factors:

- ground conditions
- largest reamer diameter
- type of reamer used, for example hollow, finned etc.
- accuracy and reliability of the equipment being used
- construction of adjacent services and structures
- configuration of other underground services crossing or running parallel to the drill path
- consequences of damage
- pipe stress increase from potential ground movement.
- presence of Cathodic Protection interfaces

The exposed asset should be suitably supported. Such support should be removed prior to backfill.

The exposed asset should be protected by matting and suitable timber cladding to reduce the risk of damage from any broken pipe fragments (if pipe splitting to be used).

All lateral crossings shall be exposed around their full circumference with an additional 250 mm clearance below. The width of the excavation shall be the greatest of either 3 times the diameter of the largest reamer or 500 mm either side of the largest reamer. These clearances shall be measured from the drill path centre, the exception

being where multiple domestic services cross the drill path profile, by virtue of the route from the distribution main/cable to the termination point of the service that no interference damage will occur.

Each crossing should be manned during the drilling/splitting operation to watch the reamer/splitter pass.

The line of the pipe to be installed/split should be monitored along its length to ensure no variance from its path.

The need for a leakage survey to be undertaken before work starts, during the works if safe to do so and following completion should be considered.

If there is any likelihood of damage to the asset, the operation should be stopped immediately.

7.7.2 Running parallel to a High Pressure / Intermediate Pressure gas asset using pipe splitting techniques

For pipe splitting running parallel to a buried gas asset, trial holes should be undertaken at suitable and frequent locations on the gas asset along the proposed route to confirm sufficient standoff distances exist and the pipe route is confirmed.

The minimum product pipe clearance between underground gas assets should be 3m.

Note: Clearances may need to be increased due to the following factors:

- ground conditions
- largest reamer diameter
- type of reamer used, for example hollow, finned etc.
- accuracy and reliability of the equipment being used
- construction of adjacent services and structures
- configuration of other underground services crossing or running parallel to the drill path
- consequences of damage
- pipe stress increases from potential ground movement
- presence of Cathodic Protection interfaces

The line of the pipe to be split should be monitored along its length to ensure no variance from its path.

NGN shall consider the need for a leakage survey to be undertaken before work starts, during the works if safe to do so and following completion.

If there is any likelihood of damage to the asset, the operation should be stopped immediately.

Note: For further guidance on trenchless contact NGN.

7.8 Tunnelling

Significant differential ground movement may occur when tunnelling in soft ground. Ground movement contours from the tunnel and associated shafts should be calculated and all gas assets within the affected zone should be identified and assessed. The affected zone is normally defined as within the 1 mm settlement contour.

For steel assets, NGN will seek Integrity assessments. An expert on soil/pipe interaction analysis should be sought when required for the evaluation of ground movement effects on the assets.

7.9 Pressure Testing

Hydrostatic testing of a third party asset should not be permitted within 8m either side of a gas asset, to ensure protection against the effects of a burst.

Where this cannot be achieved, typically where the third party asset needs to cross a gas asset, one of the following precautions would need to be adopted:

- Limiting of the design factor of the third party asset to 0.3 at the asset's nominated maximum operating pressure (MOP), and the use of pre-tested pipe or,
- The use of pre-tested sleeving.
- Carry out Expert Risk Analysis of pipe failure to ascertain what mitigation measures must be adopted to protect our asset.

In either case, the third party shall submit their proposed precautions and method statement for consideration by NGN.

7.10 Demolition

Demolition should not be allowed within 150 m of a gas asset, or 400 m for a structure mass greater than 10000 tonnes without an assessment of the vibration levels at the asset. The measured distance extends from the edge of the area affected by falling material to the asset.

The promoter of the works should provide NGN with estimated vibration levels at the gas assets prior to works commencing, to allow NGN to assess the proposals.

For a welded steel or PE asset, the peak particle velocity should not exceed 75 mm/sec at the asset. Where the peak particle velocity is predicted to exceed 40 mm/sec, an assessment of the asset stress state, which includes the incremental load due to vibration, is required. The vibration loads shall be considered as an additional to all other relevant and transient loads affecting the asset. In addition, an assessment of cyclic loading should be carried out.

The ground vibration should be monitored by the promoter to verify estimated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set up at suitable intervals to provide a forewarning of potential limit exceedance. Records of ground vibration levels shall be retained by the promoter.

A leakage survey should be undertaken before work starts, during the works if safe to do so and, following completion.

Where ground conditions comprise submerged granular

deposits of silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset should be made.

7.11 Blasting

For assets operating at High Pressure / Intermediate Pressure the Maximum Instantaneous Charge (MIC) shall dictate the distance at which an assessment of the vibration levels (at the located asset) is required. The measured distances are as follows:

- 500m if the MIC is greater than 200kg
- 250m if the MIC is greater than 10kg but less than 200kg
- 100m if the MIC is 10kg or less.

The promoter of the works should provide NGN with estimated vibration levels at the gas assets prior to works commencing, to allow NGN to assess the proposals.

For welded steel or PE assets, the peak particle velocity at the asset should not exceed 75mm sec^{1}.

Where the peak particle velocity is predicted to exceed 40mm sec^{1} an assessment of the asset stress state, which includes the incremental load due to a vibration is required. The vibration loads shall be considered as additional to all other relevant and transient loads affecting the asset. In addition, an assessment of cyclic loading should be carried out.

The ground vibration should be monitored by the promoter to verify estimated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set up at suitable intervals to provide a forewarning of potential limit exceedance. Records of ground vibration levels shall be retained by the promoter.

A leakage survey should be undertaken before work starts, during the works if safe to do so and following completion.

Where ground conditions are of submerged granular deposits of silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset should be made.

7.12 Piling and boring

Piling or boring should not be allowed within 15m of buried gas assets without an assessment of the vibration levels at the location of the gas asset.

The promoter of works should provide NGN with estimated vibration levels at the gas assets prior to works commencing to allow NGN to assess the proposals.

For welded steel or PE assets, the peak particle velocity at the asset, should not exceed 75mm sec-1 .

Where the peak particle velocity is predicted to exceed 40mm sec-1, an assessment of the asset stress state, which includes the incremental load due to vibration, is required.

The vibration loads shall be considered as additional to all other relevant and transient loads affecting the asset. In addition, an assessment of cyclic loads must be carried out.

The ground vibration should be monitored by, or on behalf of, NGN to verify estimated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set-up at suitable intervals to provide a forewarning of potential limit exceedance. Records of ground vibration levels should be retained by the promoter.

A leakage survey should be undertaken before work starts, during the works if safe to do so and following completion.

Where ground conditions are of submerged granular deposits of silt and sand, an assessment of the effect of vibration on settlement and liquefaction at the asset should be made.

7.13 Deep mining

An asset routed within 1km of active deep mining may be affected by subsidence resulting from mineral extraction. An expert evaluation of these effects should be sought.

7.14 Surface mineral extraction

An expert assessment should be carried out on the effect of surface mineral extraction activity within 100m of an asset.

Where mineral extraction extends up to the easement, a stable slope angle and stand-off distance between the asset and slope crest should be determined by NGN. The easement strip should be marked clearly by a suitable permanent boundary such as a post and wire fence. Where appropriate, slope indicator markers should be erected to facilitate the verification of the recommended slope angle as the slope is formed.

The easement and slope should be inspected periodically to identify any signs of developing instability. This may include any change of slope profile, including bulging, the development changes in drainage around the slope. The results of each inspection should be recorded.

Where surface mineral extraction activities are planned within 100 m of an asset, but do not extend up to the easement boundary, an assessment should be made by NGN on whether the planned activity could promote instability in the vicinity of the asset.

7.15 Landfilling

An assessment should be carried out on the effect of any landfilling activity within 100m of an asset.

7.16 Cathodic protection

If the promoters works has potential for impacting the effectiveness of the cathodic protection system of the gas asset, interference tests should be carried out to determine whether the system is adversely affected.

Should any cathodic protection posts or associated equipment need moving to facilitate third party works, reasonable notice should be given.

7.17 Hot works

Hot works must only take place under NGN authorised perimetry.

Where metallic gas asset has been exposed, welding, or other hot works that may involve naked flames, should not be carried out in proximity of the gas asset unless suitable protection and precautions have been agreed.

If the gas asset is PE, or a PE asset is contained within a metallic sleeve, welding, or other hot works that may involve naked flames, should not take place within 500 mm of the gas asset unless suitable protection and precautions have been agreed to prevent against the effects of sparks, radiant heat transfer etc.

Gas leakage checks should be undertaken before, during and after the works to prevent the ignition of gas and to ensure the integrity of the gas asset.

Hot works supervision should be considered.

7.18 Seismic surveys

NGN must be advised of any seismic surveying work in the vicinity of the pipeline that will result in NGN's pipeline being subjected to peak particle velocities in excess of 50 mm/s. The ground vibration near to the pipeline should also be monitored by the contractor whilst the survey work is being carried out.

7.19 Wind turbines

The minimum proximity distance between any gas asset and any industrial/commercial sized wind turbine should be 1.5 times the fixed mast height, excluding turbine of the wind turbine.

Note: For further guidance on wind turbines, see IGEM/TD/1 and UKOPA Good Practice Guide 13 (GPG013).

7.20 Excessive loading

Cranes and lifting equipment must not be sited or moved above the pipeline unless written authority has been given by the responsible person. Permission will only be granted after a load displacement assessment is carried out by a suitably qualified organisation.

No protective measures, including the installation of concrete slab protection, should be installed over or near to the pipeline without prior consultation with NGN. An assessment must be made of the material, the dimensions and method of installation of the proposed protective measure. The method of installation must be confirmed with prior consultation with a competent person.

7.21 Drainage / sewerage works

The promoter of any works working within a pipelines easement or within 3m of a pipeline, intending to carry out drainage / sewerage works at a depth greater than the pipeline, must provide details of the proposed works including a method statement of how the work is intended to be carried out.

Special consideration should be given to the hazards associated with deep excavations. The HSE website provides further guidance, particularly at:

http://www.hse.gov.uk/construction/safetytopics/excavations.htm.

Work must not go ahead until formal written consent has been given. This will include details of protection requirements.

7.22 Ditch maintenance

Ditch maintenance is a common agricultural activity and, whilst the objective of this work is not to expose the pipeline, there is a risk of damage to the pipeline. NGN must be notified about ditch maintenance using mechanical excavators and a competent person must attend site to locate the pipeline and to discuss the work to be carried out and to ascertain the depth of material to be removed from the ditch. If it is reasonably practicable to do so, the ditch should be maintained by hand excavation across the inner hazard zone and danger zones.

For all ditch clearing works using mechanical excavators or similar, the competent person must check pipeline records to confirm the position and indicated depth of the pipeline at the time it was constructed to determine if the ditch existed at the time of construction and if the pipeline depth of cover was increased for the ditch crossing. The competent person should also check pipeline records for the presence of stabbings or fittings. The competent person must use an approved pipeline locator to establish the position and indicated depth of cover of the pipeline. If the pipeline cover at the ditch crossing was increased during construction enabling safe maintenance of the ditch it is not necessary to locate the pipeline by hand excavated trial holes.

The NGN responsible person should be in attendance during the whole of the backfilling operation around the pipeline and should stipulate the necessary consolidation requirements.

If the pipeline has been backfilled without the knowledge of the NGN responsible person then he should insist the material is re-excavated to enable him to check the condition of the pipeline coating.

7.23 Solar farms

Solar Photovoltaic (PV) Installations, including their cabling, should be suitably designed, sited, constructed, commissioned, operated and decommissioned in order to minimise the impacts to a gas asset and ensuring NGN's requirements are met.

Note: For further guidance on solar farms see UKOPA Good Practice Guide 14 (GPG014).

7.24 Working in proximity to trees and tree planting

Plant and Tree roots have the potential to cause damage to pipeline protective coatings, and such damage will subsequently result in degradation of the pipe itself. Before planting any trees or shrubs in the pipeline easement, written permission should be obtained from the pipeline operator.

Any approval granted will be subject to retaining the right to remove any trees which subsequently put the pipeline at risk, or need to be removed to allow access to the pipe for routine maintenance and in an emergency.

The consent will indicate the type of tree or bushes which are permitted and the agreed area to be planted.

The following can be used as guidance along with the below "Tree Planting" guidelines illustration:-

Shallow rooting hedges and ground plants may be planted across the pipeline.

Fruit trees, such as dwarf apple stocks may be planted up to 3 metres from the pipeline.

Christmas trees may be planted up to 3 metres from the pipeline, on the strict understanding, that these are felled at intervals not exceeding 7 years.

The following trees (or similar species) are not permitted within 6 metres of the pipeline:-

beech / birch / most conifers / elm / maple / lime / horse chestnut / oak / apple and pear.

Within 6 to 10 metres they may be planted as individual specimens or as a single row.

Dense mass planting may be carried out at distances greater than 10 metres.

Poplar and willow trees should not be planted within 10 metres of the pipeline.

Contact the pipeline operator prior to any felling or shrub removal in the vicinity of the pipeline.

7.24 Continued:-
Tree Planting Guidelines

Large growing species of:
Poplars and Willows

10.0m

Large Conifers and Deciduous Forest Trees

Scots Pine	Horse Chestnut	Apple
Black Pine	Sweet Chestnut	Pear
Cedar	London Plane	Plum
Larch	Hornbeam	Cherry
Ash	Lime Alder	Lime
Beech	Elm	
Sycamore	Oak	

6.0m

Dwarf Stock Fruit Trees

Amenity Trees Trees	**Ornamental**
Field Maple	Mountain Ash
Wild Cherry	Whitebeam
Crab Apple	Cockspur Thorn
Cobnut	False Acacia
Birch	Lawsons Cypress
Elder	

3.0m

Shrub Planting Bushes		**Fruit**
Holly	Dogwood	Goosberries
Laurel	Spindle	Raspberries
Privet	Guelderrose	Currants
Rhododendron		Roses
Christmas Trees		Loganberries

1.5m

Hedgeplants and Groundcovers
Hedgeplants only where neccessary over the pipeline, road and field crossings etc.

Ground Cover:			
	Hawthorn	Blackthorn	Heathers
	Snowberry	Berbaris	Cotoneaster

Distance from Pipeline

8. Action in the case of damage

8.1 Immediate action

If an asset is damaged, even slightly, the following precautions should be taken immediately.

- Shut down all plant and machinery and extinguish any potential sources of ignition
- Evacuate all personnel from the vicinity in accordance with the risk assessment method statement.
- Ensure no one approaches the asset.
- Notify the gas emergency number immediately.
- Provide assistance as requested by NGN or emergency services, to safeguard persons or property.
- Ensure no attempt is made to try to stop any escaping gas.

8.2 Investigation

Following a damage NGN may require control measures to be put in place to prevent future damages from occurring.

9. Glossary of terms

Chain Trencher:A piece of construction equipment used to dig trenches using a digging chain or belt that is driven around a rounded metal frame.

Contractor: The person, firm or company with whom NGN enters into a contract to which this specification applies, including the Contractor's personal representatives, successors and permitted assigns.

Easement: Easements are negotiated legal entitlements between NGN and landowner and allow NGN to lay, operate and maintain pipelines within the easement strip. Easement strips may vary in width typically between 6 and 25 metres depending on the diameter and pressure of the pipeline. Consult NGN for details of the extent of the easement strip where work is intended.

Liquefaction: Liquefaction is a phenomenon in which the strength and stiffness of the soil is reduced by earthquake shaking or other rapid loading. Liquefaction occurs in saturated soils, that is, soils in which the space between individual particles is completely filled with water. When liquefaction occurs, the strength of the soil decreases and the ability of the soil to support pipelines or other components is reduced.

Low Pressure: Operating below 75mbar.

Medium Pressure: Operating between 75mbar and 2 bar.

Intermediate Pressure: Operating between 2 bar and 7 bar.

High Pressure: Operating above 7 bar.

Promoter of new works: The person or persons, firm, company or authority for whom new services, structures or other works in the vicinity of existing NGN pipelines and associated installations operating are being undertaken.

Services: All underground pipes, cables and equipment associated with electricity, gas, water (including piped sewage) and telecommunications. Also includes other pipelines which transport a range of petrochemical and other fluids. It does not include underground structures such as railway tunnels etc.

NGN: Northern Gas Networks Ltd (Independent Gas Distribution Company).

NGN responsible person: The person or persons appointed by NGN with the competencies required to act as the NGN representative for the purpose of the managing the particular activity.

Appendix A

Plant protection control form

Plant Protection Control Form					
Activity Reference:		ALL WORK MUST BE CARRIED OUT IN ACCORDANCE WITH NGN/PR/SSW/22 UTILITIES DRAWINGS MUST BE ON SITE BEFORE COMMENCEMENT OF WORKS			
Activity Location:		Grid References:	E: N:	Pipeline/PON:	
TP Site Manager: Name and Number		Pressure Regime:		Pipe Diameter	
NGN Contact: Name and Number		Overview of Works:			
The Following Document were issued to: Individuals name					
Company Name and Address:					
List of Documents:					

Agreed works within the easement:	Protective measures agreed:

NGN Responsible person to record this form and site photos on NGN Encroachment app

Signed: (recipient)	Signed: (NGN rep)	Date of signature:

BEFORE YOU DIG TEAM 0800 040 7766 (Option 3)	IN THE EVENT OF PIPELINE DAMAGE CALL 0800 111 999

Comments

Comments and queries regarding the technical content of this safety and engineering document should be directed to standards@northerngas.co.uk

Contact Us

Call: **0800 040 7766**

Or send an email to the Before You Dig team at: **beforeyoudig@northerngas.co.uk**

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we are the network