



Spalding Energy Expansion Gas Pipeline Environmental Statement Non-Technical Summary Volume 1

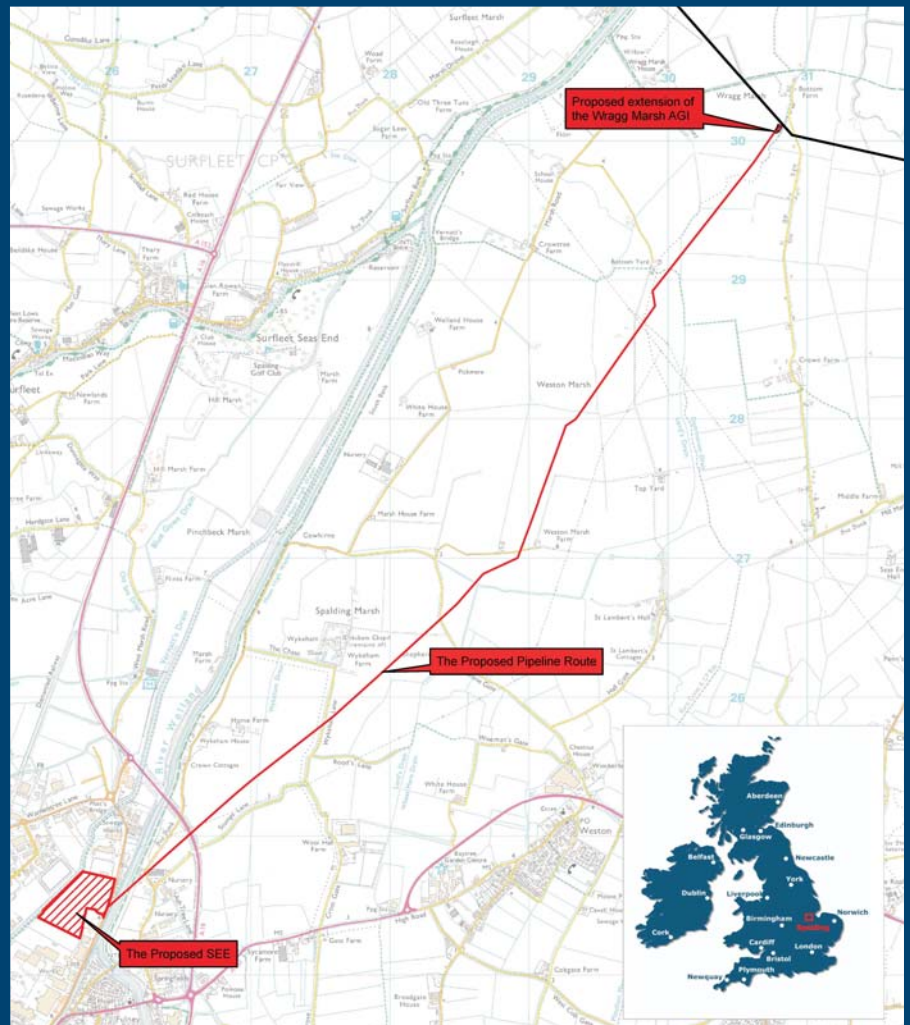
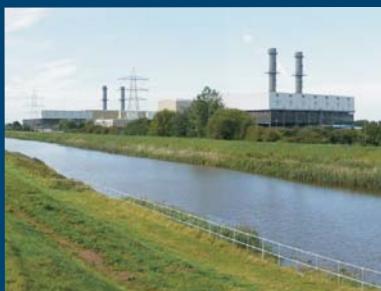


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Photomontage of the proposed SEE (left) and the existing SECL Power Station (right) adjacent to the River Welland

Summary

Background

InterGen proposes to construct a new Combined Cycle Gas Turbine power station, to be known as the “Spalding Energy Expansion”, adjacent to its existing power station in Spalding, Lincolnshire. In order to provide a fuel gas supply to the new power station it is necessary to construct a new high pressure gas pipeline of approximately 8 km in length. An Environmental Statement has been prepared to accompany a planning application for the proposed pipeline to South Holland District Council under the Town and Country Planning Act 1990.

The Proposed Pipeline

The proposed pipeline will connect the new power station to the gas National Transmission System via an extension to the existing Above Ground Installation situated at Wragg Marsh. The proposed pipeline will be constructed from high-grade welded steel and will be buried at least 1.1 m below the surface for its entire length. It will have a diameter of up to 457 mm and will have a design operating pressure of 90.1 barg.

The proposed pipeline route and construction techniques have been selected to avoid or minimise environmental impacts. Upon completion of the construction works, disturbed land will be reinstated to as near as possible to its original condition.

Environmental Statement

This document summarises the environmental information contained within the Environmental Statement to enable stakeholders to understand the potential construction and operational environmental effects of the proposed pipeline and extension to the Above Ground Installation at Wragg Marsh. Key highlights include:

- in depth consultation with stakeholders including a public exhibition and meetings;
- dialogue with stakeholders to confirm the environmental matters to be assessed;
- assessment of the potential environmental impacts; and
- establishment of mitigation measures for potential environmental impacts.



Typical Local Road



Typical Local Drain

Key Impacts and Mitigation

| Issue | Description and Potential Impacts | Design Measures and Mitigation |
|----------------------------|--|--|
| Agriculture and Soils | During construction there will be some disruption to farming activities. | Mitigation measures will be set out in formal legal agreements with landowners and occupiers and will include: <ul style="list-style-type: none"> • best practice soil handling techniques; • pre and post construction remedial land drainage systems; and • reinstatement following construction. |
| Ecology | Key impacts during construction include: temporary loss of habitats and disturbance to protected species such as badger; water vole; otter; marsh harriers and other nesting birds. | The proposed pipeline route and construction techniques have been selected to minimise ecological impacts. The River Welland and the Lord's Drain will be crossed using trenchless techniques to avoid impacts to water vole, otter and fish species. A range of biodiversity enhancement measures will be implemented, including planting at the proposed AGI extension. |
| Archaeology | The route will cross a number of archaeological features including the Lord's Drain, Wykeham drain and a medieval sea defence feature known as 'Sea Bank' or 'Roman Bank'. Unidentified archaeological remains may currently be buried along the proposed pipeline route. | The proposed pipeline route and construction techniques have been selected to minimise archaeological impacts. A Written Scheme of Investigation will be agreed with the County Archaeologist outlining an archaeological assessment and mitigation strategy (to include a watching brief during construction). |
| Emissions | A number of residential properties located close to pipeline construction activities may experience an increase in noise levels during construction. | Potential impacts will be mitigated and controlled through a Construction Environmental Management Plan and consultation with the local Environmental Health Officer. |
| Landscape and Visual | There is the potential for landscape and visual impacts to arise during construction of the proposed pipeline and as a result of the extension to the Above Ground Installation at Wragg Marsh. | Once complete the pipeline will be buried along its entire length and the land above will be re-instated to its former condition. Landscaping proposals will be implemented around the extension to the Above Ground Installation at Wragg Marsh in order to reduce the visibility of this facility. |
| Traffic and Transportation | Construction of the pipeline will result in a temporary increase in traffic flow with potential impacts to other road users. The greatest transportation requirement during construction is the delivery of the steel pipe lengths to the working width. | A management plan to reduce traffic impacts during construction will be implemented. Roads will be crossed using trenchless construction techniques to allow normal traffic flows to be maintained. |

1 Introduction

- 1.1 This Non-Technical Summary (NTS) is Volume 1 of the Environmental Statement (ES) prepared to accompany a planning application by Spalding Energy Expansion Limited (SEEL) to South Holland District Council (SHDC) for a high pressure gas pipeline of approximately 8 km in length and an extension to the existing Wragg Marsh Above Ground Installation (AGI) near Spalding, Lincolnshire. The ES has been prepared under the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999, as amended.
- 1.2 SEEL is a subsidiary of InterGen N.V. (InterGen), a global power generation company. InterGen proposes to expand its existing power station (known as the Spalding Energy Company Limited (SECL) power station) in Spalding, Lincolnshire, by constructing an adjacent 900 MW Combined Cycle Gas Turbine (CCGT) power station, to be known as the proposed Spalding Energy Expansion (the proposed SEE) (National Grid Reference TF 259 249). In order to provide a fuel gas supply to the proposed SEE, it is necessary to construct a new gas pipeline.
- 1.3 The proposed pipeline will connect the proposed SEE to the National Transmission System (gas) via an extension to the existing AGI situated at Wragg Marsh (National Grid Reference TF 308301). The proposed pipeline will be constructed from high-grade welded steel pipe up to 457 mm in diameter and will have a design operating pressure of 90.1 barg.
- 1.4 The aim of the NTS is to summarise the content and main findings of the ES in a clear and concise manner to assist the public in understanding what the environmental effects of the proposed pipeline and AGI extension are likely to be. The full ES (Volume 2 Main Report and Technical Appendices) provides a more detailed description of the proposed pipeline and AGI extension, the characteristics of the proposed pipeline route and the findings of the Environmental Impact Assessment (EIA) process. The full ES can be viewed at the addresses below:
- South Holland District Council, Council Offices, Priory Road, Spalding, Lincolnshire PE11 2XE: Opening hours: Monday/Tuesday/Thursday 8.30 - 17.15, Wednesday 9.00 - 17.15, Friday 8.30 - 16.45;
 - Spalding Library, Victoria Street, Spalding, Lincolnshire, PE11 1EA: Opening hours: Monday/Friday 9.00 - 18.00, Tuesday/Wednesday 9.00 - 19.00, Thursday 9.00 - 14.00, Saturday 9.00 - 16.00;
 - The South Holland Centre, Market Place, Spalding, Lincolnshire, PE11 1SS: Opening hours: 9.30-20.30 Monday to Saturday; and
 - Pinchbeck Study Centre and Library, 48 Knight Street, Pinchbeck, Spalding, Lincolnshire, PE11 3RB: Opening hours: Tuesday, Wednesday and Thursday 10.00 – 16.00.
- 1.5 An electronic version of the ES will be available to download from <http://www.spaldingenergy.co.uk/>. Paper copies of the ES can be requested from ENVIRON UK Ltd at 7 Walker Street, Edinburgh, EH3 7JY. Copies of the NTS are

available free of charge; the Main Report and Technical Appendices (Volume 2) can be purchased on CD for £5 or in paper form at a cost of £250.

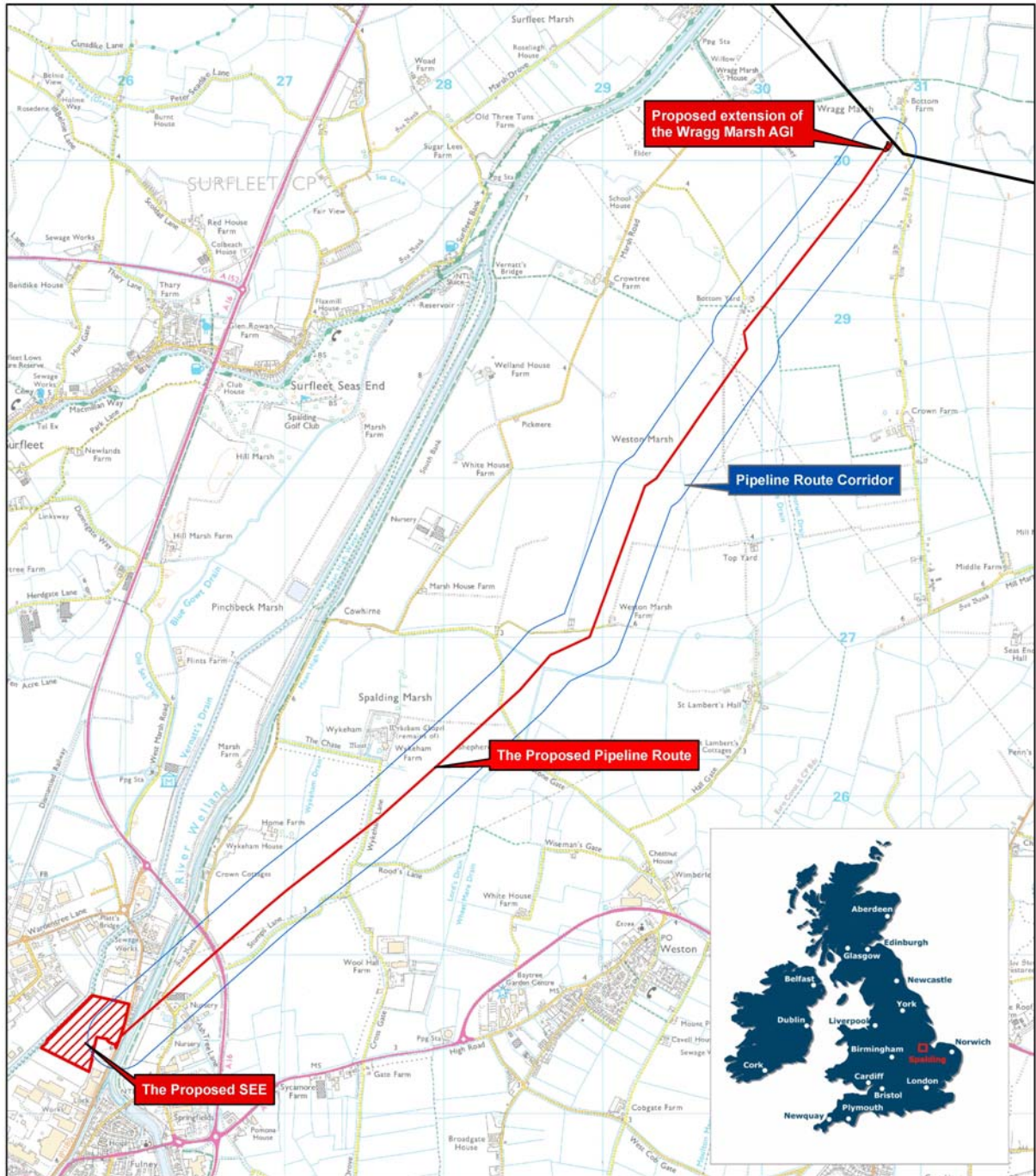


Figure 1: Proposed Pipeline Route

2 Project Description

Proposed Pipeline

- 2.1 The proposed pipeline will be buried for approximately 8 km between an extension to the existing AGI at Wragg Marsh and a new Gas Reception Facility within the proposed SEE site. The proposed pipeline will be constructed from high-grade welded steel up to 457 mm in diameter. The proposed pipeline will be protected against corrosion with a high quality external coating acting in conjunction with an impressed current cathodic protection system and Alternating Current (AC) corrosion mitigation scheme. The depth of cover will be in accordance with recognised industry standards and will not be less than 1.1 m in agricultural land, and 2 m under roads. At water crossings, the minimum depth of the proposed pipeline will not be less than 1.7 m below the bed level.
- 2.2 The proposed pipeline route is shown in Figure 1 and broadly parallels that of the existing SECL pipeline. A route corridor 200 m either side of the centre line is shown. The pipeline route corridor presents the 'limits of deviation' within which the proposed pipeline and AGI extension will be constructed – the detailed design process will inform more detailed routing of the proposed pipeline, which will be located within a 7 m wide easement, however it is not anticipated that the route will diverge greatly from that shown, and in any case will remain within the pipeline route corridor.
- 2.3 The proposed pipeline route will require 21 special crossings, including eight drains, four tracks, six roads, one river and two service crossings. The final section of the proposed pipeline route crosses four major features – the A16, Marsh Road, the River Welland and West Marsh Road. The proposed pipeline will be installed under these features using a trenchless construction technique (likely to be Horizontal Directional Drilling) to ensure there is negligible disturbance to the roads, the river bed and flood defences. Construction of the proposed pipeline is discussed in Section 4.
- 2.4 The proposed pipeline route also crosses two public Rights of Way; a footpath (Path no. WSTN/7/1) along the Lord's Drain and a bridleway (Path no. SPAL/14/2) adjacent to the River Welland.

AGI Extension

- 2.5 The proposed pipeline will connect to National Grid's No. 7 Feeder pipeline via an extension to the existing AGI located at Wragg Marsh. The AGI extension has been designed to utilise vacant land currently owned by SECL as far as possible.
- 2.6 The AGI extension will comprise a security-fenced compound covering an area of approximately 0.12 ha. The AGI extension will include a new Minimum Offtake Connection (MOC), designed, constructed and operated by National Grid, which will provide the connection to the No. 7 pipeline feeder, and a new Minimum Offtake Facility (MOF) which will be designed, constructed and operated by SEEL and will be the point of supply to the proposed pipeline.

- 2.7 The AGI extension will contain pipework, isolation valves, a facility to launch Pipeline Integrity Gauges to allow online inspection of the proposed pipeline and two instrumentation kiosks. The security fence will be a steel palisade fence approximately 2.4 m in height (as per the existing AGI). Plant will not generally extend above the height of the security fence, with the exception of a security camera on a 6 m column (it is possible that the existing camera will be relocated rather than a new camera installed) and approximately two floodlights on 4m columns.
- 2.8 An indicative layout of the AGI extension is shown in Figure 2. The final layout will be determined at the detailed design stage and therefore all design parameters are indicative at this stage.
- 2.9 Landscaping will be planted in order to screen the extended AGI and the site boundary will be enclosed within a post and wire fence. The landscaping will aim to provide biodiversity enhancement and supplement the landscaping already present.

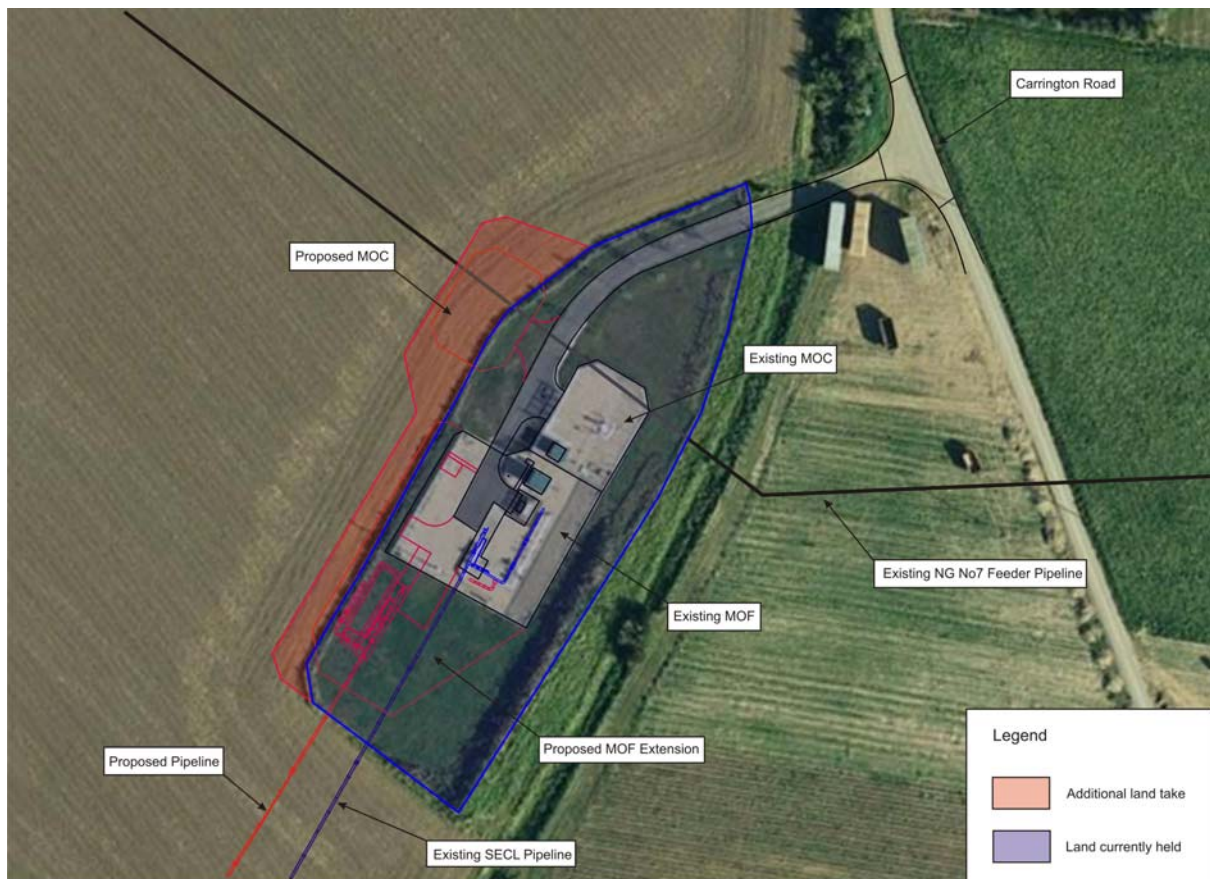


Figure 2: Indicative Layout of the AGI Extension

3 Project Need, Alternatives and Route Selection

Project Need

- 3.1 The proposed pipeline is required to provide a gas supply to the proposed SEE. The proposed SEE would be unable to operate without a gas supply and therefore there is a clear 'need' for construction of a new gas pipeline. It is not possible to use the existing SECL pipeline because it has insufficient capacity to supply both the existing SECL power station and the proposed SEE.
- 3.2 As the proposed pipeline is a critical component of the proposed SEE, justification for its construction is intrinsically linked to the need for development of the proposed SEE itself. A shortfall in electricity generation capacity versus demand is predicted in the UK by 2015 if no new power stations are constructed. This is because many older coal and nuclear plants are scheduled to retire and energy demand is predicted to grow over time, despite improvements in energy efficiency. As such, power generation development is required to ensure security of supply is maintained in the future.

Alternatives and Route Selection

- 3.3 Various alternatives have been reviewed, including transportation options, construction techniques and different routeing options. However, experience within the natural gas industry has consistently demonstrated that transporting gas within pipelines is the most practical, cost effective, safest and least environmentally harmful option when it is necessary to transport large volumes of gas over long distances.
- 3.4 Route selection is of key importance in minimising the adverse environmental effects associated with pipelines. Following careful consideration of a number of alternative route options, SEEL has concluded that the most appropriate option is to parallel the existing SECL pipeline as far as possible. This has the advantage of minimising land sterilisation due to the proximity of the existing SECL pipeline, following a proven route with adequate access for construction, and simplifying the installation of a combined cathodic protection/AC corrosion mitigation system.



The Proposed Pipeline Route from the Wragg Marsh AGI

4 Construction and Operation

Programme

- 4.1 The following indicative programme has been developed to inform interested parties of the key project milestones:
- planning application for the pipeline and AGI extension submitted to SHDC, February 2010;
 - receipt of necessary consents and permissions (subject to regulatory approval), mid 2010;
 - preparatory works, e.g. location of services, hedgerow removal and fencing, etc. during winter 2011/2012;
 - construction commencing in spring 2012;
 - commissioning in late summer 2012; and
 - pipeline operational for late 2012/early 2013.
- 4.2 The main construction activities associated with the proposed pipeline will be undertaken during the spring and summer months to take advantage of better weather and light conditions and reduce the risk of damage to soils along the proposed pipeline route. Carrying out construction activities during this time will serve to reduce site management activities associated with heavy winter rainfall, e.g. dewatering and management of silty water.

Construction

- 4.3 The methods and procedures used to construct gas pipelines are well established and the proposed pipeline will be designed, constructed and tested in accordance with the latest edition of the Institute of Gas Engineer's standard TD 1 "Steel Pipelines for High Pressure Gas Transmission". Mitigation measures, environmental management and post construction reinstatement procedures are also well established and are described in the ES.
- 4.4 The proposed pipeline will be constructed using standard gas pipeline construction techniques. Construction will take place within a temporary fenced area known as the 'working width', which will be approximately 30 m wide, although it may be wider at road and watercourse crossings. The main construction activities will include installation of drainage, topsoil stripping, pipe stringing (the process of laying out the pipe end to end) and welding, trench excavation, pipe laying (positioning of the welded pipe into the trench), back filling the trench, pressure testing the new pipe, and finally reinstatement of the land.
- 4.5 The proposed pipeline route crosses a number of roads, tracks and watercourses. The methods used to construct these crossings will be determined during the detailed design phase and will depend on the results of ground investigation and consultation with the relevant authorities. These methods can be broadly divided into open cut and trenchless techniques.

- 4.6 The open cut approach is most appropriate for crossings where there is no significant environmental sensitivity or the disturbance to traffic or water flow would be small and easily controlled. Such crossings involve digging a trench directly across the road or watercourse, quickly followed by installation of the pipe and reinstatement of the trench.
- 4.7 Trenchless techniques have the advantage of significantly reducing surface disturbance. However, they may require deep excavations on either side of the crossing, which can require de-watering and physical support and may increase the duration of works within a given area. Trenchless techniques require additional temporary land take on both sides of the crossing to accommodate the excavations and the necessary plant and equipment.
- 4.8 The proposed pipeline will be installed beneath major road and watercourse crossings (including the A16 and the River Welland) using trenchless construction techniques, such as horizontal directional drilling and auger boring. The use of trenchless techniques will minimise impacts on the environment and disturbance to traffic.
- 4.9 Following the completion of construction works, disturbed land will be fully reinstated. High quality arable land, such as that along the majority of the proposed pipeline route, is relatively easy to re-instate and is expected to be returned to normal use by the following crop growing season.

Operation

- 4.10 SEEL will be responsible for monitoring, operating and maintaining the proposed pipeline in accordance with the requirements of the Institute of Gas Engineer's standard TD 1 "Steel Pipelines for High Pressure Gas Transmission". Comprehensive operating procedures will be put in place to ensure efficient and safe operation of the proposed pipeline. These will include:
- a comprehensive system for monitoring, recording and continually updating the state of the proposed pipeline and auxiliary equipment;
 - a schedule of regular inspection and maintenance of pressure regulating equipment, pipe-work and ancillary devices to promote a high level of reliability and safety in operation;
 - an effective corrosion protection system (impressed current cathodic protection plus AC corrosion mitigation) and regular condition monitoring; including on-line inspection with a Pipeline Integrity Gauge;
 - routine surveillance and inspection of the pipeline route to prevent third party damage; and
 - clear and effective emergency procedures.



Typical Pipeline Construction Activities

(Pipe shown larger than the proposed pipeline)

5 Safety and Environmental Management

- 5.1 SEEL is committed to conducting its activities in such a way that the impact on the environment of the construction and operation of the proposed pipeline and AGI extension is avoided or kept to a minimum. The most effective form of mitigation is to design the proposed pipeline and AGI extension to avoid environmental impacts at source. Many environmental impacts have been avoided by sensitive routing and through SEEL's commitment to the use of particular construction techniques and mitigation measures.
- 5.2 During construction, potential impacts are to be addressed through a comprehensive Construction Environmental Management Plan (CEMP) to be agreed with SHDC and the Environment Agency (EA) prior to any works commencing. Adherence to the CEMP should ensure that environmental effects are minimised. The purpose of the CEMP is to:
- provide a mechanism for ensuring that the mitigation measures to prevent, reduce and, where possible, offset potentially adverse environmental impacts identified in this ES are implemented;
 - ensure that good construction practices are adopted and maintained throughout the construction of the proposed pipeline;
 - provide a framework for mitigating unexpected impacts during construction;
 - provide assurance to third parties that their requirements with respect to environmental performance will be met;
 - provide a mechanism for ensuring compliance with environmental legislation and statutory consents; and
 - provide a framework to enable the monitoring and auditing of environmental performance.
- 5.3 A number of additional plans will be produced in support of the CEMP, these will include:
- Site Waste Management Plan;
 - Pollution Prevention Plan;
 - Noise Management Plan;
 - Dust Management Plan;
 - Traffic Management Plan; and
 - Emergency Response Plan.
- 5.4 The pipeline construction contractor will also produce Method Statements to cover the detailed construction methodologies to be employed for all main construction activities, including crossings of watercourses and roads. Method Statements will be agreed with the relevant statutory and non-statutory consultees prior to construction commencing.
- 5.5 The proposed pipeline will be designed in accordance with the relevant codes of practice. It will be built, operated and maintained to the highest standards to ensure it provides a safe long-term means of transporting natural gas to the proposed SEE. The health and safety of employees and others affected by the pipeline construction works will be managed in accordance with health and safety legislation.

6 Scoping and Consultation

- 6.1 The proposed pipeline and AGI extension has been the subject of an extensive consultation process. A range of formal and informal consultations have been undertaken in order to ascertain the interests and concerns of key organisations and authorities and to assemble the initial data for the EIA. Formal consultation was undertaken via a ‘Scoping’ process. Scoping is a mechanism by which key authorities in the EIA process are informed about a proposed development and the potential environmental impacts arising from it, and have the opportunity to comment on the key issues that the EIA should focus on. A Scoping and Consultation Report¹ which set out the ‘terms of reference’ for the EIA was issued to consultees who then provided their comments.
- 6.2 The wider community were invited to comment on the proposed pipeline at a public exhibition held on Thursday 9 July 2009 at the Broad Street Business Centre in Spalding town centre. The purpose of the public exhibition was two-fold – to provide the community with an understanding of the proposed pipeline, and to provide SEEL with an understanding of local opinion. The exhibition material consisted primarily of a range of display boards with information about the proposed pipeline route.
- 6.3 In addition, extensive consultation has also been undertaken as part of the consenting process for the proposed SEE.



The Existing Wragg Marsh AGI

¹ ENVIRON UK Ltd (April 2009) Environmental Impact Assessment (EIA) Scoping and Consultation Report, Spalding Energy Expansion, Proposed Natural Gas Pipeline.

7 Environmental Baseline

- 7.1 The proposed pipeline route crosses predominantly agricultural land of flat topography. The majority of land is in intensive arable use, producing crops including potatoes, brassicas and root crops. It is widely recognised that the region contains some of the best and most productive areas of agricultural land in England.
- 7.2 The area is criss-crossed with numerous watercourses and drains, which form an extensive agricultural drainage system managed by the South Holland Internal Drainage Board.
- 7.3 The proposed pipeline route crosses the River Welland, the district's principle watercourse. The River Welland supports salmonid fish, sea trout and other fish species, and eventually discharges into The Wash, approximately 15 km downstream from where the proposed pipeline will cross the river. The Wash is a European Marine site, a SPA, a SAC, a RAMSAR site, a SSSI and an EU Site of Community Importance. The proposed pipeline route lies wholly within the floodplain of the River Welland; however the area is protected by flood defences.
- 7.4 The majority of the proposed pipeline route crosses intensive arable land of limited ecological value, however, the River Welland and drains crossed by the proposed pipeline route support a number of protected species, including otter, watervole, and badger. The arable land along the proposed pipeline route also supports a number of bat species and populations of Marsh Harrier and other birds. The proposed pipeline route crosses one hedgerow which is species poor and consists predominantly of willow.
- 7.5 The proposed pipeline route does not pass through any nationally or locally designated ecological sites. There are two statutory sites within 5km of the proposed pipeline route: Surfleet Lows SSSI and Vernatt's Nature Reserve.
- 7.6 There are also three non-statutory Sites of Nature Conservation Importance within a 2 km radius of the proposed pipeline route, namely Vernatt's Nature Reserve (see above), Spalding Cemetery (600 m to the south west) and Pinchbeck Marsh (1 km north).
- 7.7 There is no evidence of ground contamination along the proposed pipeline route.
- 7.8 Archaeological and cultural heritage features along the proposed pipeline route are limited. Wykeham Chapel, which is a Scheduled Ancient Monument, is located within approximately 250 m of the proposed pipeline route. There are also a number of Listed Buildings (Wykeham Chapel of St Nicholas, Chapel Farmhouse, and Gate piers to Chapel Farmhouse) and there are another nine Recorded Archaeological Features within the study area.
- 7.9 The number of properties along the proposed pipeline route is minimal and the population density is relatively low. The main centres of population close to the proposed pipeline route include Spalding to the south west and the villages of Moulton Sea End, Moulton and Weston to the east.

8 Environmental Impacts

- 8.1 The majority of environmental impacts associated with gas pipelines arise during the construction phase. Construction impacts are generally temporary, short term and localised. The proposed pipeline and AGI extension have been designed to avoid key areas of environmental sensitivity.
- 8.2 Once construction is completed, the proposed pipeline will be buried along its entire length and the land reinstated to as near as possible to its former condition. Normal agricultural production and on-going land use along the pipeline route can usually resume in the season following construction. Thus long term impacts are generally negligible.
- 8.3 The existing SECL pipeline was constructed in 2003. In 2009 there was very little evidence of the existing SECL pipeline or any local soil disturbance along the pipeline route. The only tangible evidence that a pipeline exists is the presence of pipeline route markers and the existing AGI.
- 8.4 The potential impacts during construction and operation of the proposed pipeline and AGI extension have been assessed in relation to the following impacts:
- Agriculture and Soils;
 - Geology and Ground Conditions;
 - Water Resources and Flood Risk;
 - Ecology;
 - Archaeology and Cultural Heritage;
 - Emissions;
 - Landscape and Visual Impact;
 - Traffic and Transport;
 - Socio-economics; and
 - Indirect, Secondary and Cumulative Impacts.
- 8.5 The following pages contain a summary of the key potential environmental impacts. The key mitigation measures included in order to avoid and reduce impacts are also listed. More detailed information is contained in the ES (Volume 2).



The Lord's Drain



The River Welland

| Issue | Description and Potential Impact | Design Measures and Mitigation |
|--------------------------------------|---|---|
| Agriculture and Soils | <p>The majority of the proposed pipeline route crosses agricultural land of flat topography. Much of this is in intensive arable use, producing crops including potatoes, brassicas and root crops.</p> <p>There will inevitably be some temporary disruption to farming activities during pipeline construction.</p> | <p>All mitigation measures will be detailed within formal legal agreements with landowners and occupiers.</p> <p>Soil will be handled in accordance with best practice guidelines to protect soil quality. A record of condition survey will be undertaken prior to construction.</p> <p>Pre- and post-construction remedial land drainage systems will be installed to ensure agricultural drainage systems continue to function.</p> <p>Access across the working width will be maintained during construction.</p> <p>All reasonable precautions in line with current best practice will be taken to prevent the spread of plant and animal diseases and agricultural weeds during construction.</p> <p>Following construction, the working width will be fully reinstated. Arable land is expected to be returned to normal use by the following crop growing season.</p> |
| Geology and Ground Conditions | <p>There is no evidence of ground contamination along the proposed pipeline route.</p> <p>There is the potential for the pollution of watercourses and drift deposits (shallow geology) as a result of accidental fuel, oil or waste leaks or from importation of contaminated materials.</p> | <p>Construction activities will be controlled through a CEMP agreed with SHDC and the EA.</p> <p>A Method Statement for dealing with unexpected contamination will be prepared and submitted to the SHDC for agreement prior to any works commencing on site.</p> <p>All secondary materials imported to the site, will have previously been analysed for the presence of leachable contaminants.</p> |



Arable Farming along the Proposed Pipeline Route

| Issue | Description and Potential Impact | Design Measures and Mitigation |
|--|--|--|
| <p>Water Resources and Flood Risk</p> | <p>During the construction phase there is the potential for sediment or pollutants to be released to watercourses or groundwater as a result of surface run off or leaching.</p> <p>Where open cut crossings are proposed there is the potential for physical damage to watercourses.</p> <p>The proposed pipeline and AGI extension will be located wholly within a Zone 3 flood plain.</p> | <p>All construction will be undertaken in accordance with EA guidance and the CEMP to ensure that adverse impacts on the water environment are avoided.</p> <p>Method Statements will be prepared and agreed with the EA, SHIDB and landowners / occupiers for all work at watercourse crossings (including reinstatement).</p> <p>Any dewatering activities will be carefully controlled.</p> <p>The decision to employ trenchless techniques for major water course crossings, including the River Welland and Lord’s Drain, will prevent disturbance to the river bed and flood defences and limit the potential for pollution of these features.</p> <p>Gaps will be left in soil storage stacks during construction to ensure that floodwater drainage is not hindered and topsoil stacks will not be located within 10 m of watercourses.</p> <p>The proposed pipeline will not reduce flood plain storage capacity as it will be buried. The above ground structures associated with the AGI extension are limited and it will be designed to ensure that the site remains operational in the event of a flood.</p> |



| Issue | Description and Potential Impact | Design Measures and Mitigation |
|--|---|---|
| Ecology | <p>Arable land is generally of limited ecological value. However a number of protected species occur along the proposed pipeline route, including otter, badger, bats, watervole, marsh harrier and other nesting birds. No great crested newts were identified in the pond within the survey area.</p> <p>Key potential impacts identified include:</p> <ul style="list-style-type: none"> • temporary loss of habitats during construction; • disturbance/ destruction of badger setts during construction; • disturbance/destruction of watervole burrows during construction; • disturbance of Eurasian otter during construction; • disturbance of nesting birds during construction; and • disturbance of fish species in watercourses. | <p>The proposed pipeline route and construction techniques have been selected to minimise ecological impacts. Badger setts have been avoided. The River Welland and the Lord's Drain will be crossed using trenchless techniques to avoid impacts to watervole, otter and fish species.</p> <p>Pre-construction strimming will be undertaken to discourage water voles from moving into the working width on the other drain where they have been identified and pre-construction surveys will be completed.</p> <p>Pre-construction vegetation removal, topsoil stripping early in the season and pre-construction surveys will be undertaken to ensure there is no disturbance to marsh harriers and other nesting birds.</p> <p>A range of biodiversity enhancement measures will be implemented, including reinstatement of the hedgerow section removed and biodiversity enhancement around the AGI such as augmenting existing planting, creation of an area of species rich grassland and the provision of bat and bird boxes.</p> |
| Archaeology and Cultural Heritage | <p>There are several Listed Buildings, a Scheduled Ancient Monument and other archaeological resources within the vicinity of the proposed pipeline route. The proposed pipeline route will cross a number of archaeological features including the Lord's Drain and Wykeham drain which are post-medieval drainage channels and Sea Bank (or Roman Bank), a medieval sea defence feature.</p> <p>There is also the potential for impacts on unidentified archaeological remains that may currently be buried along the proposed pipeline route. Previous archaeological monitoring during the construction of the existing SECL pipeline did not identify any archaeological deposits or features.</p> | <p>The proposed pipeline has been routed to avoid archaeological features as far as possible.</p> <p>Lord's Drain and Sea Bank will be crossed using trenchless techniques. Wykeham drain will be fully reinstated on completion of construction.</p> <p>A Written Scheme of Investigation will be agreed with the LCC County Archaeologist outlining an archaeological assessment and mitigation strategy.</p> <p>An archaeological watching brief will be carried out during construction of the proposed pipeline to identify and record any previously unidentified archaeological remains that are revealed during construction.</p> |

| Issue | Description and Potential Impact | Design Measures and Mitigation |
|------------------------------------|--|---|
| Emissions | <p>A number of emissions may occur during construction of the proposed pipeline, including noise and vibration from construction plant and activities, discharges to watercourses, combustion emissions from plant and vehicles, dust generation, transfer of mud onto public highways, light, waste generation and unplanned releases such as spills.</p> <p>Local residents and users of Public Rights of Way may be affected by these emissions.</p> <p>Four residential properties located within 50 to 100 m of the working width and two residential properties located within 200 m of possible sheet piling operations associated with trenchless crossings may experience a moderate increase in noise for a short duration if sheet piling is required during pipeline construction. Other residences will not experience significant noise impacts.</p> | <p>Potential impacts will be mitigated and controlled through the CEMP which will include measures such as:</p> <ul style="list-style-type: none"> • noise and vibration controlled in accordance with BS5228: 2009; • waste recovery and recycling where practical, and storage and disposal in accordance with waste legislation; • speed restrictions enforced on the working width to limit dust generation and road sweeping to minimise mud accumulation; • construction lighting will be directional and shrouded to minimise impact on road users and residents; and • liaison with local residents and the EHO to minimise nuisance as much as possible. <p>Operational lighting of the AGI extension will be in accordance with CIBSE guidance and the Society of Light and Lighting Code for Lighting 2006 and will be operated by an infrared movement sensor.</p> |
| Landscape and Visual Impact | <p>The area surrounding the proposed pipeline route and AGI extension is part of the Settled Fens Landscape Character Type. The landscape comprises open agricultural land with a flat and uniform topography. Localised undulations such as dyke embankments, established shelterbelts and clusters of trees intervene in long distance views.</p> <p>There is the potential for landscape and visual impacts to arise along the proposed pipeline route during the construction phase.</p> <p>Potential landscape and visual impacts may also arise as a result of the extension to the Wragg Marsh AGI.</p> | <p>Once complete the proposed pipeline will be buried along its entire length and the land above will be re-instated to its former condition, therefore landscape and visual impacts will be short term and temporary in nature.</p> <p>The proposed pipeline route has been selected to avoid, where possible, the need to pass near to residential properties and minimises the loss of trees and hedgerows.</p> <p>The use of trenchless construction techniques to install the pipeline beneath the River Welland and woodland features around Ornam House will minimise impacts on these features.</p> <p>The hedgerow section that will be removed will be replanted with appropriate native species.</p> <p>Landscaping proposals will be implemented around the extended AGI in order to reduce the visibility of this facility.</p> |

| Issue | Description and Potential Impact | Design Measures and Mitigation |
|------------------------------|--|---|
| Traffic and Transport | <p>Construction of the proposed pipeline will result in a temporary increase in traffic flow with potential impacts to other road users.</p> <p>The greatest transportation requirement during construction is the delivery of the steel pipe lengths to the working width.</p> <p>In addition, there will be HGV movements to deliver plant and materials to the working width and traffic associated with personnel movement during the construction period.</p> <p>Construction of road crossings has the potential to cause disruption and delay to road users.</p> | <p>Proposed mitigation measures to minimise traffic disruption will be detailed in a comprehensive Traffic Management Plan (TMP) to be agreed with the local Highway Authorities prior to any works commencing. The TMP will identify any road restrictions and agreed traffic routes, specify signage and temporary traffic controls and any additional measures to minimise impacts.</p> <p>The number of journeys will be minimised. Specific measures will include: sourcing materials locally where feasible and maximising the use of the fenced-off working width to move plant and equipment along the proposed pipeline route.</p> <p>The proposed pipeline will be installed under roads using trenchless construction techniques to minimise traffic disruption. Farm access tracks will be crossed using open-cut construction methods, however access will be maintained while the pipe is being installed by plating across trench or temporary diversions.</p> |
| Socio-Economics | <p>There will be some economic benefit during pipeline construction as a result of local employment opportunities and the use of the local services and businesses, although this is not considered to be significant at a regional scale.</p> <p>There will also be a negative economic impact as a result of disruption to farming activities, although this is not considered to be significant at a regional scale.</p> <p>In addition, there may be some temporary loss of tranquillity and visual attractiveness of the area local to the pipeline and disruption to Rights of Way during pipeline construction.</p> | <p>Disruption to farmers will be mitigated through legal agreements, and all land will be re-instated to as near as possible to its former condition post construction.</p> <p>Measures including dust suppression and noise reduction techniques will be taken to reduce the impact of the construction works on the amenity value of roads and Public Rights of Way.</p> <p>Rights of Way will generally be kept open, during construction by incorporating gates or stiles along the working width. Where it is necessary to temporarily close or divert Public Rights of Way to ensure public safety, this will be agreed with the LCC Rights of Way Officer</p> |



Indirect, Secondary and Cumulative Impacts

- 8.6 There is the potential for cumulative environmental impacts to arise as a result of other developments associated with the expansion project as a whole. These include the proposed SEE, the proposed overhead transmission line, infrastructure associated with Combined Heat and Power proposals and future Carbon Capture and Storage (CCS) proposals. In addition, consent has been granted by SHDC to Rand Developments LLP and Howtin Investments Ltd (the Rand and Howtin development) for the development of land to the southeast of the proposed SEE site, fronting onto West Marsh Road for a petrol filling station, a car showroom and some industrial storage units.
- 8.7 An EIA has been undertaken for the proposed SEE and a separate ES will be prepared by National Grid in due course for the overhead transmission line. A further ES will be required to support a second or successor application for Section 36 Consent for future CCS proposals.
- 8.8 The following table summarises the key indirect, secondary and cumulative impacts of the proposed pipeline in conjunction with the above developments.

| Issue | Description and Potential Impact | Design Measures and Mitigation |
|---------------------|--|--|
| Construction | <p>During construction the key cumulative impact is likely to be visual. Other impacts likely to arise during construction could include traffic, noise, dust and ecological impacts.</p> <p>There is likely to be a small positive cumulative economic impact as a result of temporary construction employment across all projects.</p> <p>Productive agricultural land will be temporarily required for the construction of the proposed pipeline and overhead transmission line and this could have a cumulative impact on agriculture.</p> <p>There may also be cumulative archaeological impacts as a result of ground disturbance during construction of the proposed pipeline and overhead transmission line.</p> | <p>Construction impacts will be temporary and local, and will be mitigated through the effective use of management plans and communication between construction teams.</p> <p>Disruption to farmers will be mitigated through legal agreements, and all land will be re-instated to as near as possible to its former condition post construction.</p> <p>A staged programme of assessment will be undertaken and sensitive routing and construction techniques will be implemented.</p> |
| Operation | <p>Significant environmental impacts as a result of operating the proposed pipeline and AGI extension are not anticipated, therefore cumulative impacts are not expected.</p> | <p>Not applicable</p> |