



PLANNING STATEMENT

VIKING UK GAS
LIMITED

EBBERSTON MOOR A
WELLSITE,
COMMON LANE,
SNAINTON,
NORTH YORKSHIRE

JANUARY 2013



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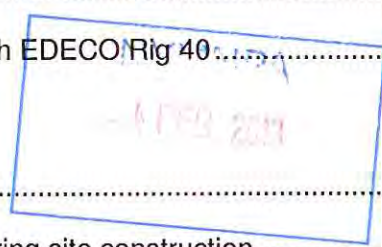


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SECTION I – PLANNING APPLICATION FORM & CERTIFICATES



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SECTION II - PLANNING STATEMENT & APPENDICES



1 GLOSSARY

AOD	-	Above Ordnance Datum
Aquifer	-	A permeable rock which can store or transmit water
BAT	-	Best Available Technique
BCF	-	Billion Cubic Feet
BGL	-	Below Ground Level
Bit	-	The tool used to drill through the rock
BOP	-	Blow Out Preventer
BS	-	British Standard
BSOR	-	Borehole Sites and Operations Regulations 1995
Cap/Seal Rock	-	An impermeable rock that prevents the migration of fluids
CDR	-	Offshore Installations and Wells (Design and Construction, etc) Regulations 1996
Cut and Fill	-	Where topography dictates, soil is cut from the higher end of the site and moved to the lower end to fill and create a level working area
DECC	-	Department for Energy and Climate Change
DEFRA	-	Department for Environment, Food and Rural Affairs
DST	-	Drill Stem Test
EIA	-	Environmental Impact Assessment
Flaring	-	Should gas be discovered then a controlled flow will be performed which is ignited and allows the potential gas and reservoir characteristics to be determined
HDPE	-	High Density Polyethylene
HGV	-	Heavy Goods Vehicle
HSE	-	Health and Safety Executive
JMLP	-	Joint Minerals Local Plan
km	-	Kilometres
Lithology	-	The different geology and characteristics of the rock
Logging	-	Electrical recordings in the well bore which measures the physical characteristics by correlating rock strata
LVIA	-	Landscape and Visual Impact Assessment
MAFF	-	Ministry of Agriculture, Forestry and Fisheries

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MMscfpd	-	Million Standard Cubic Feet per Day
MPA	-	Mineral Planning Authority
Mud Logging	-	The recording of information derived from the examination and analysis of drill cuttings as well as gas monitoring
NGR	-	National Grid Reference
NPPF	-	National Planning Policy Framework
OBM	-	Oil Based Mud
Offset Well	-	A previously drilled well close to the proposed well, that can provide beneficial information on its characteristics by correlating rock strata
PEDL	-	Petroleum Exploration and Development Licence
Perforation	-	This creates a communication between the reservoir rock holding petroleum and the well bore
PON	-	Petroleum Operations Notice
PPG	-	Planning Policy Guidance
PPS	-	Planning Policy Statement
Prospect	-	An area where petroleum is predicted to be located
Reservoir	-	A porous and permeable rock in which oil or gas may be present
Source Rock	-	A rock containing organic material that is capable of producing petroleum
Spud	-	The point at which drilling commences and the bit begins drilling through the strata
Strata	-	Different layers of rock
Surface Conductor	-	The first string of casing run to prevent surface losses and or washouts below the cellar base in addition to isolating any aquifers
Tubing	-	Tubing is hung inside the casing and petroleum is flowed through it to the surface
TVD	-	True Vertical Depth
TVDss	-	True Vertical Depth Sub Sea
WBM	-	Water Based Mud
Well Bore	-	The inside of the borehole which has been drilled through the different lithologies
Wellhead	-	The equipment installed at the top of the wellbore from which casing and tubing strings are suspended

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- WHO - World Health Organisation
- Xmas Tree - A system of valves that control pressure from a production well

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2 SUMMARY

2.1 THE APPLICANT

Viking UK Gas Limited (the "Applicant") is a subsidiary of Third Energy, a private company with its head office in London. Viking UK Gas limited operates from Knapton Generating Station, North Yorkshire. The Applicant is the operator of gas fields within the Ryedale Valley and at the time of submitting this application holds interests in a total of six (6) Petroleum Licences and one (1) Petroleum Appraisal Licence, granted by the Secretary of State at the Department of Energy and Climate Change (DECC). Under the Petroleum Licensing system this permits the licence holder to '*search, bore and get petroleum within the licence boundary*' subject to the granting of planning permission in accordance with the Town and County Planning Act 1990.

2.2 THE PROPOSAL

The Applicant is proposing to undertake the drilling of a sidetrack from the existing Ebberston Moor A wellsite (formally known as Ebberston Moor 1) and drill up to two additional appraisal boreholes followed by a period of short term testing for gas. To facilitate the drilling of up to two additional appraisal boreholes, two new drilling cellars will be constructed within the wellsite. In summary this will consist of four principle phases:

- Cellar Construction
- Drilling
- Extended Well Test
- Restoration and Aftercare



The purpose of the appraisal wells is to help determine the commercial potential of the Ebberston Moor Gas Field and to commercially de-risk any future potential development of the gas field, thus providing the Applicant with valuable information.

2.3 CELLAR CONSTRUCTION

The proposals will utilise an existing wellsite that was originally constructed in 2006. To facilitate the drilling of up to two additional appraisal boreholes, two new drilling cellars will be constructed within the wellsite.

2.4 DRILLING

Once the construction work is completed the drilling rig and associated equipment will be mobilised to site and over a period of two (2) weeks, the equipment will be rigged up ready for drilling. Once the drilling operation starts, it is necessary that it continues 24 hours a day, 7 days a week. This is due to a number of factors, including maintaining well bore stability.

The Applicant is proposing to drill up to two appraisal boreholes to a target depth of 1746m (5730ft). This will entail the drilling of a directional borehole to and through the primary and secondary target reservoirs. It is anticipated that the drilling operation will be completed within seven (7) to twelve (12) weeks per borehole. This timeframe is dependent on a

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number of factors, including progress through the different strata and whether gas is identified in any of the target zones.

The drilling is targeting conventional gas bearing formations and therefore a typical oilfield drilling rig will be used. Drilling rig availability is not known at this early stage of the planning process, consequently it is not possible to definitively determine which rig may be used; however, the approximate height of the drilling rig suitable for drilling to this depth is 50m. A drill stem test may be carried out whilst the rig is still on site, to establish any initial flows of gas.

The Applicant is also proposing to drill a sidetrack from the existing borehole to further evaluate the target that has been identified. Each drilling operation will last for between 7 – 12 weeks.

2.5 EXTENDED WELL TEST

If gas is established during the drilling, the Applicant may wish to undertake an extended well test for up to ninety (90) day. This will allow the Applicant to gain a further understanding of the gas within the reservoir. The test will be run 24 hours a day to allow maximum information to be gathered. Minimal equipment is required during a well test, primarily pipework, storage tanks, separator and a ground flare.

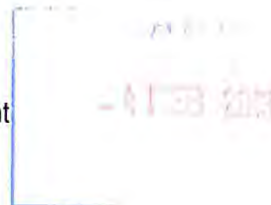
2.6 RESTORATION AND AFTERCARE

If no gas is found, the site will be retained temporarily pending further analysis of the data obtained during drilling. If the data obtained does not provide the Applicant with confidence that gas flow can be established then the site will be restored to its existing condition, estimated to take 5 weeks. A period of aftercare will be carried out to ensure successful restoration. If, however, commercial quantities of gas are present, then the Applicant will suspend the well pending the outcome of a decision on a planning application for the production of gas.

2.7 SUPPORTING DOCUMENTS

This application is supported by the following reports:

- Ecological Phase 1 Study
- Noise Assessment
- Landscape and Visual Impact Assessment
- Traffic Management Plan



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3 INTRODUCTION

3.1 THE APPLICANT

Viking UK Gas Limited (the "Applicant") is a subsidiary of Third Energy, a private company with its head office in London. Viking UK Gas limited operates from Knapton, North Yorkshire. In July 2011 Viking UK Gas Limited was acquired by Third Energy Holdings Limited. The Applicant is the operator of gas fields within the Ryedale Valley and at the time of submitting this application holds interests in a total of six (6) Petroleum Licences and one (1) Petroleum Appraisal Licence, granted by the Secretary of State at the Department of Energy and Climate Change (DECC). Under the Petroleum Licensing system this permits the licence holder to 'search, bore and get petroleum within the licence boundary' subject to the granting of planning permission in accordance with the Town and County Planning Act 1990.

Many of the Ryedale gas fields were originally discovered by Taylor Woodrow Exploration Limited and subsequently developed by Kelt UK Limited. Kelt sold its interest in the Ryedale Gas Fields to Tullow Oil and Edinburgh Oil and Gas. Tullow Oil then went on to acquire the interest held by Edinburgh Oil and Gas. The Applicant acquired the interests of the Ryedale Gas Fields from Tullow Oil and Gas in 2003 and has subsequently undertaken an active drilling and workover programme to enhance production of gas from the gas fields located at Kirby Misperton, Pickering, Marishes and Malton.

The Applicant also holds a number of exploration licences covering the southern extent of the North York Moors National Park, and has previously constructed, drilled and tested an exploration well at the Ebberston Moor A wellsite which tested at 6MMscf/d.

Petroleum Safety Services Limited is an independent company providing planning and safety supervision to the petroleum industry. Petroleum Safety Services is working on behalf of the Applicant and is responsible for obtaining the necessary permissions.

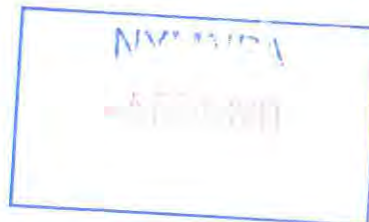
3.2 THE DEVELOPMENT

The Applicant is applying to the North York Moors National Park Authority, for permission to:

Drill up to two appraisal boreholes and a sidetrack, followed by a period of short term testing, for the purposes of gas appraisal.

In summary this will consist of four principle phases:

- Cellar Construction
- Drilling
- Extended Well Test
- Restoration and Aftercare



This development will allow the Applicant to search for indigenous gas resources that can be used to maintain the UK's security of supply.

The Applicant is proposing to undertake the drilling of a sidetrack from the existing Ebberston Moor 1 well and drill up to two additional appraisal boreholes followed by a period of short term testing for gas. To facilitate the drilling of up to two additional appraisal boreholes, two new drilling cellars will be constructed within the wellsite. For clarity, this proposal only relates to the drilling of appraisal boreholes and does not include subsequent production.

The Applicant requests that a period of five (5) years is allowed to undertake and complete the proposed operations; primarily required due to rig availability. Should planning permission be granted, the Applicant requests that the scheme is implemented within five (5) years from approval.


If the drilling is unsuccessful in proving commercial quantities of gas, then the well will be plugged and abandoned in accordance with Oil and Gas UK guidance. If the well is successful in proving commercial quantities of gas, then the Applicant may apply to the Mineral Planning Authority (MPA) for permission to produce gas. Should this occur, the Applicant requests that restoration is delayed pending the decision on a subsequent planning application for the production of gas.

3.3 PRE-APPLICATION CONSULTATION

Prior to submitting this application, the Applicant has undertaken pre-application consultation with a number of key consultees. The Applicant consulted various organisations in relation to proposals for Ebberston Moor A. The comments received in relation to the Ebberston Moor A proposals have been taken into consideration and the following table considers these comments.

CONSULTEE	COMMENTS	CONSIDERATION
North York Moors National Park Authority - Ecology	The principal ecological effects which must be considered are those on uncommon breeding bird species in the area.	An independent ecology survey has been completed and has identified mitigation for breeding birds.
North Yorkshire County Council Highways	The following information is to be included with any application: 1. Details on types and number of vehicles, including operational times. 2. Details on the current condition of the route and an inspection regime. 3. Details of any necessary highway works. 4. Consideration of alternative routes and emergency arrangements. 5. A schedule of proposed traffic management.	A separate Traffic Management Plan has been produced and included in Appendix 9. It includes details on the operating hours and types of vehicles that can be expected. Should planning permission be approved, the Applicant proposes to conduct a dilapidation survey along the access route. Monitoring surveys will be conducted at the end of each phase of operations. An alternative access route for emergencies has been identified and considered acceptable.

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CONSULTEE	COMMENTS	CONSIDERATION
<p>Ryedale District Council – Environmental Health Officer</p>	<p>The scoping does not cover water resources, but the drilling will be in the proximity of private water supplies.</p> <p>The period of drilling and extended well testing (which includes flaring) has the potential to cause noise disturbance to the nearby residents, therefore noise mitigation measures should be considered by the applicants.</p>	<p>Consideration has been given to the potential effects on groundwater resources in the design of the wellsite and well and is detailed in this application.</p> <p>As agreed with the EHO, the original noise survey has been included with this application. Any noise mitigation will be determined once a rig has been selected but may include bunding of site, positioning of equipment, screening equipment and use of temporary containers.</p>
<p>Environment Agency</p>	<p>No comments received.</p>	
<p>Natural England</p> 	<p>The site is located approximately 1.7km away from Troutdale and Rosekirk Dale Fens Site of Special Scientific Interests (SSSI). Ground water springs are important features of the SSSI, therefore it is important that any leakages are contained.</p> <p>The development falls within North York Moors National Park.</p> <p>The proposed drilling works are to be conducted 24 hours a day for duration of seven to twelve weeks. The resulting noise could cause disturbance to wildlife, in particular bats and birds. To reduce the impacts of noise disturbance it is recommend that drilling works are conducted outside of the bird breeding season (March to September inclusively).</p>	<p>The ecology survey has considered the potential impact of the proposals on local designated sites.</p> <p>Mitigation measures are incorporated into the proposals to prevent any impacts, including placing an impermeable membrane across the site to capture surface water.</p> <p>The impact on breeding birds is not considered significant by the Ecologist. Furthermore, due to the limited number of drilling rigs and their availability in the UK, it would not be practicable to limit the when the operations could take place.</p>
<p>Yorkshire Wildlife Trust</p>	<p>As the site has already been used for drilling the flora will be already impacted but a Phase 1 survey would be needed. The area looks as if it will be suitable for ground nesting birds so bird surveys will be needed.</p>	<p>An ecology survey has been submitted with this application. This has identified mitigation where appropriate.</p>

CONSULTEE	COMMENTS	CONSIDERATION
Yorkshire Water	Details are requested on drilling and well construction plans. In addition, proposals for pollution prevention in constructing the drilling cellars and the borehole construction design along with what casing and grouting and testing of these is planned to ensure that pollutants don't enter the Corallian aquifer and put water resources at risk.	The application includes details on the measures that have been incorporated into the proposals to protect surface and groundwater. This includes setting a casing string through the Corallian, grouting it back to surface and pressure testing it to confirm integrity. In addition the site is lined with an impermeable membrane and the cellar sealed.

3.4 THE PETROLEUM LICENSING SYSTEM

Ownership of the petroleum resources of the nation is vested in the Crown and the right to explore for and produce petroleum is controlled by DECC, under a licensing system. Companies are granted a Petroleum Licence (PL) under the Petroleum (Production) (Landward Areas) Regulations 1995. This licence grants the licensee the exclusive right "to search and bore for and get petroleum in (the defined area of the licence)". The Applicant was awarded PL077 by DECC, identified in Figure 1.

The UK onshore petroleum licensing system, whilst giving exclusive rights to the licensees, does clarify that planning permission is required before the drilling of exploratory, appraisal and production wells. Central Government recognises that it is in the national interest to ensure the efficient recovery of all economic petroleum resources and further recognises that sound exploration activity is of merit in its own right, insofar as it helps pave the way for future discovery and exploitation of the country's natural resources. This recognition is discussed in greater detail in Sections 3.5 and Section 7.

If planning permission is granted, the Applicant will be required to seek further approvals from DECC and the Health and Safety Executive (HSE) before drilling can commence. This includes the submission of a Petroleum Operations Notice (PON) to DECC, detailing the proposed operations and notification to the HSE 21 days prior to the start of the drilling operations, as required through legislation.

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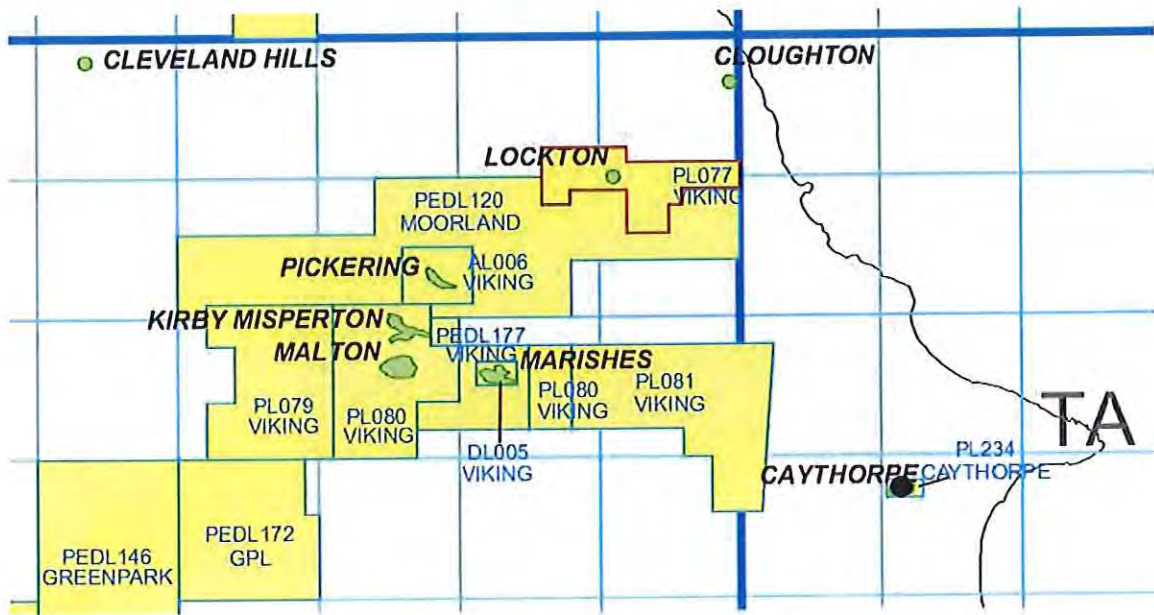


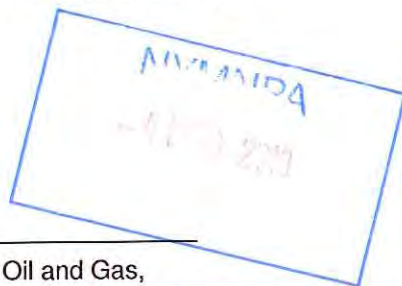
Figure 1. Viking UK Gas Ltd License Area

3.5 THE NEED FOR PETROLEUM DEVELOPMENT

The UK is heavily reliant on obtaining energy from fossil fuels and this will continue for a number of years. Oil and gas from the UK currently supplies 60% of the UK's energy needs¹. The North Sea oil fields are gradually depleting, having peaked in 1999. Therefore it is imperative that this supply is maintained and additional reserves of oil and gas is found. It is becoming significantly more viable for the exploration and development of onshore prospects.

In 2004 the UK became a net importer of oil and gas for the first time; this has continued with increasing demand. The UK is currently importing 8% of oil and 32% of gas. It is estimated that by 2020, import dependence will increase to 45 – 60% for oil and 70% or more for gas². These significant increases in demand are also being seen in many other countries, consequently, there will be continued demand for mineral resources in the future.

In the medium term the Government wishes to ensure that the economic production of declining oil and gas reserves is maximised³. The following graph highlights the predicted demand for oil and gas in the UK.



¹ DECC, 2011, Oil and Gas,

http://www.decc.gov.uk/en/content/cms/meeting_energy/oil_gas/oil_gas.aspx,

² DECC, 2010, Annual Energy Statement - DECC Departmental Memorandum, DECC, London

³ DECC, 2011, National Policy Statement for Energy, Energy Planning Reform, London

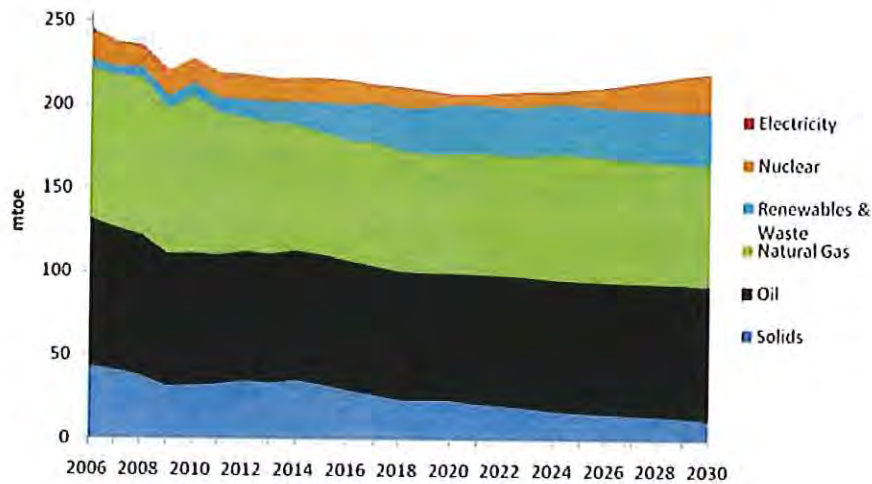


Figure 2. Projections of Primary Energy Demand⁴ (DECC, 2012)

In December 2012, the Coalition Government published the Gas Generation Strategy which set out the importance of gas within the UK’s energy mix and describes how it will provide a “secure, low carbon and affordable electricity system⁵”. The Government has highlighted its commitment to ensuring that the UK maximises its indigenous oil and gas resources. It is considered that gas will continue to play a major role, in conjunction with low-carbon technologies⁶.

The UK wishes to ensure security of supply by exploring for indigenous gas reserves both onshore and offshore, where they can be exploited in a safe and sensitive manner with regards to the environment. This was highlighted in the recent National Policy Statement for Energy. If the UK does not maintain security of supply it will become more susceptible to fluctuations in price and volatilities with demand. Many of the countries which produce significant quantities of petroleum are unstable, therefore due to geopolitical interferences this could impact the UK when trying to ensure demand is met.

National Planning Policy Framework (NPPF) deals specifically with minerals development in England, including gas. It states that ‘*minerals are essential to support sustainable economic growth and our quality of life*’. The NPPF reiterates the Government’s commitment to minerals development by setting out the following aim:

- Give great weight to the benefits of the mineral extraction, including to the economy.

In summary, there is a strong drive from the Government to explore for indigenous oil and gas resources. Whilst the UK onshore market does not provide significant quantities of oil and gas when compared to the UK Continental Shelf, it will still ensure security of supply and allow further data to be gathered.

⁴ DECC, 2012, Updated Energy and Emissions Projections, DECC, London

⁵ DECC, 2012, Gas Generation Strategy Press Release, http://www.decc.gov.uk/en/content/cms/meeting_energy/oil_gas/gasgenstrat/gasgenstrat.aspx

⁶ DECC, 2012, Gas Generation Strategy, DECC, London

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3.6 GEOLOGICAL SUMMARY

The Applicant is the holder of Licence PL077, which encompasses approximately 46km² in North Yorkshire, England, as identified in Figure 1.

The Ebberston Moor Field (previously known as Lockton) was discovered by Home Oil Canada in 1966 with the drilling of Lockton-2a, based on a sparse grid of 2D seismic data. A further seven wells were drilled but encountered mixed results. Many of these wells were poorly located in fault zones or off structure due to the poor structural understanding of the field. Production began in 1971 from Lockton-2a and Lockton-7, which produced 10.2bcf and 1.1bcf respectively. However, production ceased after only two years due to water problems and the southerly Wykeham discovery was never developed.

In 1980, Taylor Woodrow Energy Limited acquired additional 2D seismic data in an attempt to better constrain the structural understanding of the field's eastern flank. Based on this new data, Taylor Woodrow drilled the Lockton East-1 well. This well was drilled to a total depth of 5940 feet TVDss in the Carboniferous Millstone Grit with the objectives to test the Permian Kirkham Abbey carbonate reservoir in an East-trending structural high at Carboniferous and Permian Levels. The well tested at 2.3 mmscf/d. A number of the wells which have been drilled are identified in Figure 3.

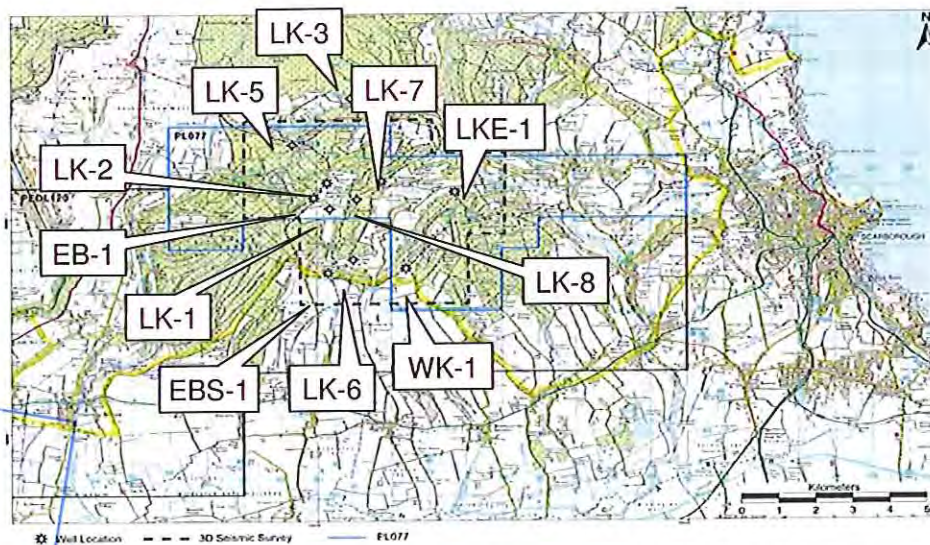


Figure 3. Map Showing PL077 and Location of 3D Seismic Survey

In 2007, the Applicant conducted a 35km² 3D seismic survey to refine the understanding of this discovery, now referred to as the Ebberston Moor Field. An example of the 3D data can be seen in Figure 4.

The seismic displayed in Figure 4 shows the surface and target location of the wells proposed in this application. The target is to the north of the Ebberston Moor A wellsite and is designed to fully appraise the gas in place within the Ebberston Moor structure.

The primary target for the wells is the Permian aged Kirkham Abbey Formation. However, the Applicant recognises that there are other potential reservoir target horizons in this field, including the Late Permian Brotherton Formation, a basal Permian lag Sandstone (proximal

equivalent of the Rotliegendes Sandstone), Carboniferous delta top sandstones and deep water sandstone turbidite sequences.

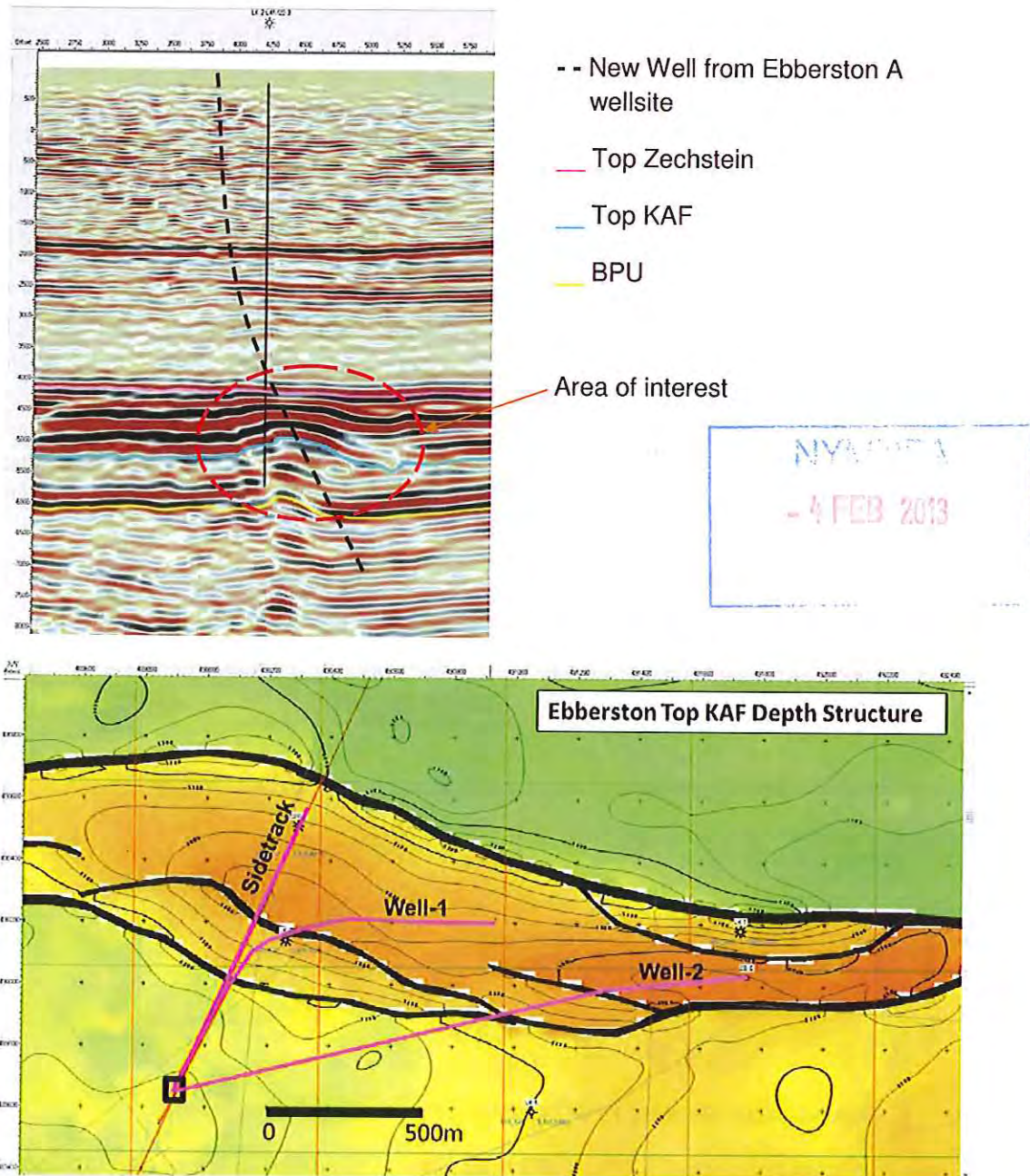


Figure 4. Seismic Line & Top Structure Map Showing Structure

The wells from the Ebberston Moor A wellsite will be drilled into the Millstone Grit of the Namurian A or 100 feet below any good gas shows. This will begin with the setting of a 28" steel conductor from surface, to a depth of 230 feet TVD GL set in the Oxford Clay. The rig will then drill and set 20" casing to a depth of 1,030 feet TVD GL, before drilling and setting 13-3/8" casing to a depth of 2,990 feet TVD GL in the Mercia Mudstone Group. This will be followed by the drilling and setting of 9-5/8" casing at 4,890 feet TVD GL in the Roxby Formation. It will continue to drill and set 7" liner to TD, which allow the selective testing of gas charged reservoirs. Figure 5 shows the proposed casing programme.

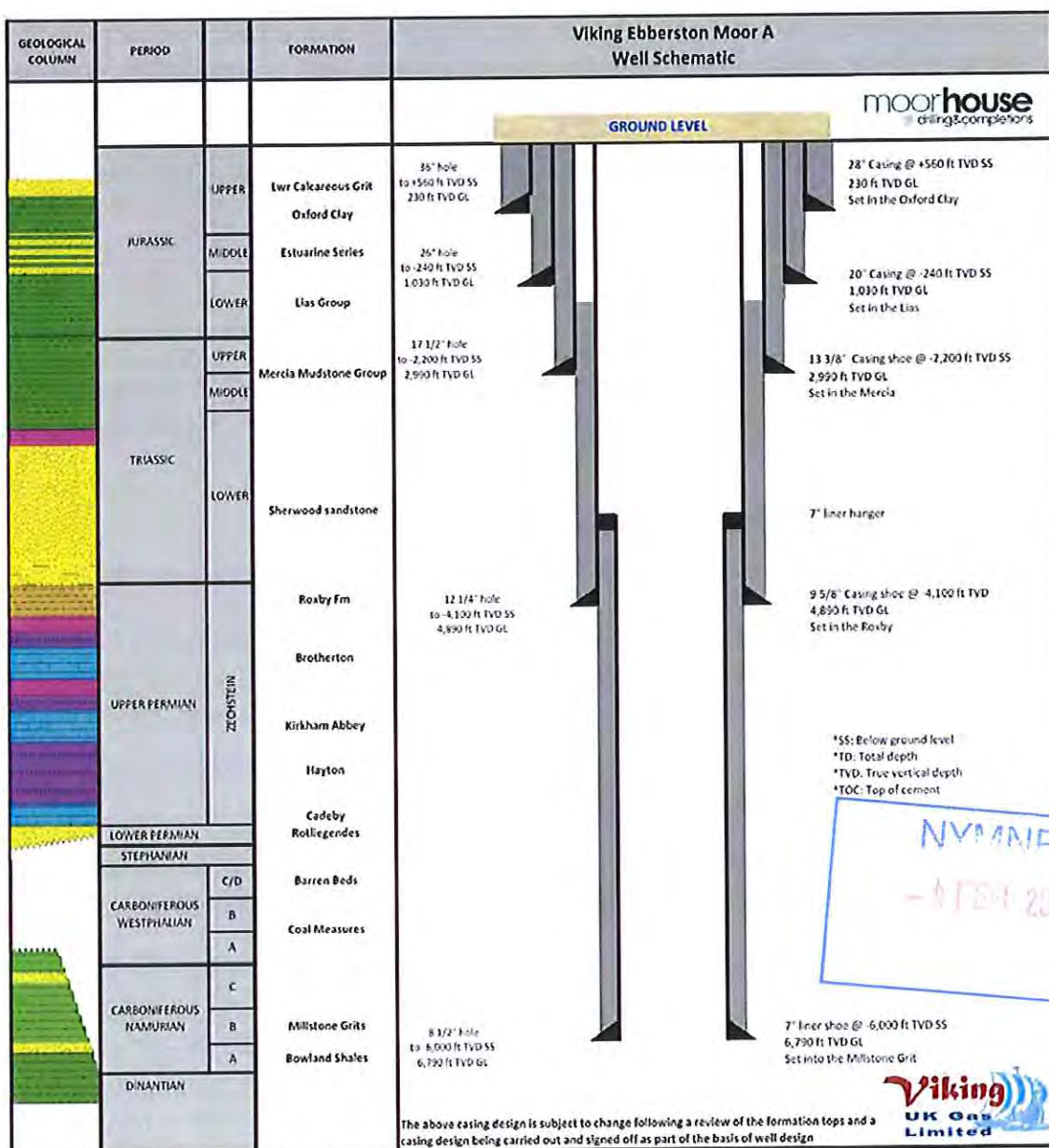


Figure 5. Ebberston Moor A Well Schematic

The Kirkham Abbey Formation may be cored to analyse the reservoir potential of the zone. Drill cuttings will be sampled and analysed for all the horizons penetrated by the well, in order to aid the evaluation of the potential for gas occurrences. A suite of electric logs will be run in each open hole section prior to setting casing or liner, including pressure and fluid sampling as appropriate. Logging will allow evaluation of the potential reservoir intervals and provide a basis for further testing.

Although the Environment Agency is a statutory consultee for planning applications, it will also be notified of the proposal under the Water Resource Act 1991. The Act requires the Applicant to submit a WR11 application for permission to drill through an area designated as an aquifer and approval of the proposed drilling programme.

Once the well has been drilled, the Applicant will make a decision whether to complete the well for production or suspend or abandon the well. If the well is abandoned, it will be performed in accordance with guidance set out by Oil and Gas UK. Mechanical plugs and cement plugs will be placed in the well, acting as barriers across permeable zones. Cement plugs will extend 500 feet measured depth above any permeable zone. This ensures the zones are sealed and prevents the migration of fluids between different strata. Finally, the well will be pressure tested to confirm its integrity.

3.7 HEALTH AND SAFETY

Measures to ensure the health and safety of all borehole operations will be undertaken as required by "The Borehole Sites and Operations Regulations 1995", also "The Management of Health and Safety at Work Regulations 1999", and the Applicants own "Health, Safety and Environmental Management System".

3.8 REGULATORY FRAMEWORK

The oil and gas industry is heavily regulated, with a number of review processes and permissions required before any operations can commence. Obtaining planning permission is only one requirement, with other organisations including the Health and Safety Executive, Environment Agency, Coal Authority, DECC and an independent well examiner, required to review the proposed operations. These requirements are discussed in more detail over the following paragraphs.

Borehole Sites and Operations Regulations 1995

The above regulation specifies the minimum requirements which must be complied with when drilling boreholes. Specifically, obligations are placed upon the Applicant to:

Regulation 6:

Notify the Health and Safety Executive not less than 21 days in advance of the drilling or well operations commencing. The purpose of the notification is to inform the Health and Safety Executive of the intention to carry out a borehole operation and in particular the method by which the well operation will be carried out. The 21 day notification period is necessary to allow the Health and Safety Executive sufficient time to review the proposed borehole operation and intervene if it deems necessary.

Regulation 7:

Prepare and hold on site a 'health and safety document', which is required to demonstrate that the risk to which persons at the borehole site are exposed whilst they are at work have been assessed in accordance with Regulation 3 of the Management of Health and Safety at Work Regulation and the prevention of specific hazards associated with petroleum borehole operations.

Prior to commencing any operations, the Applicant will be required to ensure that the necessary notifications and documentation have been completed.

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Water Resources Act 1991

This Act regulates water resources, quality and pollution. Part of its requirements relate specifically to drilling, by ensuring the protection of any groundwater sources.

Section 199 (1) of the above Act states:

Where a person proposes to construct or extend a boring for the purpose of searching for or extracting minerals, he shall, before he begins to construct or extend the boring, give to the Agency a notice of his intention in the prescribed form.

The Act requires the Applicant to submit details of the proposed well design, including casing and drilling fluid specifications. This is then reviewed and evaluated by the Environment Agency, who may wish to issue a Notice to Conserve Water resources, which sets out the Environment Agency's requirements in order to protect groundwater.

The Offshore Installations and Wells (Design and Construction, etc.) Regulations 1996

This regulation is applicable to all onshore drilling operations. In summary, it places obligations on the well-operator to:

Regulation 13:

Ensure that a well is designed, modified, commissioned, constructed, equipped, operated, maintained, suspended and abandoned such that there is no unplanned escape of fluids from the well and that the risks to the health and safety of person from it or anything in it, or in strata to which it is connected, are as low as is reasonably practicable.

Regulation 18:

To make and put into effect arrangements in writing for independent examination by a competent person before the design of the well is commenced. This independent examination is intended to provide the Well-Operator that the well is designed and constructed properly and is maintained adequately. Specific emphasis is given to the impartiality and independence of those responsible for carrying out independent examinations.

These regulations ensure the protection of the environment and persons through careful design. Following a number of internal reviews, the operations are reviewed by an independent competent third party. This process ensures that the well is designed and planned to the highest standards.

Petroleum Operations Notifications

The Applicant has been issued with PL 077, which places a number of obligations on the Operator to submit information to DECC. These are referred to as Petroleum Operations Notices (PONs) and include requirements to notify DECC of the commencement of operations, in addition to applying for consent to drill a well and suspend or abandon a well.

Coal Authority Notification

Any activity which intersects, disturbs or enters any of the Coal Authority's interests requires written consent. This requires the Applicant to submit details of the proposed drilling operations and consider any risks which may be presented by drilling through coal seams. Following a review of the submitted information, the Coal Authority will authorise the applicant to drill through coal seams.

3.9 PLANNING HISTORY

The Ebberston Moor Gas Field (previously known as Lockton) was discovered by Home Oil Canada in 1966 with the drilling of Lockton-2a, based on a sparse grid of 2D seismic data. A further seven wells were drilled with varying results. Many of the wells drilled into the gas field were poorly located in geological fault zones or were drilled off structure due to a poor structural understanding of the field. Production began in 1971 from Lockton-2a and Lockton-7, which produced 10.2 bcf and 1.1 bcf respectively. However, production ceased after only two years partly due to the processing plant being unable to handle the volumes of produced water associated with gas production.

In 2006 Viking UK Gas Limited was granted planning permission to drill and test an exploratory borehole on land adjacent to Common Lane. The borehole was drilled in 2006, which confirmed the presence of gas. The well was subsequently tested and then suspended pending further evaluation of the well data.

Since drilling and testing of the Ebberston Moor 1 well was completed, two further applications have been submitted to North York Moors National Park for permission to extending the duration of the planning consent on the basis that the Applicant was still reviewing the viability of the Ebberston Moor Gas Field as a gas producer. The new owners of Viking UK Gas, Third Energy, believes the Ebberston Moor Gas Field has indeed the potential to produce gas, however, it requires additional appraisal boreholes to confirm their understanding. A summary of the applications is listed in the following table.

Applicant	Application No.	Status	Decision Date	Proposal
Viking UK Gas Limited	NYM/2011/0761/FL	Approved with Conditions	09/01/2012	Variation of condition 1 of planning approval NYM/2008/0675/FL to allow the retention of the existing well site for a further three years.
Viking UK Gas Limited	NYM/2008/0675/FL	Approved with Conditions	25/11/2008	Remodelling of existing exploratory gas well site and retention of gas well site for a period of three years.
Viking UK Gas Limited	NYM/2005/0254/FL	Approved with Conditions	22/03/2006	Sinking of exploratory borehole.

4 PROPOSED DEVELOPMENT LOCATION

4.1 LOCATION

The existing Ebberston Moor A wellsite is located on the edge of Dalby Forest, to the North of Ebberston and west of Troutdale. It is located within the parish of Allerston at National Grid Reference SE 899896 (489901E, 489679N). The site is approximately 250m Above Ordnance Datum (AOD). It covers an area of 1.38 hectares. Appendix 1 contains two drawings identifying the location of the proposed development, Drawing PSSL/VUK/EB-A/PA/001 and PSSL/VUK/EB-A/PA/002. Drawing PSSL/VUK/EB-A/PA/003 shows the layout of the existing wellsite.

The nearest conurbations are the rural hamlets of Langdale End and Low Dalby located 4.25km north-east and 4.75km south-west respectively. The nearest residential properties are Ebberston Common Farm, located 300m south-east, Jingleby Thorn, located 675m west and South Moor Farm, located 875m north-east. The proposed site is located within the North York Moors National Park. There are no other statutory designations within or adjacent to the proposed site.

The site is located on a plateau in an upland area, west of Scarborough, referred to as the Tabular Hills. The existing wellsite is within an area that consists of a mixture of dense forest and open pastures. The site is positioned on the edge of the forest, with a range of pine and conifer trees surrounding it as shown in Figure 6. Opposite the site are a number of agricultural fields used for grazing livestock.



Figure 6. View into the existing Ebberston Moor 1 Wellsite from RT Road

The existing wellsite is positioned adjacent to Common Lane, shown in Figure 7, from which access will be gained. There is already an existing access point to the proposed site, which will be utilised by all site vehicles. All vehicles will access the site from the A170 and turn

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onto Common Lane. Vehicles will continue along this lane. At Givendale Head Farm the public highway stops and the remaining access to the site will be gained along an RT Road. The access route from the A170 has existing passing places along the route, as shown in Figure 8.



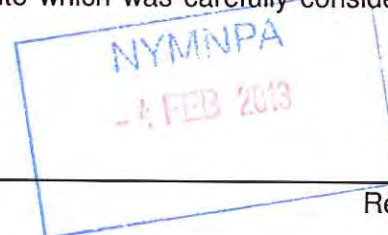
Figure 7. View from Wellsite Access Along RT Road



Figure 8. Passing Places Located Along Access Route (GoogleEarth)

4.2 ALTERNATIVE LOCATIONS

A number of alternative site locations were considered when the original planning application was submitted in March 2006. This took into consideration geological, environmental and social factors. This proposal will utilise an existing wellsite which was carefully considered and identified in the original application.



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In utilising the existing wellsite it removes the need for wellsite construction works, with only minor works necessary to install the additional drilling cellars. This therefore reduces the potential impacts that may be associated with the proposals.

4.3 ENVIRONMENTAL IMPACT ASSESSMENT

Under the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 Part 2 Regulation 5, it is necessary for all developments to be screened. The Applicant received a screening opinion from North York Moors National Park Authority on the 3rd January 2013. This determined that an environmental impact assessment was not required, however it highlighted that any application will require supporting documentation.

4.4 DESIGN AND ACCESS STATEMENT

In 2006 the Government introduced a requirement, under the Planning and Compulsory Purchase Act 2004, to produce a Design and Access Statement to accompany the submission of planning applications. However, where an application is submitted for engineering and mining operations a Design and Access Statement is not required, under Article 4C of Town and Country Planning (General Development Procedure) Order 1995.

As this proposal is considered an engineering and mining operation, a Design and Access Statement has not been submitted with this application.

4.5 PUBLIC RIGHTS OF WAY

The Applicant consulted local Ordnance Survey maps and North York Moors National Park Authority Public Rights of Way Officer, to identify any public rights of way which may be affected by the proposals. No public rights of way cross the wellsite. The Tabular Hills Walk passes the entrance of the site along the adjacent RT Road, along with the Dalby Forest cycle routes. Concessionary rights of way are provided along these RT Roads which would be used to access the site from Common Lane.

4.6 UTILITIES

The Applicant consulted a number of utility companies prior to submitting this application. This consultation has identified that there are two utility services within close proximity to the site. The proposed wellsite is located adjacent to the Northern Gas Networks Gas Compound. There is a High Voltage overhead line leading into the compound along with a high pressure gas main. The proposed operations would not impact on these utilities but the Applicant will continue to liaise with the appropriate companies.

4.7 SITE OWNERSHIP

An agreement for an occupation lease is in place with the landowner for occupation of the site.



5 THE DEVELOPMENT

The development consists of four principle phases, they are:

1. Cellar Construction
2. Drilling
3. Extended Well Test
4. Restoration and Aftercare

The following chapter sets out the proposed development and discusses the operations in detail. This includes the proposed method of working, equipment, materials, vehicle movements and personnel.

5.1 CELLAR CONSTRUCTION

To allow the drilling of up to two appraisal wells and a sidetrack, an additional two cellars are to be constructed on the existing wellsite. Drawing PSSL/VUK/EB-A/PA/004, included in Appendix 2, shows the layout of the site during construction.

5.1.1 Existing Wellsite

The existing wellsite was constructed in 2006. The topsoil and subsoils were removed and placed in soil bunds along the perimeter of the wellsite. The site was then lined with Bentomat SS, providing an impermeable membrane across the wellsite. The working surface was then formed from 300mm of crushed stone, compacted on top of a geotextile membrane. A drainage ditch was installed along the perimeter of the drilling area and is also lined with Bentomatt SS. All surface water is directed into the ditch which falls to a corner sump. Any surface water captured in the drainage ditch will be collected by a licensed waste carrier and disposed of offsite.

A 3m high post and chain link deer fence has been erected around the perimeter of the wellsite. The entrance to the wellsite is gated to ensure no unauthorised access during wellsite operations.

The Applicant will provide an information board at the site entrance to inform members of the public of the operations.

5.1.2 Access

The development will utilise the existing access that was constructed as part of the original proposals. Access is gained from the adjacent RT road and has been constructed from stone.



5.1.3 Cellar and Conductor

The only additional construction work that will be required onsite is the installation of two additional drilling cellars.

The cellar forms a containment area from which the well can be drilled, whilst also housing the wellhead. The cellar is constructed from concrete rings, approximately 2400mm nominal diameter. The impermeable membrane is incorporated into the cellar construction to maintain the integrity of the site. Once the cellar has been constructed, an integrity test is carried out to confirm that it provides suitable containment. To undertake this work, a range of typical construction vehicles will be required including an excavator, dump truck, grader and a compactor.

A fire water tank will be installed onsite in the unlikely event that an incident occurs. The Applicant will liaise closely with the Fire Brigade to ensure that it meets with their required specification. All utilities required for the site will be provided by mobile facilities. This will include the use of acoustically clad generators and storage tanks for potable and non-potable water.

Upon completion of the site construction and prior to the start of the main drilling operations, a conductor will be set in the top section of the well bore. This will ensure that the aquifer is isolated before any subsequent sections are drilled. The top section will be drilled with a geotechnical / waterwell drilling rig, similar to the one shown in Figure 9.

This section will be drilled with a mixture of air and water. Once this section has been drilled, a conductor will be set. By undertaking this work during the site construction it minimises the risk of any of the unconsolidated top section being washed out when the main rig starts drilling.

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Figure 9. Drilling Rig Typically Used to Set the Conductor in the Cellar

5.1.4 Equipment and Materials

As detailed above the following equipment will be required and installed onsite during the construction phase of the operations:

- Cellar
- Site Office
- Welfare Unit
- Fire Water Tank
- Conductor
- Storage Container

5.1.5 Vehicle Movements and Personnel

Site construction will be carried out over a period of five (5) weeks and will require approximately 6 personnel. A parking area will be made available onsite for all vehicles associated with the operations. The construction work will be carried out during the hours stated in Table 1. The conductor setting operations will also be performed during these hours, but subject to conditions whilst drilling it may be necessary to drill 24 hours.

Day	Time
Monday to Friday	07:00 to 18:00
Saturday	07:00 to 18:00
Sunday and Bank Holidays	N/A

Table 1. Construction phase working hours

Throughout the construction period, there will be a number of HGV movements associated with a typical construction operation. Table 2 provides an estimate of the average number of vehicle movements per day, throughout the construction phase.

Vehicle	Single Movement
Car	5
HGV	2

Table 2. Predicted vehicle movements per day during site construction



5.2 DRILLING

Once the additional cellars have been constructed the drilling phase can commence, this consists of three principle phases:

- Mobilisation and Demobilisation
- Drilling
- Drill Stem Testing

5.2.1 Mobilisation and Demobilisation

Once the site is completed and the conductor installed, the drilling rig and associated equipment will be mobilised to the temporary wellsite. This part of the operation is carefully planned, to ensure that the equipment arrives in the order it is needed to be constructed onsite. As the equipment is delivered to site, it is laid out in the required areas. The drilling rig is then rigged up, as shown in Figure 10. This will be performed over a two week period. Appendix 5 contains details on the equipment which will be delivered to site. Drawing PSSL/VUK/EB-A/PA/005, contained in Appendix 2, shows the provisional location of equipment during the drilling operation. The demobilisation will be the reverse of the mobilisation, which will occur on completion of the drilling operation and will take approximately one (1) week.

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Figure 10. Rigging up Rig 40

5.2.2 Drilling Operation

Prior to spudding the well and as discussed in Section 3.8 of this document, the Applicant will be required to obtain approval from DECC and notify the HSE of the proposed drilling operations, 21 days prior to spudding the well.

The Applicant is proposing to drill up to two appraisal boreholes to a target depth of 1746m (5730ft). This will entail the drilling of a directional borehole to and through the primary target reservoir. It is anticipated that the drilling operation will be completed within seven (7) to twelve (12) weeks. This timeframe is dependent on a number of factors, including progress through the different strata and whether gas is identified in the target zone.

Gas wells are typically drilled using rotary drilling. This is an efficient method which employs a vertical "derrick", inside which is suspended a column of hollow steel pipe, known as a "drill string" and a drill bit fitted to its lower end. The "string" is rotated and the bit cuts downward through the rock strata.

During drilling, a dense fluid known as "mud" is pumped down the inside of the drill string. The mud lubricates the drill bit and returns to the surface fragments of rock which are analysed, to identify and correlate the strata through which the bit is passing and for signs of any gas within any reservoir rocks encountered. An aspect of safety is provided by the hydrostatic weight of the column of mud providing primary pressure control, which is designed to exceed any underground pressures thereby containing them and maintaining the safety of the drilling operation. The rig is also fitted with valves known as "Blow Out Preventers" which act as secondary well control measures and can be closed immediately if an unexpected increase in pressure occurs.

As the depth of the well increases, drilling must stop periodically so that new lengths of pipe can be added to the drill string. When the drill bit becomes worn, the whole string must be pulled out and a new bit fitted. This is known as "round tripping", or "pulling out" and "running in".

At pre-determined stages in the drilling of a well, the walls of the borehole are supported by steel casing which is cemented into place. This provides additional safety measures, by preventing the collapse of the borehole and the ingress of groundwater under pressure. It is essential that drilling continues throughout the day and night to sustain an open hole and maintain control for both safety and operational reasons.

"Well logging" is used to obtain information both on the borehole itself (including its precise depth and direction at any time) and on the rock strata through which it passes. These tests can be either geophysical, using instruments lowered into the well as it is drilled, or can involve analysis of chipping's brought to the surface in the mud stream. "Coring" is the recovery of rock samples which may be required from particular strata. This procedure involves the use of a special core bit to cut a cylindrical core of rock. The core is then brought to the surface for testing and analysis.

Upon completion of the drilling and preliminary testing, the drilling rig will be demobilised. It is in the Applicant's best interest, from a commercial point of view, to minimise the period of time the drilling rig is on site and to reduce the duration of any flow testing periods. The Applicant will strive at all times, therefore, to minimise the overall duration of the appraisal activity.

The Applicant is also proposing to drill a sidetrack from the existing borehole to further evaluate the target that has been identified. Each drilling operation will last for between 7 – 12 weeks.

5.2.3 Drilling Rig

The rig identified for this drilling programme is the EDECO Rig 40; further details are included in Appendix 4. This is a large drilling rig that has been identified as capable of drilling to the proposed target depth. Whilst this drilling rig has been identified as being suitable for the operation, it may not be the one used to drill the well. This is due to a number

of factors, but principally due to availability. Once the Applicant is in receipt of the necessary permissions to undertake the proposed work then they will try to secure a drilling rig.

The reason for detailing the EDECO Rig 40 in this planning application is that this will be the largest rig which may be used for the proposed operations. Furthermore, it has been assessed for its suitability to drill to the target depth of 21746m (5730ft) and the associated equipment required in reaching these depths. EDECO Rig 40 is a conventional drilling rig. It has worked in a range of locations throughout the UK and internationally, including more locally on the Aldbrough Gas Storage Project. Figure 11, Figure 12 and Figure 13 show the rig during previous operations. It has a derrick height of approximately 50m which is latticed, as can be seen in Figure 11.



Figure 11. View towards Rig 40 during a drilling operation

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Figure 12. EDECO Rig 40 from a distance



Figure 13. An aerial view of a drilling operation with EDECO Rig 40

5.2.4 Drill Stem Testing

A Drill Stem Test (DST) is likely to be carried out with the drilling rig on site. A DST has the objective of confirming the existence of gas whilst also establishing flow characteristics from the reservoir. The DST will attempt to flow gas to surface, prior to setting a last string of casing. Due to the time and expense of setting and perforating casing, it is beneficial to carry out a DST in case there is any doubt over the well's commerciality. A drill stem test will be of short duration, typically up to a maximum of 12 hours of flow.

Should the initial DST prove successful, the Applicant may wish to drill the second well to gather further information. This will require the mobilisation of the drilling rig over two weeks followed by the drilling of the second well; this will take an additional seven (7) to twelve (12) weeks. Finally the rig will be demobilised over one week.

5.2.5 Drilling Mud's and Water

The drilling mud system is important and specifically designed to confine formation pressure, so as to prevent formation fluid flowing into the well bore. It also provides well bore stability and lubricates the bit whilst drilling. The drilling mud system will be monitored constantly and maintained to the required specifications.

The drilling rig will drill the initial sections with a bentonite polymer. This typically consists of water and bentonite, which is a naturally forming clay. The final mud mix will be dependent on the approved well plan and the programme recommended by the mud engineers.

A conductor will have already been set. The rig will then drill to a depth of approximately 1,030 feet, where the second string of casing will be set and cemented, it will then drill to 2,990 feet and set another string of casing and cement and then to 4,890 feet when the where the final string of casing will be set. Each string of casing and cement will be pressure tested to confirm its integrity and will ensure fluids cannot transfer between the well bore and

the surrounding strata. By using a bentonite polymer through these sections, it will ensure the protection of any groundwater.

Beyond this point, the Applicant proposes to drill with Oil Based Mud (OBM) to the target depth of 1746m (5730ft). The benefits of using OBM are that it provides increased well bore stability, particularly when drilling through clays which have the potential to swell. In addition it still, functions effectively at increasing temperatures, provides improved lubrication for the bit and excellent overall hole integrity.

Water will be required to make up drilling fluids while drilling the well and for any emergency contingencies. The supply of water will be subject to discussions with the appropriate Water Authority or from a private source.

Estimated quantities are:

- (a) Initial requirements - c. 20,000 gallons
- (b) Daily operations - c. 10,000 gallons
- (c) Potable water - c. 1,000 gallons per week

5.2.6 Equipment and Materials

During the drilling operation the following equipment will be required onsite to perform the operation:

- Drilling Rig and associated equipment (Appendix 4)
- Casing
- Tubing
- Site Office
- Accommodation
- Contractors Offices
- Welfare Unit
- Security Office
- Telehandler
- Skips and Waste Collection
- Curtain Sider



Diesel will be required during the operations, which will be supplied by road tanker. This will be stored onsite in bunded storage tanks, in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001.

5.2.7 Vehicle Movements and Personnel

The operation will commence with the mobilisation of the drilling rig, which in this case is expected to be the EDECO Rig 40. During the mobilisation of the drilling rig, there will be 44 vehicle movements associated with the EDECO Rig 40, as set out in Appendix 5. Two cranes will also be required during the mobilisation and rig up, to erect the equipment on site. Due to the nature of the drilling operations it is necessary to continue 24 hours a day to maintain well bore stability and permit safe operations, as shown in Table 3.

Day	Time
Monday to Sunday	24 Hours

Table 3. Drilling phase working hours

Once this equipment has been mobilised to site, there will be limited HGV movements during the drilling operations. Additional light vehicle movements will be required for staff and rig crew changes, plus support service personnel. The average number of vehicle movements is contained in Table 4.

Vehicle	Single Movement
Car	15
HGV	2

Table 4. Predicted vehicle movements per day during drilling

5.3 EXTENDED WELL TEST

If the drilling and DST demonstrate positive results, the Applicant may wish to undertake an Extended Well Test (EWT) to gain a better understanding of the reservoir.

5.3.1 Mobilisation/Demobilisation

As with the drilling rig, the equipment required to undertake the EWT will be mobilised to site at the start of this phase. All equipment is expected to be delivered to site over a period of 2 – 3 days. Following completion of the EWT, all equipment will be demobilised from the site.

5.3.2 Extended Well Test

An EWT may take place immediately after completing drilling operations following removal of the drilling equipment. An EWT takes place after casing has been set across a productive reservoir and, if necessary, perforated to allow gas to flow. A string of production tubing is also run in the cased hole, through which fluids may flow to surface.

This phase of the operations will require well test equipment to be brought onsite and operated for up to ninety (90) days. The objective is to provide additional data on the extent and quality of the reservoir, as well as providing samples of the produced gas for detailed analysis. Typically the EWT will be undertaken over 12 hour periods. Although testing maybe performed for 24 hour periods to allow certain information on the reservoir and well characteristics to be gathered, 24 hour testing will be for limited periods during the 90 day period.

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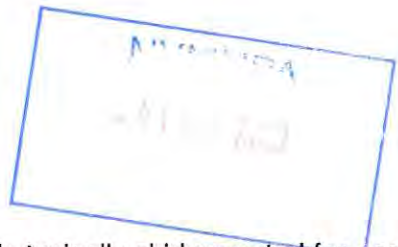
Nominal equipment is required during a well test, principally pipework, tanks, separator and a ground flare. In addition, there will be some basic monitoring and control systems in place to allow the Applicant to monitor the operations and gather data.

Drawing PSSL/VUK/EB-A/PA/006 identifies the provisional location of equipment required for the EWT and is contained in Appendix 2.

5.3.3 Equipment and Materials

During this phase of the operation the following equipment will be required onsite:

- Pipework
- Storage Tanks
- Ground Flare
- Separator
- Generator
- Site Office
- Welfare Unit



All equipment is of a temporary nature and is typically skid mounted for easy movement and setup.

5.3.4 Vehicle Movements and Personnel

The EWT operation will typically be performed 12 hours, a day with personnel supervising the operations. On occasions certain tests will be required to run 24 hours with personnel onsite during this time. This allows the Applicant to undertake a number of different tests to establish the commerciality of the reservoir. Table 5 states the hours personnel will typically be onsite.

Day	Time
Monday to Friday	07:00 to 18:00
Saturday	07:00 to 18:00
Sunday and Bank Holidays	N/A

Table 5. Testing phase working hours

Vehicle movements during the EWT will be limited to deliveries of equipment necessary to perform and aid the well test and tankers removing any produced fluid. The Applicant has estimated the average number of vehicle movements per day during the EWT in Table 6.

Vehicle	Single Movement
Car	2
HGV	2

Table 6. Predicted vehicle movements per day during EWT

5.4 RESTORATION AND AFTERCARE

On completion of the drilling or following a period of testing, the Applicant will make a decision as to whether the prospect is commercially viable. If a successful production test is achieved, further development will be dependent on a planning application being submitted to the MPA for permission to produce gas.

If the well is not commercially viable, then the well will be abandoned and the site restored to its previous condition. This will consist of three principle phases, detailed below. A restoration plan is included in Appendix 11.

Abandonment

The well will be abandoned in accordance with industry best practice and Oil and Gas UK guidance. Mechanical plugs and cement plugs will be set in the well bore and within the steel casing. The casing will then be cut at approximately 1.5 metres below ground level and a steel plate welded to the remaining casing stub.

Restoration

The restoration phase will be the reverse of the construction phase. The work will be carried out Monday to Saturday, 07:00 to 18:00. All equipment will be removed from the site and the area will be reinstated. Where possible, waste will be recycled, however where this is not possible waste will be disposed of at a licensed waste disposal facility.

The restoration will include the replacement of the soils, which will have been stored in earth bunds around the perimeter of the site. This will be carried out in accordance with best practice guidance.

Aftercare

Following completion of the restoration phase, the MPA will be invited to inspect the site operations to ensure that the work meets with their approval. An aftercare programme will be undertaken over a period of five years. This will ensure the successful restoration of the land to its previous condition.



6 ENVIRONMENTAL CONSIDERATIONS

This section of the planning statement considers any potential effects associated with the proposed operations.

6.1 ECOLOGY

A phase 1 ecology survey has been completed; a copy of the final report is included in Appendix 6. A field survey was carried out on 27th November 2012, which assessed the site and local area.

The report identified that the site is located within the North York Moors National Park, which is a statutory designated site. There are a number of other designated sites within close proximity to the site; however no potential impacts have been identified.

The survey did not identify any protected species or notable species during the survey. In particular, there are no nesting Goshawks within 400m of the wellsite and it is therefore considered that there will be no impacts on this species. The habitat adjacent to the wellsite has been identified as potentially suitable for Nightjar. Any impacts associated with the operations are not considered to result in significant effects on this species.

The survey also identified the soil bunds around the perimeter of the wellsite are potentially suitable habitat for reptiles. Impacts on these species are not considered significant as there will be no requirement to operate in this area. In order to ensure that these species are protected, supervision is required during any works that may cause ground disturbance close to this area.

The report concludes that the development is unlikely to have a significant adverse impact on flora and fauna, provided that all avoidance and mitigation measures are implemented as detailed within the application documents.

The development is therefore considered acceptable in relation to ecology, subject to the above mitigation.

6.2 LANDSCAPE AND VISUAL

The existing wellsite is located on a flat plateau which forms part of the Tabular Hills. It is positioned on the edge of Dalby Forest; fronting open pasture land used to graze livestock and is located within the North York Moors National Park.

During the construction of the original wellsite an area of predominantly pine and conifer trees were cleared. A subsequent planning application in November 2008 received approval to enable remodelling of the existing topsoil and subsoil bunds, along with additional areas of planting. This has provided additional visual screening, further reducing the visual impact of the wellsite from surrounding public vantage points.

There will be limited views of the site due to its position adjacent to Dalby Forest and the natural screening provided by the surrounding mature forest, which is significantly taller than most of the equipment required onsite.

The main potential source of impact is the drilling rig derrick, at a height of approximately 50m high and constructed from a lattice frame. The derrick will be in place for between seven (7) to twelve (12) weeks; however the lattice frame acts to reduce its visual intrusion on the landscape. The majority of the derrick will be screened by the surrounding trees; however the upper most section will be visible across the tops of the trees.

Significant effects on local residents and members of the public from the drilling operations are limited due to the short term and temporary nature of the proposed development in addition to the extensive screening provided around the site. On completion of the drilling operations, the rig will be removed from the site.

The landscape scheme which is now becoming established will reduce the visual impact of the site and minimise the impact on the wider character of Dalby Forest. A copy of the original Landscape and Visual Impact Assessment has been included in Appendix 8.

Having considered the proposals and the details discussed above, it is regarded that the development is acceptable in terms of landscape and visual effects.

6.3 TRAFFIC AND TRANSPORT

A Traffic Management Plan has been included with this application. This has considered the number and type of vehicles associated with the proposals, identified traffic management proposals and suitability of the access route. A copy of the report is included in Appendix 9.

The traffic management plan proposes a number of procedures to control the movement of vehicles to the Eberston Moor A wellsite. This includes defining the access route to be used and utilising a number of passing places along the access route. A number of passing places were installed for previous wellsite development and drilling operations in the 1960's/1970's. This access route has been subsequently used for both the Viking UK Gas operations and the Moorland Energy operations.

Vehicles accessing the Eberston Moor A wellsite will travel from the A170 and along Common lane, onto the RT Road before arriving at the wellsite. This route will be used during all phases of the proposed operations.

Prior to commencing operations, a dilapidation survey will be completed. Follow up surveys will be undertaken on completion of each phase of operations.

It is concluded, the proposals can be undertaken with negligible impacts subject to the procedures detailed in the highways documents being applied.

6.4 NOISE

An independent noise assessment was completed in December 2004 and submitted with the original wellsite planning application. A copy of this report is included in Appendix 7. It is considered that the baseline noise data collected is unlikely to have changed significantly and that the sound power level of the drilling rig used is very similar to one which may be used in relation to this proposal and is therefore applicable.

A measurement of the existing background noise levels was made at the nearest noise sensitive receptors. The results highlighted a low background noise level of LA90 20dB(A). This is due to the quiet rural nature of the existing wellsite.

Modelling was used to predict the potential noise levels during the drilling operations based on the sound power level for the type of drilling rig being considered. The assessment predicts that the drilling operations will be well within the 55dB(A) daytime limit.

Since the original report was published guidelines have changed slightly on noise emission levels, with the publication of the National Planning Policy Framework. The report identifies that at the nearest noise sensitive properties, the drilling rig noise emission will not meet a noise limit based on a background noise excess of +10dB(A). However, this is due to the very low existing background noise levels. This is recognised in the NPPF guidance. The operations will comply with the guidance set out in the NPPF, by achieving a night time noise limit of Laeq (1hour) 42dB(A).

As the drilling rig has not yet been selected it is difficult to determine what mitigation may be required. Should planning permission be approved and once a rig has been secured then additional mitigation will be reviewed to ensure the guidance levels are achieved. This information could be submitted under condition.

The assessment concludes that the proposals will not be a source of noise nuisance.

6.5 ARCHAEOLOGY

The original planning application for the Ebberston Moor A wellsite included an archaeological assessment. Due to a number of significant archaeological features in the local landscape a watching brief was recommended for the construction operations.

As the site has already been constructed, there will be no further potential impacts to archaeology associated with the proposals set out in this application.

6.6 DUST AND DEBRIS

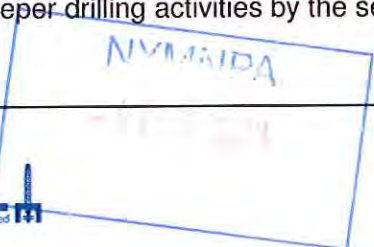
The site compound and access track are constructed from stone. Should dust arise from the operations, then the Applicant will instigate a scheme to mitigate this. This will include spraying the required areas with water. Furthermore, should any debris or mud be carried onto the public highway then the Applicant will instruct a road sweeper to clean the affected section. A wheel washing facility will be provided onsite, consisting of a jet washer.

These measures will ensure that there are no adverse impacts from the proposed development in relation to dust and debris.

6.7 GROUNDWATER AND DRAINAGE

The site is not located within a source protection zone, but is within an area that has karstic flow properties through the Corallian.

It is considered that the greatest potential impact to the Corallian aquifer posed by the proposed appraisal site is likely to result from drilling activities, namely the release of turbid waters and/or associated contaminants to groundwater. Although due to the proposed drilling methods the likelihood of impact is considered low, it is greatest during the first stage of drilling through the Corallian aquifer. The proposed drilling method is designed to completely isolate the Corallian aquifer from the deeper drilling activities by the sealing of the first (outer) casing run.



The potential risk to groundwater is considered low, provided that the integrity of the impermeable membrane is maintained, continual integrity testing of wells and pipework and maintaining best available techniques throughout the life of the well.

In minimising the risks to ground and surface water, a number of mitigation methods are incorporated into the design proposals. These are discussed in greater detail below.

Site Liner

During the construction of the original wellsite a Bentonite SS impermeable membrane mat was installed across the site area. The liner is similar to that used on landfill sites and was installed by a specialist company. The area covered by the liner includes the perimeter ditches. This ensure that any surface water falling on the site is captured in the sites perimeter ditches which surround all four sides of the site thereby preventing any contamination of groundwater by creating a barrier.

Drilling Cellar

In the centre of the site, two additional concrete cellars will be constructed. The impermeable membrane will be integrated into the cellar walls to ensure that the site integrity is maintained. The cellars are constructed using Pre Cast Concrete rings, which are sealed together using a Tokstick sealant. These cellars provide an additional containment facility from which the well will be drilled. Prior to its use, an integrity test will be performed to ensure it provides a sealed containment.

Surface Conductor

During the site construction a water well drilling rig will be mobilised to site in order to drill and set surface casing. The purpose of drilling surface conductor with a small waterwell rig using air, is that the near surface geology is highly fractured and may result in losses occurring. A conventional fluid circulating system of a larger drilling rig would simply result in drilling fluid being lost to the formation. Drilling surface hole to below sea level will significantly reduce the potential for fluid losses. The first string of steel casing is then run in and cemented back to surface and pressure tested to confirm its integrity.

Aquifer Isolation

The upper section of the wellbore will be drilled through the Corallian, which is considered an aquifer. In order to protect the aquifer a casing shoe will be set in the Oxford Clay and casing run back to surface. This casing is then cemented back to surface and pressure tested to confirm its integrity. This will ensure the aquifer is isolated from subsequent strata.

Drilling

A well specific drilling program will be developed for this well, which identifies the proposed drilling methodology and casing depths. The oilfield drilling rig will be mobilised to site, rigged up and will then proceed to drill the next hole section to a depth of 314m (1,030 feet) with a bentonite polymer. A casing string will be run, set, cemented and pressure tested to confirm its integrity. This pressure test confirms there is no pathway between the wellbore and surrounding strata. The rig will then continue to drill to approximately 1463m (2,990 feet) using a bentonite polymer, where it will set casing, cement and pressure test. The rig will

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continue drilling to total depth of 1746m (5730ft) with either an oil based or salt saturated drilling fluid. This section will remain open hole and allow the testing of gas targets. Both the cement and casing will provide a barrier between the different strata and prevent any possibility of ground waters mixing between different strata.

Extended Well Test

Should the drilling prove successful then casing will be set in the last section and a completion run in. This will allow any gas to be flowed to surface and allow further information to be gathered on the characteristics of the reservoir and its commerciality. Gas will be flowed to surface through production tubing and surface pipework, into a separator / tank from where it will then be flared.

Abandonment and Restoration

Should the drilling operation or subsequent extended well test not confirm the presence of commercial quantities of gas, then the well will be abandoned in accordance with Oil and Gas UK guidelines. This requires the setting of mechanical plugs and cement plugs being set across different strata and then pressure tested to confirm integrity.

On restoration of the site, all equipment will be removed and the site reinstated to its former condition. A period of aftercare will then follow to ensure its successful restoration.

Disposal of Fluids

Any fluids requiring disposal will be collected by a licenced waste carrier and disposed of offsite at a licenced waste facility. In accordance with the Operators "Duty of Care", they will ensure that all waste is collected and disposed of by suitable companies.

Welfare Facilities

All welfare facilities provided onsite will be provided in self contained cabins. Foul drainage will be stored in steel tanks underneath or adjacent to the welfare cabins. These will be emptied on a regular basis by a licenced waste carrier and disposed of at suitably licenced facilities.

Spillages

To prevent spills, a number of measures are taken to ensure that the likelihood of this occurring is minimised. All oils and chemicals are stored in bunded areas, in accordance with the requirements of the Control of Pollution (Oil Storage) (England) Regulations 2001. In addition, regular maintenance of equipment is performed that includes the inspection of pipework and connections to confirm its integrity and identify any issues prior to an incident occurring.

In the event of a spill, there are a number of measures in place to protect the environment and ensure it is dealt with promptly and effectively. As already highlighted, the wellsite is lined with an impermeable membrane which was installed by a specialist contractor and its integrity inspected. A certificate is issued to the Operator confirming this, thereby significantly reducing the potential for groundwater to be contaminated. As part of the operations procedures, site specific documents are developed on how to respond to a spill

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and regular drills are performed throughout the operations. Spill kits are provided on site in strategic locations. Any spills will be cleaned up and disposed of via a licenced waste carrier.

With the above measures in place it is considered that the risk to groundwater and surface water is considered low.

6.8 LIGHTING

The drilling phase necessitates 24 hour operations; therefore it is essential for the site to be lit during the hours of darkness. Tower lights will be positioned around the site and directed towards the required areas. The drilling rig also has a number of intrinsically safe lights on the drill floor, cat walk, derrick and dog house.

To ensure the impacts of any lighting during the Ebberston Moor A drilling operations is managed and mitigated, a number of measures will be implemented.

Lighting will be located in key areas around the site where it is required. Tower lights will be positioned around the perimeter of the site and raised high and face downwards to reduce overspill. No lighting will be focused directly onto the public highway or directly towards residential properties.

Screening will be used on site to limit any impacts arising from light spill, sky glow and visibility from local residencies. This will be achieved through the positioning of equipment onsite. In addition to the careful positioning of equipment onsite, natural screening is also provided by hedgerows and woodland.

Any lighting will be directed to the areas required to ensure its efficient use. In addition, lighting will be downward facing to minimise any light spill. Typically this will be directed at an angle of approximately 70°, thereby reducing spill and glare.

Where appropriate, lighting baffles will be used to prevent light spilling outside of the site and glare onto the public highway. This will be reviewed during the setup of each phase. In particular, lighting which spills onto the public highway will be prevented to ensure that road users are not affected.

During the drilling operations there will be regular monitoring to confirm the effectiveness of the lighting in place. Any non-conformances will be addressed and further action will be taken where deemed appropriate.

As part of Vikings commitment to ensuring its operations do not impact on local residents, a community contact number will be provided. This will allow local residents to contact a member of the Viking UK Gas project team 24 hours a day.

Due to the temporary nature and short duration of the proposals any impacts associated with lighting is considered low and therefore acceptable.

6.9 POLLUTION AND WASTE

All waste produced from the operations will be disposed of in an environmentally friendly manner. Where possible and in accordance with the "Waste Hierarchy", waste will be reduced and recycled, however, this is not always possible. Waste will be segregated on site and stored in secure containers on site.

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Five principal sources of waste require disposal from site:-

- 1) drilling mud located in the mud tanks and drill cuttings;
- 2) sanitary waste collected in the cess tank;
- 3) site drainage collected in the ditches;
- 4) general waste - paper, timber, scrap metal – collected in skips;
- 5) waste fluids processed during drilling or testing operations and collected in storage tanks.

All waste materials, including wastewater and fluids (subject to prior analysis if required); will be removed by licensed operators and disposed of at authorised locations.

Any foul drainage arising from the operations will be collected in temporary steel tanks, located under or adjacent to welfare facilities. These will be monitored regularly and emptied periodically, with disposal to an approved location.

Prior to the start of the operations, procedures will be documented and all personnel made aware of the measures in place for responding to an emergency situation, including fire and spills.

6.10 SITE SECURITY

To ensure security is maintained onsite, a perimeter fence has been installed with a gated entrance. As part of the operations, a personnel list is maintained of all operatives onsite. This helps to ensure there is no unauthorised access and is used should an emergency incident occur.



7 PLANNING POLICY

In submitting this planning application, the Applicant has considered the proposals in relation to National, Regional and Local planning policy and guidance. Those of relevance have been identified and discussed in this chapter.

Section 38 of the Planning and Compulsory Purchase Act 2004 states:

"If regard is to be had to the development plan for the purpose of any determination to be made under the planning Acts the determination must be made in accordance with the plan unless material considerations indicate otherwise."

This application demonstrates the national need for the appraisal of gas reserves in the UK and highlights that at this existing wellsite, work can be undertaken with negligible impacts on the environment and no adverse effects. Where necessary, mitigation has been proposed and incorporated into the project. Therefore this application is compliant with all relevant policies and plans.

7.1 NATIONAL

The following section considers national policy relevant to the application.

7.1.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) was enacted in March 2012 and has replaced a number of Planning Policy Statements and Planning Policy Guidance. It sets out the Governments planning policies for England and how these are expected to be applied.

NPPF highlights that the planning system must perform a number of roles to lead to sustainable development, that is:

- **An economic role** – contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation; and by identifying and coordinating development requirements, including the provision of infrastructure;
- **A social role** – supporting strong, vibrant and healthy communities, by providing the supply of housing required to meet the needs of present and future generations; and by creating a high quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being; and
- **An environmental role** – contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.

Petroleum is a national resource, which is identified by the Government as being vital to maintaining security of supply. The 2007 Energy White Paper highlighted the significant demand for gas and how fossil fuels are to be supported by appropriate Government policies. This will ensure a continuous supply whilst preserving competitiveness. The UK wishes to maintain security of supply by exploring for indigenous gas reserves both onshore



and offshore, where they can be exploited in a safe and sensitive manner with regards to the environment. By exploring for and producing indigenous petroleum resources, it can help to contribute to the key aims of the Government in relation to sustainable development.

The NPPF goes on to highlight the importance of rural diversification and how a positive approach to new development is required where it supports this diversification. This development will help provide a number of benefits to the local rural communities. Furthermore, it seeks to ensure the highest level of protection to the countryside in accordance with best practice.

In relation to conserving and enhancing the natural environment, the NPPF highlights how the planning system seeks to enhance the environment by:

- *Protecting and enhancing valued landscapes, geological conservation interests and soils;*
- *Recognising the wider benefits of ecosystem services;*
- *Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- *Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and*
- *Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.*

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Furthermore, the NPPF identifies the importance of National Parks and specifying that they are to be given the highest level of protection and great weight should be given to conserving the landscape and scenic beauty. It states that development should only be permitted in exceptional circumstances demonstrated by the need for the development, developing outside the designated area and minimising any detrimental effects.

Section 3.5 of this application discusses the need for the development, demonstrating the national importance of identifying indigenous petroleum resources and maintaining security of supply. As highlighted in the NPPF and other planning policy, minerals can only be worked where they are found and it is not possible for the development to be located outside of the National Park. Any potential impacts associated with the development have been mitigated through a number of measures.

In compiling this planning application, independent studies assessed the potential impacts to the environment. These reports provide a detailed account of the existing environment. The development proposed is temporary in nature and of short duration. On completion of operations the site will be reinstated to its existing condition.

To ensure the protection of the environment and in accordance with industry best practice, a number of measures are incorporated into the proposals to mitigate any harm. This includes laying an impermeable membrane across the site and installing a drainage ditch around the

perimeter. On completion of the proposed operations the land will be reinstated and a period of aftercare undertaken to ensure the successful restoration of the site.

The NPPF highlights how any development must minimise pollution and other adverse effects on the local and natural environment. These measures are incorporated into the proposals and provide mitigation against any adverse effects.

In preventing any impacts from lighting, which is required during the 24 hour operations, a lighting management plan has been included with this application. This sets out the best practice guidance which will be followed onsite.

In relation to minerals, the NPPF highlights that the planning authority should:

- Give great weight to the benefits of the mineral extraction, including to the economy;
- Ensure, in granting planning permission for mineral development, that there are no unacceptable adverse impacts on the natural and historic environment, human health or aviation safety, and take into account the cumulative effect of multiple impacts from individual sites and/or from a number of sites in a locality;
- Ensure that any unavoidable noise, dust and particle emissions and any blasting vibrations are controlled, mitigated or removed at source, and establish appropriate noise limits for extraction in proximity to noise sensitive properties;
- Provide for restoration and aftercare at the earliest opportunity to be carried out to high environmental standards, through the application of appropriate conditions, where necessary. Bonds or other financial guarantees to underpin planning conditions should only be sought in exceptional circumstances;

The NPPF also specifically considers oil and gas development, it states:

When planning for on-shore oil and gas development, including unconventional hydrocarbons, clearly distinguish between the three phases of development (exploration, appraisal and production) and address constraints on production and processing within areas that are licensed for oil and gas exploration or production.

This application is for the exploration of conventional petroleum reserves. It is a temporary proposal of short duration.

The proposals are considered to accord with the guidance set out in the NPPF.

7.1.2 Technical Guidance to the National Planning Policy Framework

This document provides additional guidance in support of the NPPF, specifically considering flooding and mineral extraction.

The site is not located within an area that has been identified as at risk of flooding, therefore a flood risk assessment has not been submitted with this application.

The technical guidance goes on to discuss minerals planning. It highlights that any proposals must not have an adverse effect on the natural or historic environment or human health.

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Furthermore, the siting of equipment must take into consideration proximity to local residencies, factoring in any operational considerations.

The guidance highlights the effects of dust and how this must be controlled and mitigated. Any impacts from dust associated with the proposals are considered low. Mitigation measures, including dampening affected areas can be initiated.

Noise is highlighted as an area that should be assessed to ensure that any unavoidable noise emissions are controlled, mitigated or removed at source and to ensure that noise limits are established in proximity to properties. A noise survey has been completed for the proposed site and a copy of the report included in the appendices. The report highlights, that in accordance with the guidance a level of less than 42dB (A) Laeq, 1h (free field) can be achieved at noise sensitive dwellings

A requirement of the NPPF is to ensure that there is provision for restoration and aftercare at the earliest opportunity, undertaken to high environmental standards. The applicant has included a restoration plan in Appendix 11, which includes details of a five year aftercare period.

During the development of project costs, money is assigned for the restoration and aftercare of the wellsite. This ensures that sufficient provision has been made.

Having considered the guidance, it is concluded that the development is in accordance with the NPPF Technical Guidance.

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7.2 REGIONAL

The following section considers regional planning policy, relevant to the application. Whilst the Applicant has identified relevant regional policy, it is recognised that it is currently a material consideration that the regional strategies are to be revoked.

7.2.1 The Yorkshire and Humber Plan - Regional Spatial Strategy

In accordance with the Planning and Compulsory Purchase Act 2004 the Yorkshire and Humber region has developed a Regional Spatial Strategy (RSS). This was adopted in May 2008.

A number of policies contained within the Yorkshire and Humber Plan, supersede those contained in the Joint Structure Plan for Kingston upon Hull and the East Riding of Yorkshire.

This section considers the relevant policies identified in the RSS.

ENV7: Agricultural Land

A. If development of agricultural land is required it should take place on poorer quality land wherever possible and appropriate.

The proposed development is located within an area that has been classified as "Severely Disadvantaged" as it is within a Less Favoured Area. The Applicant has minimised the amount of land required through careful design and selection of equipment. However, site

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selection is limited by a number of factors including the subsurface target, which is discussed in greater detail in Section 4.2.

ENV8: Biodiversity

The Region will safeguard and enhance biodiversity and geological heritage and ensure that the natural environment functions as an integrated network of habitats. Plans, strategies, investment decisions and programmes should aim to maintain and enhance, restore or add to distinctive elements of the natural environment in line with international, national, regional and sub regional and local importance for biodiversity to...

In accordance with Policy ENV 8, the Applicant has considered biodiversity in relation to this proposal. An independent ecological survey was completed for the proposed development location. The report identified that there will be no significant effects caused by the development in relation to biodiversity. In addition, it identified that no protected species will be harmed by the proposals. Whilst implementing the development, the Applicant will ensure care is taken to protect biodiversity. The Applicant proposes to restore the site on completion of operations.

POLICY ENV10: Landscape

The Region will safeguard and enhance landscapes that contribute to the distinctive character of Yorkshire and the Humber. Plans, strategies, investment decisions and programmes should safeguard and enhance the following landscapes and related assets of regional, sub-regional and local importance:

- A. *Yorkshire Dales and North York Moors National Parks and the Nidderdale, Howardian Hills, Forest of Bowland, North Pennine and Lincolnshire Wolds Area of Outstanding Natural Beauty.*
- B. *The coastal landscapes of the East Coast and the Humber.*
- C. *Derelict and despoiled urban fringe landscapes, especially in the former coalfield and older industrial parts of South and West Yorkshire.*
- D. *Degraded rural landscapes, especially in parts of the vale of York and Humberhead Levels.*

Minerals can only be worked where they are found, as highlighted in national planning policy. It must also be considered, that this proposal is for a temporary development of short duration. Therefore due to the temporary nature of the proposals it is considered that any effects on landscape are low.

Having reviewed this proposal in relation to the Yorkshire and Humber Regional Spatial Strategy, the Applicant considers the development complies with the relevant policies.

7.3 LOCAL

The following section considers local planning policy relevant to the application in addition to emerging local policy.

7.3.1 North York Moors National Park Authority Local Development Framework – Core Strategy and Development Policies

The Core Strategy and Development Policies were adopted by North York Moors National Park Authority on 13th November 2008.

Core Policy A – Delivering National Park Purposes and Sustainable Development

The local development framework seeks to further the National Park purposes and duty by encouraging a more sustainable future for the Park and its communities whilst conserving and enhancing the Park’s special qualities. Priority will be given to:

1. *Providing a scale of development and level of activity that will not have an unacceptable impact on the wider landscape or the quiet enjoyment, peace and tranquillity of the Park, nor detract from the quality of life of local residents or the experience of visitors.*
2. *Providing for development in location and of a scale which will support the character and function of individual settlements.*
3. *Maintaining and enhancing the natural environment and conditions for biodiversity and geodiversity.*
4. *Conserving and enhancing the landscape, settlement, building features and historic assets of the landscape character areas.*
5. *Applying the principles of sustainable design and energy use to new development.*
6. *Enabling the provision of a choice of housing that will meet the needs of local communities in terms of type, tenure and affordability.*
7. *Strengthening and diversifying the rural economy and providing tourism based opportunities for the understanding and enjoyment of the Park’s special qualities.*
8. *Enabling access to services, facilities, jobs and technology whilst minimising the environmental impacts of transport.*

The proposals are not considered to have an unacceptable impact on the setting of the national park, due to the short duration and temporary nature of the development. Furthermore, mitigation has been incorporated into the proposals to minimise any effects and an ecological study has considered local biodiversity.

Core Policy C – Natural Environment, Biodiversity and Geodiversity

The quality and diversity of the natural environment of the North York Moors National Park will be conserved and enhanced. Conditions for biodiversity will be maintained and improved and important geodiversity assets will be protected. Protected sites and species will be afforded the highest level of protection with priority also given to local aims and targets for the natural environment.

All developments, projects and activities will be expected to:

1. *Provide an appropriate level of protection to legally protected sites and species.*

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2. *Maintain, and where appropriate enhance, conditions for priority habitats and species identified in the North York Moors Local Biodiversity Action Plan.*
3. *Maintain and where appropriate enhance recognised geodiversity assets.*
4. *Maintain and where appropriate enhance other sites, features, species or networks of ecological or geological interest and provide for the appropriate management of these.*
5. *Maximise opportunities for enhancement of ecological or geological assets, particularly in line with the North York Moors Local Biodiversity Action Plan, Tees Valley and North East Yorkshire Geodiversity Action Plans and the regional Habitat Enhancement Areas.*
6. *Mitigate against any necessary impacts through appropriate habitat creation, restoration or enhancement on site or elsewhere.*

In assessing the potential impacts on the natural environment, an independent ecological survey was completed. This has identified the existing conditions on and around the proposed development location. On completion of the proposed temporary operations, the site will be restored to its existing condition.

Development Policy 1 – Environmental Protection

To conserve and enhance the special qualities of the North York Moors National Park, development will only be permitted where:

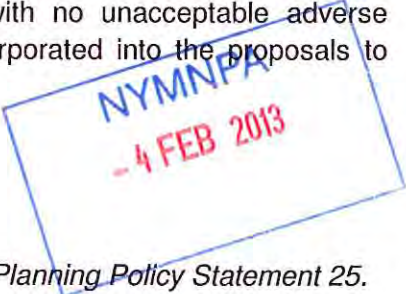
1. *It will not have an unacceptable adverse impact on surface and ground water, soil, air quality and agricultural land.*
2. *It will not generate unacceptable levels of noise, vibration, activity or light pollution.*
3. *There will be no adverse effects arising from sources of pollution which would impact on the health, safety and amenity of the public and users of the development.*
4. *Land stability can be achieved without causing unacceptable environmental or landscape impact.*
5. *There is or will be sufficient infrastructure capacity to accommodate the demand generated by the development.*

A noise study has been completed and accompanies this application. This report demonstrates that the development can be undertaken with no unacceptable adverse impacts. A number of mitigation measures have been incorporated into the proposals to reduce any effects, which are set out in this document.

Development Policy 2: Flood Risk

Development will only be permitted where:

1. *It complies with the sequential approach as set out in Planning Policy Statement 25.*
2. *It will not lead to an increase in flood risk elsewhere.*



3. *A site specific Flood Risk Assessment is submitted where required.*
4. *In the case of flood defences, they form part of a Catchment Flood Management Plan or other approved programme of flood management.*

The Applicant has considered the potential risk of flooding on the site and consulted the Environment Agency flood risk maps. The development will not lead to an increase in flood risk elsewhere. A flood risk assessment is not required to be submitted as it is not within an area at risk of flooding.

The following core policy sets out North York Moors National Park Authority requirements for minerals development.

Core Policy E: Minerals

Minerals extraction in the National Park will enable the provision of materials necessary for the preserving of traditional buildings and for maintaining and enhancing the character of settlements and the countryside of the National Park. Minerals extraction or the re-working of former quarries will be permitted where:

1. *It is of a scale appropriate for its location in the National Park and is for meeting a local need for building stone.*
2. *There are no suitable sources of previously used materials to meet the identified need.*
3. *Any waste materials from extraction will be re-used or recycled wherever possible.*
4. *A scheme for restoration and after-use of the site based upon protecting and enhancing the special qualities of the National Park forms an integral part of the proposal.*

Development which would compromise the future extraction of important building stone at existing or former quarries will not be permitted.

All other minerals developments will be considered against the major development tests. The continued extraction of potash at Boulby will be permitted provided that any detrimental effect on the environment, landscape or residential or visitor amenity is not unacceptable in the context of any overriding need for the development.

In accordance with Core Policy E, the scale of the site is sufficient to achieve the Applicants objectives. Furthermore, the waste hierarchy will be applied and Appendix 11 of this application includes details on site restoration and aftercare.

Section 6.31 of the Core Strategy and Development Policies consider oil and gas specifically and states:

The Government has awarded licences for oil and gas exploration in parts of the Park. As with other minerals developments, the extraction of oil and gas should only take place in the Park in exceptional circumstances and will therefore be subject to rigorous examination. Proposals for oil and gas exploration, appraisal and production will be considered against the policy in Annex 4 of Minerals Policy Statement 1.

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As highlighted in Core Policy E and Section 6.21 of the Core Strategy, National Park policy states that major development should only occur in exceptional circumstances and that it should be assessed in terms of the major development test. This requires the Applicant to consider whether the development is in the national interest, if it can be achieved outside of the National Park and how any impacts can be moderated.

Obtaining indigenous petroleum resources, including gas, is in the national interest as demonstrated in Section 3.5 of this document. The Government has clearly emphasised its importance and the role it plays within the current and future energy mix. It helps to maintain security of supply and limit the UK being susceptible to global market effects.

In selecting a location, it must be considered that minerals can only be extracted from where they occur. The prospect is located wholly within the National Park and it will not be possible for the operations to be performed outside of the National Park. In addition, this application is for a temporary development of short duration, which will allow the Applicant to confirm the presence and extent of any petroleum reserves.

The impacts associated with this development can be removed or reduced through careful consideration of mitigation. This application sets out the mitigation which has been incorporated into the proposals to minimise any impacts.

As discussed in section 7.1.1 this application has been considered against Annex 4 of Minerals Policy Statement 1.



8 CONCLUSION

This application is submitted under the Town and Country Planning Act 1990, to the North York Moors National Park who is the Mineral Planning Authority.

The Applicant is proposing to undertake the drilling of a sidetrack from the existing Ebberston Moor A wellsite and drill up to two additional appraisal boreholes followed by a period of short term testing for gas. To facilitate the drilling of up to two additional appraisal boreholes, two new drilling cellars will be constructed within the wellsite. The purpose of the appraisal wells is to help determine the commercial potential of the Ebberston Moor Gas Field and to commercially de-risk any future potential development of the gas field, thus providing the Applicant with valuable information.

They intend to drill up to two appraisal boreholes to a target depth of 1746m (5730ft). This will entail the drilling of a directional borehole to and through the primary and secondary target reservoirs. It is anticipated that the drilling operation will be completed within seven (7) to twelve (12) weeks. This timeframe is dependent on a number of factors, including progress through the different strata and whether gas is identified in any of the target zones.

The drilling is targeting conventional gas bearing formations and therefore a typical oilfield drilling rig will be used. Drilling rig availability is not known at this early stage of the planning process, consequently it is not possible to definitively determine which rig may be used; however, the approximate height of the drilling rig suitable for drilling to this depth is 50m. A drill stem test may be carried out whilst the rig is still on site, to establish any initial flows of gas.

The Applicant is also proposing to drill a sidetrack from the existing borehole to further evaluate the target that has been identified. Each drilling operation will last for between 7 – 12 weeks.

If there are positive results during the drilling, then the Applicant will undertake an extended well test, during which they will flow gas to surface for a period of ninety (90) days. This will allow them to gain a further understanding on the characteristics of the reservoir and evaluate its potential as a commercial prospect.

If at any stage the Applicant decides the prospect is not commercial, then a decision will be made to plug and abandon the well in accordance with industry best practice. The site will be subsequently restored to its existing condition and a period of aftercare carried out to ensure its successful restoration. Should the Applicant decide that this prospect is commercial and wish to produce gas from the site, they will request restoration is deferred pending the submission and a decision on a planning application to produce gas.

The proposed development is located within North York Moors National Park, which has the highest status of protection. Major development can only occur within national parks where there are exceptional circumstances as set out in the NPPF. The exceptional circumstances for permitting this development are that is in the national interest as demonstrated in Section 3.5 of this application, the site cannot be located outside of the National Park as minerals can only be worked where they are found and any impacts on landscape and recreation are limited due to the short term and temporary nature of the proposals.

To support this application a number of reports have been produced including ecology, noise, landscape and visual impact assessment and traffic management plan. The results are summarised below.

An independent ecological report was produced for the proposed operations. The report identified that the site is within the North York Moors National Park, which is a statutory designated site. The survey did not identify any protected. A number of mitigation measures are proposed to ensure the protection of potential nesting birds and reptiles. The report concludes that the development is unlikely to have a significant adverse impact on flora and fauna provided the mitigation measures are implemented.

An independent noise assessment was completed in December 2004 and submitted with the original wellsite planning application. This has been used as the basis of assessment as it is considered to still be applicable.

The assessment predicts that the drilling operations will be well within the 55dB(A) daytime limit. The report identifies that at the nearest noise sensitive properties, the drilling rig noise emission will not meet a noise limit based on a background noise excess of +10dB(A). However, this is due to the very low existing background noise levels. This is recognised in the NPPF guidance. The operations will comply with the guidance set out in the NPPF, by achieving a night time noise limit of Laeq (1hour) 42dB(A). Should planning permission be approved and once a rig has been secured then additional mitigation will be reviewed to ensure the guidance levels are achieved.

The site is located on a flat plateau which forms part of the Tabular Hills. It is on the edge of Dalby Forest within the North York Moors National Park. A subsequent planning application in November 2008 received approval to enable remodelling of the topsoil and subsoil bunds, along with additional areas of planting. This has helped to reduce the visual impact of the site from surrounding public vantage points.

Significant effects on local residents and members of the public from the drilling operations are limited due to the short term and temporary nature of the proposed development in addition to the extensive screening provided around the site. On completion of the drilling operations, the rig will be removed from the site. Therefore, the impacts are only temporary and not considered significant.

The traffic management plan proposes a number of procedures to control the movement of vehicles to the Ebberston Moor A wellsite. This includes defining the access route to be used and utilising a number of the existing passing places along the access route. Furthermore, a dilapidation survey will be completed prior to the start of operations and subsequent monitoring inspections will be completed after each phase.

This proposal accords with relevant national, regional and local planning policies. As highlighted in this application, the UK Government is in support of the appraisal of indigenous oil and gas reserves to maintain security of supply. The UK is now a net importer of oil and gas resources and is open to the volatilities of the global market. The Government highlight that "*minerals are essential to the nation's prosperity and quality of life*", further demonstrating its commitment to minerals appraisal.

Appraisal of minerals must ensure that any environmental effects are considered and where necessary appropriate mitigation proposed. In submitting this application, the Applicant has considered the possible environmental effects associated with the development. The proposals will make use of an existing wellsite, thereby limiting some of the potential impacts. The Applicant concludes that any impacts associated with this proposal will be negligible due to the short duration and temporary nature of the operations.

Having considered the details set out in this planning application and relevant national, regional and local planning policy it is considered that the proposal is acceptable. The Applicant hereby requests that planning permission is granted.

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APPENDIX 1 – SITE LOCATION

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APPENDIX 2 – SITE DESIGN DRAWINGS

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APPENDIX 3 – PRE-APPLICATION CONSULTATION LETTERS

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APPENDIX 4 – DRILLING RIG SPECIFICATION

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EDECO RIG 40 SPECIFICATION**DEPTH RATING**

5 in drill pipe (m): 4250

DRAWWORKS

Make: National

Model: 80-E double drum

Hoisting speeds: Six

Max rating (lbs): 540 000

Drilling line (in): 1-1/4" (EIPS)

Max rating of Drill line (lbs)

10 lines, 6 x 19 wire rope: 541,333 (API Drilling Safety Factor @ 3:1 for 1 1/4" EIPS (IWRC))

10 lines, 6 x 19 wire rope: 812,000 (API Casing Running Safety Factor @ 2:1 for 1 1/4" EIPS (IWRC))

10 lines, 6 x 19 wire rope: 541,333 (LOLER Pulling Safety Factor @ 3:1 for 1 1/4" drilling line)

Main brake: Eaton disc

Auxiliary brake: Band brake

Drive: Baylor DC motor

Input power (hp): 1000

Easy Torque System: Break out and make up (Hydraulic)

MAST

Type: Cantilever

Make: Derrick Services International

Sheaves: Five

Height (m): 41.45



Gross nominal capacity (lb):	800 000
Static hook load rating (lb) 10 lines:	570 000
Max wind no setback (mph):	100
Max wind with setback (mph):	75
Racking capacity (triples):	124 x 5" pipe 5 x 8" Drill Collars

SUBSTRUCTURE

Make:	Derrick Services International
Type:	Box on box
Casing capacity (lb):	600 000
Set back capacity (lb):	400 000
Sub base size (m):	15.35 x 2.34
Clear height (m):	4.50 (4.86 with skidding beams)
Distance between subs (m):	3.92
Skidding capability:	Hydraulically activated skidding system for moving substructure between wells

GROUND LOADING

Matting area (m2):	150
Indicative loads	
Equipment only (kN/m2):	10
Equipment, max static hook load (kN/m2):	26
Equipment, max static hook load and max setback capacity (kN/m2):	38

TRAVELLING EQUIPMENT

Block (ton):	Brewster 300
Hook (ton):	Integral clevis
Swivel (ton):	National 300

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Model: P300
 Max working press (psi): 5000
 Dynapex Hook: BJ
 Model: 5500
 Tons: 500

TOP DRIVE

Make: Tesco
 Model: HCI (Hydraulic)
 HP: 1205
 Drill Pipe RPM: 210 (high range)
 110 (low range)
 Drill Pipe Torque (ft/lbs): 28,000 (in high range)
 53,000 (in low range)
 Working Pressure (psi): 5000
 Prim mover: Detroit Diesel
 Model: 16V2000 DDEC
 Fuel Tank: 25,000 ltrs double skinned tank
 Driller aid: Fitted with camera system

ROTARY TABLE

Make: National
 Model: C-275
 Opening size (in): 27.50
 Maximum input hp at 125 rpm: 405
 Static load rating (ton): 500
 Drive: Drawworks motor
 Type: Baylor

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HP: 1000
 Speeds: Two
 Max rotary table torque (A): 350

MUD PUMP 1 & 2

Make: Ideco
 Model: T-1600
 Type: Triplex
 Number: Two
 Drive: Cummins KT50 diesel engine
 HP: 1600
 Liner sizes (in): 6 to 7
 Max pump press rating (psi): 5000
 Max continuous (spm): 110
 Pre-charge pump (in): 5 x 6
 Pre-charge pump (hp): 50
 Pre-charge pump (rpm): 1750

MUD PUMP 3

Make: Emsco
 Model: F-1000
 Type: Triplex
 Number: One
 Drive: Cummins KT38 diesel engine
 HP: 1000
 Liner size (in): 4.50 to 6.75
 Max pump press rating (psi): 5000
 Max continuous (spm): 120

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Pre-charge pump (in):	5 x 6
Pre-charge pump (hp):	50
Pre-charge pump (rpm):	1750

Note: Pump Operational Parameters below:

Maximum mechanical efficiency @ 97%

Maximum volumetric efficiency @ 95%

Maximum operating output @ 85%

POWER AND SCR SYSTEM

Engines:	Caterpillar 3412 PCT A
HP:	665
Rpm:	1800
Number:	Three
Generators:	Stamford
Output (kW):	600
Voltage (V):	600
MCC:	Allen Bradley
SCR system:	IPS (Integrated Power Systems)
SCR bays:	Three
Bays continuous rating (A):	1500



MUD SYSTEM

Tank volume (bbl):	1000 (three tanks)
Mud mix pump:	2
Size (in):	5 x 6
Power (hp):	50
Rpm:	1750

Mix hoppers:	2
One ton mix frame:	Twin rail
Water tank volume (bbl):	400
Reserve mud tank (bbl):	350
Shakers:	Three Brandt VSM 300
Degassers:	Atmospheric and primary
Agitators:	Four
Type:	Brandt
HP:	10
Electroflow PVT System:	6 Pit monitor

BOP SYSTEM

BOP stack:	13-5/8" Shaffer double gate 5M 13-5/8" Shaffer 5M annular 13-5/8" Shaffer shear ram (optional)
Ram blocks:	Blind, shear, pipe, variable
Valves:	Three x 3 in 5M gate valves One x 3 in 5M HCR valve
BOP handling details:	Self contained cradle and trolley on rails Two x 10 MT wire rope lifting slings
BOP stack:	21-1/4" Hydril MSP 2M annular, 21-1/4" double gate pipe and blind ram
Accumulator:	Koomey 200 gal
Size (gals):	200
Choke Manifold:	Oilmaster 5M
Valves:	Eight
Type:	National B2650
Adjustable choke:	Willis
Type:	M3

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Press rating (psi): 5M
 Remote controlled choke: Drilco/Sweco
 BOP test unit: Hydratron

INSTRUMENTATION

Drilling recorder: Totco 6-pen recorder
 Weight indicator: Martin Decker
 Model: Type D, 750,000 lbs
 Pump pressure: Totco
 Stroke counter: Digital strokes and total strokes
 Driller's consol: Displays all key parameters
 Tesco driller's panel: Digital torque and rpm

HANDLING EQUIPMENT

Winch (2): Braden hydraulic
 Man riding winch: Gearmatic hydraulic
 Kelly spinner: Foster hydraulic
 Type: Foster 77
 Pipe spinner: Varco SSW-30 (hydraulic)
 Fork lift truck: 6-ton all terrain with pallet forks and pipe handling device
 Torque wrench: Varco TW-60 (hydraulic)
 Rotary tongs: Blohm-Voss BV100 (full set of jaws)
 Rotary tongs: Type C (full set of jaws)



PIPE HANDLER

Make: Pipe Wrangler
 Model: 2004 LiL Wrangler
 Power: Hydraulic

Range of pipe: 3

FUEL TANK

Capacity (l): 75,000 (three x double skin tanks)

WATER TANK

Volume (bbl): 400

Water pumps size (in): 2 x 3

BUILDINGS

- Rig Managers Office
- Canteen Shack
- Change Shack
- Doghouse/Driller's station
- Toolhouse x two
- Number 2 MCC Building
- Pump Spares Containers
- Sub & Tubular Container
- Spares Container
- Equipment Racks (2)
- Mechanical store & workshop
- Electrical store & office
- Tumble racks



TUBULARS

Drill Pipe: 2500 m (270 jts) of 5" Grade G-105 19.5 lb/ft Range 2 Premium Class drill pipe with 5" XH (4-1/2" IF) connections with flush hardbanding and internal coating.

Pup Joints: One x 10 ft x 5" XH connection.

	One x 15 ft x 5" XH connection.
Hevi-wate drill pipe:	9 joints 5" Range 2 Hevi-Wate 50 lb/ft drill pipe with 5" N.C 50 connections.
Drill Collars:	6 joints 9" x 2-13/16" x 200 lb/ft nominal spiral drill collars with 7-5/8" Reg connection bore back and API stress relief pin with Save Case hard banding.
	18 joints 8" x 2-13/16" x 150 lb/ft nominal spiral drill collars with 6-5/8" Reg connections, bore back and API stress relief pin with Save Case hard banding.
	20 joints 6-1/2" 100 lb/ft nominal spiral drill collars with 4" IF connections, bore back and API stress relief pin and Save Case hard banding.
	6 joints 4-3/4" 50 lb/ft nominal spiral drill collars with 3-1/2 in IF connections bore back and API stress relief pin and Save Case hard banding.
Kelly:	5-1/4" hexagon Kelly with 6-5/8" Reg box connection LH and NC 50 pin thread.
Fishing tools:	Basic fishing tool package to fish Contractor's drill string.
Crossover substitutes:	Set of crossovers with spares for principal crossover from drill pipe to drill collars and saver subs.

RIG FIRE FIGHTING EQUIPMENT

Dry Powder 9 kg:	10
Dry Powder 50 kg:	1
Foam 50 kg:	1
CO2 7.5 kg:	4

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APPENDIX 5 –TRANSPORTATION LOADS

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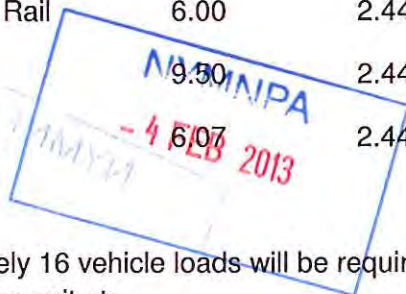
EDECO RIG 40 TRANSPORTATION LOADING

Description	Size (m)			Weight (kg)
	Length	Width	Height	
Main Pump & Tank Package				
1 Water Tank	12.68	2.44	3.10	15000
2 Mud Tank No 1	12.75	3.19	3.15	23000
3 Mud Tank No 2 (suction)	11.75	3.24	3.70	23000
4 Mud Tank No 3	12.35	2.52	3.25	17000
5 Quant Suction & HP lines	12.20	2.44	1.25	10000
6 Mud Pump No 1	9.00	3.37	3.07	42000
7 Mud Pump No 2	9.00	3.30	3.03	42000
8 Mud Pump No 3	6.08	3.00	2.30	18000
9 Mud Pump No 1 Engine	10.44	2.83	2.96	22000
10 Mud Pump No 2 Engine	10.44	2.83	2.96	22000
11 Mud Pump No 3 Engine	7.48	2.43	2.98	18000
12 M/P Fuel Tank	6.04	2.44	2.44	10000
13 Pump spares store	12.18	2.44	2.60	20000
14 Charge pumps and suction pipes	12.00	2.44	1.50	15000
15 Shakers and stand	6.50	2.66	2.28	8000
Generator & SCR Package				
16 SCR room No 1	11.73	3.10	3.16	27000
17 SCR No 2, Plug/ Switch Board	7.32	3.10	3.29	13000
18 Generator No 1 /Stores	12.54	2.94	3.21	25000
19 Generator No 2 / Stores	12.54	2.94	3.21	26000
20 Generator No 3 / Stores	12.54	2.94	3.21	23000
21 Toolhouse	12.54	2.44	2.58	20000
22 Gen F/ Tank & Koomy 2 x 20'	12.20	2.44	2.60	18000

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Main Drilling Rig Package

23 Matting (7) / BOP rails	12.20	2.44	1.50	18000
24 Cable / motor store	12.20	2.44	2.60	20000
25 Bottom Sub ODS (No Drilling line)	16.17	2.51	3.14	22000
26 Bottom Sub DS	16.17	2.51	3.14	22000
27 Top Sub ODS	11.85	2.90	3.16	20000
28 21.1/4" BOP / DB cooling unit	3.46	3.15	2.80	22000
29 Top Sub DS	11.85	2.90	3.16	16500
30 Sub Spreaders (5)	12.20	2.44	1.80	12000
31 Rotary Table/Skid/DC Skid	12.20	2.44	1.80	17000
32 Drawworks	7.00	2.70	2.75	24000
33 Windwall	12.24	2.51	3.07	13000
34 Doghouse	12.24	2.44	3.13	14000
35 Hydraulic Pipe Handler	19.00	3.17	2.36	20000
36 A Legs, Spreaders, Crown Stand	10.74	2.44	2.94	18000
37 Derrick Bottom Section	9.75	2.74	2.40	12000
38 Derrick Middle Section	9.30	2.29	2.29	7000
39 Derrick Crown Section	15.24	3.35	1.98	9000
40 Top Drive Power Pack (w/o cov)	12.10	2.90	2.99	22000
41 Top Drive & Torque Rail	6.00	2.44	2.60	12000
42 4 x Skidding rails	9.50	2.44	1.50	18000
43 Top Drive Fuel tank	6.07	2.44	2.41	4000
44 Required tubular				



In addition, approximately 16 vehicle loads will be required for office accommodation, drilling chemicals drilling logging unit etc.

This will be the main movement of the vehicles for the initial set up of the drill sites. The rig up of the unit also requires one 100 tonne crane and an 80 tonne crane.

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APPENDIX 6 – ECOLOGY REPORT

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APPENDIX 7 – NOISE REPORT

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APPENDIX 8 – LANDSCAPE AND VISUAL IMPACT ASSESSMENT

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APPENDIX 9 – TRAFFIC MANAGEMENT PLAN

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APPENDIX 10 – RESTORATION PLAN

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1. Introduction

Viking UK Gas Limited is submitting an application to North York Moors National Park Authority for permission to construct two additional cellars to allow the drilling of two appraisal wells and a sidetrack on the existing Ebberston Moor 1 wellsite. In support of the planning application a scheme for site restoration has been produced, which makes provision for the capping or plugging of the borehole to the satisfaction of the Mineral Planning Authority (MPA).

2. Restoration scheme background

The aim of the restoration scheme is to return the site to agriculture in a condition as close as practically possible to its original state. The sub-soil and top-soil should be in an uncompacted state, such that the growth of crop roots is unimpeded and drainage water can percolate down through the profile relatively freely either to the piped drainage system or to naturally permeable strata.

The scheme will be agreed in writing by the MPA, approved by the HSE, DECC and the Landowner.

The cultivation of sub-soil and the replacement/cultivation of top-soil is weather dependant and often subject to conditions imposed by the Mineral Planning Authority. Timescales, were given, are estimated assuming both the sub-soil and top-soil are in a suitably dry non-plastic state such that damage to its structure shall be avoided.

3. Reinstatement operations

When the decision is made to restore the site to its former usage the well(s) will be plugged, hydrostatically tested, and abandoned with an agreed programme or method approved by the HSE and the DECC.

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3.1 Pre restoration site clearance

The wellhead and Christmas-Tree will be removed and the well casing cut off not less than 1.5 metres (5 feet) below the finished ground level, a metal plate welded on top, and a concrete slab placed on top of the plate.

All plant, equipment, buildings, security fencing, and surface installations, will be dismantled and removed from the site, either to a re-location or to storage.

The site ditches, sump(s), cellar(s), and cess tank(s), will be drained and any contaminated materials removed from the site, such waste will be disposed of at approved locations, in accordance with prevailing legislation of the time.

All pipes, cables, ducting, and items above the impermeable lining will be disconnected, excavated, and removed from the site for disposal.

All uncontaminated hardcore and stone will be removed, with a flat bladed grader or bucket, for re-use or disposal. Concrete installations will be broken up and removed, the geotextile membrane (Terram), sand and impermeable linings will then be removed, with disposal to an approved location.

Any installations, cables, and pipes, below the linings level will then be excavated and removed from the site.

The cellar, sump and ditching voids will be in-filled with any sub-soil stored on the site, in layers of not more than 200mm thickness, ready for the site area to be then re-graded to the original contour levels.

Any header drains installed will be rodded to check their integrity prior to their retention as part of the reinstatement scheme.

3.2 Sub-soil cultivation

The sub-soil will be deep tine cultivated in strips, using a low ground pressure bulldozer drawing a winged, straight legged tine cultivator to a depth of 600mm at 1000mm centres. After each strip is deep tine cultivated, top-soil will be back-tipped onto the loosened strip and graded out either with the bucket of the 360° excavator or with a low ground pressure bulldozer. The deep tine cultivated sub-soil will not be traversed by any machinery.

3.3 Replacement of soil-sub

Any weed growth on any subsoil stockpiles will be eliminated by non-persistent, contact weed killer such as "Roundup", prior to the re-grading of the sub-soil to reform the falls and gradients which existed prior to the occupation of the site and to the original site contours. After each strip of sub-soil is deep tine cultivated, previously excavated sub-soil will be back-tipped onto the loosened strips in as thick a layer as possible and graded out either with the bucket of the 360° excavator or with a low ground pressure bulldozer. The deep tine cultivated sub-soil will not be traversed by any machinery.

3.4 Replacement of top-soil

Any weed growth on the topsoil stockpiles will be eliminated by non-persistent, contact weed killer such as "Roundup". Topsoil will be back-tipped from the stockpile onto the loosened strips and graded out either with the bucket of the 360° excavator or with a low ground pressure bulldozer to a uniform depth (the original depth before excavation), and will be levelled to avoid the formation of depressions which could hold water.

All topsoil areas within the site, including areas not affected by construction will be ploughed and cultivated to ensure that all stones, rubble, vegetation and other extraneous material larger than 75mm in any direction are removed from the site to a suitable tip.

The topsoil will be worked to a fine tilth by rotovator or harrowing to not less than 100mm depth.

If it should prove necessary to import top soil into the site, disease and pest free material to British Standard 3882 (General Purpose Grade) will be used.

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3.5 Removal of site boundary fence

The boundary fencing will normally be dismantled and removed prior to site restoration works. If however, the land surrounding the site is used for grazing livestock, the boundary fence will be dismantled and removed on completion of the restoration works, as it will be required to protect the restoration area from the animals.

3.6 Reinstatement of fences and gates

Any fences and gates removed during the use of the site will be replaced with new materials which match closely as practicable those previously existing on site.

3.7 Reinstatement of hedgerows

Any hawthorn hedge removed will be replanted with good nursery stock plants spaced in a double row 9 inches apart, individually guarded in plastic tubes to increase protection and growth and to create a 'greenhouse' affect. A tannalised timber post and four rail fence with livestock and rabbit proof netting will be constructed on either side of the newly planted hedge. Any fence to protect a hedgerow planting will be maintained for a period of two years.

Subsequent Management

Year 1	1.	Initial treatment will be carried out as described above. Apply 'Herbicide' twice a year to give the soil enough resistance to control weeds and helps establish the plants.
Year 2	1.	Apply 'Herbicide' twice a year to give the soil enough resistance to control weeds and helps establish plants.
Year 3	1.	Annual inspection.
Year 4	1.	Annual inspection.
Year 5	1.	Annual inspection.



4. New field drainage

If necessary, a scheme of field drainage in the site will be prepared and agreed with the Landowner and for works to be carried out by a specialist land drainage contractor in year two or earlier if appropriate.

Any construction of header drains installed to intercept the field drains will be retained; these will be rodded to check their integrity prior to their incorporation as part of the drainage reinstatement scheme.

Perforated plastic pipe of minimum diameter, 110mm, will be laid at the bottom of the trench surrounded by backfill with clean washed 10 to 20mm pea-gravel (depending on the drainage machine to be used), and will be backfilled to within 225mm of surface allowing for settlement for the gravel. Drains will be laid to the maximum available falls and, at depths not less than 660mm cover.

Any outfall of the drainage system will consist of 2m lengths of frost resistant plastic pipe set into a suitable headwall (concrete or gabion) with a splash plate, discharging at water level into the ditches.

If it is not possible to lay drains at a depth of at least 600mm of cover, the Landowner will be consulted and his written approval will be sought to an amended specification.

5. Management and aftercare

The whole former operation site will be returned to agriculture after completion of the works, subject to the Landowner's agreement. Annual inspections will be made in August/September of each year, for a period of five years, with the Landowner or his Agent, to review the progress and crop productivity of the restoration area.

5.1 Subsequent Management if subject to grass planting

- | | |
|--------|--|
| Year 1 | <ol style="list-style-type: none"> 1. Initial treatment will be carried out as described above. 2. The site will be rolled with a light, grassland roller and spread with a compound fertiliser as recommended by soil sample analysis. 3. The grass will be cut for silage or hay May/June and subsequently grazed. 4. Any weeds will be sprayed with an appropriate weed killer. 5. All stock/cattle will be removed in adverse weather conditions to prevent poaching. |
| Year 2 | <ol style="list-style-type: none"> 1. Annual inspection. 2. Carry out additional restoration (if required) and compensate the owner or the land user for any loss. |
| Year 3 | <ol style="list-style-type: none"> 1. Annual inspection. 2. Carry out additional restoration (if required) and compensate the owner or the land user for any loss. |
| Year 4 | <ol style="list-style-type: none"> 1. Annual inspection. 2. Carry out additional restoration (if required) and compensate the owner or the land user for any loss. |
| Year 5 | <ol style="list-style-type: none"> 1. Annual inspection. 2. Carry out additional restoration (if required) and compensate the owner or the land user for any loss. |

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5.2 Subsequent management if subject to arable planting

- | | |
|--------|---|
| Year 1 | <ol style="list-style-type: none"> 1. Initial treatment will be carried out as described above |
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- 2. The crop will be assessed prior to harvest with regard to production levels and compared to production levels from adjoining undisturbed land.
- Year 2
 - 1. Annual inspection.
 - 2. Further sub-soiling or comprehensive filed drainage scheme will be considered (if required).
 - 3. Compensate the owner or land user for any loss or disturbance if required.
- Year 3
 - 1. Annual inspection.
 - 2. Compensate the owner or land user for any loss or disturbance (if required).
- Year 4
 - 1. Annual inspection.
 - 2. Compensate the owner or land user for any loss or disturbance (if required).
- Year 5
 - 1. Annual inspection.
 - 2. Compensate the owner or land user for any loss or disturbance (if required).

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