

**Planning Statement**  
Altcar Moss Wellsite

June 2019



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## 1. DEFINITIONS

### 1.1 Abbreviations

Provided below is a list of definitions for words or phrases used within this planning statement:

|                          |  |
|--------------------------|--|
| <b>Applicant:</b>        | Aurora Energy Resources Limited  |
| <b>Application Site:</b> | Wellsite and Access track  |
| <b>BEIS:</b>             | Department for Business, Energy, Industrial Strategy                       |
| <b>DCLG:</b>             | Department for Communities and Local Government                            |
| <b>DECC:</b>             | Department of Energy and Climate Change                                    |
| <b>EA:</b>               | Environment Agency   |
| <b>EHO:</b>              | Environmental Health Officer   |
| <b>EIA:</b>              | Environmental Impact Assessment  |
| <b>EPR 2016:</b>         | Environmental Permitting (England and Wales) Regulations 2016 (as amended) |
| <b>ERA:</b>              | Environmental Risk Assessment  |
| <b>FRA:</b>              | Flood Risk Assessment  |
| <b>ft:</b>               | Foot (equivalent to 0.3048m)   |
| <b>Geogrid:</b>          | Geosynthetic material used to enhance ground stabilisation                 |
| <b>HDPE:</b>             | High Density Polyethylene  |
| <b>HGV:</b>              | Heavy Goods Vehicle  |
| <b>HIA:</b>              | Heritage Impact Assessment   |
| <b>HRA:</b>              | Hydrogeological Risk Assessment  |
| <b>hrs:</b>              | Hours  |
| <b>HSE:</b>              | Health and Safety Executive  |
| <b>km:</b>               | Kilometre (equivalent to 0.6214 miles)                                     |
| <b>LCC:</b>              | Lancashire County Council  |
| <b>LGV:</b>              | Light Goods Vehicle  |
| <b>LVA:</b>              | Landscape and Visual Assessment  |
| <b>m:</b>                | Metre  |
| <b>MD:</b>               | Measured Depth within the Wellbore   |
| <b>MHCLG:</b>            | Ministry of Housing, Communities and Local Government                      |
| <b>MPA:</b>              | Minerals Planning Authority  |

|                      |   |
|----------------------|---|
| <b>MtCO2:</b>        | Million Tonnes of Carbon Dioxide                                      |
| <b>NORM:</b>         | Naturally Occurring Radioactive Material                              |
| <b>NPPF:</b>         | National Planning Policy Framework                                    |
| <b>OGA:</b>          | Oil & Gas Authority   |
| <b>PEDL:</b>         | Petroleum Exploration and Development Licence                         |
| <b>PL:</b>           | Production Licence  |
| <b>PON:</b>          | Petroleum Operations Notices  |
| <b>PPG:</b>          | Planning Practice Guidance  |
| <b>SAC:</b>          | Special Area of Conservation  |
| <b>SSSI:</b>         | Site of Special Scientific Interest                                   |
| <b>Stakeholders:</b> | Groups, organisations or individuals who may be affected by a project |
| <b>TMP:</b>          | Traffic Management Plan   |
| <b>TVDGL:</b>        | True Vertical Depth below Ground Level                                |
| <b>UKOOG:</b>        | United Kingdom Onshore Oil & Gas (Industry Body)                      |
| <b>UK:</b>           | United Kingdom  |
| <b>VOC:</b>          | Volatile Organic Compounds  |
| <b>WMS:</b>          | Written Ministerial Statement   |
| <b>“:</b>            | Inch  |

## 2. SUMMARY

### 2.1 The Applicant

Aurora Energy Resources Limited (the Applicant) is a private UK company engaged in the exploration for oil and gas in North West England. It is the operator of Petroleum Exploration and Development Licences (PEDLs) 164, 261,262 and 267.

The Applicant is currently evaluating the hydrocarbon potential within PEDL 164, with specific emphasis on the Bowland Shale/Hodder Mudstone sequence. Having acquired a new 3D geophysical survey across an area of interest within PEDL 164, in 2016, the Applicant is now proposing to drill and test two (2) exploratory boreholes from a site located at Sutton's Lane, Great Altcar, Lancashire. Hereafter referred to as the Altcar Moss wellsite.

### 2.2 The Proposal

The Applicant is proposing to construct a wellsite and access track ("the application site"), of approximately 1.72 hectares in area, within which it will drill and core a vertical borehole, followed by the drilling of a second borehole, with a horizontal section approximately 1,500m in length. Both boreholes will then undergo hydraulic fracture stimulation. Each borehole will then be separately flow tested and, subject to the results obtained, the horizontal borehole may then undergo an extended well test (up to 90 days). In the event that the exploratory works are unsuccessful, both boreholes will be decommissioned and the site restored. If successful, any future planned works would be subject to a separate planning application. For clarity, stimulation of the boreholes will involve high volume hydraulic fracture stimulation, as defined by Section 4B(1) of the Petroleum Act 1998.

The development will consist of the following eight (8) phases:

- **Phase 1 – Access Track and Wellsite Construction:** Construction of a new access track, followed by the construction of a level hardstanding and drilling cellar, with underlying impermeable membrane and surface water containment system.
- **Phase 2 – Drilling and Coring of a Vertical Borehole (Borehole #1):** Mobilisation of surface conductor rig. Drill and set conductor casing for each borehole, to a depth of approximately 40mTVDGL, followed by demobilisation. Mobilisation of a drilling rig (mast height up to 60m) and ancillary equipment, the drilling and coring of a single vertical borehole to a depth of approximately 3,000mTVDGL.
- **Phase 3 – Drilling of a Horizontal Borehole (Borehole #2):** Following evaluation of the geological data acquired during the Phase 2 works; a second borehole will be drilled on the application site. The second borehole will be drilled down to the target zone and then drilled horizontally within this zone for up to 1,500m followed by demobilisation of the drilling rig and ancillary equipment.
- **Phase 4 – Hydraulic Fracture Stimulation of the Vertical and Horizontal Boreholes:** Mobilisation of a coil tubing unit and/or workover rig, hydraulic fracture stimulation equipment and well test equipment. Hydraulic fracture stimulation of each borehole will be undertaken in turn. A final hydraulic fracture plan for each borehole will be submitted, in advance of the operation, to the Oil & Gas Authority (OGA) for approval. Demobilisation of the hydraulic fracture stimulation equipment.
- **Phase 5 - Initial Flow Testing:** A number of separate zones within the hydraulically-fractured interval in the vertical borehole will be flow tested to ascertain if stabilised flow of hydrocarbons can be established from the various units within the Bowland Shale/Hodder Mudstone sequence. Each tested zone may comprise more than one fracture stage. Once initial flow testing of the vertical borehole is complete,

initial flow testing of the horizontal borehole will be undertaken. Phase 5 is expected to take up to sixty (60) days. Produced gas is to be incinerated on site via shrouded ground flare. Any liquid hydrocarbons produced would be separated and stored on site prior to removal by road tanker to a refinery for sale.

- **Phase 6 – Extended Well Test (Horizontal Borehole):** The production of hydrocarbons under flow test for a period of up to ninety (90) days. Produced gas to be incinerated on site via enclosed ground flare. Any liquid hydrocarbons produced would be separated and stored on site prior to removal by road tanker to a refinery for sale.
- **Phase 7 – Decommissioning and Borehole Abandonment:** Decommissioning of all surface equipment followed by borehole abandonment, including the mobilisation and demobilisation of a workover rig and/or coil tubing unit and ancillary equipment.
- **Phase 8 – Wellsite Restoration:** Wellsite restoration to pre-development condition, as agreed with the MPA and Landowner, followed by a five (5) year aftercare scheme.

### 2.3 Supporting Documents

This application is supported by an Environmental Statement, which includes a number of technical reports, completed by independent experts. To avoid duplication of these reports, all reports referred to in this document are included as Technical Appendices to the Environmental 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 certain planning applications. In accordance with Article 9 of the Town and Country Planning (Development Management Procedure) (England) Order 2015, where an application is submitted with respect to engineering and mining operations, a Design and Access Statement is not required.

As this proposal is considered an engineering and mining operation under the Town and Country Planning (Development Management Procedure) (England) Order 2015, a Design and Access Statement has not been submitted with this application.

### 3. INTRODUCTION

#### 3.1 The Development

The Applicant is applying to Lancashire County Council for planning permission for:

*‘Construction of a temporary wellsite and associated access track, drill, hydraulically stimulate and test two (2) petroleum exploration boreholes including drilling rig (Maximum Height 60m) and associated plant and equipment followed by wellsite restoration.’*

The development will consist of eight (8) principal phases:

- Access Track and Wellsite Construction;
- Drilling and Coring of a Vertical Borehole;
- Drilling of a Horizontal Borehole;
- Hydraulic Fracture Stimulation of the Vertical and Horizontal Boreholes;
- Initial Flow Testing;
- Extended Flow Testing;
- Decommissioning and Borehole Abandonment; and
- Wellsite Restoration.

A detailed description of the purpose and nature of the development is provided in Chapter 6 of this Planning Statement.

#### 3.2 The Benefits of the Proposed Development

The proposed development, if approved, would contribute towards economic, social and environmental benefits. Home produced oil and gas will reduce the UK’s dependency on imports and help to meet the UK’s energy needs during the transition period to a low carbon economy. Whilst it is not a material planning consideration to which any weight can attach, the proposed development involves hydraulic fracturing and as such, under the United Kingdom Onshore Oil Gas (UKOOG) Community Engagement Charter, a total of £100,000 will be paid directly to the local community on commencement of drilling the first exploratory borehole at the site. The local economy will benefit both directly, through the provision of employment required to operate the proposed development, and indirectly by supporting local service providers in the oil and gas supply chain, in environmental monitoring and in ancillary services such as hotels and restaurants.

The proposed development is temporary and reversible; upon cessation of operations the development would be returned to agricultural use.

Environmental enhancement includes the introduction of mammal ledges within the replacement culverts at the two ditch crossing points.

The proposed development will further advance the understanding of the potential of the oil and gas bearing geological formations in this location.

#### 3.3 The Petroleum Licensing System

Petroleum resources in the UK are vested in the Crown and the right to explore for and produce petroleum is controlled by the OGA, under a licensing system. Onshore, companies are granted a PEDL under the Petroleum (Production) (Landward Areas) Regulations 1995. This licence grants the licensee the exclusive right “to search and bore for and get petroleum within the licence boundary”. The Licence within which the proposed development is to be undertaken is PEDL 164.

### 3.4 The Need for Petroleum Development

In 2017, the UK obtained over 80% of its primary energy demand from fossil fuels, predominantly from oil and gas; over 40% of which was imported<sup>1</sup>.

Previously self-sufficient for gas, the UK became a net importer in 2004, as North Sea supply declined. The UK imports approximately half of its current gas requirement and this import dependency is estimated to rise to over 70% by 2030<sup>2</sup>.

Following exploration efforts by Cuadrilla Resources, a 2013 study by the British Geological Survey, for the Department of Energy and Climate Change<sup>3</sup>, highlighted potentially significant gas resources contained within Carboniferous-age shales and associated reservoirs in Northern England. It is considered that the successful development of this new source of indigenous gas supply would have a significant beneficial economic impact on the UK through increased tax receipts, job creation and the development of a local supply chain.

Government energy policy is set out in various documents, including the Gas Generation Strategy (DECC December 2012) and the Annual Energy Statement published in 2014. Also of relevance is the Overarching National Policy Statement for Energy<sup>4</sup>. The common thread throughout these documents is the need for the UK to have a secure and reliable supply of energy and reduce dependency on imports.

In the Spring Budget Statement in March 2017, the Chancellor highlighted the importance of the UK maximising exploitation of its remaining reserves.

The Government tabled a Written Ministerial Statement (WMS) from Greg Clark (Department for Business, Energy and Industrial Strategy) and James Brokenshire (Ministry of Housing, Communities and Local Government) in Parliament in May 2018. The WMS recognises the need for gas in the country's energy mix and in meeting the country's objectives as defined in the Climate Change Act. The WMS set out Government support for maximising our domestic gas resources and the potential economic benefits that this could bring.

On 6<sup>th</sup> March 2019, the High Court allowed a judicial review which centred on paragraph 209a of the National Planning Policy Framework (NPPF) 2018 and what was found to be a flawed consultation process. Mr Justice Dove said adopting Paragraph 209a into the NPPF was unlawful because the Government had failed to take into account all of the material submitted during the consultation. Paragraph 209a was quashed and effectively removed from the NPPF. The parties were allowed time to consider the implications of the judgment, with a view to reaching agreement on what steps should be taken as a result of the conclusions. The NPPF as a whole remains lawful for planning purposes and, as such, forms part of the national planning policy against which planning applications are assessed and determined.

The Government tabled a further WMS from James Brokenshire (Ministry of Housing, Communities and Local Government) in Parliament in May 2019. The WMS sought to clarify the role of the NPPF following the quashing of paragraph 209a, stating that the remainder of the NPPF policies and, in particular, Chapter 17 on 'Facilitating the Sustainable Use of Minerals' remain unchanged and extant. The WMS sets out the continued Government support for onshore hydrocarbon development (including unconventional oil and gas), and confirms that the

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<sup>1</sup> Department for Business, Energy and Industrial Strategy's (BEIS) Digest of United Kingdom Energy Statistics 2018

<sup>2</sup> <https://www.ogauthority.co.uk/media/4280/oga-projections-of-uk-upstream-oil-and-gas-production-and-expenditure-september-2017-v2.pdf>

<sup>3</sup> Andrews, I.J. 2013. The Carboniferous Bowland Shale gas study: geology and resource estimation. British Geological Survey for Department of Energy and Climate Change, London, UK

<sup>4</sup> Department of Energy and Climate Change, Overarching National Policy Statement for Energy (EN -1), July 2011

WMS's of 16<sup>th</sup> September 2015 on 'Shale Gas and Oil Policy' and 17<sup>th</sup> May 2018 on 'Planning and Energy Policy' also remain unchanged and extant. Finally, the WMS clarifies that the National Planning Practice Guidance (NPPG) is also unaffected by the ruling. Should any further amendment to relevant sections of the NPPF or WMS occur prior to determination of this planning application, the relevant planning policy assessment of the submission documents will be reviewed and should any update be required, this will be submitted to LCC.

The UK has a globally recognised reputation in the regulation of oil and gas activities both onshore and offshore stretching back many decades. Hence the development of indigenous hydrocarbon resources not only increases security of supply but also ensures that the UK is not overly dependent on the import of oil and gas from countries with less stringent regulatory regimes.

### 3.5 Regulatory Framework

The oil and gas industry is tightly regulated, with a large 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, OGA, Environment Agency, Coal Authority and an Independent Well Examiner, having a responsibility to regulate the proposed operations. These requirements are discussed in more detail below.

PPG issued 6<sup>th</sup> March 2014 identifies the key regulators for hydrocarbon extraction and highlights which hydrocarbon issues MPAs need to consider and those covered by the other regulatory regimes. MPAs are advised that where other regulatory bodies have responsibility, the MPA should rely on their assessments.

#### 3.5.1 Health and Safety at Work Act 1974

The Health and Safety Executive has regulatory control with the principal objective of preventing work-related death, injury and ill health, which it regulates under the Health and Safety at Work Act 1974, the primary piece of legislation covering occupational health and safety in Great Britain. Secondary legislation is made up of Statutory Instruments, generally referred to as regulations, of which there are a significant number. Many regulations share commonality across all industries, such as the Management of Health and Safety at Work Regulations 1999. Others are industry specific, which in the context of this application, include the Borehole Sites and Operations Regulations 1995 and the Offshore Installation and Wells (Design and Construction, etc.) Regulations 1996.

#### 3.5.2 The Management of Health and Safety at Work Regulations 1999

The Management of Health and Safety at Work Regulations 1999 places a duty on employers to assess and manage the risks to their employees and others arising from their work activities. Employers must carry out risk assessments to eliminate or reduce risks and record the significant findings of the risk assessment if there are five (5) or more employees. Employers also need to implement health and safety measures identified within the risk assessments and arrange for monitoring and review of these arrangements.

#### 3.5.3 Borehole Sites and Operations Regulations 1995

The above regulation specifies the minimum requirements which must be complied with when undertaking borehole operations. 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 take enforcement action to prohibit or to improve the operation for health and safety reasons, if it deems it 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.

### **3.5.4 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 any 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 (Independent Well Examiner). This process ensures that the well is designed and planned to the highest standards.

### **3.5.5 Environmental Permitting (England and Wales) Regulations 2016**

Mining waste activities and protection of groundwater are regulated by the Environment Agency under the Environmental Permitting (England and Wales) Regulations 2016 (as amended) (EPR 2016). Under these regulations the Environment Agency controls the treatment and disposal of mining waste and naturally occurring radioactive material (NORM) should this be encountered, and any emissions to air and water as a result of the development. Up to nine different permits/licences may be required from the Environment Agency depending on the site location and geological and hydrogeological characteristics of the site.

### **3.5.6 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 information is then reviewed and evaluated by the Environment Agency, which may, as it deems necessary, issue a Notice to Conserve Water resources, which sets out the Environment Agency’s requirements in order to protect groundwater.

### 3.5.7 Hydraulic Fracture Plan and Hydraulic Fracture Consent

The Applicant has been issued with PEDL 164, which places a number of obligations on the Operator (the Applicant) to submit information to OGA. In accordance with these requirements, the Applicant is required to submit a Hydraulic Fracture Plan to OGA for approval and in addition obtain Hydraulic Fracturing Consent from BEIS under Section 4A of the Petroleum Act 1998. Once all approvals are obtained, the Applicant must then undertake the hydraulic fracturing operation in accordance with the approved plan.

### 3.5.8 Petroleum Operations Notifications

Petroleum Operations Notices (PONs) is a notification and approval system requiring the PEDL Operator (the Applicant) to notify OGA of its intention to undertake a range of well operations, for example, for consent to drill a well and to suspend or abandon a well.

### 3.5.9 Coal Authority Agreement

Any activity which intersects, disturbs or enters any of the Coal Authority’s interests requires formal agreement. 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. As no coal seams are expected to be encountered at the application site, the agreement of the Coal Authority has not been sought in this instance.

## 3.6 Pre-application Consultation

Prior to submitting this application, the Applicant has undertaken pre-application consultation with the Minerals Planning Authority and has conducted public engagement events in the local community. Full details of the community engagement are provided within the Statement of Community Involvement, which accompanies this planning application. A Scoping Request was submitted to Lancashire County Council on 4<sup>th</sup> January 2018 and a Scoping Opinion received on 27<sup>th</sup> March 2018. The Scoping Opinion set out LCC’s scope of the Environmental Statement and took into account consultation responses received from Statutory Consultees. Table 3.2 below provides a list of consultees to the Scoping Request, together with a brief summary of their respective consultation responses.

| Consultee          | Response Details   |
|--------------------|--|
| Environment Agency | Provided a full response covering, the proposed development, air quality, hydrogeology and contamination, noise, waste, seismicity, water resources and flood risk, and environmental permitting.  |
| HSE                | Provided comments on shale oil and gas wells, health and safety regulations applicable to onshore wells, The Boreholes Sites and Operations Regulations 1995 and The Offshore Installations and Wells (Design and Construction etc) Regulations 1996, and information on the HSE regulation of shale gas activity. |
| OGA                | No Response  |

|                             |   |
|-----------------------------|---|
| LCC - Planning              | Scoping Opinion Issued – a copy is attached within Appendix 3 of this Planning Statement  |
| LCC - Highways              | No response   |
| LCC - Archaeology           | Satisfied with the proposed assessment. Suggest and amendment to the baseline assessment  |
| LCC- Ecology                | Provides comments on legislation, planning policy and guidance, desk study, data search, surveys, designated sites, protected species, other priority habitats and species, ornithological interest, Habitats Regulation Assessment, landscape and restoration. |
| WLBC                        | Provide comments on noise, lighting, air quality, contamination, ecological interests and aviation  |
| Sefton Council              | No response received  |
| Downholland Parish Council  | The Parish Council are not opposed to the scoping request, if a full planning application was submitted then the Parish Council would have the opportunity to make comments.  |
| Great Altcar Parish Council | No Response received  |
| Natural England             | Standard advice provided  |
| United Utilities            | No Response   |

**Table 3.1: Summary of Scoping Request Consultee Responses**

#### **4. PLANNING HISTORY**

There is no planning history for the application site.

## 5. PROPOSED DEVELOPMENT LOCATION AND GEOLOGICAL SUMMARY

### 5.1 Location

The application site comprises worked farmland, immediately to the northwest of Sutton's Lane, Great Altcar. The application site is located within Great Altcar Parish, in the district of West Lancashire. Figure 5.1 shows both the location of surface works (red solid line) and the area in which the proposed subsurface works will be confined (red dotted line). Site location plans (Ref: ZG-AER-ALT-PA-01 and ZG-AER-ALT-PA-02) are provided as Appendix 1.

Access to the application site is via the A565, turning east onto the B5195 Altcar Road, which turns into Lord Sefton Way. A brick built unrestricted bridge traverses Downholland Brook. When entering the village of Great Altcar (indicated by road sign and 40mph limit sign), the road bends to the north. Immediately prior to the road bending to the east, continue north on Sutton's Lane, which is public highway. The application site is located 950m along Sutton's Lane.

The land upon which the application site is to be constructed lies within Flood Zone 3 and benefits from local flood defences. It is not within a groundwater Source Protection Zone (SPZ), the closest SPZ (Zone 3 total catchment area) being some 1.5km to the east.

Downholland Moss Site of Special Scientific Interest (SSSI) is located approximately 100m north of the application site. The SSSI designation reflects the geological importance of the site for establishing relative sea level changes in northwest England, during the period from about 8,000 to 4,000 years before present.

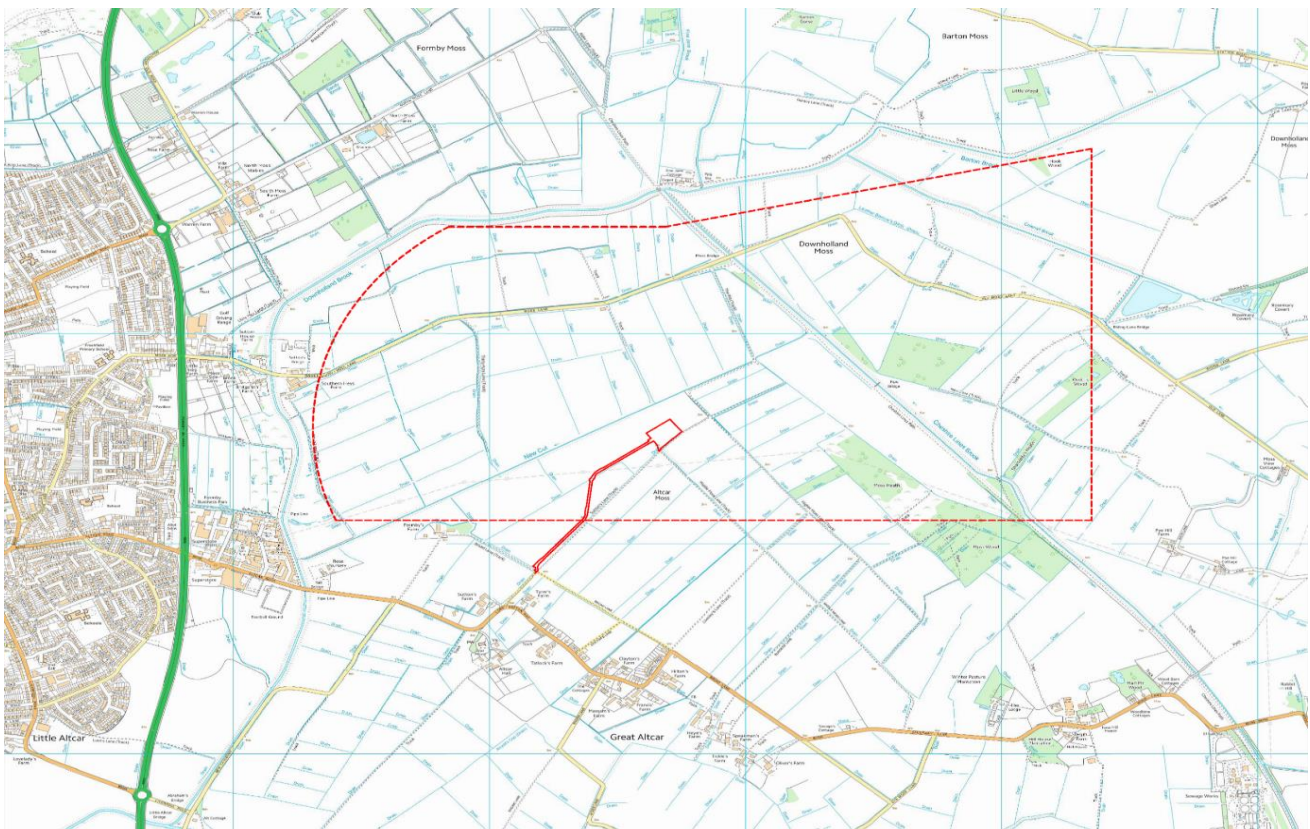


Figure 5.1: Site Location

## 5.2 Geological Summary

The following section describes the shallow and solid geology underlying the application site and the relevant hydrocarbon exploration history of the area. More detail on the hydrogeological aspects of the various geological units is given in Appendix 10 of the Environmental Statement.

### 5.2.1 Exploration History

West Lancashire has a petroleum exploration history dating back over 80 years, to the award of the first onshore exploration licence in the area to D'Arcy Exploration Company, a subsidiary of what was is now BP. The first shallow well on the site of the Formby oil seeps commenced drilling on 2<sup>nd</sup> March 1939 with the Formby field being discovered later the same year with the second well drilled. The main productive zone at Formby was of Triassic age at a depth of ~40m although minor production was obtained from Holocene-age sands at a depth of only 12m.

The Formby shallow field was in production from 1939 to 1965, at which point the field was abandoned and the site restored to agricultural use. More than 80 wells (exploration, appraisal and production) were drilled in the wider area during this period.

Five deeper exploration wells were drilled in the 1940s and early 1950s targeting reservoirs within the Carboniferous-age section, which was recognised as containing the source rocks for the Formby oil. Whilst four of these wells (Formby-1, -3, -4 and -5) reached the Carboniferous, only two (Formby-1 and Formby-4) penetrated rocks of the Bowland/Hodder Unit, which form the target for the two (2) boreholes considered within this planning application.

The first offshore exploration licences in the East Irish Sea were awarded in 1965 and the giant South Morecombe gas field was discovered in 1974. Further gas discoveries followed and the first offshore oil (at Lennox) was not discovered until 1992. The principal reservoirs in the East Irish Sea are of Triassic age, as at Formby, although the source rocks for the hydrocarbons are of Carboniferous age.

A further phase on onshore exploration in the 1980s and 1990s saw a number of wells drilled to the north and south of the proposed Altcar Moss wellsite, targeting the Permian and Carboniferous section with one commercial discovery at Elswick. Several of these wells penetrated thick sections of Carboniferous-age shales interbedded with sandstones and limestones. Extensive gas indications were seen in this section but no commercially exploitable reservoirs were encountered.

A re-evaluation of these wells by Cuadrilla Resources by analogy to early shale gas projects in the US, led to the recognition of the potential for a significant gas resource within Carboniferous shales and associated interbedded limestones and sandstones of the Bowland/Hodder Unit. The Cuadrilla Resources-led group have now drilled five (5) wells to confirm the viability of this new play within licence PEDL 165 and EXL 269. The proposed wells at Altcar Moss wellsite will target the extension of the Bowland/Hodder play in PEDL 164.

The most southerly of the Cuadrilla Resources wells, Beconsall-1z, penetrated over 1000m of gas-bearing shales, limestones and sandstones within the Bowland/Hodder Unit, reaching a total depth interpreted to the close to the base of the unit. This well lies 17.3km NNE of the Altcar Moss wellsite. The nearby Formby-1 well (950m NW) drilled in the 1940s penetrated ~165m of this section and reached a total depth within the Lower Bowland Shale with much of the deeper shale section not penetrated. The Formby -1 well encountered gas within the Bowland Shale. A further well, Formby-4 (4.6km W), penetrated 213m of the Bowland/Hodder Unit, also terminating within the Lower Bowland Shale. This well had both oil and gas indications. One earlier well, the Altcar Borehole, located approximately 60m northwest of the Altcar Moss wellsite, was drilled in the early 1890s to a depth of 333mTVDGL with the aim of exploring for a source of brine.

### 5.2.2 Expected Geological Section

The geological section beneath the Altcar Moss wellsite is summarised in Figure 5.2 and is based upon the results of previous exploration wells, surface geological mapping and the interpretation of geophysical data. A detailed prognosis for the proposed vertical well showing depths to, and thicknesses of, key geological units is given in Table 5.1.

The shallow deposits at the site have been characterised by reference to the extensive database of shallow wells in the area and to the results of the Applicant's geomechanical site investigation programme, which is set out in Appendix 3 of this Planning Statement.

### 5.2.3 Shallow Geology

The area is presently low-lying and comprises land extensively artificially drained since the early 1800s for the benefit of agriculture.

The uppermost units comprise topsoil and alluvium with thin beds of peat. Peat deposits in the area were previously more extensive but have been significantly reduced by a combination of land drainage, peat cutting and intensive agricultural use.

Underlying superficial deposits (Drift) comprise the estuarine Downholland Silt and the laterally-discontinuous windblown post-glacial Shirdley Hill Sand. Some sand in this section was recorded in the Altcar Borehole drilled in 1890 approximately 60m NW. of the current site. Further sand is recorded in this borehole at the base of the glacial Boulder Clay (Stockport Glaciogenic Formation) which represent deposits of the last glacial period (Devensian). In total Superficial deposits have a recorded thickness of ~18m in the adjacent Altcar Borehole, although they thicken rapidly to the W. reaching 36m at Formby-G10 located only 800m W. of the Altcar Moss wellsite.

### 5.2.4 Solid Geology

The superficial deposits are underlain by the Triassic-age Singleton Mudstone Member (Mercia Mudstone Group), indicating that any rocks of Tertiary, Cretaceous and Jurassic-age previously deposited in the area have been eroded, presumably during regional uplift in the early Tertiary. The Singleton Mudstone Member comprises red marls interbedded with thin gypsum beds. This unit has a thickness of almost 300m in the Altcar Borehole.

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Below this unit, the Tarporley Siltstone Formation (previously Keuper Waterstones Formation) comprising siltstones, mudstones and thin, poorly-interconnected, fine to very fine sandstone and which formed the main productive reservoir at the Formby field is encountered.

This unit overlies the terrestrial clastic deposits of the Sherwood Sandstone Group, including the Ormskirk Sandstone Formation, which was also oil-bearing in the Formby field. The Sherwood Sandstone Group was encountered at a depth of 314m in the Altcar Borehole.

In total, the Triassic section is prognosed to have thickness of ~970m at the Altcar Moss wellsite, based on nearby wells and the available geophysical data.

The Triassic section is underlain by the Permian-age Manchester Marls Formation comprising red marls and minor sandstones and dolomites, which forms a top seal to the underlying Collyhurst Sandstone Formation, which has the potential to be a hydrocarbon reservoir in the area. In the Formby-1 well, the Manchester Marls and Collyhurst Sandstone have thicknesses of 88m and 715m respectively.

The base of the Collyhurst Sandstone Formation marks a major unconformity (Variscan Unconformity) that records significant uplift and erosion of what is now Northern England at the end of the Carboniferous Period.

At Altcar Moss, (as at Formby-1) it is expected that the whole of the Pennine Coal Measures Group and most of the Millstone Grit Group has been eroded and that rocks of Pendleian-age (Pendleton Formation) towards the base of the Millstone Grit underlie the unconformity. This unit comprises shales and subsidiary fine-grained distal turbiditic sandstones deposited in a prodelta setting.

The underlying Bowland/Hodder Unit comprises the Upper Bowland Shale, Lower Bowland Shale Pendleside Limestone, Hodderense Limestone and Hodder Mudstone Formations.

The Upper Bowland Shale, Lower Bowland Shale and Hodder Mudstone comprise organic-rich shales interbedded with limestone and sandstone turbidites, which together form the target for the current exploration effort in the area.

The Hodderense Limestone forms an important age-diagnostic marker bed across the Bowland basin.

It is expected that the Bowland/Hodder Unit will have a thickness of approximately 880m at Altcar Moss and the vertical borehole is planned to be drilled 50m into the underlying limestones of the Bowland High Group.

The Bowland High Group reaches thicknesses in excess of 1000m and is underlain by sandstones of earliest Carboniferous and Devonian age (Old Red Sandstone Group).

| Age              | Geological Unit          | Thickness (m) | Depth TVDGL (m) |
|------------------|--------------------------|---------------|-----------------|
| Holocene -Recent | Superficial Deposits     | 18            | 0               |
| Triassic         | Mercia Mudstone Group    | 297           | 18              |
|                  | Sherwood Sandstone Group | 670           | 315             |
| Permian          | Manchester Marls         | 90            | 985             |
|                  | Collyhurst Formation     | 575           | 1075            |
| Carboniferous    | Millstone Grit Group     | 380           | 1650            |
|                  | Upper Bowland Shale      | 55            | 2030            |
|                  | Lower Bowland Shale      | 315           | 2085            |
|                  | Hodder Mudstone          | 510           | 2400            |
|                  | Bowland High Group       | ~1000         | 2910            |
|                  | Total Depth              |               | 2960            |

**Table 5.1: Expected Stratigraphy**

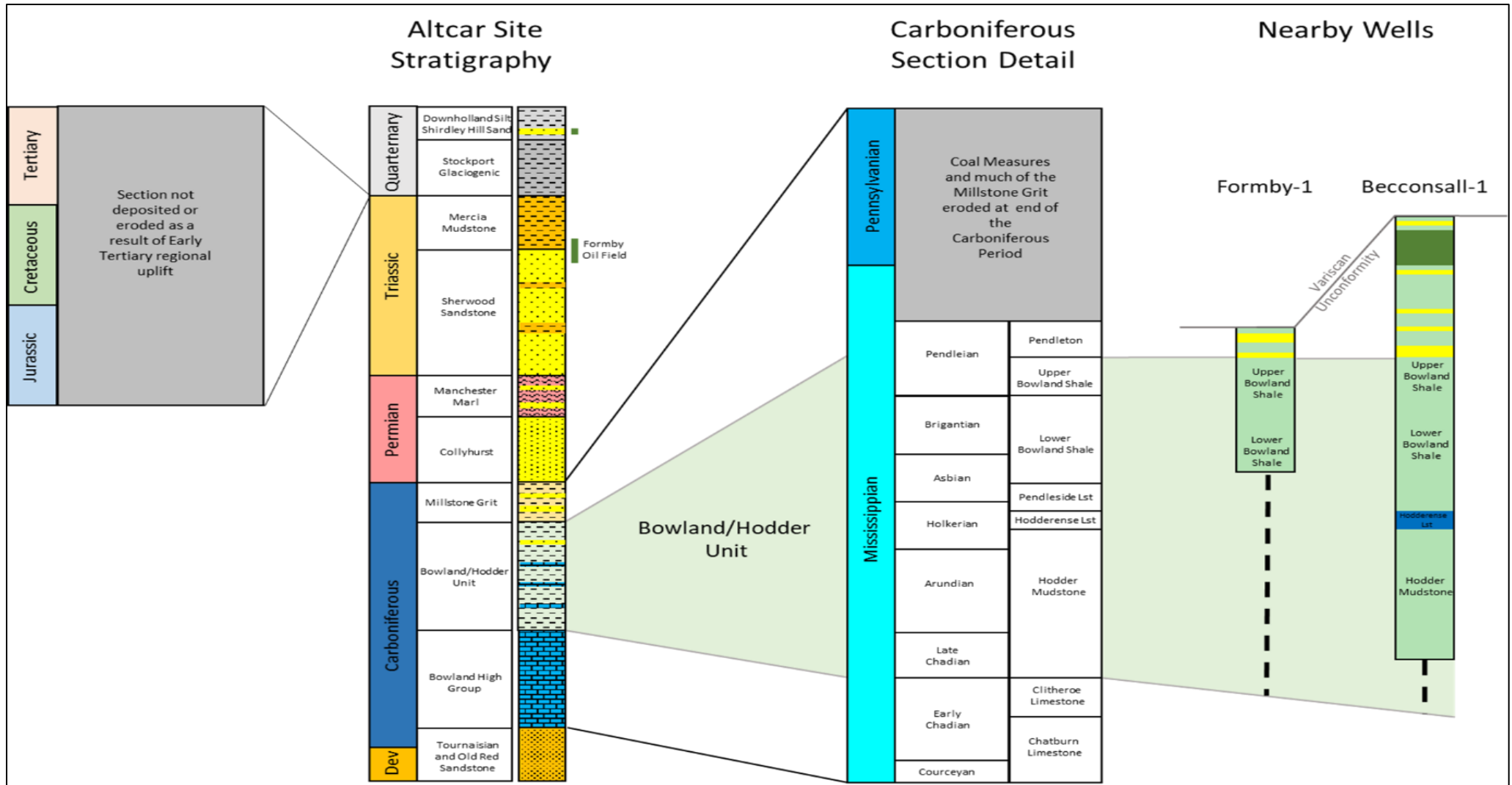


Figure 5.2: Expected Stratigraphy

## 5.3 Site Selection

### 5.3.1 Site Selection Criteria

Geological, social and environmental considerations were taken into account during the site selection process.

### 5.3.2 Geology

The principal limitation to site selection for oil and gas exploration wells is the location of the subsurface prospect. Minerals such as Petroleum can only be worked where they naturally occur, which is recognised in the Government's national minerals policy set out in the NPPF. Whilst there are generally less constraints when targeting resource plays, such as the proposed development, which cover wide areas (in this case across the extent of the buried portion of the Bowland Basin), than for more traditional exploration targets, where distinct structures are drilled, there are still key geological considerations which influence site selection.

In the case of the application site, the primary constraint was that the site should be within the 3D geophysical survey area; the data from which provides the best available picture of the subsurface.

Within the 3D geophysical survey area, a number of distinct areas are delineated by local faults that control either the original thickness of the target Bowland/Hodder section and/or the extent of end Carboniferous uplift and erosion.

Furthermore, whilst there are more than 80 historic oil and gas wells in the wider vicinity of the proposed development, most of these wells are shallow and few penetrate the Bowland/Hodder section.

It is considered important that the exploratory wells are drilled close to the existing well control points in the Bowland/Hodder (i.e. near the existing Formby-1 well); that reached a total depth of 2,341m in the Lower Bowland Shale.

The proposed development has been sited approximately 1 km to the southeast of the Formby-1 well to take advantage of the data from this existing well (for well planning purposes) and to target a mapped eastward thickening of the deeper Hodder Mudstone Formation, whilst still ensuring that the key Base Shale horizon will be penetrated in the vertical borehole at an acceptable depth.

### 5.3.3 Environmental and Social

Having identified the area of the 3D geophysical survey in which it was felt to be desirable for geological reasons to drill the exploratory boreholes, the Applicant identified and considered any potential environmental constraints to screen potential surface locations from which to drill the exploratory boreholes. This analysis took into consideration statutory designations, distance to local property, road infrastructure and environmental data for the area.

Through this process of constraints mapping, a number of potentially suitable sites were identified, which in turn were subject to further and more detailed screening, which included (amongst other things) noise and vehicle routing.

### 5.3.4 Summary

The application site, which is situated approximately 900m from the nearest property but easily accessible via the A565 and B5195, is considered by the Applicant to be the most suitable location from which to drill the two (2) exploratory boreholes. The application site meets the surface selection criteria and seeks to minimise adverse impact on both environmental and social interests.

## 5.4 Environmental Impact Assessment

An Environmental Impact Assessment (EIA) has been undertaken in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017. An Environmental Statement has been prepared, which accompanies this planning application.

## 5.5 Public Rights of Way

There are no public rights-of-way within or immediately adjacent to the wellsite.

The nearest public rights-of-way are:

- Sutton's Lane, approximately 80m south is publicly accessible (farm track /public highway);
- Cheshire Lines Path/Trans Pennine Trail, 750m to the northeast; and
- Footpath 83FP1 in Great Altcar, 1,175m to the south.

## 5.6 Utilities

The Applicant consulted a number of utility companies prior to submitting this application. Overhead lines cross the access track to the west of the wellsite along the field adjoining the wellsite. These would not be affected by the proposed works.

## 5.7 Site Ownership

An agreement for an occupation of the application site has been entered into between the Applicant and the Landowner.

## 6. THE DEVELOPMENT

The application site is located approximately 900m south east of the historic Formby Oilfield. This oilfield was discovered in 1939 and produced oil, predominantly from a depth of circa 40mTVDGL, until it was abandoned in 1965 and the site restored. More than 80 shallow exploration, appraisal and production wells were drilled in this period, both at the Formby Oilfield itself and across the wider area. A deep well, Formby-1, was drilled at the Formby Oilfield in the 1940s to explore for the presumed source of the shallow oil seen at Formby. This well, which was drilled to a depth of 2,341mTVDGL, encountered gas within the Bowland Shale. An earlier borehole, the Altcar Borehole, was located approximately 50m north of the application site. This borehole was drilled in the early 1890s to a depth of 333mTVDGL with the aim of exploring for a source of brine.

The Applicant is proposing to drill and test two (2) exploratory boreholes from the application site. The purpose of the boreholes is to establish whether the target formations within the Carboniferous-age Bowland/Hodder Unit contain hydrocarbons and, if so, whether they have the potential to be commercially produced. For clarity, any commercial production of hydrocarbons would be subject to a separate planning application.

The drilling and testing of the two (2) exploratory boreholes consists of eight (8) distinct phases. Each phase is set out below, together with an indication of operating hours and duration.

### 6.1 Phase 1 – Access Track and Wellsite Construction Works

#### 6.1.1 Access Track Construction

Access to the wellsite will be from the B5195 Lord Sefton Way onto Sutton's Lane. After approximately 220m, vehicles will then turn north west onto private land where a new access track will be constructed. The new access will extend for a distance of approximately 815m to the wellsite entrance.

Prior to the construction of the access track, highway improvement works to Sutton's Lane will be undertaken, which will be agreed in advance with the County Highways Authority.

The access track will be constructed to a general width of 5m, with a number of passing places incorporated.

It will be constructed using a geomembrane and granular sub-base aggregate upon which pre-made track panels will be laid.

The access track will cross two (2) existing drains. Two (2) new culverts will be installed over the existing drains in order to accommodate the construction of the access track.

#### 6.1.2 Wellsite Construction

To accommodate the drilling and testing of the exploratory boreholes, a wellsite must first be constructed.

A geotechnical evaluation of the underlying subsoils has been undertaken. This assessment informed the site design and subsequent construction method. A copy of the Civil Engineering Design Statement is provided at Appendix 3 of the Planning Statement. Based on the geotechnical evaluation results, the intention is to construct the wellsite on top of the existing land, with an element of cut and fill retaining the topsoil in situ.

Once the wellsite area has been constructed to a level platform, a piling rig will be mobilised to site in order to install precast concrete driven piles to provide for a stable base on which the proposed drilling cellar will be formed and built. Upon completion of the pile installation, subsoils will be removed to the required depths. Temporary works will be installed to facilitate the construction of the drilling cellar. Piles will be cut off to the require levels and a reinforced concrete base will be formed in the bottom of the excavation, forming the base of the drilling cellar.

The reinforced concrete drilling cellar will be constructed in the centre of the active area of the wellsite. When constructed, the drilling cellar will provide a containment area within which the wellheads are to be installed. The area will be excavated to a depth of up to 5m. A reinforced concrete base and wall structure will be formed within the excavation, creating an impermeable wellhead containment system. The surface around the drilling cellar and active area of the wellsite will incorporate a reinforced concrete slab to provide additional support for the proposed drilling rig and associated equipment.

A containment ditch will be excavated to a depth of 1m around the perimeter of the active area of the wellsite, the area within which the drilling rig, hydraulic fracturing equipment and well testing equipment will be located. To facilitate the control and discharge of clean surface 'run-off' water (rain water), a Class 1 full retention separator will be installed adjacent to the open containment ditch, together with associated pipework and isolation valves. The Class 1 full retention separator will not only capture the drainage ditch run off but will also discharge from a buried surface water attenuation system installed below ground level within the wellsite compound. The attenuation system will be fully lined to provide temporary storage of surface water prior to discharge through the separator, or tankered off site for disposal.

A cess tank will be installed in the non-active area of the wellsite, the area within which the office accommodation and welfare facilities will be located. The cess tank will contain foul water and sewage for subsequent offsite treatment at an Environment Agency approved sewage water treatment works.

Following construction of the drilling cellar, interceptor and cess tank, an impermeable membrane will be installed across the active area of the wellsite and perimeter containment ditch. The impermeable membrane will be protected above and below by a layer of non-needle punch geotextile. The impermeable membrane provides tertiary containment, in the unlikely event of an accidental spill during the exploratory drilling, hydraulic fracturing and testing phases.

A layer of non-needle punch geotextile will be laid across the non-active area of the wellsite.

Above the impermeable membrane (active area) and non-needle punch geotextile (non-active area), aggregate material will be imported to the site, laid and compacted to provide a hard standing of sufficient load bearing capacity to accommodate the siting of the drilling, hydraulic fracturing equipment and well testing equipment.

Once the wellsite is constructed, temporary Heras fencing will be replaced with a 3m high steel mesh security fence with interwoven solid panels to give a solid appearance. Vehicle access and pedestrian access gates will be incorporated into the security fence. Additional security may be installed, consisting of a secondary security fence around the perimeter of the active area and pole mounted CCTV cameras and lighting, should this be deemed necessary.

The construction of the wellsite is estimated to take approximately eight (8) weeks to complete.

The Phase 1 works will be subject to a detailed quality assurance and quality control (QAQC) plan.

The proposed construction layout is indicated on drawing numbers ZG-AER-ALT-PA-10 to ZG-AER-ALT-PA-17 within Appendix 2 of the Planning Statement.

### **Duration**

Phase 1 works are expected to take eighty (80) days to complete (16 weeks).

### **Hours of Operation**

Phase 1 works will be restricted to the following hours of operation:

- Monday to Friday                      07:00 hrs to 19:00 hrs;
- Saturday                                      07:00 hrs to 13:00 hrs; and
- Sunday and Bank Holiday              No works permitted.

**Vehicle Movements**

Vehicle movements associated with the Phase 1 works are provided in Table 6.1. The estimated average HGV movements per day during the Phase 1 works will be twenty four (24).

| Vehicle   | Individual Vehicle Movements |
|-----------|------------------------------|
| LGV / Car | 14                           |
| HGV       | 24                           |

**Table 6.1: Predicted Average Vehicle Movements per Day during Phase 1 Works**

**6.1.3 Lighting**

Phase 1 works will generally be undertaken during day-light hours. However, temporary task lighting may be required during the periods of early morning and dusk to supplement low levels of daylight. An indication of the lighting likely to be required during the Phase 1 works is provided in Table 6.2 and will consist of one (1) portable lighting tower.

| Light Source    | Specification   | Description  |
|-----------------|---|--|
| Lighting Towers | 1 x Portable Lighting Tower<br>(Each Lighting Tower consisting of 4 x 1000w Metal Halide and shall not exceed 8m in height) | One (1) portable lighting tower will be positioned at the site to allow the working area to be illuminated during the periods of early morning and dusk to supplement low levels of daylight. When lighting is not required it will be switched off. |

**Table 6.2: Lighting Equipment during Phase 1 Works**

**6.1.4 Waste**

Waste generated as a result of the Phase 1 works is summarised in Table 6.3.

| Description of Waste Stream – Phase 1 Wellsite and Access Track Construction | EWC Code  | Quantity Produced | Equivalent Amount Produced (Tonne) |
|--|-----------|-------------------|------------------------------------|
| Vegetation   | 02 01 03  | 500kg             | 0.5                                |
| Hydraulic Oils   | 13 01 01* | 1000 litres       | 1                                  |
| Engine Oil and Lubricants  | 13 02 06* | 1000 litres       | 1                                  |
| Wood   | 15 01 03  | 50kg              | 0.05                               |
| Oil Filters  | 16 01 07* | 5kg               | 0.005                              |
| Surface Run-off Water  | 16 10 02  | 280m <sup>3</sup> | 280                                |
| Metal Cuttings   | 17 04 07  | 50kg              | 0.05                               |
| Mixed Municipal Waste  | 20 03 01  | 4,000kg           | 4                                  |
| Foul Effluent  | 20 03 04  | 4,000 litres      | 4                                  |

**Table 6.3: Waste Quantity Prediction during Phase 1 Works**

Chapter 19 of the Environmental Statement considers all phases of the proposed development and assesses their impact from waste generated.

## 6.2 Phase 2 – Drilling and Coring of a Vertical Borehole (Borehole #1)

On completion of the Phase 1 works, a water well type drilling rig and ancillary equipment, including temporary office accommodation, welfare facilities, diesel power generation, compressor and portable lighting towers, will be mobilised to site to install conductor casings in each of the two (2) boreholes. The water well type drilling rig will drill a large diameter borehole to a depth of approximately 40mTVDGL and install a nominal 711mm (28”) conductor casing, grouted back to surface with cement. Once the conductor casing has been installed in the first borehole, it will move to the second borehole.

On completion of the conductor setting operation, the water well type drilling rig and ancillary equipment will be demobilised from site.

The proposed conductor setting phase layout is indicated on drawing numbers ZG-AER-ALT-PA-18 and ZG-AER-ALT-PA-19 within Appendix 2 of this Planning Statement.

An oilfield drilling rig and ancillary equipment will then be mobilised to site. The actual drilling rig to be used at the Altcar Moss wellsite has not been confirmed and will be subject to availability. With this in mind, the Environmental Statement assesses the worst case of the potential drilling rig capable of drilling the type of boreholes proposed within this development.

A typical oil field drilling rig will have a mast height of up to 60m and will consist of the following ancillary equipment:

- Containerised diesel power generation (electric, hydraulic and/or direct drive);
- Switch control rooms;
- Fluid storage tanks, mixing tanks and active tanks;
- Fluid pumps;
- Drill cuttings separation and storage;
- Diesel fuel storage;
- External lighting (fixed and portable); and
- Office accommodation and welfare.

Typically, up to two (2) cranes are required to erect the drilling rig. In addition, supporting services will also be required, including:

- Geological logging services;
- Coring services;
- Casing running services;
- Cementing services; and
- Wireline services.

Once the drilling rig and ancillary equipment has been rigged up and commissioned, drilling of the vertical exploratory borehole will commence. An indicative well schematic for borehole #1 is shown in Figure 6.1.

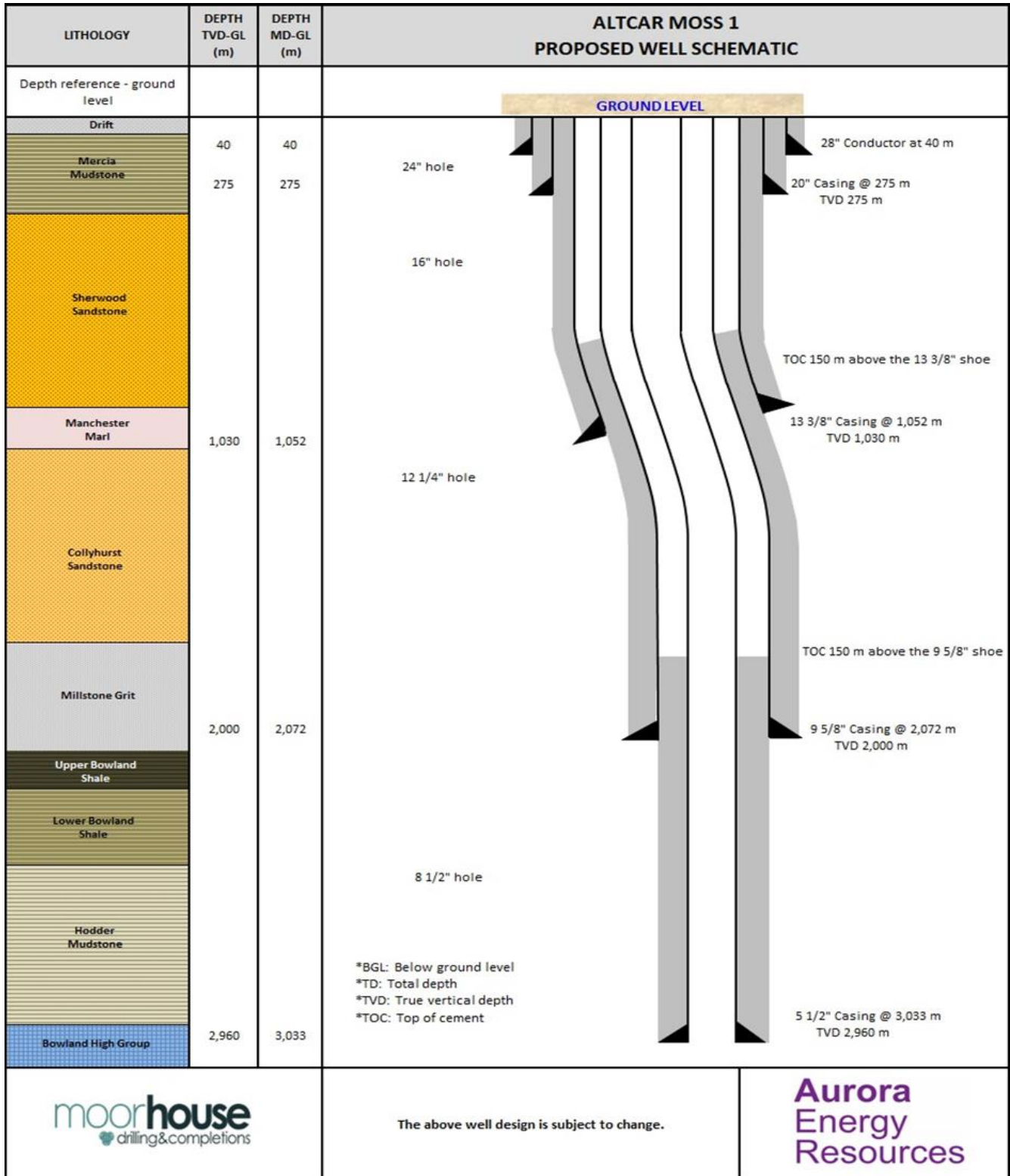


Figure 6.1: Indicative Well Schematic Borehole # 1

The borehole will be drilled and constructed in accordance with a detailed drilling programme, prepared in advance, having been subject to independent well examination in accordance with Regulation 18 of the Offshore Installation and Wells (Design and Construction, etc) Regulations 1996 (DCR 1996) and submitted to the Health and Safety Executive in accordance with Regulation 6 of the Borehole Sites and Operations Regulations 1995 (BSOR 1995). Other applicable guidance in the context of borehole construction are:

- Oil & Gas UK Guidelines for the Suspension and Abandonment of Wells;
- Oil & Gas UK Well Life Cycle Integrity Guidelines; and
- United Kingdom Onshore Oil and Gas UK Onshore Gas Well Guidelines, Exploration and Appraisal Phase.

The borehole will be constructed in a number of hole sections, each reducing in diameter the deeper the borehole becomes. Drilling fluid, known as ‘mud’, is pumped down the inside of the drill pipe and out through nozzles in the drilling bit. The purpose of the mud is fourfold. It cools the drilling bit; it circulates the drill cuttings to surface for subsequent offsite disposal; it provides temporary stability to the borehole wall prior to running casing; and it provides primary well control by way of hydrostatic pressure, purposely weighted to create a pressure overbalance.

On completion of the first hole section, the section is lined with steel casing, which is grouted into position using cement. A wellhead is then installed on the casing, which provides an interface between the well casing and safety equipment known as ‘blowout preventers’, these are installed on the well as secondary well control. Drilling then continues in a smaller diameter hole section and the operation is repeated until the well reaches its intended depth, which in the case of the vertical borehole is approximately 3,000m.

A water-based mud system will be used when drilling the near surface and drilling any formation that has a potential for groundwater with a resource value. Once the borehole is at a suitable depth and all potential groundwater resources (with a resource value) are adequately protected and isolated from the borehole by the steel casing, a low toxicity oil-based drilling fluid will be used. An oil-based drilling fluid provides greater control and stability of the formations being drilled.

At certain intervals in the borehole construction, cores will be cut in order to acquire samples of the target formations. Cores are acquired by using a special drilling tool known as a core barrel. The core barrel is a cylindrical tube with a cutting bit on the end. Unlike a conventional drilling bit, which has a large surface cutting area, the core barrel cutting area is the outer edge of the cylindrical barrel, thus keeping the uncut section of formation intact, inside the core barrel. The core is then brought to the surface for subsequent analysis and testing.

At various stages in the borehole construction and in accordance with the detailed drilling programme, wireline logging and formation integrity testing will be carried out. Wireline logging will include, amongst other things, cement bond logs to confirm that a good cement seal exists at each casing stage. Formation integrity tests are essentially a pressure test of the formation immediately below the casing to ensure the formation where the casing has been set has pressure integrity. It is carried out once the casing has been cemented, immediately after drilling out the base of the casing.

On completion of the drilling of the vertical borehole, the borehole will be suspended using a combination of mechanical plugs and brines.

The proposed drilling phase layout is indicated on drawing numbers ZG-AER-ALT-PA-20 and ZG-AER-ALT-PA-21 within Appendix 2 of this Planning Statement.

### 6.2.1 Duration

Phase 2 works are anticipated to take up to five (5) months to complete.

### 6.2.2 Hours of Operation

Phase 2 works will require 24 hour working, to ensure hole stability and well control.

### 6.2.3 Vehicle Movements

Vehicle movements associated with Phase 2 works are provided in Table 6.4. The estimated HGV movements per day will be eight (8), over a five (5) month period.

| Vehicle   | Individual Vehicle Movements |
|-----------|------------------------------|
| LGV / Car | 50                           |
| HGV       | 8                            |

**Table 6.4: Predicted Average Vehicle Movements per Day during Phase 2 Works**

### 6.2.4 Lighting

Details of the lighting required during Phase 2 Works are provided in Table 6.5.

| Light Source          | Specification   | Description   |
|-----------------------|---|---|
| Lighting Towers       | 4 x 1000w Metal Halide Portable Lighting Tower                      | Mobile lighting towers will be positioned around the site and allow the main working area to be illuminated. Lighting will be operational throughout low light and night-time periods. When lighting is not required it will be switched off.                   |
| Rig Floor and Catwalk | 400w Metal Halide Flood Light                                       | These lights are positioned around the rig floor and on the end of the catwalk. These illuminate the primary working areas. All of the lights are downward facing.  |
| Mud Tanks and Shakers | Twin 18w 4ft Fluorescent Light                                      | These lights are located on top of the mud tanks and shakers and are intrinsically safe.  |
| Derrick               | Twin 18w 2ft Fluorescent Light<br>Red Aviation Light on Top of Mast | Fluorescent tubing lights will be positioned at intervals on the derrick and are intrinsically safe. The lights are positioned up to a maximum height of 60m. This lighting is necessary to permit the driller to observe the position of the travelling block. |
| Cabins                | 400w Metal Halide Flood Light                                       | These are located on a number of the site cabins and provide lighting along the walkways between the cabins. All of these lights are downward facing.   |

**Table 6.5: Lighting Equipment during the Phase 2 Works**

### 6.2.5 Waste

Waste generated as a result of the Phase 2 Works will consist of extractive wastes, in the form of drill cuttings, drilling muds and excess cement, and non-extractive wastes, in the form of used oils, oily rags, excess casing, packaging, household waste, foul water and sewage. Waste generated as a result of the Phase 2 Works is summarised in Table 6.6.

| Description of Waste Stream – Phase 2 Drilling and Coring of Vertical Borehole | EWC Code  | Quantity Produced | Equivalent Amount Produced (Tonne) |
|--|-----------|-------------------|------------------------------------|
| Clays and Sand   | 01 04 09  | 32m <sup>3</sup>  | 49                                 |
| Oil Based Drilling Fluid   | 01 05 05* | 686m <sup>3</sup> | 735                                |

|                            |           |                     |       |
|----------------------------|-----------|---------------------|-------|
| Oil Based Rock Cuttings    | 01 05 05* | 141m <sup>3</sup>   | 318   |
| Water Based Drilling Fluid | 01 05 08  | 1,526m <sup>3</sup> | 1629  |
| Water Based Rock Cuttings  | 01 05 08  | 254m <sup>3</sup>   | 572   |
| Hydraulic Oils             | 13 01 01* | 2000 litres         | 2     |
| Engine Oil and Lubricants  | 13 02 06* | 2000 litres         | 2     |
| Wood                       | 15 01 03  | 50kg                | 0.05  |
| Oil Filters                | 16 01 07* | 5kg                 | 0.005 |
| Surface Run-off Water      | 16 10 02  | 1520m <sup>3</sup>  | 1520  |
| Concrete / Cement          | 17 01 01  | 500kg               | 0.5   |
| Metal Cuttings             | 17 04 07  | 50kg                | 0.05  |
| Mixed Municipal Waste      | 20 03 01  | 11,000kg            | 11    |
| Foul Effluent              | 20 03 04  | 11,000 litres       | 11    |

**Table 6.6: Waste during Phase 2 Works**

### **6.3 Phase 3 – Drilling of a Horizontal Borehole (Borehole #2)**

Following a detailed evaluation of the geological data acquired during the Phase 2 Works, a second borehole will be drilled from the site. The second borehole will be drilled down to the target zone and then drilled horizontally within this zone for up to 1,500m. An indicative well schematic for borehole #2 is shown in Figure 6.2.

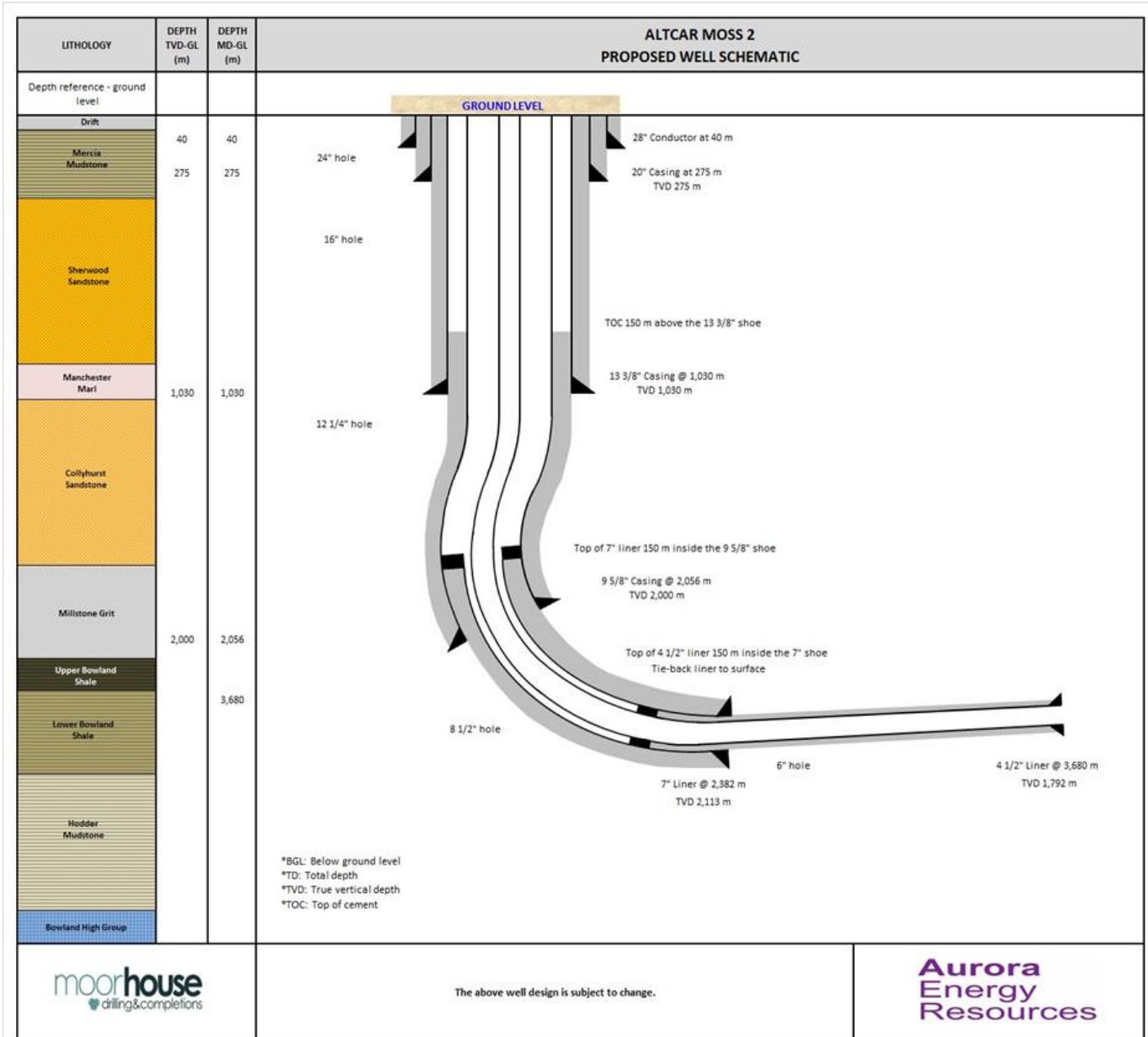


Figure 6.2: Indicative Well Schematic Borehole # 2

Equipment used and the method of construction will be similar to that used during the Phase 2 works.

The proposed drilling phase layout is indicated on drawing numbers ZG-AER-ALT-PA-20 and ZG-AER-ALT-PA-21 within Appendix 2 of this Planning Statement.

### 6.3.1 Duration

Phase 3 works are anticipated to take up to five (5) months to complete.

### 6.3.2 Hours of Operation

Phase 3 works will require 24 hour working, to ensure hole stability and well control.

### 6.3.3 Vehicle Movements

Vehicle movements associated with the Phase 3 works are provided in Table 6.7. The estimated HGV movements per day is seven (7).

| Vehicle   | Individual Vehicle Movements |
|-----------|------------------------------|
| LGV / Car | 50                           |
| HGV       | 7                            |

**Table 6.7: Predicted Average Vehicle Movements per Day during Phase 3 works**

### 6.3.4 Lighting

Details of the lighting required during the Phase 3 works are provided in Table 6.8.

| Light Source          | Specification   | Description   |
|-----------------------|---|---|
| Lighting Towers       | 4 x 1000w Metal Halide Portable Lighting Tower                      | Mobile lighting towers will be positioned around the site and allow the main working area to be illuminated. Lighting will be operational throughout low light and night-time periods. When lighting is not required it will be switched off.                   |
| Rig Floor and Catwalk | 400w Metal Halide Flood Light                                       | These lights are positioned around the rig floor and on the end of the catwalk. These illuminate the primary working areas. All of the lights are downward facing.  |
| Mud Tanks and Shakers | Twin 18w 4ft Fluorescent Light                                      | These lights are located on top of the mud tanks and shakers and are intrinsically safe.  |
| Derrick               | Twin 18w 2ft Fluorescent Light<br>Red Aviation Light on Top of Mast | Fluorescent tubing lights will be positioned at intervals on the derrick and are intrinsically safe. The lights are positioned up to a maximum height of 60m. This lighting is necessary to permit the driller to observe the position of the travelling block. |
| Cabins                | 400w Metal Halide Flood Light                                       | These are located on a number of the site cabins and provide lighting along the walkways between the cabins. All of these lights are downward facing.   |

**Table 6.8: Lighting Equipment during the Phase 3 Works**

### 6.3.5 Waste

Waste generated as a result of the Phase 3 works is summarised in Table 6.9.

| Description of Waste Stream – Phase 3 Drilling of Horizontal Borehole | EWC Code  | Quantity Produced | Equivalent Amount Produced (Tonne) |
|---|-----------|-------------------|------------------------------------|
| Clays and Sand  | 01 04 09  | 32m <sup>3</sup>  | 49                                 |
| Oil Based Drilling Fluid  | 01 05 05* | 690m <sup>3</sup> | 740                                |

|                            |           |                     |       |
|----------------------------|-----------|---------------------|-------|
| Oil Based Rock Cuttings    | 01 05 05* | 142m <sup>3</sup>   | 320   |
| Water Based Drilling Fluid | 01 05 08  | 1,453m <sup>3</sup> | 1,550 |
| Water Based Rock Cuttings  | 01 05 08  | 242m <sup>3</sup>   | 545   |
| Hydraulic Oils             | 13 01 01* | 2000 litres         | 2     |
| Engine Oil and Lubricants  | 13 02 06* | 2000 litres         | 2     |
| Wood                       | 15 01 03  | 50kg                | 0.05  |
| Oil Filters                | 16 01 07* | 5kg                 | 0.005 |
| Surface Run-off Water      | 16 10 02  | 1520m <sup>3</sup>  | 1520  |
| Concrete / Cement          | 17 01 01  | 500kg               | 0.5   |
| Metal Cuttings             | 17 04 07  | 50kg                | 0.05  |
| Mixed Municipal Waste      | 20 03 01  | 11,000kg            | 11    |
| Foul Effluent              | 20 03 04  | 11,000 litres       | 11    |

**Table 6.9: Waste Quantity Prediction during the Phase 3 Works**

Chapter 19 of the Environmental Statement considers all phases of the proposed development and assesses their impact from waste generated.

#### **6.4 Phase 4 – Hydraulic Fracture Stimulation of the Vertical and Horizontal Boreholes**

A typical hydraulic fracturing operation will consist of the following equipment:

- Coil tubing unit (including tower approximately 25m in height);
- Containerised diesel power generation (electric, hydraulic and/or direct drive);
- Fluid storage tanks;
- Proppant Silos (approximately 13m in height);
- Mixing tanks;
- Fluid pumps;
- Fluid separation and storage;
- Diesel fuel storage;
- External lighting (fixed and portable);
- Control room; and
- Office accommodation and welfare.

Typically, up to two (2) cranes are required to erect the hydraulic fracturing equipment.

In addition, a well test package will also be mobilised to site and will consist of the following equipment:

- Surface safety valve;
- Bath heater;
- Three (3) phase separator;
- Surface flow lines;
- Ground flare; and
- Well test lab.

The coil tubing unit is used to mechanically operate a series of sliding sleeves incorporated at intervals within the final casing string/liner. This provides access to the target formation for each hydraulic fracture stage.

It is envisaged that the coil tubing unit will be sufficient for all downhole mechanical operations during this phase. However, as a contingency, it is planned that a workover rig would be available to be mobilised to site if required. The actual workover rig to be used at the Altcar Moss wellsite has not been confirmed and will be subject to availability. With this in mind, the Environmental Statement assesses the maximum characteristics of the potential workover rigs suitable for use within this development.

A typical workover rig will have a mast height of up to 37m and will consist of the following ancillary equipment:

- Containerised diesel power generation (electric, hydraulic and/or direct drive);
- Switch control rooms;
- Fluid storage tanks and mixing tanks;
- Fluid pumps;
- Fluid separation and storage;
- Diesel fuel storage;
- External lighting (fixed and portable); and
- Office accommodation and welfare.

Typically, one (1) crane is required to erect the workover rig.

The number and size of the hydraulic fracture stimulation stages for each of the boreholes (and therefore the total volumes of fluid, proppant and additives to be used) will be finalised after the initial drilling and wireline logging results for each borehole are available.

For the purpose of the planning application and for the related environmental permit application, a total of 15 stages in the vertical borehole and 30 stages in the horizontal borehole have been assumed, each stage consisting of 795m<sup>3</sup> fluid and 75 tonnes proppant. These figures are the maximum volumes per stage and have been used to assess, for example, the transport and on-site storage requirements of the proposed development on a worst-case basis. It is possible that the final hydraulic fracture plan for the horizontal borehole may include a larger number of smaller volume stages than considered above. Should this be the case, the total volume of fluid and proppant used will not exceed the maximum volumes stated. The final hydraulic fracture plan for each borehole must be submitted to, and approved by, the OGA before any hydraulic fracture stimulation operations can commence.

The hydraulic fracturing fluid to be used will comprise predominantly a mixture of water and sand. A very small percentage of the fluid will comprise a small number of additives, all of which will be non-hazardous to groundwater and approved for use by the Environment Agency under EPR 2016. The additives are used for a number of reasons, including but not limited to pH control, viscosity control, friction reduction, bacterial control and to inhibit corrosion.

During each hydraulic fracture stimulation stage, the hydraulic fracturing fluid is pumped under pressure into the formation. As the fluid pressure increases, it fractures the formation and pushes the hydraulic fracturing fluid and proppant into the fractures. When the pressure is released, a proportion of the hydraulic fracturing fluid flows back from the formation, leaving behind the sand, which props open the fractures, allowing hydrocarbons to flow around the sand grains and into the borehole.

Between 25% and 50% of the hydraulic fracturing fluid will flow back to surface following the hydraulic fracturing of each zone (flowback fluid) predominantly during the well test phases. The remaining 50% to 75% will be retained within the formation. Flowback fluid returned to surface from earlier stages may be treated on site and reused in the subsequent stages. Any flowback fluid not treated and reused in the subsequent stages will be removed from site via road tanker to a suitably permitted waste water treatment facility.

On completion of the Phase 4 works, the hydraulic fracturing equipment will be removed from the site.

The proposed hydraulic fracture phase layout is indicated on drawing numbers ZG-AER-ALT-PA-22 and ZG-AER-ALT-PA-23 within Appendix 2 of this Planning Statement.

### 6.4.1 Duration

The duration of Phase 4 works will be dependent on the final number of hydraulic fracture stages in each borehole, although it is not expected to exceed sixty (60) days in total.

### 6.4.2 Hours of Operation

Whilst Phase 4 operations will require 24-hour working, the operation of the pump units to perform the actual hydraulic fracture stimulation will only be carried out between the hours of 07:00 – 19:00 and will typically last for a period of up to 4 hours per hydraulic fracture stage.

### 6.4.3 Vehicle Movements

Vehicle movements associated with the Phase 4 works are provided in Table 6.10. The average estimated HGV movements per day will be fifty five (55), over a sixty (60) day period.

| Vehicle   | Individual Vehicle Movements |
|-----------|------------------------------|
| LGV / Car | 42                           |
| HGV       | 55                           |

**Table 6.10: Predicted Average Vehicle Movements per Day during Phase 4 Works**

### 6.4.4 Lighting

Lighting during hydraulic fracture stimulation phase is summarised in Table 6.11.

| Light Source      | Specification                                   | Description   |
|-------------------|---|---|
| Lighting Towers   | 4 x 1000w Metal Halide Portable Lighting Towers | Mobile lighting towers will be positioned around the site and allow the main working area to be illuminated. Lighting will be operational throughout low light and night-time periods. When lighting is not required it will be switched off. |
| Flood Light       | 400w Metal Halide Flood Light                   | These illuminate the primary working areas, the site cabins and provide lighting along the walkways between the cabins. All of the lights are downward facing.  |
| Fluorescent Light | External Ex Linear Fluorescent Light            | Fluorescent tubing lights will be positioned at intervals on the coil tubing unit to provide lighting.  |

**Table 6.11: Lighting Equipment during Phase 4 Works**

### 6.4.5 Waste

Waste generated as a result of the hydraulic fracture phase is summarised in Table 4.8.

Waste generated as a result of the Phase 4 works will consist of extractive wastes in the form of flowback fluid, proppant, liquid hydrocarbons and natural gas, which are subject to a mining waste permit under, under EPR 2016. Flowback fluid is likely to contain naturally occurring radioactive material (NORM), with radionuclide

concentrations exceeding the value specified in Table 1, Part 3 of Schedule 23 of EPR 2016. Non-extractive waste generated will consist of used oils, oily rags, packaging, household waste, foul water and sewage.

Waste generated as a result of the Phase 4 works is summarised in Table 6.12.

| Description of Waste Stream – Phase 4<br>Hydraulic Fracture Stimulation of Vertical and Horizontal Boreholes; | EWC Code  | Quantity Produced    | Equivalent Amount Produced (Tonne) |
|---|-----------|----------------------|------------------------------------|
| Hydraulic Fracture Fluid (Retained Fluid that remains in the formation and does not require offsite disposal) | 01 01 02  | 21,465m <sup>3</sup> | 21,465                             |
| Flowback Fluid  | 01 01 02  | 1,800m <sup>3</sup>  | 1,800                              |
| Proppant  | 01 04 09  | 13.5T                | 13.5                               |
| Hydraulic Oils  | 13 01 01* | 1000 litres          | 1                                  |
| Engine Oil and Lubricants   | 13 02 06* | 1000 litres          | 1                                  |
| Surface Run-off Water   | 16 10 02  | 600m <sup>3</sup>    | 600                                |
| Mixed Municipal Waste   | 20 03 01  | 4,000kg              | 4                                  |
| Foul Effluent   | 20 03 04  | 4,000 litres         | 4                                  |

**Table 6.12: Waste Quantity Prediction during Phase 4 Works**

## 6.5 Phase 5 – Initial Flow Testing of the Vertical and Horizontal Borehole

During Phase 5 up to five (5) separate zones within the hydraulically fractured interval in the vertical borehole will be individually flow tested to ascertain if stabilised flow of hydrocarbons can be established from the various levels within the Bowland Shale/Hodder Mudstone sequence. Each tested zone will comprise a number of fracture stages.

It is planned that all hydraulic fracture stages in the horizontal borehole would be flow tested together to provide information on the flow potential of the targeted zone under production conditions.

Initially, any flow of hydrocarbons from a particular zone will be comingled with the returning flowback fluid. This fluid, comprising predominantly water, will be separated from the natural gas and liquid hydrocarbons (if present) by way of three (3) phase separation. Flowback fluid and liquid hydrocarbons will be diverted from the separator to dedicated storage tanks on site for subsequent removal from site via road tanker to a suitably permitted waste water treatment facility and refinery respectively. Natural gas will be diverted from the separator to a ground flare located on site for incineration.

The flaring of natural gas is an activity which is regulated under EPR 2016. The ground flare would be similar to those used at other hydrocarbon exploration sites and will be approximately 12m in height. The flame would be enclosed within a cylindrical shroud. An assessment of the management of waste gases resulting from the Phase 5 works has been undertaken in context of Best Available Technique (BAT) and is set out in a Gas Management Plan, submitted in support of the environmental permit application. The assessment concludes that BAT for the management of waste gases during the Phase 5 works is incineration by ground flare, as green completions are not suitable for this phase of works.

The purpose of the initial flow tests is to determine whether natural gas and liquid hydrocarbons (if present) can flow to surface from a particular zone, and if consistent flow rates and pressures can be established.

If natural gas and/or liquid hydrocarbons do flow to surface and consistent flow rates and pressures are established in the horizontal borehole, this borehole will be subject to an extended well test, as described under Phase 6.

During the initial flow tests, the wellsite will be manned and a number of office accommodation and welfare facilities will be provided.

On completion of the initial flow tests, the boreholes will be suspended and the flow test equipment will be removed from site unless retained for Phase 6. A workover rig (as described in Phase 4 above) may be required to mobilise to site to suspend the boreholes.

Waste generated as a result of the Phase 5 works will consist of extractives wastes in the form of residual flowback fluid, liquid hydrocarbons and natural gas, which are subject to a mining waste permit under, under EPR 2016. Residual flowback fluid is likely to contain naturally occurring radioactive material (NORM), with radionuclide concentrations exceeding the value specified in Table 1, Part 3 of Schedule 23 of EPR 2016. Non-extractive waste generated will consist of used oils, oily rags, packaging, household waste, foul water and sewage.

The proposed initial flow test phase layout is indicated on drawing numbers ZG-AER-ALT-PA-25 and ZG-AER-ALT-PA-26 within Appendix 2 of this Planning Statement.

### 6.5.1 Duration

Phase 5 works are anticipated to take sixty (60) days to complete.

### 6.5.2 Hours of Operation

Phase 5 works will require 24 hour working.

### 6.5.3 Vehicle Movements

Vehicle movements associated with the Phase 5 works are provided in Table 6.13. The average estimated HGV movements per day will be fourteen (14), over a sixty (60) day period.

| Vehicle   | Individual Vehicle Movements |
|-----------|------------------------------|
| LGV / Car | 40                           |
| HGV       | 14                           |

**Table 6.13: Predicted Average Vehicle Movements per Day during Phase 5 Works**

### 6.5.4 Lighting

Lighting during the Phase 5 Works is summarised in Table 6.14.

| Light Source       | Specification                                   | Description   |
|--------------------|---|---|
| Lighting Towers    | 4 x 1000w Metal Halide Portable Lighting Towers | Mobile lighting towers will be positioned around the site and allow the main working area to be illuminated. Lighting will be operational throughout low light and night-time periods. When lighting is not required it will be switched off. |
| Flood Lights       | 400w Metal Halide Flood Light                   | These illuminate the primary working areas, the site cabins and provide lighting along the walkways between the cabins. . All of the lights are downward facing.  |
| Fluorescent Lights | External Ex Linear Fluorescent Light            | Fluorescent tubing lights will be positioned at intervals on the coil tubing unit to provide lighting.  |

**Table 6.14: Lighting Equipment during Phase 5 Works**

### 6.5.5 Waste

Waste generated as a result of the Phase 5 works is summarised in Table 6.15.

| Description of Waste Stream – Phase 5 Initial Flow Testing | EWC Code  | Quantity Produced        | Equivalent Amount Produced (Tonne) |
|--|-----------|--------------------------|------------------------------------|
| Flowback Fluid   | 01 01 02  | 10,770m <sup>3</sup>     | 10,770                             |
| Proppant   | 01 04 09  | 142T                     | 142                                |
| Hydraulic Oils   | 13 01 01* | 1000 litres              | 1                                  |
| Engine Oil and Lubricants                                  | 13 02 06* | 1000 litres              | 1                                  |
| Wood   | 15 01 03  | 50kg                     | 0.05                               |
| Oil Filters  | 16 01 07* | 5kg                      | 0.005                              |
| Natural Gas  | 16 05 04* | 10,920,000m <sup>3</sup> | 7,410                              |
| Surface Run-off Water                                      | 16 10 02  | 600m <sup>3</sup>        | 600                                |
| Metal Cuttings   | 17 04 07  | 50kg                     | 0.05                               |
| Mixed Municipal Waste                                      | 20 03 01  | 4,000kg                  | 4                                  |
| Foul Effluent  | 20 03 04  | 4,000 litres             | 4                                  |
| Nitrogen   | N/A       | -                        | -                                  |

**Table 6.15: Waste Quantity Prediction during Phase 5 Works**

### 6.6 Phase 6 – Extended Well Test of the Horizontal Borehole

If the initial flow test indicates that natural gas and/or liquid hydrocarbons will flow to surface at consistent flow rates and pressures, the horizontal borehole will be subject to an extended well test.

Equipment required to undertake the extended well test will be similar to that used during the initial flow test, however, the ground flare may differ in appearance to that used during the initial well test, due to it being sized for known flow rates and pressure. The flare will be approximately 8m in height.

During the extended well test, the wellsite will be staffed and a number of office accommodation and welfare facilities will be provided.

On completion of the extended well test, the horizontal borehole will be suspended and the flow test equipment will be removed from site. A workover rig (as described in Phase 4 above) may be required to mobilise to site to suspend the borehole.

Waste generated as a result of the Phase 6 works will consist of extractives wastes in the form of residual flowback fluid, liquid hydrocarbons and natural gas, which are subject to a mining waste permit, under EPR 2016. Residual flowback fluid is likely to contain naturally occurring radioactive material (NORM), with radionuclide concentrations exceeding the value specified in Table 1, Part 3 of Schedule 23 of EPR 2016. Non-extractive waste generated will consist of used oils, oily rags, packaging, household waste, foul water and sewage.

The proposed extended welltest layout is indicated on drawing numbers ZG-AER-ALT-PA-26 and ZG-AER-ALT-PA-27 within Appendix 2 of this Planning Statement.

#### 6.6.1 Duration

Phase 6 works are anticipated to take ninety (90) days to complete.

#### 6.6.2 Hours of Operation

Phase 6 works will require 24 hour working.

### 6.6.3 Vehicle Movements

Vehicle movements associated with the Phase 6 works are set out in Table 6.16. The average estimated HGV movements per day will be three (3), over a ninety (90) day period.

| Vehicle   | Individual Vehicle Movements |
|-----------|------------------------------|
| LGV / Car | 36                           |
| HGV       | 3                            |

**Table 6.16: Predicted Average Vehicle Movements per Day during Phase 6 Works**

### 6.6.4 Lighting

Lighting during the Phase 6 works is provided in Table 6.17.

| Light Source    | Specification                                   | Description   |
|-----------------|---|---|
| Lighting Towers | 2 x 1000w Metal Halide Portable Lighting Towers | Mobile lighting towers will be positioned around the site and allow the main working area to be illuminated. Lighting will be operational throughout low light and night time periods. When lighting is not required it will be switched off. |

**Table 6.17: Lighting Equipment during Phase 6 Works**

### 6.6.5 Waste

Waste generated as a result of the Phase 6 works is summarised in Table 6.18.

| Description of Waste Stream – Phase 6 Extended Well Test | EWC Code  | Quantity Produced        | Equivalent Amount Produced (Tonne) |
|--|-----------|--------------------------|------------------------------------|
| Flowback Fluid   | 01 01 02  | 1,200m <sup>3</sup>      | 1,200                              |
| Proppant   | 01 04 09  | 9T                       | 9                                  |
| Hydraulic Oils   | 13 01 01* | 1000 litres              | 1                                  |
| Engine Oil and Lubricants                                | 13 02 06* | 1000 litres              | 1                                  |
| Wood   | 15 01 03  | 50kg                     | 0.05                               |
| Oil Filters  | 16 01 07* | 5kg                      | 0.005                              |
| Natural Gas  | 16 05 04* | 11,289,600m <sup>3</sup> | 7,702                              |
| Surface Run-off Water                                    | 16 10 02  | 900m <sup>3</sup>        | 900                                |
| Metal Cuttings   | 17 04 07  | 50kg                     | 0.05                               |
| Mixed Municipal Waste                                    | 20 03 01  | 6,000kg                  | 6                                  |
| Foul Effluent  | 20 03 04  | 6,000 litres             | 6                                  |

**Table 6.18: Waste Quantity Prediction during Phase 6 works**

## 6.7 Phase 7 – Decommissioning and Borehole Abandonment

Phase 7 will comprise the decommissioning of all surface equipment followed by the plugging and safe abandonment of the boreholes.

In the event that the exploratory drilling and testing proves unsuccessful in determining that commercial hydrocarbon production can be achieved, the boreholes will be decommissioned, consisting of plugging and safe abandonment in accordance with current guidelines, which at the time of submitting this planning application are the Oil & Gas UK Guidelines for the suspension and abandonment of wells. The design and construction of

the boreholes will have taken into account the guidelines for well abandonment, therefore, to reflect the guidance, the well abandonment operation will typically relate to the internal section of each borehole.

A workover rig (as described in Phase 4 above) will be mobilised to site to undertake the plug and abandonment operation.

Cement plugs will be set in the boreholes at predetermined depths to ensure that all distinct permeable zones penetrated by the borehole(s) are isolated from each other and from the surface by a minimum of one permanent barrier. Permeable zones penetrated by the borehole(s), which are hydrocarbon-bearing or over-pressured and water-bearing require two (2) permanent barriers from the surface, the second barrier being a back-up to the first. Cement plugs (barriers) will extend above and below the permeable zone(s). Either a mechanical or high viscosity fluid plug will be positioned within the internal casing string immediately below the required cement depth, which prevents the cement from moving or slumping during setting.

Waste generated as a result of the Phase 7 works will consist of extractive wastes in the form of drilling muds, brines and excess cement which are subject to a mining waste permit, under EPR 2016. Non-extractive wastes generated will consist of used oils, oily rags, excess casing, packaging, household waste, foul water and sewage.

Once the boreholes are abandoned and the equipment used to undertake the operation removed from the wellsite, the casing within the drilling cellar will be cut off at a depth of approximately 1.5m below the expected ground level post restoration. A steel plate will be welded over the top of the casing to prevent soil from entering the borehole.

The proposed decommissioning and borehole abandonment layout is indicated on drawing numbers ZG-AER-ALT-PA-28 and ZG-AER-ALT-PA-29 within Appendix 2 of this Planning Statement.

**6.7.1 Duration**

Phase 7 works are anticipated to take four (4) weeks to complete.

**6.7.2 Hours of Operation**

Phase 7 works will require 24 hour working.

**6.7.3 Vehicle Movements**

Vehicle movements during Phase 7 works are set out in Table 6.19. The average estimated HGV movements per day will be thirteen (13), over a twenty eight (28) day period.

| Vehicle   | Individual Vehicle Movements |
|-----------|------------------------------|
| LGV / Car | 30                           |
| HGV       | 13                           |

**Table 6.19: Predicted Average Vehicle Movements per Day during Phase 7 Works**

**6.7.4 Lighting**

Lighting during Phase 7 works are set out in Table 6.20.

| Light Source    | Specification                                   | Description   |
|-----------------|---|---|
| Lighting Towers | 2 x 1000w Metal Halide Portable Lighting Towers | Mobile lighting towers will be positioned around the site and allow the main working area to be |

|                   |                                      |   |
|-------------------|--------------------------------------|---|
|                   |                                      | illuminated. Lighting will be operational throughout low light and night-time periods. When lighting is not required it will be switched off. |
| Fluorescent Light | External Ex Linear Fluorescent Light | Fluorescent tubing light will be positioned on the workover rig to provide lighting.  |

**Table 6.20: Lighting Equipment during Phase 7 Works**

### 6.7.5 Waste

Waste generated as a result of the Phase 7 works is summarised in Table 6.21.

| Description of Waste Stream – Phase 7 Decommissioning and Borehole Abandonment | EWC Code  | Quantity Produced | Equivalent Amount Produced (Tonne) |
|--|-----------|-------------------|------------------------------------|
| Well Suspension Brine  | 01 05 08  | 50m <sup>3</sup>  | 50                                 |
| Hydraulic Oils   | 13 01 01* | 1000 litres       | 1                                  |
| Engine Oil and Lubricants  | 13 02 06* | 1000 litres       | 1                                  |
| Wood   | 15 01 03  | 50kg              | 0.05                               |
| Oil Filters  | 16 01 07* | 5kg               | 0.005                              |
| Surface Run-off Water  | 16 10 02  | 280m <sup>3</sup> | 280                                |
| Concrete / Cement  | 17 01 01  | 500kg             | 0.5                                |
| Metal Cuttings   | 17 04 07  | 50kg              | 0.05                               |
| Metal Cuttings (Contaminated)  | 17 04 09* | 1,500kg           | 1.5                                |
| Mixed Municipal Waste  | 20 03 01  | 2,000kg           | 2                                  |
| Foul Effluent  | 20 03 04  | 2,000 litres      | 2                                  |

**Table 6.21: Waste Quantity Prediction during Phase 7 Works**

### 6.8 Phase 8 – Site Restoration and Aftercare

On completion of the Phase 7 works, the wellsite and access track will be restored to its pre-development use, which in the case of the Altcar Moss wellsite is agricultural use.

The restoration work is effectively a reverse of the construction works (Phase 1).

All concrete hard standings will be broken up and removed from site for recycling. The Class 1 full retention separator and cess tank will be carefully excavated and removed from site.

Subsoil excavated for the construction of the drilling cellar will be placed into the base of the drilling cellar in order to protect the abandoned borehole. All reinforced concrete hard standings will be broken up and materials segregated. The concrete drilling cellar will be broken up, leaving the lowest section in situ. All broken up concrete and steel reinforcement will be removed from site for recycling. The remaining subsoil excavated for the construction of the drilling cellar will be placed into the former drilling cellar excavation and compacted in manageable layers.

Surface aggregates will be inspected prior to removal. Areas where surface contamination is identified will be removed for subsequent offsite treatment and reuse. The remaining surface aggregates will carefully be removed for subsequent offsite reuse.

Once the surface aggregate has been removed, the impermeable membrane and non-needle punch geotextile will be exposed. The perimeter containment ditch will be inspected and any contained fluids removed by vacuum tanker. The impermeable membrane will be inspected for signs of contamination with affected areas being

removed and disposed of accordingly. Following inspection, the impermeable membrane and non-needle punch geotextile will be removed and placed into large skips for subsequent offsite recycling and/or disposal.

Any subsoil excavated to construct the perimeter containment ditch will be replaced. The soil will then 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 1,000mm centres. The deep tine cultivated sub-soil will not be traversed by any machinery.

Topsoil reinstatement works will be managed in accordance with DEFRA’s ‘Construction Code of Practice for the Sustainable Use of Spoils on Construction Sites’.

On completion of the wellsite restoration works, the access track will be restored. This will be a progressive scheme, starting at the wellsite progressing backward to Sutton’s Lane. The track panels will be removed from the access track, prior to removing the granular sub base and geomembrane.

On completion of the Phase 8 works, the land will be subject to a scheme of aftercare. Annual inspections will be made for a period of five (5) years and remedial works undertaken (if required).

The proposed restoration layout is indicated on drawing numbers ZG-AER-ALT-PA-30 to ZG-AER-ALT-PA-36 within Appendix 2 of this Planning Statement.

**6.8.1 Duration**

Phase 8 works are expected to take eight (8) weeks to complete.

**6.8.2 Hours of Operation**

Phase 8 works will be restricted to the following hours of operation:

- Monday to Friday                      07:00 hrs to 19:00 hrs;
- Saturday                                    07:00 hrs to 13:00 hrs; and
- Sunday and Bank Holiday            No works permitted.

**6.8.3 Vehicle Movements**

Vehicle movements associated with the Phase 8 works are set out in Table 6.22. The average estimated HGV movements per day will be forty four (44), over an eight (8) week period.

| Vehicle   | Individual Vehicle Movements |
|-----------|------------------------------|
| LGV / Car | 14                           |
| HGV       | 44                           |

**Table 6.22: Predicted Average Vehicle Movements per Day during Phase 8 Works**

**6.8.4 Lighting**

Restoration works will generally be undertaken during daylight hours, however, temporary task lighting may be required during the periods of early morning and dusk to supplement low levels of daylight. An indication of the lighting likely to be required during the Access Track and Wellsite Construction phase is provided in Table 6.23 and will consist of one (1) portable lighting tower.

| Light Source    | Specification   | Description  |
|-----------------|---|--|
| Lighting Towers | 1 x Portable Lighting Tower consisting of 4 x 1000w Metal Halide and shall not exceed 8m in height. | One (1) portable lighting tower will be positioned at the site to allow the working area to be illuminated during the periods of early morning and dusk to supplement low levels of daylight. When lighting is not required it will be switched off. |

**Table 6.23: Lighting Equipment during Phase 8 Works**

### 6.8.5 Waste

Waste generated as a result of the restoration phase is summarised in Table 6.24

| Description of Waste Stream – Phase 8 Wellsite Restoration | EWC Code  | Quantity Produced    | Equivalent Amount Produced (Tonne) |
|--|-----------|----------------------|------------------------------------|
| Hydraulic Oils   | 13 01 01* | 1000 litres          | 1                                  |
| Engine Oil and Lubricants                                  | 13 02 06* | 1000 litres          | 1                                  |
| Wood   | 15 01 03  | 50kg                 | 0.05                               |
| Oil Filters  | 16 01 07* | 5kg                  | 0.005                              |
| Surface Run-off Water                                      | 16 10 02  | 140m <sup>3</sup>    | 140                                |
| Concrete / Cement  | 17 01 01  | 1,406,000kg          | 1406                               |
| GeoGrid  | 17 02 03  | 12,100m <sup>2</sup> | 6.42                               |
| HDPE Membrane  | 17 02 03  | 4,750m <sup>2</sup>  | 23.75                              |
| Plastic Pipes  | 17 02 03  | 285m                 | 0.95                               |
| PolyStorm Cell   | 17 02 03  | 15T                  | 15                                 |
| GeoGrid (Contaminated)                                     | 17 02 04* | 636.5m <sup>2</sup>  | 0.338                              |
| Oil-Water Separator  | 17 02 04* | 750kg                | 0.75                               |
| Plastic Pipes (Contaminated)                               | 17 02 04* | 15m                  | 0.05                               |
| Fencing  | 17 04 05  | 450m                 | 7.5                                |
| Steel (Concrete Mesh)                                      | 17 04 05  | 64T                  | 64                                 |
| Metal Cuttings   | 17 04 07  | 50kg                 | 0.05                               |
| Stone Aggregates (Contaminated)                            | 17 05 03* | 351m <sup>3</sup>    | 673                                |
| Stone Aggregates   | 17 05 04  | 6,667m <sup>3</sup>  | 12,802                             |
| Concrete / Cement (Contaminated)                           | 17 09 03* | 74,000kg             | 74                                 |
| Geotextile Liner (Contaminated)                            | 17 09 03* | 882m <sup>2</sup>    | 0.5                                |
| HDPE Membrane (Contaminated)                               | 17 09 03* | 250m <sup>2</sup>    | 1.25                               |
| Geotextile Liner   | 20 01 11  | 16,752m <sup>2</sup> | 9.5                                |
| Mixed Municipal Waste                                      | 20 03 01  | 4,000kg              | 4                                  |
| Foul Effluent  | 20 03 04  | 4,000 litres         | 4                                  |

**Table 6.24: Waste Quantity Prediction during Phase 8 Works**

### 6.8.6 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 (5) years. This will ensure the successful restoration of the land to its previous condition.

## 7. PLANNING POLICY

### 7.1 Introduction

The Planning and Compulsory Purchase Act 2004 sets out the relevant legislation for the role of the Development Plan in decision making. The Act states in Section 38 (6) that:

*'(6) 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.'*

The development plan relevant to the application site comprises:

- Joint Lancashire Minerals and Waste Development Framework Core Strategy DPD, February 2009;
- Joint Lancashire Site Allocations and Development Management Policies DPD, September 2013;
- West Lancashire Local Plan 2012-2027, adopted October 2013.

Whilst carrying limited weight the emerging planning policy has been considered and the proposed development assessed against the emerging policy.

Material planning considerations have also been considered. These include national planning policy and guidance, which should be afforded relatively more weight than would otherwise be the case if up to date development plan policies dealing with shale gas exploration had been adopted

### 7.2 Development Plan

#### 7.2.1 Joint Lancashire Minerals and Waste Development Framework Core Strategy DPD, February 2009

Policy CS 1 - Safeguarding Lancashire's Mineral Resources, states that:

*'Minerals will be extracted only where they meet a proven need for materials with those particular specifications. Lancashire's mineral resources, including those shown on the Key Diagram, and including its former mineral workings, will be identified and conserved, where they have an economic, environmental or heritage value. Mineral resources with the potential for extraction now or in the future will be identified as Mineral Safeguarding Areas and protected from permanent sterilisation by other development. Mineral consultation areas will be identified and reviewed regularly. District councils will consult with the minerals planning authority where proposals for developments fall within these areas. Extraction of mineral resources prior to other forms of development will be encouraged. The Mineral Planning Authorities will work with industry and others to ensure the best available information supports these principles.'*

These policies were adopted in advance of proposals for shale gas exploration or extraction in Lancashire. Consequently, the application site is not within a minerals safeguarding area nor are there any sites identified within any of Lancashire's overall portfolio of planning policy documents for shale gas exploration or extraction. In this regard, the Applicant would contend that the Development Plan is silent and out of date with regard to the specific issue of shale gas exploration and extraction. A report to Lancashire's Joint Advisory Committee (1<sup>st</sup> May 2014) confirmed that the absence of policy on unconventional oil and gas within the Local Development will be addressed through a review of the Joint Lancashire Mineral Local Plan to commence later in 2014. With this in mind, substantial weight should be given to the provisions of national planning policy.

POLICY CS5 - Achieving Sustainable Minerals Production, states that

*Alternatives to the bulk transportation of minerals by road will be encouraged. Existing or potential transport, storage, handling or reprocessing facilities will be safeguarded where they offer the potential for the use of rail, water or other means to transport minerals. Criteria will be developed for the site identification process, and also for considering other proposals brought forward outside the plan-making process, to ensure that:*

*(i) our natural resources including water, air, soil and biodiversity are protected from harm and opportunities are taken to enhance them;*

*(ii) features and landscapes of historic and cultural importance and their settings are protected from harm and opportunities are taken to enhance them;*

*(iii) workings will not adversely contribute to fluvial flood risks or surface water flooding;*

*(iv) proposals for mineral workings incorporate measures to conserve, enhance and protect the character of Lancashire's landscapes;*

*(v) the amenity, health, economic well-being and safety of the population are protected by the introduction of high operating standards, sensitive working practices and environmental management systems that minimise harm and nuisance to the environment and local communities throughout the life of the development;*

*(vi) essential infrastructure and services to the public will be protected;*

*(vii) sensitive environmental restoration and aftercare of sites takes place, appropriate to the landscape character of the locality and the delivery of national and local biodiversity action plans. Where appropriate, this will include improvements to public access to the former workings to realise their amenity value. Concurrent mineral working will be encouraged where it will maximise the recovery of the materials worked, including secondary materials. Waste materials will be used positively wherever appropriate and will not constitute a nuisance before a suitable use can be found.*

This planning application fully accords with the provisions of the adopted Core Strategy for the following reasons:

- It provides clear economic benefits to both the local and national economies;
- It minimises impact on both the character of the area, local amenity and nature conservation interests through sensitive site selection and layout, and through the adoption of industry best practice; and
- The Transport Assessment, which supports this application, has concluded that the levels of vehicle movement that would be generated by the proposed development are acceptable and incorporate bespoke transport management techniques to ensure the proposed development is compatible with the local highway network.

### **7.2.2 Joint Lancashire Site Allocations and Development Management Policies DPD, September 2013**

#### **Policy NPPF 1 – Presumption in Favour of Sustainable Development**

*When considering development proposals the Council will take a positive approach that reflects the presumption in sustainable development contained in the National Planning Policy Framework. It will always work proactively with applicants jointly to find solutions which mean that proposals can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions of the area. Planning applications that accord with the policies in the Local Plan (and, where relevant, with policies in neighbourhood plans) will be approved without delay, unless material considerations indicate otherwise. Where there are no*

*policies relevant to the application or relevant policies are out of date at the time of making the decision then the Council will grant permission unless material considerations indicate otherwise – taking account of whether:*

*Any adverse impacts of granting permission would significantly and demonstrably outweigh the benefits, when assessed against the policies in the National Planning Policy Framework taken as a whole; or*

*Specific policies in that Framework indicate that development should be restricted.*

The proposed development is considered to accord fully with the provisions of the NPPF and consequently also accords with policy NPPF1.

Policy DM2 - Development Management

Policy DM2 states:

*‘Development for minerals or waste management operations will be supported where it can be demonstrated to the satisfaction of the mineral and waste planning authority, by the provision of appropriate information, that all material, social, economic or environmental impacts that would cause demonstrable harm can be eliminated or reduced to acceptable levels. In assessing proposals account will be taken of the proposal's setting, baseline environmental conditions and neighbouring land uses, together with the extent to which its impacts can be controlled in accordance with current best practice and recognised standards.*

*In accordance with Policy CS5 and CS9 of the Core Strategy developments will be supported for minerals or waste developments where it can be demonstrated to the satisfaction of the mineral and waste planning authority, by the provision of appropriate information, that the proposals will, where appropriate, make a positive contribution to the:*

- *Local and wider economy*
- *Historic environment*
- *Biodiversity, geodiversity and landscape character*
- *Residential amenity of those living nearby*
- *Reduction of carbon emissions*
- *Reduction in the length and number of journeys made*

*This will be achieved through for example:*

- *The quality of design, layout, form, scale and appearance of buildings*
- *The control of emissions from the proposal including dust, noise, light and water.*
- *Restoration within agreed time limits, to a beneficial afteruse and the management of landscaping and tree planting.*
- *The control of the numbers, frequency, timing and routing of transport related to the development’*

The Written Justification associated with policy DM2 states:

*2.2.1 Minerals and waste developments are vital to the economy of Lancashire, either by supplying raw materials to manufacturing processes or by treating the wastes produced as a by-product of manufacturing or other business or commercial activity; they also provide jobs for a wide range of skill sets, from manual handling to process engineering. They are essential for the nation's prosperity, infrastructure and quality of life. However,*

*they have the potential to cause disruption to local communities and the environment due to the nature of their operations, in common with other heavy industries. These impacts can often be addressed through the sensitive design and operation of the facility. Planning conditions will be imposed, where appropriate, to ensure this.*

*2.2.4 The impact of a development can be positive or negative; short, medium or long term; reversible or irreversible; permanent or temporary. In assessing the acceptability of an impact the following criteria will be relevant:*

- *Sensitivity of receptor: different receptors (residents; designated areas of historic, landscape or biodiversity value; plants and animals; businesses) respond to environmental changes or disturbances in different ways. Certain locations or land users have an enhanced sensitivity to certain impacts, for example locations that can be viewed from a designated heritage asset will need to be dealt with more sensitively when considering visual or landscape impacts, as they may affect elements of the asset's setting.*
- *Magnitude of impact: this is the severity of an impact and could be measured subjectively or in relation to statutory threshold values. It is influenced by the following:*
- *Proximity to receptor: the effects of many impacts tend to reduce with distance, though this distance is dependent on the nature and scale of the impacts, for example large dust particles will largely deposit within 100m of their source.*
- *Frequency of impact: impacts can arise persistently, or erratically and unpredictably.*
- *The frequency of an impact, relative to the ability of the receptor to tolerate or recover from the impact, is important when considering the impact's magnitude.*
- *Duration of impact: impacts associated with the construction phase of a proposal have a much shorter duration relative to the impacts associated with the operation of a proposal.*

*2.2.6 In order to minimise the social, economic and environmental impact of minerals and waste sites it is essential that high standards of management are maintained throughout the operational life. The Minerals and Waste Planning Authority will seek to ensure that sites are developed in the least intrusive way to minimise disturbance. To achieve this current best practice in all aspects of site operation should be used.*

*The justification sets out the points that the MPA would expect operations to address in order to satisfy policy DM 2, these include:*

- *Visual*
- *Noise*
- *Odour*
- *Dust*
- *Transport*
- *Blasting*
- *Water Protection*
- *Nature Conservation*
- *History and Geodiversity*

In accordance with Policy DM2, the following assessments accompany this planning application (within Environmental Statement appendices):

- Air Quality Impact Assessment;

- Cultural Heritage Assessment;
- Ecological Impact Assessment;
- Landscape and Visual Impact Assessment;
- Lighting Impact Assessment
- Noise Impact Assessment;
- Transport Assessment;
- Hydrogeological Risk Assessment; and
- Flood Risk Assessment.

The planning application is also accompanied by an EIA. Taken together, the application demonstrates that the proposed development will not have a significant impact on the application site and the surrounding area. The assessments also demonstrate that any adverse impacts can be overcome with the use of mitigation. The proposed development therefore accords with the provisions of Policy DM2.

### **7.2.3 West Lancashire Local Plan 2012-2027, adopted October 2013**

The West Lancashire Local Plan was adopted in October 2013. The policies contained within the Plan and relevant to this application are considered below:

Policy GN3 Criteria for Sustainable Development

*Development will be assessed against the following criteria, in addition to meeting other policy requirements within the Local Plan.*

#### *1. Design/ Setting*

*Proposals for development should, inter alia:*

- *be of a high-quality design and have regard to the West Lancashire Design Guide SPD;*
- *have regard to the historic character of the local landscape and/or townscape;*
- *incorporate suitable and safe access and road layout design;*
- *take account of the Council's FRA, advice from LLFA, EA and NPPF, be located away from flood zones 2 and 3;*
- *maintain or enhance the distinctive character and visual quality of any landscape character areas in which they are located;*
- *provide sufficient landscaped buffer zones and appropriate levels of open space/green space to limit the impact of development on any adjoining sensitive users or the open countryside;*
- *minimise the removal of trees, hedgerows, and areas of ecological value, or, where removal is unavoidable, provide for their like for like replacement or provide enhancement of features of ecological value;*
- *where floodlights are proposed, provide minimum levels of lighting whilst having regard to any potential adverse impacts and ensuring any light spillage is minimal*
- *minimise the risk from all types of pollution and contamination;*
- *Ensure the protection of water quality and ground water resources and, where possible, seek improvement; and*

- *Seek to remediate and restore contaminated land.*

The proposed development complies with this policy for the following reasons:

- The design has been informed by a civil engineering design statement; and
- The impact upon cultural heritage, traffic and transport, landscape, flood risk, ecology, lighting, and waste and water has been considered within the Environmental Statement and within Chapter 8 of this planning statement.

#### *Policy EC2*

*The irreversible development of open, agricultural land will not be permitted where it would result in the loss of the best and most versatile agricultural land, except where absolutely necessary to deliver development allocated within this local plan or strategic infrastructure or development associated with the agricultural use of the land.*

The proposed development will result in the temporary loss of 1.72ha of agricultural land, however, the application site will be fully restored and returned to agricultural use when operations cease.

#### *Policy EN2*

Policy EN2 states inter alia:

*'Preserving and Enhancing West Lancashire's Natural Environment*

1. *Nature Conservation Sites and Ecological Networks*
  - a) *The Hierarchy of nature conservation sites*

*The Council is committed to ensuring the protection and enhancement of West Lancashire's biodiversity. '*

Policy EN2 sets out in policy terms the need to preserve and enhance West Lancashire's Natural Environment.

The ecological impact of the proposed development has been fully assessed by specialist consultants and, with mitigation in place, the proposed development will not have a significant impact on ecology. The findings of the ecological impact assessment are provided in full within the Environmental Statement and are summarised in Section 8 of this planning statement.

## **7.3 Emerging Policy**

### **7.3.1 Review of the Joint Lancashire Minerals and Waste Local Plan Publication Consultation Version (Regulation 19), Summer 2018**

LCC is reviewing the adopted Minerals and Waste Local Plan. A draft revised local plan was consulted on in 2018. Representations made are currently being considered.

Policy MW 1 states:

*'Management of Waste and Extraction of Minerals Proposals for minerals or waste management operations will be supported where it can be demonstrated to the satisfaction of the mineral and waste planning authority, by the provision of robust and comprehensive information, that all material social, economic and environmental impacts that would cause demonstrable harm can be eliminated or reduced to acceptable levels(5) . In assessing proposals account will be taken of the proposal's setting, baseline environmental conditions and neighbouring land uses, together with the extent to which its impacts can be controlled in accordance with current best practice and recognised standards.'*

The written justification associated with policy MW1 states that proposals for minerals or waste management operations will be supported where it can be demonstrated to the satisfaction of the mineral and waste planning authority, by the provision of robust and comprehensive information, that all material social, economic and environmental impacts that would cause demonstrable harm can be eliminated or reduced to acceptable levels.

As noted in connection with Policy DM2, the following assessments accompany this planning application (within Environmental Statement appendices):

- Air Quality Impact Assessment;
- Cultural Heritage Assessment;
- Ecological Impact Assessment;
- Landscape and Visual Impact Assessment;
- Lighting Impact Assessment
- Noise Impact Assessment;
- Transport Assessment;
- Hydrogeological Risk Assessment; and
- Flood Risk Assessment.

The planning application is also accompanied by an EIA. These assessments demonstrate that the proposed development will not have a significant impact on the application site and the surrounding area. The assessments also demonstrate that any adverse impacts can be overcome with the use of mitigation. The proposed development therefore accords with the provisions of emerging policy MW1.

### **7.3.2 Onshore Oil and Gas Exploration, Production and Distribution, Draft Supplementary Planning Document for Consultation, Lancashire County Council November 2014**

This draft Supplementary Planning Document (SPD) was published by LCC in November 2014. The SPD was not formally adopted by the Council and therefore only limited weight can be attached to it as a material planning consideration.

Notwithstanding this, the Applicant has reviewed the SPD and has complied with the draft guidance where relevant to the proposed development.

The SPD sets out an introduction to onshore oil and gas development, including the three development phases, exploration, appraisal and production. The SPD continues identifying the principal issues for the oil and gas industry in Lancashire which include:

- High operating standards;
- Landscape and visual impacts;
- Traffic and Transport;
- Site restoration and aftercare;
- Flood risk;
- Heritage assets;
- Nature conservation;
- Seismic Movement prediction and mitigation and geological assessments;
- Soil resources and agriculture;
- Economic; and
- Public Health.

The SPD also sets out an introduction to the license blocks within Lancashire, the regulatory bodies, the development plan and specific guidance on unconventional reservoirs.

This application has taken the guidance into account in that it:

- clearly sets out that the proposed development is for the exploration phase;
- the relevant regulatory framework is detailed in section 3.2 of the planning statement; and
- the development is assessed against planning policy in section 7 of the planning statement.

The principal issues, as identified in the SPD, are considered within Section 8 of the planning statement and within the accompanying Environmental Statement.

### 7.3.3 West Lancashire Local Plan Review Preferred Options August 2018

West Lancashire Borough Council (WLBC) is currently reviewing its local plan. A preferred options document was published in August 2018 and consultation ended in December 2018. Whilst adopted policy carries greatest weight in planning terms, the emerging policy has been given consideration.

Policy SP1 states inter alia:

*When considering development proposals the Council will take a positive approach that reflects the support for sustainable development contained in the NPPF. It will always work proactively with applicants jointly to find solutions which mean that proposals can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area.*

*Planning applications that accord with the policies in this Local Plan (and, where relevant, with policies in neighbourhood plans and supplementary planning documents) will be approved, unless material considerations indicate otherwise.*

Policy SP4 states inter alia:

*'Development proposals within the Green Belt will be assessed against national policy on Green Belt, together with any locally adopted SPD or Neighbourhood Plan covering development in the Green Belt.'*

As the proposed development is for temporary minerals development, and includes for restoration when operations cease, it is not inappropriate development in the Green Belt for the purposes of the NPPF and should be assessed as such. It is not necessary to demonstrate that Very Special Circumstances exist.

Policy G13 states inter alia:

*The Council is committed to ensuring the protection and enhancement of West Lancashire's biodiversity and geological assets and interests.*

The Planning application is accompanied by an ecological impact assessment, a copy of which can be found in the appendix D1 to the Environmental Statement.

Policy G15 states inter alia:

*'Where new development is proposed it will be required to take advantage of the surrounding landscape setting and historic landscapes by having regard to the different landscape character types across the borough. Where development is likely to affect landscapes or their key features, approval will only be granted where the development is considered to make a positive contribution, or where the public benefit outweighs the harm to the landscape.'*

The Planning application is accompanied by a Landscape and visual impact assessment, a copy of which can be found in the appendix E to the Environmental Statement.

Policy SD2 states that:

*'In order to ensure improvements to the quality of the built and natural environment and to make a positive contribution to its surroundings, new development should:*

- a. Be of high quality design and adhere to the West Lancashire Design Guide SPD;*
- b. Respect the historic character of the area, local landscape and / or townscape, and respond to the local surrounding through its design;*
- c. Retain or create reasonable levels of privacy, amenity and sufficient garden / outdoor space for occupiers of the proposed and neighbouring properties;*
- d. Have regard to visual amenity and promote local distinctiveness within its surroundings through sensitive design, including; appropriate siting, orientation, mass, height, density, materials, landscaping and landscape context, boundary treatment, scale and architectural design;*
- e. Adhere to low carbon sustainable building principles;'*

A Civil Engineering Design Statement informed the design of the proposed development. The statement included a ground investigation report to establish the ground conditions of the proposed development.

The application has considered the impact upon cultural heritage, amenity, landscape and visual impact. All assessments have concluded that the proposed development is acceptable. The proposed development is therefore considered to accord with emerging policy SD2.

The development has been designed to be of temporary duration to minimise any impact.

## **7.4 Material Planning Considerations**

### **7.4.1 Overarching National Policy Statement for Energy (EN-1)**

EN-1 was published by the Government in July 2011 and sets out national policy for energy Infrastructure.

Paragraph 1.2.1 states:

*'In England and Wales this NPS is likely to be a material consideration in decision making on applications that fall under the Town and Country Planning Act 1990 (as amended). Whether, and to what extent, this NPS is a material consideration will be judged on a case by case basis.'*

Paragraph 2.1.2 states:

*'As explained in Part 3, energy is vital to economic prosperity and social well-being and so it is important to ensure that the UK has secure and affordable energy. Producing the energy the UK requires and getting it to where it is needed necessitates a significant amount of infrastructure, both large and small scale.'*

Paragraph 2.2.20 states:

*'It is critical that the UK continues to have secure and reliable supplies of electricity as we make the transition to a low carbon economy. To manage the risks to achieving security of supply we need:*

(Inter alia)

- *'reliable associated supply chains (for example fuel for power stations) to meet demand as it arises;'*

Paragraph 2.2.25 states:

*The UK faces two main security of supply challenges during our transition to a low carbon economy:*

- *increasing reliance on imports of oil and gas as North Sea reserves decline in a world where energy demand is rising and oil and gas production and supply is increasingly politicised; and*
- *the requirement for substantial and timely private sector investment over the next two decades in power stations, electricity networks and gas infrastructure.*

The proposed development will explore the viability of the shale in this location. Should the gas reserve prove viable and the site progress to production (subject to a separate grant of planning permission) this will contribute towards meeting the UK's energy needs during the transition to a low carbon economy. The proposed development therefore accords with EN-1.

#### **7.4.2 The National Planning Policy Framework**

The NPPF February 2019, sets out the Government's planning policies for England and how these are expected to be applied.

On 6<sup>th</sup> March 2019, the High Court allowed a judicial review, which centred on paragraph 209a of the NPPF 2018 and what was found to be a flawed consultation process. Mr Justice Dove said adopting Paragraph 209a into the NPPF was unlawful because the Government had failed to take into account all of the material submitted during the consultation. Paragraph 209a was quashed and effectively removed from the NPPF. The parties were allowed time to consider the implications of the judgment, with a view to reaching agreement on what steps should be taken as a result of the conclusions. In a further judgment on 14<sup>th</sup> May 2019, Mr. Justice Dove ruled that the government does not have to carry out a new public consultation on its planning policy on fracking. The NPPF as a whole remains lawful for planning purposes and as such forms part of the national planning policy against which planning applications are assessed and determined.

The Government tabled a further WMS from James Brokenshire (Ministry of Housing, Communities and Local Government) in Parliament in May 2019. The WMS sought to clarify the role of the NPPF following the quashing of paragraph 209a, stating that the remainder of the NPPF policies and, in particular Chapter 17 on 'Facilitating the Sustainable Use of Minerals', remain unchanged and extant. The WMS sets out the continued Government support for onshore hydrocarbon development (including unconventional oil and gas) and confirms that the WMS's of 16<sup>th</sup> September 2015 on 'Shale Gas and Oil Policy' and 17<sup>th</sup> May 2018 on 'Planning and Energy Policy' also remain unchanged and extant. Finally, the WMS clarifies that the PPG is also unaffected by the ruling. Should any further amendment to relevant sections of the NPPF or WMS occur prior to determination of this planning application, the relevant planning policy assessment of the submission documents will be reviewed and should any update be required, this will be submitted to LCC.

#### **Sustainable Development**

NPPF highlights at paragraph 8 that the planning system must perform a number of roles to lead to sustainable development, that is:

- *An economic objective – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;*
- *A social objective – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and*
- *An environmental objective – to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.*

The proposed development accords with the economic objective of NPPF paragraph 8, as it will support employment (nationally) with the need for service providers to support the proposed development. In addition, the proposed development will support a number of local businesses. The economy will also benefit through increased revenue through the payment of business rates and taxes. This application would facilitate further investment to test the reserves in the area, in turn offering further potential investment locally, according with national planning policy that seeks to build a strong, competitive economy.

In meeting the social role objective of NPPF paragraph 8, the proposed development will contribute towards meeting the UK's energy needs from UK sources helping to safeguard future energy supply for the UK. 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 oil and 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 oil and 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 proposed development in meeting the environmental objectives of NPPF paragraph 8, seeks to preserve the environment incorporating mitigation into the design.

Paragraph 9 of NPPF states that these objectives are not criteria against which every decision can or should be judged. Planning decisions should play an active role in guiding development towards sustainable solutions, but should take into account local circumstances.

Paragraph 10 of NPPF states that at the heart of the NPPF is a presumption in favour of sustainable development. Paragraph 11 states inter alia:

*'Plans and decisions should apply a presumption in favour of sustainable development.*

*For decision-taking this means:*

*c) approving development proposals that accord with an up-to-date development plan without delay; or*

*d) where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date, granting permission unless:*

- i. the application of policies in this Framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed; or*
- ii. any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole.'*

Paragraph 12 of NPPF states:

*'The presumption in favour of sustainable development does not change the statutory status of the development plan as the starting point for decision making. Where a planning application conflicts with an up-to-date development plan (including any neighbourhood plans that form part of the development plan), permission should not usually be granted. Local planning authorities may take decisions that depart from an up-to-date development plan, but only if material considerations in a particular case indicate that the plan should not be followed.'*

The proposed development accords with the principle of sustainable development, as set out in Paragraphs 10 – 12 of the NPPF.

### **Economy**

Chapter 6 of the NPPF stresses the importance of building a strong, competitive economy, stating that planning policies and decisions should help create the conditions in which businesses can invest, expand and adapt. Significant weight should be placed on the need to support economic growth and productivity. It goes on to highlight that planning policies and decisions should enable the sustainable growth of all types of businesses in rural areas and the development and diversification of agricultural and other land-based rural businesses.

Paragraph 83 of NPPF states:

*'Planning policies and decisions should enable:*

- a) the sustainable growth and expansion of all types of business in rural areas, both through conversion of existing buildings and well-designed new buildings;*
- b) the development and diversification of agricultural and other land-based rural businesses;*
- c) sustainable rural tourism and leisure developments which respect the character of the countryside; and*
- d) the retention and development of accessible local services and community facilities, such as local shops, meeting places, sports venues, open space, cultural buildings, public houses and places of worship.'*

The proposed development supports the rural economy, as it is a temporary agricultural diversification.

As stated above, the proposed development will support employment (nationally) with the need for service providers to support the proposed development. In addition, the proposed development will support a number of local businesses. The economy will also benefit through increased revenue through the payment of business rates and taxes.

### **Healthy and Safe Communities**

Chapter 8 of NPPF is concerned with promoting healthy and safe communities. The chapter sets out that planning decisions should aim to achieve healthy, inclusive and safe places which promote social interaction, are safe and accessible and enable and support healthy lifestyles.

The Environmental Statement supporting this application has assessed the impact of the development on public health and concludes, with mitigation in place, that the proposed development would not result in any significant impact on public health.

### Transport

Chapter 9 of NPPF covers promoting sustainable transport. Paragraph 102 of NPPF states:

*‘Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:*

- a) the potential impacts of development on transport networks can be addressed;*
- b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;*
- c) opportunities to promote walking, cycling and public transport use are identified and pursued;*
- d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and*
- e) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places.’*

The Environmental Statement considers traffic and transport. Specialist consultants have provided a Transport Assessment, a copy of which can be found in the appendix H to the Environmental Statement. The traffic and transport chapter and Transport Assessment concluded that the proposed vehicle movements associated with each phase of the development would not have an adverse impact on traffic and transport.

### Green Belt

The proposed development is located within the Green Belt. Paragraph 146 of NPPF states:

*Certain other forms of development are also not inappropriate in the Green Belt provided they preserve its openness and do not conflict with the purposes of including land within it. These are:*

- a) mineral extraction;*
- b) engineering operations;*
- c) local transport infrastructure which can demonstrate a requirement for a Green Belt location;*
- d) the re-use of buildings provided that the buildings are of permanent and substantial construction;*
- e) material changes in the use of land (such as changes of use for outdoor sport or recreation, or for cemeteries and burial grounds); and*
- f) development brought forward under a Community Right to Build Order or Neighbourhood Development Order.*

As the proposed development is for temporary minerals development and includes for restoration when operations cease, it is considered appropriate within this Green Belt location.

## Climate Change, Flooding and Coastal Change

Chapter 14 of the NPPF covers climate change, flooding and coastal change. Paragraph 148 states:

*'The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.'*

The application is supported by Environmental Statement, which contains chapters on greenhouse gases and water, and includes as an appendix a flood risk assessment.

The greenhouse gas contributions have been calculated for the proposed development and not considered to be significant.

The flood risk assessment undertaken to support the application concludes that the proposed development is acceptable with regard to flood risk.

In relation to conserving and enhancing the natural environment, the NPPF at paragraph 180 highlights how the planning system seeks to enhance the environment by:

- *'protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
- *recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
- *maintaining the character of the undeveloped coast, while improving public access to it where appropriate;*
- *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- *preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*
- *remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate. In compiling the original planning application to which this application for a variation of condition relates, independent studies assessed the potential impacts to the environment. These reports provided a detailed account of the existing environment. The development approved is temporary in nature and of short duration. On completion of operations the site will be reinstated to its pre-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 and ensure any impact is reduced to acceptable levels. This includes laying an impermeable membrane across the site and installing a containment ditch around the perimeter. On completion of the approved operations, the land will be reinstated and a period of aftercare undertaken to ensure the successful restoration of the site.

## Pollution

The NPPF highlights how any development must minimise pollution and other adverse effects on the local and natural environment. Relevant measures have been incorporated into the proposal, such as the use of an impermeable membrane across the working area of the wellsite and provide mitigation against any adverse effects arising from operations.

In preventing any impacts from lighting, which is required during the period of 24 hour operations, mitigation has been incorporated into the design, including facing lighting downwards and turning off lighting when not required.

## Land Stability

Paragraph 178 of NPPF states:

*'Planning policies and decisions should ensure that:*

*a) a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);*

*b) after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and*

*c) adequate site investigation information, prepared by a competent person, is available to inform these assessments.*

A Civil Engineering Design Statement accompanies this application, provided at Appendix 3. The Civil Engineering Design Statement demonstrates that land stability and ground conditions have been considered in the design of the proposed development in accordance with the above provisions.

## Historic Environment

In accordance with chapter 16 of the NPPF, Conserving and Enhancing the Historic Environment, the Applicant has assessed the development area for potential archaeological remains and given consideration to its significance.

## Nature Conservation

Paragraph 170 of NPPF states:

*'Planning policies and decisions should contribute to and enhance the natural and local environment by:*

*a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*

*b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*

*c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;*

*d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*

*e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*

*f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.'*

The Planning application is accompanied by an EIA, which includes an ecological impact assessment and a Landscape and visual impact assessment, copies of which can be found in Chapter X and Chapter X of the Environmental Statement respectively.

### Minerals

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 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; and*
- *Provide for restoration and aftercare at the earliest opportunity to be carried out to high environmental standards, through the application of appropriate conditions. 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 in paragraph 209 that Mineral Planning Authorities should:

*'a) Recognise the benefits of on-shore oil and gas development, including unconventional hydrocarbons, for the security of energy supplies and supporting the transition to a low-carbon economy; and put in place policies to facilitate their exploration and extraction;*

*b) When planning for on-shore oil and gas development, clearly distinguish between, and plan positively for, the three phases of development (exploration, appraisal and production), whilst ensuring appropriate monitoring and site restoration is provided for;'*

This application seeks consent for the construction of a new wellsite, the drilling, hydraulic fracturing and testing of two (2) boreholes for petroleum exploration, followed by wellsite restoration. It is a temporary proposal of short duration, enabling further investigation to ascertain the potential for the area to also assist with the implementation of UK Government energy policy.

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

### 7.4.3 Planning Practice Guidance

PPG provides additional guidance in support of the NPPF.

The chapters of particular relevance to this application include Air Quality, Climate Change, Conserving and Enhancing the Historic Environment, Flood Risk and Coastal Change, Land Stability, Light Pollution, Minerals,

Noise, Travel Plans, Transport Assessments and Statements, Waste and Water supply, Wastewater and Water Quality.

#### 7.4.3.1 PPG - Air Quality

Paragraph 005 states that the relevance of air quality to a planning decision will depend upon the proposed development and its location. Subject to consideration of matters such as effects on traffic, or the on production of new point sources of air pollution. Paragraph 007 provides advice on mitigation options.

Paragraph 006 sets out that where there are concerns about air quality the Local Planning Authority may seek information on matters including on the baseline, and the impact on air quality throughout the operational phases. Early engagement with the local planning and environmental health departments is identified as important to establish the need for and scope of any assessment.

The planning application is supported by an Air Quality Impact Assessment, the scope of which was discussed and agreed with the Minerals Planning Authority. The assessment, a copy of which can be found in Chapter X of the Environmental Statement, concludes that there will be no significant impact on air quality as a result of the proposed development.

#### 7.4.3.2 PPG - Climate Change

Paragraph 001 states, inter alia:

*'Addressing climate change is one of the core land use planning principles which the National Planning Policy Framework expects to underpin both plan-making and decision-taking.'*

Paragraph 005 states:

*The impact of climate change needs to be taken into account in a realistic way. In doing so, local planning authorities will want to consider:*

- *identifying no or low cost responses to climate risks that also deliver other benefits, such as green infrastructure that improves adaptation, biodiversity and amenity*
- *building in flexibility to allow future adaptation if it is needed, such as setting back new development from rivers so that it does not make it harder to improve flood defences in future*
- *the potential vulnerability of a development to climate change risk over its whole lifetime*

In assessing the impact of the proposed development, an analysis of the implications for climate change has been undertaken through the assessment of greenhouse gas emissions. This concludes that with mitigation in place the change in baseline greenhouse gas levels is negligible.

#### 7.4.3.3 PPG - Conserving and Enhancing the Historic Environment

Paragraph 001 states that

Protecting and enhancing the historic environment is an important component of the NPPF's drive to achieve sustainable development (as defined in paragraphs 7-10). The appropriate conservation of heritage assets forms one of the 'Core Planning Principles' (paragraph 8 bullet 10) that underpin the planning system. This is expanded upon principally in paragraphs 126-141 but policies giving effect to this objective appear elsewhere in the NPPF.

Paragraph 003 states that the conservation of heritage assets in a manner appropriate to their significance is a core planning principle. Heritage assets are an irreplaceable resource and effective conservation delivers wider social, cultural, economic and environmental benefits.

Paragraph 009 specifies that heritage assets may be affected by direct physical change or by change in their setting. Being able to properly assess the nature, extent and importance of the significance of a heritage asset, and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals.

Paragraph 013 states that when assessing proposals, a thorough assessment of the impact on setting needs to take into account, and be proportionate to, the significance of the heritage asset under consideration and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it.

The proposed development has been the subject of a heritage impact assessment, the scope of which was discussed and agreed with the minerals planning authority and Historic England. The conclusion of the cultural heritage assessment a copy of which can be found in chapter X within the Environmental Statement, is that with mitigation in place there is the potential for a temporary negligible change in baseline conditions.

#### **7.4.3.4 PPG – Determining a Planning Application**

Paragraph 006 states that:

To the extent that development plan policies are material to an application for planning permission, the decision must be taken in accordance with the development plan, unless there are material considerations that indicate otherwise (see section 70(2) of the Town and Country Planning Act 1990 and section 38(6) of the Planning and Compulsory Purchase Act 2004 – these provisions also apply to appeals).

The NPPF represents up-to-date government planning policy and is a material consideration that must be taken into account where it is relevant to a planning application or appeal. This includes the presumption in favour of development found at paragraph 14 of the Framework. If decision takers choose not to follow the NPPF, where it is a material consideration, clear and convincing reasons for doing so are needed.

This planning statement provides an analysis of the relationship between the proposed development and local and national planning policy and concludes that the proposed development is in accordance with both. Consequently, planning permission should be granted.

#### **7.4.3.5 PPG – Environmental Impact Assessment**

Guidance is set out on the requirements of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, outlining the purpose of and processes that should be followed in their preparation and consideration. Paragraph 046 states that the local planning authority must take into account the information in the Environmental Statement, the responses to consultation and any other relevant information when determining a planning application.

The EIA produced to support the proposed development has been prepared in accordance with the relevant regulations and process guidance, with input from the Minerals Planning Authority and other statutory consultees on the scope and content of the assessment.

#### **7.4.3.6 PPG - Flood Risk and Coastal Change**

Guidance is provided on the aims and approach towards the sequential test relating to development and flood risk.

Paragraph 030 records that a *site-specific flood risk assessment is carried out by (or on behalf of) a developer to assess the flood risk to and from a development site. Where necessary the assessment should accompany a planning application submitted to the local planning authority. The assessment should demonstrate to the*

*decision-maker how flood risk will be managed now and over the development's lifetime, taking climate change into account, and with regard to the vulnerability of its users (see Table 2 – Flood Risk Vulnerability).*

*The objectives of a site-specific flood risk assessment are to establish:*

- *whether a proposed development is likely to be affected by current or future flooding from any source;*
- *whether it will increase flood risk elsewhere;*
- *whether the measures proposed to deal with these effects and risks are appropriate;*
- *the evidence for the local planning authority to apply (if necessary) the Sequential Test, and;*
- *whether the development will be safe and pass the Exception Test, if applicable*

A flood risk assessment forms part of the environmental impact assessment produced for the proposed development. It has been produced in accordance with national guidance, and concludes that the proposed development will not be at risk of flooding, or give rise to risk of flooding elsewhere.

#### **7.4.3.7 PPG- Health and Wellbeing**

Paragraph 001 requires local planning authorities to ensure that health and wellbeing and health infrastructure are considered in local and neighbourhood plans and in planning decision making. The guidance also notes the bodies with which authorities should work in assessing proposals for development.

The EIA includes an assessment of the impact of the proposed development on public health, a copy of which can be found in Chapter X of the Environmental Statement. The assessment concludes that there will be no significant impact on public health as a result of the proposed development.

#### **7.4.3.8 PPG - Land Stability**

Paragraph 001 states that the planning system has an important role in considering land stability by:

- *minimising the risk and effects of land stability on property, infrastructure and the public;*
- *helping ensure that various types of development should not be placed in unstable locations without various precautions; and*
- *to bring unstable land, wherever possible, back into productive use.*

Paragraph 006 identifies that if land stability could be an issue, developers should seek appropriate technical and environmental expert advice to assess the likely consequences of proposed developments on sites where subsidence, landslides and ground compression is known or suspected.

It goes on to states that a preliminary assessment of ground instability should be carried out at the earliest possible stage before a detailed planning application is prepared. Developers should ensure that any necessary investigations are undertaken to ascertain that their sites are and will remain stable or can be made so as part of the development of the site. A site needs to be assessed in the context of surrounding areas where subsidence, landslides and land compression could threaten the development within its anticipated life or damage neighbouring land or property.

Such information could be provided to the planning authority in the form of a land stability or slope stability risk assessment report. Developers may choose to adopt phased reporting, eg desk study results followed by ground investigation results.

A Civil Engineering Design Statement accompanies this application, a copy is provided at Appendix 3. The Civil Engineering Design Statement demonstrates that land stability and ground conditions have been considered in the design of the proposed development. There is no mechanism to cause surface subsidence as a result of the proposed drilling or hydraulic fracture stimulation operations.

#### 7.4.3.9 PPG - Light Pollution

Paragraph 001 states that artificial light provides valuable benefits to society, including through extending opportunities for sport and recreation, and can be essential to a new development. Equally, artificial light is not always necessary, has the potential to become what is termed 'light pollution' or 'obtrusive light' and not all modern lighting is suitable in all locations. It can be a source of annoyance to people, harmful to wildlife, undermine enjoyment of the countryside or detract from enjoyment of the night sky. For maximum benefit, the best use of artificial light is about getting the right light, in the right place and providing light at the right time. This element of guidance goes on to identify factors that should be considered when assessing the implications arising from a proposed development that might have implications for light pollution, including those from an ecological perspective.

A lighting impact assessment has been undertaken, a copy of which can be found in Appendix F of the Environmental Statement. A lighting chapter is also provided within Chapter 14 of the Environmental Statement. The chapter and impact assessment conclude that with mitigation in place the lighting associated with the proposed development is considered acceptable.

#### 7.4.3.10 PPG - Minerals

Specific guidance on planning for hydrocarbon extraction is provided within the Minerals chapter of the PPG.

The guidance provides advice on the planning issues associated with the three phases of extraction of hydrocarbons and is to be read alongside the NPPF.

Details of the key regulators for hydrocarbon extraction are provided in paragraph 110, these being DECC (responsibilities now split between OGA and BEIS), the MPA, the Environment Agency and the Health and Safety Executive (the role of the key regulators are captured in Chapter 3 of this planning statement). Details of the issues captured by the other regulatory regimes are covered in some detail and include mitigation of seismic risks, well design and construction, well integrity during operation, operation of surface equipment on the well pad, mining waste, flaring and venting of any gas, final off-site disposal of water, well decommissioning and abandonment.

The guidance identifies the principal environmental and community issues of hydrocarbon extraction that should be addressed by MPAs when considering planning applications relating to onshore oil and gas. These include:

- Noise associated with the operation;
- Dust;
- Air quality;
- Lighting;
- Visual impact on the local and wider landscape;
- Landscape character;
- Archaeological and heritage features;
- Traffic;
- Risk of land contamination;
- Geological structure;
- Soil resources;
- Impact on the best and most versatile agricultural land;
- Flood risk;
- Land stability/subsidence;

- Internationally, nationally or locally designated wildlife sites, protected habitats and species and ecological networks;
- Nationally protected geological and geomorphological sites and features;
- Site restoration and aftercare;
- Surface, and in some cases, ground water issues; and
- Water abstraction.

The PPG - Minerals notes that not all of these points will be relevant at every site.

The PPG-Minerals provides guidance to local planning authorities to ensure effective implementation of the planning policy set out in the NPPF. The PPG-Minerals adopted the criteria from the Technical Guidance, which initially accompanied the NPPF (and was withdrawn on 7th March 2014) and this adopted the criteria previously set out in the replaced Minerals Policy Statement 2, Annex 2 and the earlier Minerals Planning Guidance 11.

The PPG-Minerals suggests that MPA's should ensure that unavoidable noise emissions are controlled, mitigated or removed at source and appropriate noise limits established for extraction in proximity to noise sensitive properties.

The PPG-Minerals also states that development proposals should include a noise emissions assessment, to include identification of all sources of noise and, for each source, consider the proposed operating locations, procedures, schedules and duration of work for the life of the operation. The proposals for the control or mitigation of noise emissions should consider:

- the main characteristics of the production process and its environs, including the location of noise-sensitive properties;
- proposals to minimise, mitigate or remove noise emissions at source;
- assessing the existing noise climate around the site of the proposed operations, including background noise levels at nearby noise-sensitive properties;
- estimating the likely future noise from the development and its impact on the neighbourhood of the proposed operations; and
- monitoring noise emissions to ensure compliance with appropriate environmental standards.

The PPG-Minerals sets out noise level criteria to be achieved by mineral extraction operations:

- *“Mineral planning authorities should aim to establish a noise limit, through a planning condition, at the noise-sensitive property that does not exceed the background noise level (LA90,1h) by more than 10 dBA during normal working hours (0700 – 1900). Where it will be difficult not to exceed the background level by more than 10 dBA [sic] without imposing unreasonable burdens on the mineral operator, the limit set should be as near that level as practicable. In any event, the total noise from the operations should not exceed 55 dB LAeq,1h (free field). For operations during the evening (1900-2200) the noise limits should not exceed the background noise level (LA90,1h) by more than 10 dBA [sic] and should not exceed 55 dB LAeq,1h (free field). For any operations during the period 22.00 – 07.00 noise limits should be set to reduce to a minimum any adverse impacts, without imposing unreasonable burdens on the mineral operator. In any event the noise limit should not exceed 42 dBA LAeq,1h (free field) at a noise sensitive property.*
- *Where the site noise has a significant tonal element, it may be appropriate to set specific limits to control this aspect. Peak or impulsive noise, which may include some reversing beepers, may also require*

*separate limits that are independent of background noise (e.g. L<sub>max</sub> in specific octave or third-octave frequency bands – and that should not be allowed to occur regularly at night.)*

- *Care should be taken, however, to avoid any of these suggested values being implemented as fixed thresholds as specific circumstances may justify some small variation being allowed.”*

The PPG-Minerals acknowledges that all mineral operations will have some noisy short-term activities that cannot meet the limits set for normal operations. Examples include soil-stripping, the construction and removal of baffle mounds, soil storage mounds and spoil heaps, construction of new permanent landforms and aspects of site road construction and maintenance. However, these activities can bring longer-term environmental benefits. In relation to this, the PPG-Minerals states:

*“Increased temporary daytime noise limits of up to 70 dBA L<sub>Aeq,1h</sub> (free field) for periods of up to eight weeks in a year at specified noise-sensitive properties should be considered to facilitate essential site preparation and restoration work and construction of baffle mounds where it is clear that this will bring longer-term environmental benefits to the site or its environs.*

*Where work is likely to take longer than eight weeks, a lower limit over a longer period should be considered. In some wholly exceptional cases, where there is no viable alternative, a higher limit for a very limited period may be appropriate in order to attain the environmental benefits. Within this framework, the 70 dBA L<sub>Aeq,1h</sub> (free field) limit referred to above should be regarded as the normal maximum.”*

The noise limits proposed within the PPG-Minerals for minerals sites are higher than would normally be tolerated for permanent industrial development of the same scale for two reasons, namely:

- the options for the location of minerals extraction sites is limited by the location of the natural resource; and
- minerals extraction activities are usually limited in duration due to the resources eventually running out.

Both of the above factors also apply to this development.

The PPG-Minerals draws attention to the undertaking of pre-application engagement between the prospective operator and other interested parties in terms of the efficiency and effectiveness of the planning system.

The Applicant undertook pre-application discussions with the MPA and engaged with the local community. Details of community engagement are provided within the Statement of Community Involvement, which accompanies this planning application.

Having carried out various assessments, which are considered within this Planning Statement and included with the EIA, the proposed development is in accordance with the PPG-Minerals.

#### **7.4.3.11 PPG – Natural Environment**

The PPG Natural Environment provides policy on landscape, biodiversity and ecosystems, green infrastructure and brownfield land, soils and agricultural land.

Paragraph 001 states:

*‘One of the core principles in the National Planning Policy Framework is that planning should recognise the intrinsic character and beauty of the countryside.’*

Paragraph 007 states:

*'The National Planning Policy Framework is clear that pursuing sustainable development includes moving from a net loss of biodiversity to achieving net gains for nature, and that a core principle for planning is that it should contribute to conserving and enhancing the natural environment and reducing pollution.'*

Paragraph 8 states inter alia:

*'...they should consider the opportunities that individual development proposals may provide to enhance biodiversity and contribute to wildlife and habitat connectivity in the wider area.'*

Paragraph 16 states inter alia:

*'An ecological survey will be necessary in advance of a planning application if the type and location of development are such that the impact on biodiversity may be significant and existing information is lacking or inadequate.'*

The Planning application is accompanied by an ecological impact assessment and a Landscape and visual impact assessment, copies of which can be found in the appendix E to the Environmental Statement. Having carried out various assessments, which are considered within this Planning Statement and included with the EIA, the proposed development is in accordance with the PPG-Minerals

#### **7.4.3.12 PPG - Noise**

In addition to the PPG-Minerals specific guidance covering noise from minerals development, the PPG also contains separate noise guidance. 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.

Chapter 16 of the Environmental Statement considers the impact of noise as a result of the development and Chapter 18 of the Environmental Statement considers public health. Both chapters conclude that, with mitigation in place, the noise generated by the proposed development is considered acceptable.

#### **7.4.3.13 PPG - Travel Plans, Transport Assessments and Statements**

This element of PPG provides advice on when Transport Assessments and Transport Statements are required and what they should contain. Travel Plans, Transport Assessments and Statements are identified as ways of assessing and mitigating the negative transport impacts of development in order to promote sustainable development. They are required for all developments which generate significant amounts of movements. Travel Plans, Transport Assessments and Statements should be:

- proportionate to the size and scope of the proposed development to which they relate and build on existing information wherever possible;
- established at the earliest practicable possible stage of a development proposal;
- be tailored to particular local circumstances (other locally determined factors and information beyond those which are set out in this guidance may need to be considered in these studies provided there is robust evidence for doing so locally); and
- be brought forward through collaborative ongoing working between the local planning authority/transport authority.

The Environmental Statement considers traffic and transport and a specialist consultant has provided a Transport Assessment, a copy of the which can be found as Appendix H to the Environmental Statement. The chapter and Transport Assessment concluded that the proposed vehicle movements associated with each phase of the development can be accommodated within the capacity of the local highway network.

#### 7.4.3.14 PPG - Water Supply, Waste Water and Water Quality

Outlines how planning can ensure water quality and the delivery of adequate water and wastewater infrastructure. Paragraph 016 states that, *where water is likely to be a consideration in making a planning application will depend on the proposed development, its location and whether there could be concerns about water supply, water quality or both. Early engagement with the local planning authority, the Environment Agency and relevant water and sewerage companies can help to establish if water quality is likely to be a significant planning concern and, if it is, to clarify what assessment will be needed to support the application. An applicant should be able to explain how the proposed development would affect a relevant water body in a river basin management plan and how they propose to mitigate the impacts. Applicants should provide sufficient information for the local planning authority to be able to identify the likely impacts on water quality. The information supplied should be proportionate to the nature and scale of development proposed and the level of concern about water quality.*

The Environmental Statement accompanying the planning application considers both water and waste. A Hydrogeological Risk assessment and Flood Risk assessment have been undertaken, copies of which can be found in Appendix I1 and Appendix I3 of the Environmental Statement respectively. These assessments conclude that the proposed development is acceptable with regards to waste and water.

In summary, this Planning Statement demonstrates that the provisions of the PPG have been adhered to by the Applicant.

### 7.5 Conclusion

Planning applications should be determined in accordance with the Development Plan unless material considerations indicate otherwise. This chapter of this planning statement has reviewed the proposed development against the development plan policies for the area and also against the emerging policies. Material considerations have also been taken into account.

The planning application is accompanied by an Environmental Statement, which incorporates relevant technical reports and assessments. Each report considers the impact of all phases of the proposed development and conclude that, with mitigation in place, there will be no unacceptable harm such as to conflict with National and local planning policy as a result of the proposed development.

This chapter of this planning statement demonstrates that the proposed development accords with those policies in the development plan, which are relevant and consistent with the NPPF. The proposed development is also consistent with other material considerations, the most important of which are the NPPF and PPG.

## 8. ENVIRONMENTAL CONSIDERATIONS

The planning application is supported by an EIA, which considers environmental impacts in significant detail. To avoid duplication, the environmental considerations included with the Environmental Statement are listed below, together with a brief summary and conclusion.

### 8.1 Air Quality

The Applicant has commissioned an independent Air Quality Impact Assessment in support of the planning application, Environmental Statement and Environmental Permit application. Chapter 9 of the Environmental Statement considers the environmental impact of the development on air quality.

The Air Quality Impact Assessment considers all phases of the proposed development and assesses their impacts against Air UK Air Quality Standards (AQS) set to protect public health. The Air Quality Impact Assessment has considered the impacts from vehicle and equipment emissions, flaring, fugitive emissions and dust.

The main sources of pollutant releases during site operations will be from the use of diesel fuel in on-site stationary engines and construction and transport vehicles and from the disposal of any produced natural gas by flaring. Releases of nitrogen oxides, carbon monoxide, volatile organic compounds, sulphur dioxide and particulate matter have been considered. The assessment was undertaken using the UK ADMS 5.2 modelling system.

Maximum pollutant process contributions from the site operations are predicted to be localised and will occur within the wellsite boundary. Maximum process contributions reduce significantly with distance. Process contributions at the wellsite boundary are predicted to be relatively high and generally well above the Environment Agency's screening criteria and in some cases above air quality standards. However, it is not considered that statutory air quality standards would be applicable in these areas, due to the infrequency of human exposure.

At the nearest residential locations and along the Cheshire Lines multi-use route, where frequent human exposure might be expected, all pollutant process contributions were considered insignificant based on Environment Agency assessment criteria and unlikely to threaten ambient air quality standard attainment. The air quality impact significance of all process contributions at the nearest residential locations, based on Institute of Air Quality Management descriptors, is considered to be 'negligible'.

At the sites sensitive to nitrogen and acid deposition (Ribble and Alt Estuaries SPA and Sefton Coast SAC), maximum process contributions are considered to be insignificant based on Environment Agency assessment criteria. While the maximum process contributions at the sites with an ecological designation are above the screening criteria for nitrogen oxides, this is considered unlikely to pose any threat to or have any substantial influence on the continued attainment of critical levels.

Necessary assumptions made to undertake the modelling are considered to have the effect of substantially overestimating the process contribution to ambient concentrations. It is considered that the predicted process impact reported within the assessment are conservative and the conclusions reached therefore incorporate a reasonable margin of comfort, in spite of the inevitable uncertainty of such modelling studies.

It is likely that the construction activities associated with the development of the wellsite will give rise to dust emissions. It is expected, based on Institute of Air Quality Management methodology, that, with adequate mitigation measures in place, the risk of dust impact from all project operations will be 'negligible'.

Increases in road traffic brought about by the construction activities, subsequent site operation and final site restoration are assessed to have a neutral impact on air quality based on Highways Agency guidance.

## 8.2 Cultural Heritage

Chapter 10 of the Environmental Statement considers the environmental impact of the development on cultural heritage.

During pre-application consultation with the MPA and Historic England, the submission of an Archaeological Desk-Based Assessment was requested. The assessment considers the impact of the proposed development on heritage assets within a 1km radius of the wellsite.

The Archaeological Desk-Based Assessment concludes that there will be no adverse impact on any designated or previously identified heritage assets as a result of the proposal due to the distance of the application site from any designated assets and the temporary visual impact on setting during the drilling phases and the reversible nature of the development. The impact of a seismic event on listed buildings has also been considered within the Environmental Statement and concludes that the implementation of the 'Traffic Light System' alongside real time seismic monitoring will reduce any risk too negligible of a seismic event having any impact upon cultural heritage. A copy of the Archaeological Desk-Based Assessment is included as an appendix to the Environmental Statement.

The proposed development will not remove any historic field boundary, being aligned with the current landscape system. The access route will cross two (2) ditches, which will be culverted and retained to ensure that water management of the area is unaffected.

Impacts during the construction phase on previously unrecorded archaeological remains are possible, although currently the assessment has indicated a low potential for the existence of any remains, besides palaeoenvironmental evidence, to survive within the site. This palaeoenvironmental material may have been degraded from previous work within the area, namely the land reclamation and drainage, the existing water management and natural fluctuations in the water level. The presence of a palaeochannel may mean that any palaeoenvironmental material could survive at depth, with the central drilling chamber having the potential to expose these deposits, if present.

The settlement of Great Altcar to the southwest of the application site contains seven Listed Buildings and is designated as a Conservation Area. The Listed Buildings are all slightly beyond the 1km study area. They comprise the local Church, War Memorial, Lychgate and four (4) farms or farm buildings. The proposed wellsite is not anticipated to significantly impact on the setting of the Listed Buildings and Conservation Area. The landscape is very flat, meaning that there are few topographical highpoints or hills, from which the proposed development would be visible. The current skyline is of open fields, hedgerows and trees, above which overhead telegraph poles and electricity pylons are visible. The wellsite, particularly during the drilling phase, will be visible temporarily from parts of the surrounding countryside.

Increased traffic movement, particularly during the construction and hydraulic fracture stimulation phases, are likely to bring increased noise, traffic, dust and vibration, therefore, potentially reducing the level of appreciation and enjoyment visitors may get from the scattering of Listed Buildings within Great Altcar itself. Traffic will follow an agreed route and will approach the application site via Lord Sefton Way, passing close to the Grade II\* Listed Church. The impact will be temporary and limited in significance.

### 8.3 Ecology

An Ecological Impact Assessment and a Habitats Regulations Assessment Signposting have been undertaken to assess the potential impacts of the proposed development on ecological receptors, including statutory and non-statutory designated sites, protected species and habitats.

The proposed development has been assessed as having no significant effects on the nearest statutory designated sites The Sefton Coast Special Area of Conservation (SAC) / Site of Special Scientific Interest (SSSI), Ribble and Alt Estuaries Special Protection Area (SPA) and Ramsar site; Liverpool Bay / Bae Lerpwl SPA; Martin Mere SPA / Ramsar site / SSSI; and Ribble Estuary SSSI; or on the qualifying/interest features for which these sites have been designated.

Potential pathways for indirect impacts on the designated sites have been investigated to assess the potential for changes in air quality, noise, vibration, visual (incl. light), groundwater and surface water. None were assessed to have any significant effect, due to the combination of the distance of the designated sites from the proposed development and the regulatory framework in place to ensure safe operation of the proposed development.

There are six (6) non-statutory designated sites within 2 km of the proposed development, the nearest being Downholland BHS, approximately 60m to the north. No significant direct or indirect impacts on non-statutory designated sites have been identified for the same reasons as for the statutory designated sites.

Terrestrial species present on the proposed development site and / or within the zone of influence include water vole, bats, breeding birds and wintering birds. The impact of the proposed development upon these species has been assessed. The access track has been designed to minimise impacts on water voles. No habitats of Local or National importance are present within the application site.

The residual effects on ecology with mitigation in place are considered by the Assessment Team to be Neutral.

### 8.4 Greenhouse Gases

The maximum expected contribution to greenhouse gas emissions from each of the eight (8) phases of the proposed development has been modelled.

Embedded mitigation is incorporated into the proposed development through the design and construction of the boreholes in accordance with the applicable regulation, equipment maintenance and monitoring programme by the Applicant, the short-term temporary duration of the proposed development and the monitoring of natural gases, with associated process controls.

Additional mitigation is provided by way of competent supervision, best industry practice and monitoring.

The expected total maximum contribution to greenhouse gas emissions from the proposed development will be circa 84,199 tCO<sub>2</sub> equivalent. This estimate equates to 0.07% of the total UK greenhouse gas emissions from the energy supply sector in 2017 (112.67 MtCO<sub>2</sub> equivalent).

The residual effects from greenhouse gas emissions with mitigation in place from the proposed development are considered by the Assessment Team be Neutral/Slight with the potential for a negligible change in the baseline conditions.

## 8.5 Landscape

A landscape and visual assessment has been undertaken for all eight (8) phases of the proposed development.

### 8.5.1 Landscape Effects

The landscape is considered to be of 'Medium Sensitivity' (i.e. it is an extensively modified landscape which is fairly distinctive, although has some detracting features).

The proposed development would temporarily introduce large 'industrial' type structures, lighting and activity into a relatively attractive tranquil landscape, reducing the semi-rural qualities of Altcar Moss. The proposed development would also take approximately 1.72Ha of high-grade agricultural land out of production for the temporary duration of the development.

There would be no permanent effect on the 'openness' of the Green Belt, or the 'Natural Area/ Areas of Landscape History Importance: County Importance'.

Due to the 'Medium Sensitivity' of the landscape, the short duration of the proposed development and the full reinstatement of the wellsite and access track no significant landscape effects have been identified.

### 8.5.2 Visual Effects

A defining feature of Altcar Moss is the unrestricted long-distance views in all directions. Consequently, the proposed development would be visible from a relatively wide area, in particular during the drilling phases when the 60m high drilling rig would be erected.

Apart from farm tracks and minor country lanes across the Moss, there are comparatively few visual receptors within the immediate vicinity.

There would be prominent, short-term views of the proposed development from Sutton's Lane, Cheshire Lines Path and Downholland Moss Lane/Moss Lane, along with some residential properties in Great Altcar.

Due to the short duration of the proposed development and the complete removal of the wellsite and access track infrastructure and equipment at the end of the proposed development, the temporary visual changes experienced by these receptors would not be significant and there would be no residual effects.

## 8.6 Lighting

Lighting will be required for all eight (8) phases of the proposed development, although 24 hour lighting will only be required for the phases two (2) through to six (6), drilling, hydraulic fracture stimulation and initial and extended well test phases.

Phases one (1), seven (7) and eight (8), site and access track construction and decommissioning, abandonment and restoration, will be carried out during daylight hours, with portable tower lighting possibly required during the periods of early morning and dusk.

A baseline lighting assessment identified that the most significant light source was street lighting rather than any existing land use.

Embedded mitigation is incorporated into the proposed development through the distance from residential properties, temporary duration of the proposed development and lighting design, which seeks to minimise light spill and sky glow.

Additional mitigation will be provided by way of a Lighting Management Plan, which includes lighting audits immediately following installation and subsequent monitoring.

The residual effects from lighting with the mitigation in place are considered by the Assessment Team to be neutral with the potential for a temporary negligible adverse change in the baseline conditions.

## 8.7 Noise

Chapter 15 of the Environmental Statement considers the potential impacts associated with noise, as a result of the proposed development.

Background noise measurements were recorded during May and June 2018 at the Noise Sensitive Receptors (agreed with the MPA) to establish baseline noise. Background noise measurements have been used to determine the change in noise level.

Traffic and source noise data for the various equipment to be used during the proposed development was acquired and used to predict noise impacts.

The assessment methodology is consistent with, British Standard 4142, 5228, 8233, and World Health Organisation (WHO) Guidelines.

Site construction and remediation noise will be well below the relevant criteria set out in BS 5228 and will not result in a significant impact on nearby noise sensitive receptors.

With respect to the drilling phases, noise modelling for the three representative rigs shows that noise levels will be below the noise limits contained in the PPG-Minerals for the daytime, evening and night-time periods for all three representative rigs.

Noise from hydraulic fracture well stimulation operations, will be below the noise limits contained in the PPG-M. It is concluded that temporary noise from hydraulic fracture well stimulation operations will not result in a significant noise impact at any of the noise sensitive receptors.

Noise due to initial flow testing and extended well testing will be well within the PPG-M noise criteria during the daytime, evening and night and will not result in a noticeable change in ambient noise during the daytime or evening. At night, it is possible that the change in ambient noise would be perceptible, but ambient noise levels will still be lower than the WHO criteria for onset of sleep disturbance. It is therefore concluded that the temporary noise change will not be significant.

The residual effects from noise, with the mitigation in place, are considered by the Assessment Team to be Neutral/Slight with the potential for a temporary Negligible change in the baseline conditions.

## 8.8 Public Health

Chapter 16 of the Environmental Statement considers the impact of the development on public health. The Chapter examines possible impacts on public health arising from all phases of the proposed development.

The chapter brings together key information and conclusions relating to public health impacts from: Chapter 9, Air Quality; Chapter 14, Lighting; Chapter 15, Noise; Chapter 17, Seismicity; Chapter 19, Waste; and Chapter 20, Water.

The proposed development, which includes both the wellsite and access track, is located within a sparsely populated area, the nearest residential receptors to the application site have been identified, the closest to the wellsite is approximately 900m away. The nearest settlement is the village of Great Altcar. The closest property to the wellsite within the village is approximately 950m away.

Baseline environmental monitoring has been undertaken for a range of factors with the potential to impact on local communities, including noise, lighting, seismicity, flood risk, air quality, and traffic.

Monitoring of noise, air quality, seismicity and water quality will be undertaken in accordance with schemes to be agreed by the relevant regulator. Monitoring results will be made available for public view.

A series of embedded mitigations, bespoke to the project and location, were identified and adopted as part of the project design to consider local circumstance and sensitivities for each stage of the proposed development.

Following an assessment of all credible environmental health pathways directly attributable to the proposed development (Air quality, lighting, noise, seismicity, traffic and transport, waste and water), potential impacts are categorised in a range from Neutral to Neutral/Slight, as each environmental health pathway addressed within the Environmental Statement (air quality, noise, transport etc) complies with regulatory environmental standards set to protect health and do not present a mode of concentration or exposure sufficient in quantity to result in any adverse community health outcome.

## 8.9 Seismicity

The hydraulic fracture stimulation phase (Phase 4) is assessed as having the potential to cause induced seismicity, although embedded mitigations both prior to and during the operations are designed to ensure that any negative impact on receptors at the surface or on well integrity would be Negligible to Slight.

The Applicant has utilised all relevant subsurface information to inform this assessment. This information along with the details of the embedded mitigation to be employed during operations, will be included in the HFP to be approved by the OGA prior to the commencement of hydraulic fracture stimulation.

There is no mechanism to cause surface subsidence as a result of the proposed hydraulic fracture stimulation operations.

## 8.10 Traffic and Transport

The proposed development is being undertaken on a greenfield site, accessed from the public highway, Sutton's Lane.

All HGV vehicles will access the site using a specified route, turning north east from Lord Sefton Way onto Sutton's Lane and after approximately 220m turning north west onto private land where a new access track will be constructed.

A baseline condition was established by way of a Manual Classified Count on Lord Sefton Way. This survey established the existing daily two-way vehicle flow (24 hours) on Lord Sefton Way was 4,106, of which 127 were HGVs.

Peak daily HGV movements associated with the proposed development (during Phase 4) equates to an average of approximately 55 HGV trips per day.

Additional mitigation may be provided by any Traffic Management Plan, which would be subject to agreement with LCC.

The development will not significantly impact on nearby residents and highway users

The residual effects from traffic and transport with the mitigation in place are considered by the Assessment Team to be Neutral/Slight with the potential for a temporary Negligible change in the baseline conditions

### 8.11 Waste

The Phases 2 through 7 of the proposed development generate extractive waste, although the volume of waste is not considered by the Assessment Team to be significant.

The criteria for assessing the magnitude of impact of waste is based on the capacity of the receiving waste treatment and/or disposal facilities within Lancashire and the neighbouring counties, all within a reasonable transport distance of the application site.

The volume of each waste generated during the proposed development has been determined as being well within the capacity of the receiving waste facilities, in the order of ~1.56% or less of the total available capacities for each waste stream.

Should NORM be present within the Flowback Fluid, the resultant waste will represent ~3.2%, of the available UK treatment capacity, the magnitude of impact being assessed as Minor. It is considered that in all cases the proposed development in the context of waste impact is not significant.

Through mitigation, both embedded and additional, including legislative requirements under EPR 2016, the residual effects from waste are considered by the Assessment Team to be Neutral/Slight with the potential for a temporary Negligible change in the baseline conditions.

### 8.12 Water Resources and Flood Risk

Chapter 20 of the Environmental Statement considers hydrology and hydrogeology of the application site and the potential flood risk and hydrogeological risks associated with the proposed development

Risks have been assessed with reference to established methodologies based on Environment Agency technical guidance. The assessment takes account of comments made by the Environment Agency in the Scoping Opinion to the MPA.

With the implementation of the proposed surface water management, it is considered that there is no significant risk of flooding to or from the wellsite during the development.

The wellsite will be constructed within an enclosed compound, with a very low permeability geotextile membrane / HDPE liner, bunds, perimeter ditches and cellular storage. Rainfall-runoff at the wellsite will be controlled and managed. Clean surface water will be discharged from the wellsite at the greenfield runoff rate and any contaminated water from bunded areas of the wellsite removed by tanker to an Environment Agency approved facility. Flood risk from surface water is considered very low provided that surface water is managed appropriately.

Impacts are mitigated by adopting the best practice approach to well and wellsite construction, and management of the operations.

The residual effects on water with the mitigation in place are considered by the Assessment Team to range from Neutral/Slight to Slight with the potential for a temporary Negligible change in the baseline conditions.

## 9. STATEMENT OF COMMUNITY INVOLVEMENT

A Statement of Community Involvement (SCI) has been prepared in support of the planning application and is provided as a stand-alone document, with a summary of the SCI provided below.

### 9.1 Public Announcement of the Project

The Applicant submitted a scoping request to Lancashire County Council on 4<sup>th</sup> January 2018. On the same day, letters identifying the application site and outlining the proposed development were sent to all local residents and businesses within 1.5km of the application site, the local MP, local politicians (County and Borough councillors) in whose ward the application site is located and the two parish councils adjoining the application site.

### 9.2 Public Information Events

Two public information events have been held in Haskayne Village Hall, the nearest suitable venue to the Altcar Moss Wellsite. Local residents, the local MP, local politicians and parish councils were informed by email or by post of the location and time of these events, which were additionally advertised in the local press.

### 9.3 Ongoing Consultation

It is proposed that, on grant of planning consent for the proposed development, a Community Liaison Group be established, its members to be selected from local residents living within 1.5km of the application site, and local politicians whose ward contains or adjoins the proposed site along with representatives from the Applicant. The aim of the Community Liaison Group will be to provide a forum for dialogue between the Applicant and the local community during the life of the project.

It is further proposed that a project newsletter will be produced to keep local residents informed about the project. The local parish councils will be kept up to date with the project and all local stakeholders will be informed in advance of any major project milestones e.g. commencement of site construction.

In addition to the above, a project website, telephone information and email contact point will be maintained through the life of the project.

## **10. BENEFITS AND DISBENEFITS OF THE PROPOSED DEVELOPMENT**

### **10.1 Benefits**

The proposed development, if approved, would contribute towards economic, social and environmental benefits.

#### **10.1.1 Meeting the UK's Energy Needs**

As set out in paragraph 3.4 of this Planning Statement, there is a need for the UK to have a secure and reliable supply of energy and to reduce its dependency on imports.

Home produced oil and gas will reduce the UK's dependency on imports and help to meet the UK's energy needs during the transition period to a low carbon economy.

The proposed development seeks consent for the first stage in oil and gas development, exploration. This is a necessary first step towards the application site contributing to meeting the UK's energy needs.

#### **10.1.2 Economic Benefits**

The economy will benefit both directly, through the provision of employment required to operate the proposed development and indirectly by supporting local service providers in the oil and gas supply chain, in environmental monitoring and in ancillary services such as hotels and restaurants. To date, the majority of the exploration investment in the licence area by the Applicant has been placed with companies based in northern England.

#### **10.1.3 Community Benefits**

Whilst it is not a material planning consideration to which any weight can attach, because the proposed development involves hydraulic fracturing, under the terms of the United Kingdom Onshore Oil Gas (UKOOG) Community Engagement Charter, £100,000 will be paid directly to the local community on commencement of drilling the first exploratory borehole at the wellsite.

#### **10.1.4 Temporary and Reversibility**

The proposed development is temporary. Planning consent is sought for a temporary five (5) year period, which allows time for any breaks between development phases. The development is reversible and upon cessation of operations the application site will be returned to pre-development agricultural use.

#### **10.1.5 Environmental Enhancement**

Environmental enhancement includes the introduction of mammal ledges within the replacement culverts at the two (2) ditch crossing points.

#### **10.1.6 Increased Technical Understanding of the Hydrocarbon Resource**

The proposed development will further advance the technical understanding of the potential of the oil and gas bearing geological formations in this location. Through this knowledge, a better understanding of the potential of the target shale horizons to help meet the UK's need for oil and gas will be gained.

### **10.2 Disbenefits**

The disbenefits of the proposed development are as follows:

### 10.2.1 Temporary Loss of Agricultural Land

The proposed development if approved will lead to the temporary loss of 1.72ha of agricultural land for a maximum five (5) year period.

### 10.2.2 Temporary Change in the Local Landscape

The proposed development will result in a temporary negligible change to the local landscape, most noticeably during the Phases 2 and 3, when the drilling rig (maximum height 60m) will be located on the application site for a ten (10) month period.

### 10.2.3 Temporary Increase in Traffic

As stated with this planning statement and within the Environmental Statement, the proposed development will generate vehicle movements. These have been calculated and assessed for each development phase. Whilst there will be a temporary increase in vehicle movements it is shown that these can be accommodated with the capacity of the existing road network.

### 10.2.4 Increase in Greenhouse Gas Emissions

The proposed development will lead to an increase in Greenhouse Gas Emissions at a local level, albeit negligible in the national context.

## 11. CONCLUSION

This application has been submitted under the Town and Country Planning Act 1990 to Lancashire County Council, the Minerals Planning Authority.

The Applicant is proposing to construct a wellsite and access track, drill, hydraulically stimulate and test two wells, one vertical and one horizontal, followed by wellsite and access track restoration.

As highlighted in this planning statement, the UK Government is in support of the exploration 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 highlights that “minerals are essential to the nation’s prosperity and quality of life”, further demonstrating its commitment to minerals exploration. The proposed development is a necessary first step in advancing the understanding of the potential of the oil and gas bearing geological formations in this location. In the event that the exploratory works are unsuccessful, both boreholes will be decommissioned and the wellsite and access track restored. If successful, any future planned works would be subject to a separate planning application.

Appraisal of minerals must ensure that any environmental effects are considered and where necessary appropriate mitigation proposed. The Applicant has considered and assessed the possible environmental effects associated with the proposed development by undertaking an EIA, which accompanies this application. The Applicant commissioned independent specialist consultants to assess the impact of the development across all relevant topic areas, these included:

- Air Quality;
- Cultural Heritage;
- Ecology;
- Greenhouse Gases;
- Landscape;
- Lighting;
- Noise;
- Public Health;
- Seismicity;
- Waste; and
- Water Resources and Flood Risk.

The site selected benefits from having good access from the highway network, no significant impact on designated ecological sites or protected species and is not close to residential properties.

All assessments concluded that the proposed development, with mitigation in place where required, would have no significant environmental impact.

The proposed development would support the local economy by use of local services and suppliers and through the payment of taxation and business rates. There is also the potential for creation of new jobs associated with the proposed development

The Planning and Compulsory Purchase Act 2004 sets out the relevant legislation for the role of the Development Plan in decision making. The Act states in Section 38 (6) that:

*‘(6) 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 proposal accords with the development plan and other material considerations; therefore, the Applicant would respectfully request that planning permission is granted.

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**APPENDIX 1 – SITE LOCATION PLANS**



**APPENDIX 2 – SITE LAYOUT PLANS**



**APPENDIX 3 – CIVIL ENGINEERING DESIGN STATEMENT**

