Construction of a wellsite and operation of a drilling rig for the appraisal of subsurface hydrocarbons, well testing and retention of equipment – Land east of The Mill Yard, Burniston Mill, Coastal Road, Burniston, Scarborough

Environmental Impact Assessment – Environmental Statement Volume I Main Text

Europa Oil and Gas Limited

February 2025

Quality information

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1. Introduction

1.1 Preamble

This Environmental Statement (ES) has been prepared by Egdon Resources U.K. Limited ('Egdon') on behalf of Europa Oil and Gas Limited ('Europa') to accompany a planning application for the construction of a wellsite and operation of a drilling rig for the appraisal of subsurface hydrocarbons, well testing and retention of equipment at land east of Burniston Mill, Coastal Road, Burniston, Scarborough, North Yorkshire. The planning application is submitted to North Yorkshire Council (NYC) as the Mineral Planning Authority (MPA).

The proposed Cloughton wellsite (hereafter referred to as "the Site") is located approximately 350 m east of the village of Burniston and 6 km north of Scarborough. The Site comprises approximately 1.4 hectares (ha) of land and includes an access track from the A165 Coastal Road Street (to the west). The wellsite is centred on National Grid Reference TA 02064 92819.

. All surface operations will take place within the confines of the Site.

Further details are provided in Chapter 4: Proposed Development, but in summary the proposed development comprises:

- **Phase 1:** – Site Construction
- **Phase 2:** – Drilling Operations comprising:
  - Mobilisation
  - Drilling of Borehole and Completion
  - Demobilisation
- **Phase 3:** – Proppant Squeeze and Flow Testing
- **Phase 4:** – Well decommissioning and site restoration.

  The Site will then be restored to its former agricultural use.

1.2 Referencing

For referencing purposes, the following definitions have been adopted and are utilised from this point onwards:

- **the Site** – the area included within the planning application boundary as shown on Drawing No. ZG-EOG-CLTN-PA-01 Location Plan, comprising 1.42 ha of land;
- **the wellsite** – the rectangular area of the Site, where the operational activity will take place within the planning application boundary, as shown on Drawing No. ZG-EOG-CLTN-PA-03 Site Layout Plan, comprising 1.14 ha of land;
- **the Site access road** – the existing private access road to the Site, off the A165 (806 sqm);
- **the new section of access road** – the extension of the existing access road (874 sqm); and
- **the Proposed Development** – the proposal being put forward by Europa as described in this ES comprising four distinct phases (see Chapter 4: Proposed Development for more detail).

1.3 Structure of the Environmental Statement

This document presents the main ES text and figures (accompanied by the technical assessments), and is structured as follows:

ES Volume I Main ES Text

Chapter 1	Introduction
Chapter 2	Environmental Impact Assessment Methodology
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ES Volume IV Non-Technical Summary

A Non-Technical Summary (NTS) of the ES has been prepared in accordance with Regulation 18, Paragraph (3)e and Paragraph 9 of Schedule 4 of the EIA Regulations.

Planning Application

In addition to this ES, a number of other documents have been submitted to the local planning authority in support of the planning application for the proposed development and have been referred to in this ES where relevant. These include:

- the completed application form and certificates;
- the Planning Statement;
- Preliminary Ecological Appraisal;
- Biodiversity Net Gain Assessment;
- Noise and Vibration Assessment;
- Archaeological Desk Based Assessment;
- Hydrogeological Impact Assessment;
- Flood Risk Assessment and Surface Water Drainage Assessment;
- Air Quality Assessment;
- Lighting Assessment;

- Emissions Report;
- Agricultural Land Classification and Soil Resource Survey;
- Statement of Community Involvement (SOCI); and
- the plans and drawings.

1.4 Statement of Competence

The Transport Chapter of the ES and the accompanying Transport Assessment (Appendix 7.1) has been prepared and verified by Members of the Chartered Institution of Highways and Transportation at Paul Basham Associates. Paul Basham Associates was founded in 2009 by Paul Basham, a professional transport planning consultant with over 20 years' experience. The company operates across the UK with offices located in Hampshire, Oxfordshire and Cambridgeshire.

The Landscape and Visual Impact Chapter of the ES has been prepared by Chartered Landscape Architects at Stephenson Halliday. Key individuals working on this project have over 10 years of experience as chartered landscape architects. The Practice is a Landscape Institute and IEMA registered practice and all work is prepared and reviewed internally by senior highly experienced landscape planners with Public Inquiry experience.

The remaining chapters of the ES have been prepared by Paul Foster, a Chartered Town Planner and Chartered Surveyor, and Planning Director at Egdon Resources UK Limited, on behalf of Europa Oil and Gas Limited. Paul has with more than 30 years' experience in preparing planning applications and overseeing the preparation of environmental statements.

Table 1-1 Project Team

Organisation	Project Expertise / Role
Europa Oil and Gas Limited	Applicant
Egdon Resources UK Limited	Planning and EIA Consultant, including EIA co-ordination and preparation of the following elements of the ES: • ES Volume I, Chapter 1: Introduction • ES Volume I, Chapter 2: EIA Methodology • ES Volume I, Chapter 3: The Site and Surroundings • ES Volume I, Chapter 4: Proposed Development • ES Volume I, Chapter 5: Alternatives and Design Evolution • ES Volume I, Chapter 8: Cumulative Effects • ES Volume I, Chapter 9: Significant Effects • ES Volume IV, Non-Technical Summary of the ES
Stephenson Halliday	Landscape and Visual Consultants ES Volume I, Chapter 6: Landscape and Visual
Paul Basham Associates	Traffic and Transport Consultants ES Volume I, Chapter 7: Traffic and Transport

1.5 ES Availability

This ES and the other planning application documents are available for viewing via the Council's website (http://www.northyorkshire.gov.uk). A memory stick copy of the application and the accompanying documents and plans can also be obtained from the applicant by contacting:

Mr Jamie McGill
Jamie.mcgill@europaoil.com

Printed copies are available at a cost of £150 per set; a memory stick copy is available at a cost of £30 each.

2. Environmental Impact Assessment Methodology

2.1 Introduction

This chapter of the Environmental Statement (ES) sets out the overall approach and methodology for assessing the environmental effects of the proposed development. In particular, it describes the process of identifying the environmental topics to be included in the ES and the method of assessing the effects that are likely to arise from the proposed development and the significance of these effects. Details of the proposed development are presented in Chapter 4: The Proposed Development.

The Environmental Impact Assessment (EIA) methodology is in accordance with applicable legislation and best practice guidance set out in Section 2.2 below and has been tailored to each technical aspect scoped into the EIA (that is, landscape and visual; traffic and transport; and cumulative effects) using industry standard methods and assessment criteria, as detailed in the respective technical chapters.

Further detail on how the assessment methodology has been applied to each technical discipline and is presented within the technical chapters of this ES (Chapters 6 – 8).

2.2 Legal and Planning Policy Context

This ES has been prepared in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended), hereafter referred to in this ES as the 'EIA Regulations', and the Planning Practice Guidance (PPG) online resource entitled EIA.

The information to be included within an ES is set out within Schedule 4 of the EIA Regulations. Table 2.2 below summarises where the requirements of Schedule 4 of the EIA Regulations have been addressed in this ES.

Table 2.2: Information for Inclusion in Environmental Statements

Requirement	Where information is provided within this ES
1. A description of the development, including in particular: (a) A description of the location of the development.	Chapter 3: Site and Surroundings.
(b) A description of the physical characteristics of the whole development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases.	Chapter 4: The Proposed Development
(c) A description of the main characteristics of the operational phase of the development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used.	Chapter 4: The Proposed Development Chapter 6: Landscape and Visual Chapter 7: Traffic and Transport
(d) An estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases).	Scoped out of the ES
2. A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.	Chapter 5: Alternatives and Design Evolution.
3. A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.	Within Chapters 6-8
4. A description of the factors specified in regulation 4(2) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation),	Chapters 6-8 (baseline sections) and supporting Appendices

material assets and cultural heritage, including architectural and archaeological aspects, and landscape.	
5. A description of the likely significant effects of the development on the environment resulting from, inter alia: (a) the construction and existence of the development, including, where relevant, demolition works; (b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources; (c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste; (d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters); (e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources; (f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change; and (g) the technologies and the substances used. The description of the likely significant effects on the factors specified in regulation 4(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project, including in particular those established under Council Directive 92/43/EEC (1) and Directive 2009/147/EC (2).	Chapter 4 The Proposed Development and Chapters 6-8 (assessment of impacts and effect sections).
6. A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.	Where required Chapters 6-8 (assessment methodology, and Limitations or Difficulties sections.
7. A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.	Chapters 6-8 (Environmental Design and Management (Embedded Mitigation) and Recommended Mitigation (over and above embedded).
8. A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to EU legislation such as Directive 2012/18/EU(c) of the European Parliament and of the Council or Council Directive 2009/71/Euratom(d) or UK environmental assessments may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.	Accidental events such as the potential for fuel spillages etc, and how the risk of these events will be minimised, are discussed in Chapter 8
9. A non-technical summary of the information provided under paragraphs 1 to 8.	ES Non-Technical Summary (NTS) (ES Volume IV)
10. A reference list detailing the sources used for the descriptions and assessments included in the environmental statement.	Chapters 6-8.

2.3 The Requirement for an EIA

Development which falls within the scope of the EIA Regulations is defined as ‘EIA Development’. The requirement for an EIA is based on the likelihood of significant environmental effects arising from a proposed development; and is either mandatory or conditional depending on the classification of the development project. EIA Developments are divided into Schedule 1 and Schedule 2 developments under the EIA Regulations.

Applications for planning permission are required to be accompanied by an ES where either:

- the proposed development falls within one of the categories specified in Schedule 1 of the EIA Regulations; or
- the proposed development falls under Schedule 2 of the EIA Regulations, in which case the need for an EIA is determined on the basis of set criteria:
  - EITHER the development is to be carried out partly or wholly within a 'sensitive area' as defined by the EIA Regulations e.g. an Area of Outstanding Natural Beauty (AONB), Site of Special Scientific Interest (SSSI); OR
  - exceeds the applicable size threshold for that type of development specified in Schedule 2; AND
  - it is likely to have significant effects on the environment by virtue of factors such as its nature, size, or location. Schedule 3 of the EIA Regulations provides criteria which are to be taken into account when determining whether a proposed scheme is likely to have significant effects on the environment.

In this case, the Site lies outside a 'sensitive area' as defined in the EIA Regulations.

Screening Opinion

Europa submitted a request to NYC for an EIA Screening Opinion in relation to the proposed development on 12th July 2024 in accordance with Regulation 6 of the EIA Regulations, to determine whether, in the MPA's view, the proposal constitutes 'EIA development'. NYC adopted a Screening Opinion on 1st August 2024, which stated that the Council considered that EIA would be required for the proposed development. The EIA Screening Opinion concludes as follows:

"It is considered that the proposed development for a temporary drilling rig for the appraisal of conventional gas using a stimulant could have significant environmental impacts particularly in relation to landscape and transport. Although the site is not located within or partially within a 'sensitive area' defined in Regulation 2(1) of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 it is within the 'defined' North Yorkshire and Cleveland Heritage Coast, which includes the coastal footpath, which is considered to have a high landscape value. There is a National Cycle Way approximately 360 metres to the northwest and the nearest boundary of the North York Moors National Park is 800 metres to the north of the site. The drilling rig is proposed to be 30 metres tall and so would be visible from the surrounding area, it is considered that the proposed development would have the potential to have a significant impact on the scenic value of the heritage coast and impact on the amenity of the local area. The site is also within the 3.5km visual sensitivity zone for the National Park as detailed in the Minerals and Waste Joint Plan and therefore it is considered that the proposed development could significantly impact the views from the National Park.

It is considered that the proposed development could have a significant impact on the highway network, especially during the tourist season when the number of vehicles using the A165 Coast Road increases significantly. The location of the access road to the site is just outside the 30mph speed limit at Burniston village and it is considered the current visibility looking towards Scarborough could have a significant impact on highway safety for vehicles exiting the access road. As it stands it is concluded that an Environmental Statement would be required to be submitted with a planning application. This should include assessments stated in the Screening Opinion with a focus on mitigation against potential environmental impacts and a high quality restoration scheme. Mitigation measures should be proposed and considered following technical assessments as part of the EIA process to establish the scale and significance of the environmental effect."

The request for an EIA Screening Opinion and NYC's EIA Screening Opinion are included as Appendix 2.1 of this ES.

Screening Direction

Europa sought a Screening Direction from the Secretary of State (SoS) on 9th August 2024 to challenge the screening opinion. The SoS issued her decision on 6th November 2024, concluding that the proposed development is not EIA development within the meaning of the 2017 Regulations. The Direction was accompanied by a Written Statement which set out her reasoning.

The SoS considered the main matters to be:

- impact to ecology

- scale of development
- emissions to air
- discharges to water
- the risk of an accident and
- the arrangements for transporting the fuel

The SoS acknowledged that the key issue of relevance is scale of development, owing to the height of the rig and the sensitivity of the landscape. The SoS stated that the drilling rig would be highly visible from the heritage coast and would have an adverse impact on the area. However, as the rig would only be in place for a matter of five weeks, the SoS concluded that an EIA is not required in relation to the heritage coast, listed buildings or conservation area. Likewise, the SoS found that the level of vehicular movements associated with the development will increase slightly but not in EIA terms.

Notwithstanding this, Europa has elected to voluntarily provide an Environmental Statement which addresses landscape and visual impact, traffic and transport and cumulative effects.

Therefore, an EIA has been undertaken having regard to the matters raised in the EIA Screening Opinion and the results are reported in this ES.

Environmental Impact Assessment (EIA) Planning Practice Guidance (PPG)

Paragraph 35 of the EIA PPG states that whilst every Environmental Statement should provide a full factual description of the development, the emphasis should be on the “main” or “significant” environmental effects to which a development is likely to give rise.

> *“The environmental Statement should be proportionate and not be any longer than is necessary to assess properly those effects. Where, for example, only one environmental factor is likely to be significantly affected, the assessment should focus on that issue only. Impacts which have little or no significance for the particular development in question will need only very brief treatment to indicate that their possible relevance has been considered.”*

The ES therefore focuses upon landscape and visual impacts (chapter 6) and transport (chapter 7). Other impacts have been considered in chapter 8 in determining their relevance and significance as combined impacts.

2.4 Approach to the Environmental Impact Assessment

This ES addresses the potential effects as a result of the proposed development and presents the findings from the EIA undertaken in relation to the proposed development

The likely significant environmental effects of the proposed development have been studied systematically through the EIA process, the results of which are presented within this ES. This ES describes the likely significant environmental effects of the proposed development during the four phases of the proposed development (site construction, drilling, proppant squeeze & flow testing, well decommissioning and site restoration). It has been prepared to inform readers of the nature of the proposed development; the likely significant environmental effects; and the mitigation measures to be implemented to avoid, prevent, reduce, or if possible, offset any significant adverse effects on the environment. Any effects remaining after mitigation measures have been implemented are identified as ‘residual effects’.

The purpose of the ES is to ensure that:

- the content meets the requirements of Regulations 4 and 18 and Schedule 4 of the EIA Regulations;
- relevant environmental issues are appropriately assessed;
- potential environmental impacts associated with the proposed development are identified together with appropriate mitigation measures; and
- the existing mitigation measures in place at the Site and proposed additional mitigation measures will be effective and that they will ensure that any residual impacts are reduced to an acceptable degree.

The ES summarises the outcomes of the following activities:

- establishment of the baseline conditions;
- consultation with statutory and non-statutory consultees where appropriate;
- consideration of relevant local, regional and national policies and guidelines;
- adherence to legislation relevant to EIA;
- consideration of technical standards for the development of significance criteria;
- application of specialist assessment methodologies;
- design review to identify opportunities to minimise adverse environmental effects and integrate opportunities for environmental enhancement into the proposed development;
- review of previous environmental studies, publicly available information and databases;
- expert opinion;
- physical surveys and monitoring;
- desk-top studies; and
- modelling and calculations.

2.4.1 Baseline

The existing baseline is 2024 since this is the year in which all the baseline studies for the EIA have been undertaken. If previous study data has been utilised to inform the baseline the technical chapters, this is clearly stated, and justification is provided as to why the data is considered appropriate.

2.4.2 Study Areas – Spatial Scope of the Assessments

The technical chapters of this ES describe as necessary the spatial scope including the rationale for determining the specific area within which the assessment is focussed. The study areas are a function of the nature of the impacts and the location of the potentially affected resources or receptors.

2.4.3 Assessment Years – Temporal Scope of the Assessments

The assessments cover the following phases of the proposed development, anticipated to commence from January 2026 and decommissioning and restoration in 2028 subject to the necessary planning consents:

- Phase 1: Site Construction (up to 7 weeks);
- Phase 2: Drilling Operations (up to 7 weeks);
- Phase 3: Proppant Squeeze & Flow Testing (up to 17 weeks); and
- Phase 4: Well Decommissioning, Site Restoration and Aftercare (up to 6 weeks).

In the event that the testing phase (Phase 3) shows that long term production would not be commercially viable, Europa would move directly to Phase 4 (wellsite decommissioning and site restoration).

2.5 Design and Management Measures (Embedded Mitigation) and Recommended Mitigation

The two technical chapters set out specific measures that have been incorporated into the design of the proposed development to avoid or minimise impacts, and any industry standard impact avoidance measures that will be implemented. These include compliance with best practice guidance and existing controls that are in place on-site. The initial impact assessment for each topic has been undertaken on the basis of these measures being implemented (i.e. they are 'embedded mitigation'). The embedded mitigation measures are also set out in Chapter 4: Proposed Development of this ES and summarised for completeness in Section 4.12.

Once the likely effects have been identified and quantified, consideration has then been given to any additional mitigation (over and above the measures identified within the Embedded Mitigation sections of each technical chapter) that may be required to mitigate any significant adverse effects identified. These measures are described in the Further Mitigation sections of each technical chapter.

The residual effects (after the implementation of mitigation) have then been assessed and are presented at the end of each technical chapter.

2.6 Assessment Methodology and Significance Criteria

Impacts are defined as changes arising from the proposed development, and consideration of the result of these impacts on environmental receptors enables the identification of associated effects, and their classification (major, moderate, minor and negligible, and adverse, neutral or beneficial). Each effect has been classified both before and after further mitigation measures have been applied – if required. Effects after mitigation are referred to as 'residual effects'.

The classification of effects is undertaken with due regard to the following:

- the extent (local, regional or national) and magnitude of the impact;
- effect duration (whether short, medium or long-term);
- effect nature (whether direct or indirect, reversible or irreversible);
- whether the effects occur in isolation, are cumulative or interactive;
- performance against environmental quality standards and in the context of relevant legislation, standards and accepted criteria;
- number of receptors affected;
- sensitivity of receptors;
- compatibility with environmental policies; and
- professional experience and judgment of the assessor.

Further details are provided in each technical chapter where appropriate.

Where it has not been possible to quantitatively assess effects, qualitative assessments have been carried out based on available knowledge and professional judgment. Where any uncertainty exists, this has been noted as limitations to the assessment within the Limitations or Difficulties section of each technical chapter.

To enable comparison between technical topics and aid understanding of the EIA findings, standard terms are used wherever possible to classify effects throughout the ES (major, moderate, minor and negligible), and effects are also described as being adverse, neutral or beneficial. Where the quality standards for each technical discipline result in deviations in the standard assessment methodology, these are described in the relevant technical chapters as applicable.

Definitions of the standard terms are provided below:

- negligible – imperceptible effect to an environmental resource or receptor;
- minor – slight, very short or highly localised effect;
- moderate – limited effect (by extent, duration or magnitude);
- major – considerable effect (by extent, duration or magnitude) of more than local scale or in breach of recognised acceptability, legislation, policy or standards;
- adverse – detrimental or negative effects to an environmental resource or receptor;
- neutral – effects to an environmental resource or receptor that are neither advantageous or detrimental; and
- beneficial – advantageous or positive effect to an environmental resource or receptor.

Moderate and major effects are generally considered to be 'significant' for the purposes of the EIA Regulations, in accordance with standard EIA practice – although the significance assigned to a moderate effect may be subject to the judgement of the assessor.

Each of the technical chapters provides further description and definition of the assessment criteria relevant to each topic. This has been based upon quantitative and accepted criteria, together with the use of value judgment and expert interpretation to classify effects.

In general, the classification of an effect is based on the magnitude of the impact and sensitivity or importance of the receptor, using the matrix shown in Table 2.1 below. Where there are deviations from this matrix (due to the published technical guidance for a specific assessment topic), this is highlighted within the relevant technical chapters and the reason for the variation explained.

Table 2.1. Classification of Effects

Magnitude of Impact	Sensitivity / importance / value of a resource / receptor / group of receptors			
	Very Low	Low	Medium	High
Very Low	Negligible	Negligible	Negligible	Minor
Low	Negligible	Negligible	Minor	Moderate
Medium	Negligible	Minor	Moderate	Major
High	Minor	Moderate	Major	Major

2.7 Cumulative Effects and Interactions

Cumulative effects (inter-project effects) are those that accrue over time and space from a number of development activities. The impacts of the proposed development are considered in conjunction with the potential impacts of other projects or activities which are either existing and/or approved and which are located within a realistic geographical scope where environmental impacts could act together to create a significant overall effect on a receptor and where sufficient environmental information is available.

At the time of preparing this ES no other projects have been identified by Europa following a review of publicly available information on the NYC online planning portal. Cumulative effects are discussed in Chapter 8: Other Matters of this ES.

Effect interactions or combined effects (intra-project effects) are those resulting from impacts arising as a result of the proposed development impacting on any one resource or receptor that may collectively cause a significant overall effect. Effect interactions are considered in Chapter 8: Other Matters of this ES.

2.8 Statement of Competence

As required under Regulation 18 (5)(b) of the EIA Regulations, the ES must be accompanied by a statement outlining the relevant expertise of those involved in its preparation. A statement of competence of the contributors that have provided expert input to the ES is included at section 1.4.

3. The Site and Surroundings

3.1 Site Description

The Site lies wholly within the unitary authority of North Yorkshire approximately 350 m east of the village of Burniston and 6km north of Scarborough. It is centred on National Grid Reference TA 02064 92819 (see drawings **ZG-EOG-CLTN-PA-01 Location Plan (Site of Application) and ZG-EOG-CLTN-PA-02 Location Plan).**

The Site covers approximately 1.42 ha and includes an existing access track and car parking area.

The proposed wellsite currently comprises grassland adjacent to an existing ground-mounted solar photovoltaic array. The site lies to the south east of the village of Burniston and is accessed from the A165 Coastal Road. The site falls within Burniston Parish. Whilst the site lies within a rural area, there are a number of industrial units served by the existing access track to the south. An animal feed mill, served by a separate access, lies 200m to the south west of the wellsite. The site is partly screened by some existing woodland to the south side and intermittent gappy hedgerows to the wider field boundaries to the north sides. The site lies at approximately 57m AOD on the northern edge of the site and falls in a southerly direction to around 49m AOD in the southern part of the site.

Europa therefore wishes to undertake a hydrocarbon appraisal operation from the site east of Burniston mill, comprising the drilling of a single well, and to undertake testing of the resource potential of the conventional gas-bearing carboniferous Sandstone. All surface operations will take place within the confines of the Site.

The Site is bounded to the north, south and east by agricultural land, and to the east by a small solar farm and Wayside Farm.

Site photographs are included in the Planning Statement which accompanies the planning application.

3.2 Surroundings

The Site lies in a rural area with few nearby receptors. The closest residential properties are Wayside Farm, 320m to the south west, and residential properties on Coastal Road, 350 m to the south west.

Settlements within 5km of the Site include:

- Burniston
- Cloughton
- Cloughton Newlands
- Scalby
- Suffield
- Throxenby
- Barrowcliff, Scarborough

3.2 Topography

Land to the south falls away gently. The Site lies at an elevation of approximately 57 m Above Ordnance Datum (mAOD).

3.3 Access

The access to the proposed wellsite for all vehicles is via a purpose made junction off the A165 Coastal Road which serves a number of existing industrial units.

No works are proposed to the road junction and established access onto the A165.

3.4 Geology

The bedrock in the region comprises a vertically extensive sequence of Middle and Upper Jurassic sedimentary strata. The lithology predominantly comprises mudstone, with sandstone, siltstone and argillaceous limestones also occurring within the sequence. They have a uniform easterly dip. They are primarily clastic, although calcareous strata are also present.

The local superficial geology predominantly comprises glacial deposits characterised by firm, stiff, brown sandy clay with angular gravel sandstone and mudstone pockets.

The local bedrock geology is the Long Nab Member of the Scalby Formation.

3.5 Designations

The designations in the vicinity of the Site can be summarised as follows.

3.5.1 Landscape

The Site is located outside any formal landscape designation. The boundary of the North York Moors National Park is approximately 800m to the north side of the site and approximately 2km to the west site of the site. The site is located within the defined North Yorkshire and Cleveland Heritage Coast.

The Site falls within the Rugged Cliffs, Coastal Valleys and Bays character type (27) of the North Yorkshire and York Landscape Characterisation Project, NYCC, 2011. The following is noted within the character type statement: *'there is a relatively strong sense of remoteness and tranquillity overall', 'decline of hedgerow trees and copses due to neglect, changes in management and absence of new plantings', 'agricultural land is sensitive to change of use and diversification resulting in sub urbanisation'.*

The site falls within the D3: Scalby Character Area of the Scarborough Borough Landscape Study: Vol 1 Borough wide Landscape Character Assessment, LUC, 2013.

3.5.2 Ecology and Biodiversity

Statutory Designations

There are two international statutory nature conservation designations (Special Protection Areas (SPA), Special Areas of Conservation (SAC) or Ramsar Sites) within a 10 km radius of the Site. The North York Moors National Park SAC and SPA lie 3.5 km to the southeast of the Site. The Park's landscape is defined by its expansive heather moorlands, deep valleys and rugged coastline.

There is one Site of Special Scientific Interest (SSSI), Local Nature Reserves (LNR) or National Nature Reserves (NNR) present within 2 km of the Site. This is the Iron Scar and Hundale Point to Scalby Ness SSSI lies 800m to the east and is the closest statutory designated ecological site to the Application Site. The primary reason for designation is the site's geological features including Jurassic rock exposures and related palaeobotanical interests.

Non-Statutory Designations

There is one non-statutory designated site for nature conservation within 2km of the Site. Burniston Beck is a local wildlife site 500m to the west which is characterised by its clear fast-flowing water and diverse habitats and vegetation.

3.5.3 Cultural Heritage

There are no Scheduled Monuments within 1km of the Site.

There are 12 listed buildings within 1km of the Site. All but one lies within the Burniston Conservation Area.

3.5.4 Water Environment

The Site is not located within a Source Protection Zone (SPZ), Drinking Water Safeguard Zone (Surface Water) or Drinking Water Safeguard Zone (Groundwater). The Site lies within Flood Zone 1, this being land at very low risk

of flooding from fluvial sources (land having a less than 1 in 1,000 annual probability of flooding from rivers or the sea).

The closest watercourse to the site is the Burniston Beck, located approximately 115 m southwest of the site's entrance. This watercourse flows south-eastwards, becoming the Cow Wath Beck before discharging into the Scalby Beck (Sea Cut), 2 km south of the site.

A small drainage ditch runs northwest to south-east, approximately 180 m southwest of the centre of the site, between the photovoltaic panel array field and the Mill Yard Industrial units. Another small drainage ditch is located on the southeast border of the site, southeast of the woodland. It discharges into the Burniston Beck.

3.5.5 Air Quality

The Site does not lie within an Air Quality Management Area (AQMA). Given the predominantly agricultural nature of the local area, air quality in the vicinity of the Site is assumed to be good. Further details relating to the existing air quality at the Site and in the surrounding area is provided in Chapter 11: Air Quality / Dust.

3.5.6 Public Rights of Way and Recreation

A long-distance footpath, the Cleveland Way, lies 730m to the north east of the Site. The nearest public right of way is Footpath 30.3/10/1 which lies approximately 400m to the west of the wellsite.

4. The Proposed Development

4.1 Overview

This chapter provides a description of the proposed development which is submitted for planning and has been assessed within this ES.

The main elements of the proposed development are summarised as follows and further details are provided in the remainder of this chapter:

- **Phase 1:** – site construction
- **Phase 2:** – drilling operations
- **Phase 3:** – proppant squeeze and flow testing
- **Phase 4:** – well decommissioning, site restoration and aftercare.

4.2 Phase 1: Site Construction

The site would be stripped of topsoil and this would be stored separately in earth bunds along the north western and north eastern perimeters of the site. A security perimeter fence would be erected around the wellsite and access track. A secure security gate would be erected immediately to the north of the existing solar array. Tree root protection fencing would be installed around the two trees on the north western and north eastern boundaries, and along the Site's southern boundary. A perimeter containment ditch would be constructed around the site. In order to assist in site drainage, a cut batter would be made between the topsoil storage bund and the containment ditch on the north west side of the site with a fill batter installed on the south eastern side. A containment berm and high-density polyethylene (HDPE) membrane would be installed across the site to provide a tertiary protective layer. The membrane would be overlain with typically 300mm stone. Phase 1 site construction would typically last around seven weeks, based on a 5.5 day week, which includes two days for site mobilisation and two days for demobilisation.

4.3 Phase 2: Drilling Operations

The rig is expected to be a land rig with a maximum working height defined by the derrick of 38 m. Ancillary drilling equipment for the purposes of constructing an exploratory borehole would be brought to site, including a toolpusher cabin, toolhouse, generators and fuel tanks, matting boards, blow out preventers and manifold. In addition, approximately 6 security and welfare cabins will be installed on the southern part of the wellsite, along with a fire water tank and bunded fuel tank. These and other required drilling equipment are shown on drawing no ZG-EOG-CLTN-PAA-07. Approximately 10 car parking spaces would be provided along the southern edge of the access track. It is anticipated that the drilling and completion phase would also take around seven weeks to complete. This would comprise one week for rig mobilisation, five weeks for drilling and completion and a week for demobilisation. One lateral borehole would be drilled from the site to the south west, between Burniston and Scalby, approximately 1.77 km in distance.

4.4 Phase 3: Proppant Squeeze and Flow Testing

In order to determine the potential reserves of gas, it will be necessary to undertake a proppant squeeze. The process involves pumping a mix of gelled fluids and proppant (sand or ceramic particles) down the wellbore and out through the perforations in the steel wellbore casing at a pressure exceeding the fracture propagation pressure of the formation. Injection pressure and pump rates high enough to propagate a fracture in the formation creates channels of communication through near wellbore formations. When the pressure is released, the proppant remains in situ, propping open the small fractures through which hydrocarbons can flow at enhanced rates.

Phase 3 is expected to take up to 17 weeks in total, comprising an initial testing of a week, followed by a proppant squeeze lasting around one week, and then potential further testing of up to fifteen weeks. The well would be flowed to determine pressure, quality and composition of the gas.

4.5 Phase 4: Well Decommissioning and Site Restoration

At the end of the production testing phase, the site would be restored to agricultural use or to an approved new use agreed with NYC and the landowner. The well would be plugged, hydrostatically tested and sealed using an agreed programme or method approved by the HSE, the EA and the NSTA. The borehole would be filled with specialist concrete plugs to the surface. Installed casing strings will be cut at least 2 m below ground level and a metal plate stitch-welded across the cut-off casing. The site will then be restored. All equipment, infrastructure, membranes, aggregate and facilities will be removed. The stored topsoil bunds will be tested and reused to ensure compatibility with the surrounding land quality.

4.6 Operational Hours

The hours for movements of heavy goods vehicles (HGVs) and operational hours of the Site will be as shown in the following tables:

Table 4.1. HGV Movements

Phase	Mondays to Fridays	Saturdays	Sundays, Bank Holidays and Public Holidays
Phase 1 Site Construction	07:00 – 19:00	07:00 – 13:00	None
Phase 2 Drilling Operations a) Mobilisation & Demobilisation b) Drilling of Boreholes & Completion	07:00 – 19:00	07:00 – 19:00	None
Phase 3 Proppant Squeeze & Flow Testing	07:00 – 19:00	07:00 – 19:00	None
Phase 4 Decommissioning and Site Restoration	07:00 – 19:00	07:00 – 13:00	None

Table 4.2. Operational Hours

Phase	Mondays to Fridays	Saturdays	Sundays, Bank Holidays and Public Holidays
Phase 1 Site Construction	07:00 – 19:00	07:00 – 13:00	None
Phase 2 Drilling Operations a) Mobilisation & Demobilisation b) Drilling of Boreholes & Completion	24 hours	24 hours	24 hours
Phase 3 Proppant Squeeze & Flow Testing	24 hours	24 hours	24 hours
Phase 4 Decommissioning and Site Restoration	07:00 – 19:00	07:00 – 13:00	None

4.7 Access and Traffic

HGV traffic will use the existing access off the A165 Coastal Road. Signage will be in place at the entrance to the Site. No changes are proposed to the Site access junction off the A165, although additional security gates will be required and are shown on Drawing ZG-EOG-CLTN-PA-15. An extended section of track will be added as shown in Drawings ZG-EOG-CLTN-PA-05 and 06.

A compound located to the south west of the wellsite will be used for 12 car parking spaces.

The anticipated HGV numbers for each phase of development are shown in Table 4.3 below.

Table 4.2. Anticipated HGV Numbers

Phase	Phase Duration	Total HGVs	Average HGVs per day	Maximum HGVs on any one day
Phase 1 Site Construction	**7 weeks**	**334**	**8**	**18**
Phase 2 Drilling Operations	**7 weeks**	**330**	**8**	**17**
Phase 3 Proppant Squeeze & Flow Testing	**17 weeks**	**140**	**8**	**5**
Phase 4: Well Decommissioning, Site Restoration and Aftercare	**6 weeks**	**350**	**10**	**17**

An assessment of the impacts of the proposed development on traffic and transport is provided in Chapter 7 of this ES.

4.8 Lighting

Mobilisation and demobilisation of each phase will largely be undertaken between 07:00 and 19.00 hours. Similarly, Phase 1 (site construction) and Phase 4 (well decommissioning and restoration) will also be undertaken during these restricted hours.

Phase 2 (drilling operations) and Phase 3 (proppant squeeze & flow testing) will be undertaken on a 24 hour basis, 7 days a week, as required.

Lighting will be required to facilitate safe working during all phases of the proposed development. The number and specifications of proposed lighting is shown on the following drawings:

- ZG-EOG-CLTN-PA-07 Site Layout Plan - Indicative Drilling Phase;
- ZG-EOG-CLTN-PA-08 Indicative Section Plan – Drilling Phase;
- ZG-EOG-CLTN-PA-09 Site Layout Plan – Indicative Proppant Squeeze Phase with Workover Rig;
- ZG-EOG-CLTN-PA-10 Indicative Section Plan – Proppant Squeeze Phase with Workover Rig;
- ZG-EOG-CLTN-PA-11 Site Layout Plan – Indicative Proppant Squeeze Phase with Coil Tubing Unit;
- ZG-EOG-CLTN-PA-12 Indicative Section Plan - Proppant Squeeze Phase with Coil Tubing Unit;
- ZG-EOG-CLTN-PA-13 Site Layout Plan - Indicative Well Testing Phase;
- ZG-EOG-CLTN-PA-14 Indicative Section Plan – Well Testing Phase

Broadly, lighting will consist of a combination of the following (or similar):

- portable lighting towers (comprising 4 x 300W LED lamps);
- fixed 400W metal halide lights;
- tungsten halogen lamps (either 250W or 400W) to light areas in the vicinity of cabins and offices;
- fluorescent lamps (Cortem FLF-236 EX Fluorescent 36W) to light areas in the vicinity of the drill rig;

- floodlights (Cortem EWL-80 EX LED 60W) to light areas in the vicinity of the drill rig;
- rectangular horizontal floodlight (Slee Ex 400W Metal Halide) to light areas in the vicinity of the drill rig.

Lighting has been scoped out of the ES. A lighting assessment has been undertaken by WSP which accompanies the planning application.

4.9 Employment

A summary of the employment predicted to be generated by the proposed development is shown in Table 4.4 below.

Table 4.4 Anticipated employment to be generated/ supported across each phase of the proposed development

Phase	Summary	Operations	Roles	
			Full time	Part time
1	Site construction	Development of wellsite and installation of a well cellar.	6 x security 6 x civils	1 x Construction Manager 1 x Admin/accounting 1 x HSE 1 x Geologist 1 x Europa Management 6 x Site services (hauliers, HDPE welding, wastes, equipment servicing etc)
Totals			12	11 (7 on site, 4 off site)
2	Drilling	Drilling	6 x security 16 x drilling 10 x logging/casing/cementing/ directional 1 x waste management 8 x workover	1 x Admin/accounting 1 x HSE 1 x Drilling Management 1 x Petroleum Engineering 1 x Geologist 1 x Europa Management 8 x Site services (hauliers, materials, wastes, equipment servicing etc)
Totals			41	14 (8 on site, 6 off site)
3	Testing	Test production by undertaking a proppant squeeze and flow testing	6 x security 6 x production/supervisory personnel 6 x proppant squeeze 4 x nitrogen lift	1 x Admin/accounting 1 x HSE 1 x Drilling Management 1 x Petroleum Engineering 1 x Geologist 1 x Europa Management 8 x Site services (hauliers, materials, wastes, equipment servicing etc)
Totals			22	14 (8 on site, 6 off site)
4	Well decommissioning and site restoration	Plug and decommission wells, restore the site	8 x workover 6 x civils 4 x pipeline/process equipment 6 x site infrastructure/equipment/wastes	1 x Construction Manager 1 x Admin/accounting 1 x HSE 1 x Drilling Management 1 x Geologist 1 x Europa Management 20 x Site services (hauliers, materials, wastes, equipment servicing etc)
Totals			24	26 (21 on site, 5 offsite)

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4.10 Security and Welfare Facilities

With the exception of Phase 4 well decommissioning and site restoration, security personnel and facilities are expected to be on site for all phases. HGVs associated with security units are included within the total number of HGV movements for each operational phase, noting that units may remain in-situ between phases if there are short timeframes between each operation.

Europa will continue to take a prudent and measured approach to ensuring that all operational sites are adequately secured, in order to ensure that a Duty of Care is applied and to ensure the security of operations. It is anticipated that a security presence on the Site will be required 24/7 during all phases of development and the Site will be secured with an appropriate type of secure fencing. Associated security infrastructure such as security offices and welfare facilities will be provided as indicated on the associated site plans.

Within the wellsite area, an indicative level of equipment required for security and welfare is considered to be as follows:

- 6 x 12ft sleeper units;
- 1 x 12ft toilet block;
- 1 x 21ft office;
- 2 x 21ft canteens;
- 1 x fuel tank;
- 1 x generator; and
- water bowsers (if required).

The indicative layout of the security and welfare facilities is detailed on the Indicative Site Layout Plans (Drawing no's ZG-EOG-CLTN-PA-07, 09, 011 and 13), but may be subject to additional facilities if the operational need dictates.

4.11 Waste

The Site will operate under Environmental Permits, issued by the Environment Agency. These cover the drilling, production testing and production operations and will ensure that wastes are managed appropriately and that the Site will operate to high environmental standards. It is a requirement of the Environmental Permits that an Environmental Management System (EMS) is established and implemented for site activities.

4.12 Design and Management Measures (Embedded Mitigation)

All development has the potential to have an environmental impact, sustainable development seeks to reduce or avoid the impacts to a satisfactory level. As explained above, the focus of EIA is to identify and address significant effects through mitigation. Mitigation was described by the DETR in 1997 as:

"any measures which are incorporated into the design or implementation of a development project for the purpose of avoiding, reducing, remedying or compensating for adverse environmental impacts. It may also include measures to create environmental benefits."

The Environmental Impact Assessment Guide to: Delivering Quality Development", 2016 defines mitigation as: *"primary (inherent design), secondary (foreseeable) and tertiary (inexorable) measures."* Annex A of the document classifies the three types of mitigation in more detail.

Where possible, mitigation has been incorporated into the proposed development as part of the iterative design process (i.e. primary and tertiary mitigation, as defined by IEMA in the publication 'Environmental Impact Assessment Guide to Delivering Quality Development', 2016) and is referred to as embedded mitigation. Where major or moderate adverse effects are predicted after this mitigation has been taken into account, additional measures are identified to avoid, further mitigate or remedy those effects. As defined by IEMA, these measures are classed as 'secondary mitigation' and may be imposed as part of a planning condition or through inclusion in

the ES. All mitigation measures, whether primary, tertiary or secondary, are described within the technical chapters of this ES (Chapters 6 – 8).

For the purposes of this ES, embedded mitigation measures are specific measures that have been incorporated into the design of the proposed development to avoid or minimise impacts. Embedded mitigation measures also include industry standard impact avoidance measures that will be implemented.

The embedded mitigation measures which have been taken into account for each topic (where relevant) when assessing the potential significance of effect are detailed below.

4.12.1 Landscape and Visual

The Site is currently screened by mature hedgerow along the north western and north eastern boundaries. There is one mature tree on the north western boundary and a belt of semi mature trees along the south eastern boundary. The construction of 3m high topsoil storage bunds along part of the north western and north eastern boundaries will result in a well screened and unobtrusive Site.

The short timescale and height of the most visible element of the proposed development, the drill rig, renders any additional mitigation measures inappropriate in relation to that impact. Overall, there is sufficient existing vegetation in the vicinity of the Site for the majority of activities to be well screened from the majority of external viewpoints. On the basis of the nature of the key elements and existing screening, no further mitigation is proposed.

4.12.2 Traffic and Transport

Three different HGV routes to and from the Site have been examined – two from south and one from the north. The majority of HGVs will utilise the southern routes. Southern Route 1 (Coastal Road) provides a direct and efficient route for HGVs travelling from the Site to the A170 and A64. By routing vehicles along Coastal Road and Burniston Road into Scarborough, it avoids vehicles passing through the village of Burniston and utilises Scarborough's established primary roads which are well-suited for large vehicles.

Southern Route 2 (Scalby Road) provides an alternative route for HGVs travelling to the A170 and A64, with a more direct link to the Strategic Road Network. It passes briefly through Burniston but avoids the majority of the village and the centre of Scarborough. The most appropriate route for HGVs is considered to be Southern Route 2. It balances efficient site access with community impact management by providing a secure and sustainable connection to the Strategic Route Network.

It is anticipated that any planning permission will include a condition requiring a Construction Traffic Management Plan (CTMP). This is included in the Transport Assessment at section 7. In summary, some of the measures to be included are as follows:

- all HGVs will obey the stipulated HGV delivery times;
- all HGVs will obey the access route from the Site to the A170;
- access to the north of the Site other than via the A165 is prohibited;
- any abnormal loads will be actively controlled to assist manoeuvring at the road junction in accordance with regulations for large and abnormal loads;
- no vehicles will drive onto uncovered soils to reduce the likelihood of mud and dust being transferred onto the highway, if this does occur, it will be cleaned away as soon as practicably possible;
- stone lorries will be covered to prevent dust being blown onto adjoining land;
- 10mph speed limit when using the site access from the A165;
- all engines are to be turned off when vehicles are waiting for unloading/loading; and
- corrective measures will be undertaken should HGVs fail to comply with the hours restrictions, or approved route, including written warnings

The Site will continue to operate in accordance with the approved CTMP where applicable to the proposed development.

5. Alternatives and Design Evolution

5.1 Introduction

Schedule 4, Part 2 of the EIA Regulations requires that an ES provides "*A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects*".

Under the EIA Regulations there is no requirement to assess alternatives but rather to describe the reasonable alternatives studied by the developer, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for selecting the chosen option including a comparison of the environmental effects.

5.2 Consideration of Alternatives

In the case of hydrocarbon developments the consideration of alternatives to the development proposed is difficult and reasonable alternatives are limited. Consideration of such alternatives is not normally required unless the application gives rise to an overriding harm to other interests of acknowledged importance. Essentially, mineral deposits can only be worked where they are found in geologically and economically viable quantities.

The main alternatives considered with respect to the proposed development include:

- the 'do nothing' scenario – retention of the status quo which would result in the cessation of hydrocarbon appraisal activities upon expiry of the current permission;
- alternative sites; and
- alternative methods of working (including site footprint, access requirements, surface water management and proposed borehole trajectories).

Further details are provided in the sections below.

5.3 Do Nothing

The 'do nothing' option would result in no corresponding adverse effects arising from traffic, landscape, ecology, noise or emissions from dust and odour which would be associated with phases 1-4 of the proposed development. However, it would fail to allow Europa to properly test the resource potential of the carboniferous Cloughton gas reserve. Europa estimates that the Westphalian reservoir has a mean resource volume of up to 72 billion standard cubic feet (scf) of gas. The equivalent amount of gas would therefore need to be imported with the associated impacts on balance of payments, a reduction in business rates and employment opportunities. Europa estimates that the proposed development would generate or support up to 160 full and part time jobs and result in a spend of approximately £6m into the domestic economy.

This would be contrary to policies on facilitating the sustainable use of minerals at the best balance of social, environmental and economic cost to comply with policies in the Local development Plan and at a national level (see section 6 of the Planning Statement).

The 'do nothing' scenario is not therefore considered a realistic alternative.

5.4 Alternative Sites

A number of alternative sites in the area were assessed by Europa in 2023 for hydrocarbon appraisal. The criteria used in the consideration of alternative sites were based on a number of requirements, including:

- the extent of land over which Europa have been granted the right to explore for (and develop) hydrocarbons (referred to as the Petroleum Appraisal and Development Licence area 343, awarded by the Secretary of State in 2014);
- the objectives of the proposed drilling programme;
- the sub surface geology;

- the avoidance of locating surface drilling within or close to the boundary of the North York Moors National Park; and
- landownership agreement.

An appraisal drilling operation at the wellsite on land east of Burniston Mill was determined to be the most appropriate location for the proposed development due to the following reasons:

- the proposed development can be undertaken within the confines of a well-defined Site. It lies immediately to the north east of a large animal mill and industrial units. It will therefore not be out of context in relation to the scale of the existing development;
- the Site lies outside a defined “sensitive area”, that is, it is not within the National Park or an Area of Outstanding Natural Beauty;
- the Site benefits from the existing infrastructure in place to serve the existing facilities, namely site security;
- direct access on to the strategic road network (A165) is provided;
- the Site is not overlooked by residential properties and is well screened from the wider landscape by mature hedgerow the north west and north east, and semi mature trees to the south east;
- the Site is not located within an area of high flood risk; and
- the Site will not impact directly on any statutory or local nature conservation sites.

The proposed Site to accommodate the proposed development, as described in this ES, is therefore considered to be the best option and the working of alternative sites is not considered to be a realistic alternative.

5.5 Alternative Methods of Working

The method of working is predominantly governed by the conditions within the Site, including the depth and location of the targeted resources, the potential effects of the proposed development on the surrounding environment and the economic viability of the Site. The proposed development as described in this ES is considered to be the best way of working the Site.

The proposed restoration of the Site reflects industry best practice, the requirements of the NSTA and the required end use (i.e. to agriculture).

This ES concludes that, with the embedded mitigation measures incorporated into the proposed development, the proposed development is unlikely to have any significant long term effects on the environment. The environmental effects identified are largely temporary and are entirely reversible. Consideration is given below to alternatives relating to specific elements of the proposed development.

5.5.1 Site Footprint

The Site encompasses land under the control of Europa in that Europa has a short term production lease and rights of access with the landowner which comprises the wellsite, security compound and access track. The Site is designed to take into account the operational requirements of the proposed drilling appraisal whilst minimising environmental effects associated with the proposed development (e.g. with regards to landscape and visual, noise, lighting, hydrology, flood risk etc).

It is considered that the proposed development can be undertaken within the confines of the red line boundary. A number of proposed site layouts for each stage of operation have been considered and the drawings which are submitted for planning approval and form the basis of this ES are considered to be the most efficient use of the land. The selected drilling rig for drilling operation (Consortium Drilling Rig) determined the design and layout of the wellsite during the drilling phase (shown on drawing numbers ZG-EOG-CLTN-PA-07 and 08). The height of the rig is 38m. However, any specific rig is dependent upon availability. Although modern rigs are able to achieve noticeably lower noise emissions than some older rigs, a representative worst-case assessment has been used in the noise assessment.

5.5.2 Access Location, Internal Access Route and HGV Route

The existing access from the A165 Coastal Road and the existing access track with an extension into the Site are considered appropriate to serve the proposed development. The main Site access road has previously been

designed and constructed in consultation with specialist highways engineers for previous planning applications and is therefore considered fit for purpose.

The proposed HGV routeing from the Site to the north along the A165 and onto the A171 and A170 is also considered to be the most appropriate route for HGVs to minimise impacts on nearby properties.

An integral compound is located to the south west wellsite and will be used for car parking. Staff travelling to the Site in cars will access from the Coastal Road, to the south west of the wellsite.

5.5.3 Surface Water Management

A Surface Water Management System (SWMS) will be implemented at the Site.

5.5.4 Borehole Trajectories

Europa have considered two potential trajectories for the side-track drilling operation, one in a north westerly direction and one in a south westerly direction from the Site. Both would target the same geological formations (i.e. conventional gas-bearing carboniferous sandstones).

Europa determined that the most appropriate trajectory would be the south west direction, primarily because this would most likely ensure that the testing of the potential hydrocarbon reserves is successful.

5.6 Conclusions

Determining the details of the proposed development and embedded mitigation measures has been an iterative process involving both geological and technical specialists (e.g. in ecology, hydrology, noise, traffic, landscape/visual, etc.).

The final scheme for which planning consent is sought is considered the most appropriate development, taking into account the need to balance the interests of the Local Development Plan and material planning considerations, stakeholders and the effects of mitigation, whereby the residual long term effects of the proposed development are considered to be not significant. The proposed development is therefore considered on balance to be the best deliverable option at the present time.

6. Landscape and Visual

6.1 Introduction

6.1.1 Background

Stephenson Halliday was commissioned by Europa in October 2024 to prepare a landscape and visual impact assessment (LVIA) of the proposed development of an appraisal well at Burniston, North Yorkshire on behalf of Europa Oil & Gas.

The LVIA defines

- the existing landscape and visual baseline environments;
- assesses their sensitivity to change;
- describes the key landscape and visual related aspects of the Proposed Development; and,
- describes the nature of the anticipated changes and assesses the effects arising during construction, operation and decommissioning.

The LVIA considers the potential effects upon:

- landscape fabric;
- landscape character;
- the special qualities of any landscape designations; and
- visual receptors including residential, transport and recreational receptors.

The LVIA has been undertaken in accordance with published best practice, namely, the Guidelines for Landscape and Visual Impact Assessment (Third Edition), Landscape Institute and IEMA 2013 (GLVIA3) and associated technical guidance notes published by the Landscape Institute.

Although linked, landscape and visual effects are considered separately. Landscape effects derive from changes in the landscape fabric which may result in changes to the character, whereas visual effects are the effect of these changes as experienced by people (visual receptors). Effects on the setting of any heritage assets are dealt with as part of a separate heritage report.

6.1.2 The Site and Proposals

Europa is seeking to undertake a hydrocarbon appraisal operation from a site east of Burniston Mill, comprising the drilling of a single well, and to undertake testing of the resource potential of the conventional gas-bearing carboniferous Sandstone.

The Site, which lies wholly within the unitary authority of North Yorkshire, is approximately 350 m east of the village of Burniston and 6km north of Scarborough. The Site is approximately 1.2 ha in area and includes an existing access track and an integral compound. The boundary of the North York Moors National Park lies approximately 800m to the north-west.

The proposed wellsite currently comprises farmland adjacent to an existing ground-mounted solar photovoltaic array. The Site is accessed from the A165 Coastal Road. There are a small number of industrial units served by the existing access track to the south, whilst an animal feed mill, served by a separate access, lies 200m to the south west of the wellsite. The site is partly screened by some existing woodland to the south side and intermittent gappy hedgerows to the wider field boundaries to the north sides. The site lies at approximately 57m AOD on the northern edge of the site and falls in a southerly direction to around 49m AOD in the southern part of the site.

6.1.3 Competence

This report along with the design and mitigation of the Proposed Development has been prepared by Chartered Landscape Architects at Stephenson Halliday. Key individuals working on this project have over 10 years of experience as chartered landscape architects.

The Practice is a Landscape Institute and IEMA registered practice and all work is prepared and reviewed internally by senior highly experienced landscape planners with Public Inquiry experience.

To inform the assessment, site visits were made to various locations within the study area including, but not restricted to, representative viewpoints by Stephenson Halliday's assessment team during November 2024.

6.1.4 Stakeholder Consultation

Landscape officers at North Yorkshire Council (NYC) were consulted in relation to the scope of the assessment, the selection of viewpoints, the methodology and the extent of the LVIA study area at the pre-application stage in October/November 2024. NYC officers have agreed the scope of assessment and viewpoint locations.

6.1.5 Study Area

It is accepted practice within landscape and visual impact assessment work that the extent of the study area for a development proposal is broadly defined by the visual envelope of the proposed development. In this case a study area of 5km has been used (as shown by Figure(s) 6.4 and 6.5). This study area is adequate to identify all significant effects on landscape and views given the setting of the Site, within an open rolling coastal landscape flanked by dramatic cliff faces and upland landscape and woodland associated with the North York Moors National Park.

6.2 Assessment Methodology

This section provides a summary of the methodology adopted for the LVIA. Full details of the assessment methodology, including assessment criteria, are provided in Appendix 6.3.

In accordance with GLVIA3, the significance of landscape and visual effects is determined by considering, in tandem, the sensitivity of landscape and visual receptors (landscape elements, landscape character areas, landscape designations and groups of people who may be affected by changes in visual amenity) and the magnitude of effect arising from the Proposed Development.

6.2.1 Sensitivity

Sensitivity (described as High, Medium or Low) is judged by combining component judgements about the value and susceptibility of the receptor, as illustrated in Table 6.1 and Table 6.2. An explanation of how susceptibility and value has been determined is provided in Appendix 6.3. Detailed susceptibility and value criteria for landscape receptors are established in Appendix 6.2 whilst detailed visual susceptibility and value criteria are set out in Appendix 6.1. It should be noted that intermediate assessments of value or susceptibility may be applied (e.g. High/Medium, Medium/Low or National/Regional, Regional/Community). Likewise, when combining susceptibility and value to determine sensitivity, an intermediate assessment is adopted where overall sensitivity is judged to lie between levels. In all instances, professional judgement is employed and the tables below should not be interpreted rigidly to give a specific answer. A slightly greater weight is given to susceptibility in judging the sensitivity of visual receptors.

Table 6.1: Landscape Sensitivity

LANDSCAPE RECEPTORS		Susceptibility		
		High	**Medium**	**Low**
Value	**National**	High	High/Medium	Medium
	Regional	High/Medium	Medium	Medium/Low
	Community	Medium	Medium/Low	Low

Table 6.2: Visual Sensitivity

VISUAL RECEPTORS		Susceptibility		
		High	**Medium**	**Low**
Value	**National**	High	High/Medium	Medium
	Regional	High/Medium	High/Medium	Medium/Low
	Community	High/Medium	Medium	Low

6.2.2 Magnitude

The magnitude of effect arising from the Proposed Development (described as Substantial, Moderate, Slight or Negligible) is assessed in terms of its scale, geographic extent of the area or receptor that is influenced and its duration.

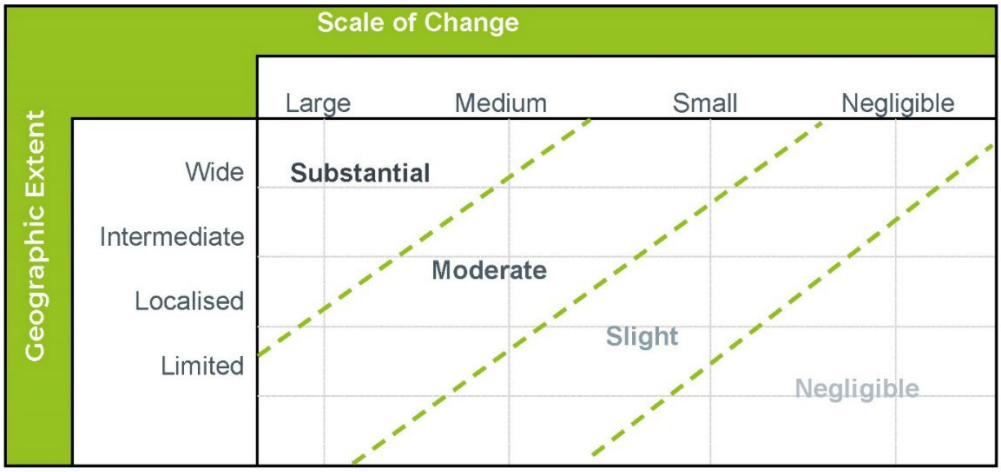
Scale of change (expressed as Large, Medium, Small, Negligible) is the first and primary factor in determining magnitude. Geographical extent and duration of the effect are modifying factors to the overall magnitude judgement which may be higher if the effect is particularly widespread and/or long lasting, or lower if it is constrained in geographic extent and/or timescale.

The diagrams presented below in Plate 1 below illustrate in outline how these two modifying factors are considered in a two-stage process. Plate 1 is not intended to be interpreted rigidly as a chart to provide definitive answers; professional judgement is employed as appropriate to arrive at an overall judgement on the magnitude of effect. A definition of the terms used in the diagrams in Plate 1 is provided in Appendix 6.3.

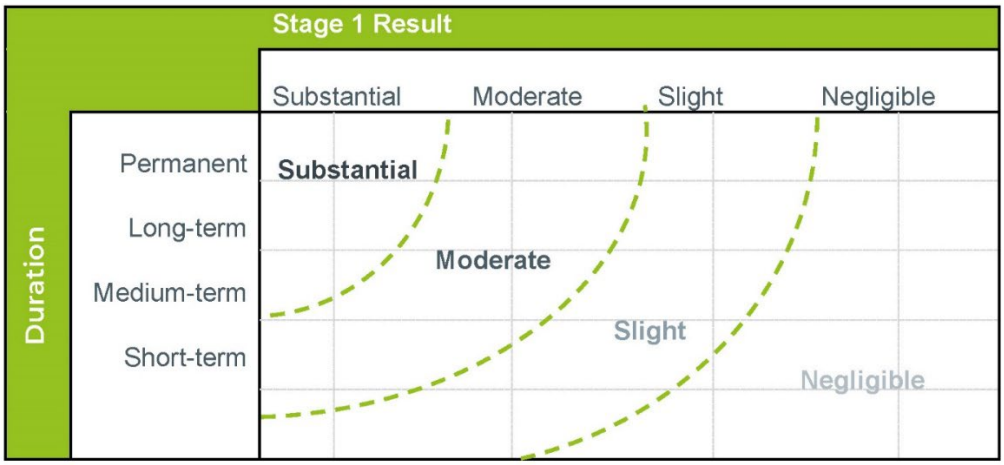
Where magnitude of effect (or other judgements) is judged to lie between levels, an intermediate assessment is adopted and is expressed as e.g. Moderate/slight.

Plate 1 - Illustration of how Magnitude or Effect is Established

Stage 1 - Modifying Influence of Geographic Extent on Magnitude of Effect



Stage 2 - Modifying Influence of Duration on Magnitude of Effect



6.2.3 Significance of Effects

The significance of a landscape or visual effect (described as Major, Moderate, Minor or Negligible) is assessed using professional judgement, combining the sensitivity of the receptor with the predicted magnitude of effect, as summarised in Table 6.3. Table 6.3 is not used as a prescriptive tool and illustrates the typical outcomes, allowing for the exercise of professional judgement. In some instances, a particular parameter may be considered as having a determining effect on the analysis. Where significance is judged to lie between levels, an intermediate assessment will be adopted for example 'Moderate/Minor'. Such a judgement indicates that the significance of effect is less than Moderate but more than Minor.

Table 6.3: Assessment of Effect

		Magnitude of Change			
		Substantial	**Moderate**	**Slight**	**Negligible**
Receptor Sensitivity	**High**	Major	Major/Moderate	Moderate	Minor
	Medium	Major/Moderate	Moderate	Moderate/Minor	Minor/Negligible
	Low	Moderate	Moderate/Minor	Minor	Negligible

Where the effect has been classified as Major or Major/Moderate, this is considered to be equivalent to a likely significant effect. Where 'Moderate' effects are predicted, professional judgement is applied to determine whether the effect is significant or not ensuring that the potential for significant effects to arise has been thoroughly considered and justification is provided for the judgement reached as appropriate. Effects of Moderate/ Minor, Minor, Minor/ Negligible or Negligible significance are considered to be not significant.

Beneficial/ Adverse

Landscape and visual effects can be beneficial or adverse and, in some instances, may be considered neutral. Neutral effects are those which overall are neither adverse nor positive but may incorporate a combination of both. Whether an effect is beneficial, neutral or adverse is identified based on professional judgement.

However, for the avoidance of doubt, in this assessment it has been assumed that where new infrastructure is introduced into the landscape or views, this will generally constitute an adverse effect. Any variation from this stance will be clearly justified.

6.2.4 Cumulative Assessment

Cumulative assessment relates to the assessment of the effects of more than one development. The approach to cumulative assessment is set out within Appendix 6.3.

6.2.5 Night-time Assessment

6.2.5.1 Approach and Scope

There is a distinction between light pollution or nuisance and the effect of lighting on the character and amenity of the landscape at night. This part of the assessment is not a technical lighting assessment but focusses on the night-time effects as a result of the introduction of new artificial lighting, with consequent effects.

Assessment of night-time effects is still an emerging area of assessment regarding the scope and type of receptors that would be impacted as a result of the proposed lighting. It is clear that night-time impacts would occur on the visual amenity of an area as the result of new artificial lighting, but there is some debate regarding the extent of impact on surrounding landscape character. One of the most relevant determinations, by Scottish Ministers (Page 12 of Crystal Rig Wind Farm Phase IV Scottish Ministerial Determination Letter dated 24 March 2021), stated that:

"Reporters conclude that proposed aviation lighting would be a visual impact alone and consider that without being able to see and fully appreciate the features of the landscape and the composition of views, it is not possible to carry out a meaningful landscape character assessment. The Scottish Ministers concur with this conclusion."

Although this judgement was made regarding aviation lighting in wind farms it is noted that the area within which the Proposed Development is located has been identified as Zone E2 through consultation with NYC. Zone E2 comprises an area of low district brightness with examples including sparsely inhabited rural areas, villages or relatively dark outer suburban locations. Whilst consideration has been given to the Dark Skies associated with the NYMNP the Site does not sit within the National Park or Zone E1.

In terms of the potential for landscape character effects at night, these are almost exclusively concerned with perceptions of darkness and an absence of development, as the key characteristics of landscapes which distinguish the landscape character areas described in character assessments are generally obscured after dark.

The development proposals include low level flood lighting, conforming with relevant Institution of Lighting Professionals (ILP) Guidance, within the general working area of the Site to illuminate workspaces and minimise outward glow. The drill rig will also be illuminated along its vertical length during the first phase of operation prior to its demobilisation.

The scope of the night-time assessment is as follows:

- 5km study area;
- Inclusion of 3 LVIA night-time viewpoints within 5km. Viewpoints are illustrated on Figure 6.6 Night-time receptors and associated photosheets.

6.2.5.2 Potential Effects

The proposed site lighting would be visible as points of light or as increased lighting glow, especially where there would be a high degree of contrast at the viewpoint (i.e. the lights were seen against a dark sky / dark landmass or where there would be little or no existing artificial light sources present).

During periods of greater ambient light, (e.g. sunset, twilight, dusk, dawn) there would be a reduced effect as the contrast of the lighting against the background would be reduced. This variation means that in summer the lighting would be less viewed when people are predominantly active and contrast with the background would be reduced. In contrast, during winter the lighting would be more readily viewed during peak active times. Drilling operations will be 24 hours for a 5 week period during the first phase of operation and will likely incur the greatest level of effect.

6.2.5.3 Sensitivity of Receptors

For landscape receptors, susceptibility is judged based on the degree to which they are currently characterised by darkness. Value is judged based on similar factors as for the daytime assessment unless suggested otherwise. For example, identification of a Dark Sky Park which would increase value; or if value is based on scenic qualities which are not appreciable at night, the value may decrease.

For visual receptors, the value attached to night-time views are considered to be low unless there is a particular feature that can be best appreciated in the hours of darkness. This may include views of stars and the night sky that are only possible in particularly dark areas or views of well-known landmarks that are lit up at night. The susceptibility of visual receptors also differs at night reflecting the different activities people undertake in the hours of darkness. For example, drivers using roads at night tend to be more focused on the road and the area illuminated by their headlights than during the day and may have oncoming headlights, cats eyes or other reflective signage drawing their attention, resulting in lower susceptibility. This is particularly the case on unlit rural roads that may be narrow and winding. On the other hand, people taking part in activities requiring darkness, such as stargazing, would be of higher susceptibility.

6.2.6 Residential Amenity

As set out within LI Technical Guidance Note 02//19 ‘Residential Visual Amenity Assessment (RVAA)’:

“Changes in views and visual amenity are considered in the planning process. In respect of private views and visual amenity, it is widely known that, no one has ‘a right to a view.’ …

It is not uncommon for significant adverse effects on views and visual amenity to be experienced by people at their place of residence as a result of introducing a new development into the landscape. In itself this does not necessarily cause particular planning concern. However, there are situations where the

effect on the outlook / visual amenity of a residential property is so great that it is not generally considered to be in the public interest to permit such conditions to occur where they did not exist before."

This chapter does not include an assessment of residential visual amenity as it is judged that the proposed development would not give rise to effects meeting the threshold described above.

6.2.7 Distances

Where distances are given in the assessment, these are approximate distances between the nearest part of the site and the nearest part of the receptor in question, unless explicitly stated otherwise.

6.2.8 Visual Aids

Photographs of the existing views showing the proposed development are shown in Figures 6.7 to 6.13 which accompany the application. The method of visualisation selected has been informed by Landscape Institute Technical Note 06/19 Visual representation and in discussion with the Local Planning Authority's landscape officer. Whilst these are Type 1 annotated photographs some modelling and matching the views to DSM data was undertaken to allow for an accurate representation of the scale, height and massing of the rig within the Site.

6.2.9 Uncertainties and Limitations

In undertaking the landscape and visual assessment of the proposed development, there are a number of uncertainties and limitations affecting the outputs from this work; these include:

- The assessment is based on existing boundary vegetation being retained and protected in accordance with BS 5837 (2012) – Trees in relation to design, demolition and construction throughout the construction, operational and decommissioning stages of the project;
- Seasonal variations in terms of leaf cover is considered within the report and based on the assumption that existing vegetation outside of the Application Site remains as assessed during the site visits undertaken in November 2024;
- Visual effects are based on good visibility. Visual effects can be expected to vary, with poor visibility at times of cloud, rainfall and dusk. At these times a reduction in visual clarity and contrast will be experienced. Reduced visibility will limit the extent of views, particularly longer distance views. Therefore, the assessment of effects will present a worst-case scenario, where the Proposed Development would be most visible.

These uncertainties and limitations are typical for an assessment of this type and are not expected to affect the validity of the outcome of the assessment.

6.3 Legislative and Planning Policy Context

6.3.1 National Planning Policy Framework (NPPF)

Although the Site does not sit within the North York Moors National Park it sits within its setting at approximately 800m south at its closest point. The National Park Special Qualities indicate the importance of views across the landscape, including areas within the NP setting and visible links to cultural heritage. More on the Special Qualities can be found in sections 6.5.5 and 6.7.6 of this chapter.

Paragraph 189 of the NPPF states: *'Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and the Broads. The scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas.'*

Paragraph 191 of the NPPF states: *'Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 189), planning policies and decisions should be consistent with the special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate, unless it is compatible with its special character.'*

6.3.2 Minerals and Waste Joint Plan 2022

Policy D06: Landscape of the Joint Minerals and Waste Plan (2022) seeks to protect the rich and varied landscapes of the region ranging from farmland to low-lying areas, and seascapes characterised by high cliffs:

- *'All landscapes will be protected from the harmful effects of development. Proposals will be permitted where it can be demonstrated that there will be no unacceptable impact on the quality and/or character of the landscape, having taken into account any proposed mitigation measures.*
- *For proposals which may impact on nationally designated areas including the National Park, AONBs, and the adjacent Yorkshire Dales National Park, a very high level of protection to landscape will be required. Development which would have an unacceptable landscape impact on these areas will not be permitted. 3) Protection will also be afforded to the historic character and setting of York and to areas defined as Heritage Coast. Permission will only be granted where it would not lead to an unacceptable impact on the historic character or setting of York or on the undeveloped character of Heritage Coast, unless the need for, or benefits of, the development outweigh the harm caused.*
- *Where proposals may have an adverse impact on landscape, tranquillity or dark night skies, schemes should provide for a high standard of design and mitigation, having regard to landscape character, the wider landscape context and setting of the site and any visual impact, as well as for the delivery of landscape enhancement where practicable.'*

Policy D10: Reclamation and After use:

Proposals which require restoration and after use elements will be permitted where it can be demonstrated that they would be carried out to a high standard and, where appropriate to the scale and location of the development, have demonstrably:

- *Applicants are encouraged to discuss proposals at an early stage with local communities and other relevant stakeholders and where practicable reflect the outcome of those discussions in submitted schemes.*
- *Taken into account the location and context of the site, including the implications of other significant permitted or proposed development in the area and the range of environmental and other assets and infrastructure that may be affected, including any important interactions between those assets and infrastructure;*
- *Reflected the potential for the proposed restoration and/or after use to give rise to positive and adverse impacts, including cumulative impacts, and have sought where practicable to maximise potential overall benefits and minimise overall adverse impacts;*
- *Taken into account potential impacts on and from climate change factors;*
- *Made best use of onsite materials for reclamation purposes and only rely on imported waste where essential to deliver a high standard of reclamation;*
- *Provided for progressive, phased restoration where appropriate, providing for the restoration of the site at the earliest opportunity in accordance with an agreed timescale;*
- *Provided for the longer term implementation and management of the agreed form of restoration and after use (except in cases of agriculture or forestry after uses where a statutory 5 year maximum aftercare period will apply).*

In addition to the criteria in Part 1) above, proposals will be permitted which deliver a more targeted approach to minerals site restoration and after use by contributing towards objectives, appropriate to the nature, scale and location of the site, including where relevant:

- *In areas of best and most versatile agricultural land, prioritising the protection and enhancement of soils and the long term potential to create areas of best and most versatile land during reclamation of the site;*
- *Where opportunities allow, particularly for sand and gravel extraction in the flood plains of the rivers Swale and Ure, providing additional flood storage capacity to help to minimise flooding in upstream and downstream locations;*

- *Within the National Park and AONBs, enhancing the special qualities of the designated area and/or providing opportunities for the enjoyment and understanding of those special qualities;*
- *Within airfield safeguarding zones, particularly where reclamation for biodiversity is involved, ensuring that reclamation and after use proposals respect safeguarding constraints whilst maximising the potential restoration and after use benefits delivered by the site;*
- *In proximity to important heritage assets, ensuring that the significance of assets and their settings is sustained and where practicable enhanced and, also where practicable, that opportunities to facilitate enjoyment of the asset are provided;*
- *Where the development is located within or adjacent to identified green infrastructure corridors, reflecting any locally agreed priorities for delivery of additional or enhanced green infrastructure and ecosystems services;*
- *In proximity to major settlements within and adjacent to the Plan area, and subject to local amenity considerations, providing enhanced opportunities for informal and formal public access and recreation;*
- *Achieving significant net gains for biodiversity which help create coherent and resilient ecological networks. Where practicable, proposals should contribute significantly to the creation of the habitats of particular importance in the local landscape seeking to deliver benefits at a landscape scale. This includes wet grasslands and fen in the Swale and Ure valleys and species-rich grassland on the Magnesian ridge;*
- *Creating geodiversity benefits where appropriate including contributing towards the delivery of priorities identified in any relevant Geodiversity Action Plan.*

6.3.3 Scarborough Local Plan

The Scarborough Local Plan 2011/32 sets out the planning vision and a strategy for growth for the region up to 2032.

Policy ENV 7 Landscape Protection and Sensitivity

Proposals should protect and where possible enhance the distinctiveness or special features that contribute to the landscape character of a particular area and take into account the sensitivity of the landscape to change in terms of

a) The sense of openness or enclosure;

b) The pattern and complexity of the landscape;

c) The experience derived from a particular landscape character;

d) The relationship to existing settlement edges and the cultural pattern;

e) The visual sensitivities and intervisibility of the landscape.

Proposals should have regard to the landscape between settlements and should prevent harmful development which results in the loss of the individual characteristics of settlements and/or the unacceptable coalescence of settlements or the wider landscape including the setting of the North York Moors National Park.

6.4 Environmental Design & Management Measures (Embedded Mitigation)

The proposed embedded mitigation is considered inherent within the siting and design of the scheme. The proposed development will include regrading of the Site to allow for development and the inclusion of an earth bund along the Site's northern and eastern boundaries. The bund will be seeded with an appropriate grass mix and will aid with visual screening from receptors to both the north and east. All existing boundary vegetation including hedgerows along the north and eastern boundary and a block of woodland along the southern boundary will be retained. The development will include the erection of tree protection fencing at an appropriate distance and in accordance with BS5837 (2012). Following operation the site will be regraded and returned to agriculture.

6.5 Baseline

6.5.1 Introduction

An overview of the baseline study results is provided in this section with the full baseline description of the individual landscape and visual receptors being provided alongside the assessment in section 6.7 for ease of reference.

This section provides a review of the key local baseline studies and guidance documents and identifies those landscape and visual receptors which merit detailed consideration in the assessment of effects, and those which are not taken forward for further assessment as effects "*have been judged unlikely to occur or so insignificant that it is not essential to consider them further*" (GLVIA3, para. 3.19).

Both this baseline section and the effects section describe landscape character and visual receptors before considering designated areas as it is common for designations to encompass both character and visual considerations within their special qualities or purposes of designation.

6.5.2 Zone of Theoretical Visibility (ZTV) Study and Visual Envelope

A Zone of Theoretical Visibility (ZTV) study was generated based on the proposed design as set out on drawing ZG-EOG-CLTN-PA-02. This is shown on Figures 6.4 and 6.5 and indicates areas of potential visibility. The ZTV analysis considered both a 'bare earth' scenario, offering worst case scenario in terms of theoretical visibility, and using elements of screening. The Screening ZTV analysis was carried out by creating a derived Digital Surface Model (DSM) by adding assumed heights for both buildings and woodland to an OS Terrain 5 based Digital Terrain Model (DTM). This was deemed to be a suitable approach by NYC during consultation given the limited LiDAR data available for full coverage of the Study Area. To ensure a conservative estimate of theoretical visibility woodland was modelled at 10m and buildings at 7.5m in height.

The ZTV study was used to aid the identification of those receptors that are likely to be most affected by the proposed development and those that do not require detailed consideration.

The ZTV for the proposed development (Figure 6.5) which includes screening elements such as buildings and woodland indicates that theoretical visibility is primarily concentrated within 3km of the Site. However, some areas of possible visibility sit within 5km of the Site including those from Scarborough to the south of the Study Area and north-west within areas of the NYMNP. Due to topography and intervening woodland there is little visibility to the far west of the Study area beyond the hamlet of Suffield.

Site visit work indicated that screening by smaller field trees has not been fully reflected by the modelling and that visibility is likely to be even less than that which is indicated by the ZTV study.

Effects on landscape or visual receptors outside the areas of visibility shown on the ZTV study would be Negligible and are not assessed in detail.

6.5.3 Landscape Character

6.5.3.1 National

Regional and local landscape character areas in the study area are shown on **Figure 6.2.**

The Site lies wholly within National Character Area (NCA) 25: North Yorkshire Moors and Cleveland, a well-defined upland area stretching from the North Sea in the east to the Vale of Mowbray and Howardian hills to the West. The Key Characteristics of this landscape are noted by Natural England as:

- *Upland plateaux, generally below 400 m, dissected by a series of dales – some broad and sweeping but others narrow, steep sided and wooded – creating strong contrasts between open moors and enclosed valleys.*
- *Extensive areas of heather moorland on plateaux and hills, largely under sporting ownership, including large expanses of upland heathland and blanket bog habitats, creating a sense of space, expansiveness and openness.*
- *Upland plateau landscape underlain mainly by sandstone and mudstone of Middle Jurassic age and calcareous sandstone and limestone of Upper Jurassic age.*

- *Mosaics of upland heathland vegetation supporting internationally important populations of breeding merlin and golden plover.*
- *Some areas of extensive conifer and mixed plantations, especially in the south-east, and broadleaved woodland on steep valley sides.*
- *Valley landscapes characterised by pastoral farming, with a clear demarcation and strong visual contrast between the enclosed fields with some species-rich grasslands and wetlands, farms and settlements, and the bracken-fringed moorlands above.*
- *Drystone walls and hedgerows enclosing the small pastures and meadows in dales and fringing farmland, often replaced by fences in arable areas.*
- *Large-scale arable landscapes to the south and east.*
- *Jurassic sandstones, mudstones and limestone forming a dramatic coastal landscape of high cliffs, high vegetated maritime slopes, and small coves and bays, with coastal towns and compact fishing villages.*
- *Sparsely settled, with scattered farmsteads and small villages, and traditional buildings constructed of local sandstone or limestone and with red pantile roofs, creating a strong visual unity.*
- *A rich archaeological heritage from many different periods, especially on the moorland plateaux.*
- *Panoramic views over moorland plateaux, ridges and dales and out over surrounding lowland landscapes and the North Sea.*[1]

The Site itself lies within the eastern part of the NCA, adjacent to the North Sea.

6.5.3.2 Regional/ Local

At a more detailed level, regional landscape character for the study area is described in the North Yorkshire and York Landscape Characterisation Project (2011). A further Study was undertaken at local level in the Scarborough Borough Landscape Study: Vol 1 Borough wide Landscape Character Assessment (2013). In 2023 Scarborough Borough Council ceased to exist with statutory oversight sitting with the new North Yorkshire Council.

In the main the landscape character baseline has been taken from the Scarborough Landscape Study Volume 1- Borough Wide landscape Character Assessment (2013) and supplemented by the North Yorkshire and York Landscape Characterisation project (2011) as well as from local sources and site assessment.

6.5.3.3 Host Landscape

Regionally, the Site comprises land within Landscape Character Type (LCT) 15: Rugged Cliffs, Coastal Valleys and Bays, as defined within the North Yorkshire and York Landscape Characterisation Project (2011). This landscape is characterised by steep, rugged coastal cliffs and bays with undulating to rolling coastal landform, wooded watercourses and small nucleated coastal settlements. This rolling hinterland north of Scarborough is inclusive of the cliff tops associated with the North Yorkshire and Cleveland Heritage Coast which continues northwards beyond the Borough boundary. The relevant key characteristics of this landscape are as follows:

LCT 15: Rugged Cliffs, Coastal Valleys and Bays

- *Dramatic coastal cliffs and bays which form an edge between landscape and seascape;*
- *Underlying geological formation from the Jurassic period, result in a rugged, jagged edged coastline in many places;*
- *Historic quarrying and mining features associated with production of jet, ironstone and alum;*
- *Small coastal settlements and fishing villages crowded into tight cliff foot locations confined in narrow valleys where they meet the sea;*
- *Areas of ancient semi-natural woodland on steep valley sides which provide a sense of enclosure;*

[1] Natural England (2024) National Character Area 25, available at: https://nationalcharacterareas.co.uk/north-yorkshire-moors-and-cleveland/ [Accessed on: 13.11.24]

- *Patchworks of arable fields and improved grassland, interspersed with small pockets of deciduous woodland and suburban development;*
- *Dramatic, open views across an ever-changing open seascape to the east.*
- *A series of valleys which mark the point at which rivers meet the coastal edge;*
- *The late 18th/early 19th century Grade II* listed garden at Mulgrave Castle is a key landscape feature; There is strong visual unity and settlements have a predominantly historic character;*
- *Natural beach, cliff and wave cut platforms are key features.*[2]

More locally the Site is situated within LCA D3: Scalby Character Area of the Scarborough Borough Landscape Study: Vol 1 Borough wide Landscape Character Assessment (2013). For the purposes of assessment the local landscape character has been used, supplemented by the regional character where appropriate and will be hereafter be referred to as the 'host landscape' .

LCA D3: Scalby

- *A smoothly rolling farmed hinterland which rises in an east to west direction, inland, from the coastal edge, up towards the moorlands and wooded scarps of the North York Moors National Park to the west.*
- *Underlain by mudstones, siltstones and sandstones which form part of the Scalby Formation, which is largely concealed by glacial till.*
- *An agricultural landscape, dominated by medium scale fields of open arable farmland, defined by low hedgerows and limited tree cover.*
- *A number of small watercourses or becks form interesting and contrasting features within the landscape, often enclosed by woodland and/or riparian vegetation, such as the Scalby Beck.*
- *Low density of dispersed settlement consisting of individual farmsteads scattered across the hinterland. The south and north of the character area is fringed by the suburbs of Scalby and the village of Burniston, respectively.*
- *A simple and uniform landscape with a fluid and rhythmic form, created by the rolling landform and repetition of arable fields. Occasional localised impact results from features such as settlement edges, major roads, caravan sites and a sewage works, which introduce a discordant character in places.*
- *A peaceful and rural landscape character with a strong connection to the sea and coastal edge, and visually influenced by the wooded scarps of the National Park to the west.*
- *A sense of openness allowing for long views across the rolling landscape, particularly eastwards from elevated land in the National Park to the west, and out across the open sea. Strong intervisibility with prominent historic landmarks further south, such as Scarborough Castle and the war memorial at Oliver's Mount.*
- *The historic landscape characterisation (HLC) indicates the landscape has been shaped by a mix of enclosures, including planned large scale parliamentary enclosure, unknown planned enclosure, modern improved fields and piecemeal enclosure, typically consisting of medium sized fields in a regular or semi-irregular pattern, with varying degrees of boundary loss.*

6.5.3.4 Other LCT's/LCA's within the Study Area

The ZTV indicates theoretical visibility from a number of other LCT's/LCA's within the Study area namely:

North Yorkshire and York Landscape Characterisation Project (2011)

[2] North Yorkshire and North Yorkshire and York Landscape Characterisation Project (2011), available at: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.cravendc.gov.uk/media/8643/north-yorkshire-and-york-landscape-character-assessment.pdf [Accessed on: 13.11.24]

- LCT 4 Limestone Foothills and Valleys: This landscape abuts LCT 15 and is within a few metres of the proposed Site access off A165 Coastal Road and comprises elevated areas of farmland and historic settlement at the southern extents of the North York Moors National Park (NYMNP).

Scarborough Borough Landscape Study: Vol 1 Borough wide Landscape Character Assessment (2013)

- LCA A1 Cloughton and Burniston: A small area which abuts the south eastern edge of the NYMNP and lies approximately 1km north of the Site. *The character of the landscape is comparable to the character of the landscape within the North York Moors National Park, with a diversity of landscape, areas of dense woodland and locally distinctive buildings and building materials.*[3]

- LCA G3 Long Nab to North Bay: This landscape comprises a stretch of coastline covering of the North Yorkshire and Cleaveland Heritage Coast and lies approximately 0.5km east of the Site at its closest point.

The ZTV indicates very limited or no theoretical visibility from a number of LCT's/LCA's that coincide with the 3km study. There is also some theoretical visibility from LCA that are strongly influenced by existing urban and industrial development. A Site visit was conducted by a Chartered Landscape Architect in November 2024 to all LCA/LCT's within the Study area to determine intervisibility. These LCA are excluded from further assessment for the following reasons:

- North Yorkshire and York Landscape Characterisation Project (2011)LCT 1 Urban Landscapes: The ZTV indicates theoretical visibility from certain parts of this LCT, particularly along the northern edge of Scarborough. However, receptors of this nature would experience an urban view with several human detractors therefore there would be very limited influence on the landscape character of Urban Landscapes LCT brought about by the proposed Development.

- LCT2 Sandstone Moors: The ZTV indicates theoretical visibility from a very small part of this LCT at distances of 4km or more. However, given the distance and the scale of intervening woodland the Proposed Development would have a very limited influence on landscape character of LCT 2.

Scarborough Borough Landscape Study: Vol 1 Borough wide Landscape Character Assessment (2013)

- LCA E2 East Ayton: This landscape sits over 4km away with the ZTV showing very limited theoretical visibility. The proposed Development would be viewed in the context of Scarborough with limited influence on the baseline urban view as perceived from this LCA.

- LCA J1 South Bay and Cayton Bay: The majority of this LCA lies 5km away from the Site where the ZTV indicates no theoretical visibility with views completely screened by built up elements of Scarborough and the rising cliff face along the coast.

- LCA M1 Oliver's Mount: This landscape sits over 3km away w the ZTV showing limited theoretical visibility. The proposed Development would be viewed in the context of Scarborough with limited influence on the baseline urban view as perceived from this LCA.

- LCA Urban Areas: The ZTV indicates theoretical visibility from certain parts of this LCA, particularly along the northern edge of Scarborough. However, receptors of this nature would experience an urban view with several human detractors therefore there would be very limited influence on the landscape character of Urban Areas LCA brought about by the proposed Development.

6.5.4 Visual Receptors

Visual receptors are "*the different groups of people who may experience views of the development*" (GLVIA, 3rd edition, para 6.3). In order to identify those groups who may be significantly affected the ZTV study, baseline desk study and site visits have been used.

The different types of groups assessed within this chapter encompass local residents; people using key routes such as roads; cycle ways, people within accessible or recreational landscapes; people using Public Rights of Way; or people visiting key viewpoints. In dealing with areas of settlement, Public Rights of Way and local roads,

[3] Scarborough Borough LCA (2013), available at: Landscape character assessment | North Yorkshire Council [Accessed on: 04.12.24]

receptors are grouped into areas where effects might be expected to be broadly similar, or areas which share particular factors in common.

Representative viewpoints have been selected to aid the assessment of effects on visual receptors.

6.5.4.1 Baseline Visual Environment

As shown on Figure 6.1 the Site lies on the rural edge of the village of Burniston on land comprising agricultural pasture and adjacent to a solar farm which occupies the western half of the field within which the Proposed Development is located. The landscape is undulating to rolling with north-eastern corner of the Site being the highest point at approximately 56m AOD. This offers views out across the Heritage Coast eastwards towards the North Sea and south towards the Sewage Works and beyond to Scarborough Castle. Along the Site's southern boundary is a dense linear block of mixed canopy broadleaf woodland which includes a number of evergreen holly trees and which offers good visual screening from the majority of the Site southward to Scarborough.

6.5.4.2 Visual Receptor Groups

The following visual receptor groups are located within the study area and are likely to have visibility of the proposed development, as shown on the ZTV study on Figures 6.4 and 6.5 and are considered further in section 6.7 of this chapter.

Burniston – The Site lies on the southern edge of Burniston village. Visibility would be largely restricted within the village itself by terrain, vegetation and built form, as illustrated in the ZTV (Figure 6.5). The ZTV indicates potential visibility for some residents on the higher ground to the north and western edge, although localised trees (not included in the ZTV) in gardens and field boundaries limit outward views. Views of the proposals are likely to be limited to movement of traffic during construction and the upper extents of the drill rig, which sits at 38m in height, during operation. There is similar potential visibility from local roads within the village setting particularly where roads follow the terrain to higher ground such as Limestone Road, Stone Quarry Road and Lindhead Road. Likewise, there are similar potential views from the local network of PRoW that cross the farmland on the rural edge of the village including footpaths 30.5 1/1, 30.3 9/1, 30.3 10/1 and 30.3 14/1 (Viewpoint 5).

Scalby – Scalby village sits over 1.5km south of the Site with potential for views of upper extents of the drill rig from residential properties on the villages northern edge, particularly on higher ground along Field Lane and Scalby Road as shown by the ZTV analysis. PRoW within and surrounding Scalby are included within this receptor group namely footpaths 30.16 10/1, 30.16 14/1, 30.16 001/, 30.16 2/1 and restricted byway 30.16 4/1. Views from Scarborough Rugby Club are also represented within this receptor grouping (Viewpoint 6).

Cloughton – Cloughton is situated approximately 1.5km north of the Site beyond Burniston. The ZTV indicates some visibility of the drill rig from residential properties along the village's southern edge and on higher ground to the north. This receptor group is also inclusive of potential views of the drill rig from local roads surrounding Cloughton such as Station Road and views from residential properties within the National Park outside the village of Cloughton including Cloughton Fields Farm to the north of the Site and Ripley's Farm to the north-west. Recreational users of local PRoW within and adjacent to the settlement namely footpath 30.5 205/1 and the northern extents of footpath 30.5 1/1 are considered within this grouping (Viewpoint 4 and Viewpoint 7).

Recreational Routes along High and Low Toft Hills – This receptor group comprises recreational users of PRoW that cross the High and Low Toft Hills between the villages of Burniston and Scalby including footpaths 30.3 3/1, 30.3 2/3 and bridleway 30.3 4/2. Parts of these recreational routes lie on higher ground within the rolling farmland landscape where open views eastward to the heritage Coast are available. However, views are likely to be limited to the uppermost parts of the drill rig due to intervening landform, vegetation and buildings, in particular the Mill buildings adjacent to the Site.

6.5.4.3 Key Routes

As shown on Figure 6.1, the following longer distance routes lie within the study area:

Roads and Rail

A165 Coastal Road – This receptor group is primarily focussed on road users of the A165. Access to the Site is off the A165 with some visibility of construction traffic likely. To the north, views from this road are screened by built up elements associated with Burniston village. To the south views of development will likely be screened by the

woodland along the Site's southern boundary. However, views of the uppermost parts of the drill rig are likely above the tree canopy (Viewpoint 2).

A171 Scalby Road/ Mill Lane – Situated to the west of the Site this road links the villages of Scalby and Burniston with visibility of development possible, particularly the uppermost parts of the drill rig, from some locations along this road that sit on higher ground.

Other roads in the study area are more likely to be used for local journeys and are considered within the receptor group areas they lie within.

Recreational Routes

England Coastal Path/ Cleveland Way National Trail - The England Coastal Path and Cleveland Way National Trail meet along the coastline approximately 0.65km east of the Site. The ZTV indicates theoretical visibility from the majority of the national trail within 2km of the Site, with views of development likely from higher ground with landform screening views from some parts of the route. Views from the south will likely be limited to the 38m tall drill rig due to extensive woodland along the Sites southern boundary. However, some views from the north to within the Site are likely in places where the landform rises. (Viewpoint 1)

Tabular Hills Walk – The ZTV indicates theoretical visibility from parts of this route, where views from recreational users is possible, particularly where it meets the Cleveland way, approximately 1.7km south-east of the Site and areas along Field Lane adjacent to Scarborough Camping and Caravanning Club. However, views are likely to be limited to the uppermost parts of the drill rig due to intervening landform and vegetation. This receptor group also includes residents along Field Lane and recreational users of the camping and caravanning club. (Viewpoint 6)

National Cycle Route 1/ Cinder Track – The NCR runs in a north-south direction passing the Site at approximately 0.2km at its closest point. The ZTV indicates theoretical visibility from approximately 4km along this route as it passes through the study area close to the Site. Part of the route is lined by trees and scrub, limiting views outward, however, some visibility of development is likely where gaps in vegetation occur. To the south views will likely be limited to the uppermost parts of the drill rig. Passing the Site, where the NCR crosses the A165 Coastal Road, views of construction traffic are likely as vehicles enter and leave the Site. To the north, views may occur where gaps in vegetation occur but are likely to be limited to the uppermost parts of the development. (Viewpoint 3)

Other PRoW within the Study area, where theoretical visibility is possible, will be included in the receptor groups within which they sit.

6.5.4.4 Receptor Groups not assessed further

Scarborough (including Scarborough Castle) – The ZTV indicates theoretical visibility from large swathes of Scarborough including those from recreational visitors to Scarborough Castle which sits on an elevated cliff above the settlement. However, receptors in this capacity experience an urban view with numerous man-made detractors, with the potential addition of the Proposed Development a very minor feature in views.

Throxenby (including Raincliffe Woods) – The ZTV indicates theoretical visibility from parts of this landscape, particularly north of Raincliffe Woods which is situated within the National Park and elevated land adjacent to Throxenby Hall. However, the Proposed Development would be viewed as a very minor feature at considerable distance in context of existing built form and man-made detractors on the urban edge of Scarborough.

Beacon Brow Road and Silpho Brow – Situated between 3km and 5km west of the Site within the National Park this receptor group includes scattered farmsteads and residential properties and a cluster of PRoW including bridleways 30.42 024/1, 30.42 023/1 and byway 30.16 009/1 along Beacon Brow Road. The ZTV indicates theoretical visibility from parts of this area, however, views of the Proposed Development would be viewed as a very minor feature at considerable distance and partially screened by intervening rolling farmland, vegetation and views of settlement.

Views of development from these locations is unlikely to give rise to significant effects for the reasons identified above and will not be assessed further within this chapter.

6.5.5 Landscape Designations and Value

The Site does not sit within any National or Local landscape designation; however, the North York Moors National Park does encroach into the Study Area, situated approximately 800m to the north at its closest point along Station

Road. The North York Moors Management Plan (2022-2027) defined the National Park as having the following Special Qualities:

- *A surprising range of contrasting landscapes, with extensive views;*
- *A diverse mix of upland, lowland and coastal habitats, home to a rich variety of wildlife;*
- *A place with strong, visible links to its cultural heritage;*
- *A variety of distinctive places and communities, creating a sense of local identity, culture, tradition and pride;*
- *A place of escape from towns and cities, offering a true sense of remoteness and the darkest of skies; and*
- *A source of physical, mental and spiritual well-being.*

Although not technically a landscape designation the Site is situated within the North Yorkshire and Cleaveland Heritage Coast. The Heritage Coast was defined to:

- *Conserve, protect and enhance:*
    - *the natural beauty of the coastline;*
    - *their terrestrial, coastal and marine flora and fauna; and*
    - *their heritage features.*
- *Encourage and help the public to enjoy, understand and appreciate these areas.*
- *Maintain and improve the health of inshore waters affecting heritage coasts and their beaches through appropriate environmental management measures; and*
- *Take account of the needs of agriculture, forestry and fishing and the economic and social needs of the small communities on these coasts*.

6.6 The Proposed Development

6.6.1.1 The Proposal

The Proposed Development will take place in 4 Phases:

- **Phase 1:** – site construction
- **Phase 2:** – drilling operations
- **Phase 3:** – proppant squeeze and flow testing
- **Phase 4:** – well decommissioning, site restoration and aftercare

6.6.1.2 Phase 1: Site Construction

Phase 1 site construction would typically last around seven weeks, based on a 5.5 day week, which includes two days for site mobilisation and two days for demobilisation. This phase includes the stripping of topsoil which would be stored separately in earth bunds along the north-western and north eastern perimeters of the site to offer some visual screening. Site drainage will be aided by a ditch and a security fence and gate would be constructed and accessed north of the existing solar array.

6.6.1.3 Phase 2: Drilling Operations

Phase 2 drilling operations is expected to take around seven weeks to complete with one week for rig mobilisation, 5 weeks of drilling and one week for rig demobilisation. A drilling rig with a maximum working height of 38m for the purposes of constructing an exploratory borehole would be brought to site alongside ancillary drilling equipment, including a toolpusher cabin, toolhouse, generators and fuel tanks, matting boards, blow out preventers and manifold. Approximately 6 welfare cabins and 10 car parking spaces will also be provided.

6.6.1.4 Phase 3: Proppant Squeeze and Flow Testing

In order to determine the potential reserves of gas, it will be necessary to undertake a proppant squeeze. This is expected to take up to 17 weeks comprising an initial week of testing, followed by a proppant squeeze lasting around one week, and then further testing of fifteen weeks.

6.6.1.5 Phase 4: Well Decommissioning, Site Restoration and Flow Testing

At the end of the production testing phase, the site would be restored to agricultural use or to an approved new use agreed with NYC and the landowner. All equipment, infrastructure, membranes, aggregate and facilities will be removed. The stored topsoil bunds will be tested and reused to ensure compatibility with the surrounding land quality and landscape character.

Further information on the proposed development can be found in Chapter 4 of this ES.

6.7 Landscape and Visual Effects

6.7.1 Introduction

This section sets out the effects that the proposed development would have on landscape/townscape and visual receptors. Effects during construction and for the completed development are considered for each landscape and visual receptor.

6.7.2 Effects on Site fabric

The Proposed Development would result in the temporary loss of some agricultural pasture to make way for the drilling infrastructure. This would include earth bunds to the north-west and eastern perimeters following topsoil stripping to aid with drilling and visual screening, a 38m high drilling rig and ancillary equipment, fencing and temporary welfare facilities. The Proposed Development would introduce a series of man-made features in an organised arrangement and would be bound by fencing and earthwork bunds. Effects on Site fabric would be temporary and reversible upon completion of the works and returning the Site to agriculture.

6.7.3 Viewpoint Analysis

Viewpoint analysis has been undertaken from a total of 7 viewpoints. The final list of viewpoints was prepared following consultation with North Yorkshire Council.

The viewpoint locations are illustrated on Figures 6.4 and 6.5. The visualisations (comprising photographs of the existing view and location and height of the drill rig within the Site) are illustrated with reference to Viewpoints 1 to 7.

The full viewpoint analysis is contained within Appendix 6.1: Viewpoint Analysis. The findings are summarised below in Table 6.1: Viewpoint Analysis Summary. In each case, distances are approximate and based on closest part of the Site.

Please note that Appendix 6.1 Viewpoint Analysis considers the nature and the scale of changes to character and views at each viewpoint location only. The sensitivity of receptors and wider extent of the effect (beyond the individual viewpoint location) and its duration are considered in the main body of the assessment text below as part of the consideration of the magnitude and significance of effects.

Table 6:4 Viewpoint Analysis

Viewpoint No.	Viewpoint	Approximate distance / direction from Site	Scale of Landscape Effect	Scale of Visual Effect
1	Cleveland Way	0.65km east	Small	Medium/Small

2	A165 Coastal Road	0.45km south	Small/Negligible	Small
3	National Cycle Route 1/ Cinder Track	0.6km south-west	Small/Negligible	Small
4	Station Road	1.6km south	Small/Negligible	Small
5	Limestone Road	1.8km west	Small/Negligible	Small
6	Field Lane	1.12km north	Small/Negligible	Small
7	Ripley's Road	2.8km north-west	Negligible	Small/Negligible

Each of the viewpoints is a 'sample' of the potential effects, representing a wide range of receptors – including not only those actually at the viewpoint, but also those nearby, at a similar distance and/or direction.

6.7.3.1 Effects on Character

Large scale effects on character are limited to the Site, given the change in use of the current agricultural fields to temporary drilling and flow testing. The scale of effect within this area would be short term, temporary and reversible with the land being returned to agriculture post operation.

Small scale effects would occur within approximately 2km of the proposed development, in particular to the landscapes to within 1km to the east of the site, from where changes would be more perceptible. The proposed earth bunds and retention of existing woodland would provide some mitigation to these effects

Beyond 2km effects on character will be of Small to Negligible scale, reducing to Negligible beyond 3km, as the change to the landscape, in terms of the addition of the drill rig, would be barely discernible given the separation distances and the level of screening afforded by intervening landform, built form and vegetation

6.7.3.2 Effects on Views

Similar to effects on landscape character, large scale effects on views would be limited to the Site itself, however, as a working operational site, such views would not be accessible to the public.

Up to Medium scale effects would be experienced within 1km of the Site, most notably in views associated with the Heritage Coast and England Coastal Path/ Cleveland Way National Trail. These would include views of the earth works, erection of site infrastructure and the drill rig which would occur within the open rolling coastal landscape. Effects would be no more than Small scale to within 1km to the south and west and limited to the uppermost parts of the drill rig above the canopy of intervening woodland and roofline of adjacent mill buildings.

Up to Small scale effects would be experienced to within 1-2km of the Site with views limited almost exclusively to the drill rig, viewed as a single vertical element within the overall panorama. These effects would reduce to Negligible following the short term temporary drilling operations phase.

Beyond 2km, the scale of effect would be no more than Small/Negligible, reducing to Negligible beyond 3km, as views would be intermittent and largely screened by a combination of intervening existing landform, built form and vegetation that interrupt visibility from the wider area.

6.7.4 Effects on Landscape Character

Descriptions for each of the assessed character areas/types are briefly summarised below, along with further observations from site based work.

6.7.4.1 Host Landscape: LCA D3: Scalby (supplemented by LCT 15 where appropriate)

As identified in Appendix 6.2 and in relation to the key characteristics noted in Section 6.5 of this chapter, the susceptibility of this 'Host Landscape' is judged to be High/Medium**.** The Heritage Coast landscape is one of simple yet distinctive landform, pattern and land cover with limited settlement or built form. This landscape is valued nationally for its visual interest linked to the open and expansive views afforded across adjacent landscapes including along the coastline. Whilst the development does not sit within the National Park it does sit within its setting with potential for effects of a visual nature across the landscape towards the Heritage Coast from within the National Park.

As described in Appendix 6.2 the value of the landscape within this 'Host Landscape' is judged to be Regional. the Heritage Coast form a highly distinctive landscape and comprises rugged coastal cliffs and rolling farmland. For recreational users the value of the landscape often comes in the form of long distance, uninterrupted views afforded from the elevated rolling coastline. This landscape contains a high level of ecological and geomorphological interest.

Considering susceptibility and value together the sensitivity is judged to be High/Medium.

Assessment of Effects at Site level

Within the Site itself the perception of construction activity and operational development would be of large scale and wide in terms of the geographic extent of development across the Site. The magnitude of change arising from the short-term, temporary construction and operation would be Moderate, resulting in **Moderate (not significant) Adverse** effects on landscape character of the Site within phases 1, 2 and 3 and 4 of development. Noting that moderate effects may or may not be significant, it is the professional opinion of the assessors that in this instance, the effect would be **not significant** on the basis that effects would be temporary, short term and reversible. These effects would reduce to **Negligible** following operation, as the Site is returned to agriculture and integrated into the surrounding landscape.

Assessment of Effects within 2km

During Phase 1 construction activity would be partially visible within this landscape but of Small/Negligible scale and localised in terms of geographic extent. Changes to the landscape would occur to within 1km that would see the introduction of uncharacteristic elements such as earthworks, bunds and the introduction of site infrastructure. During Phase 1 there would be a Negligible magnitude of change arising from construction resulting in **Minor/Negligible (not significant) Adverse** effects that would be short term, temporary and reversible.

During Phase 2 operational development would be visible from within this landscape including higher land to the west and open rolling coastland to the east primarily due to the erection of the 38m high drilling rig which will be an uncharacteristic vertical element within the overall vista. Similarly to the east, the topsoil bunds and possibly glimpsed views of cabins and other lower-level elements on Site would introduce uncharacteristic elements into the landscape. Effects would be of small scale and localised in terms of geographic extent. The magnitude of change arising from the short-term Phase 2 would be Slight/Negligible, resulting in **Minor (not significant) Adverse** effects on landscape character.

During Phase 3 of operation effects would be Small/Negligible scale during the short-term proppant squeeze and flow testing with the extent of development considerably reduced within the landscape due to surrounding buildings and woodland that screen views from the west and south and the inclusion of the bund partially screening development to the north and west. The magnitude of effect would be Negligible, with the development having an overall **Minor/Negligible Adverse** effect considered **not significant**.

During Phase 4, well decommissioning, effects during would be similar to phase 1 construction resulting in **Minor/Negligible (not significant) Adverse** effects on landscape character.

These effects would reduce to **Negligible** and **not significant** as the land is returned to agricultural usage and integrated back into the landscape following the short-term operational phase.

Beyond 2km the effects on landscape character are likely to be **Negligible** and **not significant** for all stages of the development.

6.7.4.2 LCA G3: Long Nab to North Bay

As detailed in Appendix 6.2 the value of the landscape is deemed to be **National/Regional** by virtue of its association with the North Yorkshire and Cleveland Heritage Coast and the high scenic and recreational value attached. This is a highly distinctive landscape of dramatic coastal cliffs and bays which afford long distance vistas. There is wide ranging geological and geomorphological interest associated with this landscape. Much of the landscape, has a perception of wilderness, remoteness and tranquillity. Whilst the development does not sit within this landscape it does sit within the Heritage Coast approximately 0.4km west of this LCA with potential for effects of a visual nature across the landscape towards the Site. Considering High/Medium susceptibility and National/Regional value together the sensitivity is judged to be High/Medium**.**

The development does not sit within this LCA and therefore effects arising from development on the landscape character of this LCA would be indirect and primarily based on visual perception. The ZTV in figure 6.5 indicates theoretical visibility is mainly focused to within 2km of the Site within this LCA. Although the ZTV indicates some visibility beyond 2km desk-based analysis and Site surveying indicate that effects beyond this are likely to be screened by intervening landform, settlement and vegetation.

Assessment of Effects

During Phase 1 construction activity would be visible but of Small/Negligible scale and localised in terms of geographic extent. Construction activities including the movement of plant, earthworks within the site and the construction of site infrastructure would result in an increase in uncharacteristic activity within 1km of the Site but would be viewed as a very small part of the overall vista. During Phase 1 there would be a Negligible magnitude of change arising from construction resulting in **Minor/Negligible (not significant) Adverse** effects that would be short term, temporary and reversible.

During Phase 2 drilling operations the scale of change would be Small/Negligible and intermediate in terms of geographic extent within 2km of the Site. The magnitude of change arising from the short-term, temporary drilling activity within Phase 2 would be Slight/Negligible, resulting in **Minor Adverse** effects on landscape character albeit temporary, short term and reversible. Effects would be **not significant**.

During Phase 3 the scale of change would reduce to Negligible and limited in extent following the removal of the rig, resulting in a Negligible magnitude of change and **Minor/Negligible (not significant) Adverse**.

During Phase 4, well decommissioning, effects would be similar to Phase 1 resulting in **Minor/Negligible (not significant) Adverse** effects on landscape character.

Effects would further reduce to **Negligible** as the land is returned to agricultural usage and its integration back into the landscape following the short-term operational phase.

Beyond 2km the effects on landscape character are likely to be **Negligible** and **not significant** for all stages of the development.

6.7.4.3 LCA A1 Cloughton & Burniston

As detailed in Appendix 6.2 the value of this landscape is deemed to be **National/Regional.** The landscape is valued for its recreation, namely the National Cycle Route which intersects the LCA and a number of local PRoW. The landscape is noted as being of good ecological value including riparian habitat that follows watercourses. Cloughton village has a strong vernacular and link to the wider landscape including the adjacent National Park. This landscape is small scale and intimate with a certain level of enclosure due to the undulating landform and several woodland blocks lowering the landscapes susceptibility to development of this nature. Considering **Medium/Low** susceptibility and **Regional** value together the sensitivity is judged to be **Medium.**

The development does not sit within this LCA and therefore effects arising from development on the landscape character of this LCA would be indirect and primarily based on visual perception. The ZTV in figure 6.5 indicates theoretical visibility is mainly focused to within 2km-3km of the Site within this LCA.

Assessment of Effects

The level of screening afforded by both topography and vegetation cover within this enclosed landscape limit views outward. Any view of development would be extremely small scale and extremely limited in terms of geographical extent of views. Therefore, it is judged that there would be an overall **Negligible** effect on landscape character within this LCA during all 4 phases of development.

6.7.5 Visual Effects

6.7.5.1 Visual receptor Groups

This assessment focuses on effects on groups of visual receptors, incorporating effects on views from public spaces and streets within neighbourhoods. The assessment of effects focuses on the visual amenity of public spaces, though views from groups of dwellings will also be noted in the descriptions.

Viewpoint analysis has been undertaken from a total of seven viewpoints which are representative of the visual receptor groups. The list of viewpoints was agreed with NYC.

The viewpoint locations are illustrated on LVIA Figures 6.4 and 6.5. Annotated photographs also accompany this assessment for Viewpoints 1-7. Please note that along with the written descriptions below Appendix 6.1: Viewpoint Analysis contains detailed information for each viewpoint location and receptor group.

Burniston – (Viewpoint 5) This receptor group primarily comprises residential properties within Burniston, local roads and PRoW within the village setting. Residential receptors are of **High** sensitivity to change brought about by development. Receptors in this capacity would experience very limited views of development, albeit some longer distance views of the drill rig would be available from properties on higher terrain on the edge of the village. Viewpoint 5 sits on the western edge of Burniston elevated at a height of approximately 89m AOD along Limestone Road. From this location expansive views across the agricultural landscape towards the Heritage Coast are available; however, views of development are likely to be limited to the uppermost parts of the drill rig for a short period of time (7 weeks) during its operational phase. From elsewhere within the village, such as properties along A171 Mill Lane, views would be screened by intervening built form and vegetation.

Assessment of Effects

During Phase 1 construction, views of construction activity would be of very limited extent from Burniston village given the level of screening afforded by intervening buildings, and woodland particularly surrounding the Site itself and along the linear route of the NCR/ Cinder Track. The low-lying topography within the village also aids with visual screening particularly along the A165. Views from the southern edge of the village may include a perceived increase in construction traffic, although this would be of very small scale along the busy A165 road. On higher ground, particularly Limestone Road (Viewpoint 5) views of construction are entirely screened by the intervening rolling landscape. Therefore, there would be a Negligible scale of change in views from residential properties within Burniston and limited in terms of extent. In the Short term, during the temporary construction phase there would be a Negligible magnitude of change. Given the extremely limited views afforded from residential properties in Burniston the effects on visual amenity are deemed to be **Minor/Negligible** (**not significant) Adverse**. These effects would be short term and reversible.

During Phase 2 of development there would be a small scale of change in views from residential properties particularly those close to the Site, along A165 road and those on higher ground along Limestone Road (Viewpoint 5) arising from views of the vertical drill rig above intervening buildings and vegetation. These effects would be limited in geographical extent within the village and its setting. The Phase 2 works would therefore result in a Negligible magnitude of change and **Minor** (**not significant) Adverse** effects on visual amenity. These effects would be short term and reversible.

During phase 3 the scale of change would reduce to Negligible as the remaining structures on site would be barely perceptible above and between intervening built form and vegetation. These effects would be experienced over limited extents and very short term duration resulting in a Negligible magnitude of change and **Minor/Negligible** (**not significant) Adverse** effect.

The scale of effects during phase 4 during decommissioning would be similar to those in phase 1 resulting in **Minor/Negligible** (**not significant) Adverse** effects on visual amenity.

Effects would further reduce to **Negligible** as the land is returned to agricultural usage and its integration back into the landscape following the short-term operational phase.

Scalby – (Viewpoint 6) This receptor group comprises residential properties south and south-west, local roads and PRoW within the village setting. Receptors would be limited to intermittent views, primarily of the 38m high drill rig. Views of development are likely to limited to within 2km of the Site, including residential properties along Scalby's northern edge. This includes a cluster of outlying residential properties east of A171 within 1km, and Scarborough Rugby Club just over 1km of the Site. Views beyond 2km are likely to be limited given the distance, scale of

development and intervening landform, settlement and vegetation. Viewpoint 6 is situated along Field Lane and is representative of views from nearby residential receptors, users of the local road and recreational users of the Tabular Hills Walk.

Assessment of Effects

During Phase 1 construction there would be very limited potential views of construction activities including the movement of plant, earthworks within the site and the construction of site infrastructure. There would be a Negligible scale of change in views from residential properties of limited geographical extent. This would result in Short term changes of Negligible magnitude and **Minor/Negligible Adverse** effects on visual amenity which would be **not significant**.

During phase 2 views of the uppermost parts of the drill rig from properties along the northern edge of Scalby would result in a Small/Negligible scale of change, of localised extent, with other infrastructure likely screened by intervening landform and vegetation. Most of the development would be imperceptible from a large proportion of the village. There would be a Negligible magnitude of change, resulting in **Minor** Adverse effects on visual amenity which would be **not significant**.

During phase 3 the scale of change would reduce to Negligible and be extremely limited in terms of extent due to intervening landform, buildings and woodland. The magnitude of change would be Negligible resulting in **Minor/Negligible Adverse** effects on visual amenity which would be **not significant**.

During phase 4 well decommissioning effects would be similar to phase 1 and would result in in **Minor Adverse** effects on visual amenity.

Effects would further reduce to **Negligible** as the land is returned to agricultural usage and its integration back into the landscape completed following the short-term operational phase.

Cloughton – (Viewpoint 4 and Viewpoint 7) Cloughton is situated approximately 1.5km north of the Site beyond Burniston. Viewpoint 7 lies almost 3km away and is representative of the field of view from residential properties on higher ground within the setting of Cloughton. Viewpoint 4 lies just over 1km away from the Site to the north and is representative of views from residences on southern edge of the village including those situated within the National Park boundary. Local roads and PRoW within the village setting are also included within this grouping. Beyond 3km of the Site views are likely to be limited and unlikely to give rise to significant effects on visual amenity due to the distance and scale of development, intervening landform, settlement and vegetation.

Assessment of Effects within 3km

Views of the proposed development appear to be limited to the upper levels of the drill rig, hence the assessment focusses on Phase 2 of operations when views of the drill rig would be available above intervening landform and vegetation from residential properties and local roads along the southern extents of the settlement. Receptors would experience a Negligible scale of change in visual amenity of localised extents and Negligible magnitude of change, **Minor Adverse** effect which would be **not significant**. These effects would be short term and reversible.

Effects would further reduce to **Negligible** as the land is returned to agricultural usage and its integration back into the landscape following the short-term operational phase.

Recreational Routes along High and Low Toft Hills – This receptor group comprises recreational users of PRoW that cross the High and Low Toft Hills between the villages of Burniston and Scalby, at approximately 0.8km-1.8km from the Site and includes footpaths 30.3 3/1, 30.3 2/3 and bridleway 30.3 4/2 where elevated views towards the Site and Heritage Coast are available from higher ground. Receptors in this capacity are of **High/Medium** sensitivity to changes in visual amenity by virtue of the **High** susceptibility and **Community** level value of these PRoW.

Assessment of Effects

Recreational users would experience intermittent views of development, which are likely to be limited to the drill rig during the operational phase 2 with most of the rest of development predominantly screened by intervening landform, vegetation and built form. These views are similar to those experienced from the cluster of residential receptors on Limestone Road illustrated by Viewpoint 5.

During Phase 2 views of development would be limited to the uppermost part of the drill rig visible from an intermediate extent of the PRoW, albeit as a single vertical element within the context of the mill buildings. The

scale of change would be Small and Short term resulting in a Slight magnitude and **Moderate/Minor Adverse** effect on visual amenity which would be **not significant.**

Effects would further reduce to **Negligible** as the land is returned to agricultural usage and its integration back into the landscape following the short-term operational phase.

6.7.5.2 Key Routes

Roads and Rail

A165 Coastal Road – (Viewpoint 2) Receptors along the A165 Coastal Road are primarily road users, with some appreciation of the wider landscape and are therefore of **High/Medium** sensitivity to change in views by virtue of the High Sensitivity of road users and the Regional level value attached.

Assessment of Effects

Within 1km, road users would experience intermittent views of development, which are likely to be limited to the drill rig during the operational phase 2 with most of the rest of development predominantly screened by intervening landform, vegetation and built form. These views are illustrated by Viewpoint 2, which is situated at a layby approximately 0.45km south of the Site. The ZTV indicates theoretical visibility along the A165 up to 3km from the Site, however, through site survey analysis its evident that beyond 1km views are predominantly screened by intervening built elements, landform and vegetation and are therefore likely to be **Negligible.**

During Phase 2 drilling operation there would be views of the drill rig from a number of locations along this route above the canopy of woodland along the Site's southern boundary. However, the rig would be viewed as a single vertical element resulting in a Small/Negligible scale of change in views over an intermediate extent of the A165. The Short term drilling activity would result in a Negligible magnitude of change and **Minor/Negligible Adverse** effects on visual amenity along the A165. These effects would be short term and reversible and **not significant**.

Effects would further reduce to **Negligible** as the land is returned to agricultural usage and its integration back into the landscape following the short-term operational phase.

A171 Scalby Road/ Mill Lane –. Situated to the west of the Site this road links the villages of Scalby and Burniston. The ZTV indicates theoretical visibility along this route within 2km of the Site. However, the Site visit revealed that views are more likely to occur within 1km as the road nears the edge of Burniston, where the landform slopes eastward and views towards the coast open up with views. Receptors in this capacity are primarily road users and of **Medium** sensitivity to change in visual amenity by virtue of the **Medium** susceptibility to change and **Community** level value attached.

Assessment of Effects within 1km

Within 1km, road users would experience intermittent views of development, limited to the drill rig during the operational phase 2 with the rest of the development screened by intervening landform, vegetation and built form.

During Phase 2 drilling operations views of the uppermost parts of the drill rig would be visible above intervening landform, vegetation and built form. There would be Small/Negligible scale of change in views over a limited extent of the A171 resulting in a Negligible magnitude of change, **Minor/Negligible Adverse** effects which would be **not significant.**

Effects would be **Negligible** as the land is returned to agricultural usage and its integration back into the landscape following the short-term operational phase.

Recreational Routes

England Coastal Path/ Cleveland Way National Trail - (Viewpoint 1) The England Coastal Path and Cleveland Way National Trail meet along the coastline approximately 0.65km east of the Site. Receptors in this capacity are primarily recreational users of the National Trail and reasonably expected to visit the area for the visual amenity associated with the Heritage Coast and an overall appreciation of the coastal landscape. The route follows the coastline running in a north-south direction following the topography of the rolling coastal farmland landscape. Views of development are likely to be intermittent and most likely to be available from closer to the Site and from areas of higher ground. To the south, views of construction and operation are likely be limited to the uppermost parts of the drill rig, which will be visible above the canopy of the woodland along the Site's southern boundary.

Further north along this route views would be intermittent with areas screened by rolling landform. However, views would be available from areas of higher ground, mostly within 3km of the Site.

Assessment of Effects

During phase 1 views of construction activity would be available including regrading and creation of a bund along the northern and eastern site boundary following topsoil stripping and construction of ancillary infrastructure within the Site. There would be a Medium scale of change in views from recreational users of the National Trail from a number of locations within 1km of the Site. These effects would be localised and very short term resulting in a Moderate/Slight magnitude of change and **Moderate Adverse** effects on visual amenity. Noting that moderate effects may or may not be significant, it is the professional opinion of the assessors that in this instance, the effect would be **not significant** on the basis that effects would be temporary, short term and reversible.

During Phase 2 drilling operations there would be a Medium scale of change in views from recreational users of the National Trail, of localised geographic extent, due to views of the drill rig and topsoil bunding along the Sites northern and eastern boundaries. These effects would be localised and very short term resulting in a Moderate/Slight magnitude of change and **Moderate Adverse** effects on visual amenity. Noting that moderate effects may or may not be significant, it is the professional opinion of the assessors that in this instance, the effect would be **not significant** on the basis that effects would be temporary, short term and reversible.

During Phase 3 effects would reduce to Small scale and localised following the demobilisation of the drill rig with the extent of development visible considerably reduced within the landscape, primarily comprising views of bunded earth. The magnitude of effect would be Slight/Negligible, with the development having an overall **Minor** adverse effect considered **not significant**.

During phase 4 well decommissioning would be similar to phase 1 but in reverse with construction activity visible within the landscape and of **Moderate Adverse** effects on visual amenity and **not significant**.

These effects would reduce to **Negligible** and **not significant** as the land is returned to agricultural usage and integrated back into the landscape following the short-term operational phase. **Tabular Hills Walk** – (Viewpoint 6) Recreational users of the Tabular Hill PRoW are deemed to be of **High** sensitivity to changes in visual amenity brought about by development. This route runs from the hills associated with the North York Moors National Park to the west, through Scalby to the coast where it adjoins the Cleveland Way. The route runs to within 1.5km of the south of the Site with receptors in this capacity experiencing intermittent views of development largely due to intervening vegetation within the landscape. Views of development would likely be limited to the uppermost parts of the drill rig, during its short (7 week) operational phase with the remainder of the development likely screened by intervening landform, vegetation and built form.

Assessment of Effects

During phase 2 drilling there would views of the uppermost parts of the 38m tall drill rig over a localised extent of the route resulting in a Small/Negligible scale of change for recreational users of the route, a Negligible magnitude of effect and **Minor/Negligible** (**not significant) Adverse** effects on visual amenity. These effects would reduce to **Negligible** and **not significant** as the land is returned to agricultural usage and integrated back into the landscape following the short-term operational phase

National Cycle Route 1/ Cinder Track – (Viewpoint 3) NCR 1 runs in a north-south direction passing the Site at approximately 0.2km at its closest point. Receptors in this capacity are recreational users of the cycle way, reasonably expected to visit the area for appreciation of the landscape and of the visual amenity afforded by the Heritage Coast and are therefore deemed to be of **High** sensitivity to changes in visual amenity. Recreational users of the NCR would experience intermittent views of development, limited to the uppermost parts of the drill rig with the remainder of the development likely screened by intervening landform, vegetation and built form.

Assessment of Effects

During Phase 2 drilling operations views of development are likely to be limited to the uppermost parts of the drill rig, for a short period of time (7 weeks) with remainder of the development likely screened by intervening landform, vegetation and built-up elements. There would be a Small/Negligible scale of change in views over a localised extent of the route, particularly closer to the Site within 1km, and where gaps in vegetation lining the route occur. There would be a Negligible magnitude of change, resulting in **Minor/Negligible Adverse** effects on visual amenity albeit short-term, temporary and reversible and **not significant**.

These effects would reduce to **Negligible** and **not significant** as the land is returned to agricultural usage and integrated back into the landscape following the short-term operational phase

Other PRoW within the Study area, where theoretical visibility is possible, will be included in the receptor groups within which they sit.

6.7.6 Designated Areas

North York Moors National Park – The North York Moors National Park is designated as an area of national importance for both the scenic beauty and recreational value. The special qualities of the National Park, as defined in the North York Moors Management Plan (2022-2027) can be read in section 6.5.5 of this chapter.

The Site does not sit within the National Park, but within its setting with the closest area being approximately 800m to the north.

Table 6:5 North York Moors Special Qualities

	Susceptibility	Nature of effect	Scale and extent of effect
Special Qualities			
A surprising range of contrasting landscapes, with extensive views	**High -** development of this nature could adversely affect the extensive range of views within this landscape, particularly those that are undeveloped.	The development will be visible from areas within the NYMNP although this will be limited to the uppermost parts of the drill rig and be of temporary nature with very short term effects and viewed as a small part of an overall vista.	**Small** scale effects on visual amenity as a result of temporary development primarily comprising views of the uppermost parts of the drill rig.
A diverse mix of upland, lowland and coastal habitats, home to a rich variety of wildlife	**Medium** – development of this nature could affect a number of habitats although this would likely be localised within the Site itself.	Development is contained within the Site and contains the retention of most planting types. Some loss of pasture grassland. The Site does not sit within the NYMNP area.	**Negligible**
A place with strong, visible links to its cultural heritage	**High** – Links to aspects of cultural heritage including views of and from the distinctive Heritage Coast landscape could be adversely affected by development.	Development will be visible from certain areas of the NYMNP and viewed in relation to its setting within the Heritage Coast, although localised within the Site and likely to be viewed at distance and limited to the uppermost parts of the drill rig.	**Small** scale effect on views towards the Heritage Coast, as viewed from the NYMNP although localised, short term and temporary.
A variety of distinctive places and communities, creating a sense of local identity, culture, tradition and pride	**Low** – temporary development of this nature is unlikely to have an impact on local identity, culture or tradition of the area.	No effect	**Negligible**
A place of escape from towns and cities, offering a true sense of remoteness and	**High** – areas of Dark Skies associated with the NYMNP are sensitive to additional development and associated lighting	Development will include additional lighting but does not sit within the National Park. The Site is situated in Zone E2 and lighting proposals comply with CIE150:2003 and ILP Guidance notes for the	**Small** scale effect arising from additional lighting, albeit temporary and short term with limited effect on the setting of Dark Skies within the National Park

the darkest of skies		reduction of obtrusive light.	
A source of physical, mental and spiritual well-being	**Low** – development of this nature is unlikely to have an effect on these aspects of wellbeing.	No effect	**Negligible**

Whilst some of the special qualities of the National Park are judged to have **Low** or **Medium** susceptibility to this form of development, they are mostly judged to be of **High** susceptibility. Considering this combined with the judgement of **National** value, the National Park is considered to be of **High** sensitivity.

Assessment of Effects

During phase 1 construction distant views of construction activity would likely be extremely limited. Based on the detailed considerations set out above, short-term effects on the purposes of designation and Special Qualities of the NYMNP would be of Negligible scale and very limited in terms of extent to within 1-2km to the north of the Site (Viewpoint 4). There would be a Negligible magnitude of change, and combined with the High sensitivity of the NYMNP, **Minor/Negligible Adverse** effects during phase 1 construction considered **not significant**.

During phase 2 drilling operations views of the 38m high drill rig would be available from certain locations within the National Park, particularly to within 1-2km to the north of the Site. These Small/Negligible scale effects would be short-term and localised in extent, resulting in a Negligible magnitude of change and **Minor/Negligible Adverse** effects. The effect would be **not significant** on the basis that effects would be temporary, short term and reversible.

During phase 3 there would be a reduction in visible operational activity following the removal of the drill rig, with potential very limited glimpsed views of operations. These effects would be of Negligible scale, very limited extent culminating in a Negligible magnitude of change. Effects on visual amenity of the National Park would be **Minor/Negligible Adverse** and **not significant**.

During phase 4 well decommissioning effects would be similar to phase 1 but in reverse with construction activity visible within the landscape. **Minor/Negligible Adverse** effects on visual amenity and **not significant**.

These effects would reduce to **Negligible** and **not significant** as the land is returned to agricultural usage and integrated back into the landscape following the short-term operational phase

North Yorkshire and Cleveland Heritage Coast - Although not technically a landscape designation the Site is situated within the Heritage Coast which is defined for its visual interest and importance. Further information can be read in section 6.5.5 of this chapter.

Table 6.6: North Yorkshire and Cleveland Heritage Coast Special Qualities

	Susceptibility	Nature of effect	Scale and extent of effect
Special Qualities			
Natural beauty of the coastline	**High** – development of this nature could adversely affect the visual amenity and appreciation of the landscape associated with the Heritage Coast from recreational users.	Views of development will be available from certain locations within the Heritage coast, most notably the 38m tall drill rig which will have a wider extent of visual impact but will be short term.	**Medium** scale on visual amenity as a result of temporary development primarily comprising views of the uppermost parts of the drill rig.
Terrestrial, coastal and marine flora and fauna	**Low** – development could lead to impacts on coastal flora and fauna.	Development is contained within the Site and contains the retention of most planting types. Some loss of pasture grassland. To be returned to agriculture following development.	**Small** scale effect on flora and fauna through the replacement of pasture with development, albeit contained within the Site and returned to agricultural usage following operation.

Their heritage features	**Medium** – development of this nature would note directly affect heritage features albeit it could detract from the setting of the rugged coastal cliffs.	Some impact to the setting of the Heritage coast, although the development will be contained within the Site views of the drill rig will have a wider extent of visual impact.	**Small** scale effect on visual amenity of heritage features as a result of temporary development primarily comprising views of the uppermost parts of the drill rig

The qualities defined within the Heritage Coast are judged to be of Medium susceptibility. Considering this combined with the judgement of National value, the Heritage Coast is considered to be of **High/Medium** sensitivity.

Based on the detailed considerations set out above, Short-term effects on the qualities of the Heritage Coast would be of overall Small scale as a result of effects on natural beauty, visual amenity and the setting of heritage features.

Assessment of Effects

During Phase 1 construction activity would be partially visible within this landscape but of Small/Negligible scale and Limited in terms of geographic extent. Changes to the landscape would occur to within 1km that would see the introduction of unfamiliar elements such as earthworks and the introduction of site infrastructure. There would be a Negligible magnitude of change arising from construction resulting in **Minor/Negligible (not significant) Adverse** effects that would be short term, temporary and reversible.

During phase 2 drilling operations would introduce a further uncharacteristic element into the landscape of the Heritage Coast which would be of Small scale and Limited extents to within 1.5km of the Site. There would be a Negligible magnitude of change and combined with the High/Medium sensitivity, would result in **Minor Adverse** effect that would be **not significant**.

During phase 3 following the demobilisation of the drill rig there would be a Negligible scale of change of very limited extent perceived from the Heritage Coast with very limited to views of earth bunds and infrastructure. There would be a Negligible magnitude of change and **Minor/Negligible Adverse** effect that would be **not significant.**

During phase 4 well decommissioning effects would be similar to phase 1 resulting in **Minor Adverse** effects on the Heritage Coast considered **not significant**

These effects would reduce to **Negligible** and not significant as the land is returned to agricultural usage and integrated back into the landscape following the short-term operational phase.

6.7.7 Summary of landscape and Visual Effects

Effects on the receptors assessed are summarised in table 6.7 below.

The proposed development Site lies approximately 350 m east of the village of Burniston and 6km north of Scarborough and is accessed from the A165 Coastal Road. It is bounded to the north, south and east by agricultural land, and to the east by a small solar farm and Wayside Farm. The Site lies within a rural area within Burniston Parish Council but also contains a number of industrial units including an animal feed mill, served by a separate access, 200m to the south west of the well site. The Site is partly screened by existing woodland to the south and intermittent gappy hedgerows to the wider field boundaries to the north sides.

The proposed development encompasses a hydrocarbon appraisal operation which would be temporary, short term and reversible returning the land to agricultural usage following operation.

Landscape Effects

Within the landscape of the Site itself, effects would be **Moderate Adverse** and **not significant** across all 4 phases of development. The effects within 2km of the Site on the 'Host Landscape' (LCA D3: Scalby) would be at most, **Minor Adverse** during phase 2 drilling operations, and **not significant**.

Similarly, effects on LCA G3: Long Nab to North Bay would be at most **Minor** Adverse and **not significant** during, with no other landscape effects greater than **Minor/Negligible**.

Effects on the National Landscapes of the North Yorks Moors National Parks would be at most **Minor/Negligible** whilst effects on the Heritage coast are judged to be at most **Minor adverse** with none of the effects considered significant.

Visual Effects

Views from Burniston would be limited to a small number of properties on higher ground (Viewpoint 5) to the upper levels of the drilling rig and would be at most, **Minor Adverse** and **not significant** during phase 2 drilling operations.

Residential properties within Scalby, particularly those on the northern edge (Viewpoint 6) and within Cloughton (Viewpoints 4 and 7), particularly to its southern edge, would similarly experience **Minor Adverse** effects on visual amenity as a result of views of the drill rig during phase 2. No other visual effects on settlements or residential receptors would be greater than **Minor/Negligible (not significant) Adverse**. Visual effects would be **Moderate** Adverse for the closest receptors and recreational users of the England Coastal Path/ Cleveland Way National Trail (Viewpoint 1) as they pass adjacent to the site during phase s 1, 2 and 4 of development. However, these effects would reduce to **Minor** Adverse during phase 3 well decommissioning, further reducing to **Negligible** as the land is returned to agriculture following operation. All effects would be **not significant** on the basis that effects would be temporary, short term and reversible.

Visual effects for other recreational users of the National Cycle Route 1 / Cinder Track (Viewpoint 3) and the Tabular Hills Walk would experience at most **Minor/Negligible Adverse** effects which would be **not significant**.

Views from other recreational routes would be at most **Minor/Negligible** with the exception of the group of PRoW along the High and Low Toft Hills which would experience **Moderate/Minor Adverse** effects during phase 2, only. Effects would be **not significant**.

With regard to road users, including users of the A165 Coastal Road and the A171, none would experience visual effects greater than **Minor/Negligible Adverse** effects during phase 2 of operations.

There would be some **Minor/Negligible Adverse** effects on visual amenity of recreational users of the National Park to within 3km of the Site and on local highpoints with vistas towards the coast. Effects would be **not significant** and would reduce to **Negligible** as the land is returned to agriculture following operation.

There would also be some **Moderate Adverse** effects on recreational users and visitors to the Heritage Coast, within which the Site sits, with recreation routes running to within 0.45km of the Site boundary. Effects would be **not significant** and would again reduce to **Negligible** as the land is returned to agriculture following operation. A summary of effects greater than Negligible magnitude and or significance is included in the table below:

Table 6.7: Summary of Effects

Receptor	Description	Sensitivity	Magnitude	Significance	Beneficial /Neutral /Adverse
Landscape Character					
Site Level	All phases at Site Level	High/Medium	Moderate	Moderate (not significant)	Adverse
Host Landscape (LCA D3 Scalby)	Phase 2 Drilling Operations	High/Medium	Slight/Negligible	Minor (not significant)	Adverse
LCA G3 Long Nab to North Bay	Phase 2 Drilling Operations	High/Medium	Slight/Negligible	Minor (not significant)	Adverse
Visual Receptors Groups					
Recreational Routes along High and Low Toft Hills	Phase 2 Drilling Operations	High/Medium	Slight	Moderate/Minor (not significant)	Adverse

England Coastal Path/ Cleveland Way National Trail	Phase 1 Construction	High	Moderate/Slight	Moderate (not significant)	Adverse
	Phase 2 Drilling Operations	High	Moderate/Slight	Moderate (not significant)	Adverse
	Phase 3 Proppant squeeze and flow testing	High	Slight/Negligible	Minor (not significant	Adverse
	Phase 4 Well decommissioning	High	Moderate/Slight	Moderate (not significant)	Adverse

6.8 Cumulative Assessment

There are no schemes at operational, application or scoping stage related to drilling rigs within the Study Area. The likelihood of cumulative impacts from other schemes is limited therefore cumulative impacts will not be assessed further within this chapter.

6.9 Night-time Assessment

6.9.1 Introduction

The screening opinion identified the need for a night-time assessment of visual effects for receptors classed as highly sensitive including residential receptors and the influence of any light on the Dark Skies associated with the National Park and surrounding landscape.

For landscape receptors night-time assessment considers any qualities or characteristics that may be susceptible to lighting such as wilderness and absence of human activity. However, designated landscapes are more sensitive and require the consideration of any specific qualities that may be sensitive to lighting.

The value attached to night-time views is considered to be low unless there is a particular feature that can be best appreciated in the hours of darkness.

6.9.2 Baseline

The Site lies within Zone E2 as agreed through consultation with NYC. Zone E2 comprises areas of Low district brightness with examples including sparsely inhabited rural areas, villages or relatively dark outer suburban locations and whilst consideration has been given to the Dark Skies associated with the NYMNP the Site does not sit within the National Park or Zone E1. The Site was visited on the evening of 12th November 2024 to assess the baseline for the night-time assessment. Three viewpoints were selected to show existing conditions and coincide with viewpoints visited during the day-time. Viewpoints N2, N5 and N6 were taken from locations within 2km of the Site where additional lighting may have an impact on night-time receptors. This is a rural location with lighting predominantly limited to residential streets, village centres and scattered businesses and farmsteads. As shown on Figure 6.6 Night-Time Receptors, the Site itself currently has limited lighting with no lighting at all across the arable field, where the development is proposed. There is, however, some low level timed/ motion sensor lighting associated with the adjacent Solar array and industrial units which are served by the existing access track to the south which meets the A165 Coastal Road. Lighting along the A165 road is limited to street lighting at the entrance to Burniston village.

Viewpoint photography was taken from 3 locations as depicted on Figure 6.6. The baseline view from these viewpoints is as follows:

6.9.2.1 Viewpoint N2 – A165 Coastal Road

This viewpoint was taken from a layby along the A165 Coastal Road and coincides with day-time viewpoint 2. The view comprises a rural view across farmland with limited visibility beyond due to the lack of lighting and the landform between the viewpoint and the coast. A low level glow from lighting within Burniston Village further north is available from this location. At the time of visiting, sports flood-lighting associated with Scarborough Rugby club was visible against the skyline to the south-west. The majority of lighting perceived along the A165 was from vehicular traffic.

6.9.2.2 Viewpoint N5 – Limestone Road

This viewpoint was taken from a high point along Limestone Road, coinciding with day-time viewpoint 5, and is representative of views from residential properties along this road. Lighting perceived from this location is predominantly low level street lighting along Limestone Road and within private residential properties. Looking southward across the agricultural landscape towards the coast lighting is limited to scattered farmsteads and businesses. At the time of visiting sports flood-lighting associated with Scarborough Rugby club was visible in the distance to the south, with long distance views of lighting and glow associated with the urban edge of Scarborough along the coast.

6.9.2.3 Viewpoint N6 - Field Lane

This viewpoint is taken from a field gate and gap in hedgerow along Filed Lane, coinciding with day-time viewpoint 6, and representative of views from local road users and recreational users of the Tabular Hill Walk route. Lighting perceived from this viewpoint north towards the Site is limited to that of scattered farmsteads and businesses along the A165 road and intermittent lighting from vehicular traffic. To the south-west of this viewpoint low level street lighting along Field Lane and within adjacent residential areas are visible. At the time of visiting sports flood-lighting associated with Scarborough Rugby club was visible in the distance to the west.

6.9.3 Proposals

The lighting proposals include the use of IP66 Flood lights, ATEX floodlights, mobile lighting within the area of car parking and lighting along the derrick/ drill rig itself. The lighting assessment criteria, as outlined by NYC, will conform to ILP Guidance. Further details on the lighting proposals and impacts can be viewed in section 12 of this report. The luminaires consist of LED modules which are covered to prevent excessive light spillage. This directional mitigation has the potential to reduce the intensity of the lights for receptors located at elevations above the level of the luminaires and to reduce nightglow. All embedded mitigation is included within this assessment, unless noted otherwise.

The majority of proposed lighting would be present on Site during Phase 2 (drilling operations) and Phase 3 (proppant squeeze and flow testing) lasting a total of 24 weeks. However, once drilling operations have been completed the drill and associated drill rig lighting will be demobilised with the drill rig lighting being present for an approximate total of 5 weeks during operation.

6.9.4 Assessment

Night-time effects on landscape receptors are generally concerned with qualities or characteristics that may be susceptible to lighting, those concerned with wilderness and absence of human activity.

Views from PRoW are unlikely to be publicly used at night without the use of artificial lighting for safety purposes and as such are not considered specific dark sky receptors and have been excluded from further assessment. This includes the following receptor groups:

- Recreational Routes along High and Low Toft Hills;
- Recreational users of PRoW within village settings (Burniston, Scalby and Cloughton);
- Recreational users of the England Coastal Path/ Cleveland Way National Trail;
- Recreational Users of the of the Tabular Hills Way;
- Recreational Users of National Cycle Route 1
- North Yorkshire and Cleveland Heritage Coast

Effects during Phase 1 construction, Phase 3 proppant squeeze and flow testing and Phase 4 well decommissioning are unlikely to give rise to significant effects on dark skies and or the visual experiences of night-time recreation. Lighting during these phases would primarily be timed and used as needed for safety purposes, be of low level, covered and directional, reducing glow. Therefore, effects on phases 1, 3 and 4 at night-time would be limited and are not assessed further within this chapter

6.9.4.1 Night-time effects on Landscape Character

LCA D3: Host Landscape

The Site is situated within the North Yorkshire and Cleveland Heritage Coast where recreational receptors may visit the area for the night-time amenity and visual interest attached including star gazing activities, whilst the NYMNP lies approximately 800m north of the Site. The landscape is one of simple yet distinctive landform, pattern and land cover with limited settlement or built form, albeit the Site is situated on the rural edge of Burniston village which contains a number of streetlights and private residential lighting and views of lighting associated with nearby settlement including Scarborough. Therefore, the susceptibility of this 'Host Landscape' to additional lighting brought about by development is judged to be **Medium.**

As described in Appendix 6.2 the value of the landscape within this 'Host Landscape' is judged to be National. Considering susceptibility and value together the sensitivity is judged to be **High/Medium**.

The perception of additional lighting during operation would be of Small scale with views limited to the illuminated drilling rig, viewed as a single vertical element with localised point sources of LED strips which would not give rise to sky glow or effects on Dark Skies. Any such effects would be limited in geographical extent and of very short term duration resulting in a Slight/Negligible magnitude of change and **Minor (not significant) Adverse** night-time effects on landscape character. These effects would be temporary, short term and reversible.

6.9.4.2 Night-time effects on Landscape Character of other LCT's/LCA's

LCA G3: Long Nab to North Bay

The development does not sit within this Landscape and therefore effects arising from additional lighting on landscape character would be indirect and primarily based on visual perception.

As detailed in Appendix 6.2 the value of the landscape is deemed to be **National.** The landscape is nationally valued by virtue of its association with the North Yorkshire and Cleveland Heritage Coast and the high scenic and recreational value attached. This is a highly distinctive landscape of rugged cliffs and bays affording long distance vistas. The Heritage Coast has a perception of wilderness, remoteness and tranquillity particularly away from settlements and along the coastal edge. However, the Site does not sit within this LCA and views of lighting and within local settlements and scattered farmsteads are visible across the landscape even as far south as Scarborough where skyglow is evident. Lighting installations along the drill rig will be operational for a very short timescale (5 weeks) and viewed as a singular vertical entity with no effect on Dark Skies. Therefore, the landscape is deemed to be of **Medium** susceptibility to the lighting proposed.

Considering susceptibility and value together the sensitivity is judged to be **High/Medium.**

The perception of additional lighting during phase 2 of operation would be of Small/Negligible scale and localised in terms of geographic extent primarily as lighting viewed as a single vertical element with no effect on Dark Skies. The magnitude of change arising from the short-term, temporary drilling phase of operation would be Slight/Negligible, resulting in **Minor Adverse** effects on landscape character. Effects would not be **significant** given the short term, temporary and reversible nature.

LCA A1: Cloughton and Burniston

Views of lighting associated with development from this LCA would be very limited given the distance and the level of enclosure afforded by topography and woodland within this LCA. Therefore, it is deemed that effects arising from lighting within phase 2 on the landscape character of LCA A1 are **Negligible** and **not significant**.

6.9.4.3 Night-time effects on Visual Receptors

Burniston – This receptor group primarily comprises residential properties within Burniston and are of **High** sensitivity to additional lighting. Receptors in this capacity would experience intermittent views of lighting associated with development but limited to a very small number of properties on higher terrain within the village, with lighting viewed as a single vertical element of LED strips with no effect on Dark Skies.

Viewpoint N5 sits on the western edge of Burniston elevated at a height of approximately 89m AOD along Limestone Road. Street lighting and residential lighting within private properties along Limestone Road are evident with lighting glow from parts of Burniston village perceptible within the view. From this location expansive views across the landscape are available and includes views associated with lighting at scattered farmsteads and

residential properties as well as longer distance views of lighting and glow at Scalby and further south along the coast at Scarborough. At the time of visiting sports flood-lighting associated with Scarborough Rugby club was visible in the distance to the south.

Views of lighting within the Proposed Development are likely to be limited to the drill rig during phase 2 of operation, with other very limited potential for views of low level, localised and directional Site lighting. There would be a Small/Negligible scale of change in views from across a limited extent of Burniston. This would result in a Negligible magnitude of change, resulting in **Minor** (**not significant**) **Adverse** effects on visual amenity.

Scalby - This receptor group comprises residential properties south and south-west, local roads and PRoW within the village setting of the proposed development within the settlement of Scalby. Receptors in this capacity would experience some views of lighting on the drill rig, with very limited potential for views of low level, localised and directional Site lighting.

Viewpoint N6 is situated along Field Lane and is representative of views from nearby residential receptors, users of the local road and recreational users of the Tabular Hills Walk. There would be a Small/Negligible scale of change in views from residential properties in Scalby, albeit localised, due to the drill rig lighting being partially visible above buildings and the canopy of woodland that surround the site. During phase 2 there would be a Negligible magnitude of change, resulting in **Minor** Adverse effects on visual amenity. Effects would be **not significant** given the short term, temporary and reversible nature.

Cloughton - Cloughton is situated approximately 1.5km north of the Site beyond Burniston. This receptor group includes residential properties on higher ground and on the southern edge of Cloughton including those situated within the National Park boundary, local roads and PRoW within the village setting. Receptors in this capacity would experience long distance views of the drill rig only, which would not affect local Dark Skies. There would be a Small/Negligible scale of change in views from Cloughton and of very limited extent. Therefore, during Phase 2, there would be a Negligible magnitude of change, resulting in at most **Minor** Adverse effects on visual amenity. Effects would be **not significant** given the short term, temporary and reversible nature.

Key Routes

A165 Coastal Road/ A171 Scalby Road/Mill Lane – receptors in this capacity are primarily road users. Drivers on these routes would experience intermittent views of lighting along the vertical length of the drill rig, primarily within 1km of the Site Drivers using roads at night tend to be more focused on the road and the area illuminated by their headlights than during the day and may have oncoming headlights, cats eyes or other reflective signage drawing their attention, resulting in lower susceptibility. Receptors in this capacity are deemed to be of **Low** sensitivity to changes in visual amenity brought about by additional lighting. There would be a Small/Negligible scale of change in views from road users along the A165 across a localised extent. There would be a Negligible magnitude of change, resulting in **Negligible Adverse** effects on visual amenity, which would be **not significant**.

It is considered that any other night-time effects would be no greater and likely less than for these receptors and therefore no effects would be of a likely significant nature.

6.10 Further survey and monitoring requirements

This LVIA has considered the worst case effects of the Proposed Development, based on the maximum parameters of the scheme assessed during the winter months when visibility would be greatest. No long-term effects have been judged as significant or requiring further mitigation such as through additional mitigation planting, hence no further survey or monitoring work is required to review the outcomes of this assessment.

7. Traffic & Transport

7.1 Introduction

This chapter assesses the potential traffic and transport impacts arising from the proposed development, in compliance with the Environmental Impact Assessment (EIA) Regulations 2017. The assessment considers both the construction and operational phases of the project, evaluating impacts on local road networks, transport infrastructure, and the surrounding community. The assessment also incorporates embedded mitigation measures and outlines additional mitigation to ensure that traffic impacts remain manageable and consistent with national and local transport policy.

7.2 Legislative and Planning Policy Context

7.2.1 National Planning Policy Framework (NPPF)

The National Planning Policy Framework (NPPF) sets forth guidance to ensure that development proposals align with sustainable transport objectives and safety standards. Paragraph 115 of the NPPF provides key criteria for assessing development applications, emphasising the importance of access, design, and mitigated impacts on transport networks. It states:

In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

a) sustainable transport modes are prioritised taking account of the vision for the site, the type of development and its location;
b) safe and suitable access to the site can be achieved for all users;
c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code48; and
d) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree through a vision-led approach.

In line with these guidelines, the proposed development has been evaluated to incorporate sustainable transport opportunities, particularly through the promotion of efficient HGV routing to minimise congestion.

Moreover, transport impacts identified are mitigated through specific strategies within the Construction Traffic Management Plan (CTMP), including scheduled HGV deliveries outside peak hours. This approach ensures that transport impacts on the network are minimal. Thus, the assessment demonstrates that the development proposal aligns with the principles of NPPF Paragraph 115.

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7.2.2 Planning Practice Guidance (PPG)

The preparation of this EIA chapter has been informed by the Planning Practice Guidance (PPG) for Travel Plans, Transport Assessments, and Statements. This guidance provides the foundational framework for the methodology, ensuring that national standards are applied when evaluating traffic impacts associated with development projects.

Other Guidance

In preparing this EIA chapter, the following technical standards and guidance have been incorporated to ensure that access and transport arrangements are consistent with best practice in road design and environmental assessment:

Guidelines for Environmental Assessment of Road Traffic have provided a foundation for assessing the environmental impact of traffic generated by the development.

Technical aspects of the EIA have been informed by guidance from Manual for Streets (Department for Transport, 2007), Manual for Streets 2 (Chartered Institution of Highways & Transportation, 2010), and the Design Manual for Roads and Bridges (DMRB). These sources provide foundational principles to support safe and effective design, aligned with best practices for accommodating all road users.

Local Planning Policy

The assessment is also aligned with relevant local planning policies, specifically the Joint Minerals and Waste Local Plan 2022, addressing Policies D02, D03 and M17. Additionally, Policy INF1 of the Scarborough Borough Local Plan 2017 has also been considered.

Pre-Application Advice – June 2024

In June 2024, North Yorkshire Council (NYC) provided pre-application advice for the proposed temporary drilling project, highlighting the importance of thorough transport assessment and effective traffic management, particularly due to the site's proximity to residential areas and sensitive ecological zones. Following this advice, a Technical Note was prepared by Paul Basham Associates, detailing access arrangements, anticipated vehicle movements, and hours of operation, with emphasis on managing HGV traffic flows to minimise impacts. NYC responded positively to this approach, confirming that junction capacity modelling would not be necessary if the proposed Construction Traffic Management Plan (CTMP) measures were implemented effectively.

Screening Opinion – August 2024

In its screening opinion, North Yorkshire Council concluded that the proposed drilling development warrants an Environmental Statement due to potential environmental impacts, including transport considerations. Reference was made to the possibility that construction traffic could exacerbate congestion on the A165 Coast Road, especially during peak tourist months. This anticipated increase in traffic was deemed significant enough to warrant further transport impact assessments to evaluate and mitigate any resulting congestion.

The screening opinion also referenced limited visibility at the site entrance. Given the access point’s proximity to higher-speed traffic, the council emphasised the need for a clear visibility analysis to ensure safe movement at the access. In addition to confirming the requirement for a Transport Statement, the council outlined the importance of addressing seasonal congestion and visibility constraints in the Environmental Impact Assessment (EIA). This reflects the council’s position that transport-related impacts, particularly regarding access safety and seasonal traffic increases, are critical considerations for the proposed development.

7.3 Assessment Methodology and Significance Criteria

Study Area

The study area for the traffic and transport assessment encompasses the local and strategic road network that will be impacted by HGVs associated with the development. This includes major access routes to the site, such as the A165 and A170, as well as any secondary or minor roads that may experience increased traffic volumes. The boundaries of the study area have been defined based on existing traffic flow data, projected HGV movements,

and areas where sensitive receptors may be affected by development traffic. The study area can be found within **Figure 7.1** below.

Figure 7.1 Study Area

Prediction Methodology

The assessment methodology has been informed by guidelines issued by the Institute of Environmental Management and Assessment (IEMA). These guidelines suggest that the following rules should be applied when considering the scope and extent of the environmental assessment:

- Highway links where traffic flows are predicted to increase by at least 30% should be included within the assessment (or where the number of HGVs is predicted to increase by 30%); and
- Areas that are considered to be especially sensitive to increases in traffic volumes should be included where traffic flows are predicted to increase by at least 10%.

An increase in traffic flow of less than 10 % however would not be discernible to road users as background traffic flows can fluctuate by this amount on a daily basis, as shown by the traffic survey results included with the appendices of the Transport Assessment. These magnitude of impact in relation to the criteria is set out in **Table 7.1**.

Magnitude of Impact	Threshold for approximate change in traffic	Criteria for Assessing Impact
Major	>30%	Total Loss or major / substantial alteration of key of the pre-development conditions such that the post development character will be fundamentally changed.

Moderate	10% to 30%	Loss or alteration to one or more key elements of the baseline conditions such as that post development character of the baseline will be materially changed.
Minor	5% to 10%	A minor shift away from baseline conditions. Change arising from the loss / alteration will be noticeable but not material. The underlying character of the baseline condition will be similar to the pre-Project situation.
Negligible	<5%	Very little change from baseline conditions. Change barely distinguishable, approximating a 'no change' situation.

Table 7.1: Defining Impact Significance

The exception to this is where a transport link can be considered to be within a sensitive area, such as adjacent to a school, hospital, nursing home or where residential properties front onto the link and pedestrian activity is high, as outlined in **Table 7.2**.

Sensitivity	Examples of Receptor
High	Roads near to sensitive uses included hospitals, residential streets, shared surfaces and accident blackspots
Moderate	Residential distributor roads, congested junctions, roads with poor pedestrian facilities and unsegregated cycleways
Low	Roads fronting commercial uses such as offices, retail and leisure uses
Negligible	Road access to warehouses, factories and farm land.

Table 7.2: Defining Receptor Sensitivity

The IEMA guidelines refer to the assessment of the site's impact on link flows by establishing the overall 'without site' and 'with site' two-way flows for the links preceding the junctions' arms subject to a material increase.

The magnitude of the effects must be examined in order to determine whether they are considered to be 'significant'. The IEMA guidelines imply that there are no simple rules or formulae that can be applied to determine the magnitude of such effects and thus a professional judgement must be made, based upon the information and data available.

This ES Chapter has assessed the likely significant effects of the Proposed Development. These potential impacts are generically classified as being:

- adverse, beneficial or neutral;
- short, medium or long term;
- direct or indirect; and
- permanent or temporary.

To assess significance, two factors need to be considered - the magnitude of change and the sensitivity of the receptor.

Magnitude of change identifies the extent of the impact from the original baseline conditions of the site or surrounding area (the scale of impact) and is measured as high, medium, low or negligible.

Sensitivity of receptor identifies the receptors which could be impacted by the Proposed Development and judges how vulnerable the receptor is to the impact and is based largely on professional judgement.

The 'Guidelines for the Environmental Assessment of Road Traffic' suggested that assessment should be carried out for the 'scope in' areas regarding the following effects:

- Severance: The perceived division that can occur within a community when it becomes separated by a major traffic artery. In general terms according to the IEA Guidelines a 30% change in traffic flow is likely to produce a 'slight' change in severance, with 'moderate' and 'substantial' changes occurring at 60% and 90% respectively.
- Driver Delay: The delay to drivers generally occurs at junctions where opposing vehicle manoeuvres are undertaken with vehicles having to give or receive priority depending upon the type of junction arrangement. The 30% threshold is not considered appropriate for Driver Delay.
- Pedestrian Amenity: The term pedestrian amenity is broadly defined as the relative pleasantness of a journey.
- Accidents and Safety: This establishes the effect on the road safety record of the adjoining road network. The 30% threshold is not considered appropriate for Accident and Safety.
- Fear and Intimidation: This effect reflects the discomfort or anxiety that increased traffic, especially HGVs, may cause for vulnerable road users, such as pedestrians and cyclists. High volumes of large vehicles can create a sense of threat or intimidation.

The following table (**Table 7.3**) summarises the significance criteria by magnitude and sensitivity that will be used in this assessment. Any impacts of moderate and above are considered to be significant in EIA terms.

Magnitude of Impact	High Sensitivity	Moderate Sensitivity	Low Sensitivity	Negligible Sensitivity
Major	Major	Major / Moderate	Moderate / Minor	Negligible
Moderate	Major / Moderate	Moderate / Minor	Minor	Negligible
Minor	Moderate / Minor	Minor	Minor / Negligible	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

Table 7.3: Matrix of Impact and Significance

In order to judge the impact of the Proposed Development against the above criteria, this is undertaken as a two-stage process – one prior to the implementation of mitigation measures and one following the implementation of mitigation measures (if required).

Geographical Scope

The geographical scope of this assessment has considered both the local and strategic road networks anticipated to be directly or indirectly impacted by traffic associated with the proposed development. This includes primary access routes such as the A165 and A170, which will serve as the main conduits for HGV movements to and from the site, as well as secondary and local roads that may experience increased traffic and associated impacts.

The primary focus within this EIA is on Coastal Road (A165), where the most robust data has been collected in the form of ATC surveys, allowing for a detailed assessment of traffic impacts on this segment of the network. While the designated HGV Route may include sensitive receptors as it approaches the built-up area of Scarborough, these have been avoided as far as possible therefore, Coastal Road provides a reliable baseline for assessing potential impacts due to its central role in connecting the site with main routes such as A170.

Based on the estimated annual average daily flow from DfT counter 77696, it is also considered that sensitive areas along the HGV route are likely to experience higher baseline traffic volumes than Coastal Road, meaning the percentage impact of additional HGV movements in these areas would likely be smaller than the impacts recorded along Coastal Road. This approach ensures that the analysis is both comprehensive and appropriately targeted, allowing for effective assessment and mitigation planning.

Temporal Scope

This assessment has considered the entirety of the project's 37-week duration which will occur within the 3-year period for which permission is sought. In particular, this assessment focuses on the rig mobilisation and demobilisation phases, which represent the peak periods for traffic generation. These stages are expected to occur within a defined implementation window to minimise impacts on the local network. During these phases, HGV movements are anticipated to average 13 per day, with peak movements reaching up to 18 daily trips.

Limitations and Assumptions

The traffic counts, including HGV volumes, are based on two Automatic Traffic Counter (ATC) surveys conducted in August 2024 and September 2024. These surveys capture both peak tourist-season traffic and non-peak conditions, providing a balanced representation of typical seasonal variations. However, unanticipated fluctuations or events outside of these surveyed periods may not be reflected in this data, meaning the projected traffic flows are best interpreted as representative of average conditions rather than absolute extremes.

The trip generation estimates for this assessment are derived from data on similar exploratory well sites, which provide a practical benchmark for anticipated traffic activity. While this data offers a valuable reference, it is important to note that operational specifics at the current site, such as local access conditions, site layout, and logistical requirements, may vary slightly. As a result, actual trip generation could slightly vary from projections. These estimates, however, remain a reliable basis for assessing likely traffic impacts within reasonable assumptions.

It is assumed that the project phases—including rig mobilisation, drilling, and demobilisation—will proceed as scheduled, without significant delays or accelerations. Any significant delays in the timeline could affect the volume and timing of traffic impacts and potentially alter the findings of this assessment.

This assessment assumes that all HGVs related to the development will adhere to designated routes, specifically HGV Route 2, as specified in the Construction Traffic Management Plan (CTMP). Any deviation from these routes could lead to unforeseen impacts on local roads not included in this study.

The assessment presumes that mitigation measures outlined in the CTMP will be effectively implemented and consistently adhered to throughout the project.

7.4 Baseline Conditions

A165 Coastal Road/Burniston Road

The A165 Coastal Road/Burniston Road is a primary route running north-south along the western boundary of the site, providing regional connectivity for both local traffic and tourism-related seasonal traffic. It is single carriageway road measuring approximately 7.5m in the vicinity of industrial access road, with a c.1m footway on the southern side. Within the vicinity of the site the posted speed limit is 60 mph, however the speed limit transitions to a 30-mph limit within Burniston c. 60m northwest of the existing access.

A171 Scalby Road

The A171 Scalby Road serves as a significant north-south corridor, linking Scarborough with Whitby and nearby areas and is situated approximately 800 meters northeast of the proposed wellsite. Scalby Road intersects with Coastal Road at the Coastal Road/High Street/Scalby Road mini roundabout, a critical point for both local and through traffic. This road functions as a primary arterial route, accommodating regional and local traffic under the national speed limit outside of urban zones, with speed limits reducing as it nears residential areas, such as Burniston.

Automatic Traffic Counts (ATC)

To understand the baseline conditions of Coastal Road in the vicinity of the site, traffic speeds and flows were recorded during both term time (21st – 27th September 2024) and summer holiday period (22nd – 28th August 2024). Data was collected for both periods to determine the volume of peak holiday traffic. Term time data has been used for the core analysis, as is standard practice for transport assessments. For the purposes of this report, the five-day average (Monday through Friday) has been used.

A summary of the ATC results is provided in **Table 7.4** with the full ATC outputs attached contained within the appendices of the Transport Assessment. Due to the proposed operation of the site largely occurring during the

working week **Table 7.4** has summarised the 5-day average rather than the 7-day average. The 5 -day average is generally higher in terms vehicle volumes and therefore presents a robust assessment upon which to base any subsequent assessment.

Survey Date	Direction	AM Peak (0800-0900) 5-day Average	PM Peak (1700-1800) 5-day Average	Daily Flow (24-hour 5-day Average)	85th Percentile Speeds (higher of 5 or 7 days for robustness)
22nd – 28th August 2024	Northwestbound	149	299	3588	43.0 mph
	Southeastbound	198	255	3672	43.3 mph
21st – 27th September 2024	Northwestbound	195	198	3039	44.0mph
	Southeastbound	257	190	2775	44.3mph

Table 7.4: ATC Survey Results on Coastal Road

3.7 The findings within Table 1 confirm that Coastal Road has an average daily (5-day) flow of 7,260 vehicles during the tourist season (August) and 5,814 vehicles outside of the tourist season (September), reflecting a 24.9% increase in daily traffic during peak tourist season. In terms of peak hour traffic, the tourist season data shows a 30.9% decrease in the AM peak (0800-0900) and a 33.8% increase in the PM peak (1700-1800) for northwestbound traffic, while southeastbound traffic shows a 29.8% decrease in the AM peak and a 25.5% increase in the PM peak.

Personal Injury Accident (PIA) Data

To assess the safety and operation of the local road network, Personal Injury Accident (PIA) data has been obtained from North Yorkshire Council. The PIA data has been obtained for the latest available 5-year period (January 2019 to December 2023). An overview of the accidents within the vicinity of the site is provided in **Figure 7.1**, with the accident area covering approximately 1km north and south of the site.

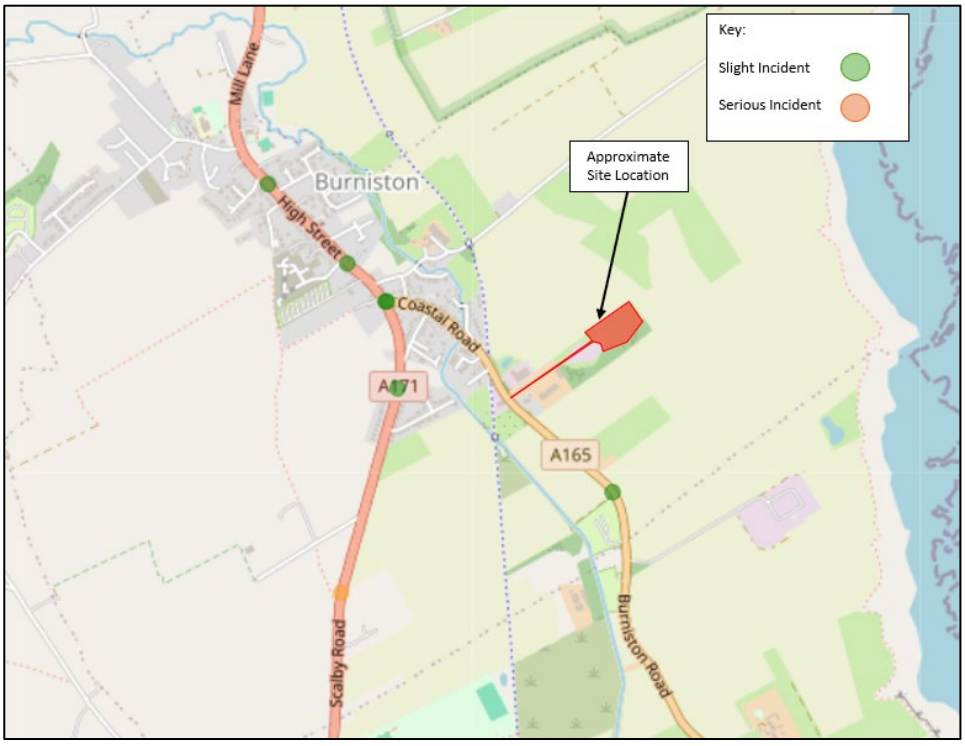

Figure 7.3: PIA Data

The PIA data reveals that while there have been no accidents recorded at the proposed site access point along the industrial road connecting to Coastal Road. Six accidents occurred within the broader study area surrounding Burniston. Of these, five were classified as "slight" incidents and one as a "serious" incident.

The slight incidents, marked in green on the map, are distributed along key points in Burniston, predominantly on High Street, Coastal Road, and Mill Lane. The serious incident**,** indicated in orange, occurred along Scalby Road (A171) and Coastal Road.

Although a number of accidents have been identified, these occurred over a 5-year period. It is also noted that none of these accidents involved goods vehicles. The PIA data therefore does not highlight any specific or significant highway design concerns that would be worsen as a result of the proposed development.

7.5 Environmental Design & Management Measures (Embedded Mitigation)

The embedded mitigation measures for the proposed development are designed to manage HGV movements effectively, prioritising safe and efficient transport operations while minimising potential impacts on the local community and road network. Key measures outlined in the Construction Traffic Management Plan (CTMP) include routing all HGV traffic along designated paths to avoid residential areas and sensitive sites as far as possible.

The CTMP also highlights the carefully scheduled HGV movements, which avoid peak local traffic hours (08:00–09:00 and 17:00–18:00), minimising the likelihood of congestion on key routes near the site. Only essential staff vehicle trips are expected during these peak times, ensuring that the local highway network remains largely unaffected by site-related traffic in peak hours.

Mitigation for noise and dust is also a core consideration in the CTMP. Noise levels from HGVs are controlled by limiting idling time and enforcing low-speed limits on access roads. Additionally, HGV loads will be covered to minimise dust emissions, further reducing potential disturbances to air quality and noise levels in the surrounding area.

In managing the infrequent abnormal loads required for the project, route planning and advance notifications are coordinated with local authorities and law enforcement, enabling temporary traffic management when needed to ensure safe passage for larger vehicles.

7.6 Assessment of Effects

Phasing

The project will progress through four primary phases, each with specific operational requirements with the whole operation lasting approximately 37 weeks. These phases are summarised within **Table 7.5**.

Phase	Description	Approximate Timescale
Phase 1	Construction of the Drill Site	7 weeks
Phase 2	Operational Phase (includes the drilling phase and mobilisation and demobilisation of rig)	7 weeks
Phase 3	Operation Phase (Testing)	Up to 17 weeks
Phase 4	Site Restoration	6 weeks

Table 7.5: Phases of Development

Hours of Operation

During construction and site preparation, the hours of operation would be restricted to between the hours of 0700 – 1900 Monday to Friday and 0700 – 1300 on Saturdays. No working or deliveries will occur during the night or on Sundays/Bank Holidays. During equipment assembly and site preparation for production testing, hours of operation are anticipated to be 0700 – 1900 Monday – Saturday.

Actual production testing will be 24hrs per day, 7-days per week with staff expected to complete 12 hours shifts during this period.

7.6.1 Development Traffic

As previously set out, the development comprises several phases, each of which have their own traffic generation profile. The forecast load generation for each phase is presented in **Table 7.6**.

Phase	Weeks	Days (Excluding Sundays)	Number of Loads	Average Loads per Day	Maximum Loads per Day
Construction	7	42	334	8	18
Rig Mobilisation	1	6	80	13	17
Drilling	5	30	170	6	17
Rig De-mobilisation	1	6	80	13	17
Testing & Squeeze	2	12	65	5	5
Testing Production	15	90	75	<1	5
Restoration	6	36	350	10	17
Total	**37**	**222**	**1154**	**5**	**18**

Table 7.6: Summary of HGV Loads

Table 7.6 shows the busiest periods in terms of traffic generation will be during rig mobilisation and demobilisation, with an average of 13 HGVs per day and a maximum of 18 per day. These figures double to calculate trips or movements. In terms of the AM and PM Peak periods, as outlined within the CTMP, HGV movements will be avoided as far as practicably possible, thereby significantly reducing any potential traffic impact during these periods. As a result, only staff vehicle trips will occur during peak times. As a result of the operational requirements of the development, an estimated maximum of 5 movements during each peak period are expected. These trips will not create a significant impact on local traffic conditions.

While the majority of vehicle movements will involve conventional HGVs, there will occasionally be abnormal loads required for the delivery and removal of large or specialised equipment, such as drilling rigs. These abnormal loads are expected to be infrequent but may cause temporary disruption to the local highway network. As outlined in the CTMP all abnormal load movements will be scheduled outside of AM and PM peak hours to minimise impact on regular traffic flow. Prior notification and suitable warnings will be provided to relevant authorities, including the police, the highway authority, and other regulatory bodies, to secure necessary clearances and ensure safe passage for these oversized vehicles. These precautionary measures will help manage any potential disruption, allowing for clearances, temporary traffic controls, and any additional safety requirements needed to accommodate abnormal loads.

In terms of a percentage impact assessment, based on the projected trip generation for each phase (**Table 7.6**), the highest daily trip generation is expected during the peak construction phase with a maximum of 18 HGV movements and 10 staff vehicle movements per day, totalling 28 vehicle movements.

When assessed against the daily traffic flows recorded on Coastal Road, which average 7,260 vehicles during the tourist season (August) and 5,814 vehicles during the non-peak season (September), the combined 28 daily movements represent a minimal increase in total traffic. Specifically, this would add approximately 0.63% to daily vehicle volumes during the tourist season and 0.79% during the non-tourist season, indicating that the project's traffic impact on the surrounding highway network will be minor.

The 18 additional HGVs (36 movements) represent an approximate 4.7% increase in daily HGV volumes during the tourist season and a 4.5% increase during the non-tourist season.

7.6.2 Assessment of Effects

Severance

Severance refers to the division within communities that can occur when major traffic arteries restrict movement for pedestrians and cyclists. For this assessment, severance was evaluated in relation to the increase in HGV movements on roads near residential and community-sensitive areas. The Coastal Road (A165) and the designated HGV Route are expected to experience a modest increase in traffic, with a maximum of 18 HGV and 10 car trips daily associated with the development. This increase represents approximately a 0.63% addition to the average daily traffic volume during the peak tourist season and 0.79% during the non-tourist season along Coastal Road. Given this low percentage impact relative to the existing traffic volumes, severance impacts from the development are anticipated to be negligible.

Furthermore, when focusing specifically on HGV volumes, the 18 additional HGV movements per day constitute an approximate 4.7% increase in daily HGV traffic during the tourist season and a 4.5% increase during the non-tourist season. These increases are minor in scale, indicating that severance impacts will likely remain negligible across both tourist and non-tourist periods.

Pedestrian Amenity

Pedestrian amenity reflects the pleasantness and safety of a pedestrian's journey. The proposed development is expected to have a negligible impact on pedestrian amenity due to the low incremental increase in daily traffic and the use of designated HGV routes that avoid high-pedestrian areas. Furthermore, the Construction Traffic Management Plan (CTMP) requires all HGVs to adhere to reduced speeds within the site access area, further minimising any potential impacts on pedestrian comfort and safety.

Fear and Intimidation

Fear and intimidation refer to the discomfort or anxiety that increased traffic, particularly HGVs, may cause for vulnerable road users, such as pedestrians and cyclists. Given the temporary nature of the development, the restricted window of implementation, and the limited increase in daily HGV movements, the impact on perceptions of safety along Coastal Road and the designated HGV Route is expected to be negligible. At peak times, HGVs will add a maximum of 18 daily movements, contributing only a slight increase in overall traffic volume and HGV presence. The CTMP includes embedded measures, such as restricted delivery times outside peak pedestrian hours and designated routes to mitigate potential intimidation for road users. These measures, combined with careful monitoring of driver compliance, aim to maintain a secure environment and ensure any potential for fear and intimidation remains negligible for local residents and road users.

Highway Safety

Accident data indicates that there were no recorded accidents involving heavy goods vehicles near the site access on Coastal Road. However, a small number of minor accidents were recorded within the Burniston area over the past five years, suggesting no inherent design flaws or high-risk factors within the local network. Given this background, the temporary increase in HGV traffic associated with the development is expected to have a negligible impact on highway safety.

While there may be a minor additional safety consideration due to the manoeuvrability and size of abnormal loads required for the project, these movements will be closely managed to mitigate any potential risks. A Written Route Survey will be conducted post-planning by the appointed contractor to confirm the suitability of the route and identify any necessary adjustments for safe passage. Abnormal load movements will be scheduled with advance notice to the police, highway authority, and other relevant bodies to facilitate any required clearances, temporary adjustments, or traffic controls. With these precautionary measures in place, the impact on highway safety is expected to remain negligible.

Driver Delay

Driver delay generally occurs at key junctions where increased vehicle interactions may lead to congestion and extended travel times. The Coastal Road/Scalby Road/High Street junction, identified as a critical convergence point for HGV movements related to the site, could be particularly sensitive to changes in traffic volume. However, the CTMP mitigates potential driver delay by scheduling HGV movements outside of peak hours, significantly

reducing the likelihood of congestion at this location. Furthermore, with only minimal staff vehicle trips anticipated during peak times, the impact on driver delay is therefore expected to be negligible.

7.7 Recommended Mitigation or Enhancement Measures

To manage the potential impacts identified, several mitigation measures are recommended. The primary mitigation will be embedded in the CTMP, which includes routing all HGVs via designated paths that avoid residential areas and sensitive community spaces as far as possible. Additionally, scheduling HGV deliveries outside of peak traffic hours will help to minimise driver delay and ensure the local road network remains accessible for general traffic during high-demand times.

To further reduce noise and improve pedestrian safety, a 10 mph speed limit will be enforced within the site access area. Additional dust mitigation measures will include covering HGV loads to prevent dust emissions, particularly from stone lorries, which can impact local air quality and pedestrian amenity. For abnormal load deliveries, route planning and advance notification will be coordinated with local authorities to implement temporary traffic management and ensure safety.

7.8 Limitations or Difficulties

This assessment is based on data collected during seasonal (August) and non-seasonal (September) periods; however, unforeseen traffic fluctuations outside of these windows are not accounted for, which may introduce variability to the findings. Additionally, trip generation assumptions are based on similar exploratory sites, which, while representative, may have different operational requirements and trip patterns than the current site.

There is also an inherent limitation in predicting human behaviour with respect to adherence to designated HGV routes, as occasional deviations from planned routes can impact surrounding areas not included in this assessment.

7.9 Residual Effects

The residual effects for traffic and transport impacts, following the implementation of mitigation measures outlined in the CTMP and the assessment methodology, are summarised within Table 7.7 Each phase of the development has been evaluated for potential impacts on severance, driver delay, pedestrian amenity, accidents and safety, and fear and intimidation.

Environmental Effect	Sensitivity of Receptor	Receptor	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Phase 1 – Construction							
Severance	Low	Local Resident	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible
Driver Delay (General)	Low	Road Users	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible
Pedestrian Amenity	Negligible	Local Residents	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible
Accidents and Safety	Low	Road Users and Pedestrians	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible
Fear and Intimidation	Low	Pedestrians and Cyclists	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible
Phase 2 – Operational Phase							
Severance	Low	Local Resident	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible
Driver Delay (General)	Low	Road Users	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible
Pedestrian Amenity	Negligible	Local Residents	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible
Accidents and Safety	Low	Road Users and Pedestrians	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible
Fear and Intimidation	Low	Pedestrians and Cyclists	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible
Phase 3 – Operational Phase (Testing)							
Severance	Low	Local Resident	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible
Driver Delay (General)	Low	Road Users	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible
Pedestrian Amenity	Negligible	Local Residents	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible
Accidents and Safety	Low	Road Users and Pedestrians	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible

Fear and Intimidation	Low	Pedestrians and Cyclists	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible
Phase 4 – Site Restoration							
Severance	Low	Local Resident	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible
Driver Delay (General)	Low	Road Users	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible
Pedestrian Amenity	Negligible	Local Residents	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible
Accidents and Safety	Low	Road Users and Pedestrians	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible
Fear and Intimidation	Low	Pedestrians and Cyclists	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible

Table 7.7: Residual Effects

Mitigation Measure	Implementing Agent(s)	Legal Instrument	Compliance Target	Implementation Timescale
Construction Traffic Management Plan	Applicant	S106	N/A	Prior to development
Written Route Survey	Applicant	S106	N/A	As required

Table 7.8: Mitigation Implementation

7.10 Cumulative and Combined Effects

The cumulative impact assessment considers other developments in the area that may contribute to increased traffic on Coastal Road (A165) and Scalby Road (A171). Given that no large developments are planned within a 3 km radius of the site, significant cumulative effects are unlikely. Seasonal variations in tourism may add to the base traffic; however, the mitigation measures outlined in the CTMP, including peak-hour scheduling and designated routing, will help limit cumulative impacts.

Combined effects on sensitive receptors, such as noise, air quality, and pedestrian safety, are expected to remain minimal. The embedded measures for noise and dust control, paired with managed traffic flows, will prevent significant combined effects on local residents and pedestrian areas.

7.11 Statement of Significance

Based on the analysis, the proposed development is not anticipated to result in significant transport-related impacts. The overall effect on traffic and transport within the surrounding area is classified as negligible across all impact areas, including severance, pedestrian amenity, fear and intimidation, highway safety and driver delay.

Through the integration of a comprehensive CTMP and adherence to local and national transport guidelines, the project effectively minimises any adverse effects on the local transport network and sensitive receptors. Therefore, the proposed development is considered compliant with EIA regulations and does not pose significant risks to local transport infrastructure and road safety.

8. Other Matters

8.1 Cumulative Effects and Interactions

8.1.1 Cumulative Effects

Schedule 4, (5) (e) of the EIA Regulations (Information for the inclusion in Environmental Statements) states that:

"5. A description of the likely significant effects of the development on the environment resulting from, inter alia:

(e) the cumulation of effects with other existing and /or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources"

8.1.1.1 Assessment Methodology

There is no standard prescriptive method for assessing cumulative effects and interactions and, in relation to cumulative effects, the extent to which the effects of other developments can be assessed quantitatively depends on the level of information available about the other developments. Such effects are, therefore, assessed by professional judgement, although matrices and modelling can be used where appropriate and where enough information regarding the other developments exists. Where environmental assessment information regarding other developments is not available or uncertain, the assessment is necessarily qualitative, which is the case for this assessment.

A cumulative assessment aims to identify the potential for cumulative effects interactions expected to occur during the temporal scope of a development and where possible, identify the possibility of significant effects. In determining the possible significance of such cumulative effects, the location and timing of the identified developments and their associated impacts/ effects should be taken into account wherever possible.

For receptors where a development's residual effects are deemed to be of negligible or minor significance, it is considered that such receptors could not experience cumulative effects given that impacts resulting from the development would be negligible/ very low, or the receptor would be of negligible/ very low sensitivity to result in such an effect.

In assessing cumulative effects it is important to acknowledge the relative contributions the different developments make to a cumulative effect and to carefully consider whether a cumulative effect could occur at all.

The developments considered for assessment are either:

- approved projects / schemes that are already operating; or
- approved projects / schemes not yet constructed or operational.

Projects / schemes not yet approved are not considered as there is less likelihood of any such project occurring during the temporal scope of the proposed development.

In order to identify relevant developments to be considered, a desktop search has been undertaken using online planning search facilities on the NYC planning portal. No relevant existing or approved but not yet implemented projects/developments have been identified within a 3km search radius of the Site.

Limitations and Assumptions

In general there is a limitation regarding the programmes for the construction and operation of some proposed developments. Proposed development programmes are often either unavailable or inaccurate as they can be brought forward or delayed.

The cumulative assessment is based on the information available at the time of writing for other potential or committed developments in the vicinity of the proposed development.

The assessment only considers development applications of large scale enough to be considered relevant i.e. the assessment does not include minor applications such as household extensions.

The existing development immediately adjacent to the proposed development at the Mill Yard is judged to be relevant to be taken into account as a cumulative effect. This comprises:

- three businesses occupying small industrial units; and

- the Scarbrough and Burniston Coastguard Station.

No relevant existing or approved but not yet implemented developments have been identified within a 3km search radius of the Site.

8.1.1.2 Screening Opinion and Screening Direction Assessment

During operations at the Site, the receptors most at risk from combined effects would be those closest to the Site boundary. This includes both human and ecological receptors.

In the Screening Opinion, dated 1st August 2024, NYC judged that, in respect of cumulative effects,

> *"the site is close to other industries which use the access road so there could be a cumulative effect in terms of the vehicles using the access road and the highway network."*
>
> *"There is potential for cumulative impact on the access road and highway network, especially during tourist season which sees a dramatic increase in traffic on the coast road. There would also be a visual impact within the special landscape with the height of the drill rig being 30 metres. It is acknowledged that any effects that may arise could be largely mitigated through the use of conditions such as the requirement for a Landscape and Visual Assessment, a Transport Statement, a traffic survey and a Construction Environmental Management Plan."*

Europa has prepared a Landscape and Visual Assessment (LVA) (Chapter 6 of this ES). Europa has also prepared a Transport Assessment (Appendix 7.1 of the Transport chapter of this ES). This includes the results of a traffic survey of traffic speeds and flows undertaken in August and September 2024. The Transport Assessment includes a Construction Traffic Management Plan.

The LVA found no schemes at operational, application or scoping stage related to drilling rigs within the Study Area. The Construction Traffic Management Plan has been prepared to mitigate potential impacts of construction-related traffic on the local highway network and surrounding community. As a result, the conclusion is that any cumulative impacts are temporary in nature and can be managed by a suitable planning condition.

The Secretary of State (SoS) issued a Screening Direction on 6th November 2024 which directed that the proposed is not EIA development. In the accompanying Written Statement, the SoS also considered whether the proposal is likely to have significant transport and visual impacts in cumulative terms when considering other existing development.

> *"The maximum number of HGVs a day would not exceed 18 HGVs … and would occur for no more than 37 weeks in total as the development is temporary… The access road and highway network is currently used by solar panel maintenance and industry at The Mill Yard, Burniston Mill. While there may be some additional impact on the local network, particularly during the summer months, the addition of these [36] HGV movements alongside those from the existing development would be limited in EIA terms."*
>
> *"The 30 metre drill would be temporary in place for a maximum of 5 weeks but will be visually prominent in its own right for the period it is in place. The whole proposal would be temporary for 9.5 months and the site will be restored after the operation/testing period. On that basis, the visual impact to the protected landscape and other affected receptors would be limited from the proposal, particularly the drill rig, when considered alongside other existing development in the locally."*

The Screening Direction concluded that there are no other issues or factors in this case, in this specific location, that either in isolation, **or cumulatively,** indicate a likelihood of there being significant environmental effects from this proposal.

8.1.2 Interactions (Combined Effects)

Regulation 4(2) (e) 10 of the EIA Regulations states that:

"(2) 'The EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors-

(e) the interaction between the factors referred to in sub-paragraphs (a) to (d)"

Combined effects may theoretically occur where several effects upon one or more common receptors (e.g. a receptor of both noise and air quality impacts) could interact or combine, to result in a combined effect which is more or less significant. In the case of interactions between noise and air quality for example, potential impacts

could be experienced simultaneously or intermittently at residential receptors. There is no direct connection between the effects, other than that both could cause annoyance, whether experienced separately or together.

These effects are managed in the context of effects following the mitigation measures included in ES chapters 6 and 7, including embedded mitigation within the proposed development (i.e. only residual effects should be considered). Mitigation of combined effects is best achieved through management of operation to prevent the individual impacts themselves and reduce the likelihood of such interactions occurring.

In terms of the proposed development, consideration has been given to whether there is the potential for significant effects as a result of interactions between:

- visual, noise, air quality and lighting effects upon human receptors; and
- noise, air quality, hydrology/surface water and lighting effects upon ecological receptors,

where more than one type of effect may affect a common receptor.

8.1.2.1 Assessment of Interactions

Residential and Recreational Receptors

The air quality, noise, lighting and landscape and visual assessments undertaken identify common residential and recreational receptors, or receptor locations that are representative of common receptors, including:

- Wayside Farm
- House on Field Lane
- Residential properties on Bridge Close
- Flatts Farm
- Cleveland Way
- A165 Coastal Road
- National Cycle Route 1/Cinder Track
- England Coastal Path/Cleveland Way National Trail
- Station Road
- Limestone Road
- Field Lane
- Ripley's Road

With the embedded mitigation, the receptors will not experience significant adverse effects in isolation and therefore the likelihood of significant effects as a result of interactions is reduced.

The LVA at Chapter 6 found that there will be some moderate adverse effects on recreational users and visitors to the Heritage Coast and the England Coastal Path/Cleveland Way National Trail. The effects would be not significant and would reduce to negligible as the land is returned to its current agricultural use.

The LVA considered night-time effects of the Proposed Development on visual receptors. It found that views of lighting from the Site are likely to be limited within Burniston village to the drill rig during Phase 2, with other very limited potential for views of low level, localised and directional Site lighting. It judged these to be minor adverse effects. Similarly, night time effects on residential properties in Scalby and Cloughton were also judged to be minor adverse in nature.

The Lighting Assessment also concluded that direct views of the lighting across the site during Phase 2 will be limited or negligible. However, due to the height of the rig and provision of lighting along the length of the mast section, it is likely that the mast section may be visible in some instances due to the luminaires lighting the structure of the rig rather than any direct view of the luminaires but given the short duration of the drilling phase the effect will be temporary and negligible.

The Noise and Vibration Impact Assessment states that at all receptors and for all phases of the proposed development, noise levels are predicted to be below the Significant Observed Adverse Effect Level (SOAEL) and the Lowest Observed Adverse Effect Level (LOAEL) (as defined by Defra's Noise Policy Statement for England (NPSE) Explanatory Note, 2010); the SOAEL is the level above which significant adverse effects on health and quality of life occur. The Air Quality Assessment concludes that the proposed development, overall or during any individual phases, will not give rise to significant effects with respect to air quality or dust upon any receptors, residential or otherwise, with all effects considered negligible.

Therefore it is considered that there are no significant effects from interactions on the above receptors with respect to landscape, noise and air quality/dust.

Ecological Receptors

The Preliminary Ecological Assessment takes into account the potential impact of lighting on foraging and commuting bats. It states that the dominant habitats on site are considered to be of low value for foraging and commuting bats. However, the boundary hedgerows, woodland and trees along the perimeter have the potential to serve as important foraging and commuting corridors for local bat populations. Artificial lighting poses risks that could disrupt bat movement. It recommends a sensitive lighting design that avoids illuminating these corridors.

The Lighting Assessment identifies the scrub/tree belt as a receptor of high sensitivity. The lighting model found that levels of illumination emitted during the drilling phase, when artificial lighting would be required at night, towards the scrub/tree belt are between0.20 and 0.75 lux, which is judged to be low and acceptable on a short-term basis.

The Noise and Vibration Impact Assessment assesses the impact of noise on ecological receptors, namely bird species at nationally designated areas. As the nearest nationally designated site is 800m from the wellsite, noise levels are judged to be within the Natural England guidance levels.

The Air Quality Assessment found that at the nearest designated and local ecological sites (Iron Scar and Hundale Point to Scalby Ness SSSI and the Scarborough to Whitby Disused Railway Site of Importance for Nature Conservation respectively), nitrogen dioxide, nitrogen oxides and sulphur dioxide are insignificant and pose no threat to ecological receptors.

It is not considered that residual effects at ecological receptors would be further exacerbated by interactions of noise and air quality impacts given that the residual effects related to these environmental effects are not significant.

8.1.2.2 Conclusions

The individual assessments presented at Chapters 6 and 7 of the ES, and the separate Air Quality, Noise and Vibration, Lighting and Ecology assessments, demonstrate that there will not be any long term significant residual effects associated with the proposed development. As such, it is considered unlikely that long term significant effects would arise through the interaction of different effects upon common receptors, as a result of the proposed development.

8.2 Community / Socio-Economic Considerations

8.2.1 Introduction

An understanding of the human environment, its characteristics and interrelationships is helpful to the understanding of the physical environment. The existing and past pattern of social and economic activities and their character have led to the current physical landscape.

Furthermore, the consideration of the potential and predicted impacts of a development upon humans is a requirement of the EIA process when it raises issues of significance. Although this has in part been considered in the other ES sections, it is thus necessary to consider the impact of the development on social and economic structures.

This section therefore considers the potential community and socio-economic related impacts of the proposed development. Potential effects on local amenity are not dealt with here as they are covered in the individual assessments.

8.2.2 Baseline

8.2.3 Potential Effects

The main socio-economic impacts that would be associated with the development proposals fall into national and local considerations. The national considerations below only arise if the appraisal well is successful in confirming commercial reserves of gas and planning permission is subsequently granted for long term gas production. Therefore, these are judged to be potential in nature.

National Considerations

- helping to maintain security of supply whilst the UK transitions to a low carbon economy by providing indigenous hydrocarbon resources;
- contributing to a reduction in imports into the UK from other countries and thereby reducing reliance on other countries for the UKs energy needs, and keeping energy bills down for the customer;
- contributing to improved balance of payments by reducing imports;
- taxation associated with the production phase; and
- with a lower pre-combustion carbon footprint than imported gas reducing climate change by reducing the need for imports, and thereby the associated transport and other greenhouse gas emissions.

Local Considerations

- facilitating economic growth in the area;
- supporting a strong and diverse rural economy, via job creation and the support of local supply chains;
- contributing to the resilience and flexibility of the local economy, ensuring it maintains its competitiveness;
- allowing local people to gain access to work;
- providing local people employment opportunities which are skilled, full-time and not seasonal in nature;
- providing varied working opportunities which are not dependent on low value-adding sectors such as agriculture, care and retail, of which there is high representation within North Yorkshire;
- supporting the regional economy through providing a potential local source of gas to the local transmission system;

Although these are primarily economic in nature, they also have some social implications in the communities in which the Site is located or in which it will have an impact. There are no standard guidelines for this type of consideration that may be readily applied in these circumstances and where they cannot be readily quantified, they are therefore, simply noted.

8.2.4 Mitigation Measures

As a consequence the generally beneficial nature of the socio-economic impacts identified, no further mitigation is required.

8.2.5 Conclusions

If approved, the proposed development could potentially contribute to the UK supply of gas and its contribution would be important to national supply, as well as likely creating new jobs, supporting existing jobs and generating additional contract employment and investment in the local economy.

Overall, the effect of the proposed development on the socio-economic character of the area is considered to be beneficial and therefore acceptable.

8.3 Major Accidents and Disasters

8.3.1 Introduction

Schedule 4(8) of the EIA Regulations requires an ES to include:

'A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned[4].'

8.3.2 Accident and Disaster Effects

It is considered that potential significant adverse effects on the environment could occur as a result of the following conditions:

- environmental accidents / incidents;
- general natural disasters such as flooding, fire, explosion, landslide and earthquake;
- individual emergencies such as injury, illness, fatality, drug reaction or medical emergencies; and
- civil disorders such as bomb threat, civil disturbance and strikes.

Potential significant adverse effects on the environment that could occur as a result of the aforementioned conditions could include:

- contamination of soils and water resulting from spillages or loss of containment of materials, fuels and chemicals; and
- emissions to air as a result of fire or chemical incident resulting in an adverse impact on human health and ecological receptors

8.3.3 Accident and Disaster Prevention and Management

The onshore oil and gas industry has an excellent record in relation to health and safety and environment protection. Europa is committed to achieving the highest standards of health, safety and welfare for its sites' operatives, customers and the general public. Throughout the business, health and safety is a top priority.

Europa has a comprehensive health and safety management system in place across all of its operations audited and approved by the Health & Safety Executive. This provides a system of responsibilities, rules, procedures and safe working practices which provide the backbone of effective health and safety management. The company reinforces its health and safety procedures and the use of 'safety conversations' with its employees. The company also operates safety working groups to ensure information flows effectively up and down the organisation.

The wellsite will be underlain by a HDPE membrane and perimeter containment drain to prevent surface runoff and contamination of the water environment. Surface water runoff will be contained within the perimeter containment drain and removed off-site by road tankers to an approved waste disposal/treatment facility. For clarity, no discharge will take place during drilling and testing operations (Phases 2 & 3).

The risk of pollution can be mitigated by using standard techniques and procedures developed by the industry and approved by the Environment Agency and Health & Safety Executive to prevent pollution. The Site will be constructed as a bunded sealed site with sufficient containment capacity to avoid possible pollutants from discharging into the surrounding water table or land.

8.3.4 Conclusions

The Site will be managed in accordance with the control and management procedures already in place – not only through the planning system but through other relevant regulatory regimes and Europa will continue to operate in accordance with these measures.

As with all Europa's operations an HSE and EA approved site specific Accident and Emergency Procedure will be put in place ahead of operations commencing.

On the basis of the above it is considered that the proposed development will not have a significant effect in relation to the potential for accidents and disasters.

[4] The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (2017 Regulations), Schedule 4, Para 8.

9. Summary of Significant Effects

The following table provides a summary of the predicted likely environmental effects of the proposed development for each environmental aspect assessed – taking into account the embedded mitigation measures, the requirement for any further mitigation measures and the residual effects.

Table 9.1 Environmental Impact Assessment Summary Table

Environmental Aspect	Description of the Environmental Impact (following inclusion of embedded mitigation) only where significant effects have been identified	Classification of the predicted likely effects of the Scheme (prior to inclusion of additional mitigation over and above embedded)	Additional Mitigation or Monitoring Required/Recommended (over and above embedded if identified)[5]	Classification of the predicted likely residual effects of the proposed development after mitigation[6]
Landscape and Visual	N/A	No significant effects identified	N/A	N/A
Transport	N/A	No significant effects identified	N/A	N/A
Cumulative Effects and Interactions	N/A	No long term significant effects identified, and no greater than for the proposed development in isolation	N/A	N/A
Community / Socio-Economic	N/A	No significant effects identified	N/A	N/A
Major Accidents and Disasters	N/A	No significant effects identified	N/A	N/A

[5] Not only where required to reduce the significance of effects.
[6] Additional mitigation measures, not inherent within the Scheme design.