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2. Assessment Methodology

2.1 Environmental Impact Assessment Approach and Scope

- 2.1.1 This Environmental Statement (ES) has been prepared to satisfy the requirements of the EIA Regulations in relation to the Application outlined within Chapter 1: Introduction (ES Volume I, Document Ref. 6.2).
- 2.1.2 In preparing this ES, reference has been made to the following guidance:
- Advice Note Three: EIA Notification and Consultation (Planning Inspectorate (PINS), 2017a);
 - Advice Note Seven: Environmental Impact Assessment, Process, Preliminary Environmental Information and Environmental Statements (PINS, 2020);
 - Advice Note Nine: Rochdale Envelope (PINS, 2018); and
 - Advice Note Seventeen: Cumulative Effects Assessment relevant to nationally significant infrastructure projects (PINS, 2019).
- 2.1.3 Reference has also been made to the Scoping Opinion received from the Secretary of State (SoS) dated 2nd of April 2019 (Appendix 1B: Scoping Opinion, ES Volume III, Document Ref. 6.4) and the advice contained within it regarding assessment methodology, topics and presentation of this ES.
- 2.1.4 In response to the Scoping Opinion, the Environmental Impact Assessment (EIA) includes assessments of the following environmental topics:
- air quality;
 - hydrology and water resources;
 - geology and hydrogeology;
 - noise and vibration;
 - terrestrial ecology (including ornithology) and nature conservation;
 - aquatic ecology and nature conservation;
 - marine ecology and nature conservation;
 - traffic and transportation;
 - landscape and visual amenity;
 - archaeology and cultural heritage;
 - socio-economics and tourism;
 - climate change;
 - major accidents and disasters;
 - population and human health; and

- cumulative and combined effects.
- 2.1.5 The SoS's Scoping opinion also references the need for information required to inform Appropriate Assessment i.e. Habitats Regulations Assessment (HRA). A HRA report has been prepared and is included within the Application (Document Ref. 5.13).
- 2.1.6 The SoS's Scoping Opinion (Appendix 1A: Scoping Opinion, ES Volume III, Document Ref. 6.4) concluded that a number of topics did not need to be considered as part of the EIA for the Proposed Development and could therefore be scoped out. These topics include:
- emissions to air from operation of the connection infrastructure;
 - emissions to air from operational traffic;
 - operational noise and vibration from traffic; and
 - detailed assessment of operational traffic impacts.

2.2 Environmental Statement

- 2.2.1 This ES presents a description of the Proposed Development and its likely significant environmental effects on the environment during construction and operation (including maintenance where relevant) and decommissioning. It also details measures to avoid or reduce such effects and the alternatives considered.
- 2.2.2 The ES summarises the outcomes of the following EIA activities:
- establishing the baseline conditions;
 - consultation with statutory and non-statutory consultees;
 - consideration of relevant local, regional and national planning policies, and guidelines;
 - adherence to legislation relevant to EIA or technical topics;
 - consideration of technical standards for the development of significance criteria;
 - application of specialist assessment methodologies;
 - design review;
 - review of secondary information, previous environmental studies, publicly available information and databases;
 - expert opinion;
 - physical surveys and monitoring;
 - desk-top studies;
 - modelling and calculations; and
 - reference to current guidance.

- 2.2.3 These activities enable the prediction of impacts in relation to the baseline, and a prediction based on the information available of the likely significance of effects on environmental receptors.
- 2.2.4 The term ‘impact’ refers to changes arising from the Proposed Development, whereas the term ‘effect’ is used to describe the result of the impact on a receptor.
- 2.2.5 The technical chapters within this ES (Chapters 8 to 23) each follow the same structure for ease of reference, which is:
- introduction;
 - legislation and planning policy context;
 - assessment methodology and significance criteria;
 - baseline conditions;
 - development design and impact avoidance;
 - likely impacts and effects;
 - mitigation and enhancement measures;
 - limitations and difficulties;
 - cumulative effects;
 - residual effects and conclusions; and
 - references.

2.3 Study Areas: Spatial Scope of Assessment

- 2.3.1 The assessment chapters of this ES (Chapters 8 to 24) describe, as necessary, their spatial scope including their 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 locations of potentially affected environmental resources or receptors.

2.4 Assessment Years and Assessment Scenarios: Temporal Scope of Assessment

- 2.4.1 The approach to assessment has been to assess the environmental impacts of the Proposed Development at key stages in its construction, operation (including maintenance) and decommissioning.

Baseline Conditions (including Future Baseline)

- 2.4.2 In order to assess the potential impacts and effects of the Proposed Development, it is necessary to determine the environmental conditions that currently exist on the Site and in the surrounding area. These are known as the existing baseline conditions. Baseline conditions are determined using the results of site surveys and investigations or desk-based data searches, or a combination of these, as appropriate.

- 2.4.3 It is also relevant for the EIA to consider future baseline conditions taking account of any planned or likely changes to the existing baseline.
- 2.4.4 The 'existing baseline' date is 2018 - 2020 since this is the period in which the baseline studies for the EIA have been undertaken. 'Future baseline' conditions are also predicted for each assessment scenario, whereby the conditions anticipated to prevail at a certain point in the future (assuming the Proposed Development does not progress) are identified for comparison with the predicted conditions with the Proposed Development in place. The assessment scenarios that are being considered for the purposes of the EIA (and considered in this ES) are as follows:
- existing baseline (without Proposed Development) – the year that baseline data has been collected;
 - future baseline (without the Proposed Development), for comparison respectively with the construction, opening, operation, maintenance and decommissioning scenarios listed below;
 - construction of the Proposed Development. Chapters 8 to 24 (ES Volume I, Document Ref. 6.2) identify and assess the relevant 'worst case' construction scenario for each topic and where necessary, particular chapters identify the relevant period or 'peak' of activity within the three year construction programme;
 - opening, operation and maintenance of the Proposed Development, (where opening represents the start of operation) – as for construction, Chapters 8 to 24 (ES Volume I, Document Ref. 6.2) identify and assess the relevant 'worst case' scenario for each topic where necessary; and
 - decommissioning of the Proposed Development.

2.5 Development Design, Impact Avoidance and Mitigation

- 2.5.1 Measures that have been integrated into the Proposed Development in order to avoid or reduce adverse environmental effects will be described. Such measures may include refinement of the design and layout of the Proposed Development to avoid impacts on sensitive receptors, implementation of Environmental Management Plans (EMP), and adherence to relevant legislation, guidance and best practice. The assessment of impacts and effects has been undertaken on the basis of these measures being implemented (i.e. they are 'embedded mitigation').
- 2.5.2 The key aspects where the design has evolved are described in Chapter 6: Alternatives and Design Evolution (ES Volume I, Document Ref. 6.2).
- 2.5.3 Once the likely effects have been identified and quantified, consideration has then been given to any further mitigation (over and above anything identified within the Development Design and Impact Avoidance sections of each technical chapter) that may be required to mitigate any significant adverse effects identified. These measures are described in the Mitigation and Enhancement Measures sections of Chapters 8 to 23 (ES Volume I, Document Ref. 6.2). The residual effects (after the implementation of

mitigation) are then assessed and presented at the end of Chapters 8 to 24. Significant residual effects are also summarised in Chapter 25: Summary of Significant Effects (ES Volume I, Document Ref. 6.2).

- 2.5.4 In general implementation of the impact avoidance and minimisation measures relied on in the assessment will be secured through the most appropriate means. In many cases this will be through the DCO, such as via the setting of limits of deviation (e.g. specific Above Ordnance Datum (AOD) heights and fixed grid references for emission points) and other development parameters or through DCO requirements (similar to planning conditions). Measures may also be secured through other means, such as existing legislation or the environmental permit that will need to be obtained to operate the Proposed Development.

2.6 Impact Assessment Methodology and Significance Criteria

- 2.6.1 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 mitigation measures have been applied. Effects after mitigation are referred to as 'residual effects'.
- 2.6.2 The classification of effects is undertaken with due regard to the following:
- extent (local, regional or national) and magnitude of the impact;
 - duration (whether short, medium or long-term);
 - 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 judgement of the assessor.
- 2.6.3 Further details are provided in Chapters 8 to 24 (ES Volume I, Document Ref. 6.2).
- 2.6.4 Where it has not been possible to quantify effects, qualitative assessments have been undertaken, based on available knowledge and professional judgment. Where any uncertainty exists, this has been noted in the limitations section of each of the impact assessments reported in Chapters 8 to 24. The limitations presented by this uncertainty have been taken into account in defining the reasonable worst case scenario for the topic assessments.
- 2.6.5 To enable comparison between technical topics and aid understanding of the EIA findings, standard terms are used wherever possible to classify effects

throughout this 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 chapters, as applicable.

2.6.6 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 but greater than that for minor (by extent, duration or magnitude);
- major – considerable effect (by extent, duration or magnitude) of more than a 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.

2.6.7 Moderate and major effects are generally considered to be 'significant' for the purposes of the EIA Regulations, in accordance with standard EIA practice.

2.6.8 Each of the technical chapters provides further description and definition of the assessment criteria relevant to each topic. Where possible, this has been based upon quantitative and accepted criteria (for example British Standards), together with the use of value judgment and expert interpretation to classify effects.

2.6.9 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. Where there are deviations away from this matrix (due to the technical guidance for a specific assessment topic), this is highlighted within the relevant technical chapter and the reason for the variation explained.

Table 2-1: Classification of effects

Magnitude of Impact	Sensitivity /Importance of Receptor			
	High	Medium	Low	Very Low
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

2.6.10 Short term effects are those associated with the Site preparation and construction phase and which cease when construction works are completed. Long term effects are those associated with the completed, operational development and which last for the duration of the operational phase. Effects may also be permanent (irreversible) or temporary (reversible) and direct (i.e. as a direct result of activities associated with the Proposed Development) or indirect (i.e. not a direct result of activities associated with the Proposed Development).

2.7 Transboundary Effects

2.7.1 The Secretary of State undertook an initial transboundary screening exercise for the Proposed Development under Regulation 32 of the 2017 EIA Regulations. The screening exercise concluded, on the basis of the information available from the Applicant at scoping stage, that the Proposed Development is not likely to have a significant effect either alone or cumulatively on the environment in any European Economic Area (EEA) state. A copy of the matrix is provided in Appendix 2A: Transboundary Screening (ES Volume III, Document Ref. 6.4). There are therefore no significant transboundary effects associated with the Proposed Development to be assessed.

2.8 Cumulative and Combined Effects

2.8.1 In accordance with the EIA Regulations, consideration is given to the potential for cumulative and combined effects to arise as a result of the Proposed Development.

2.8.2 Cumulative effects are those that accrue over time and space from a number of development activities. The impact of the Proposed Development will be considered in conjunction with the potential impacts from other projects or activities which are reasonably foreseeable in terms of delivery. This includes projects that have been submitted for planning approval but have not yet been approved or have planning permission or development consent that are located within a geographical scope where environmental impacts could act together to create a more significant overall effect on a receptor and where sufficient environmental information is available.

2.8.3 Combined effects are those resulting from a single development, in this case the 'Proposed Development', on any one receptor and that may collectively



cause a greater effect (such as the combined effects of noise and air quality/dust impacts during construction on local residents).

- 2.8.4 Cumulative and combined effects are discussed in Chapter 24: Cumulative and Combined Effects (ES Volume I, Document Ref. 6.2).

2.9 References

Planning Inspectorate (2017). *Advice Note Three: EIA Notification and Consultation*, Version 7, August 2017. Bristol: The Planning Inspectorate.

Planning Inspectorate (2020). *Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements*, Version 6, December 2017. Bristol: The Planning Inspectorate.

Planning Inspectorate (2018). *Advice Note Nine: Rochdale Envelope*, Version 3, July 2018. Bristol: The Planning Inspectorate.

Planning Inspectorate (2019). *Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects*, Version 2, August 2019. Bristol: The Planning Inspectorate.

Planning Inspectorate (2019) *Transboundary Screening – Proposed Teesside Cluster Carbon Capture and Usage Project* [Online]. At: <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010103/EN010103-000055-TCUP%20-%20Regulation%2032%20Transboundary%20Screening.pdf>