VikingCCS

Viking CCS pipeline

Preliminary Environmental Information Report Volume IV

Technical Appendices

Applicant: Chrysoar Production (U.K.) Limited,
a Harbour Energy Company
PINS Reference: EN070008
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Harbour Energy | AECOM

Appendix 5.1

EIA Methodology

4. Approach to EIA

4.1 Introduction

4.1.1 This chapter of the Scoping Report sets out the proposed overarching approach to the environmental impact assessment (EIA) for the Project. This section has been informed by current best practice guidance, as set out within PINS Advice Note 7 (Ref 4-1).

4.1.2 EIA is the process of identifying, evaluating and mitigating the likely significant environmental effects of a project. It promotes the early identification and evaluation of the likely significant environmental effects and enables appropriate mitigation (that is, measures to avoid, reduce or offset significant adverse effects) to be identified and incorporated into the design of the development, or commitments to be made to environmentally sensitive construction methods and practices.

4.1.3 The EIA will be reported in an Environmental Statement (ES), containing the information as stated in Regulation 14(a-f) of the Infrastructure Planning (EIA) Regulations 2017. It will be undertaken and reported by competent experts in line with Regulation 14(4)(a) of the Infrastructure Planning EIA Regulations 2017. This will be demonstrated in the ES with a statement outlining the qualifications and experience of the EIA team.

4.2 Consultation

4.2.1 Consultation will be undertaken with a range of prescribed (statutory and non-statutory) consultees. This is to ensure all consultees are adequately briefed on the Project and provided with an opportunity to provide feedback on the EIA approach, baseline, likely effects, and mitigation and enhancement.

4.2.2 Effective stakeholder engagement and consultation is intrinsic to the Planning Act 2008 and fundamental to the success of the Project. It is therefore vital to give opportunities for the public to be involved in the consenting process for certain activities, through access to information, justice, and consultation on key documents.

4.2.3 Further details relating to stakeholder engagement and consultation is provided within Chapter 5 of this report.

4.3 Scoping Boundary

4.3.1 The Scoping Boundary identified within this report is made up of four key components:

- The Offtake Facilities at Immingham;
- The preferred pipeline corridor (which would include the pipeline itself along with any required shutdown valves). This forms the majority of the area covered by the Scoping Boundary;
- The offshore pipeline tie-in and outlet at the former TGT site;
- The onshore section of existing LOGGS Pipeline from the former TGT site down to the MLWS.

4.3.2 In certain places the Scoping Boundary is substantially wider than that of the eventual draft Order Limits that will be applied for and included within the ES, though in a handful of ‘pinch points’ it is likely to be a reasonable reflection of the draft Order Limits.

4.3.3 The proposed scope of the EIA is based upon the Scoping Boundary, as it represents all possible route configurations that could be developed within the preferred pipeline corridor,

and therefore represents a realistic worst case, as not all the land identified in the Scoping Boundary will be required. The next step in the process will be to identify a proposed pipeline route alignment within the Scoping Boundary. This work is currently on-going and the alignment will be buffered up to 100m (typically 50m either side of the alignment) to provide the necessary Limits of Deviation (LoD) required to reduce construction risks, for example to avoid areas of unsuitable ground not picked up by design stage ground investigation, or previously unknown buried archaeology. Hereafter, references to the proposed pipeline route encompass both the alignment and the 100m LoD.

4.3.4 In addition to the LoD, which show the flexible area within which the final pipeline can be routed, there will be a need for areas of land for other infrastructure, such as shutdown valves and their associated permanent access tracks and junctions off the public highway. These will also inform the draft Order Limits but access tracks may extend beyond the typical pipeline LoD. Based on current design, however, these are currently expected to fall within the identified Scoping Boundary.

4.3.5 Lastly, the draft Order Limits presented within the ES will include all land needed temporarily for the safe and efficient construction of the Project, including land for construction compounds, laydown areas, pipe dumps, temporary haul routes and accesses etc. The exact locations of these are not known at present but design work is on-going to identify suitable locations. These will be identified and included within both the assessment of impacts presented within the ES and considered for the statutory consultation.

4.3.6 It is important to note that for any baseline surveys undertaken in the field to support the EIA, these will be based on the preferred route configuration and its associated draft Order Limits, unless otherwise stated. It is likely that the draft Order Limits will reduce in size as the design of the Project progresses and there is more certainty as to the land likely to be required. Where surveys are committed to within the draft Order Limits, or within a certain distance of the draft Order Limits, the Order Limits in question will be those currently anticipated at the point in time when the survey is undertaken. This means that some surveys may eventually become abortive but conversely, if, due to new information (e.g., survey results or stakeholder feedback) the draft Order Limits need to be moved, additional surveys may need to be undertaken to account for the potential gap in survey information.

4.3.7 The Scoping Boundary is shown on **Figure 4-1** and falls within the jurisdiction of NLC, NELC, WLDC, ELDC and LCC (as shown on **Figure 1-3**):

4.3.8 Due to the length of the pipeline corridor within the Scoping Boundary, where deemed appropriate, the narrative has been divided in to five sections matching the alternative assessment work which was undertaken and the selection of the preferred corridor.

Revision: 4 Drawn: LC Checked: HT Approved: MW Date: 2022-03-23

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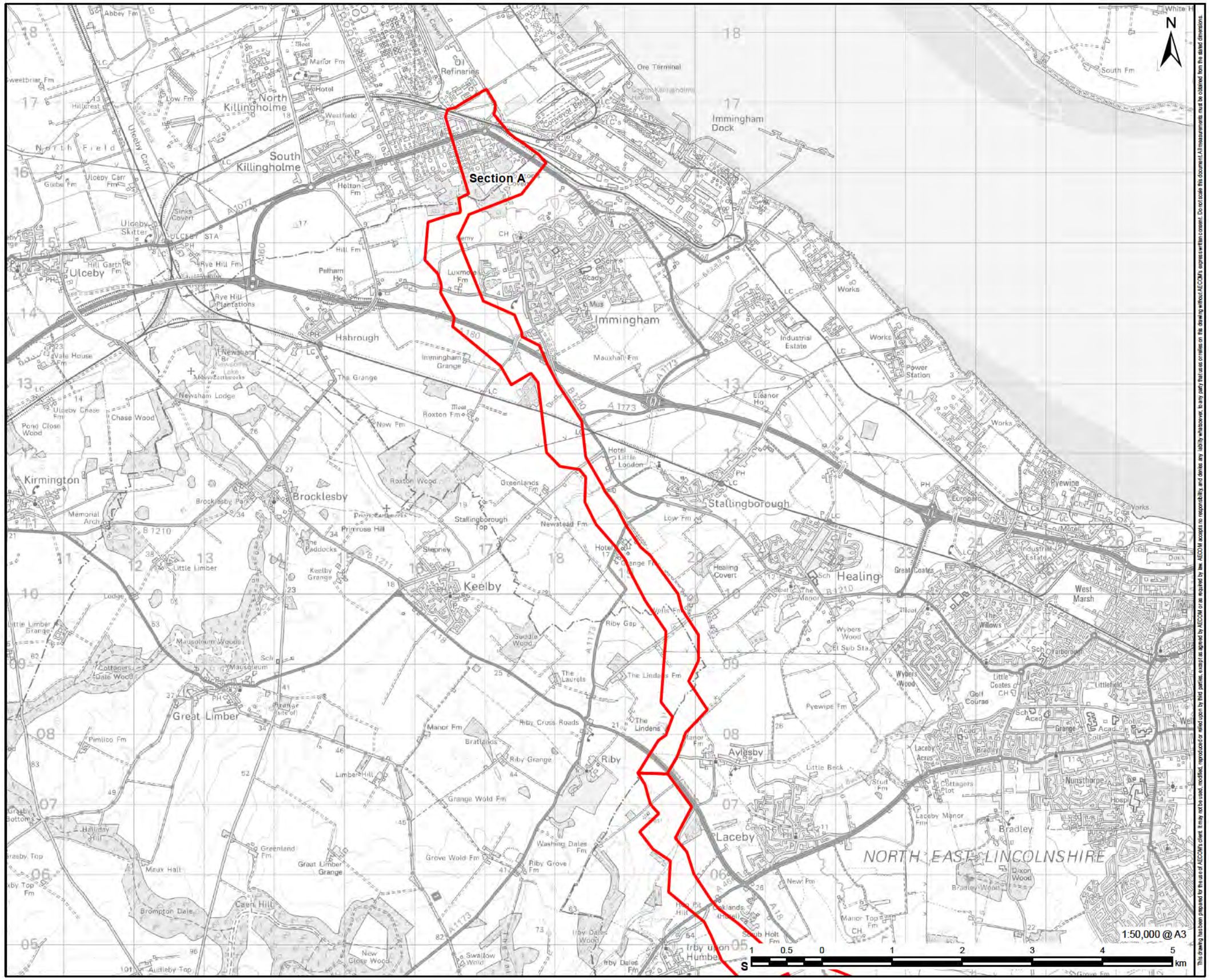

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PROJECT

V Net Zero Pipeline

LEGEND

Scoping Boundary

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FIGURE TITLE

Figure 4-1 (1 of 3)
V Net Zero Pipeline Scoping Boundary including the Preferred Pipeline Corridor

ISSUE PURPOSE

SCOPING REPORT

PROJECT NUMBER / REFERENCE

60668955 / VNZ_20220323_SR_4-1

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Section B

Section C

Section D

Section E

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Scoping Boundary

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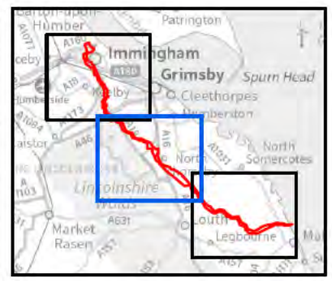

FIGURE TITLE

Figure 4-1 (2 of 3)
V Net Zero Pipeline Scoping Boundary including the Preferred Pipeline Corridor

ISSUE PURPOSE

SCOPING REPORT

PROJECT NUMBER / REFERENCE

60668955 / VNZ_20220323_SR_4-1

Revision: 4 Drawn: LC Checked: HT Approved: MW Date: 2022-03-23

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Section E

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Scoping Boundary

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FIGURE TITLE

Figure 4-1 (3 of 3)
V Net Zero Pipeline Scoping Boundary including the Preferred Pipeline Corridor

ISSUE PURPOSE

SCOPING REPORT

PROJECT NUMBER / REFERENCE

60668955 / VNZ_20220323_SR_4-1

4.4 Overview of the Proposed EIA Methodology

4.4.1 The assessment methodology follows a systematic approach in order to assess the potential impacts and subsequent effects of the Project on human health, the natural and physical environments and material assets in an appropriate manner, as per the EIA Regulations, 4(2) (Ref 4-3).

4.4.2 The Project would follow best practice by integrating environmental considerations into the design process at all stages. This has already begun through route development comprising both desk studies and initial baseline surveys that have sought to avoid or reduce disturbance of known environmental constraints and/or receptors, wherever possible.

4.4.3 The EIA will identify potentially significant adverse environmental effects and, if any, propose project specific mitigation measures to avoid, reduce or offset adverse environmental effects or maximise environmental benefits. These can then be incorporated into the further, post-consent configuration refinement of the Project.

4.4.4 The EIA process involves the main steps illustrated in **Figure 4-2**.

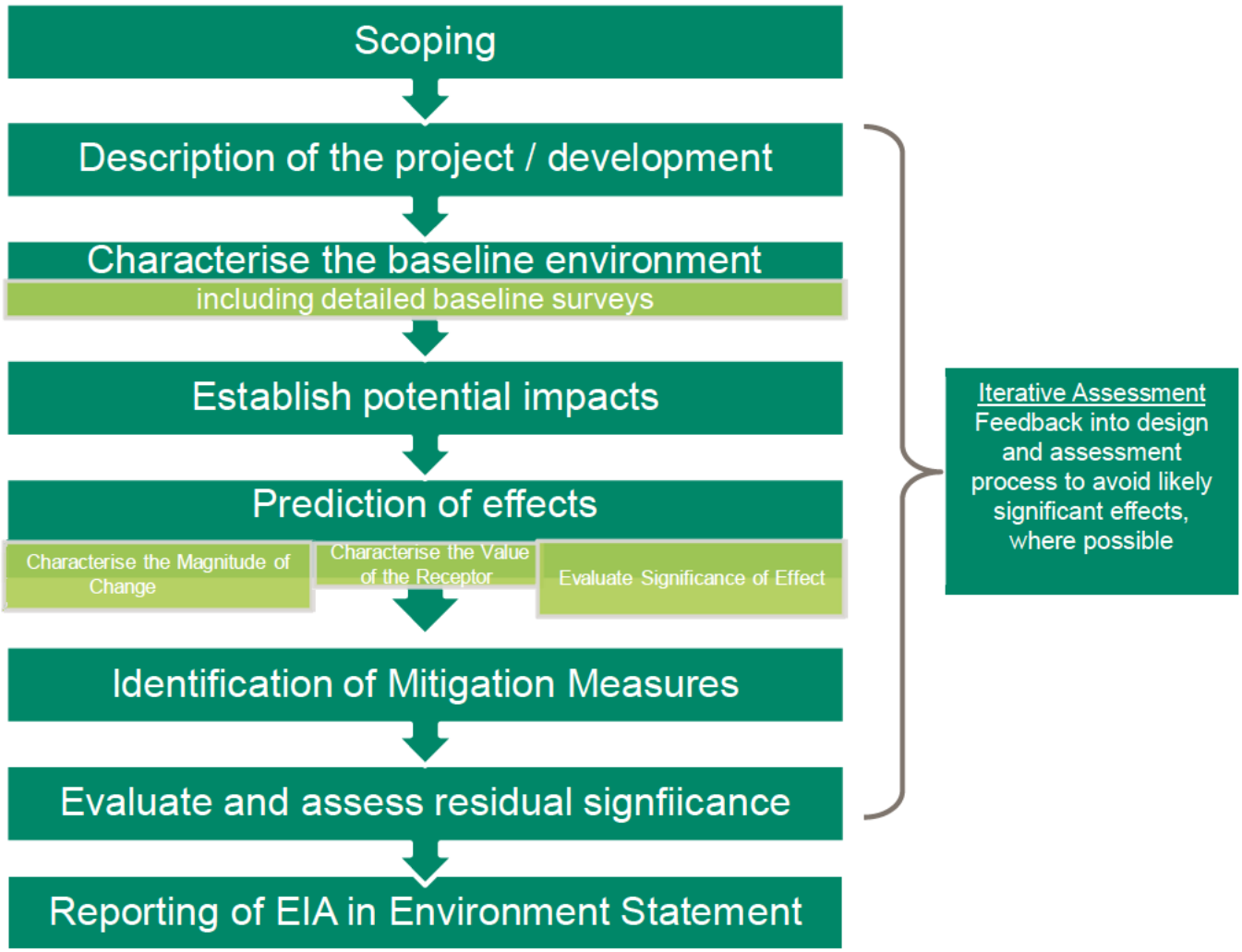

Figure 4-2: Overview of the EIA Process

Defining the Study Area

4.4.5 A Study Area is defined in each individual technical assessment in Chapters 6-19. A rationale is also provided to support the selection of the Study Area's selected for each technical discipline.

Characterisation of the Baseline Environment

4.4.6 To assess the potential impacts resulting from the Project it is necessary to first establish the environmental conditions that currently exist along and within the vicinity of the Project areas.

4.4.7 Appropriate understanding of the baseline for each environmental receptor should be collated through some or all of the following:

- Review of secondary sources (desk-based, i.e. review of existing documentation and literature; data searches and available data sets such as GroundSure or EnviroCheck);
- Review of primary baseline studies (field); and
- Stakeholder consultation.

4.4.8 The key data sources used to establish the baseline will be described in each technical assessment chapter (Chapter 6 to 19).

Future baseline

4.4.9 The ES will include an outline of the likely evolution of the existing baseline without the development of the Project, based on available information on future plans and knowledge of the historic land uses. The future baseline scenario will be clearly set out and described within the ES in the description of the Project and in each relevant technical chapter.

4.4.10 A precautionary approach to the future baseline will be taken in the Air Quality, and Material and Waste Chapters in the ES. This approach is explained in Chapter 12 Air Quality, Section 12.3.10-12.3.11, and Chapter 17 Materials & Waste, Section 17.2.13.

Assessment of Impacts

4.4.11 The Institute of Environmental Management and Assessment (IEMA) guidelines (2004, p11/2) state that: "The assessment stage of the EIA should follow a clear progression; from the characterisation of 'impact' to the assessment of the significance of the effects taking into account the evaluation of the sensitivity and value of the receptors."

4.4.12 The prediction of potential impacts will be undertaken to determine what could happen to each environmental receptor because of the Project and its associated activities. There is expected to be a diverse range of potential impacts to consider within the assessment process and it will likely be appropriate to use a range of prediction methods including quantitative, semi-qualitative and qualitative. The definitions used to describe impacts are noted in **Table 4-1**.

Table 4-1: Impact definition

Terms	Definition
Direct impact	Impacts that result from a direct interaction between the Project activities and the receiving environment.
Indirect impact	Impacts on the environment, which are not a direct result of the Project activities, often produced away from the activity or as a result of a complex pathway.
Inter-Project cumulative impact	Impacts that result from incremental changes caused by other present or reasonably foreseeable actions together with the Project (European Commission 1999). Generally considered to be the same impact but from different projects e.g. noise generated from two separate projects combining to affect residential amenity.
Beneficial impact	An impact that is considered to represent an improvement on the baseline condition or introduces a new desirable factor (Chartered Institute of Ecology and Environmental Management CIEEM 2010).
Adverse impact	An impact that is considered to represent an adverse change from the baseline condition or introduces a new undesirable factor (CIEEM 2010).

4.4.13 The significance of residual effects will be determined by reference to criteria for each assessment topic. Specific effect significance criteria for each technical discipline will be developed, giving due regard to the following:

- Scale of the impact (described as high, medium, low and very low);
- Effect duration, and whether effects are temporary, reversible or permanent;
- Effect nature (whether direct or indirect, reversible or irreversible, beneficial or adverse);
- Whether the effect occurs in isolation, is cumulative or interacts with other effects;
- Performance against any relevant environmental quality standards;
- Sensitivity of the receptor (described as high, medium, low and very low); and
- Compatibility with environmental policies.

4.4.14 Further guidance specifically relating to the magnitude of an impact, the sensitivity of a receptor and the significance of any resultant effects is provided in the following sections.

Magnitude of Change

4.4.15 General criteria for defining the magnitude of an impact are set out in **Table 4-2**. Key factors that influence this include:

- *Scale of change* – The scale of change refers to the degree of change to or from the baseline environment caused by the impact being described;
- *Spatial extent* – The extent of an impact is the full area over which the impact occurs; and
- *Duration and frequency* – The duration is the period within which the impact is expected to last prior to recovery or replacement of the feature. Frequency refers to how often the impact will occur.

Table 4-2: Impact Magnitude Criteria

Magnitude	Criteria
High	Long term and/or regional level loss; or major alteration to key elements/features of the baseline condition such that post development character/composition of the baseline will be fundamentally changed.
Medium	Medium term loss and/or local level change (greater than the Project footprint) or alteration to one or more key elements/features of the baseline conditions such that post development character/composition of the baseline condition will be materially changed.
Low	Short term, site specific and/or a minor shift away from baseline conditions. Changes arising from the alteration will be detectable but not material; the underlying character/composition of the baseline condition will be similar to the pre-development situation.
Very Low	Very little change from baseline conditions. Change is barely distinguishable, approximating to a "no change" situation.

Sensitivity of the Receptor

4.4.16 The sensitivity of a receptor or feature is characterised by the vulnerability to change, recoverability and importance of the receptor or feature (**Table 4-3**). Characterisation of the receptor is achieved by balancing out these three considerations to determine the receptor's sensitivity.

- *Vulnerability* – The vulnerability of the receptor relates to its capacity to accommodate change i.e. the tolerance/intolerance of the receptor to change;
- *Recoverability* – The ability of the receptor to return to the baseline state before the Project impact caused the change; and
- *Importance* – The importance of the receptor or feature is a measure of the value assigned to that receptor based on biodiversity and ecosystem services, social value and economic value. Importance of the receptor is also defined within a geographical context, whether it is important internationally, nationally or locally.

Table 4-3: Sensitivity Criteria

Sensitivity	Description
High	Receptor has little or no ability to absorb change without fundamentally altering its character. For example: a. Receptor has low/no capacity to return to baseline conditions within the Project life, e.g. low tolerance to change and low recoverability such as a physical feature formed over a geological time scale, or loss of access with no alternatives. b. The receptor is a designated feature of a protected site or is rare or unique. c. Receptor is economically valuable.
Medium	Receptor has moderate capacity to absorb change without significantly altering its character, however some damage to the receptor will occur. For example: a. Receptor has intermediate tolerance to change. b. Medium capacity to return to baseline condition, e.g. >5 of up to 10 years. c. The receptor is valued but not protected.

Sensitivity	Description
Low	The receptor is tolerant to change without significant detriment to its character. Some minor damage to the receptor may occur. For example: a. Receptor has high tolerance to change. b. High capacity to return to baseline condition, e.g. within 1 year or up to 5 years. c. May affect socio-economic behaviour but is not a nuisance to users. d. The receptor is common and/or widespread.
Very Low	The receptor is tolerant to change with no effect on its character. The Project activity does not have a detectable effect on survival or viability.

Evaluating the Significance of Effects

4.4.17 Having established the magnitude of change and the sensitivity of the receptor the significance of an effect can be assessed. The identification of significance typically requires the application of professional judgement, however a significance matrix (**Table 4-4**) may also be used as a guide to help identify the likely significance of effects.

4.4.18 The significance of residual effects will be evaluated with reference to available definitive standards, accepted criteria and legislation. For issues where definitive quality standards do not exist, significance will be based on the:

- Local, district, regional or national scale or value of the resource affected;
- Number of receptors affected;
- Sensitivity of these receptors; and
- Duration of the effect.

4.4.19 Each of the specialist disciplines undertaking EIA may have a variation of the table below that aligns with magnitude and sensitivity criteria that best suits their topic area, which may also be defined in industry guidelines. These criteria and determination of significance are outlined in the specialist chapters (Chapters 6-19) below.

Table 4-4: Significance Matrix

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

4.4.20 The result of the interpretation of this matrix in line with the approach defined by each discipline is the assignment of the level of significance of the effect for all potential Project related impacts. This is done with due consideration of any 'mitigation by design' measures being in place, and then re-evaluated following the incorporation of any additional 'Project specific mitigation'. Further information on mitigation measures is provided below. **Table 4-5** provides typical descriptions for each of the four significant effect definitions.

Table 4-5: Generic Significance Effect Descriptions

Significance Category	Indicative Description	Significant Effect?
Major	A large and detrimental change to a sensitive receptor: likely or apparent exceeding of accepted (often legal) threshold. A large and beneficial change, leading to improvements to the baseline resulting in previously poor conditions being replaced by new legal compliance or major contribution being made to national targets. These effects may represent key factors in the decision-making process. Potentially associated with site and features of national importance or likely to be important considerations at a regional or district scale. Major effects may relate to resources or features which are unique and which, if lost, cannot be replaced or relocated.	Yes
Moderate	A medium scale change which, although not beyond an acceptable threshold, is still considered to be generally unacceptable, unless balanced out by other significant positive benefits of a project. Likely to be in breach of planning policy rather than a legal statute. These effects, if adverse, are likely to be important at a local scale and on their own could have a material influence on decision making. A positive moderate effect is a medium scale change that is significant in that the baseline conditions are improved to the extent that guideline targets are contributed to.	Yes, typically – but subject to application of professional judgement.
Minor	A small change that, whilst adverse, does not exceed legal or guideline standards. Unlikely to breach planning policy. A small positive change, but not one that is likely to be a key factor in the overall balance of issues. These effects may be raised as local issues and may be of relevance in the detailed design of a project but are unlikely to be critical in the decision-making process.	No
Negligible	A very small scape change that is so small and unimportant that it is considered acceptable to disregard. Effects which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error, these effects are unlikely to influence decision making irrespective of other effects	No

4.4.21 Moderate and Major levels of significance are usually considered to be significant in EIA terms, whilst Negligible or Minor impacts are not considered to be significant.

4.4.22 In subsequent chapters of this report the general criteria described above have been made more specific for each environmental topic based on relevant standards or guidelines. Further explanation of the approach to assessing impacts and the specific criteria to be used for each topic is set out in later chapters, with any deviation from this standard approach noted.

Approach to Mitigation

4.4.23 A standard hierarchical approach to identifying mitigation requirements will be used:

- *Avoid or Prevent*: In the first instance, mitigation should seek to avoid or prevent the adverse effect at source, for example by routeing the pipelines] away from a sensitive receptor;
- *Reduce*: If the effect is unavoidable, mitigation measures should be implemented which seek to reduce the significance of the effect, for example the use of a noise bund to reduce noise levels at nearby noise sensitive receptors; and
- *Offset*: If the effect can neither be avoided nor reduced, mitigation should seek to offset the effect through the implementation of compensatory mitigation, for example offsite habitat creation to replace habitat losses.

4.4.24 Mitigation measures fall into two categories, as follows:

- *Mitigation by Design*: This is where the design of the Project is developed through an iterative process which involves seeking to avoid or reduce potential environmental effects through appropriate routeing, siting and specifications; and
- *Project Specific Mitigation*: Project specific mitigation refers to additional measures which will be identified and proposed following initial assessment. These will be presented within each of the topic chapters. These will be identified to further avoid or reduce potentially adverse environmental effects where they cannot be in the design of the Project.

4.4.25 A Register of Environmental Actions and Commitments (REAC) will be included in the DCO Application. This will tabulate all the environmental mitigation proposed as part of the ES and would contain detailed descriptions of the actions required by the main contractor(s) during the construction of the Project.

4.4.26 The DCO will contain a requirement for a Construction Environmental Management Plan (CEMP), which would contain the REAC as well as other effective, site-specific procedures, details of identified monitoring and auditing of the mitigation as required. A draft CEMP will be prepared and submitted with the DCO application. This document would then be further developed once the Contractor is appointed. The requirement within the DCO would ensure that those measures included in the draft CEMP are legally secured and have to be actioned on pre / during / post construction.

Evaluate and Assess Residual Significance

4.4.27 Following the identification of Project specific mitigation measures, the assessment of significance will be re-evaluated to determine whether there is likely to be a residual impact and if it remains significant.

4.4.28 Residual effects assessed as Moderate or Major after consideration of Project specific mitigation measures will normally require additional analysis and consultation in order to discuss and possibly further mitigate where possible. Where further mitigation is not possible a residual effect may remain.

4.5 Transboundary Effects

4.5.1 It is not anticipated that the Project would have significant transboundary effects. A completed transboundary screening matrix dealing with the potential effects of the Project on other European Economic Area (EEA) States is presented in **Appendix E**.

4.6 Timescales and Assessment Years

Construction Phase Effects

4.6.1 Construction phase effects will be taken to be those effects which arise as a result of construction related activities. This covers sources of effects such as construction traffic, atmospheric emissions, construction noise and vibration, dust generation, site runoff, mud on roads, risk of fuel/oil spillage, and the visual intrusion of plant and machinery on-site.

4.6.2 The construction phase for the Project is expected to last up to 24 months in total, however a detailed programme of construction works will be prepared which will seek to limit the time during which specific locations are affected. Construction related activities can result in both temporary effects and permanent effects and these will be identified within the assessment.

Operational Phase Effects

4.6.3 Operational phase effects are taken to be the effects that occur as a result of the operational phase activities. These effects could be relatively short term, endure for a substantial period, or be permanent. This includes the effects of the physical presence of the Project infrastructure, and its operation, use and maintenance. The overall operational life of the Project is expected to be 40 years.

Decommissioning Phase Effects

4.6.4 For the assessment, these effects will be taken to be those which arise as a result of activities undertaken during the decommissioning phase of the Project. This covers sources of effects such as traffic, noise and vibration, dust generation and site run-off from decommissioning activities, for example. As with construction phase effects, some aspects of decommissioning will endure for longer than others.

4.6.5 The identification of construction and decommissioning effects will be made on the basis of existing knowledge, techniques and equipment. A ‘reasonable worst-case’ scenario will be used with respect to the envisaged construction and decommissioning methods, location (proximity to sensitive receptors), phasing and timing of construction and decommissioning activities.

4.7 References

Ref 4-1 The Planning Inspectorate Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements. Available at:https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-and-environmental-statements/

Ref 4-2 The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009. Available at: https://www.legislation.gov.uk/uksi/2009/2264/contents/made

Ref 4-3 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available at: https://www.legislation.gov.uk/uksi/2017/572/contents/made