Contents

CONTENTS **0**
21. CUMULATIVE AND COMBINED EFFECTS **2**
21.1. INTRODUCTION 2
21.2. LEGISLATION, PLANNING POLICY AND GUIDANCE 3
21.3. ASSESSMENT METHODOLOGY 4
21.4. CUMULATIVE EFFECTS ASSESSMENT (STAGE 1 – 3) 24
21.5. CUMULATIVE EFFECTS ASSESSMENT (STAGE 4) 60
21.6. COMBINED EFFECTS ASSESSMENT 140
21.7. LIMITATIONS OR DIFFICULTIES 156
21.8. SUMMARY OF LIKELY SIGNIFICANT RESIDUAL EFFECTS 156
21.9. REFERENCES 158

Tables

Table 21.1: Level of certainty for each tier **9**
Table 21.2: ZOI Summary Table **13**
Table 21.3: Consultation Summary **17**
Table 21.4: Identification of 'Other Development' for the CEA (Stage 1 initial long list) **25**
Table 21.5: Identification of 'Other Development' for the CEA (Stage 2 short list) 44
Table 21.6: Air Quality Cumulative Effects Assessment **61**
Table 21.7: Noise and Vibration Cumulative Effects Assessment **69**
Table 21.8: Traffic and Transport Cumulative Effects Assessment **76**
Table 21.9: Biodiversity and Nature Conservation Cumulative Effects Assessment **84**
Table 21.10: Water Environment and Flood Risk Cumulative Effects Assessment **97**
Table 21.11: Geology, Hydrogeology and Land Contamination Cumulative Effects Assessment **101**
Table 21.13: Visual Amenity Cumulative Effects Assessment **108**

Table 21.14: Cultural Heritage Cumulative Effects Assessment 123
Table 21.15: Socio-economics Cumulative Effects Assessment 130
Table 21.16: Population and Human Health 135
Table 21.17: Potential for Significant Combined Effects (Construction) 143
Table 21.18: Potential for Significant Combined Effects (Operation) 151

21. Cumulative and Combined Effects

21.1. Introduction

21.1.1. This chapter of the Environmental Statement (ES) provides an initial assessment of the potential for cumulative and combined effects to occur as a result of the Proposed Development. Cumulative and combined effects are defined as follows:

- **cumulative effects:** these occur when the environmental impacts and effects of the Proposed Development interact with those associated with other planned projects and developments located within a realistic geographical scope where environmental impacts could act together to result in a greater significance of effect on environmental resources and/or receptors; and
- **combined effects:** these are effects resulting from a single development i.e. on the Proposed Development on any one receptor that may collectively cause and effect /effects of greater significance, on environmental resources and/or receptors.

21.1.2. The assessment draws on the assessment of impacts provided in **ES Volume I Chapters 8 to 20 (Application Document Ref. 6.2),** and information in the public domain relating to other known developments that are proposed within the study area. This includes information on other Nationally Significant Infrastructure Projects (NSIP) in the vicinity, and planning applications registered with the local planning authority that are already consented, that have not yet been constructed or begun operating.

21.1.3. The cumulative assessment does not consider developments that are already constructed and operating; such existing operational facilities are accounted for in the baseline conditions established for the main assessments reported within **ES Volume I Chapters 8 to 20 (Application Document Ref. 6.2)**. Similarly, the assessment does not consider developments that are being constructed and would be operating in the future, prior to construction of the Proposed Development. Effects of such future operational facilities are accounted for in the future baseline conditions established for the main

assessments within **ES Volume I Chapters 8 to 20 (Application Document Ref. 6.2)** .

21.1.4. This chapter is supported by **ES Volume III Figure 21.1:** Longlist of Developments Initially Considered for Cumulative Impact Assessment and **21.2**: Shortlist of Developments Considered for Cumulative Impact Assessment **(Application Document Ref. 6.4)** which illustrates the Site location in relation to other developments that have been considered in the cumulative effects assessment (CEA).

21.2. Legislation, Planning Policy and Guidance

21.2.1. Due to the potential for cumulative effects to occur as a result of the construction and operation (including maintenance) of the Proposed Development, a cumulative assessment has been undertaken as part of the Environmental Impact Assessment (EIA) in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 ('EIA Regulations') (HMSO, 2017) as amended (including as amended by the Environmental Assessments and Miscellaneous Planning (Amendment) (EU Exit) Regulations 2018 (SI 2018/1232)) and the assessment requirements of the National Policy Statement (NPS) for Energy (EN-1) (DECC, 2023).

21.2.2. The requirement for cumulative and combined effects assessments is stated in the EIA Regulations, as detailed below:

- Schedule 4 paragraph 5 of the EIA Regulations (HMSO, 2017) requires: "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". The EIA Regulations state that this description of likely significant effects "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";
- Paragraph 4.1.5 of the Overarching National Policy Statement (NPS) for Energy (EN-1) (DECC, 2023) states that:

"*In considering any proposed development, and in particular when weighing its adverse impacts against its benefits, the Secretary of State should take into account:*

- its potential benefits including its contribution to meeting the need for energy infrastructure, job creation, reduction of geographical disparities, environmental enhancements, and any long-term or wider benefits; and
- its potential adverse impacts, including on the environment, and including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce, mitigate or compensate for any adverse impacts, following the mitigation hierarchy"; and

- Paragraph 4.3.19 of NPS EN-1 states that consideration should be given to "how the accumulation of, and interrelationship between, effects might affect the environment, economy or community as a whole, even though they may be acceptable when considered on an individual basis with mitigation measures in place."

21.3. Assessment Methodology

Assessment of Combined Effects

21.3.1. The assessment of combined effects considers whether an individual environmental receptor or resource would be affected by more than one type of impact as a result of the Proposed Development. For example, a single receptor, such as a property or habitat, being subject to noise, air quality and visual impacts associated with the Proposed Development. The study area for the assessment of combined effects is defined by the study areas used in each of the environmental topics set out in **ES Volume I Chapters 8 - 20 (Application Document Ref. 6.2)**.

21.3.2. The sources of data for the assessment of combined effects are the specialist environmental assessments presented within **ES Volume I Chapters 8 - 20 (Application Document Ref. 6.2)**.

21.3.3. The assessment methodology for combined effects involves the identification of environmental resources and receptors where there is potential for more than one impact to be experienced and therefore potential for interactions between these. This enables the identification

of the overall combined environmental effects of the Proposed Development.

21.3.4. The following environmental resources and receptor groups have been identified and considered in relation to the potential for more than one type of impact to be experienced by a single receptor:

- human receptors (residents, local community using community facilities);
- ecological receptors;
- geology and soils;
- waterbodies; and
- users and operators of local businesses and tourism amenities.

21.3.5. Geological strata and soils are not considered likely to be affected by impacts other than those identified within the assessment in **Chapter 13**: Geology, Hydrogeology and Land Contamination (ES Volume I) and are therefore not subject to combined effects.

21.3.6. The potential interactions between individual effects have been identified by reviewing the likely significant residual effects assessments within the topic chapters presented in **ES Volume I Chapters 8 - 20 (Application Document Ref. 6.2)**. Some of these chapters have already addressed interactions between different types of impact relating to specified environmental resources and receptors, as described below:

- **ES Volume I Chapter 8**: Air Quality (**Application Document Ref. 6.2**) includes an assessment of the potential impacts of construction dust and nitrogen deposition upon ecological receptors. These have also been taken into account in the assessment of effects upon terrestrial ecology and nature conservation as reported in **ES Volume I Chapter 11**: Biodiversity and Nature Conservation (**Application Document Ref. 6.2**).
- **ES Volume I Chapter 11:** Biodiversity and Nature Conservation (**Application Document Ref. 6.2**) takes into consideration the potential for air quality, dust and noise and vibration impacts and therefore how they could (in combination with other ecological impacts, such as habitat loss) affect ecological receptors. In addition, effects on the water environment set out in **ES Volume I Chapter 12**: Water Environment and Flood Risk (**Application**

Document Ref. 6.2) are considered including how they could in turn affect ecological receptors.

- **ES Volume I Chapter 12:** Water Environment and Flood Risk (**Application Document Ref. 6.2**) considers the potential impacts of climate change upon flood risk.
- **ES Volume I Chapter 13**: Geology, Hydrogeology and Land Contamination (**Application Document Ref. 6.2**) considers the potential impacts of soils disturbance and mobilisation of contamination on ecological receptors.
- **ES Volume I Chapter 15**: Cultural Heritage (**Application Document Ref. 6.2**) considers the effect of disturbance due to noise and physical damage due to vibration on the setting and fabric of built heritage assets.
- **ES Volume I Chapter 18**: Climate Change and Sustainability (**Application Document Ref. 6.2**) includes an In-Combination Climate Change Impact (ICCI) assessment which addresses the in-combination effects of a changing climate and the Proposed Development on receptors in the surrounding environment.

21.3.7. The effects due to the interaction of different types of impact which form an inherent part of the technical assessments listed above are not included within the combined effects assessment. The combined effects assessment considers only those effects which could arise as a result of multiple impacts on single receptors which have not been identified elsewhere within this ES.

21.3.8. Therefore, as potential combined effects on ecological resources, geology and soils and waterbodies are considered in the above chapters, this chapter considers the combined effects on human receptors only. The types of impacts that could be experienced by these receptors and which may interact are noise, air quality and visual effects, during both construction and operation.

21.3.9. A consideration of combined effects has been undertaken. The following effects are considered in combination for each topic:

- air quality – effects on receptors identified as being sensitive with respect to construction dust (i.e. at more than negligible risk) and receptors experiencing a minor adverse or worse effect during operation;

- noise and vibration – effects on receptors experiencing an adverse significant effect during construction or operation; and
- visual effects – effects on receptors experiencing a minor adverse or worse effect during construction, opening (start of operation), and operation (15 years post-opening).

21.3.10. For definitions of these criteria please refer to **ES Volume I Chapter 8**, (Section 8.3: Assessment Methodology); **ES Volume I Chapter 9** (Section 9.3: Assessment Methodology and Significance Criteria) and **ES Volume I Chapter 14** (Section 14.3: Assessment Methodology and Significance Criteria) (**Application Document Ref. 6.2**).

Assessment of Cumulative Effects

21.3.11. The assessment of cumulative effects considers the effects on environmental resources and receptors that will likely occur from the changes arising from the Proposed Development in conjunction with those associated with other planned developments. A combination of professional judgement and established guidance has been used to confirm the scope of the cumulative effects assessment. With regard to cumulative effects, the ability to quantify the extent to which the environmental effects of other schemes can interact with those associated with the Proposed Development depends upon on the level of information available regarding such other schemes. Where environmental assessment information regarding other schemes is not available or is uncertain, the cumulative assessment will be necessarily qualitative and assessed using professional opinion.

21.3.12. When considering cumulative and combined effects, the mitigation measures set out in **ES Volume I Chapters 8 to 20** (**Application Document Ref. 6.2**) are taken into account (i.e. only residual (after mitigation) effects of the Proposed Development are considered within the assessment). Cumulative and combined effects are assessed to be neutral, minor, moderate or major. Moderate or major effects are considered to be significant, using the methodologies outlined in each technical chapter (refer to **ES Volume I Chapters 8** to **20** of this ES (**Application Document Ref. 6.2**)).

21.3.13. Planning Inspectorate Advice on Cumulative Effects Assessment relevant to nationally significant infrastructure projects (PINS, 2024) sets out a four-stage approach to the assessment of cumulative effects:

- Stage 1: establishing the long list of other existing development and/or approved development;

- Stage 2: establishing a shortlist of other existing development and/or approved development;
- Stage 3: information gathering; and
- Stage 4: assessment.

21.3.14. This approach is being followed and is presented in this chapter. The assessment approach is set out below.

Stage 1: Establishing the Long List of Other Existing Development and/ or Approved Development

21.3.15. Taking into account the staged approach set out in Planning Inspectorate's advice on CEA (PINS, 2024), Stage 1 involves establishing the Proposed Development's Zone of Influence (ZOI), identifying a long list of 'other development' and establishing their level of certainty, with levels of certainty defined as perTable 21.1.

Table 21.1: Level of certainty for each tier

Tier	Degree of certainty	Decreasing level of detail likely to be available
Tier 1	• Under construction;* • Permitted application(s), whether under the PA2008 or other regimes, but not yet implemented; • Submitted application(s) whether under the PA2008 or other regimes but not yet determined; and • All refusals subject to appeal procedure not yet determined.	↓
Tier 2	• Projects on the Planning Inspectorate's Programme of Projects where a scoping report has been submitted	
Tier 3	• Projects on the Planning Inspectorate's Programme of Projects where a scoping report has not been submitted; • Identified in the relevant Development Plan (and emerging Development Plans - with appropriate weight being given as they move closer to adoption) recognising that there will be limited information on any relevant proposals; and • Identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.	

**Where other projects are expected to be completed before construction of the proposed NSIP and the effects of those projects are fully determined, effects arising from them should be considered as part of the baseline and may be considered as part of both the construction and operational assessment. The ES should clearly distinguish between projects forming part of the dynamic baseline and those in the CEA. Adapted from Table 2 in Planning Inspectorate Advice on CEA (PINS, 2024).*

21.3.16. An initial 'long list' of schemes in the vicinity of the Proposed Development was identified prior to the submission of the EIA Scoping Report (see **ES Volume II Appendix 1A** (**Application Document Ref. 6.3**)) and subsequent to this, an initial short list of schemes considered to be of relevance to the CEA is set out in this chapter as part of the ES. The long list was reviewed again at PEI Report stage and has been updated again in March 2025 and June 2025 for ES stage.

Stage 2: Establishing the Short List of Other Existing Development and/ or Approved Development

21.3.17. A shortlist of other schemes considered to be of relevance to the CEA (as of March 2025) is presented in Section 21.4 of this chapter.

21.3.18. This stage involves a review of the long list of planned developments, to identify those to be taken forward (shortlisted) into the CEA. In determining which of the developments should be shortlisted, a minimum level of information is necessary. Only those developments with at least a Scoping Report or ES (if EIA Development) or a planning application supported by relevant technical appendices (e.g. a Transport Assessment) available are considered for shortlisting. However, exceptions to this general principle may be made, where it is considered that there is potential for significant cumulative effects to occur based upon professional judgement, (for example due to close proximity to the Proposed Development).

21.3.19. Land allocations are considered, but as there is no certainty that developers will come forward with projects within the timescale for the delivery of these sites and the nature for such projects and their associated environmental effects are currently unknown, these have not been shortlisted.

21.3.20. Developments that are already in existence i.e. those which are completed and operational, are considered to form part of the environmental baseline conditions within which the Proposed Development will be implemented. They have therefore been accounted for through establishment of the current or future baseline within each technical assessment presented in **ES Volume I Chapters 8 - 20** (**Application Document Ref. 6.2**) and are therefore not considered for shortlisting.

21.3.21. Similarly, where other developments are expected to be completed prior to Proposed Development construction, and where the effects of

those projects are fully determined, these have also been considered within the environmental baseline adopted in the ES.

21.3.22. The shortlisting process was informed by interrogation of available development information, including information on environmental effects, and the professional judgement of the environmental specialists undertaking the EIA.

21.3.23. Where individual technical disciplines have scoped out assessment of developments included on the short list for the purposes of their CEA, the reasoning for this is set out in Section 21.6.

21.3.24. The schemes identified for cumulative assessment have been categorised into tiers to indicate the level of certainty associated with each scheme (Table 21.1). Those in Tier 1 are most certain, while those in Tier 3 are least certain, although they have been assessed, where possible, at a high level, in accordance with Planning Inspectorate advice on CEA (PINS, 2024).

Stage 3: Information Gathering

21.3.25. This stage involves reviewing the available information relating to the shortlisted developments to establish the details of their likely environmental effects, considering factors including the ZOI of the environmental topics assessed; the planned timescales for construction, operation and (where relevant) decommissioning; and details of their potential or likely significant effects.

Stage 4: Assessment

21.3.26. Those other developments which meet the criteria set out in the above stages i.e. are both reasonably foreseeable in terms of delivery (e.g. the applicable scheme has consent or is in the planning/ consenting process, and are geographically located in a position where environmental impacts are reasonably likely to act together to create an effect that is more (or less) significant overall than the effect of the individual developments alone) are incorporated into the cumulative effects' assessment. This involves identifying where effects are likely to occur and assessing the significance of those effects on environmental receptors and resources, taking into account any mitigation measures.

21.3.27. Operational impacts are generally long-term, and whilst construction impacts are often short-term and temporary, they can potentially be of a large magnitude. Consequently, when cumulative effects that could be associated with construction at one site and operation at another are

considered, the difference in duration and reversibility is considered within the assessment.

21.3.28. When assessing cumulative effects, it is appropriate to also acknowledge the relative contributions that different schemes make to a cumulative effect, and carefully consider whether a cumulative effect could occur, at all. For example, effects associated with a large scale scheme may be significant, and whilst a smaller scheme may contribute to this effect, the cumulative effect of the schemes together may only be considered as being significant if it is of greater significance than the effect of either project in isolation. It follows that if the environmental effects associated with the Proposed Development are assessed as being negligible, cumulative effects could not be generated given that Proposed Development impacts would be very low/low, or the receptor sensitivity would be very low/low. Professional judgement is required in order to determine whether cumulatively effects could become significant when added to those of another project.

21.3.29. The traffic and transport assessment presented in **ES Volume I Chapter 10**: Traffic and Transport (**Application Document Ref. 6.2)** and the traffic-related construction air quality and noise impacts and effects reported in **ES Volume I Chapter 8:** Air Quality and **ES Volume I Chapter 9:** Noise and Vibration (**Application Document Ref. 6.2**) are based on traffic data which includes traffic from other relevant committed developments and are therefore inherently cumulative.

Study Area

21.3.30. Cumulative effects are generally unlikely to arise unless other proposed development sites are in close proximity to the Site, recognising that actual distance varies with the nature of the potential effect and the nature of the receptor (e.g. cumulative air quality effects could occur for developments a greater distance apart than say noise effects). Construction projects are, as a matter of routine, required to employ regulatory and managerial controls and good practice to mitigate environmental impacts, as far as reasonably practicable. Nevertheless, consideration is given to the presence of common pathways from any nearby schemes to a single receptor, and whether there is potential for impacts of a sufficient magnitude whereby a particular receptor could experience cumulative effects that may be significant.

21.3.31. The study area for the consideration of cumulative and combined effects has been developed taking into account the predicted ZOI for

each technical discipline/ extent of impacts associated with the Proposed Development as detailed within **ES Volume I Chapters 8** to **20** of this ES (**Application Document Ref. 6.2**).

21.3.32. The study area for each environmental assessment topic is defined in the relevant ES technical chapters (**ES Volume I Chapters 8** to **20** (**Application Document Ref. 6.2**)) and outlined in Table 21.2, below.

Table 21.2: ZOI Summary Table

Environmental Topic	Zone of Influence (ZOI)
Air Quality	**Construction:** up to 250m beyond the Site boundary and 50m from the construction traffic route (up to 250m from the Site entrance), for human health receptors. Up to 50m from the Site boundary and construction traffic route (up to 250m from the Site entrance) for ecological receptors. For construction road traffic emissions, properties and habitat sites within 200m of affected roads. **Operation:** up to 15km ZOI for ecological receptors (Special Protection Area (SPA), Special Areas of Conservation (SAC), Ramsar sites and Sites of Special Scientific Interest (SSSI)) from the Main Site and up to 2km for non-statutory designated ecological receptors including Local Wildlife Sites (LWS). Refer to **ES Volume I Chapter 8:** Air Quality (**Application Document Ref. 6.2**)) for more information.
Noise and Vibration	**Construction:** 300m and **Operation:** 1km Refer to **ES Volume I Chapter 9:** Noise and Vibration (**Application Document Ref. 6.2**) for more information.
Traffic and Transport	**Construction:** The A18 (west of the construction site access to Keadby 2 Power Station); A18 Station Road (west of King George V Bridge; A18 High Levels Bank (east of Tudworth Roundabout) and the A161 (between M180 Junction 2 and the A18). **Operation:** N/A Refer to **ES Volume I Chapter 10:** Traffic and Transport (**Application Document Ref. 6.2**) for more information.
Biodiversity and Nature Conservation	Construction and Operation: A maximum ZOI of 15km has been applied:

Environmental Topic	Zone of Influence (ZOI)
	• 15km for international and national statutory designated sites; • 2km ZOI for local statutory and non-statutory designated sites; and • 1km for protected and notable habitats and species. Refer to **ES Volume I Chapter 11:** Biodiversity and Nature Conservation (**Application Document Ref. 6.2**) for more information.
Water Environment and Flood Risk	**Construction and Operation:** 1km ZOI generally for water quality assessment and flood risk – as water effects propagate downstream and flood risk can affect upstream receptors, a wider study area based on professional judgement has also been applied where relevant. The River Trent is considered the final receiving waterbody that could conceivably be affected. Refer to **ES Volume I Chapter 12:** Water Environment and Flood Risk (**Application Document Ref. 6.2**) for more information.
Geology, Hydrogeology and Land Contamination	**Construction and Operation:** The study area extends 250m from the Site extended for hydrogeology to a 1km ZOI. Refer to **ES Volume I Chapter 13:** Geology, Hydrogeology and Land Contamination (**Application Document Ref. 6.2**) and Land Contamination for more information.
Landscape and Visual Amenity	**Construction and Operation:** 10km ZOI based upon the tallest element of the Proposed Development being the stack (85m above ground level). Refer to **ES Volume I Chapter 14:** Landscape and Visual Amenity Assessment (**Application Document Ref. 6.2**) for more information.
Cultural Heritage	Construction and Operation: A maximum ZOI of 5km has been applied: • 5km for designated assets of highest value (World Heritage Sites, Scheduled Monuments and Grade I listed buildings);

Environmental Topic	Zone of Influence (ZOI)
	• 3km for other designated assets (grade II and II* listed buildings, conservation areas, registered parks and gardens, registered battlefields); and • 1km for non-designated assets, extended to include the Isle of Axholme Area of Special Historic Interest. Refer to **ES Volume I Chapter 15:** Cultural Heritage (**Application Document Ref. 6.2**) for more information.
Socio-economics	Construction and Operation: This has been based on the Scunthorpe Travel to Work Area (TTWA). Refer to **ES Volume I Chapter 16:** Socio-economics (**Application Document Ref. 6.2**) for more information.
Population and Human Health	For the assessment of health effects, the study area is defined based on the geographic extent of other topics for each environmental aspect of relevance to population and human health, including, landscape and visual, traffic and transport, air quality, noise and vibration, and socio-economics. These study areas are set out above and are considered sufficient to identify health receptors which could be impacted by the Proposed Development cumulatively with other developments.
Climate Change and Sustainability	The greenhouse gas (GHG) ZOI includes all GHG emissions from within the Proposed Development Site boundary arising during all stages of the construction and operation of the Proposed Development. It also includes emissions arising from offsite activities which are directly related to the onsite activities, such as transport, and treatment of materials and waste disposal. Refer to **ES Volume I Chapter 18:** Climate Change and Sustainability (**Application Document Ref. 6.2**) for more information.
Major Accidents and Disasters	Construction and Operation: 5km Refer to **ES Volume I Chapter 19:** Major Accidents and Disasters (**Application Document Ref. 6.2**) for more information.
Waste and Materials	N/A as the assessment within **ES Volume I Chapter 20:** Waste and Materials (**Application Document Ref. 6.2**) is

Environmental Topic	Zone of Influence (ZOI)
	inherently cumulative as Waste Management Plans developed by local authorities account for additional provision of waste resulting from local development. This therefore is not duplicated as part of the cumulative impacts assessment process.

Consultation

21.3.33. A summary of consultation activities relevant to the cumulative and combined effects assessment is provided in Table 21.3 below.

Table 21.3: Consultation Summary

Consultee	Method of Consultation (Date)	Summary	Addressed
Planning Inspectorate	EIA Scoping Opinion for the Proposed Development (June 2024).	The Planning Inspectorate considers that other existing or approved development beyond the study area outlined in the scoping stage (2km for Town and Country Planning Act developments and 10km for NSIP) could give rise to cumulative effects on the same receptors. The Planning Inspectorate notes that the ES must clearly state and justify the study area applied for each aspect. Effort should be made to agree the scope of the cumulative assessment with relevant consultation bodies.	The study area outlined in the scoping stage has been increased in accordance with the study areas applied for each environmental assessment presented in this ES. This is because distance varies with the nature of the potential effect and the nature of the receptor. The study area is now 15km to reflect the largest ZOI for the environmental assessments, and as advised in Planning Inspectorate advice on CEA (PINS, 2024).
Planning Inspectorate	EIA Scoping Opinion for the Proposed Development (June 2024).	The Planning Inspectorate notes that the Scoping Report does not define the scope of any combined effects and the ES should be clear as to which combinations of effects it is assessing, and clearly justify the approach taken.	The scope of potential combined effects has been defined and assessed within this chapter.
Planning Inspectorate	EIA Scoping Opinion for the Proposed	The Planning Inspectorate notes that consideration should be given to the inclusion of Lincolnshire Reservoir and	Lincolnshire Reservoir has not been included on the long list for the CEA due to the distance between the

Consultee	Method of Consultation (Date)	Summary	Addressed
	Development (June 2024).	Scunthorpe Electric Arc Furnace within the CEA, referencing comments from Anglian Water and Natural England in this regard.	projects (approximately 40km). The search criteria used for the long list included a maximum search distance of 15km (the largest ZoI included within **ES Volume I Chapters 8 to 20** (**Application Document Ref. 6.2**)). Scunthorpe Electric Arc Furnace has been included on the long list for the CEA.
Planning Inspectorate	EIA Scoping Opinion for the Proposed Development (June 2024).	The Planning Inspectorate comments that the Scoping Report does not include a methodology for assessing cumulative or combined effects and advises the Inspectorate's Advice Note 17: Cumulative Effects Assessment, which sets out the recommended approach to such assessments, is considered. The Inspectorate advises that any mitigation and/or design measures relied upon to exclude likely significant effects should be explained in the ES and appropriately secured.	The approach to the assessment of cumulative effects set out in the Planning Inspectorate's advice on CEA (PINS, 2024) has been adopted.
Anglian Water	EIA Scoping Opinion for the Proposed	Anglian Water notes that there are several other infrastructure projects in the area with	Fens/Lincolnshire Reservoir has not been included on the long list for the

Consultee	Method of Consultation (Date)	Summary	Addressed
	Development (June 2024).	potentially cumulative impacts for demand for water resources. Anglian Water notes that the Scoping Report does not identify the Fens Reservoir NSIP project (near Sleaford) (also known as 'Lincolnshire Reservoir') for consideration in the CEA, and states that whilst this project is located some distance away, it is of potential relevance. The Lincolnshire Reservoir is a 55 MCM raw water storage reservoir, with a usable volume of 50 MCM. There are three possible sources being assessed for the reservoir: the River Trent, River Witham, South Forty Foot Drain. It is proposed to transfer, either by pipeline or open channel transfer from the River Trent to the River Witham at times when it is not possible to abstract from the Witham itself.	CEA due to the distance between the projects (approximately 40km). The search criteria used for the long list included a maximum search distance of 15km (the largest ZoI included within **ES Volume I Chapters 8 to 20** (**Application Document Ref. 6.2**)).
National Highways	EIA Scoping Opinion for the Proposed Development (June 2024).	National Highways notes the Scoping Report says that cumulative impact assessment is included in the scope of the Transport Assessment. As such National Highways advise that the Applicant should review and include any committed	**ES Volume I Chapter 10:** Traffic and Transport (**Application Document Ref. 6.2**) sets out the committed developments that have been taken into account in the initial transport assessment and the consultation that

Consultee	Method of Consultation (Date)	Summary	Addressed
		development traffic flows in the area that are likely to affect the flows at the relevant junctions in the assessment years. These should include development that is consented or allocated where there is a reasonable degree of certainty it will proceed in the next three years. Appropriate committed development flows should be agreed with the local planning authority.	has been undertaken to date with North Lincolnshire Council on this subject.
Natural England	EIA Scoping Opinion for the Proposed Development (June 2024).	Natural England notes the importance of considering cumulative effects of the proposal, including all supporting infrastructure, with other similar proposals and a thorough assessment of the 'in combination' effects of the Proposed Development with any existing developments and current applications. A full consideration of the implications of the whole scheme should be included in the ES. All supporting infrastructure should be included within the assessment. Natural England states that the CEA should include existing completed projects, approved by uncompleted projects, ongoing	The long list of other developments included within this chapter includes all other developments within the study area of 15km. This includes other developments at varying stages of the planning application or DCO process.

Consultee	Method of Consultation (Date)	Summary	Addressed
		activities, plans or projects for which an application has been made and which are under consideration by the consenting authorities, and plans and projects which are reasonably foreseeable (i.e. projects for which an application has not yet been submitted but which are likely to progress before completion of the Proposed Development and for which sufficient information is available to assess the likelihood of effects	
Natural England	EIA Scoping Opinion for the Proposed Development (June 2024).	Natural England identifies other projects that are proposed in close proximity to the Proposed Development, that the ES should consider potential in-combination effects with: Scunthorpe Electric Arc Furnace (PA/2024/123), North Lincolnshire Green Energy Park, and North Humber to High Marnham works to high voltage power network (PA/2023/1915). Natural England note that Keadby CCS Power Station DCO is excluded from the CEA because the Proposed Development is an alternative to Keadby CCS Power	Scunthorpe Electric Arc Furnace, North Lincolnshire Green Energy Park and North Humber to High Marnham works to high voltage power network have all been included on the long list for the CEA.

Consultee	Method of Consultation (Date)	Summary	Addressed
		Station so there is no potential for cumulative effects to occur.	
UK Health Security Agency (UKHSA)	EIA Scoping Opinion for the Proposed Development (June 2024).	The UKHSA notes that significant numbers of non-home based construction workers could foreseeably have an impact on the local availability of affordable housing, which could be compounded by cumulative accommodation demands from a number of large developments. The UKHSA recommends that peak numbers of construction workers and non-home based workers should be established and a proportionate assessment be undertaken on the impacts for housing availability and impacts on any local services, including cumulative effects across all schemes	**ES Volume I Chapter 16:** Socioeconomics (**Application Document Ref. 6.2**) Considers the effect that construction workers working on the Proposed Development will have on local accommodation. The cumulative impact assessment completed within this chapter considers cumulative effects with other schemes.
North Lincolnshire Council	EIA Scoping Opinion for the Proposed Development (June 2024).	In relation to the CEA, North Lincolnshire Council notes that, in addition to the various power station proposals, it will be necessary to consider proposed solar farm developments that could affect wintering and passage waterbirds. Other plans and projects that could lead to increased impacts of NOx, N deposition and ammonia	Keadby 1 and 2 Power Stations are currently operational, so impacts associated with these existing power stations are captured in the baseline conditions for all technical assessments and they are not assessed in the CEA.

Consultee	Method of Consultation (Date)	Summary	Addressed
		on designated sites will also need to be considered in combination.	As the Proposed Development is an alternative to Keadby CCS Power Station, this is also excluded from the CEA. Four solar farms are included on the long list for the CEA, and other developments (such as North Lincolnshire Green Energy Park) which could lead to cumulative NOx, N deposition and ammonia impacts on designated sites are included on the long list for CEA.

21.4. Cumulative Effects Assessment (Stage 1 – 3)

Stage 1: Establishing the ZOI and Identifying a Long List of 'Other Development'

21.4.1. An initial screening exercise (Stage 1 of the CEA) has been undertaken to identify potential major and other developments and plans within a 15km radius of the Site to create an initial long list for consideration within the CEA. Searches included applications within the marine environment (applying a 5km study area downstream and upstream), however no relevant marine licensable activities were noted that required consideration. Available information on schemes identified was obtained, with details regarding each being provided in Table 21.4. The location of the 'other developments' on the final long list are shown in **ES Volume III Figure 21.1** (**Application Document Ref. 6.4**).

Table 21.4: Identification of 'Other Development' for the CEA (Stage 1 initial long list)

ID	Application reference	Applicant for 'other development' and a brief description	Distance from the Site	Status	Tier	Within largest ZOI (15km)	Progress to Stage 2?
1	Humber Carbon Capture Pipeline DCO EN0710003	Net Zero North Sea Storage (NZNSS) Ltd. Onshore underground CO_2 pipeline and associated above ground infrastructure to transport captured carbon dioxide from emitters in the Humber region from Drax (in North Yorkshire) to Easington on the coast (within East Riding of Yorkshire) to connect with a secure offshore storage in the North Sea.	On Site	Application at Pre-Application stage.	Tier 2	Yes	Yes
2	North Lincolnshire Green Energy Park DCO EN010116	North Lincolnshire Green Energy Park Limited. Energy Recovery Facility converting up to 650,000 tonnes per annum of Refuse Derived Fuel (RDF) to generate a maximum of 95 megawatts of electrical output (MWe) and/or 380 megawatts of thermal output (MWth) to provide power, heat and steam on the site	4km	Consent granted on 13 March 2025.	Tier 1	Yes	Yes

ID	Application reference	Applicant for 'other development' and a brief description	Distance from the Site	Status	Tier	Within largest ZOI (15km)	Progress to Stage 2?
		of the operating Flixborough Wharf on the River Trent.					
3	Keadby Wind Farm Extension DCO EN010070	SSE. Keadby Windfarm Extension	Adjacent – off-Site	Planning Inspectorate (DCO) Project on hold as of 27/05/15.	Tier 2	Yes	No – project on hold since 2015
4	Tween Bridge Solar Farm DCO EN010148	RWE Renewables UK Solar and Storage Ltd Construction, operation, management and decommissioning of a ground mounted solar photovoltaic (PV) electricity generating facility exceeding 50 megawatt (MW) output capacity, together with associated works including substation, energy storage and green infrastructure	9km west	Pre-Application	Tier 2	Yes	Yes
5	North Humber to High Marnham DCO	National Grid Electricity Transmission.	5km south-west	Pre-Application	Tier 2	Yes	Yes

ID	Application reference	Applicant for 'other development' and a brief description	Distance from the Site	Status	Tier	Within largest ZOI (15km)	Progress to Stage 2?
	EN020034	A proposal to reinforce the 400kV high voltage power network between North Humber and High Marnham.					
6	Keadby 3 Carbon Capture Power Station DCO EN010114	Keadby Generation Limited	On Site	Approved 07/12/22	Tier 1	Yes	No (because the Proposed Development is an alternative to this other development)
7	Little Crow Solar Park DCO EN010101	INRG SOLAR (Little Crow) Ltd. Energy scheme comprising ground mounted solar PV arrays, electrical storage, grid connection infrastructure and other infrastructure integral to the construction and/or operation of the energy scheme. The solar park will have an installed maximum capacity of 150MW and battery storage of up to 90MW.	10km south-east	Planning Inspectorate (DCO). Approved 15/06/23	Tier 1	Yes	Yes

ID	Application reference	Applicant for 'other development' and a brief description	Distance from the Site	Status	Tier	Within largest ZOI (15km)	Progress to Stage 2?
8	27 residential dwellings Planning application PA/2017/1513 (outline) and PA/2021/1179 (reserved matters)	Roger Burnett Promotions, Retirement & Death Benefit Scheme. Outline planning permission to erect 27 dwellings with access and layout to be determined and all other matters reserved for subsequent approval, Land off the A18, Althorpe. Followed by Keigar Homes Ltd. Reserved matters application for approval of reserved matters (appearance, scale and landscaping) pursuant to outline application PA/2021/295 dated 21/06/2021 for 27 dwellings	1.5km south-east	North Lincolnshire Application. Outline approved 14/01/19 Reserved matters approved 25/06/21	Tier 1	Yes	Yes
9	Mixed use development Planning application PA/2020/660	Rafkins (Scunthorpe) Leisure Park Limited. Planning permission for mixed use development – hotel (Class C1), gym (Class D2), retail units (Class A1), food and drink and drive-thru restaurants (Class A3/A5) – access,	2.9km east	North Lincolnshire Application. Approved 27/04/21	Tier 1	Yes	Yes

ID	Application reference	Applicant for 'other development' and a brief description	Distance from the Site	Status	Tier	Within largest ZOI (15km)	Progress to Stage 2?
		car parking, landscaping and associated works.					
10	11 industrial units Planning application PA/2019/1807	Mr Singh. Planning permission to erect 11 industrial units.	4.2km east	North Lincolnshire Application. Approved 23/6/23	Tier 1	Yes	Yes
11	29 dwelling residential development Planning application PA/2017/824 (outline) and PA/2024/858 (reserved matters)	Mr C Muscroft. Outline planning permission for residential development. Followed by Wroot Homes. Reserved matters application.	3.5km south-west	North Lincolnshire Application. Outline application approved 10/03/23. Reserved matters application approved 19/11/2024.	Tier 1	Yes	Yes

ID	Application reference	Applicant for 'other development' and a brief description	Distance from the Site	Status	Tier	Within largest ZOI (15km)	Progress to Stage 2?
12	144 dwellings, later revised to 128 dwellings Planning application PA/2020/1333 (outline) and PA/2024/780 (reserved matters)	DDM Agriculture Ltd. Outline planning permission to erect 144 dwellings with appearance, landscaping, layout and scale reserved for subsequent consideration. Followed by Swan Homes Ltd & DDM Agriculture Ltd reserved matters application for 128 dwellings.	4.2km south-east	North Lincolnshire Application. Outline application approved 29/06/21. Reserved matters application approved.	Tier 1	Yes	Yes
13	24 dwellings Planning application PA/2021/1208	Ongo Homes. Erection of 24 dwellings.	3.4km south-west	Approved 26/04/22	Tier 1	Yes	Yes
14	23 dwellings Planning application PA/2017/1975 (outline) and PA/2020/1413	Modernistiq (Harrogate) Ltd. Erection of up to 23 dwellings	3.85km south-west	Approved 19/01/21	Tier 1	Yes	Yes

ID	Application reference	Applicant for 'other development' and a brief description	Distance from the Site	Status	Tier	Within largest ZOI (15km)	Progress to Stage 2?
	(reserved matters)						
15	14 dwellings Planning application PA/2024/362	Nicholson. Erection of 14 dwellings including associated works	3.7km north-west	Validated 08/04/24, awaiting determination	Tier 1	Yes	Yes
16	67 dwellings Planning application PA/2023/1903	Mason Farms Outline application to erect 67 dwellings with appearance reserved	4km north-west	Validated 14/03/24, awaiting determination	Tier 1	Yes	Yes
17	Temporary construction haul road Planning application PA/2023/1915 (following scoping request PA/SCO/2023/3)	Keadby Generation Ltd. Construction, operation (including maintenance) and reinstatement of land following use, of a temporary haul road, formed from a combination of existing roadways/ hardstanding and new sections of road, and dismantling of warehouse canopy	On Site	Scoping Opinion provided prior to planning application being submitted. Awaiting determination.	Tier 1	Yes	Yes

ID	Application reference	Applicant for 'other development' and a brief description	Distance from the Site	Status	Tier	Within largest ZOI (15km)	Progress to Stage 2?
18	Battery energy storage system Planning application PA/2023/58 (following EIA screening request PA/SCR/2023/3)	Harmony KB Ltd. Battery energy storage system and associated works	0km	Screened to be non-EIA development Approved 12/01/24	Tier 1	Yes	Yes
19	28 dwellings Planning application PA/2022/77	WFW Developments Ltd Planning permission to erect 28 dwellings with associated access	0.8km south	North Lincolnshire Council Validated 21/02/22, awaiting determination	Tier 1	Yes	Yes
20	Roadside services Planning application PA/2022/116	Sumner SSAS Proposed development of roadside services including petrol filling station, electric forecourt and	2.15km west	North Lincolnshire Council Approved 21/10/22	Tier 1	Yes	Yes

ID	Application reference	Applicant for 'other development' and a brief description	Distance from the Site	Status	Tier	Within largest ZOI (15km)	Progress to Stage 2?
		ancillary retail, food and drink with access from highway to the west					
21	Moors Solar Farm Planning application PA/SCR/2021/8	Sirius Planning EIA screening request relating to a proposed 49.9MW solar farm (Culham Renewables - Moors Solar Farm).	0km north (adjacent)	North Lincolnshire Council Non-EIA Development	Tier 3	Yes	Yes
22	Pilfrey Solar Farm Planning application PA/SCR/2021/7	Sirius Planning EIA screening request relating to a proposed 49.9MW solar farm (Lidsey Renewables Ltd – Pilfrey Solar Farm).	0km west (adjacent)	North Lincolnshire Council Non-EIA Development	Tier 3	Yes	Yes
23	Residential Development Planning application PA/2020/1790	G Tune & Son Outline planning permission for a residential development with appearance, landscaping, layout and scale reserved for subsequent consideration.	3.15km north-west	North Lincolnshire Council Approved 12/01/22	Tier 1	Yes	Yes

ID	Application reference	Applicant for 'other development' and a brief description	Distance from the Site	Status	Tier	Within largest ZOI (15km)	Progress to Stage 2?
24	Substation Alterations Planning application PA/2019/1940	National Grid Proposed substation alterations under The Town & Country Planning (General Permitted Development) (England) Order 2015, Schedule 2, Part 15, Class B. Installation of fence and additional security measures at Keadby 400kV substation.	0km (on-site)	North Lincolnshire Council Approved 04/12/19	Tier 1	Yes	Yes
25	Employment development Planning application PA/2024/172	Lindum Group Ltd Outline planning permission for up to 19,000sqm of employment development (use class E(g) and B8) with associated internal infrastructure and access, with appearance, landscaping, layout and scale reserved for subsequent consideration	2.8km east	North Lincolnshire Council Validated 3/04/24, awaiting determination	Tier 1	Yes	Yes
26	158 dwellings Planning	Gleeson Regeneration Ltd. Planning application to erect 158 dwellings with associated car	4km south-east	North Lincolnshire Council	Tier 1	Yes	Yes

ID	Application reference	Applicant for 'other development' and a brief description	Distance from the Site	Status	Tier	Within largest ZOI (15km)	Progress to Stage 2?
	application PA/2023/1750	parking, garages, landscaping, open space, pedestrian circulation and links, pumping station, infrastructure works and access from Burringham Road		Validated 18/01/24, awaiting determination			
27	599 dwellings and lake Planning application PA/2023/1124	Keepmoat Planning permission for the development of 599 dwellings and lake, along with associated infrastructure, including landscaping, public open space and play area, pedestrian and cycle links, pumping station and sub-station	3.55km south-east	North Lincolnshire Council Validated 9/08/23, awaiting determination	Tier 1	Yes	Yes
28	Industrial warehouse Planning application PA/2020/1510	Groveport Logistics Limited Planning permission to erect an industrial warehouse building for Class B8 Use	0.85km north-east	North Lincolnshire Council Approved 11/03/21	Tier 1	Yes	Yes

ID	Application reference	Applicant for 'other development' and a brief description	Distance from the Site	Status	Tier	Within largest ZOI (15km)	Progress to Stage 2?
29	158 residential homes Planning application PA/2020/2049	Gleeson Developments Ltd Planning permission for the construction of 158 two, three and four bedroomed, 2 storey traditional residential homes with associated garages and access infrastructure.	4.6km east	North Lincolnshire Council Approved 30/06/2021	Tier 1	Yes	Yes
30	SEND school and associated facilities Planning application PA/2021/1171	Morgan Sindall Construction & Infrastructure Ltd. Planning permission to erect a new SEND school and associated car parking, hard court and landscaping; reconfiguration of car parking for retained buildings; and extension of existing access road	5KM south-east	North Lincolnshire Council Approved 22/09/21	Tier 1	Yes	Yes
31	Retrospective application for reconfiguration of consented CHP office building	Keadby Developments Ltd Retrospective planning application for the reconfiguration of consented CHP office building, retention of 38 portable buildings (19 stacked), two stores, a workshop, fencing and associated works	0km (on-site)	North Lincolnshire Council Approved 1/10/2020	Tier 1	Yes	No – approved retrospective application therefore development

ID	Application reference	Applicant for 'other development' and a brief description	Distance from the Site	Status	Tier	Within largest ZOI (15km)	Progress to Stage 2?
	Planning application PA/2020/104						part of baseline
33	Scunthorpe Electric Arc Furnace Planning application PA/2024/123	Hybrid application comprising full planning permission for the construction of a new electric arc furnace and compressor building and outline planning permission for ancillary plant buildings and structures up to a maximum height of 72m associated with the new electric arc furnace (scale, appearance, landscaping and layout reserved for subsequent consideration)	9.5km west	Validated 05/02/24, awaiting determination	Tier 1	Yes	Yes
34	Project Union	National Gas Project Union involves repurposing parts of the 5,000-mile gas National Transmission System (NTS) to carry 100% hydrogen. It will initially create local transmission networks to link strategic hydrogen	0km	Future project	Tier 3	Yes	No – Project Union will be required to consider the Proposed Development when an

ID	Application reference	Applicant for 'other development' and a brief description	Distance from the Site	Status	Tier	Within largest ZOI (15km)	Progress to Stage 2?
		production and storage sites with industrial clusters. Eventually, these regional networks will be connected to create a 1,500-mile hydrogen transmission network across Great Britain. No planning application exists at present for this development however the development is required for the Proposed Development.					application is submitted
35	Equinor – H2H Saltend	Hydrogen production is required for the operation of the Proposed Development. The Proposed Development is being developed with Equinor who are developing multiple low-carbon hydrogen and carbon capture projects in the Humber. H2H Saltend is outside the maximum ZOI for the Proposed Development and therefore not progressed within the cumulative assessment however the GHG assessment included within **ES**	36km	Application approved	1	No	No – outside largest ZOI for the Proposed Development.

ID	Application reference	Applicant for 'other development' and a brief description	Distance from the Site	Status	Tier	Within largest ZOI (15km)	Progress to Stage 2?
		Volume I Chapter 18: Climate Change and Sustainability (**Application Document Ref. 6.2**) takes into account the hydrogen production required for the Proposed Development.					
36	Aldbrough Hydrogen Storage	Hydrogen storage facility being delivered by SSE and Equinor which will be required for the Proposed Development. Not included within the cumulative assessment due to being outside the largest ZOI.	50km	DCO application expected to be submitted in December 2025.	1	No	No – outside largest ZOI for the Proposed Development.
37	PA/SCR/2024/10	EIA screening request proposed development for circa 1,200 dwellings, a local centre and school, green infrastructure, drainage infrastructure, open space and associated highway infrastructure at land West of Scotter Road, The Lakes, Scunthorpe	4.9km	EIA Development 06/01/2025	3	Yes	Yes

ID	Application reference	Applicant for 'other development' and a brief description	Distance from the Site	Status	Tier	Within largest ZOI (15km)	Progress to Stage 2?
38	PA/SCO/2025/6	EIA scoping request for proposed development for circa 1,200 dwellings, a local centre, school, green infrastructure, open space and associated highway infrastructure	4.9km	Validated 06/03/2025 and EIA Scoping Opinion provided 24/04/2025.	2	Yes	Yes
39	PA/2025/254	Hargreaves Land Limited and Lincolnshire Lakes Land Limited (in liquidation) acting by the Receivers Hybrid planning permission comprising of outline, with all matters reserved for up to 550 dwellings, a local centre (use Class E), associated landscaping, drainage and other infrastructure works. Full Planning permission for the construction of a new vehicular access off the M181/A1077(M) roundabout, a pedestrian and cycle link to Scotter road, a pumping station, earthworks and off-plot drainage, ecological and associated	3.1km	Validated 27/02/2025`	1	Yes	Yes

ID	Application reference	Applicant for 'other development' and a brief description	Distance from the Site	Status	Tier	Within largest ZOI (15km)	Progress to Stage 2?
		landscaping and infrastructure works					
40	PA/2024/1472	Hoober Urban Partnerships and Wakefield District Housing Application for approval of reserved matters (appearance, landscaping, layout and scale) pursuant to outline planning permission PA/2020/1790 for 73 dwellings	4.7km	Validated 10/01/2025	1	Yes	Yes
41	PA/2024/1459	Hoober Homes Ltd Planning permission to erect 41 dwellings, including associated landscaping, infrastructure and access from Godnow Road Amended plans: relocation of plots 27-30, updated landscape master plan, BNG, external materials, tenure plan, boundary treatments, construction management plan, constraints plan, house types, new sheds to dwellings, response to conservation officer comments,	4.8km	Validated 16/01/2025	1	Yes	Yes

ID	Application reference	Applicant for 'other development' and a brief description	Distance from the Site	Status	Tier	Within largest ZOI (15km)	Progress to Stage 2?
		updated surface treatment plan, build out plan, survey, site sections and management company plan					
42	PA/2024/634	Mr Joe Chapman Planning permission to demolish a bungalow and erect three dwellings	0.85km	Application validated on 05/06/2024. Consultation ongoing.	1	Yes	No due to size and nature of the development

Stage 2: Identify Short List of 'Other Development' for the CEA

21.4.2. Following Stage 1, Planning Inspectorate advice on CEA (PINS, 2024) advises that the Applicant should identify a short list of other developments for assessment. The Stage 1 long list in Table 21.4 has therefore been re-screened based on the ZOI for each of the technical disciplines considered within this ES (as detailed in Table 21.2). In addition to the ZOI threshold criteria, the geographical and temporal scope of the 'other development' has been considered in relation to the geographical and temporal scope of the Proposed Development, and professional judgement applied to identify the short list of development to be considered further for the CEA (Stage 3 and 4). Information on the 'other developments' within the short list is detailed in Table 21.5.

21.4.3. Where other developments have not been short-listed, this has been on the basis of professional judgement by relevant discipline leads, using available information, in order to determine whether cumulatively, effects of the Proposed Development could become significant when added to those of the particular scheme.

Table 21.5: Identification of 'Other Development' for the CEA (Stage 2 short list)

ID	Name/reference	Screening for detailed CEA			
		Overlap in temporal scope?	Scale and Nature of development likely to have a significant effect?	Other Factors	Progress to Stage 3/4?
1	Humber Carbon Capture Pipeline DCO	Yes - potential for overlap in construction periods.	Yes – the potential for significant environmental effects that merit consideration within the CEA	n/a	**Yes**
2	North Lincolnshire Green Energy Park DCO	Yes - potential for overlap in construction periods.	Yes – the potential for significant environmental effects that merit consideration within the CEA	n/a	**Yes**
4	Tween Bridge Solar Farm DCO	Yes - potential for overlap in construction periods.	Yes – the potential for significant environmental effects that merit consideration within the CEA	n/a	**Yes**
5	North Humber to High Marnham DCO	Yes - potential for overlap in construction periods.	Yes – the potential for significant environmental effects that merit consideration within the CEA	n/a	**Yes**
7	Little Crow Solar Park DCO	Yes - potential for overlap in construction periods.	No – the Little Crow Solar Park is located beyond the ZOI of most environmental topics, with the exception of Landscape and Visual Amenity ZOI and Air Quality/ Biodiversity ZOI in relation to	n/a	No

ID	Name/reference	Screening for detailed CEA			
		Overlap in temporal scope?	Scale and Nature of development likely to have a significant effect?	Other Factors	Progress to Stage 3/4?
			potential air quality effects on statutory designated ecological sites (15km). The Little Crow Solar Park ES states that landscape and visual effects would be limited and given the distance (10km) between this development and the Proposed Development is considered there is not the potential for likely significant cumulative effects. No significant effects on statutory ecological sites are predicted and given the distance of the application from the Proposed Development, there is not considered the potential for significant cumulative effects. Significant cumulative Traffic and Transport effects during construction are also not anticipated as the proposed routes		

ID	Name/reference	Screening for detailed CEA			
		Overlap in temporal scope?	Scale and Nature of development likely to have a significant effect?	Other Factors	Progress to Stage 3/4?
			to site would use different junctions from the M180 and associated minor roads.		
8	27 residential dwellings PA/2017/1513 (outline) and PA/2021/1179 (reserved matters)	Potential overlap with construction phase of Proposed Development.	No – due to distance from the Site (1.5km) and small-scale nature of the proposal. The transport assessment is considering relevant committed developments, and this development is therefore dismissed from further assessment within the CEA.	n/a	No
9	Mixed use development. PA/2020/660	Possible – planning permission approved 27/04/21. Potential for overlap in construction periods.	Unlikely due to distance from the Site (2.9km). The transport assessment is considering relevant committed developments, and this development is therefore dismissed from further assessment within the CEA.	n/a	No

ID	Name/reference	Screening for detailed CEA			
		Overlap in temporal scope?	Scale and Nature of development likely to have a significant effect?	Other Factors	Progress to Stage 3/4?
10	11 industrial units. PA/2019/1807	Yes – planning permission approved 23/06/23. Potential for overlap in construction periods.	Unlikely due to distance from the Site (4.2km) and small-scale nature of the proposal. The transport assessment is considering relevant committed developments, and this development is therefore dismissed from further assessment within the CEA.	n/a	No
11	29 dwelling residential development PA/2017/824	Yes – planning permission approved 10/03/24 (reserved matters application validated on 25/07/24). Potential for overlap in construction periods.	Unlikely due to distance from the Site (3.5 km). The transport assessment is considering relevant committed developments, and this development is therefore dismissed from further assessment within the CEA.	n/a	No

ID	Name/reference	Screening for detailed CEA			
		Overlap in temporal scope?	Scale and Nature of development likely to have a significant effect?	Other Factors	Progress to Stage 3/4?
12	144 dwellings, later revised to 128 dwellings PA/2020/1333 (outline) and PA/2024/780 (reserved matters)	Yes - Outline application approved 29/06/21. Reserved matters application validated 12/07/24. Potential for overlap in construction periods.	Unlikely due to distance from the Site (4.2km). The transport assessment is considering relevant committed developments, and this development is therefore dismissed from further assessment within the CEA.	n/a	No
13	24 dwellings PA/2021/1208	Yes – application approved on 26/04/22. Potential for overlap in construction periods.	Unlikely due to distance from the Site (3.4km). The transport assessment is considering relevant committed developments, and this development is therefore dismissed from further assessment within the CEA.	n/a	No
14	23 dwellings PA/2017/1975 (outline) and	Yes – application approved on 19/01/21. Potential	Unlikely due to distance from the Site (3.85km). The transport assessment is considering relevant committed developments, and this	n/a	No

ID	Name/reference	Screening for detailed CEA			
		Overlap in temporal scope?	Scale and Nature of development likely to have a significant effect?	Other Factors	Progress to Stage 3/4?
	PA/2020/1413 (reserved matters)	for overlap in construction periods.	development is therefore dismissed from further assessment within the CEA.		
15	14 dwellings PA/2024/362	Yes - validated 08/04/24, awaiting determination. Potential for overlap in construction periods.	Unlikely due to distance from the Site (3.7km). The transport assessment is considering relevant committed developments, and this development is therefore dismissed from further assessment within the CEA.	n/a	No
16	67 dwellings PA/2023/1903	Yes - validated 14/03/24, awaiting determination. Potential for overlap in construction periods.	Unlikely due to distance from the Site (4km). The transport assessment is considering relevant committed developments, and this development is therefore dismissed from further assessment within the CEA.	n/a	No
17	Temporary construction haul	No – this haul road would only be	Yes	n/a	No

ID	Name/reference	Screening for detailed CEA			
		Overlap in temporal scope?	Scale and Nature of development likely to have a significant effect?	Other Factors	Progress to Stage 3/4?
	road PA/2023/1915 (following scoping request PA/SCO/2023/3)	constructed if the Keadby CCS Power Station project is advanced. The Proposed Development serves as an alternative to Keadby CCS, and the haul road is not required as part of the Proposed Development, so would not be constructed should this project be progressed.			
18	Battery energy storage system	Yes - screened to be non-EIA development.	Unlikely due to small-scale nature of the proposal	n/a	No

ID	Name/reference	Screening for detailed CEA			
		Overlap in temporal scope?	Scale and Nature of development likely to have a significant effect?	Other Factors	Progress to Stage 3/4?
	PA/2023/58 (following EIA screening request PA/SCR/2023/3)	Approved 12/01/24. Potential for overlap in construction periods.			
19	28 dwellings PA/2022/77	Yes - validated 21/02/22, awaiting determination. Potential for overlap in construction periods.	Unlikely due to small-scale nature of the proposal. The transport assessment is considering relevant committed developments, and this development is therefore dismissed from further assessment within the CEA.	n/a	No
20	Roadside services PA/2022/116	Yes – application approved 21/10/22. Potential for overlap in construction periods.	Unlikely due to small-scale nature of the proposal.	n/a	No
21	Moors Solar Farm PA/SCR/2021/8	Yes - EIA screening request – determined Non-EIA	No significant effects anticipated however due to close proximity this	n/a	**Yes**

ID	Name/reference	Screening for detailed CEA			
		Overlap in temporal scope?	Scale and Nature of development likely to have a significant effect?	Other Factors	Progress to Stage 3/4?
		Development. Potential for overlap in construction periods.	development is included in the short list.		
22	Pilfrey Solar Farm PA/SCR/2021/7	Yes - EIA screening request – determined Non-EIA Development. Potential for overlap in construction periods.	No significant effects anticipated however due to close proximity this development is included in the short list.	n/a	**Yes**
23	Residential Development PA/2020/1790	Yes – application approved 12/01/22. Potential for overlap in construction periods.	Unlikely due to distance from the Site (3.15km). The transport assessment is considering relevant committed developments, and this development is therefore dismissed from further assessment within the CEA.	n/a	No

ID	Name/reference	Screening for detailed CEA			
		Overlap in temporal scope?	Scale and Nature of development likely to have a significant effect?	Other Factors	Progress to Stage 3/4?
24	Substation Alterations PA/2019/1940	No – application approved 04/12/19.	Unlikely due to small-scale nature of the proposal and development likely to have been completed now.	n/a	No
25	Employment development PA/2024/172	Yes - validated 03/04/24, awaiting determination. Potential for overlap in construction periods.	Unlikely due to distance from the Site (2.8 km). The transport assessment is considering relevant committed developments, and this development is therefore dismissed from further assessment within the CEA.	n/a	No
26	158 dwellings PA/2023/1750	Yes - validated 18/01/24, awaiting determination. Potential for overlap in construction periods.	Unlikely due to distance from the Site (4 km). The transport assessment is considering relevant committed developments, and this development is therefore dismissed from further assessment within the CEA.	n/a	No
27	599 dwellings and lake	Yes - validated 09/08/23, awaiting	Unlikely due to distance from the Site (3.55km). The transport	n/a	No

ID	Name/reference	Screening for detailed CEA			
		Overlap in temporal scope?	Scale and Nature of development likely to have a significant effect?	Other Factors	Progress to Stage 3/4?
	PA/2023/1124	determination. Potential for overlap in construction periods.	assessment is considering relevant committed developments, and this development is therefore dismissed from further assessment within the CEA.		
28	Industrial warehouse PA/2020/1510	Yes – application approved 11/03/21. Potential for overlap in construction periods.	Unlikely due to small-scale nature of the proposal.	n/a	No
29	158 residential homes PA/2020/2049	Yes – application approved 30/06/21. Potential for overlap in construction periods.	Unlikely due to distance from the Site (4.6km). The transport assessment is considering relevant committed developments, and this development is therefore dismissed from further assessment within the CEA.	n/a	No

ID	Name/reference	Screening for detailed CEA			
		Overlap in temporal scope?	Scale and Nature of development likely to have a significant effect?	Other Factors	Progress to Stage 3/4?
30	SEND school and associated facilities PA/2021/1171	Yes – application approved 22/09/21. Potential for overlap in construction periods.	Unlikely due to distance from the Site (5km).	n/a	No
33	Scunthorpe Electric Arc Furnace PA/2024/123	Yes - validated 05/02/24, awaiting determination. Potential for overlap in construction periods.	Yes	n/a	Yes
37	1,200 dwellings PA/SCR/2024/10	Yes - potential for overlap in construction periods.	Unlikely due to distance from the Site (4.9km). The transport assessment is considering relevant committed developments, and this development is therefore dismissed from further assessment within the CEA.	n/a	No

ID	Name/reference	Screening for detailed CEA			
		Overlap in temporal scope?	Scale and Nature of development likely to have a significant effect?	Other Factors	Progress to Stage 3/4?
38	1,200 dwellings PA/SCO/2025/6	Yes - potential for overlap in construction periods.	Unlikely due to distance from the Site (4.9km). The transport assessment is considering relevant committed developments, and this development is therefore dismissed from further assessment within the CEA.	n/a	No
39	550 dwellings PA/2025/254	Yes - potential for overlap in construction periods.	Unlikely due to distance from the Site (3.1km). The transport assessment is considering relevant committed developments, and this development is therefore dismissed from further assessment within the CEA.	n/a	No
40	73 dwellings PA/2024/1472	Yes - potential for overlap in construction periods.	Unlikely due to distance from the Site (4.7km). The transport assessment is considering relevant committed developments, and this development is therefore	n/a	No

ID	Name/reference	Screening for detailed CEA			
		Overlap in temporal scope?	Scale and Nature of development likely to have a significant effect?	Other Factors	Progress to Stage 3/4?
			dismissed from further assessment within the CEA.		
41	41 dwellings PA/2024/1459	Yes - potential for overlap in construction periods.	Unlikely due to distance from the Site (4.8km). The transport assessment is considering relevant committed developments, and this development is therefore dismissed from further assessment within the CEA.	n/a	No

21.4.4. On the basis of the above short list, the following developments identified in Table 21.5 are considered to have the potential to generate significant cumulative effects when considered alongside the Proposed Development, by virtue of their nature, proximity to the Proposed Development Site and/ or temporal scope (i.e. the planned timescales for construction and operation):

- ID1 - Humber Carbon Capture Pipeline DCO EN0710003
- ID2 - North Lincolnshire Green Energy Park DCO EN010116;
- ID4 - Tween Bridge Solar Farm DCO EN010148;
- ID5 - North Humber to High Marnham DCO EN020034;
- ID21 - Moors Solar Farm PA/SCR/2021/8;
- ID22 - Pilfrey Solar Farm PA/SCR/2021/7; and
- ID33 - Scunthorpe Electric Arc Furnace PA/2024/123.

21.4.5. The locations of the shortlisted developments in relation to the Proposed Development are shown on **ES Volume III Figure 21.2** (**Application Document Ref. 6.4**).

21.4.6. These developments are therefore progressed to Stage 3 and 4 of the CEA and are assessed in relation to each environmental topic included in the ES, with the exceptions of Climate Change and Sustainability and Major Accidents and Disasters (discussed below).

21.4.7. **ES Volume I Chapter 18:** Climate Change and Sustainability (**Application Document Ref. 6.2**) assesses the contribution that the Proposed Development makes to climate change as a result of GHG-emitting activities. Climate change is the result of cumulative impacts as it is the result of innumerable GHG-emitting activities from sources across the UK and beyond. The cumulative effects of GHG emissions on the global climate are acknowledged as being potentially significant, but it is not possible to quantitatively assess these effects within this assessment. Whilst the emissions from the Proposed Development alone can be estimated and compared against sectoral national carbon budgets, as has been undertaken in **ES Volume I Chapter 18** (**Application Document Ref. 6.2**) and determined to be not significant, the combined effect together with all other GHG-emitting activities cannot be assessed due to data not being available.

21.4.8. The Climate Change Resilience (CCR) assessment reported in **ES Volume I Chapter 18:** Climate Change and Sustainability (**Application Document Ref. 6.2**) considers the influence of climate change upon the

Proposed Development itself and therefore a cumulative or combined assessment of CCR is not applicable.

21.4.9. With regards Major Accidents and Disasters, cumulative effects assessment has not been undertaken in this chapter given the assessment of cumulative effects is inherent in **ES Volume I Chapter 19:** Major Accidents and Disasters **(Application Document Ref. 6.2)** which considers potential effects of other projects and developments; in particular domino effects. The chapter specifically identifies sites which are (or have the potential to be given previous hazardous substances consent status) licenced under the Control of Major Accident Hazard (COMAH) Regulations (HM Government, 2015), be classified under the Pipelines Safety Regulations (PSR) (HM Government, 1996) as a Major Accident Hazard Pipeline (MAHP) or require Hazardous Substances Consent (HSC) under the Planning (Hazardous Substances) Regulations as amended (HM Government, 2015).

21.4.10. The measures to reduce the risk to As Low as Reasonably Practicable (ALARP) in **ES Volume I Chapter 19:** Major Accidents and Disasters (**Application Document Ref. 6.2**) are considered appropriate for any future potential COMAH, MAHP or HSC development and on this basis, it has been concluded that there would be no significant residual effects as a result of the Proposed Development. As there would be no residual effects, either during construction or operation of the Proposed Development, consideration of cumulative effects due to major accidents and disasters has been scoped out of this assessment.

Stage 3: Information Gathering

21.4.11. Following an initial information search on the short-listed developments at Stage 2, a search for more detailed information was made for the short-listed developments. In line with Planning Inspectorate advice on CEA (PINS, 2024), this includes searching for and noting the following information, where available:

- development design and location information;
- construction, operation and decommissioning information; and
- any accompanying environmental assessment information detailing baseline data and effects arising from other development.

21.4.12. The information gathered at this stage will be primarily from the public domain (including North Lincolnshire Council, Doncaster Council planning portals and the Planning Inspectorate website).

21.5. Cumulative Effects Assessment (Stage 4)

21.5.1. This section presents the results from the detailed CEA conducted for the six developments scoped into the CEA. These developments are shown on **ES Volume III Figure 21.2** (**Application Document Ref. 6.4**). The assessment will consider in turn each 'scoped in' environmental discipline and assess whether effects associated with each short-listed development would be able to interact with the effects associated with the Proposed Development in a manner that has the ability to generate potentially significant cumulative effects.

21.5.2. Where the location of a development falls outside of the study area for a topic, this development will be scoped out for that topic on the basis of distance and there being no reasonable pathway by which effects could propagate, unless otherwise stated.

Air Quality

21.5.3. The Tween Bridge Solar Farm DCO (EN010148) and North Humber to High Marnham DCO (EN020034) (IDs 4 and 5) have been excluded from the assessment of cumulative air quality effects on the basis that there will be no operational impacts from these schemes that could have cumulative impacts with the Proposed Development. It is therefore considered that only the potential for cumulative construction effects is relevant for these schemes. These schemes are 9km west and 5km north respectively of the Proposed Development and therefore are significantly further than the ZOI for construction impacts.

Table 21.6: Air Quality Cumulative Effects Assessment

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
1	2	Humber Carbon Capture Pipeline DCO EN0710003	Net Zero North Sea Storage (NZNSS) Ltd. Onshore underground CO_2 pipeline and associated above ground infrastructure to transport captured carbon dioxide from emitters in the Humber region from Drax (in North Yorkshire) to Easington on the coast (within East Riding of Yorkshire) to connect with a	The assessment of cumulative construction traffic impacts are included in the assessment detailed in **ES Volume II Appendix 8A**: Air Quality – Construction Impacts (**Application Document Ref. 6.3)**, which concludes that there are no significant impacts on	It is considered that with the implementation of appropriate mitigation and control measures set out in the **Outline CEMP** (**Application Document Ref. 7.4**) the potential effect from fugitive emissions of construction dust	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
			secure offshore storage in the North Sea.	human health or ecological receptors. In terms of construction dust, air quality impacts were scoped out of the Environmental Statement submitted for the proposed scheme, and therefore it is not considered that significant impacts would occur. There will be no operational impacts from this proposed scheme.	would be not significant.	
2	1	North Lincolnshire Green Energy Park DCO EN010116	North Lincolnshire Green Energy Park Limited. Energy Recovery Facility converting up to 650,000 tonnes per annum of Refuse Derived Fuel (RDF) to generate a maximum of 95	The DCO application for the North Lincolnshire Green Energy considered the cumulative impacts with Keadby 3, for which the Proposed Development is an alternative for. The only	Other than the mitigation measures already proposed (**ES Volume I Chapter 8:** Air Quality (**Application Document Ref. 6.2**) no further mitigation	

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
			megawatts of electrical output (MWe) and/or 380 megawatts of thermal output (MWth) to provide power, heat and steam on the site of the operating Flixborough Wharf on the River Trent.	potential for cumulative likely significant effects identified were ammonia and nitrogen deposition at the Risby Warren SSSI. The predicted Process Contribution of ammonia at Risby Warren for the Proposed Development represents 1.0% of the critical level, which on its own can be screened as insignificant. The North Lincolnshire Green Energy predicted a PC 0.7% for the reasonable operating case assessment, and a cumulative impact with Keadby 2 and Keadby 3 of 1.7%.	measures to reduce potential cumulative air quality effects are considered within this Application. Background ammonia and nitrogen deposition concentrations at Risby Warren SSSI are already exceeding the relevant critical levels and loads, and the site is in an unfavourable condition due to historic air pollution. It is understood that habitat management measures are ongoing at the site. North Lincolnshire Green Energy Park has been granted a	

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				The predicted Process Contribution of nitrogen deposition at Risby Warren for the Proposed Development represents 1.3% of the critical load. The North Lincolnshire Green Energy predicted a PC 0.8% for the reasonable operating case assessment, and a cumulative impact with Keadby 2 and Keadby 3 of 1.6%. The cumulative impact with the Proposed Development rather than the Keadby 3 scheme therefore increases to 2.1% of the critical load. The acid deposition of the Proposed Development is predicted to represent 0.1% of the critical load	DCO, which secures their habitat mitigation/ compensation is authorised by the planning authority in consultation with Natural England, or they can demonstrate impacts will not exceed 1% of the acid critical load.	

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				and therefore can be considered to be insignificant.		
21	3	Moors Solar Farm Planning application PA/SCR/2021/8	Sirius Planning EIA screening request relating to a proposed 49.9MW solar farm (Culham Renewables - Moors Solar Farm).	The assessment of cumulative construction traffic impacts are included in the assessment detailed in **ES Volume II Appendix 8A**: Air Quality – Construction Impacts (**Application Document Ref. 6.3)**, which concludes that there are no significant impacts on human health or ecological receptors. In terms of construction dust, air quality impacts were scoped out of the Environmental Statement submitted for the	It is considered that with the implementation of appropriate mitigation and control measures set out in the **Outline CEMP** (**Application Document Ref. 7.4**) the potential effect from fugitive emissions of construction dust would be not significant.	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				proposed scheme, and therefore it is not considered that significant impacts would occur. There will be no operational impacts from this proposed scheme.		
22	3	Pilfrey Solar Farm Planning application PA/SCR/2021/7	Sirius Planning EIA screening request relating to a proposed 49.9MW solar farm (Lidsey Renewables Ltd – Pilfrey Solar Farm).	The assessment of cumulative construction traffic impacts are included in the assessment detailed in **ES Volume II Appendix 8A:** Air Quality Construction Assessment (**Application Document Ref. 6.3**) which concludes that there are no significant impacts on human health or ecological receptors.	It is considered that with the implementation of appropriate mitigation and control measures set out in the **Outline CEMP** (**Application Document Ref. 7.4**) the potential effect from fugitive emissions of construction dust would be not significant.	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				In terms of construction dust, air quality impacts were scoped out of the Environmental Statement submitted for the proposed scheme, and therefore it is not considered that significant impacts would occur. There will be no operational impacts from this proposed scheme.		
33	1	Scunthorpe Electric Arc Furnace Planning application PA/2024/123	Hybrid application comprising full planning permission for the construction of a new electric arc furnace and compressor building and outline planning permission for ancillary plant buildings and structures up to a maximum height of 72m associated with the new	The planning application for the Scunthorpe Electric Arc Furnace assessed two potential future operational scenarios for the site. One scenario assumes that the existing blast furnaces continue operation with the	Other than the mitigation measures already proposed (**ES Volume I Chapter 8:**Air Quality (**Application Document Ref. 6.2**) no further mitigation measures to reduce potential cumulative air	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
			electric arc furnace (scale, appearance, landscaping and layout reserved for subsequent consideration)	proposed Electric Arc Furnace, with a further scenario assuming that the blast furnaces cease operation. The former scenario is assumed to only be in place for 12 months and therefore the scenario with just the EAF operational is most relevant for cumulative impacts. On the whole, the operation of the EAF only will result in a decrease in the mass emissions of NOx from the British Steel site over existing operations, which will lead to a reduction in the predicted impacts at receptors.	quality effects are considered within this Application.	

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				Additionally, due to the distance from the Proposed Development (>9km) the potential for cumulative impacts is considered to be minimal.		

Noise and Vibration

Table 21.7: Noise and Vibration Cumulative Effects Assessment

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
1	2	Humber Carbon Capture	Net Zero North Sea Storage (NZNSS) Ltd. Onshore underground CO_2 pipeline and associated	The assessment of construction noise and vibration (including construction traffic noise)	No further mitigation measures are required beyond those	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
		Pipeline DCO EN0710003	above ground infrastructure to transport captured carbon dioxide from emitters in the Humber region from Drax (in North Yorkshire) to Easington on the coast (within East Riding of Yorkshire) to connect with a secure offshore storage in the North Sea.	is scoped in to Humber Carbon Capture Pipeline DCO and for the KNGPS Project and assessed as not significant residual effects. Should the two projects run concurrently and highest impacts for both schemes occur simultaneously there could be a small increase in the cumulative noise levels. Through use of BPM controlled through the CEMP for each project, the cumulative effect would remain not significant.	already proposed (refer to **ES Volume I Chapter 9:** Noise and Vibration (**Application Document Ref. 6.2**) to reduce potential cumulative noise and vibration effects.	
2	1	North Lincolnshire Green Energy	North Lincolnshire Green Energy Park Limited. Energy Recovery Facility converting up to 650,000	The secretary of state consider that significant adverse impacts on health and quality of life	Other than the mitigation measures already proposed	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
		Park DCO EN010116	tonnes per annum of Refuse Derived Fuel (RDF) to generate a maximum of 95 megawatts of electrical output (MWe) and/or 380 megawatts of thermal output (MWth) to provide power, heat and steam on the site of the operating Flixborough Wharf on the River Trent.	from noise would be avoided; and other adverse impacts on health and quality of life from noise would be mitigated and minimised. Noise from the cumulative traffic change is negligible due to planned construction timings and therefore unlikely to provide a cumulative effect.	(refer to **ES Volume I Chapter 9:** Noise and Vibration (**Application Document Ref. 6.2**), no further mitigation measures to reduce potential cumulative noise and vibration effects are required within this Application.	
4	2	Tween Bridge Solar Farm DCO EN010148	RWE Renewables UK Solar and Storage Ltd Construction, operation, management and decommissioning of a ground mounted solar PV electricity generating facility exceeding 50 MW output capacity, together with	This project is still within the pre-application stage and therefore the view of the secretary of state on the likelihood of impacts on health and quality of life from noise is unknown.	Other than the mitigation measures already proposed (refer to **ES Volume I Chapter 9:** Noise and Vibration (**Application**	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
			associated works including substation, energy storage and green infrastructure	Chapter 13 of the Tween Bridge PEIR states that "with the use of ongoing mitigation measures in place, the Scheme is unlikely to result in a significant adverse effect on any identified noise sensitive receptors."	**Document Ref. 6.2**), no further mitigation measures to reduce potential cumulative noise and vibration effects are required within this Application.	
5	2	North Humber to High Marnham DCO EN020034	National Grid Electricity Transmission. A proposal to reinforce the 400kV high voltage power network between North Humber and High Marnham.	This project is still within the pre-application stage and therefore the view of the secretary of state on the likelihood of impacts on health and quality of life from noise is unknown. Chapter 16 of the North Humber to High Marnham PEIR states that "with the use of BPM, it is anticipated that	Other than the mitigation measures already proposed (refer to **ES Volume I Chapter 9:** Noise and Vibration (**Application Document Ref. 6.2**), no further mitigation measures to reduce potential cumulative noise	It is unlikely that there will be any significant residual cumulative effect.

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				noise and vibration effects from construction are not significant however operational noise has the potential for adverse effects with a low confidence in prediction at this stage."	and vibration effects are required within this Application.	
21	3	Moors Solar Farm PA/SCR/2021/8	Sirius Planning EIA screening request relating to a proposed 49.9MW solar farm (Culham Renewables - Moors Solar Farm).	North Lincolnshire Council have stated (August 2022) that a noise impact assessment report shall be created however this is not yet available. Construction noise is not considered to result in significant environmental effects. The complete proposal was assessed as having nonsignificant impacts	Other than the mitigation measures already proposed (refer to **ES Volume I Chapter 9:** Noise and Vibration (**Application Document Ref. 6.2**), no further mitigation measures to reduce potential cumulative noise and vibration effects	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				and not being complex enough to require an EIA.	are required within this Application.	
22	3	Pilfrey Solar Farm PA/SCR/2021/7	Sirius Planning EIA screening request relating to a proposed 49.9MW solar farm (Lidsey Renewables Ltd – Pilfrey Solar Farm).	North Lincolnshire Council have stated (August 2022) that a noise impact assessment report shall be created however this is not yet available. Construction noise is not considered to result in significant environmental effects. The complete proposal was assessed as having nonsignificant impacts and not being complex enough to require an EIA.	Other than the mitigation measures already proposed (refer to **ES Volume I Chapter 9:** Noise and Vibration (**Application Document Ref. 6.2**), no further mitigation measures to reduce potential cumulative noise and vibration effects are required within this Application.	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
33	1	Scunthorpe Electric Arc Furnace Planning application PA/2024/123	Hybrid application comprising full planning permission for the construction of a new electric arc furnace and compressor building and outline planning permission for ancillary plant buildings and structures up to a maximum height of 72m associated with the new electric arc furnace (scale, appearance, landscaping and layout reserved for subsequent consideration)	**ES Volume I Chapter 11:** Biodiversity, Ecology and Nature Conservation **(Application Document Ref. 6.2**) of the ES states that noise and vibration impacts would be controlled through BMP and captured within the CEMP to ensure that there are no significant effects.	Other than the mitigation measures already proposed (refer to **ES Volume I Chapter 9:** Noise and Vibration (**Application Document Ref. 6.2**), no further mitigation measures to reduce potential cumulative noise and vibration effects are required within this Application.	No residual cumulative effect

Traffic and Transport

Table 21.8: Traffic and Transport Cumulative Effects Assessment

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
1	2	Humber Carbon Capture Pipeline DCO EN0710003	Net Zero North Sea Storage (NZNSS) Ltd. Onshore underground CO_2 pipeline and associated above ground infrastructure to transport captured carbon dioxide from emitters in the Humber region from Drax (in North Yorkshire) to Easington on the coast (within East Riding of Yorkshire) to connect with a secure offshore storage in the North Sea.	There is no trip generation information in the public domain currently.	Other than the mitigation measures already proposed (**ES Volume I Chapter 10:** Traffic and Transport (**Application Document Ref. 6.2**) no further mitigation measures to reduce potential cumulative traffic and transport effects are considered within this Application.	No residual cumulative effect
2	1	North Lincolnshire Green Energy Park DCO EN010116	North Lincolnshire Green Energy Park Limited Energy Recovery Facility converting up to 650,000	The Transport Assessment estimates that the project will generate 58 vehicle trips	Other than the mitigation measures already proposed (**ES Volume I Chapter 10:**	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
			tonnes per annum of Refuse Derived Fuel (RDF) to generate a maximum of 95 megawatts of electrical output (MWe) and/or 380 megawatts of thermal output (MWth) to provide power, heat and steam on the site of the operating Flixborough Wharf on the River Trent.	in the AM peak hour (of 08:00-09:00) and 95 trips in the PM peak hour (of 17:00-18:00) for the 2028 operational year. The total daily trips are expected to be 1,479 including 707 HGVs. Given the anticipated operational date, it is expected that the construction activities would be largely completed by the time construction commences on the Proposed Development.	Traffic and Transport (**Application Document Ref. 6.2**) no further mitigation measures to reduce potential cumulative traffic and transport effects are considered within this Application.	
4	2	Tween Bridge Solar Farm DCO EN010148	RWE Renewables UK Solar and Storage Ltd Construction, operation, management and decommissioning of a	The PEI Report, which includes a Draft Transport Statement, indicates that there would be on average 198 two-way	Other than the mitigation measures already proposed (**ES Volume I Chapter 10** Traffic and Transport	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
			ground mounted solar PV electricity generating facility exceeding 50 MW output capacity, together with associated works including substation, energy storage and green infrastructure	trips per day during construction, comprising 57 HGV, with all traffic dispersed to the various land parcels as part of the scheme. A **Outline CTMP (Application Document Ref. 7.5**) details will be prepared to set out a package of mitigation measures that will be implemented to minimise the effect of construction traffic on the local highway network Once operational, it is anticipated that there could be 20 people employed at the site with around one visit to each Development Area at the Scheme per day on average associated with	(**Application Document Ref. 6.2**) no further mitigation measures to reduce potential cumulative traffic and transport effects are considered within this Application.	

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				equipment maintenance, ground maintenance, security checks etc. This would typically be made by light van or 4x4 type vehicles. 4.6. There will also be approximately one visit per day to each land parcel associated with a Shepherd (for sheep grazing on site).		
5	2	North Humber to High Marnham DCO EN020034	National Grid Electricity Transmission. A proposal to reinforce the 400kV high voltage power network between North Humber and High Marnham.	The PEI Report, which does not include a Draft Transport Statement, indicates that there would likely be no significant effects on the A18 (on routes to be used by the Proposed Development) or on the A161 (north of the M180 Junction 2). There would be a	Other than the mitigation measures already proposed (**ES Volume I Chapter 10** Traffic and Transport (**Application Document Ref. 6.2)** no further mitigation measures to reduce potential cumulative traffic and transport	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				moderate significant effect on severance on the A161 to the south of M180 Junction 2 due to an increase in HGVs. There would be no additional cumulative impact on these links due to the Proposed Development.	effects are considered within this Application.	
21	3	Moors Solar Farm Planning application PA/SCR/2021/8	Sirius Planning EIA screening request relating to a proposed 49.9MW solar farm (Culham Renewables - Moors Solar Farm).	As noted in the Traffic and Transport Note submitted as part of the Screening request, it is expected that even at the most intense period of construction when solar panels, frames, posts and electrical support equipment are being delivered, there would be	None	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				approximately an average of just over 4 HGV deliveries per working day (8 HGV movements per day). There will be no operational impacts from this proposed scheme, with maintenance only occurring 3 to 4 times per year.		
22	3	Pilfrey Solar Farm Planning application PA/SCR/2021/7	Sirius Planning EIA screening request relating to a proposed 49.9MW solar farm (Lidsey Renewables Ltd – Pilfrey Solar Farm).	As noted in the Traffic and Transport Note submitted as part of the Screening request, it is expected that even at the most intense period of construction when solar panels, frames, posts and electrical support equipment are being delivered, there would be	None	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				approximately an average of just over 4 HGV deliveries per working day (8 HGV movements per day). There will be no operational impacts from this proposed scheme, with maintenance only occurring 3 to 4 times per year.		
33	1	Scunthorpe Electric Arc Furnace Planning application PA/2024/123	Hybrid application comprising full planning permission for the construction of a new electric arc furnace and compressor building and outline planning permission for ancillary plant buildings and structures up to a maximum height of 72m	The Transport Assessment outlines the trip generation notes that the traffic generation during construction would peak at 1,800 vehicles (two-way) during Month 8 of the construction programme. It is not clear when this may occur. The	Other than the mitigation measures already proposed (**ES Volume I Chapter 10:** Traffic and Transport (**Application Document Ref. 6.2)** no further mitigation measures to reduce potential cumulative	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
			associated with the new electric arc furnace (scale, appearance, landscaping and layout reserved for subsequent consideration)	Transport Assessment notes that the there are unlikely to be any significant impacts to the local and strategic highway network during the peak hours. An **Outline CTMP** (**Application Document Ref. 7.5)** has been prepared for the site to manage the traffic. In operation, traffic generation associated with the is also not considered to have a significant impact in terms of the operation of the highway network.	traffic and transport effects are considered within this Application.	

Biodiversity and Nature Conservation

Table 21.9: Biodiversity and Nature Conservation Cumulative Effects Assessment

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
1	2	Humber Carbon Capture Pipeline DCO EN0710003	Net Zero North Sea Storage (NZNSS) Ltd. Onshore underground CO_2 pipeline and associate above ground infrastructure to transport captured carbon dioxide from emitters in the Humber region from Drax (in North Yorkshire) to Easington on the coast (within East Riding of Yorkshire) to connect with a secure offshore storage in the North Sea.	Construction could start in 2028 and continue to 2032. So, there could be an overlap in construction periods, dependent on the location where works commence and the speed of progression. Therefore it is assumed that the CO_2 pipeline and the Keadby AGI (the 'Keadby Spur	None	Negligible (non-signficant)

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				Line') could be constructed in parallel with the Proposed Development and this will result in cumulative effects. The relevant activities are described in the Scoping Report (Net Zero North Sea Storage Limited, 2025). Construction of the Keadby AGI is not likely to materially add to the construction impacts and effects of the		

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				Proposed Development, given the footprint for the AGI would be no more than 100m x 90m and located within an arable field. Both developments would occupy land of low ecological value. The pipeline required for the spur line is stated to be approximately 30cm in diameter, so the		

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				required pipe is relatively small. Ground disturbances necessary to install this pipe 1.2m below ground level would be broadly consistent with existing agricultural land management regimes and machinery, and the works would be incremental and any disturbance temporary. There is no evidence that the affected		

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				habitats crossed by the pipeline within the zone of influence of the Proposed Development have a specific importance for biodiversity. Whilst construction of this development could affect qualifying bird species foraging on arable land, this would be small scale and largely. It is not likely to materially add to the temporary localised		

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				impact from construction of the Proposed Development. So, there are no likely in-combination effects.		
2	1	North Lincolnshire Green Energy Park DCO EN010116	North Lincolnshire Green Energy Park Limited. Energy Recovery Facility converting up to 650,000 tonnes per annum of Refuse Derived Fuel (RDF) to generate a maximum of 95 megawatts of electrical output (MWe) and/or 380 megawatts of thermal output (MWth) to provide power,	The **HRA Report** (**Application Document Ref. 5.2)** for this development considered Keadby CCS which is comparable with the Proposed Development (albeit also including	None	Negligible (non-significant)

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
			heat and steam on the site of the operating Flixborough Wharf on the River Trent.	works in the River Trent, which does nor form part of the Proposed Development). In reaching a decision the SoS concluded that, alone or in-combination, an Adverse Effect on Integrity of the relevant European Sites can be excluded beyond all reasonable scientific doubt.		

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				Given this conclusion and the currentness of the decision, there is no reason to re-visit this in relation to the Proposed Development.		
4	2	Tween Bridge Solar Farm DCO	RWE Renewables UK Solar and Storage Ltd Construction, operation, management and decommissioning of a ground mounted solar PV electricity generating facility exceeding 50 MW output capacity, together with associated works including substation, energy storage and green infrastructure	Whilst construction of this development could affect qualifying bird species foraging on arable land, there is no likely comparable impact from construction of the Proposed Development. So, there are no likely in-	None	Negligible (non-significant)

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				combination effects. As explained in the **HRA Appropriate Assessment Report Application Document Ref. 5.2)** there is no data that indicates that the arable farmland in the zone of influence of the Proposed Development has functional importance for qualifying bird species. Further, there is no potential for an in-combination impact during operation, the Proposed Development		

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				would not affect qualifying features		
5	2	North Humber to High Marnham DCO EN020034	National Grid Electricity Transmission. A proposal to reinforce the 400kV high voltage power network between North Humber and High Marnham.	There is no information available to permit an assessment of in-combination effects. It will be the responsibility of this project to make an in-combination assessment with reference to its final design and the results of the surveys completed for the project.	None	N/A

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
21	3	Moors Solar Farm PA/SCR/2021/8	EIA screening request relating to a proposed 49.9MW solar farm. Potential for overlap in construction periods if planning application submitted and approved. Located on farmland immediately adjacent to the Proposed Development.	If implemented this application would preclude potential for a construction impact from the Proposed Development, as it would remove the farmland habitat that could support foraging by a limited suite of qualifying bird species of the Humber designations. No other species or habitats have relevance. There is no potential for an in-combination impact during operation, the Proposed Development	None	Negligible (non-significant)

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				would not affect qualifying features even if habitat remained for these species (and it is not likely to remain).		
22	3	Pilfrey Solar Farm PA/SCR/2021/7PA/SCR/2021/7	EIA screening request relating to the creation of a new solar farm. Potential for overlap in construction periods. Located on farmland immediately adjacent to the Proposed Development. Located on farmland immediately adjacent to the Proposed Development.	As above.	None	Negligible (non-significant)
33	1	Scunthorpe Electric Arc Furnace. PA/2024/123	Hybrid application comprising full planning permission for the construction of a new electric	Located within an existing industrial site on the eastern fringe of	None	Negligible (non-significant)

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
			arc furnace and compressor building and outline planning permission for ancillary plant buildings and structures up to a maximum height of 72m associated with the new electric arc furnace (scale, appearance, landscaping and layout reserved for subsequent consideration)	Scunthorpe. No likely interaction with qualifying features. No other sensitive habitats or species in common.		

Water Environment and Flood Risk

21.5.4. The North Lincolnshire Green Energy Park DCO EN010116 (ID 2), Tween Bridge Solar Farm DCO EN010148 (ID 4), North Humber to High Marnham DCO EN020034 (ID 5) and Scunthorpe Electric Arc Furnace PA/2024/123 (ID 33) have been excluded from the assessment of cumulative effects on the basis that there will be no construction or operational impacts from these schemes that could have cumulative impacts on the Proposed Development. These schemes are at 4km, 9km, 5km and 9.5km respectively distance from the Proposed Development and therefore are

significantly further than the zone of influence (1km) used within the Water Environment and Flood Risk assessment within **ES Volume I Chapter 12:** Water Environment and Flood Risk (**Application Document Ref. 6.2**).

Table 21.10: Water Environment and Flood Risk Cumulative Effects Assessment

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
1	2	Humber Carbon Capture Pipeline DCO EN0710003	Net Zero North Sea Storage (NZNSS) Ltd. Onshore underground CO_2 pipeline and associate above ground infrastructure to transport captured carbon dioxide rom emitters in the Humber region from Drax (in North Yorkshire) to Easington on the coast (within East Riding of Yorkshire) to connect with a secure offshore storage in the North Sea.	Based on the impact assessment in **ES Volume I Chapter 12:** Water Environment and Flood Risk (**Application Document Ref. 6.2)** there may be some temporary minor adverse effects during construction on the water environment, which will be managed through embedded design and standard practice measures. It is assumed that the Carbon Capture Pipeline, if consented, will be delivered in accordance with the same	Other than the mitigation measures already proposed (refer to **ES Volume I Chapter 12:** Water Environment and Flood Risk (**Application Document Ref. 6.2**), no further mitigation measures to reduce potential cumulative effects are required within this Application.	No residual cumulative effect.

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				environmental standards and require the appropriate level of mitigation at construction and operation to meet regulatory requirements; this includes no increase in Flood Risk, implementation of SuDS and appropriate pollution prevention measures. As such, there is unlikely to be any potential for cumulative effects.		
21	3	Moors Solar Farm PA/SCR/2021/8	Sirius Planning EIA screening request relating to a proposed 49.9MW solar farm (Culham Renewables - Moors Solar Farm).	Site is located on farmland adjacent to the Proposed Development. If planning application is submitted and approved, it is assumed that it will be delivered in accordance	Other than the mitigation measures already proposed (refer to **ES Volume I Chapter 12:** Water Environment and Flood Risk (**Application Document Ref. 6.2**)),	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				with the same environmental standards and require the appropriate level of mitigation at construction and operation to meet regulatory requirements; this includes the production of a Flood Risk and Drainage Assessment. Therefore, it is predicted that the cumulative impacts are no greater than those from the Proposed Development in isolation.	no further mitigation measures to reduce potential cumulative effects are required.	
22	3	Pilfrey Solar Farm PA/SCR/2021/7	Sirius Planning EIA screening request relating to a proposed 49.9MW solar farm (Lidsey	Site is located on farmland adjacent to the Proposed Development. If planning application is	Other than the mitigation measures already proposed (refer to **ES Volume I Chapter 12:** Water	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
			Renewables Ltd – Pilfrey Solar Farm).	submitted and approved, it is assumed that it will be delivered in accordance with the same environmental standards and require the appropriate level of mitigation at construction and operation to meet regulatory requirements; this includes the production of a Flood Risk and Drainage Assessment. Therefore, it is predicted that the cumulative impacts are no greater than those from the Proposed Development in isolation.	Environment and Flood Risk (**Application Document Ref. 6.2**)), no further mitigation measures to reduce potential cumulative effects are required.	

Geology, Hydrogeology and Land Contamination

21.5.5. The North Lincolnshire Green Energy Park DCO EN010116 (ID 2), Tween Bridge Solar Farm DCO EN010148 (ID 4), North Humber to High Marnham DCO EN020034 (ID 5) and Scunthorpe Electric Arc Furnace PA/2024/123 (ID 33) have been excluded from the assessment of cumulative effects on the basis that there will be no operational or construction impacts from these schemes that could have cumulative impacts on the Proposed Development. These schemes are 4km, 9km, 5km and 9.5km respectively of the Proposed Development and therefore are significantly further than the ZOI used within the Geology, Hydrogeology and Land Contamination assessment in **ES Volume I Chapter 13:** Geology, Hydrogeology and Land Contamination (**Application Document Ref. 6.2**).

Table 21.11: Geology, Hydrogeology and Land Contamination Cumulative Effects Assessment

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
1	2	Humber Carbon Capture Pipeline DCO EN0710003	Net Zero North Sea Storage (NZNSS) Ltd. Onshore underground CO_2 pipeline and associate above ground infrastructure to transport captured carbon dioxide rom emitters in the Humber region from Drax (in North Yorkshire) to Easington on the coast (within East Riding of Yorkshire) to connect with	It is assumed that trenching and minor dewatering may be required during construction. Based on the contaminated land risk and impact assessment in **ES Volume I Chapter 13:** Geology, Hydrogeology and Land Contamination (**Application Document**	Other than the mitigation measures already proposed (refer to **ES Volume I Chapter 13:** Geology, Hydrogeology and Land Contamination (**Application Document Ref. 6.2**)), no further mitigation measures to reduce	No residual cumulative effect.

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
			a secure offshore storage in the North Sea.	**Ref. 6.2)** there may be some temporary minor adverse effects during construction from ground disturbance or where groundwater controls may inadvertently mobilise contamination or create preferential pathways. It is assumed the Humber Low Carbon Pipeline will have its own CEMP to mitigate impacts during construction and therefore no resulting significant adverse effects are anticipated. There may be beneficial effects associated with remediation if the pipeline development affects contaminated land that results in the removal of potential contaminant	potential cumulative effects are required within this Application.	

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				sources or mitigation. However, it is not considered that this will result in any significant beneficial effects. There is unlikely to be any potential for cumulative effects.		
21	3	Moors Solar Farm Planning Application PA/SCR/2021/8	Sirius Planning EIA screening request relating to a proposed 49.9MW solar farm (Culham Renewables - Moors Solar Farm)	Site is located on farmland adjacent to the Proposed Development. If planning application is submitted and approved, it is assumed that it will be delivered in accordance with the same environmental standards and required the appropriate level of mitigation at construction and operation to meet regulatory requirements. Therefore, it is predicted	Other than the mitigation measures already proposed (refer to **ES Volume I Chapter 13:** Geology, Hydrogeology and Land Contamination (**Application Document Ref. 6.2**)), no further mitigation measures to reduce potential cumulative effects are required.	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				that the cumulative impacts are no greater than those from the Proposed Development in isolation.		
22	3	Pilfrey Solar Farm Planning application PA/SCR/2021/7	Sirius Planning EIA screening request relating to a proposed 49.9MW solar farm (Lidsey Renewables Ltd - Pilfrey Solar Farm)	Site is located on farmland adjacent to the Proposed Development. If planning application is submitted and approved, it is assumed that it will be delivered in accordance with the same environmental standards and required the appropriate level of mitigation at construction and operation to meet regulatory requirements. Therefore, it is predicted that the cumulative impacts are no greater than those	Other than the mitigation measures already proposed (refer to **ES Volume I Chapter 13** Geology, Hydrogeology and Land Contamination (**Application Document Ref. 6.2**)), no further mitigation measures to reduce potential cumulative effects are required.	No residual cumulative effect

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				from the Proposed Development in isolation.		

Landscape and Visual Amenity

Landscape Cumulative Effects

21.5.6. The landscape cumulative assessment considers the potential for cumulative effects on identified landscape receptors (assessed in **Table 14.5**, **Table 14.6** and **Table 14.7** of **ES Volume I Chapter 14:** Landscape and Visual Amenity (**Application Document Ref. 6.2)** of this ES and as a result of the addition of the Proposed Development to a cumulative baseline which includes a number of other developments. Landscape receptors that have been assessed as having Negligible effects or indirect effects from the Proposed Development have not been included in the cumulative assessment for construction (and decommissioning) and operation (Year 1 and Year 15), as it is considered unlikely that the addition of a Negligible effect to the cumulative baseline would lead to a significant cumulative effect.

21.5.7. The following cumulative developments have been scoped out for landscape due to their location and potential to affect the scoped in landscape receptors, lack of intervisibility, and surrounding landscape context:

- ID2 - North Lincolnshire Green Energy Park DCO EN010116;
- ID4 - Tween Bridge Solar Farm DCO EN010148; and

- ID33- Scunthorpe Electric Arc Furnace PA/2024/123

21.5.8. For the purposes of this assessment, the unlikely worst-case scenario of all the shortlisted developments being constructed and therefore present in the landscape simultaneously has been assumed and if construction were not to occur simultaneously then the reported cumulative effect would be reduced.

Table 21.12: Landscape Cumulative Effects Assessment

Landscape Receptor	Sensitivity	Description of Impact at Construction (and decommissioning)	Residual Effect at Construction	Description of Impact at Operation (Year 1 and Year 15)	Residual Effect at Operation
Flat Drained Farmland LCT	Medium	A number of the cumulative developments are located within the Flat Drained Farmland LCT (ID 1, 5, ID 21, and ID22) and if constructed simultaneously will add to the influence of the existing large-scale industrial complexes within and adjacent to this landscape. It is assessed that the impact of additional construction activity associated with the Proposed Development will result in a limited additional	Minor adverse (Not Significant)	The built form associated with the Proposed Development and cumulative developments within the LCT will not introduce uncharacteristic development into the LCT but will further increase the influence of industrial development. It is assessed that the cumulative impact on the LCT resulting from the addition of the Proposed Development to the	Minor adverse (Not Significant)

Landscape Receptor	Sensitivity	Description of Impact at Construction (and decommissioning)	Residual Effect at Construction	Description of Impact at Operation (Year 1 and Year 15)	Residual Effect at Operation
		influence on the LCT. It is assessed that the cumulative impact on the LCT will be low. Therefore, the predicted magnitude of cumulative impact is assessed to be **low**.		cumulative baseline will be low. Therefore, the predicted magnitude of cumulative impact is assessed to be **low**.	

Visual Cumulative Effects

21.5.9. The visual cumulative assessment assesses the potential for cumulative effects upon identified visual receptors (assessed in **Table 14.8** of **ES Volume I Chapter 14:** Landscape and Visual Amenity (**Application Document Ref. 6.2)**.

21.5.10. Visual receptors that have been assessed as having a Negligible effect due to the Proposed Development have not been included in the cumulative assessment for construction (and decommissioning) and operation (year 1 and year 15), as it is considered unlikely that the addition of a Negligible effect to the cumulative baseline of other developments would lead to a significant cumulative effect. This applies to the following viewpoints:

- Viewpoint 3 Keadby Lock; and
- Viewpoint 7 PRoW (CROW11) east of Ealand Poultry Farm.

21.5.11. The following cumulative developments have been scoped out for the visual cumulative assessment due to their scale, their potential to be visible from the identified receptors, and their inter-relationships within the view:

- ID4 - Tween Bridge Solar Farm DCO EN010148; and
- ID33 - Scunthorpe Electric Arc Furnace PA/2024/123.

21.5.12. Due to the scale of the Proposed Development no additional mitigation for cumulative effects.

Table 21.13: Visual Amenity Cumulative Effects Assessment

Viewpoint	Sensitivity	Description of Impact at Construction (and decommissioning)	Residual Effect at Construction	Description of Impact at Operation (Year 1 and Year 15)	Residual Effect at Operation
Viewpoint 1 – Chapel Lane West, Keadby	Medium	Relevant Cumulative Developments: ID1, ID5; ID21; ID22 Construction activity will occur in the wider view within the cumulative baseline. However, the Proposed Development will increase and extend the influence of construction activity within the wider view in the middle-distance. The addition of the construction activity associated with the	Minor adverse (not significant)	Relevant Cumulative Developments: ID1, ID5: ID21; and ID22 Potential views of ID22 will be limited by landform, intervening structures and vegetation. The cumulative baseline will contain a higher concentration of overhead electricity wires and towers and additional power related infrastructure associated with the solar development. The Proposed Development will increase the influence of industrial development within the	Minor adverse (not significant)

Viewpoint	Sensitivity	Description of Impact at Construction (and decommissioning)	Residual Effect at Construction	Description of Impact at Operation (Year 1 and Year 15)	Residual Effect at Operation
		Proposed Development will result in a low cumulative impact overall due to the surrounding industrial and agricultural context, and intervening surface features, such as Keadby 2 Power Station and boundary vegetation between the viewpoint and cumulative developments. Therefore, the impact will be no greater than that assessed for the Proposed Development in isolation. The predicted magnitude of cumulative impact is assessed to be **low**.		view. However, the impact of the Proposed Development is lessened by the surrounding industrial context and intervening surface features, such as Keadby 2 Power Station and boundary vegetation between the viewpoint and cumulative developments. The overall cumulative impact is assessed as low and the impact will be no greater than that assessed for the Proposed Development in isolation. The predicted magnitude of cumulative impact is assessed to be **low**.	
Viewpoint 2a and 2b – Gate Keepers Residence,	High	Relevant Cumulative Developments: ID5	Minor adverse (not significant)	No significant cumulative effects are predicted for Viewpoint 2 due to no or low predicted visibility of the cumulative developments and the existing context of power related	None

Viewpoint	Sensitivity	Description of Impact at Construction (and decommissioning)	Residual Effect at Construction	Description of Impact at Operation (Year 1 and Year 15)	Residual Effect at Operation
Vazon Bridge, Keadby		Cumulative development ID21, and ID22 are not included in the assessment due to the predicted lack of intervisibility. Construction activity will occur in the wider view to the west within the cumulative baseline in the distance. The Proposed Development will increase the influence of construction activity within direct views. The addition of the construction activity associated with the Proposed Development will result in a medium impact, however the cumulative impact is lessened by the surrounding industrial and agricultural context, intervening surface		structures, which include existing overhead electricity infrastructure and towers within close-range views and inform the existing baseline view.	

Viewpoint	Sensitivity	Description of Impact at Construction (and decommissioning)	Residual Effect at Construction	Description of Impact at Operation (Year 1 and Year 15)	Residual Effect at Operation
		features and railway line. The overall cumulative impact is assessed as low, due to the context and predicted low visibility of the cumulative developments, and the impact will be no greater than that assessed for the Proposed Development in isolation. The predicted magnitude of cumulative impact is assessed to be **low**.			
Viewpoint 4 – PRoW (KEAD9, KEAD10), north of Keadby	Medium	<u>Relevant Cumulative Developments</u>: ID1, ID5; ID21; ID22. Construction activity will occur in the wider view within the cumulative baseline and the Proposed Development will increase	Moderate adverse (significant)	<u>Relevant Cumulative Developments</u>: ID21. Cumulative developments ID1, ID5 and ID22 are not included in the assessment due to the direction of view, limited intervisibility, and the influence of	Moderate adverse (significant)

Viewpoint	Sensitivity	Description of Impact at Construction (and decommissioning)	Residual Effect at Construction	Description of Impact at Operation (Year 1 and Year 15)	Residual Effect at Operation
		and extend the influence of construction activity experienced along the PRoW. The addition of the construction activity associated with the Proposed Development will result in a medium impact, however, the cumulative impact is lessened by the surrounding industrial and agricultural context, intervening surface features and railway line. The overall cumulative impact is assessed as medium, however, the impact is predicted to be no greater than that assessed for the Proposed Development in isolation.		overhead electricity infrastructure and towers within the existing baseline view. The addition of the Proposed Development within the cumulative baseline will further increase and extend the influence of industry and power related infrastructure along the horizon of the view, however, the Proposed Development will remain in context with the industrial landscape which will lessen the overall impact. The overall cumulative impact is predicted to be medium, however, the impact is predicted to be no greater than that assessed for the Proposed Development in isolation. The predicted magnitude of cumulative impact is assessed to be **medium**.	

Viewpoint	Sensitivity	Description of Impact at Construction (and decommissioning)	Residual Effect at Construction	Description of Impact at Operation (Year 1 and Year 15)	Residual Effect at Operation
		The predicted magnitude of cumulative impact is assessed to be **medium**.			
Viewpoint 5 – PRoW (GUNN179), north-east Gunness	Medium	No significant cumulative effects are predicted for Viewpoint 5 due to the low-level construction activity associated with the solar development (ID21), intervening distance of ID5.	None	No significant cumulative effects are predicted for Viewpoint 5 due to the low visibility of the cumulative developments and the influence of overhead electricity infrastructure and towers within the existing baseline view.	None
Viewpoint 6 – Trunk Road, Keadby	Medium	No significant cumulative effects are predicted for Viewpoint 6 due to intervening distance and surface features.	None	No significant cumulative effects are predicted for Viewpoint 6 due to intervening distance and surface features.	None
Viewpoint 8 – PRoW (East8) Eastoft	High	Relevant Cumulative Developments: ID1; ID5; ID21; and ID22. Construction activity associated with ID5 will occur in the foreground of	Negligible adverse (not significant)	Relevant Cumulative Developments: ID1; ID5; ID21; and ID22. The Proposed Development will slightly increase the influence of industry across the horizon,	Negligible adverse (not significant)

Viewpoint	Sensitivity	Description of Impact at Construction (and decommissioning)	Residual Effect at Construction	Description of Impact at Operation (Year 1 and Year 15)	Residual Effect at Operation
		the view and potential views of construction activity associated with ID1, ID21, and ID22 will be visible in the distance within the wider view. The Proposed Development will slightly increase the influence of construction activity in the distance, however, the construction of ID5 will form the main focus of the view and potentially limit views of construction associated with the Proposed Development. The addition of the construction activity associated with the Proposed Development will result in a very low impact which may not be noticeable due to the activity in the foreground.		however, the Proposed Development will be located in the background of the view behind ID5 and ID21. Cumulative development ID5 will be an intervening feature and potentially lessen the overall impact of the Proposed Development. The addition of the Proposed Development will result in a very low cumulative impact and will be viewed in the context of further large structures and power related infrastructure in the foreground of the view. The predicted magnitude of cumulative impact is assessed to be **very low**.	

Viewpoint	Sensitivity	Description of Impact at Construction (and decommissioning)	Residual Effect at Construction	Description of Impact at Operation (Year 1 and Year 15)	Residual Effect at Operation
		The predicted magnitude of cumulative impact is assessed to be **very low**.			
Viewpoint 9 – Meredyke Road, Luddington	High	Relevant Cumulative Developments: ID5; ID21; and ID22. Construction activity associated with ID5 will occur in the foreground of the view and potential views of construction activity associated with ID21, and ID22 will be visible in the distance within the wider view. The Proposed Development will slightly increase the influence of construction activity in the distance, however, the construction of ID5 will form the main focus of the view and potentially limit views of	Negligible adverse (not significant)	Relevant Cumulative Developments: ID5; ID21; and ID22. The Proposed Development will slightly increase the influence of industry across the horizon, however, the Proposed Development will be located in the background of the view behind ID5 and ID21. Cumulative development ID5 will be an intervening feature and potentially lessen the overall impact of the Proposed Development. The addition of the Proposed Development will result in a very low cumulative impact and will be viewed in the context of	Negligible adverse (not significant)

Viewpoint	Sensitivity	Description of Impact at Construction (and decommissioning)	Residual Effect at Construction	Description of Impact at Operation (Year 1 and Year 15)	Residual Effect at Operation
		construction associated with the Proposed Development. The addition of the construction activity associated with the Proposed Development will result in a very low impact which may not be noticeable due to the activity in the foreground. The predicted magnitude of cumulative impact is assessed to be **very low**.		further large structures and power related infrastructure in the foreground of the view. The predicted magnitude of cumulative impact is assessed to be **very low**.	
Viewpoint 10 – Middle Lane, Amcotts	High	<u>Relevant Cumulative Developments</u>: ID5; ID21; and ID22. Construction activity associated with ID5 will occur in the background of the view and potential views of construction activity associated with	Negligible adverse (not significant)	No significant cumulative effects are predicted for Viewpoint 10 due to the low-level and low visibility of cumulative development ID21 and ID22, and the influence of overhead electricity infrastructure and towers within the existing baseline view.	None

Viewpoint	Sensitivity	Description of Impact at Construction (and decommissioning)	Residual Effect at Construction	Description of Impact at Operation (Year 1 and Year 15)	Residual Effect at Operation
		ID21 and ID 22 will be visible adjacent to he Proposed Development although will be low-level and partly screened by landform and wind turbines. The Proposed Development will slightly intensify the influence of construction activity in the distance and across a small part of the view. The addition of the construction activity associated with the Proposed Development will result in a very low impact which may not be noticeable due to the activity associated with the other cumulative developments within the wider view.			

Viewpoint	Sensitivity	Description of Impact at Construction (and decommissioning)	Residual Effect at Construction	Description of Impact at Operation (Year 1 and Year 15)	Residual Effect at Operation
		The predicted magnitude of cumulative impact is assessed to be **very low**.			
Viewpoint 11 PRoW (BURT171) accessed off Chafer Lane, Burton upon Stather	High	<u>Relevant Cumulative Developments</u>: ID5; ID21; and ID22. Construction activity associated with ID5 will occur in the background of the view and potential views of construction activity associated with ID21 will be visible adjacent to he Proposed Development although will be low-level and is likely to be largely screened by intervening vegetation. Potential views of ID22 are likely to be limited by landform, wind turbines, and vegetation. The Proposed Development	Negligible adverse (not significant)	No significant cumulative effects are predicted for Viewpoint 11 due to the low-level and low visibility of cumulative development ID21 and ID22, and the influence of overhead electricity infrastructure and towers within the existing baseline view.	None

Viewpoint	Sensitivity	Description of Impact at Construction (and decommissioning)	Residual Effect at Construction	Description of Impact at Operation (Year 1 and Year 15)	Residual Effect at Operation
		will slightly intensify the influence of construction activity in the distance and across a small part of the view. The addition of the construction activity associated with the Proposed Development will result in a very low impact which may not be noticeable due to the activity associated with the other cumulative developments within the wider view. The predicted magnitude of cumulative impact is assessed to be **very low**.			
Viewpoint 12 – Mill Road Crowle	High	Relevant Cumulative Developments: ID1; ID5; ID21; and ID22.	Negligible adverse (not significant)	Relevant Cumulative Developments: ID1; ID5; ID21; and ID22.	Negligible adverse (not significant)

Viewpoint	Sensitivity	Description of Impact at Construction (and decommissioning)	Residual Effect at Construction	Description of Impact at Operation (Year 1 and Year 15)	Residual Effect at Operation
		Construction activity associated with ID5 will occur in short to middle-distance views although potential views are likely to be limited by vegetation. Potential views of construction activity associated with ID1, ID21, and ID22 in the distance within the wider view are likely to be limited. The Proposed Development will slightly increase the influence of construction activity across the horizon, however, the construction of ID5 will potentially filter views of construction associated with the Proposed Development. The addition of the construction activity associated with the Proposed Development will result in a very low		The Proposed Development will slightly increase the influence of industry across the horizon, however, the Proposed Development will be located in the background of the view behind ID5 and ID22 and adjacent to ID21, although ID21 is likely to have very limited visibility. Cumulative development ID5 will be an intervening feature and potentially lessen the overall impact of the Proposed Development. The addition of the Proposed Development will result in a very low cumulative impact and will be viewed in the context of further large structures and power related infrastructure in the foreground of the view.	

Viewpoint	Sensitivity	Description of Impact at Construction (and decommissioning)	Residual Effect at Construction	Description of Impact at Operation (Year 1 and Year 15)	Residual Effect at Operation
		impact which may not be noticeable due to the activity in the foreground. The predicted magnitude of cumulative impact is assessed to be **very low**.		The predicted magnitude of cumulative impact is assessed to be **very low**.	
Viewpoint 13 – PRoW (BELT30/BELT34) Isle of Axholme	High	No significant cumulative effects are predicted for Viewpoint 13 due to the low-level construction activity associated with the solar developments (ID21 and ID22), intervening distance and limited potential views of ID5 and ID1.	None	No significant cumulative effects are predicted for Viewpoint 13 due to the low visibility of the cumulative developments and the influence of overhead electricity infrastructure and towers within the existing baseline view.	None
Viewpoint 14 – Stainforth and Keadby Canal Towpath	Medium	No significant cumulative effects are predicted for Viewpoint 14 due to the low-level construction activity associated with the solar development (ID21 and ID22), intervening	None	No significant cumulative effects are predicted for Viewpoint 14 due to the low visibility of the cumulative developments.	None

Viewpoint	Sensitivity	Description of Impact at Construction (and decommissioning)	Residual Effect at Construction	Description of Impact at Operation (Year 1 and Year 15)	Residual Effect at Operation
		distance, limited potential views, and view direction associated with ID5 and ID1.			

Cultural Heritage

21.5.13. The following cumulative developments have been scoped out for the cultural heritage cumulative assessment due to their scale, their distance from the Proposed Development (located outside of the ZOI used for the cultural heritage assessment within **ES Volume I Chapter 15:** Cultural Heritage (**Application Document Ref. 6.2**)) and intervening development between the Proposed Development and these cumulative developments:

- ID4 - Tween Bridge Solar Farm DCO EN010148; and
- ID33 - Scunthorpe Electric Arc Furnace PA/2024/123.

21.5.14. In addition, due to the distance involved, it is considered that most of the short listed cumulative developments would not result in impacts to the same buried archaeological assets that could also be impacted by the Proposed Development. As

such, cumulative effects are not anticipated for buried archaeological assets and are therefore scoped out of the cumulative assessment for these cumulative developments

21.5.15. There is a single cumulative development that has the potential to result in cumulative impacts through physical impacts to the same buried archaeological assets that could also be impacted by the Proposed Development. This is the Humber Carbon Capture Pipeline DCO (EN0710003) and is assessed in the below table.

Table 21.14: Cultural Heritage Cumulative Effects Assessment

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
1	2	Humber Carbon Capture Pipeline DCO EN0710003	Humber Carbon Capture Pipeline	Cumulative effects through change to the setting of heritage assets and changes to historic landscape character are unlikely as the development is largely underground, and any above ground installation (AGI) that may be located in proximity to heritage assets are limited in footprint and height and would not increase the	Other than the mitigation measures already proposed (refer to **ES Volume I Chapter 15:** Cultural Heritage (**Application Document Ref. 6.2**), no further mitigation measures to reduce potential cumulative effects are required within this Application. It will be for the other	No significant residual effects are anticipated, as reported in Chapter 15, and no cumulative effects are anticipated.

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				assessed level of impact identified as a result of the Proposed Development, as reported in **ES Volume I Chapter 15:** Cultural Heritage (**Application Document Ref. 6.2)** and therefore would not give rise to a cumulative effect. Where the other development extends within and within close proximity to the Proposed Development, it has the potential to impact buried archaeological remains that could also be impacted by the Proposed Development. However, it is unlikely that the other development	development to consider the need for additional mitigation relevant to their identified impacts.	

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				would result in the total removal of buried archaeological remains, and would therefore likely only truncate buried archaeological remains. This would not result in a change in the assessed level of impact as reported in **ES Volume I Chapter 15: Cultural Heritage** (**Application Document Ref. 6.2**) and therefore would not give rise to a cumulative effect.		
2	1	North Lincolnshire Green Energy Park DCO EN010116	North Lincolnshire Green Energy Park Limited. Energy Recovery Facility converting up to 650,000 tonnes per annum of Refuse Derived Fuel (RDF) to generate a maximum of	Cumulative effects through change to the setting of heritage assets and changes to historic landscape character are unlikely due to the distance from the	Other than the mitigation measures already proposed (refer to **ES Volume I Chapter 15:** Cultural Heritage (**Application**	No significant residual effects are anticipated, as reported in Chapter 15, and no cumulative

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
			95 megawatts of electrical output (MWe) and/or 380 Mega Watts of thermal output (MWt) to provide power, heat and steam on the site of the operating Flixborough Wharf on the River Trent.	Proposed Development Site and the lack of impacts (reported in **ES Volume I Chapter 15:** Cultural Heritage (**Application Document Ref. 6.2**) arising from the Proposed Development in the area north-east of the Proposed Development Site between it and the 'other development'.	**Document Ref. 6.2**), no further mitigation measures to reduce potential cumulative effects are required within this Application. It will be for the other development to consider the need for additional mitigation relevant to their identified impacts.	effects are anticipated.
5	2	North Humber to High Marnham DCO EN02003	National Grid Electricity Transmission. A proposal to reinforce the 400kV high voltage power network between North Humber and High Marnham.	Cumulative effects through change to the setting of heritage assets are unlikely due to the lack of impacts (reported in **ES Volume I Chapter 15:** Cultural Heritage (**Application Document Ref. 6.2**)) arising from the	It is considered that the 'other development' would result in a significant effect in isolation which is a greater impact than that assessed as a result of the Proposed	There is a residual significant cumulative effect identified on the Isle of Axholme Area of Special Historic Landscape

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				Proposed Development in the vicinity of the Proposed Development Site and the 'other development'. There is the potential for a significanct cumulative effect on the Isle of Axholme Area of Special Historic Landscape Interest. The assessment presented in **ES Volume I Chapter 15:** Cultural Heritage (**Application Document Ref. 6.2**) has identified a very low magnitude of impact as a result of the Proposed Development, which is considered to be not significant. The 'other development' has the potential to result in	Development. The Proposed Development makes a lesser, non-significant contribution to the identified cumulative effect, and the Proposed Development alone does not result in a significant effect. Therefore, despite the cumulative effect, no further mitigation measures to reduce potential cumulative effects can be applied within this Application to reduce the cumulative effect to a non-significant level. It will be for the other development to	Interest. It is anticipated that the 'other development' would implement available mitigation measures to minimise significant effects identified on heritage assets and the historic landscape. Due to the nature and scale of the 'other development', however, it is not considered likely that mitigation measures will be capable of

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				changes to the landscape which would be significant in isolation, and therefire would give rise to a significant cumulative effect.	consider the need for additional mitigation relevant to their identified impacts.	reducing the effect to non-significant levels.
21	3	Moors Solar Farm PA/SCR/2021/8	Sirius Planning EIA screening request relating to a proposed 49.9MW solar farm (Culham Renewables - Moors Solar Farm).	Cumulative effects through change to the setting of heritage assets and changes to historic landscape character are unlikely due to the distance from the Proposed Development Site and the lack of impacts (reported in Chapter 15: Cultural Heritage) arising from the Proposed Development in the area north-east of the Proposed Development	Other than the mitigation measures already proposed (refer to **ES Volume I Chapter 15** Cultural Heritage (**Application Document Ref. 6.2**)), no further mitigation measures to reduce potential cumulative effects are required within this Application. It will be for the other development to consider the need for	No significant residual effects are anticipated, as reported in **ES Volume I Chapter 15** (**Application Document Ref. 6.2**), and no cumulative effects are anticipated.

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				Site between it and the 'other development'.	additional mitigation relevant to their identified impacts.	
22		Pilfrey Solar Farm PA/SCR/2021/7	Sirius Planning EIA screening request relating to a proposed 49.9MW solar farm (Lidsey Renewables Ltd – Pilfrey Solar Farm).	Cumulative effects through change to the setting of heritage assets and changes to historic landscape character are unlikely due to the distance from the Proposed Development Site and the lack of impacts (reported in **ES Volume I Chapter 15:** Cultural Heritage (**Application Document Ref. 6.2**)) arising from the Proposed Development in the area north-west of the Proposed Development Site between it and the 'other development'.	Other than the mitigation measures already proposed (refer to **ES Volume I Chapter 15:** Cultural Heritage (**Application Document Ref. 6.2**)), no further mitigation measures to reduce potential cumulative effects are required within this Application. It will be for the other development to consider the need for additional mitigation relevant to their identified impacts.	No significant residual effects are anticipated, as reported in **ES Volume I Chapter 15** (**Application Document Ref. 6.2**), and no cumulative effects are anticipated.

Socio-economics

Table 21.15: Socio-economics Cumulative Effects Assessment

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
1	2	Humber Carbon Capture Pipeline DCO EN0710003	Net Zero North Sea Storage (NZNSS) Ltd. Onshore underground CO_2 pipeline and associate above ground infrastructure to transport captured carbon dioxide rom emitters in the Humber region from Drax (in North Yorkshire) to Easington on the coast (within East Riding of Yorkshire) to connect with a secure offshore storage in the North Sea.	Potential overlap with project for local construction workers, specifically those with expertise in carbon capture implementation. Cumulative impact dependent on final construction numbers for Humber Carbon Capture Pipeline but due to availability of local bedspace and size of construction industry, there is unlikely to be an adverse significant effect.	Creation of a detailed skills and employment strategy alongside the DCO to detail how local, regional and national workers will be employed, mitigating the impact of nearby power construction. Any additional mitigation is detailed in **ES Volume I Chapter 16:** Socioeconomics **(Application Document Ref. 6.2).**	Negligible adverse (not significant)

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
2	1	ID2 - North Lincolnshire Green Energy Park DCO EN010116	North Lincolnshire Green Energy Park Limited. Energy Recovery Facility converting up to 650,000 tonnes per annum of Refuse Derived Fuel (RDF) to generate a maximum of 95 megawatts of electrical output (MWe) and/or 380 megawatts of thermal output (MWth) to provide power, heat and steam on the site of the operating Flixborough Wharf on the River Trent	Potential overlap with project for local construction workers, specifically those with expertise in power generation and infrastructure. Cumulative impact dependent on final construction numbers for North Lincolnshire Green Energy Park, but due to availability of local bedspace and size of construction industry, there is unlikely to be an adverse significant effect.	Creation of a detailed skills and employment strategy alongside the DCO to detail how local, regional and national workers will be employed, mitigating the impact of nearby power construction. Any additional mitigation is detailed in **ES Volume I Chapter 16:** Socioeconomics (**Application Document Ref. 6.2**)	Negligible adverse (not significant)
4	2	Tween Bridge Solar Farm DCO EN010148	RWE Renewables UK Solar and Storage Ltd Construction, operation, management and decommissioning of a ground mounted solar PV	Potential overlap with project for local construction workers, specifically those with expertise in power generation and	Creation of a detailed skills and employment strategy alongside the DCO to detail how local, regional and national workers will be	Negligible adverse (not significant)

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
			electricity generating facility exceeding 50 MW output capacity, together with associated works including substation, energy storage and green infrastructure	infrastructure. Cumulative impact dependent on final construction numbers for Tween Bridge Solar farm, but due to availability of local bedspace and size of construction industry, there is unlikely to be an adverse significant effect.	employed, mitigating the impact of nearby power construction. Any additional mitigation is detailed in **ES Volume I Chapter 16:** Socioeconomics (**Application Document Ref. 6.2).**	
5	2	North Humber to High Marnham DCO EN020034	National Grid Electricity Transmission. A proposal to reinforce the 400kV high voltage power network between North Humber and High Marnham.	Potential overlap with project for local construction workers, specifically those with expertise in power grid infrastructure. Cumulative impact dependent on final construction numbers for North Humber to High Marnham DCO but due to availability of local bedspace and size of construction industry,	Creation of a detailed skills and employment strategy alongside the DCO to detail how local, regional and national workers will be employed, mitigating the impact of nearby power construction. Any additional mitigation is detailed in **ES Volume I Chapter 16;** Socioeconomics	Negligible adverse (not significant)

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				there is unlikely to be an adverse significant effect.	(**Application Document Ref. 6.2**).	
21	3	Moors Solar Farm PA/SCR/2021/8	Sirius Planning EIA screening request relating to a proposed 49.9MW solar farm (Culham Renewables - Moors Solar Farm).	Potential overlap with project for local construction workers, specifically those with expertise in power generation and infrastructure. Cumulative impact dependent on final construction numbers for Moors Solar farm, but due to availability of local bedspace and size of construction industry, there is unlikely to be an adverse significant effect.	Creation of a detailed skills and employment strategy alongside the DCO to detail how local, regional and national workers will be employed, mitigating the impact of nearby power construction. Any additional mitigation is detailed in **ES Volume I Chapter 16:** Socioeconomics (**Application Document Ref. 6.2).**	Negligible adverse (not significant)
22	3	Pilfrey Solar Farm PA/SCR/2021/7	Sirius Planning EIA screening request relating to a proposed 49.9MW solar farm (Lidsey	Potential overlap with project for local construction workers, specifically those with	Creation of a detailed skills and employment strategy alongside the DCO to detail how	Negligible adverse (not significant)

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
			Renewables Ltd – Pilfrey Solar Farm).	expertise in power generation and infrastructure. Cumulative impact dependent on final construction numbers for Moors Solar farm, but due to availability of local bedspace and size of construction industry, there is unlikely to be an adverse significant effect.	local, regional and national workers will be employed, mitigating the impact of nearby power construction. Any additional mitigation is detailed in **ES Volume I Chapter 16:** Socioeconomics (**Application Document Ref. 6.2**).	
33	1	Scunthorpe Electric Arc Furnace PA/2024/123	Keadby Developments Ltd Retrospective planning application for the reconfiguration of consented CHP office building, retention of 38 portable buildings (19 stacked), two stores, a workshop, fencing and associated works.	Potential overlap with project for local construction workers. Cumulative impact dependent on final construction numbers for Scunthorpe Electric Arc Furnace, but due to availability of local bedspace and size of construction industry,	Creation of a detailed skills and employment strategy alongside the DCO to detail how local, regional and national workers will be employed, mitigating the impact of nearby power construction. Any additional mitigation is detailed in	Negligible adverse (not significant)

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
				there is unlikely to be an adverse significant effect.	**ES Volume I Chapter 16:** Socioeconomics (**Application Document Ref. 6.2**).	

Population and Human Health

Table 21.16: Population and Human Health

ID	Tier	Application reference	Application for 'other development' and brief description	Assessment of cumulative effect with the Proposed Development	Proposed mitigation applicable to the Proposed Development including any apportionment	Residual cumulative effect
21	3	Moors Solar Farm PA/SCR/2021/8	Sirius Planning EIA screening request relating to a proposed 49.9MW solar farm (Culham Renewables - Moors Solar Farm).	No significant cumulative effects. Significant cumulative effects on population and human health are considered unlikely, despite the identified	No mitigation necessary as all cumulative effects have been identified as unlikely to be significant.	No significant residual cumulative effects are anticipated.

		moderate adverse cumulative effect on landscape and visual receptors at Viewpoint 4 (ProW KEAD4 & KEAD10 north of Keadby). No other significant cumulative impacts have been identified across relevant environmental topics, including air quality, traffic and transport, noise and vibration, and socio-economics. While the moderate visual impact may affect local visual amenity, it is not anticipated to result in significant adverse effects on mental health, such as those related to community severance, access, or visual disturbance. Similarly, no significant effects are expected on physical health outcomes, including levels of physical activity or respiratory health. The assessment also

				considers the potential effects on vulnerable groups, such as children, older adults, and individuals with pre-existing health conditions.		
1	2	Humber Carbon Capture Pipeline DCO EN0710003	Net Zero North Sea Storage (NZNSS) Ltd. Onshore underground CO_2 pipeline and associate above ground infrastructure to transport captured carbon dioxide rom emitters in the Humber region from Drax (in North Yorkshire) to Easington on the coast (within East Riding of Yorkshire) to connect with a secure offshore storage in the North Sea.	No significant cumulative effects. There are unlikely to be significant cumulative effects on population and human health, given that there are no significant cumulative effects identified for other environmental aspects of relevance to population and human health, including, air quality, traffic and transport, landscape and visual, noise and vibration, and socio-economics. Specifically, this includes no anticipated significant adverse effects in relation to mental health due to community severance and	No mitigation necessary as all cumulative effects have been identified as unlikely to be significant.	No significant residual cumulative effects are anticipated.
2	1	North Lincolnshire Green Energy Park DCO EN010116	North Lincolnshire Green Energy Park Limited. Energy Recovery Facility converting up to 650,000 tonnes per annum of Refuse Derived Fuel (RDF) to generate a maximum of 95 megawatts of electrical output (MWe) and/or 380			

			megawatts of thermal output (MWth) to provide power, heat and steam on the site of the operating Flixborough Wharf on the River Trent	access, reduced visual amenity, disturbance from noise impacts, nor to physical health outcomes such as levels of physical activity or respiratory health. This assessment includes consideration of vulnerable groups, such as children, the elderly, and individuals with pre-existing health conditions.
4	2	Tween Bridge Solar Farm DCO EN010148	RWE Renewables UK Solar and Storage Ltd Construction, operation, management and decommissioning of a ground mounted solar PV electricity generating facility exceeding 50 MW output capacity, together with associated works including substation, energy storage and green infrastructure	
5	2	North Humber to High Marnham DCO EN020034	National Grid Electricity Transmission. A proposal to reinforce the 400kV high voltage power network between North Humber and High Marnham.	
22	3	Pilfrey Solar Farm PA/SCR/2021/7	Sirius Planning EIA screening request relating to a proposed 49.9MW solar farm (Lidsey	

			Renewables Ltd – Pilfrey Solar Farm).
33	1	Scunthorpe Electric Arc Furnace PA/2024/123	Keadby Developments Ltd Retrospective planning application for the reconfiguration of consented CHP office building, retention of 38 portable buildings (19 stacked), two stores, a workshop, fencing and associated works.

21.6. Combined Effects Assessment

21.6.1. Combined effects are those that may arise when several different impacts resulting from the Proposed Development have the potential to affect a single receptor.

21.6.2. Multiple effects upon one or more common receptors could theoretically interact or combine, to result in a combined effect which is more or less significant than the effects individually.

21.6.3. As described in Section 21.3, some of the technical assessments have already considered effects that result from the combination or interaction of different types of impacts on individual receptors. Any effects arising from the interaction of impacts on individual receptors which have already been assessed within the technical assessments will not be repeated in the combined effects assessment to be completed within the ES. The assessment will consider only those combined effects which have not been identified elsewhere within the technical assessments. As such, the combined effects assessment will only the potential combined effects on human receptors.

21.6.4. When considering combined effects, the mitigation measures as set out in **ES Volume I Chapters 8 to 20** (**Application Document Ref. 6.2**) (including embedded mitigation measures built into the Proposed Development's design and measures embedded in the **Outline CEMP (Application Document Ref. 7.4)** must be taken into account. Therefore, only residual effects (post-mitigation) will be considered.

21.6.5. In assessing potential combined effects, human receptors experiencing effects of minor or greater magnitude will be considered. The types of impacts that could be experienced by these receptors and which may interact are noise, air quality, traffic and transport, visual and socio-economic effects, during construction noise, air quality, visual and socio-economic effects during operation.

21.6.6. Mitigation of any combined effects identified is best achieved through management and control measures employed to prevent or reduce the individual effects in the first instance, thereby reducing the likelihood of the effects interacting and combining.

21.6.7. The following sections provide a qualitative assessment of the potential for combined effects to arise, following a review of **ES Volume I Chapters 8-**

20 (**Application Document Ref. 6.2**). Common receptors have been identified.

Combined Effects During Construction (Air Quality, Noise and Vibration, Traffic and Transport, Landscape and Visual and Socio-economics)

21.6.8. **ES Volume I Chapter 8:** Air Quality (**Application Document Ref. 6.2**) considers air quality effects of road traffic emissions during the construction stage and for dust effects which have the potential during the construction phase to combine with noise, vibration and visual effects at some individual receptors located within 350m of the Site. Transient receptors using PRoW are not identified as being sensitive for the air quality or noise assessments and have therefore not been considered in the combined effects assessment, although it is recognised that these receptors are sensitive to visual and amenity and traffic and transport effects, as identified in the respective chapters.

21.6.9. **ES Volume I Chapter 10:** Traffic and Transport (**Application Document Ref. 6.2**) considers a range of different traffic-related effects on roadside receptors, including severance, pedestrian amenity, fear and intimidation, highway safety and driver delay. There is potential for receptors located close to the road network to experience combined effects from traffic (severance, pedestrian amenity, highway safety etc.), noise, vibration and air emissions during construction of the Proposed Development. However, given the controls on construction traffic that will be implemented, including HGV arriving/ departing the Proposed Development Site on the A18 from the west, the construction traffic assessment does not identify any significant effects on roadside receptors, (severance, pedestrian amenity, fear and intimidation or highway safety). As the air quality and noise assessments also do not identify any significant effects on sensitive receptors located close to the road network, it follows that combined effects on roadside properties due to road traffic and related air/ noise emissions are not anticipated to be significant.

21.6.10. **ES Volume I Chapter 16:** Socioeconomics (**Application Document Ref. 6.2**) considers the potential for construction of the Proposed Development to generate short-term disruption to the amenity of receptors in close proximity to the Proposed Development Site. Impacts on amenity include disruption to landscape and visual amenity, temporary noise effects, disruption through increased traffic movements and construction dust. The chapter indicates that with the implementation of appropriate mitigation and avoidance measures, no significant residual (combined) effects from construction noise, traffic and dusts are predicted to occur, although significant adverse visual effects on residents at Viewpoint 1 and Viewpoint 2 during construction would remain. The average estimated 1,076 net jobs during the construction phase of the Proposed

Development is considered a major (significant) beneficial effect on the local area although the effect of this on individual receptors cannot be quantified/ assessed and for this reason, is not taken into consideration in the combined effects assessment.

Table 21.17: Potential for Significant Combined Effects (Construction)

Receptor	Receptor	Value /sensitivity	Traffic emissions	Dust	Noise	Vibration	Visual	Socio-economics	Mitigation	Combined Effect
NSR1 Viewpoint 2a and 2b CDR1	Vazon Bridge	High	NR	NR	NR	NR	Moderate adverse (significant) visual effects due to close range view of construction activity.	NR	No additional mitigation measures are proposed beyond those recommended in the technical chapters, including implementation of mitigation through the CEMP.	Moderate adverse (no change)
NSR2 Viewpoint 1 CDR2	Hawthorne House	High	NR	NR	NR	NR	Moderate adverse (significant) visual effects due to close range view of construction activity.	NR	No additional mitigation measures are proposed beyond those recommended in the technical chapters, including implementation	Moderate adverse (no change)

Receptor	Receptor	Value /sensitivity	Traffic emissions	Dust	Noise	Vibration	Visual	Socio-economics	Mitigation	Combined Effect
									of mitigation through the CEMP	
NSR3 Viewpoint 1 CDR3	Keadby Village	High	NR	NR	NR	NR	Moderate adverse (significant) visual effects due to close range view of construction activity.	NR	No additional mitigation measures are proposed beyond those recommended in the technical chapters, including implementation of mitigation through the CEMP	Moderate adverse (no change)
NSR4 CDR4	Mariners Arms Flats	High	NR	NR	NR	NR	NR	NR	No additional mitigation measures are proposed beyond those recommended in the technical	No combined effect

Receptor	Receptor	Value /sensitivity	Traffic emissions	Dust	Noise	Vibration	Visual	Socio-economics	Mitigation	Combined Effect
									chapters, including implementation of mitigation through the CEMP	
NSR5 CDR8 Viewpoint 3	Trent Side	High	NR	NR	NR	NR	NR	NR	No additional mitigation measures are proposed beyond those recommended in the technical chapters, including implementation of mitigation through the CEMP	No combined effect
NSR6	Queens Crescent	High	NR	NR	NR	NR	NR	NR	No additional mitigation measures are proposed beyond those	No combined effect

Receptor	Receptor	Value /sensitivity	Traffic emissions	Dust	Noise	Vibration	Visual	Socio-economics	Mitigation	Combined Effect
									recommended in the technical chapters, including implementation of mitigation through the CEMP	
NSR8	North Pilfrey Farm	High	NR	NR	NR	NR	Minor adverse (not significant) – considered on a precautionary basis to be a similar effect to Viewpoints 6 and 13	NR	No additional mitigation measures are proposed beyond those recommended in the technical chapters, including implementation of mitigation through the CEMP	Minor adverse (no change)
NSR9	Ealand Poultry Farm	High	NR	NR	NR	NR	NR	NR	No additional mitigation measures	No combined effect

Receptor	Receptor	Value /sensitivity	Traffic emissions	Dust	Noise	Vibration	Visual	Socio-economics	Mitigation	Combined Effect
Viewpoint 7									are proposed beyond those recommended in the technical chapters, including implementation of mitigation through the CEMP	
NSR11 CDR9	South Pilfrey Farm	High	NR	NR	NR	NR	Minor adverse (not significant) – considered on a precautionary basis to be a similar effect to Viewpoints 6 and 13	NR	No additional mitigation measures are proposed beyond those recommended in the technical chapters, including implementation of mitigation through the CEMP	Minor adverse (no change)

NSR = Noise Sensitive Receptor; CDR = Construction Dust Receptor; TR = Transport Receptor (construction); NR = No Residual Effect

Combined Effects During Operation (Air Quality, Noise and Vibration and Landscape and Visual)

21.6.11. **ES Volume I Chapter 8:** Air Quality **(Application Document Ref. 6.2)** considers air quality effects of process emissions from the operational phase of the Proposed Development, whilst the effects of road traffic emissions on air quality during the operational phase are screened out. As a result, there is no potential for significant combined air quality effects due to process emissions and road traffic emissions on receptors.

21.6.12. The air quality assessment of operational impacts has assumed that the emission limit values (ELV) will be met for the operational plant as required under the Industrial Emissions Directive (IED) (European Commission, 2010) and in accordance with use of BAT under the environmental permitting regime. The residual environmental effects from operation of the Proposed Development have been identified as negligible adverse (not significant) at all human health receptors during the operation phase.

21.6.13. **ES Volume I Chapter 9:** Noise and Vibration **(Application Document Ref. 6.2)** concludes that there would be no residual significant adverse effects at all NSR with the application of practical sound mitigation to reduce relevant noise at source for certain plant during operation.

21.6.14. Operational vibration was scoped out of further assessment (refer to **ES Volume I Chapter 9:** Noise and Vibration, Section 9.3 (**Application Document Ref. 6.2**) and is therefore not applicable to the combined effects assessment.

21.6.15. **ES Volume I Chapter 10:** Traffic and Transport (**Application Document Ref. 6.2)** concludes that the generation of traffic during the operation of the Proposed Development would be minimal when compared to the construction phase and therefore operational phase traffic effects are also considered to be negligible and thus not significant.

21.6.16. **ES Volume I Chapter 14:** Landscape and Visual Amenity (**Application Document Ref. 6.2**) identifies that there would be a moderate adverse effect on visual receptors including recreational users at three viewpoints (Viewpoint 1 - Chapel Lane West, Keadby; Viewpoint 2 – Gate Keepers Residence, Vazon Bridge, Keadby; and Viewpoint 4 - PRoW (KEAD9, KEAD10) north of Keadby) during operation of the Proposed

Development, due to the close proximity and prominence of structures associated with the Proposed Development.

21.6.17. There would be minor adverse effects on visual receptors at Viewpoint 5 PRoW (GUNN179), north-east Gunness, Viewpoint 6 Trunk Road, Keadby, Viewpoint 8 PRoW (East8) Eastoft, Viewpoint 9 Meredyke Road, Luddington, Viewpoint 10 Middle Lane, Amcotts, Viewpoint 11 PRoW (BURT171) accessed off Chafer Lane, Burton upon Stather, Viewpoint 12 Mill Road, Crowle and Viewpoint 13: PROW (BELT30/ BELT 34) Isle of Axholme and Viewpoint 14: Stainforth and Keadby Canal Towpath.

21.6.18. **ES Volume I Chapter 16:** Socioeconomics (**Application Document Ref. 6.2**) identifies that there would be a minor adverse effect associated with community disruption/ demographic change. No other residual effects on socio economics have been identified during operation. There would therefore be no combined socio-economic effects.

21.6.19. On the basis of the above, the potential for combined effects during operation is set out in Table 21.18 below.

Table 21.18: Potential for Significant Combined Effects (Operation)

Receptor	Receptor	Value/sensitivity	Air Quality	Noise	Vibration	Visual	Socio-economics	Mitigation	Combined Effect
NSR1 Viewpoint 2a and 2b OR10	Vazon Bridge	High	NR	NR	NR	Moderate adverse (significant)	NR	Mitigation measures would not be effective in reducing visibility in relation to visual amenity effects, so none are proposed.	Moderate adverse (no change)
NSR2 Viewpoint 1 OR1	Hawthorne House	High	NR	NR	NR	Moderate adverse (significant)	NR	Mitigation measures would not be effective in reducing visibility in relation to visual amenity effects, so none are proposed.	Moderate adverse (no change)

Receptor	Receptor	Value/sensitivity	Air Quality	Noise	Vibration	Visual	Socio-economics	Mitigation	Combined Effect
NSR3 Viewpoint 1	Keadby Village	High	NR	NR	NR	Moderate adverse (significant)	NR	Mitigation measures would not be effective in reducing visibility in relation to visual amenity effects, so none are proposed.	Moderate adverse (no change)
NSR4 OR12	Mariners Arms Flats	High	NR	NR	NR	NR	NR	No additional mitigation measures are proposed beyond those recommended in the technical chapters, including implementation of mitigation through the CEMP	No combined effect

Receptor	Receptor	Value/sensitivity	Air Quality	Noise	Vibration	Visual	Socio-economics	Mitigation	Combined Effect
NSR5 OR2 Viewpoint 3	Trent Side	High	NR	NR	NR	NR	NR	No additional mitigation measures are proposed beyond those recommended in the technical chapters, including implementation of mitigation through the CEMP	No combined effect
NSR6	Queens Crescent	High	NR	NR	NR	NR	NR	No additional mitigation measures are proposed beyond those recommended in the technical chapters, including implementation	No combined effect

Receptor	Receptor	Value/sensitivity	Air Quality	Noise	Vibration	Visual	Socio-economics	Mitigation	Combined Effect
								of mitigation through the CEMP	
NSR8 OR3	North Pilfrey Farm	High	NR	NR	NR	Minor adverse (not significant) – considered on a precautionary basis to be a similar effect to Viewpoints 6 and 13	NR	No additional mitigation measures are proposed beyond those recommended in the technical chapters, including implementation of mitigation through the CEMP	Minor adverse (no change)
NSR9 Viewpoint 7	Ealand Poultry Farm	High	NR	NR	NR	NR	NR	No additional mitigation measures are proposed beyond those recommended in the technical	No combined effect

Receptor	Receptor	Value/sensitivity	Air Quality	Noise	Vibration	Visual	Socio-economics	Mitigation	Combined Effect
								chapters, including implementation of mitigation through the CEMP	
NSR11 OR8	South Pilfrey Farm	High	NR	NR	NR	Minor adverse (not significant) – considered on a precautionary basis to be a similar effect to Viewpoints 6 and 13	NR	No additional mitigation measures are proposed beyond those recommended in the technical chapters, including implementation of mitigation through the CEMP	Minor adverse (no change)

NSR = Noise Sensitive Receptor; OR = Operational Air Quality Receptor; NR = No Residual Effect

21.7. Limitations or Difficulties

21.7.1. The cumulative assessment will be based on information available at the time of the assessment regarding the environmental effects of the other potential or committed schemes in the vicinity of the Proposed Development Site that have been scoped into the assessment.

21.7.2. Any limitations that were encountered during the individual technical assessments are detailed within **ES Volume I Chapters 8-20** of this ES (**Application Document Ref. 6.2**).

21.8. Summary of Likely Significant Residual Effects

21.8.1. The assessment of combined effects has considered the potential for the effects of minor significance and above, identified within each of the technical assessments reported within **ES Volume I Chapters 8 to 20** (**Application Document Ref. 6.2**), to interact and combine to affect common receptors, and has concluded that there would be no new significant combined effects during either construction or operation of the Proposed Development. Those significant adverse residual effects assessed in relation to landscape and visual amenity during both construction and operational phases would remain classified as moderate adverse (**significant**) effects. The design and impact avoidance and mitigation measures proposed for noise and vibration and air quality would mean the new significant combined effects are avoided.

21.8.2. The assessment of cumulative effects has considered other developments within 15 km of the Proposed Development identifying 40 developments for consideration at Stage 1 in the long list, and 34 for inclusion in the shortlist of developments, although the majority (28) of these were determined by topic specialists to be not relevant to their assessment given their small scale nature/ limited effects or lack of planning application and thus have only been considered in future growth forecasts for the traffic and transport assessment. The Proposed Development interacting with the shortlisted schemes will not lead to any significant cumulative effects.

21.8.3. Where a future project has not been assessed within this cumulative impact assessment due to a lack of planning application the onus will be on the other respective projects to consider any potentially significant combined effects with this Proposed Development, taking into account information in this ES which will be in the public domain.

21.9. References

- Department of Energy and Climate Change (2023) *Overarching National Policy Statement for Energy (EN-1).* Available online: EN-1 Overarching National Policy Statement for Energy (publishing.service.gov.uk)
- European Commission (2010) *Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control (Recast)).* Available online: https://www.legislation.gov.uk/eudr/2010/75/contents
- Her Majesty's Stationary Office (2017). *The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017*. Available from: http://www.legislation.gov.uk/uksi/2017/572/contents/made
- Planning Inspectorate, 2024. Advice on Cumulative Effects Assessment. Available from: Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment - GOV.UK (www.gov.uk)
- Planning Inspectorate, 2024 *Register of Applications.* Available from: https://infrastructure.planninginspectorate.gov.uk/projects/register-of-applications/