

The Lighthouse Green Fuels Order

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Abbreviations

Abbreviation	In Full / Term
ARN	Affected Road Network
BAT	Best Available Technique
BREF	BAT Reference Document
CCGT	Combined Cycle Gas Turbine
CCUS	Carbon Capture, Utilisation and Storage
CEMP	Construction Environmental Management Plan
CO ₂	Carbon dioxide
COMAH	Control of Major Accidents and Hazards
DCO	Development Consent Order
EIA	Environmental Impact Assessment
ELV	Emission Limit Value
EN-1	National Policy Statement for Energy
ES	Environmental Statement
fCEMP	framework Construction Environment Management Plan
GVA	Gross Value Added
HBC	Hartlepool Borough Council
HGV	Heavy goods vehicle
IAQM	Institute of Air Quality Management
IEA	Industrial Emissions Directive
JNCC	Joint Nature Conservation Committee
LLCA	Local Landscape Character Area
LGF	Lighthouse Green Fuels
LSO	Long sea outfall
MC	Middlesbrough Council
NPS	National Policy Statement
NRMM	Non-road mobile machinery
NSIP	Nationally Significant Infrastructure Project
NZT	Net Zero Teesside
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
RCBC	Redcar and Cleveland Borough Council
SAF	Sustainable Aviation Fuel
STBC	Stockton-on-Tees Borough Council
WwTW	Wastewater Treatment Works

Zol

Zone of Influence

22 Cumulative and Combined Effects

22.1 Introduction

22.1.1 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 (inter-project): these occur when the environmental impacts and effects of the Proposed Development interact with those arising from other planned development located within a realistic geographic scope, resulting in environmental effects on receptors that may be greater (or lesser) than those arising from the Proposed Development alone; and
- Combined effects (intra-project): these occur where a single environmental receptor is affected by more than one type of impact arising from the Proposed Development. The interaction of these impacts may result in effects on environmental receptors that are greater than those arising from individual impacts in isolation.

22.1.2 The assessment draws on the assessment of impacts provided in ES **Chapters 8 to 21 (ES Volume I, Application Document Ref. 6.1)**, and information in the public domain relating to other known development within the Study Area, or Zone of Influence (Zoi).

22.1.3 The cumulative effects assessment does not consider other developments that are already constructed and operating, as such existing developments are already accounted for in the baseline conditions established for the main assessments within **Chapters 8 to 21 (ES Volume I, Application Document Ref. 6.1)**.

22.1.4 This chapter is supported by **Figure 22.1: Shortlist of Developments Considered for Cumulative Impact Assessment (ES Volume II, Application Document Ref. 6.2)** and **Appendix 22A: Long List of Other Developments (ES Volume III, Application Document Ref. 6.3)**.

22.2 Legislation and Planning Policy Context

22.2.1 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 ('the EIA Regulations') [Ref 1], and the assessment requirements of the Overarching National Policy Statement (NPS) for Energy (EN-1) ('NPS

EN-1') [Ref 2]. The NPS for Renewable Energy Infrastructure (EN-3) is also of relevance to the Proposed Development.

22.2.2 The requirement for cumulative and combined effects assessment is stated in the EIA Regulations as detailed below:

- Schedule 4 Paragraph 5 of the EIA Regulations 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 NPS EN-1 [Ref 2] states that:
“In considering any proposed development, in particular when weighing its adverse impacts against its benefits, the Secretary of State should take into account:
 - i. its potential benefits including its contribution to meeting the need for the Clean Power 2030 Mission and net zero, energy infrastructure, job creation, reduction of geographical disparities, environmental enhancements, and any long-term or wider benefits; and*
 - ii. 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”*.
- 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.”*

22.3 Assessment Methodology

Assessment of Combined Effects

Combined Assessment Methodology

22.3.1 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.

- 22.3.2 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 **Chapters 8 to 21** of the ES (**ES Volume I, Application Document Ref. 6.1**).
- 22.3.3 The sources of data for the assessment of combined effects are the specialist environmental assessments presented within **Chapters 8 to 21** of the ES (**ES Volume I, Application Document Ref. 6.1**).
- 22.3.4 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.
- 22.3.5 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;
 - water bodies; and
 - users and operators of local businesses and tourism amenities.
- 22.3.6 Geological strata, mineral resources and soils are not considered likely to be affected by impacts other than those identified within the assessment in **Chapter 21: Geology and Soils (ES Volume I, Application Document Ref. 6.1)** and are therefore not subject to combined effects.
- 22.3.7 The potential interactions between individual effects have been identified by reviewing the final conclusions of the assessments within the topics presented in **Chapters 8 to 21** of the ES (**ES Volume I, Application Document Ref. 6.1**). Some of these chapters have already addressed interactions between different types of impact relating to specified environmental resources and receptors, as described below:
- **Chapter 8: Air Quality (ES Volume I, Application Document Ref. 6.1)** 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 **Chapter 10: Terrestrial Ecology (ES Volume I, Application Document Ref. 6.1)**.

- **Chapter 12: Water Environment (ES Volume I, Application Document Ref. 6.1)** considers the potential impacts of air quality upon water quality, as well as the potential impacts of climate change upon flood risk.
 - **Chapter 10: Terrestrial Ecology (ES Volume I, Application Document Ref. 6.1)** takes into consideration the potential for air quality, dust and noise impacts and therefore how they could (in combination with other ecological impacts, such as habitat loss) affect ecological receptors.
 - **Chapter 11: Freshwater and Marine Ecology (ES Volume I, Application Document Ref. 6.1)** includes consideration of effects on the water environment and how they could in turn affect ecological receptors.
 - **Chapter 21: Geology and Soils (ES Volume I, Application Document Ref. 6.1)** considers the potential impacts of soils disturbance and mobilisation of contamination on the surrounding environment.
- 22.3.8 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 this 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.
- 22.3.9 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.
- 22.3.10 The following effects have been considered 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 a minor adverse or worse effect during construction or operation; and

- Visual effects – effects on receptors experiencing a minor adverse or worse effect during construction, opening (start of operation), operation (15 years post-opening).
- 22.3.11 For definitions of these criteria please refer to: **Chapter 8: Air Quality**, (Section 8.3); **Chapter 9: Noise and Vibration**, (Section 11.3) and **Chapter 13: Landscape and Visual Amenity** (Section 17.3) (**ES Volume I, Application Document Ref. 6.1**).
- [Assessment of Cumulative Effects](#)
- Topics excluded from Cumulative Effects Assessment*
- 22.3.12 A number of topics assessed within the EIA have been excluded from this cumulative effects assessment. These are described below.
- 22.3.13 The assessment of materials and waste presented in **Chapter 16: Materials and Waste (ES Volume I, Document Ref. 6.1)** is inherently cumulative. Minerals and 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 effects assessment process.
- 22.3.14 **Chapter 14: Greenhouse Gas Emissions (ES Volume I, Application Document Ref. 6.1)** notes that a cumulative effects assessment is not appropriate as the Zol is the global atmosphere. Therefore greenhouse gas effects are not considered further within this cumulative effects assessment.
- 22.3.15 **Chapter 15: Climate Change Resilience (ES Volume I, Application Document Ref. 6.1)** includes an In-Combination Climate Change Impact Assessment, which addresses the in-combination effects of a changing climate and the Proposed Development on receptors in the surrounding environment. Potential ICCIs have been assessed by technical disciplines and collated within Chapter 15. The Climate Change Resilience Zol is considered to be the Proposed Development boundary, therefore this topic is not considered further.
- 22.3.16 With regards **Chapter 19: Major Accidents and Disasters (ES Volume I, Application Document Ref. 6.1)**, the assessment of cumulative effects is inherent in the Major Accidents and Disasters assessment which considers potential effects of other projects and developments, in particular the domino effect. The assessment considers Control of Major Accident Hazards (COMAH) sites and major accident hazard pipelines. The measures to reduce the risk to As Low as Reasonably Practicable (ALARP) in **Chapter 19: Major Accidents and Disasters (ES Volume I, Application Document Ref. 6.1)** are considered appropriate for future

COMAH sites and on this basis, it has concluded that there would be no significant residual effects as a result of the Proposed Development. Therefore, consideration of cumulative effects due to major accidents and disasters is scoped out of the assessment.

- 22.3.17 With regards to **Chapter 20: Marine Navigation (ES Volume I, Application Document Ref. 6.1)**, cumulative effects assessment has similarly not been undertaken. The marine navigation assessment has been informed by existing and forecast future vessel traffic within the Port, including background growth and other reasonably foreseeable marine activity, through the **Navigational Risk Assessment (Appendix 20A, ES Volume II, Application Document Ref. 6.2)** was to be undertaken on the basis of existing project and the future vessel traffic within the Port would be managed through PD Ports using existing risk control measures. Accordingly, no additional cumulative marine navigation effects requiring separate assessment have been identified.
- 22.3.18 With regards to **Flood Risk Assessment (Application Document Ref. 5.7)**, a cumulative effects assessment has not been undertaken. NPS EN-1 [Ref 2] requires applicants to demonstrate that a proposed development will remain safe for its lifetime without increasing flood risk everywhere. The Flood Risk Assessment demonstrates, through hydraulic modelling, that the Proposed Development would not result in any material increase in flood risk everywhere and would manage surface water runoff in a controlled manner such that flood risk on-site and off-site would not increase. As the assessment confirms no material change to flood levels, flood extents or flood risk beyond the Site, there is no realistic pathway by which the Proposed development could combine with other developments to give rise to significant cumulative flood effects. Furthermore, the local flood regime is predominantly influence by tidally controlled water levels within the Tees Estuary, limiting the potential for interactions between developments to materially alter flood risk.

Cumulative Assessment Methodology

- 22.3.19 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.
- 22.3.20 A combination of professional judgement and established guidance has been used to confirm the scope of the cumulative effects assessment and to aid the identification and (where necessary) mitigation of likely significant effects.

- 22.3.21 The cumulative effects assessment has been primarily based upon guidance contained within the Planning Inspectorate's (PINS) Guidance [Ref 3], which provides advice on the identification and assessment of other planned developments.
- 22.3.22 The four-stage approach in PINS guidance [Ref 3] was adopted for 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.
- 22.3.23 Further details of how the four-stage approach was implemented are provided below.

Stage 1: Establishing the Long List of Other Developments

- 22.3.24 The first stage of the assessment of cumulative effects was guided by the following principles:
- understanding the limits of the effects associated with the Proposed Development and those of other planned developments;
 - the sensitivity, value or importance of environmental resources or receptors, and their susceptibility to effects;
 - whether different types of effect will occur and interact in a way that alters their significance;
 - whether effects will be temporary or permanent in duration, what their timescales will be, and whether such effects will be intermittent or constant; and
 - the degree of certainty and confidence relating to the effects.
- 22.3.25 Given the scope and scale of the works associated with the Proposed Development, the Stage 1 activities focused on establishing the Proposed Development's likely Zols associated with each of the environmental topic areas being assessed within the EIA.
- 22.3.26 Table 22.1 presents the Zols identified within each environmental topic for the final cumulative assessment, which align with the Zols utilised within each topic assessment.

Table 22.1 Summary of Indicative Zones of Influence (Zols)

Environmental Topic	Zols Applied to the Assessment of Cumulative Effects
Air Quality	Construction: 250m beyond the Proposed Development and 50m from the construction traffic routes (up to 250m from the site entrance) for human health receptors. Up to 50m from the Proposed Development and construction traffic route (up to 250m from the site entrance) for ecological receptors. Traffic assessment: 200m from affected roads. Operation: 15km from point source emissions for ecological receptors and nearby human health receptors As the traffic data includes traffic associated with other developments, the air quality impacts assessment of both construction and operational traffic related impacts reported in Chapter 8: Air Quality (ES Volume I, Application Document Ref. 6.1), is inherently cumulative. There is therefore no separate assessment of cumulative air quality traffic-related impacts included in this ES.
Noise and vibration	Construction Noise: Zol of 300m from the Proposed Development Construction Vibration: Zol on marine ecological receptors outlined in Chapter 11: Freshwater and Marine Ecology (ES Volume I, Application Document Ref. 6.1) Operational Noise: Zol of 1km around the Main Site, or the area within which noise levels from the Proposed Development are forecast to give rise to potential impacts, whichever is greater.
Terrestrial Ecology	Construction and Operation: Zol of 20km from the Proposed Development for statutory designated sites of international and national importance. Zol of 5km from the Proposed Development for statutory designated sites of local importance. Zol of 2km from the Proposed Development for non-statutory designated sites, Ancient Woodland and Historic EPS licenses. Zol of 250m from the Proposed Development for mapped waterbodies and watercourses, and habitats.
Freshwater and Marine Ecology	Construction and Operation: Zol of 10km from the marine infrastructure and dredge disposal area for internationally designated sites.

Environmental Topic	Zols Applied to the Assessment of Cumulative Effects
	Zol of 5km from the marine infrastructure area for nationally designated sites. Zol of 2km from the marine infrastructure area for non-statutory sites. Zol of up to 1km from the marine infrastructure area for habitats, benthic communities, marine plants, plankton, invasive non-native species, fish, marine mammals and surface water features.
Water Environment	Construction and Operation: Zol of 2km from the Proposed Development, including surface water, flood risk features and designated sites.
Landscape and Visual Amenity	Construction and Operation: 10km from the Main Site for landscape effects and 2km from the Main Site for visual effects.
Socioeconomics	Construction and Operation: Direct Impact Area and Wider Impact Area as defined within Chapter 17: Socioeconomics (ES Volume I, Application Document Ref. 6.1) .
Traffic and Transport	Construction and Operation: Key roads that would be affected by predicted traffic generation associated the construction and operation of the Proposed Development.
Geology and Soils	Construction and Operation: Zol of 50m from the Proposed Development extended for hydrogeology to a 250m ZOI.

22.3.27 The Traffic and Transportation assessment (**Chapter 18: Traffic and Transportation, ES Volume I, Application Document Ref. 6.1**) assesses the impacts of construction traffic in the year of peak construction for the Proposed Development i.e. in 2030, and during operation for the road links listed below.

- Site access road (east of Seal Sands Roundabout);
- A178 Seaton Carew Road;
- A1185 Seaton Carew Road;
- Marsh House Avenue;
- Wolviston Road;
- A689 Stockton Road;
- A19;
- A689 Coal Lane;

- A1046;
- B1275 Hope Street and Belasis Avenue;
- Central Avenue;
- A1027;
- Cowpen Lane;
- A139;
- New Road; and
- A1032 Newport Bridge Approach Road.

22.3.28 The baseline traffic against which the effects of construction and operation traffic have been assessed includes any traffic that would be generated by committed 'other developments'. The assessment of construction traffic effects is therefore inherently cumulative. Further details are presented in **Chapter 18: Traffic and Transportation (ES Volume I, Application Document Ref. 6.1)**.

Search Area for Long List of Other Developments

22.3.29 In accordance with PINS Guidance [Ref 3] the search area for the long list of developments was set at 15km, consistent with the largest Zol of the individual disciplines.

Local Authority and Major Infrastructure Development included in the Long List

22.3.30 For planned developments within the search area, the following search criteria were applied during Stage 1:

- Local authority planning applications that represent 'major developments', the definitions and thresholds for which are set out in The Town and Country Planning (Development Management Procedure) (England) Order 2015 [Ref 4];
- Development Consent Order (DCO) applications for Nationally Significant Infrastructure Projects (NSIPs) in England, contained in the Register of Applications on the National Infrastructure Planning website [Ref 5];
- any major development projects being progressed through other statutory procedures;
- allocations identified in the adopted and emerging development plans of the local planning authorities; and

- other relevant development plans and projects.

Initial Long List of Developments

- 22.3.31 An initial long list of other developments in the vicinity of the Proposed Development was identified following a search of the relevant planning databases (PINS, Middlesbrough Council (MC), Redcar and Cleveland Borough Council (RCBC), Hartlepool Borough Council (HBC) and Stockton-on-Tees Borough Council (STBC).
- 22.3.32 This initial search focused on developments within the 15km search area which meet the criteria outlined above. The findings are presented in **Appendix 22A: Longlist of Developments (ES Volume III, Application Document Ref. 6.3)**. This preliminary search, based on information available from local authority online planning portals and the PINS register of projects, was subsequently extended as further work was undertaken during the EIA process, to capture other developments within the adopted areas of search, and to ensure the most up to date information was used to inform the EIA.
- 22.3.33 Based on a review of the initial long list of developments, it was considered that potential exists for some of these to generate cumulative impacts with the Proposed Development based on their location, scale and/or their likely construction and operational timescales.
- 22.3.34 An initial long list was included in the PEIR. During the completion of the ES, the long list of other developments continued to be updated with additional developments or information that emerged (up until a cut-off date of 1 month prior to final preparation of this assessment, i.e. July 2026). Other significant developments which have emerged after this cutoff date but ahead of submission have also been considered. These include East Coast Hydrogen Teesside Pipeline (EN0710010) and Bran Sands Long Sea Outfall (R/2026/0419/SCP).
- 22.3.35 Each development within the long list was reviewed to determine its status at the time of undertaking the assessment (May 2026) and was assigned a final status and tier, as described in Table 22-2), informed by the guidance and levels presented within PINS Guidance [Ref 3]. This was also informed by feedback from the relevant local authorities to establish the level of certainty and detail available for each development. The long list of planned developments and development allocations and the current tiers are presented in **Appendix 22A: Longlist of Developments (ES Volume III, Application Document Ref. 6.3)**.

Table 22-2 Assigning certainty to 'other existing development and/or approved development'

Tier 1	Under construction	A decreasing level of detail is likely to be available 
	- permitted application(s), whether under the Planning Act 2008 or other regimes, but not yet implemented; - submitted application(s) whether under the Planning Act 2008 or other regimes but not yet determined.	
	all refusals subject to appeal procedures not yet determined	
Tier 2	projects in the Planning Inspectorate's Programme of Projects where a scoping report has been submitted.	
Tier 3	projects in 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 the relevant proposals;	
	identified in other plans and programmes (as appropriate) which set the framework for future developments consents or approvals, where such a development is likely to come forward.	

22.3.36 With regards to other developments under construction, the PINS guidance states that *"Where other projects are expected to be fully constructed and in operation before construction of the (Proposed Development) 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 cumulative effects assessment"*. Where other developments would already be constructed and/or in operation and have been included in the baseline for the specialist topic assessments, they are not included in the cumulative assessments reported in this chapter.

22.3.37 The generation of the long list of developments was also informed by consultation with relevant stakeholders and in response to the EIA Scoping Report and the Preliminary Environmental Information Report (PEIR); further details are provided in Section 22.4, below.

Stage 2: Establishing a Shortlist of Other Developments

22.3.38 This stage involved a review of the long list of planned developments, to identify those to be taken forward (shortlisted) into the cumulative assessment.

- 22.3.39 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, Environmental Assessment Report or ES available were considered for shortlisting.
- 22.3.40 Land allocations on their own have not been considered 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.
- 22.3.41 Developments already in existence 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 baseline within each technical assessment presented in **Chapters 8-21 of the ES (ES Volume I, Application Document Ref. 6.1)** and were therefore not considered for shortlisting.
- 22.3.42 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 (ES Volume I, Application Document Ref. 6.1)**.
- 22.3.43 The shortlisting process was informed by interrogation of available development information, including information on environmental effects, engagement with relevant stakeholders or their representatives and the professional judgement of the environmental specialists undertaking the EIA.
- 22.3.44 Where individual technical disciplines have scoped out assessment of developments included on the short list for the purposes of their cumulative assessment, the reasoning for this is set out in the relevant section below and topic ES Chapter.

Stage 3: Gathering Information

- 22.3.45 This stage involved reviewing the available information relating to the shortlisted developments to establish the details of their likely environmental effects.
- 22.3.46 This considered factors including: the Zols 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

- 22.3.47 Those developments which met the criteria set out in the above stages were incorporated into the cumulative effects assessment (Section 22.5). This involved 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.
- 22.3.48 As noted in Table 22.1, the assessment of traffic-related construction air quality and noise impacts reported in Chapters 8 and 11 are based on traffic data which includes traffic from other committed developments and are therefore inherently cumulative.

Impact Assessment and Significance Criteria

Combined effects

- 22.3.49 The significance of potential combined effects has been determined in accordance with the classification criteria set out in Table 22.3, below. The significance of potential cumulative effects has been determined in accordance with the criteria used within each of the individual topic assessments.

Table 22.3 Classification of Combined Effects

Effect Classification	Typical Description of Effect
Major (adverse or beneficial)	Where the combined effects of the Proposed Development upon an individual or collection of environmental receptors would result in a highly significant (beneficial or adverse) effect. Effects would be due to impacts which would be, e.g.: • widespread/large scale for a receptor of high value; • permanent for a receptor or receptors of high value; • localised for a receptor or receptors of very high value; or • temporary for a receptor or receptors of very high value.
Moderate (adverse or beneficial)	Where the combined effects of the Proposed Development upon an individual or collection of environmental receptors would result in a significant (beneficial or adverse) effect. Effects would be due to impacts which would be, e.g.: • permanent for a receptor or receptors of medium value; • localised for a receptor or receptors of high value; or • temporary for a receptor or receptors of high value.
Minor (adverse or beneficial)	Where the combined effects of the Proposed Development upon an individual or collection of environmental receptors would result in a beneficial or adverse effect. Effects would be due to impacts which would be e.g.: • permanent for receptors of low value; • localised for a receptor or receptors of medium value; or • temporary for a receptor or receptors of medium value.

Effect Classification	Typical Description of Effect
Neutral/ Negligible (adverse or	Where the combined effects of the Proposed Development upon an individual or collection of environmental receptors would result in a negligible and not significant (beneficial or adverse) effect.

22.3.50 The significance of combined effects upon environmental receptors and resources has been determined using professional judgement, assisted by the views and opinions of the competent experts responsible for undertaking the topic assessments.

Cumulative effects

- 22.3.51 In determining the possible significance of cumulative effects, the location and timing of the identified other developments and their associated impacts/effects have been taken into account wherever possible.
- 22.3.52 Where information regarding construction and operational timescales was available, it is included in **Appendix 22A: Longlist of Developments (ES Volume III, Application Document Ref. 6.3)**. Where timescale information was not available, as a worst-case scenario, the assessments were conducted under the assumption that the construction and operational phases would overlap, though this is unlikely to be the case for all in reality.
- 22.3.53 The cumulative effects assessment only considers those receptors that would experience a minor or greater residual effect associated with the Proposed Development. For receptors where the Proposed Development's residual effects are assessed to be neutral/negligible, it is considered that such receptors could not experience cumulative effects, following good industry practice and professional judgement. For the purposes of the assessment of cumulative effects during construction, a worst-case year of construction has been defined by the expected peak construction year for the Proposed Development, which would be 2030.
- 22.3.54 For some topics the significance criteria may vary slightly to those given in Table 22.3 above. Full details of significance criteria are provided within the individual topic chapters.
- 22.3.55 The assessment of cumulative effects during operation considers the total effects of the Proposed Development and the other identified developments operating concurrently.
- 22.3.56 As the Proposed Development has an estimated minimum design life of 30 years, cumulative effects during decommissioning are not considered as it is not possible to predict the developments which would be in progress at that point in time.

- 22.3.57 The significance of cumulative effects has been determined using the significance criteria and methodologies adopted within the relevant topic assessments, together with professional judgement regarding the spatial and temporal interaction of effects arising from the Proposed Development and other identified developments. Where cumulative interactions are identified, effects are reported using the significance descriptors of negligible, minor, moderate and major. Consistent with the approach adopted for combined effects, the classification of cumulative effects reflects the overall significance of the effect on the receptor, taking account of the sensitivity/value of the receptor and the nature, extent and duration of the cumulative effect.
- 22.3.58 For reporting purposes, cumulative effects are assigned one of four outcomes:
- N/A – where no cumulative interaction pathway has been identified;
 - No residual cumulative effects – where potential cumulative effects are eliminated through mitigation;
 - No significant cumulative effects – where residual cumulative effects may remain but are not considered significant in EIA terms; and
 - Significant cumulative effects – where the cumulative effect is assessed as moderate or major.
- 22.3.59 Combined and cumulative effects that are moderate or major are considered significant effects in relation to the EIA Regulations.

22.4 Consultation

- 22.4.1 The list of other developments was also informed by comments received during consultation on the EIA Scoping Report and on the PEIR, which are summarised in Table 22.4. Where further developments were identified through the consultation process, these were included within this assessment.
- 22.4.2 Table 22.4, below, provides a summary of the consultation responses received regarding cumulative and combined effects, and how these have been addressed by the Applicant.

Table 22.4 Consultation Summary (Response to Scoping Report and PEIR)

Consultee	Summary	Addressed
Anglian Water (water supplier in Hartlepool)	Anglian Water's own programme of relevant projects for AMP8 (2025-30) should be considered within the list of cumulative projects to be assessed in the EIA within a Zone of Influence distance of 10 kilometres as set out within Chapter 22: Cumulative Effects.	This project has been identified for inclusion within the long list. However, as the project is currently under tender, no planning application documents or environmental reports are available. Therefore, this has not been taken forwards to Stages 3 or 4 for further assessment
Environment Agency (EA)	Paragraph 1.4.4 of the PEIR states that the assessment of Intra-project Effects will be based on the information and Study Areas within the Technical Chapters (Chapter 8: Air Quality (PEIR Volume 1) to Chapter 21: Geology and Soils (PEIR Volume 1)).' It is not clear if this means other topics have been scoped out of this part of the assessment. All topic chapters should be scoped in to the assessment of Intra-Project Effects unless and until information and justification to explain their removal is provided and subsequently agreed.	As described in Section 22.3 and 22.5, some of the technical assessments have already considered effects that result from the combination or interaction of different types of impacts on individual receptors (namely air quality, water environment, terrestrial ecology, freshwater and marine ecology, and geology and soils). Any effects arising from the interaction of impacts on individual receptors which have already been assessed within the technical assessments are not repeated in this chapter.
Natural England	The air quality assessments provided so far are for the project alone. The ES will need to include a cumulative/in-combination assessment for the construction and operational phases of the project.	Both cumulative and combined effects assessment have been completed for air quality within this chapter.
Natural England	Potential for interactions and cumulative effects with a number of projects that involve significant dredging activity within the River Tees, as well as quay works, have been scoped out for cumulative impacts.	A number of projects which include dredging activities have been identified within the long list and considered for inclusion within the final shortlist depending on spatial/temporal overlap and availability of information

Consultee	Summary	Addressed
	These projects should either be scoped in for cumulative / in-combination effects or specific rationale should be provided as to why there is no potential for cumulative / in-combination effects.	(Appendix 22A: Longlist of Other Developments (ES Volume III, Application Document Ref. 6.3))).
Natural England	It is not clear how these projects have been screened (in or out) for potential cumulative effects with Lighthouse Green Fuels. In addition, there are a number of developments include that we would expect to form part of the cumulative assessment due to their proximity to the Teesmouth and Cleveland SSSI/SPA/Ramsar and potential to be undertaken concurrently. Natural England recommends that a comment is added to each to clarify how the decision has been made and what impacts have been considered, if any.	Further clarification has been provided on how projects have been screened for inclusion within Table 22.5 and Appendix 22A: Longlist of Other Development (ES Volume III, Application Document Ref. 6.3) .
Net Zero North Sea Storage / Net Zero Teesside Power Limited	It is therefore crucial that the Order limits for NZT, and the NZT Project itself, are taken into account by LGF Projects Limited in undertaking its EIA of the LGF Project, and that the LGF Project does not impact on the delivery of NZT given its importance within the ECC. NZNSS is concerned that the proposed project may have a safety impact on NZT, given these concerns, NZNSS would like to understand the safety aspects of the proposed development and the effect that the development may have on NZT.	The Net Zero Teesside (NZT) Project has been included in the final shortlist of developments for consideration within the cumulative effects assessment.

22.5 Cumulative Effects Assessment

- 22.5.1 This section presents the results from the detailed cumulative effects assessment conducted for the developments scoped into the assessment. These developments are shown on **ES Volume II Figure 22.1: Shortlist of Developments Considered for Cumulative Impact Assessment (Application Document Ref. 6.2)** and set out below in Table 22.5. 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.
- 22.5.2 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.

Table 22.5 Refined short list of projects assessed at Stage 4 of cumulative effects assessment

ID	Application reference	Applicant and brief description of development	Approx. distance to Site boundary (km)	Development location in relation to the Site boundary	Status at time of assessment	Tier	Development timescale/
NSIP1	EN010103	Net Zero Teesside Development A full chain carbon capture, utilisation and storage ('CCUS') project, comprising a carbon dioxide (CO ₂) gathering network, including CO ₂ pipeline connections from industrial facilities on Teesside to transport the captured CO ₂ (including the connections under the tidal River Tees); a combined cycle gas turbine ('CCGT') electricity generating station with an abated capacity up to circa 860 MW of low carbon electricity, cooling water, gas and electricity grid connections and CO ₂ capture; a CO ₂ gathering/booster station to receive the captured CO ₂ from the gathering network and CCGT generating station; and the onshore section of a CO ₂ transport pipeline for the onward transport of the captured CO ₂ to a suitable offshore geological storage site in the North Sea.	0	CO ₂ Gathering Network pipeline runs through and along southern boundary of the Main Site. NZT also overlaps with the Site boundary in South Tees including along Dabholm Gut.	Consent granted 16/02/2024 Non-material amendment order 2025 made 28/10/2025 Non-material amendment 2026 order made 29/07/2026	1	Construction commenced and ongoing until 2028
NSIP3 (see also RCBC41)	TR030002	The Woodsmith Project (including York Potash Ltd and subsequent modifications) The wider Woodsmith Project comprises a polyhalite mine, minerals transport system and associated export infrastructure. Relevant consented elements include the installation of wharf/jetty facilities with two ship loaders capable of loading bulk dry material, associated dredging works, storage buildings and conveyor infrastructure. Additional modifications include the overland conveyor and port handling facility connecting Wilton International to Redcar Bulk Terminal, which provides an interim export route until the consented harbour facilities are constructed and operational.	0	Intersects Site boundary.	Consent granted 20/07/2016	1	Construction not yet started but expected to commence during construction of the Proposed Development.
NSIP8	EN0710005	H2NorthEast A carbon capture and storage enabled blue hydrogen production facility of up to 1,065 MW thermal capacity. Comprises a Hydrogen Production Facility, CO ₂ capture and compression facilities and export connection, hydrogen distribution trunk pipelines, air separation unit or oxygen supply pipeline, electricity grid connection, water supply and treatment, wastewater treatment and disposal, wastewater and effluent pipelines, and other associated infrastructure.	0	Intersects Site boundary near Main Site.	Scoping submitted	2	Construction of Phase 1 to commence in 2027 and would last for approximately four years.
NSIP9	EN0710010	East Coast Hydrogen Teesside Pipeline The project will convey hydrogen from production and storage locations proposed by third-parties in the North East Region to a range of industrial consumers across Teesside and County Durham, including potential connections to other third party operated networks. The Project consists of the construction (including repurposing) and operation of an approximately 63km underground high and intermediate pressure hydrogen pipeline between Teesside and Newton Aycliffe.	0	Intersects Site boundary along Seal Sands Road and Linkline Corridor.	Scoping submitted	2	Construction to commence in Q1 2028 and complete in Q2 2030.
RCBC3	R/2025/0382/ESM	Foundry Data Centre Application for the approval of reserved matters including appearance, landscaping, layout, access and scale in respect	1	North of the pipeline connections within the Wider Site in South Tees	Approved with conditions 01/08/2025	1	Construction to comment in 2021 and ongoing until 2033

ID	Application reference	Applicant and brief description of development	Approx. distance to Site boundary (km)	Development location in relation to the Site boundary	Status at time of assessment	Tier	Development timescale/
		of a data centre on the Teesworks site located to the north-west of NZT (NSIP1) including data halls, office accommodation, substation and access arrangements, vehicle parking, infrastructure and associated works.					
RCBC4	R/2025/0712/FFM	Teesside Green Hydrogen Erection of an electrolytic hydrogen facility and associated access, parking, landscaping, water purification, gas purification and other associated works on the Wilton International Site.	2.5	South east of pipeline connections within the Wider Site	Approved with conditions 24/10/2025	1	Construction to begin no later than 2028.
RCBC12	R/2025/0607/RMM	Land at South Tees Development Corporation Application for Reserved Matters approval (appearance, landscaping, layout and scale) in respect of a storage/assembly facility in South Tees with ancillary buildings, parking and servicing pursuant to planning consent R/2020/0357/OOM	0.8	South of the Main Site and Wider Site in South Tees	Approved with conditions 05/11/2025	1	Construction commenced in 2021 and to continue for up to eight years.
RCBC14	R/2025/0616/SCP	Tees Green Hydrogen Phase 2 Application for construction of an up to 150MWe electrolytic hydrogen production facility, a hydrogen export pipeline, electricity and water connections, accesses, and ancillary development in the Wilton International Site.	1.2	South of pipeline connections within the Wider Site in South Tees	Scoping Opinion provided 31/10/2025	2	Construction to commence in 2027 and ongoing until 2029.
RCBC24	R/2025/0850/SCP	Project Speedbird Application for the installation and operation of a facility in the Wilton International Site for the production of sustainable aviation fuel in the form of Alcohol to Synthetic Paraffinic Kerosene. Pipeline transport of SAF from Wilton to Navigator Terminals Seal Sands in North Tees for storage and export. The project will include re-use of existing pipelines crossing the Tees which may require refurbishment, or replacement before re-use.	2.6 (Main Site) 0 (pipeline)	East of Main Site and intersects pipeline within Wider Site in South Tees	Scoping Opinion provided 18/02/2026	2	Construction commence and ongoing until 2029
RCBC40	R/2026/0419/SCP	Bran Sands Long Sea Outfall Relocation of the Bran Sands waste water treatment works outfall discharge from the Dabholm Gut to an offshore discharge point directly into the North Sea to achieve maximum appropriate dispersion of the treated discharge using a mix of overland and underground pipelines.	0	Proposed boundary intersects site boundary along eastern end of Dabholm Gut and access routes from A1085 and A1053 Tees Dock Road.	Scoping report submitted	2	Construction to commence in 2028 and ongoing until 2030.
RCBC41 (see also NSIP3)	R/2024/0098/ESM	The Woodsmith Project – Modification to NSIP 3 . Updated design for overland conveyor and port handling facility. Comprises conveyor route from Wilton International to Redcar Bulk Terminal which is to be used for product export until such time as the new harbour facilities consented as NSIP3 are constructed and operational.	0	Intersects site boundary	Planning permission granted 06/06/25	1	Construction not yet started but expected to commence during construction of the Proposed Development.
MMO10	MLA/2025/00141 & H/2025/0131	Greatham North East Flood Alleviation Scheme Application involves the repair of an existing flood embankment north of Greatham Creek and the realignment of the adjoining flood embankment, to create approximately 23 hectares of additional high value intertidal habitat.	1.9	North east of the Site	Awaiting decision	1	Currently commenced in 2025 for 28 months.

ID	Application reference	Applicant and brief description of development	Approx. distance to Site boundary (km)	Development location in relation to the Site boundary	Status at time of assessment	Tier	Development timescale/
HBC6	H/2014/0405	Land Between A689 and Brierton Lane South West Extension Full planning application for demolition of buildings, construction of 144 dwellings, construction of accesses to Stockton Road and Brierton Lane, roads, bridge with associated structures and associated earthworks, drainage features, public open space, landscaping, ecological works, electrical sub stations, vehicular circulation, pumping stations and infrastructure. Outline planning application for construction of up to 1,116 dwellings, public house/restaurant 500sqm, retail units 1,999 sqm, primary school, medical centre (300sqm), public open space, playing fields (including changing facilities), play spaces, drainage features, landscaping and ecological works, earthworks, electrical sub stations, pumping stations, car parking and vehicle and pedestrian circulation.	5	North west of the Site	Consented	1	Construction commenced and ongoing until 2030.

- 22.5.3 All of the developments identified in Table 22.5 above are considered to have the potential to generate cumulative effects when considered alongside the Proposed Development, by virtue of their nature, proximity to the Site and/or temporal scope (i.e. the planned timescales for construction and operation). They have therefore been progressed to Stage 4 of the cumulative effects assessment and have been assessed in relation to each environmental topic included in the ES (**ES Volume I, Application Document Ref. 6.1**). The locations of the shortlisted developments in relation to the Proposed Development are shown on **Figure 22.1: Shortlist of Developments Considered for Cumulative Impact Assessment (ES Volume II, Application Document Ref. 6.2)**.
- 22.5.4 The results of the cumulative effects assessment (Stage 4) are presented in the following sections.
- 22.5.5 The topics not included within the cumulative effects assessment (Section 22.5), as outlined above in Section 22.3 are:
- Materials and Waste;
 - Greenhouse Gases;
 - Climate Change Resilience;
 - Major Accidents and Disasters; and
 - Marine Navigation.

Air Quality

Table 22.6 Air quality cumulative assessment

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
NSIP1	Construction Dust Documents available as part of the DCO indicate that that impacts from construction dust can be considered not significant, which is the same for the Proposed Development. The NSIP1 site is not within 250m of the Proposed Development, which is the IAQM guidance buffer zone for reviewing potential impacts. As such, no cumulative construction dust impacts are expected to occur. Construction Traffic Documents available as part of the DCO indicate that that impacts from construction traffic can be considered negligible. The effects from construction traffic resulting from the Proposed Development are also predicted to be negligible. Furthermore, the traffic flows associated with NSIP1 are included as committed development traffic in the traffic data used in the assessment of the Proposed Development. The assessment is therefore inherently cumulative with regards to NSIP1 construction traffic. Much of the Proposed Development site is located on the other side of the River Tees, indicating much of the operational traffic would operate on a different local road network. No cumulative effects are anticipated as a result.	A Construction Environmental Management Plan (CEMP) will form part of the embedded mitigation. A Framework CEMP (fCEMP) has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)), and will take into account IAQM best practice guidance [Ref 6; Ref 7]. Emissions to atmosphere from the operational plant associated with the development will be controlled through Best Available Technique (BAT) in line with the Environmental Permit.	No significant cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Operational Plant An assessment was also undertaken as part of the DCO for operational plant emissions, which concluded that effects are not significant for human and ecological receptors. The potential operational plant effects from the Proposed Development are also not significant. Although the development boundaries of NSIP1 and the Proposed Development overlap, the operational aspects of each development (and therefore point source emissions) are a considerable distance apart, over 3.5km. The NSIP1 emission source is situated on the south of the River Tees, on the coast to the east of the Proposed Development. The predominant wind direction is south-westerly, therefore emissions from the NSIP1 site would be dispersed directly out to sea and away from sensitive receptors. It is considered that the distance between the two sites' emission sources is sufficient to allow the plumes to disperse fully without prior interacting. It is considered that no cumulative effects would result. Operational Traffic An assessment of operational traffic was screened out from the DCO NSIP1 assessment. Given that operational traffic is screened out, this indicates the potential impacts would be negligible. The assessment of operational traffic for the Proposed Development resulted in negligible impacts, which are considered to be not significant. The operational traffic flows for both schemes are expected to be low and much of the Proposed Development site is located on the other side of the River Tees, indicating much of the operational traffic would operate on a different local road network. Furthermore, the traffic flows		

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	associated with NSIP1 are included as committed development traffic in the traffic data used in the assessment of the Proposed Development. The assessment is therefore inherently cumulative with regards to NSIP1 operational traffic. No cumulative effects are anticipated as a result.		
NSIP3 (see also RCBC41)	Construction Dust There is potential for cumulative impacts from NSIP3 and the Proposed Development, however the Proposed Development will use high risk mitigation measures in line with the IAQM best practice guidance. There are no necessary measures beyond the high risk measures that need to be recommended. The IAQM guidance notes that with the implementation of these measures, the effects would be not significant. Construction Traffic The transport consultants for the Proposed Development have advised that the construction traffic network would not overlap with this site. As such, there would be no cumulative effects from construction traffic. Construction Shipping Construction shipping emissions from NSIP3 were discounted from the assessment due to distance. As such, it is considered unlikely that the emissions would interact with those of the Proposed Development. Furthermore, the emissions associated with the Proposed Development are extremely minimal, indicating that cumulative impacts are very unlikely to change the conclusions of the assessment.	A CEMP will form part of the embedded mitigation for the construction phase. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)), and will take into account IAQM best practice guidance [Ref 6; Ref 7].	No significant cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Operational Dust The NSIP3 scheme could result in fugitive dust emissions, however, the Proposed Development is not anticipated to create any fugitive dust emissions. As such, no cumulative effects are anticipated. Operational Traffic The transport consultants from the Proposed Development have advised that the operational traffic network would not overlap with this site. As such, there would be no cumulative effects from operational traffic. Operational Shipping There would be 191 operational shipping movements per year, which is less than 2 movements per day. It is considered that this low number of ships would not change the conclusions or results of the ES air quality assessment for the Proposed Development. No cumulative effects are anticipated.		
NSIP8	Construction Dust As the NSIP8 project is at scoping stage, there is insufficient information and data available relating to construction dust to review and which can be used to undertake a full cumulative assessment at this time. However, on the basis that industry standard and good industry practice mitigation measures will be implemented by both projects and both projects must comply with the Emissions Limit Value (ELV) requirements, no significant cumulative effects are anticipated. Given the locations of the two sites are in very close proximity, the NSIP8 site should review the potential construction dust impacts associated with their construction phase and that of the	A CEMP will form part of the embedded mitigation. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)), providing an overview of relevant air quality management measures, including proposals for good site practice to reduce dust, trackout and emissions from non-road mobile machinery (NRMM). The sites must be designed such that process emissions to air comply with the Emissions Limit Value (ELV) requirements specified in the Industrial Emissions Directive (IED), and the relevant BAT	No significant cumulative effect.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Proposed Development to ensure the mitigation measures they recommend are adequate. Construction Traffic As the NSIP8 project is at scoping stage, there is insufficient information and data available relating to construction traffic to review and which can be used to undertake a full cumulative assessment at this time. However, on the basis that industry standard and good industry practice mitigation measures will be implemented by both projects and both projects must comply with the ELV requirements, no significant cumulative effects are anticipated. The NSIP8 site should review the potential construction traffic impacts associated with their construction phase and that of the Proposed Development to ensure no cumulative effects occur. Operational Plant The operation of NSIP8 will include emissions from an auxiliary boiler and potentially flaring emissions (although these will be avoided where possible). No emissions from the carbon capture process are expected, as this is a closed system. As the NSIP8 project is at scoping stage, no assessment of operational plant has taken place yet, but the NSIP8 site should review potential for cumulative operational plant effects to ensure no cumulative effects occur. Operational Traffic As the NSIP8 project is at scoping stage, there is insufficient information and data available relating to operational traffic to review and which can be used to	Reference Documents (BREF). This will be regulated by the Environment Agency through the Environmental Permit.	

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	undertake a full cumulative assessment at this time. However, on the basis that industry standard and good industry practice mitigation measures will be implemented by both projects and both projects must comply with the ELV requirements, no significant cumulative effects are anticipated. The NSIP8 site should review the potential operational traffic impacts associated with their operation phase and that of the Proposed Development to ensure no cumulative effects occur.		
NSIP9	Construction Dust As the NSIP9 project is at scoping stage, there is insufficient information and data available relating to construction dust to review and which can be used to undertake a full cumulative assessment at this time. However, on the basis that industry standard and good industry practice mitigation measures will be implemented by both projects and both projects must comply with the ELV requirements, no significant cumulative effects are anticipated. no assessment of construction dust is provided to review against for this cumulative assessment. Given the locations of the two sites are in very close proximity, the NSIP9 site should review the potential construction dust impacts associated with their construction phase and that of the Proposed Development to ensure the mitigation measures they recommend are adequate. Construction Traffic As the NSIP9 project is at scoping stage, there is insufficient information and data available relating to	A CEMP will form part of the embedded mitigation for the construction phase. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)), and provides an overview of relevant air quality management measures, including proposals for good site practice to reduce dust, trackout and emissions from NRMM. The sites must be designed such that process emissions to air comply with ELV requirements specified in the IED, and the relevant BAT Reference Documents (BREF). This will be regulated by the Environment Agency through the Environmental Permit.	No significant cumulative effect.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	construction traffic to review and which can be used to undertake a full cumulative assessment at this time. However, on the basis that industry standard and good industry practice mitigation measures will be implemented by both projects and both projects must comply with the ELV requirements, no significant cumulative effects are anticipated. The NSIP9 site should review the potential construction traffic impacts associated with their construction phase and that of the Proposed Development to ensure no cumulative effects occur. Operational Plant The operation of NSIP9 could potentially include flaring emissions (although these will be avoided where possible). No emissions from the pipeline are expected, as this is a closed system. As the NSIP9 project is at scoping stage, no assessment of operational plant has taken place yet, but the NSIP9 site should review potential for cumulative operational plant effects to ensure no cumulative effects occur. Operational Traffic As the NSIP9 project is at scoping stage, there is insufficient information and data available relating to operational traffic to review and which can be used to undertake a full cumulative assessment at this time. However, on the basis that industry standard and good industry practice mitigation measures will be implemented by both projects and both projects must comply with the ELV requirements, no significant cumulative effects are anticipated.		

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	The NSIP9 site should review the potential operational traffic impacts associated with their operation phase and that of the Proposed Development to ensure no cumulative effects occur.		
RCBC3	The recent application for a data centre development (R/2025/0382/ESM) is for approval of reserved matters and does not contain a noise and vibration assessment to determine potential cumulative effects. The below concerns the original planning submission for the site (R/2020/0821/ESM), prior to determination of the use as a data centre site, as the latest application for the project does not contain sufficient detail regarding noise and vibration. Construction Dust Mitigation measures for high risk sites have been recommended for the RCBC3 site and are in line with the best practice IAQM guidance. High risk mitigation measures have also been recommended for the Proposed Development. The IAQM guidance does not recommend any further measures beyond those for high risk sites. The IAQM guidance notes that with the implementation of suitable mitigation measures, no significant effects are likely to occur. As such, no cumulative effects are expected to occur. Construction Traffic No construction traffic assessment was provided for either application. Construction traffic should be considered by the RCBC3 applicant once further data is available and should consider the Proposed Development.	No specific mitigation measures were outlined in the RCBC3 planning Application Documents, but it is assumed that industry standard best practice measures in conjunction with a CEMP will be implemented to control construction dust such as those outlined in the IAQM Construction Dust Guidance [Ref 6]. Emissions to atmosphere from the operational plant will be controlled through BAT in line with the Environmental Permit.	No significant cumulative effect.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Operational Plant Since the original planning submission for the site (R/2020/0821/ESM) was completed prior to determination of the use as a data centre site, no assessment of operational plant has been undertaken for RCBC3 and no cumulative assessment can be carried out. Operational Traffic As part of the reserved matters application, a Transport Impact Assessment (TIA) was completed and indicated that there would be reduced movements and minimal impact on the local highway network. On this basis, it is unlikely that there will be any cumulative operational traffic effects.		
RCBC4	Construction Dust No construction dust assessment was carried out for RCRB4 site given the lack of sensitive receptors. In any event, the site is more than 2km from the Proposed Development, which is more than the IAQM buffer zone of 250m. As such, no cumulative impacts would occur between the two sites for construction dust. Construction Traffic The construction traffic volumes associated with the RCBC4 site are very small, and given the site is over 2km from the Proposed Development, it is not considered that the two construction road networks would overlap. As a result, it is not expected that the conclusions of the ES Air Quality assessment would change. As such, no cumulative effects are expected in relation to construction traffic.	A condition of the planning permission for RCBC4 is for the development of a CEMP to control the emission of dust during the construction period. It is expected that industry standard best practice measures such as those outlined in the IAQM construction dust guidance [Ref 6] will be followed.	No significant cumulative effect.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Operational Plant For the RCBC4 site, none of the vented releases (oxygen, hydrogen and very small amounts of nitrogen) are harmful to human health nor the environment in the quantities emitted, no assessment of air quality impacts was provided. An emergency diesel generator is proposed, however this will be small in size (approximately 1 MWth) and will only be routinely operated for testing purposes (less than 50 hours per year). It is therefore considered that there would be no cumulative effects of the combustion emissions from the emergency diesel generator with the Proposed Development. Operational Traffic The operational traffic volumes associated with the RCBC4 site are very small, and given the site is over 2km from the Proposed Development, it is not considered that the two operational road networks would overlap. As a result, it is not expected that the conclusions of the ES Air Quality assessment would change. As such, no cumulative effects are expected in relation to operational traffic.		
RCBC12	Construction Dust As the RCBC12 site is located over 800m from the Proposed Development, no cumulative construction dust impacts are expected to occur, as this is beyond the IAQM buffer zone of 250m. Construction Traffic	It is assumed that RCBC12 will implement good industry practice measures in conjunction with a CEMP to control construction dust such as those outlined in the IAQM Construction Dust Guidance [Ref 6].	No significant cumulative effect.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	The outline planning assessment (R/2020/0357/OOM) did not contain information about construction (R/2025/0607/RMM) traffic emissions. The reserved matters application contains no further information about construction traffic emissions. Therefore, there is insufficient information and data available relating to construction traffic to review and which can be used to undertake a full cumulative assessment at this time. However, on the basis that standard and good industry practice mitigation measures will be implemented by both projects and both projects must comply with the ELV requirements, no significant cumulative effects are anticipated. Operational Plant The outline planning assessment did not contain information about operational plant emissions. The reserved matters application contains no further information about operational plant emissions. Operational Traffic The modelled road network for operational traffic from the RCBC12 site is south of the River Tees, whereas the operational road network for the Proposed Development is north of the River Tees. As such, there is no overlap in the assessment areas and no cumulative effects would occur.		
RCBC14	Construction Dust As the RCBC14 site is located over 1.2km from the Proposed Development, no cumulative construction dust impacts are expected to occur, as this is beyond the IAQM	It is assumed that industry standard best practice measures in conjunction with a CEMP will be implemented to control construction dust such as those outlined in the IAQM Construction Dust Guidance [Ref 6].	No significant cumulative effect.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	buffer zone of 250m. No cumulative effects would occur as a result. Construction Traffic The assessment for the RCBC14 site notes that construction traffic is screened out. This indicates any potential impacts would be negligible and effects would be not significant. If the RCBC14 scheme and the Proposed Development were to overlap in terms of programme, it is therefore considered unlikely that the conclusions or results of the Proposed Development ES Air Quality assessment would change given the scale of vehicle movements and the distance between the two sites. Therefore, no cumulative effects are anticipated. Operational Plant Only a scoping report is available for information at this time, however given the nature of the RCBC14 site operations, it is not considered that cumulative operational plant effects would occur. Vented releases from such plants as RCBC14 are typically oxygen, hydrogen and nitrogen, which are not considered harmful to human health or the environment in the quantities likely to be vented. The only corresponding emissions would be combustion emissions from the testing on an emergency diesel generator, if one is included in the scheme, however this would likely be small in size and only operated routinely for testing purposes (less than 50 hours per year) and therefore given the infrequent emissions and distance from the Proposed Development, no cumulative effects are anticipated to occur.		

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Operational Traffic The assessment for the RCBC14 site notes that operational traffic is screened out. This indicates any potential impacts would be negligible and effects would be not significant. The operational traffic flows described in the RCBC14 report are very low and are considered very unlikely to change the conclusions or results from the ES Air Quality assessment for the Proposed Development.		
RCBC24	Construction Dust Given the distance between the RCB24 main site and the Proposed Development (2.6km) no construction dust cumulative effects are expected, given this is greater than the IAQM buffer zone of 250m Construction Traffic The construction traffic route is not provided in the RCBC24 documentation, however, it is considered that as the RCBC24 applicant is at scoping stage, the potential for cumulative impacts associated with the Proposed Development should be considered in their Environmental Statement to ensure no cumulative effects. Construction Shipping Only six construction shipping movements are anticipated for the RCBC24 site. It is considered that this low number of ships would not change the conclusions or results of the ES air quality assessment for the Proposed Development. No cumulative effects are anticipated. Operational Plant The RCBC24 scoping report notes that there is potential for effects from operational plant. It is therefore	It is assumed that industry good practice measures in conjunction with a CEMP will be implemented to control construction dust such as those outlined in the IAQM Construction Dust Guidance [Ref 6]. It is anticipated that the emissions to atmosphere associated with the operational plant will be controlled through BAT in line with the Environmental Permit.	No significant cumulative effect.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	recommended that the RCBC24 applicant consider the effects associated with the Proposed Development within their Environmental Statement. Operational Traffic The RCBC24 scoping report notes that there is potential for effects from operational traffic. It is therefore recommended that the RCBC24 applicant consider the effects associated with the Proposed Development within their Environmental Statement. Operational Shipping Only two two-way operational shipping movements for export of SAF per day are anticipated for the RCBC24 site. However these shipping movements of SAF would be the responsibility of Navigator Terminals under their existing permissions. No cumulative effects are therefore anticipated.		
RCBC40	Construction Dust As the Bran Sands long outfall project is at scoping stage, no assessment of construction dust is provided to review against for this cumulative assessment. Given the locations of the two sites are in very close proximity, the RCBC40 site should review the potential construction dust impacts associated with their construction phase and that of the Proposed Development to ensure the mitigation measures they recommend are adequate. Construction Traffic As the RCBC40 project is at scoping stage, no assessment of construction traffic has taken place yet, but construction traffic is scoped in. The RCBC40 site should review the potential construction traffic impacts associated	A CEMP will form part of the embedded mitigation for the construction phase. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)), and provides an overview of relevant air quality management measures, including proposals for good site practice to reduce dust, trackout and emissions from NRMM The sites will both be designed such that process emissions to air comply with the Emissions Limit Value (ELV) requirements specified in the Industrial Emissions Directive (IED), and the relevant BAT Reference Documents (BREF). This will be regulated	No significant cumulative effect.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	with their construction phase and that of the Proposed Development to ensure no cumulative effects occur. Operational Plant As RCBC40 is a wastewater pipeline, there would be no operational aerial emissions and therefore no cumulative effects with the Proposed Development. Operational Traffic As the RCBC40 project is at scoping stage, no assessment of operational traffic has taken place yet. Given the nature of the development, operational traffic should be very low. The RCBC40 application should review the potential cumulative operational traffic impacts and that of the Proposed Development to ensure no cumulative effects occur.	by the Environment Agency through the Environmental Permit.	
RCBC41 (see also NSIP3)	Construction Dust Construction dust is likely to be similar to NSIP3, as RCBC41 is an application for a modification to NSIP3, with a similar boundary in South Tees. The Proposed Development will use high risk mitigation measures in line with the IAQM best practice guidance. There are no necessary measures beyond the high risk measures that need to be recommended. The IAQM guidance notes that with the implementation of these measures, the effects would be not significant. Construction Traffic Construction traffic effects were concluded to be not significant from the RCBC41 site, as with the Proposed Development. The traffic from the RCBC41 site is not expected to interact with the construction network for the	It is assumed that industry standard best practice measures in conjunction with a CEMP will be implemented to control construction dust such as those outlined in the IAQM Construction Dust Guidance [Ref 6].	No significant cumulative effect.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Proposed Development. As such, no cumulative effects are expected to occur. Operational Plant No operational plant emissions are expected from the RCBC41 site so no cumulative effects would occur. Operational Traffic The operational traffic effects were concluded to be not significant from the RCBC41 site, as with the Proposed Development. The transport consultants on this project have advised that the traffic from the RCBC41 site are not expected to interact with the construction network for the Proposed Development. As such, no cumulative effects are expected to occur.		
MMO10	Construction Dust Given the distance between MMO10 site and the Proposed Development (1.9km), no construction dust cumulative effects are expected, given this is greater than the IAQM buffer zone of 250m Construction Traffic The construction phase and the construction traffic associated with the MMO10 site are expected to be small, and few sensitive receptors are located on the limited construction network for that site. As such, it is considered highly unlikely that construction traffic impacts from the MMO10 site and the Proposed Development would cause cumulative effects, or that the flows associated with the MMO10 site would change the conclusions of the Proposed Development ES Air Quality chapter.	A CEMP will form part of the embedded mitigation for the construction phase. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)), and provides an overview of relevant air quality management measures, including proposals for good site practice to reduce dust, trackout and emissions from NRMM	No significant cumulative effect.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Operational Plant No operational effects would occur as a result of the MMO10 site as it is a managed realignment flood wall scheme. As such, no cumulative operational plant effects would occur. Operational Traffic No operational effects would occur as a result of the MMO10 site as it is a managed realignment flood wall scheme. As such, no cumulative operational traffic effects would occur.		
HBC6	Construction Dust Given that the HBC6 site is over 5km from the Proposed Development, no cumulative effects would occur in terms of construction dust, as this is beyond the IAQM 250m buffer zone. Construction Traffic The HBC6 site air quality assessment includes the modelled road network, which does not overlap with that of the Proposed Development. As such, no cumulative effects would occur. Operational Plant Given the nature of the HBC6 site, no operational plant is expected to be present and no cumulative effects would occur. Operational Traffic The HBC6 site air quality assessment includes the modelled road network, which does not overlap with that	It is assumed that industry good practice measures in conjunction with a CEMP will be implemented to control construction dust such as those outlined in the IAQM Construction Dust Guidance [Ref 6].	No significant cumulative effect.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	of the Proposed Development. As such, no cumulative effects would occur.		

Noise and vibration

Table 22.7 Noise and vibration cumulative assessment

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
NSIP1	Construction Noise Documents available as part of the DCO indicate that the impacts from construction noise will be considered not significant, which is the same as the Proposed Development. Both NSIP1 and the proposed development will involve construction works in the Linkline corridor both north and south of the Tees. It will therefore be necessary for works in the corridor to be coordinated with NSIP1. Consequently, no construction noise cumulative effects are therefore expected. Construction Traffic Noise Documents available as part of the DCO indicate that the impacts from construction traffic noise can be considered negligible (not significant). The effects from construction traffic resulting from the Proposed Development are also predicted to be not significant. Furthermore, the traffic flows associated with NSIP1 are included as committed development traffic in the traffic data used in the assessment of the Proposed Development. The	A CEMP will form part of the embedded mitigation for the construction phase. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)), and will take into account best practice guidance, based on BS 5228-1:2009+A1:2014 [Ref 8]. Noise from operational plant associated with the development will be controlled through Best Available Technique (BAT) in line with the Environmental Permit.	No residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	assessment is therefore inherently cumulative with regards to NSIP1 construction traffic. The only construction traffic noise impacts identified in the Proposed Development are along the A1185 between Cowpen Woodland and Marsh House Avenue (minor adverse impact, not significant). This road link is not part of the NSIP1 traffic study area, indicating that no cumulative effects are anticipated as a result. Operational Noise An assessment was undertaken as part of the NSIP1 DCO for operational plant noise, which concluded that effects are minor adverse or less. The potential operational plant noise effects from the Proposed Development are assessed as not significant. Although the development boundaries of NSIP1 and the Proposed Development overlap, the operational aspects of each development (and therefore point sources) are a considerable distance apart, over 3 km. The NSIP1 operational noise source is situated on the south of the River Tees, on the coast to the east of the Proposed Development. It is considered that the distance between the two sites' operational noise sources is sufficient such that no cumulative effects would result. Operational Traffic Noise An assessment of operational traffic noise was scoped out from the DCO NSIP1 assessment. Given that operational traffic is scoped out, this indicates the potential impacts would be negligible. The assessment of operational traffic noise for the Proposed Development		

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	resulted in negligible impacts, which are considered to be not significant. The operational traffic flows for both schemes are expected to be low and the Proposed Development's main site is located on the opposite side of the River Tees from NSIP1, indicating that operational traffic would use on a different local road network. Furthermore, the traffic flows associated with NSIP1 are included as committed development traffic in the traffic data used in the assessment of the Proposed Development. The assessment is therefore inherently cumulative with regards to NSIP1 operational traffic. No cumulative effects are anticipated as a result.		
NSIP3 (see also RCBC41)	Construction Noise There is a potential moderate adverse significant impact at Dormanstown due to construction noise from NSIP3, which is also within the construction study area of the Proposed Development. As a result, there is potential for cumulative impacts from NSIP3 and the Proposed Development. However, the Proposed Development will use mitigation measures in line with best practice guidance. There are no necessary measures beyond the mitigation measures that need to be recommended. No cumulative effects are expected with these measures in place. Construction Traffic Noise The transport consultants from the Proposed Development have advised that the construction traffic network would not overlap with this site. As such, there would be no cumulative effects from construction traffic.	A CEMP will form part of the embedded mitigation for the construction phase. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)), and will take into account best practice guidance, based on BS 5228-1:2009+A1:2014 [Ref 8].	No residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Construction Marine Traffic Noise Construction marine traffic noise was considered possible from NSIP3 but was discounted from the assessment due to distance. As such, it is considered unlikely that the noise would interact with those of the Proposed Development. Furthermore, the construction marine noise associated with the Proposed Development is minimal, indicating that cumulative impacts are very unlikely to change the conclusions of the assessment (please refer to the assessment in Table 22.9). Operational Noise The NSIP3 scheme could result in operational noise impacts, however, no significant effects from operational stationary plant have been identified for the Proposed Development. As such, no cumulative effects are anticipated. Operational Traffic Noise The transport consultants from the Proposed Development have advised that the operational traffic network would not overlap with this site. As such, there would be no cumulative effects from operational traffic noise. Operational Marine Traffic Noise The annual number of anticipated marine transits during operation of the Proposed Development is 0.5% of the baseline traffic movements on the Tees. It is considered that this low number of ships would not change the conclusions or results of the ES operational marine traffic noise assessment for the Proposed Development. No cumulative effects are anticipated.		

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
NSIP8	Construction Noise As the NSIP8 project is at scoping stage, no assessment of construction noise is provided to review against for this cumulative assessment. Given the locations of the two sites are in very close proximity, the NSIP8 site should review the potential construction noise impacts associated with their construction phase and that of the Proposed Development to ensure the mitigation measures they recommend are adequate. Construction Traffic Noise As the NSIP8 project is at scoping stage, no assessment of construction traffic noise has taken place yet, but construction traffic noise is scoped in. The NSIP8 site should review the potential construction traffic noise impacts associated with their construction phase and that of the Proposed Development to ensure no cumulative effects occur. Operational Noise The NSIP8 scheme could result in noise impacts, however, no significant effects from operational noise have been identified for the Proposed Development. As such, no cumulative effects are anticipated. Operational Traffic Noise As the NSIP8 project is at scoping stage, no assessment of operational traffic noise has taken place yet, but operational traffic noise is scoped in. The NSIP8 site should review the potential operational traffic noise impacts associated with their operational phase and that of the Proposed Development to ensure no cumulative effects occur.	A CEMP will form part of the embedded mitigation for the construction phase. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)), providing an overview of relevant noise management measures in line with best practice guidance, based on BS 5228-1:2009+A1:2014 [Ref 8].	No residual cumulative effect.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
NSIP9	Construction Noise As the NSIP9 project is at scoping stage, no assessment of construction noise is provided to review against for this cumulative assessment. Given part of the NSIP9 site overlaps with the Proposed Development, the NSIP 9 project should review the potential construction noise impacts associated with their construction phase and that of the Proposed Development to ensure the mitigation measures they recommend are adequate. Construction Traffic Noise As the NSIP9 project is at scoping stage, no assessment of construction traffic noise has taken place yet, but construction traffic noise is scoped in and potential temporary adverse impacts have been identified. The NSIP9 site should review the potential construction traffic noise impacts associated with their construction phase and that of the Proposed Development to ensure no cumulative effects occur. Operational Noise As the NSIP9 project is at scoping stage, no assessment of operational noise has taken place yet, but operational noise is scoped in. As the NSIP9 scheme could result in operational noise impacts, the NSIP9 site should review the potential operational noise impacts associated with their operational phase and that of the Proposed Development to ensure no cumulative effects occur. Operational Traffic Noise As the NSIP9 project is at scoping stage, no assessment of operational traffic noise has taken place yet, but operational traffic noise is scoped in. While it is noted that	A CEMP will form part of the embedded mitigation for the construction phase. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)). The fCEMP providing an overview of relevant noise management measures in line with best practice guidance, based on BS 5228-1:2009+A1:2014 [Ref 8].	No residual cumulative effect.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	a significant increase in traffic flows during operation is unlikely, the NSIP9 site should review the potential operational traffic noise impacts associated with their operational phase and that of the Proposed Development to ensure no cumulative effects occur.		
RCBC3	The recent application for a data centre development (R/2025/0382/ESM) is for approval of reserved matters and does not contain a noise and vibration assessment to determine potential cumulative effects. The below concerns the original planning submission for the site (R/2020/0821/ESM), prior to determination of the use as a data centre site, as the latest application for the project does not contain sufficient detail regarding noise and vibration. Construction Noise No significant effects have been identified in the construction noise assessment for the original planning submission for RCBC3 (R/2020/0821/ESM), or in the Proposed Development. Therefore, it is unlikely that there will be any cumulative construction noise effects. Construction Traffic Noise A construction traffic noise assessment was not carried out in the original planning submission for RCBC3 (R/2020/0821/ESM). However, the Construction Traffic Management Plan for RCBC3 outlines how construction traffic noise will be mitigated to avoid significant effects, therefore it is unlikely that there will be any cumulative construction traffic noise effects.	No specific mitigation measures were outlined in the planning application documents for RCBC3, but it is assumed that good industry best practice measures in conjunction with a CEMP will be implemented to control construction noise in line with best practice guidance, based on BS 5228-1:2009+A1:2014 [Ref 8]. Operational noise will be controlled through BAT in line with the Environmental Permit.	No residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Operational Noise No significant effects have been identified in the operational noise assessment for the original planning submission for RCBC3 (R/2020/0821/ESM), or in the Proposed Development. Therefore, it is unlikely that there will be any cumulative operational noise effects. Operational Traffic Noise As part of the reserved matters application, a Transport Impact Assessment (TIA) was completed and indicated that there would be reduced movements and minimal impact on the local highway network. Also, no significant effects have been identified in the operational traffic noise assessment for the original planning submission for RCBC3 (R/2020/0821/ESM), or in the Proposed Development. Therefore, it is unlikely that there will be any cumulative operational traffic noise effects. On this basis, it is unlikely that there will be any cumulative operational traffic noise effects.		
RCBC4	Construction Noise No construction noise assessment was carried out for the RCBC4 site. However, the site is more than 2km from the Proposed Development, which is outside the construction noise study area. As such, no cumulative impacts would occur between the two sites for construction noise. Construction Traffic Noise The construction traffic volumes associated with the RCBC4 site are very small, and given the site is over 2km from the Proposed Development and located in South Tees, the two construction road networks will not significantly overlap. As a result, it is not expected that the	A condition of the planning permission for RCBC4 is for the development of a CEMP to control noise and vibration during the construction period. It is expected that industry good practice measures based on BS 5228-1:2009+A1:2014 [Ref 8] will be followed.	No residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	conclusions of the ES construction traffic noise assessment would change. As such, no cumulative effects are expected in relation to construction traffic noise. Operational Noise The operational noise impact assessment carried out for RCBC4 predicts that significant effects are unlikely. The RCBC4 site is also over 2km away from the operational plant of the Proposed Development, which is outside the operational noise study area. As such, no cumulative impacts would occur between the two sites for operational noise. Operational Traffic Noise The operational traffic volumes associated with the RCBC4 site are very small, and given the site is over 2km from the Proposed Development, it is not considered that the two operational road networks would overlap. As a result, it is not expected that the conclusions of the ES operational traffic noise assessment would change. As such, no cumulative effects are expected in relation to operational traffic noise.		
RCBC12	Construction Noise No construction noise assessment was carried out for the RCBC12 site. However, the site is more than 1km from the Proposed Development, which is outside the construction noise study area. As such, no cumulative impacts would occur between the two sites for construction noise.	It is assumed that good industry practice measures in conjunction with a CEMP will be implemented by RCBC12 to control construction noise such as those outlined in BS 5228-1:2009+A1:2014 [Ref 8].	No residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Construction Traffic Noise The outline planning assessment did not contain information about construction traffic noise. The reserved matters application contains no further information about construction traffic noise, and no cumulative assessment can be carried out. Operational Noise The outline planning assessment did not contain information about operational noise. The reserved matters application contains no further information about operational noise and no cumulative assessment can be carried out. Operational Traffic Noise The modelled road network for operational traffic from the RCBC12 site is south of the River Tees, whereas the operational road network for the Proposed Development is north of the River Tees. As such, there is no overlap in the assessment areas, and no cumulative effects would occur.		
RCBC14	Construction Noise No construction noise assessment was carried out for the RCBC14 site. However, the site is more than 1km from the Proposed Development, which is outside the construction noise study area. As such, no cumulative impacts would occur between the two sites for construction noise. Construction Traffic Noise The assessment for the RCBC14 site notes that construction traffic is screened out. This indicates any	It is assumed that good industry practice measures in conjunction with a CEMP will be implemented by RCBC14 to control construction noise such as those outlined in BS 5228-1:2009+A1:2014 [Ref 8].	No residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	potential impacts would be negligible and effects would be not significant. If the RCBC14 scheme and the Proposed Development were to overlap in terms of programme, it is considered unlikely that the conclusions or results of the Proposed Development ES construction traffic noise assessment would change given the scale of vehicle movements and the distance between the two sites. Therefore, no cumulative effects are anticipated. Operational Noise Only a scoping report is available for information at this time, which predicts that operational noise from RCBC14 is likely to have negligible to low impact. The RCBC14 site is also over 1km away from the operational plant of the Proposed Development, which is outside the operational noise study area. As such, no cumulative impacts would occur between the two sites for operational noise. Operational Traffic Noise The assessment for the RCBC14 site notes that operational traffic is screened out. This indicates any potential impacts would be negligible and effects would be not significant. The operational traffic flows described in the RCBC14 report are very low and are considered very unlikely to change the conclusions or results from the ES operational traffic noise assessment for the Proposed Development.		
RCBC24	The Scoping Report for RCBC24 indicates effects from construction noise and operational noise require assessment.	It is assumed that good industry practice measures in conjunction with a CEMP will be implemented by RCBC24 to control construction noise such as those outlined in BS 5228-1:2009+A1:2014 [Ref 8].	No residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Limited information is available for the development in the scoping report and it does not outline any specific mitigation measures. It is anticipated that these will be made available at the ES stage. The development is situated 2.5km away from the Proposed Development and it is unlikely that the Affected Road Networks (ARN) for the two projects would overlap. Construction Noise The RCBC24 scoping report notes that there is potential for effects from construction noise. It is therefore recommended that the RCBC24 applicant consider the effects associated with the Proposed Development within their Environmental Statement. Construction Traffic Noise The RCBC24 scoping report indicates that construction traffic noise is unlikely to be significant. If the RCBC14 scheme and the Proposed Development were to overlap in terms of programme, it is therefore considered unlikely that the conclusions or results of the Proposed Development ES construction traffic noise assessment would change given the scale of vehicle movements and the distance between the two sites. Therefore, no cumulative effects are anticipated. Operational Noise The RCBC24 scoping report notes that there is potential for effects from operational noise. It is therefore recommended that the RCBC24 applicant consider the effects associated with the Proposed Development within their Environmental Statement.	It is a requirement of the permit that the noise associated with the operational plant will be controlled through BAT in line with the Environmental Permit.	

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Operational Traffic Noise The RCBC24 main site is located in the south-east of the Wilton International site. It is therefore considered unlikely that the conclusions or results of the Proposed Development ES operational traffic noise assessment would change. Therefore, no cumulative effects are anticipated.		
RCBC40	The RCBC40 scoping report indicates that noise and vibration have been scoped out of the EIA, however a Noise Impact Assessment for construction and operational phases will be included. The RCBC40 scoping report indicates that construction and operational noise is considered to be “not significant” and scoped out. However, given the locations of the two sites overlap to the south of Bran Sands WWTW, the RCBC40 site should review the potential noise impacts associated with their construction and operation phase and that of the Proposed Development in the Noise Impact Assessment, to ensure the mitigation measures they recommend are adequate to remove any cumulative effects.	It is assumed that industry standard good practice measures in conjunction with a CEMP will be implemented for RCBC40 to control construction noise such as those outlined in BS 5228-1:2009+A1:2014 [Ref 8]. It is a requirement of the permit that the noise associated with the operational plant will be controlled through BAT in line with the Environmental Permit.	No residual cumulative effects.
RCBC41 (see also NSIP3)	Construction noise The locations of RCBC41 and the Proposed Development are in close proximity where the York Potash conveyor crosses Steel House Roundabout only. However, while the RCBC41 ES reports a minor adverse impact, the Proposed Development reports no significant effects. As such, no cumulative impacts would occur between the two sites for construction noise.	It is assumed that good industry practice measures in conjunction with a CEMP will be implemented by RCBC41 to control construction noise such as those outlined in BS 5228-1:2009+A1:2014 [Ref 8]. It is a requirement of the permit that the noise associated with the operational plant will be controlled through BAT in line with the Environmental Permit.	No residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Construction Traffic Noise The construction traffic noise assessment in the RCBC41 ES indicated that there would be minor adverse (not significant) impacts, while the Proposed Development also indicated a minor adverse (not significant impact). However, the minor adverse impacts from both sites were at different receptors. As such, no cumulative impacts would occur between the two sites for construction traffic noise. Operational Noise The locations of the two sites are in close proximity where the York Potash conveyor crosses Steelhouse Roundabout only. However, while the RCBC41 ES reports a minor adverse impact (with additional mitigation), the Proposed Development reports no significant effects. As such, no cumulative impacts would occur between the two sites for operational noise. Operational Traffic Noise Operational traffic road noise was scoped out of the RCBC41 ES, as anticipated additional flows were lower than the construction phase. The assessment focused on the construction phase road traffic noise impacts as a worst case. Therefore, as no cumulative impacts would occur between the two sites for construction traffic noise, no cumulative impacts are expected to occur for operational traffic noise.		

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
MMO10	Construction Noise Given the distance between MMO10 site and the Proposed Development (1.9km), no construction noise cumulative effects are expected, as the distance is greater than the construction noise study area of 300m. Construction Traffic Noise The construction traffic associated with the MMO10 site are expected to be small, and few sensitive receptors are located on the limited construction network for that site. As such, it is considered highly unlikely that construction traffic noise impacts from the MMO10 site and the Proposed Development would cause cumulative effects, or that the flows associated with the MMO10 site would change the conclusions of the Proposed Development Chapter 9: Noise and Vibration (ES Volume I, Application Document Ref. 6.1). Operational Noise No operational noise effects would occur as a result of the MMO10 site as it is a managed realignment flood wall scheme. As such, no cumulative operational noise effects would occur. Operational Traffic Noise No operational traffic noise effects would occur as a result of the MMO10 site as it is a managed realignment flood wall scheme. As such, no cumulative operational traffic noise effects would occur.	Construction noise mitigation measures have been developed in line with the best practice guidance from BS 5228-1:2009+A1:2014 [Ref 8].	No residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
HBC6	Construction Noise Given that the HBC6 site is over 5km from the Proposed Development, no cumulative effects would occur in terms of construction noise, as this is beyond the construction noise study area of 300m. Construction Traffic The HBC6 site traffic assessment includes the modelled road network, which does not overlap with that of the Proposed Development. As such, no cumulative effects would occur. Operational Noise Given the nature of the HBC6 site, no operational plant is expected to be present and no cumulative effects would occur. Operational Traffic The HBC6 site traffic assessment includes the modelled road network, which does not overlap with that of the Proposed Development. As such, no cumulative effects would occur.	It is assumed that industry standard best practice measures in conjunction with a CEMP will be implemented by HBC6 to control construction noise such as those outlined in BS 5228-1:2009+A1:2014 [Ref 8].	No residual cumulative effects.

Terrestrial ecology

Table 22.8 Terrestrial ecology cumulative assessment

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
NSIP1	Construction – Noise & Vibration Given that during the construction phase of NSIP1 trenchless technologies for pipeline installation (i.e. not involving trenching) will be used there are no pathways by which there would be the potential for impacts (including noise and vibration) to designated sites including Teesmouth and Cleveland Coast SSSI. Therefore, direct impacts during construction on these sites have been mitigated by design and no further mitigation is required. As such, no cumulative construction noise and vibration effects are considered likely. Table 22.7 Construction – Loss of Functionally Linked Land As NSIP1 operates within the Teesmouth and Cleveland Coast SSSI, there is potential for the permanent/temporary loss of habitat supporting qualifying features and Schedule 1 bird species associated with the SSSI. However this is considered to be minimal due to the use of existing pipeline corridors, an existing tunnel and, where necessary, trenchless technologies for pipeline installation. As such, no cumulative effects relating to Loss of Functionally Linked Land are considered likely. Construction – Habitat loss As a consequence of NSIP1 there is potential for permanent/temporary loss of habitats, including priority habitats. This includes permanent losses of semi-improved grassland habitat for the construction of the Power, Capture and Compressor site (the 'PCC site');	A CEMP will form part of the embedded mitigation for the construction phase. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)), and will take into account best practice guidance, based on BS 5228-1:2009+A1:2014 [Ref 8]. Noise from operational plant associated with the development will be controlled through Best Available Technique (BAT) in line with the Environmental Permit. Measures have been proposed within the NSIP1 Indicative Landscape and Biodiversity Strategy that has been submitted with the draft DCO for reinstatement and enhancement of habitats within and around the PCC site. Appropriate pre-construction surveys will be undertaken prior to works commencing to confirm that no protected species are present in working areas. A CEMP will form part of the embedded mitigation. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)), and will take into account IAQM best practice guidance [Ref 6; Ref 7].	No residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	temporary losses of additional areas of semi-improved grassland and scrub for temporary construction laydown and/or construction corridors; and disturbance of Open Mosaic Habitats (OMH) habitats for construction of the Natural Gas Connection. However habitat loss as a result of NSIP1 is considered to be minimised due to the use of existing pipeline corridors, an existing tunnel and, where necessary, trenchless technologies for pipeline installation. As such, no cumulative effects relating to Habitat Loss are considered likely. Construction – Habitat loss and fragmentation Habitat loss/fragmentation due to leading to a reduction in habitat available for terrestrial species. No significant effects are predicted on terrestrial species as a consequence of construction activities, based on the absence of protected species identified within and near to NSIP1. However this is considered to be minimal due to the use of trenchless technologies being used for the pipeline installation. As such, no cumulative effects relating to loss of habitat are considered likely. Operation – Air Pollution Air pollution from NSIP1 in-combination with the Proposed Development may cause degradation of habitats, including those within Teesmouth and Cleveland Coast SPA, Ramsar, SSSI and NNR. Based on the results of the operational air quality impact assessment consideration has been given to potential pathways for an air quality impact from operation of the PCC site on nature conservation designations. This is further considered	Emissions to atmosphere from the operational plant associated with the development will be controlled through Best Available Technique (BAT) in line with the Environmental Permit.	

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	within the Habitats Regulations Assessment Report submitted with the draft DCO. No significant effects on any ecological receptors are predicted and therefore no cumulative effects relating to this area considered likely. See Table 22.7 for further details.		
NSIP3 (see also RCBC41)	Construction – Noise & Vibration Noise and vibration above normal/acceptable levels in combination with the Proposed Development may cause the designated species for the Teesmouth and Cleveland Coast SPA, Ramsar and SSSI to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviours. The largest potential impact on bird life is anticipated from the noise of piling activities, however the ES completed for NSIP3 concludes that the residual impact would be of negligible significance. Cumulative effects relating to construction noise and vibration are therefore considered unlikely. Table 22.7 Construction – Loss of Functionally Linked Land As NSIP3 operates within the Teesmouth and Cleveland Coast SSSI, there is potential for the permanent/temporary loss of habitat supporting qualifying features and Schedule 1 bird species associated with the SSSI. However, due to the additional habitat being created as part of NSIP3 to mitigate for the loss of this habitat, cumulative impacts relating to loss of functionally linked land to the SSSI is considered unlikely. Construction – Habitat loss	A CEMP will form part of the embedded mitigation for the construction phase. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)), and will take into account best practice guidance, based on BS 5228-1:2009+A1:2014 [Ref 8]. The Bran Sands Lagoon habitat enhancement works proposed for NSIP3 would create shallow waters with intertidal fringes providing a feeding area up to 50% larger than that lost. The flow pipes would enable interchange of waters with the river thereby enabling colonisation by invertebrates and as the enhancement works would all be undertaken in Phase one, i.e. in advance of the full loss of riverside inter-tidal habitat, the residual impact after mitigation is assessed as moderate beneficial even without taking account of the Portrack Marsh enhancement works secured under the Development Consent Order for NSIP3. Bran Sands Lagoon habitat enhancement works for NSIP3 involve the creation of artificial islands that would provide roosting habitats. In addition, if	No residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	As a consequence of NSIP3 there is potential for permanent/temporary loss of habitats, including priority habitats. During operation, there would be direct loss of intertidal habitat due to reclamation with the solid quay option or construction of a revetment over the re-graded intertidal habitat with the open quay option. In addition, very small areas of Dabholm Gut or Bran Sands Lagoon would be taken for Conveyor supports depending on which conveyor corridor is selected. While the extent of intertidal area that would be lost is of poor quality, as such habitat is scarce along the River Tees because of past industrialisation, the loss is regarded as proportionately more significant. However due to the additional habitat being created to mitigate for the loss of this habitat, cumulative impacts relating to loss of habitat is considered unlikely. Construction – Habitat loss and fragmentation Habitat loss/fragmentation due to leading to a reduction in habitat available for terrestrial species. NSIP3 could result in the displacement of small fish that are prey for some waterbirds and is stated in the ES to be temporary and localised. Roosting sites on the Northumbrian Water Limited (NWL) jetty, particularly for cormorants, would be lost in order to implement phase 2. Considering mitigation and the details of the site, the ES assesses that there would be impact of negligible significance on terrestrial ecology whether during construction, operation or decommissioning. Therefore, given the additional mitigation being created, cumulative impacts relating to the loss of habitat is considered unlikely.	the open quay construction is adopted, nesting platforms would be provided beneath the quay deck. Further mitigation measures proposed for NSIP3 include undertaking any ground clearance outside ground bird nesting seasons, precautionary working methods and keeping construction lighting away from bridges in addition to the Bran Sands lagoon habitat enhancement works. The constructional mitigation measures are set out in the Outline Ecological Management Plan. A CEMP will form part of the embedded mitigation for the construction phase. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)), and will take into account IAQM best practice guidance [Ref 6; Ref 7].	

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Operation – Air Pollution Air pollution from NSIP3 in-combination with the Proposed Development may cause degradation of habitats, including those within Teesmouth and Cleveland Coast SPA, Ramsar, SSSI and NNR. However, both projects conclude no significant effects on any ecological receptors are predicted as a result of air pollution in operation and therefore no cumulative effects relating to this area considered likely.		
NSIP8	As the NSIP8 project is at scoping stage, there is insufficient information and data available to undertake a detailed assessment but it is reasonable to assume that industry standard and good industry practice mitigation measures will be implemented by both projects. Construction – Noise & Vibration Noise and vibration above normal/acceptable levels in-combination with the Proposed Development may cause the designated species (including breeding birds, wintering birds and otter) for the Teesmouth and Cleveland Coast SPA, Ramsar and SSSI to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviours. Construction – Loss of Functionally Linked Land As NSIP8 operates within the Teesmouth and Cleveland Coast SSSI, there is potential for the permanent/temporary loss of habitat supporting qualifying	A CEMP will form part of the embedded mitigation for the construction phase for NSIP8. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)), providing an overview of relevant noise management measures in line with best practice guidance, based on BS 5228-1:2009+A1:2014 [Ref 8]. The EIA Scoping Report for NSIP8, states that a CEMP will form part of the embedded mitigation. A fCEMP will be prepared as part of the Application, providing an overview of relevant air quality management measures, including proposals for good site practice to reduce dust, trackout and emissions from non-road mobile machinery (NRMM).	Significant residual cumulative effects considered unlikely once project-specific CEMPs/additional mitigation, together with regulatory controls, are in place for NSIP8 but insufficient information at the time of writing to confirm.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	features and Schedule 1 bird species associated with the SSSI. Construction – Habitat loss As a consequence of NSIP8 there is potential for permanent/temporary loss of habitats, including priority habitats. Construction – Habitat loss and fragmentation Habitat loss/fragmentation due to leading to a reduction in habitat available for terrestrial species, including amphibians, breeding birds and terrestrial invertebrates. Operation – Air Pollution Air pollution from NSIP8 in-combination with the Proposed Development may cause degradation of habitats, including those within Teesmouth and Cleveland Coast SPA, Ramsar, SSSI and NNR.	It is likely that impacts on habitats and species will be mitigated through legal compliance, habitat creation, management, monitoring and the implementation of best practice measures, it is considered that there is additional survey and assessment work required to understand NSIP8's baseline ecology, to develop the bespoke mitigation plans proposed, and to then confirm the residual effects and their likely significance. The sites must be designed such that process emissions to air comply with the Emissions Limit Value (ELV) requirements specified in the Industrial Emissions Directive (IED), and the relevant BAT Reference Documents (BREF). This will be regulated by the Environment Agency through the Environmental Permit.	
NSIP9	As the NSIP9 project is at scoping stage, there is insufficient information and data available to undertake a detailed assessment but it is reasonable to assume that industry standard and good industry practice mitigation measures will be implemented by both projects.	A CEMP will form part of the embedded mitigation for the construction phase. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)). The fCEMP providing an overview of relevant noise management measures in line with best practice	Significant residual cumulative effects considered unlikely once project-specific CEMPs/additional mitigation, together with

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Construction – Noise & Vibration Noise and vibration above normal/acceptable levels in combination with the Proposed Development may cause the designated species (including breeding birds, wintering birds and otter) for the Teesmouth and Cleveland Coast SPA, Ramsar and SSSI to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviours. See Table 22.7 for further details. Construction – Loss of Functionally Linked Land As NSIP9 will operate within the Teesmouth and Cleveland Coast SSSI, there is potential for the permanent/temporary loss of habitat supporting qualifying features and Schedule 1 bird species associated with the SSSI. Construction – Habitat loss As a consequence of NSIP9 there is potential for permanent/temporary loss of habitats, including priority habitats. Construction – Habitat loss and fragmentation Habitat loss/fragmentation due to leading to a reduction in habitat available for terrestrial species, including amphibians, breeding birds and terrestrial invertebrates.	guidance, based on BS 5228-1:2009+A1:2014 [Ref 8]. In the EIA Scoping Report for NSIP9, it states the project will be designed to embed, as far as reasonably practicable, the ecological separation zones. Once Preliminary Ecological Appraisal (PEA) surveys, and any additional species specific surveys, have been completed and the likely pipeline routeing is known, a suite of environmental and ecological management plans, including CEMPs will be prepared for each phase of NSIP9. In the EIA Scoping Report for NSIP9, it states a CEMP will form part of the embedded mitigation. A fCEMP will be prepared as part of the Application, providing an overview of relevant air quality management measures, including proposals for good site practice to reduce dust, trackout and emissions from non-road mobile machinery (NRMM). The sites must be designed such that process emissions to air comply with ELV requirements specified in the IED, and the relevant BAT Reference Documents (BREF). This will be regulated by the Environment Agency through the Environmental Permit.	regulatory controls, are in place for NSIP9 but insufficient information at the time of writing to confirm.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Operation – Air Pollution Air pollution from NSIP9 in-combination with the Proposed Development may cause degradation of habitats, including those within Teesmouth and Cleveland Coast SPA, Ramsar, SSSI and NNR. See Table 22.7 for further details.		
RCBC3	There is no information provided for RCBC3 with regards to terrestrial ecology and the following effects are assumed. Construction – Noise & Vibration Noise and vibration above normal/acceptable levels in-combination with the Proposed Development may cause the designated species for the Teesmouth and Cleveland Coast SPA, Ramsar and SSSI to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviours. See Table 22.7 for further details. Construction – Loss of Functionally Linked Land As RCBC3 operates within the vicinity of Teesmouth and Cleveland Coast SSSI, there is potential for the permanent/temporary loss of habitat supporting qualifying features and Schedule 1 bird species associated with the SSSI. Construction – Habitat loss As a consequence of RCBC3 there is potential for permanent/temporary loss of habitats.	No specific mitigation measures were outlined in the Planning Application Documents for RCBC3, but it is assumed that industry good practice measures in conjunction with a CEMP will be implemented to control construction noise in line with best practice guidance, based on BS 5228-1:2009+A1:2014. Operational noise will be controlled through BAT in line with the Environmental Permit. No specific mitigation measures were outlined in the Planning Application Documents for RCBC3, but it is assumed that industry good practice measures in conjunction with a CEMP will be implemented to control construction dust such as those outlined in the IAQM Construction Dust Guidance. Emissions to atmosphere from the operational plant will be controlled through BAT in line with the Environmental Permit.	Significant residual cumulative effects considered unlikely once project-specific CEMPs/additional mitigation, together with regulatory controls, are in place for RCBC3 but insufficient information at the time of writing to confirm.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Construction – Habitat loss and fragmentation There is the potential for habitat loss/fragmentation due to leading to a reduction in habitat available for terrestrial species. Operation – Air Pollution Air pollution from RCBC3 in-combination with the Proposed Development may cause degradation of habitats, including those within Teesmouth and Cleveland Coast SPA, Ramsar, SSSI and NNR. See Table 22.7 for further details.		
RCBC4	Construction – Noise & Vibration Noise and vibration above normal/acceptable levels in-combination with the Proposed Development may cause the designated species (including bird species) for the Teesmouth and Cleveland Coast SPA, Ramsar and SSSI to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviours. Based on the noise impact assessment report completed it can be concluded that with the expected noise impact to be low and the distance to the designated area being just over 3km away there will be negligible impact of noise and visual disturbance to SPA bird species during construction and operation. See Table 22.7 for further details. Cumulative impacts as a result are considered unlikely. Construction – Loss of Functionally Linked Land RCBC4 is located approximately 3.1km south of Teesmouth and Cleveland Coast SSSI. As a	A condition of the planning permission for RCBC4 is for the development of a CEMP to control noise and vibration during the construction period. It is expected that industry goodpractice measures based on BS 5228-1:2009+A1:2014 will be followed. Mitigation suggested in the CEMP, as a part of the RCBC4 submission, includes general environmental control measures, a recommendation for breeding bird surveys if vegetation clearance in the mixed scrub areas takes place in the nesting season, phased vegetation clearance, the provision of a means of escape from open excavations and good site housekeeping practices including covering of open pipework. A condition of the planning permission for RCBC4 is for the development of a CEMP to control the emission of dust during the construction period. It	No residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	predominantly greenfield site here is potential for the permanent/temporary loss of Functionally Linked Land habitat supporting qualifying features and Schedule 1 bird species associated with the SSSI. However, due to the distance and lack of suitability of the habitat for qualifying features the effect of loss of Functionally Linked Land is negligible. Cumulative impacts as a result are considered unlikely. Construction – Habitat loss As a consequence of RCBC4 there is potential for permanent/temporary loss of habitats. However given the mitigation for the loss of habitats, cumulative impacts are considered unlikely. Construction – Habitat loss and fragmentation Habitat loss/fragmentation resulting in a reduction in habitat available and connectivity to wider habitats for terrestrial species, including bird species. The land within RCBC4 comprises unmanaged grassland (modified grassland and a smaller area of neutral grassland). There is also some mixed scrub present towards the western boundary and along the northern and eastern site boundary. There is no habitat suitable for SPA qualifying birds so there will be no supporting habitat for SPA birds lost as a result of the proposal with no adverse effect on SPA integrity. Cumulative impacts as a result are considered unlikely.	is expected that industry good practice measures such as those outlined in the IAQM construction dust guidance [Ref 6] will be followed.	

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Operation – Air Pollution Air pollution from RCBC4 in-combination with the Proposed Development may cause degradation of habitats, including those within Teesmouth and Cleveland Coast SPA, Ramsar, SSSI and NNR. See Table 22.7 for further details. Given the mitigation to avoid impacts relating to air pollution, cumulative impacts are considered unlikely.		
RCBC12	The more recent reserved matters application for use of the site as a data centre development (R/2025/0382/ESM) does not contain an Ecological Impact Assessment (EclA) to determine potential cumulative effects. The below concerns the original planning submission for the site (R/2020/0821/ESM), prior to determination of the use as a data centre site. Construction – Loss of Functionally Linked Land As RCBC12 is located within the vicinity of Teesmouth and Cleveland Coast SSSI there is potential for the permanent/temporary loss of habitat supporting qualifying features and Schedule 1 bird species associated with the SSSI. However given the mitigation proposed to offset the loss of Functionally Linked Land, cumulative impacts as a result are considered unlikely. Construction – Habitat loss As a result of RCBC12, there will be the loss of 2.40ha OMH (priority habitats) present within the site, 1.04ha of which is of County importance. However given the mitigation proposed to offset the loss of OMH, cumulative impacts as a result are considered unlikely.	Loss of OMH as a result of RCBC12 will be compensated through measures detailed in the South Tees Development Corporation's Biodiversity and Enhancement Strategy .	No residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
RCBC14	Information provided for RCBC14 is limited as the project is at scoping stage, however the PEA and EIA Scoping report indicate that impacts will be limited. Construction – Loss of Functionally Linked Land RCBC14 is located approximately 1.7km south-east of Teesmouth and Cleveland Coast SSSI. There is potential for the permanent/temporary loss of Functionally Linked Land habitat supporting qualifying features and Schedule 1 bird species associated with the SSSI. However, due to the distance and lack of suitability of the habitat for qualifying features the effect of loss of Functionally Linked Land is negligible and cumulative impacts as a result are considered unlikely.	Mitigation suggested in the PEA as a part of the RCBC14 submission includes avoiding site clearance works during the nesting bird season or brown hare breeding season unless an ECoW is in place, a CEMP to be put in place and external lighting to be designed in line with BCT guidance.	No residual cumulative effects.
RCBC24	As the RCBC24 project is at scoping stage, there is insufficient information and data available to undertake a detailed assessment but it is reasonable to assume that industry standard and good industry practice mitigation measures will be implemented by both projects. Construction – Noise & Vibration There is the potential for disturbance as a result of construction activity including noise and vibration. Construction – Loss of Functionally Linked Land RCBC24 operates within the Teesmouth and Cleveland Coast SSSI, however there is no loss of habitat supporting	It is assumed that industry good practice measures in conjunction with a CEMP will be implemented by RCBC24 to control construction noise such as those outlined in BS 5228-1:2009+A1:2014 [Ref 8]. It is anticipated that the noise associated with the operational plant will be controlled through BAT in line with the Environmental Permit. No mitigation has been suggested in the EIA Scoping report as a part of the RCBC24 submission. The EcIA/HRA for RCBC24 will assess in-combination effects.	Significant residual cumulative effects considered unlikely once project-specific CEMPs/additional mitigation, together with regulatory controls, are in place for RCBC24 but insufficient information at the

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	qualifying features and Schedule 1 bird species associated with the SSSI as works are within existing pipeline corridors/tunnels. Information provided for RCBC24 is limited as the project is at scoping stage, however the EIA Scoping report indicates that potential in-combination impacts will be limited to the following: Construction – Habitat loss Loss of habitat within the SSSI is not anticipated given that all works are occurring within the existing pipeline corridors/tunnels. Construction – Habitat loss and fragmentation There is the potential for loss of bird nesting sites and foraging areas. Operation – Air Pollution There is the potential for impacts on designated sites via air quality. See Table 22.6 for further information.	It is assumed that industry good practice measures in conjunction with a CEMP will be implemented by RCBC24 to control construction dust such as those outlined in the IAQM Construction Dust Guidance [Ref 6]. It is anticipated that the emissions to atmosphere associated with the operational plant will be controlled through BAT in line with the Environmental Permit.	time of writing to confirm.
RCBC40	Construction – Noise & Vibration Disturbance of protected species and qualifying species of designated sites. With mitigation measures to avoid potential adverse impacts in relation to noise and vibration during construction, cumulative impacts are considered unlikely.	It is assumed that industry good practice measures in conjunction with a CEMP will be implemented by RCBC40 to control construction noise such as those outlined in BS 5228-1:2009+A1:2014 [Ref 8]. It is anticipated that the noise associated with the operational plant will be controlled through BAT in line with the Environmental Permit.	No residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Construction – Loss of Functionally Linked Land As RCBC40 operates within the Teesmouth and Cleveland Coast SSSI. However given that trenchless technologies will be used temporary and permanent loss of habitat within the SSSI is understood to be minimal. Information provided for RCBC40 is limited as the project is at scoping stage, however the EIA Scoping report indicates that potential impacts will be the following: Construction – Habitat loss Loss of habitats and loss of qualifying habitats of designated sites is understood to have been minimised through the use of trenchless technologies to avoid habitat loss Therefore cumulative impacts as a result are considered unlikely. Construction – Habitat loss and fragmentation Loss of habitat for protected species and qualifying species of designated sites is understood to have been minimised through the use of trenchless technologies to avoid habitat loss. Therefore cumulative impacts as a result are considered unlikely.	General mitigation as part of the RCBC40 submission has been suggested as follows: • No works in adverse weather • Use of trenchless construction techniques • Implementation of a CEMP • Minimal vehicle movement on beach and dune system • Lighting during the hours of darkness will be directional and not light further than the working area	
RCBC41 (see also NSIP3)	Construction – Noise & Vibration There is the potential for noise disturbance to qualifying bird species of designated sites. The locations of RCBC41 and the Proposed Development are in close proximity where the York Potash conveyor crosses Steel House	It is assumed that industry good practice measures in conjunction with a CEMP will be implemented by RCBC41 to control construction noise such as those outlined in BS 5228-1:2009+A1:2014 [Ref 8].	No residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Roundabout only. However, while the RCBC41 ES reports a minor adverse impact, the Proposed Development reports no significant effects. As such, no cumulative impacts would occur between the two sites for construction noise. Construction – Loss of Functionally Linked Land As RCBC41 operates within the Teesmouth and Cleveland Coast SSSI, there is potential for the permanent/temporary loss of habitat supporting qualifying features and Schedule 1 bird species associated with the SSSI. However, given the embedded and additional mitigation to provide additional habitat, cumulative impacts are considered unlikely. Construction – Habitat loss and fragmentation RCBC41 habitat surveys recorded common lizards within the Zol, with suitable reptile and amphibian habitat located within the RCBC41 site boundary. Therefore, there is the potential for loss of habitat/direct mortality to reptiles/amphibians. The RCBC41 site contains suitable habitat for breeding birds which will be displaced during construction. The RCBC41 site contains suitable habitat for dingy skipper which will be lost as a result of construction works. Therefore, there is the potential for loss of habitat supporting notable invertebrates. However, given the embedded and additional mitigation to provide additional habitat, cumulative impacts are considered unlikely.	It is anticipated that the noise associated with the operational plant will be controlled through BAT in line with the Environmental Permit. Embedded and additional mitigation as a part of the RCBC41 submission is outlined in the EIA as follows: • Vegetation clearance is to be carried out outside of the reptile/amphibian active season and the breeding bird season. If this is not possible then an ECoW must be in place during clearance works • Habitat creation will be secured via BNG mitigation and will also be suitable for amphibian/breeding bird mitigation • Acoustic screening for noise abatement during construction • Conveyor system to be enclosed.	

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
MMO10/ HBC2	Construction – Noise & Vibration. Disturbance to qualifying species of designated sites. The MMO10 site contains suitable habitat for several qualifying species of designated sites that will be disturbed or displaced during the works. However, given the distance between MMO10 site and the Proposed Development (1.9km), no construction noise and vibration cumulative effects are expected. Construction – Loss of Functionally Linked Land As MMO10/HBC2 operates within the Teesmouth and Cleveland Coast SSSI, there is potential for the permanent/temporary loss of habitat supporting qualifying features and Schedule 1 bird species associated with the SSSI. However, given the embedded and additional mitigation to provide additional habitat, cumulative impacts are considered unlikely. Construction – Habitat loss The MMO10 site will result in the loss of reedbed and OMH (priority habitats). However, given the embedded and additional mitigation to provide additional habitat, cumulative impacts are considered unlikely.	Construction noise mitigation measures have been developed in line with the best practice guidance from BS 5228-1:2009+A1:2014 [Ref 8]. Embedded and additional mitigation as a part of the MMO10 submission is outlined in the EIA as follows: • Vegetation clearance is to be carried out outside of the breeding bird season. If this is not possible then an ECoW must be in place during clearance works • Acoustic screening for noise abatement during construction • Visual screening during construction. • Restrictions on working during extreme temperatures. • Habitat creation secured as a result of the works will incur an increase in suitable habitat for qualifying species	No residual cumulative effects.
HBC6	Given the scale, nature, location (over 5km) and lack of potential impact pathways between HBC6 and the Proposed Development, no cumulative effects are considered likely.	N/A	No residual cumulative effects.

Freshwater and marine ecology

Table 22.9 Freshwater and marine ecology cumulative assessment

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
NSIP1	NSIP1 is 3.5 km from the quay construction area of the Proposed Development and there is approximately 8.5 km between the quay construction area of the Proposed Development and the proposed outfall construction area of NSIP1. No cumulative effect on benthic receptors in the Tees Estuary will occur. Potential cumulative effects could exist for benthic receptors in the vicinity of the proposed Bran Sands Wastewater Treatment Works (WwTW) Long Sea Outfall (LSO). Potential cumulative effects could exist for marine mammals that might move between two sources of noise.	Effects from NSIP1 effluent discharge are associated with temperature increase and nutrient nitrogen increase, whilst Bran Sands WwTW LSO are nutrient increase. Potential distance of 2.5km between the two outfalls, no mitigation proposed. Underwater noise effects can be limited for the Proposed Development through the use of a bundled construction approach. Joint Nature Conservation Committee (JNCC) guidelines for minimising effects of underwater noise on marine mammals will be followed for the chosen construction methodology (bundled/unbundled).	No residual cumulative effects
NSIP3 (see also RCBC41)	Dredging and dredge spoil disposal for both developments will interact with each other if construction runs in parallel as currently expected. Underwater noise from piling could result in cumulative effects, the magnitude of which should be diminished by the use of a bundled construction method for the Proposed Development.	Dredging methodologies will be selected to reduce suspended sediment levels where practicable. A bundled approach for the construction of the quay would reduce the level of underwater noise so that it does not form a cumulative effect with NSIP3. Underwater noise effects can be limited for the Proposed Development through the use of a bundled construction approach. Joint Nature Conservation Committee (JNCC) guidelines for minimising effects of underwater noise on	Moderate adverse (significant) cumulative effect if dredging is undertaken concurrently. No other residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Water quality will be diminished by dredging activities and potential effluent discharge to Dabholm gut.	marine mammals will be followed for the chosen construction methodology (bunded/unbunded).	
NSIP8	NSIP8 will discharge treated wastewater via a new outfall to Greatham Creek, which has the potential to affect water quality.	The Proposed Development will not discharge effluent into Greatham Creek. Use of the proposed Bran Sands WwTW LSO by the Proposed Development will avoid cumulative effects between the two developments.	No residual cumulative effects
NSIP9	NSIP9 has proposed pipeline works within the same corridors as will be used by the Proposed Development.	Pipeline corridors are 20m below the river bed. Likelihood of impact is incredibly low but spillage capture and pollution control mechanisms as detailed in the Proposed Development's fCEMP (Appendix 5A, ES Volume III, Application Document Ref. 6.3) will reduce this further.	No residual cumulative effects
RCBC3	None identified	N/A	N/A
RCBC4	None identified	N/A	N/A
RCBC12	None identified	N/A	N/A
RCBC14	None identified	N/A	N/A
RCBC24	Pipeline construction and maintenance and general on-site construction activities associated with RCBC24 have the potential to result in pollution of watercourses from spillages or contamination during construction and maintenance activities	Accidental pollution events to be mitigated through the use of best practice guidance and detailed in the fCEMP	No residual cumulative effects
RCBC40	Marine works for LSO in Tees Bay. Cumulative and combined effects with marine works in River Tees unlikely due to the distance between the LSO development and the Site and a lack of	N/A	No residual cumulative effects

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	extensive hydrological link between the two.		
RCBC41 (see also NSIP3)	Dredging and dredge spoil disposal for both developments will interact with each other if construction runs in parallel with this project. Water quality will be diminished by dredging activities.	Dredging methodologies will be selected to reduce suspended sediment levels where practicable.	Moderate adverse (significant) cumulative effect if dredging is undertaken concurrently. No other residual cumulative effects
MMO10	Potential for cumulative effects during construction and operation on seal species present, estuarine fish and marine and coastal habitats.	Temporal restrictions on dredging activities will reduce the effects of the Proposed Development on estuarine fish. The Zol of the Proposed Development suggests that marine and coastal habitats will not be affected significantly beyond the removal of benthic habitats as a result of capital dredging. Seals are not expected to be impacted by the Proposed Development.	No residual cumulative effects
HBC6	Potential for cumulative effects on water quality resulting from wastewater discharge following treatment at Bran Sands WwTW.	Use of proposed Bran Sands WwTW LSO will eliminate the effects of increased nutrients in the Tees estuary.	No residual cumulative effects

Water environment

Table 22.10 Water environment cumulative assessment

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
NSIP1	Documents submitted as part of the NSIP1 application identify no significant effects on waterbodies based on the use of trenchless technologies for pipeline installation across rivers and implementation of control measures within the CEMP. Given the location of the proposed works and identified impacts, no cumulative effects are identified.	N/A	N/A
NSIP3 (see also RCBC41)	Dredging and dredge spoil disposal for both NSIP3 and the Proposed Development will interact with each other if construction runs in parallel as expected. Given the high value of the Tees, if both construction dredging operations happen in parallel the effect could be magnified despite the embedded mitigation.	Dredging methodologies should be selected to reduce suspended sediment levels as far as practicable.	Moderate adverse (significant) cumulative effect if dredging is undertaken concurrently
NSIP8	Effluent discharge to Greatham Creek could have an impact on water quality, but this would not cause a cumulative effect with the Proposed Development as the effluent from the latter will be discharged to the North Sea via the Bran Sands LSO.	N/A	N/A
NSIP9	Given the nature of works relating to underground pipe infrastructure no cumulative effects are identified.	N/A	N/A
RCBC3	No cumulative effects are identified given the distance between the developments/nature of works.	N/A	N/A
RCBC4	No cumulative effects are identified given the distance between the developments/nature of works.	N/A	N/A
RCBC12	No cumulative effects are identified given the distance between the developments/nature of works.	N/A	N/A
RCBC14	No cumulative effects are identified given the distance between the developments/nature of works.	N/A	N/A

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
RCBC24	Given the location of the works within the Tees Estuary (S Bank) WER water body catchment, on which no effects are anticipated from the Proposed Development, no cumulative effects are identified.	N/A	N/A
RCBC40	Potential for cumulative impacts if accidental pollution events were to occur. It is assumed the scheme will have its own CEMP and environmental controls to mitigate impacts, and therefore it is unlikely that there will be potential for cumulative effects.	None beyond the already proposed embedded mitigation and implementation of the Proposed Development CEMP.	No residual cumulative effect.
RCBC41 (see also NSIP3)	Dredging and dredge spoil disposal for both developments will interact with each other if construction runs in parallel as expected. Given the high value of the Tees, if both construction dredging operations happen in parallel the effect could be magnified despite the embedded mitigation.	Dredging methodologies should be selected to reduce suspended sediment levels as far as practicable.	Moderate adverse (significant) cumulative effect if dredging is undertaken concurrently
MMO10	The Environmental Statement for the Greatham North East Flood Alleviation Scheme concluded no significant effects on surface water, groundwater, flood risk and drainage receptors after embedded mitigation are taken into account. Based on the assessment conclusions and limited shared receptors, no cumulative adverse effects are anticipated.	N/A	N/A
HBC6	Given the location of works within a different water body catchment and the nature of the proposed works, no cumulative effects are identified.	N/A	N/A

Landscape and visual amenity

Table 22.11 Landscape cumulative assessment

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
NSIP1	NSIP1 comprises a gas fired power station with carbon capture with two stacks of maximum heights of 128m and 110m AOD. Other buildings are of a maximum height of 63m AOD. NSIP1 lies within the industrial landscape of the Tees Estuary (Local Landscape Character Area (LLCA) Tees Industry). If construction of both NSIP1 and the Proposed Development would occur simultaneously or consecutively the LLCA Tees Industry would receive a medium magnitude of impact which is not greater than the magnitude of impact assessed for the Proposed Development alone. Therefore, the effect on the LLCA remains minor adverse effect during construction. The built form associated with NSIP1 including the tall stacks combined with the Proposed Development will not introduce uncharacteristic development into the landscape. However, it would further increase the influence of industrial development within the Tees estuary to a small extent. Therefore, the cumulative impact on the LLCA's within the study area is expected to be low during operation.	No further mitigation is proposed as no significant adverse cumulative effects are assessed during construction or operation.	No significant cumulative effects.
NSIP3 (see also RCBC41)	NSIP3 comprises the construction of a new wharf (including a material handling facility with two ship loaders capable of loading bulk), storage building and conveyors linking to Wilton International. NSIP3 lies within the industrial landscape of the Tees Estuary (LLCA Tees Industry). If construction of both NSIP3 and the Proposed Development would occur simultaneously or consecutively the LLCA Tees Industry would receive a medium magnitude of impact which is not greater than the magnitude of impact assessed for the Proposed Development alone.	No further mitigation is proposed as no significant adverse cumulative effects are assessed during construction or operation.	No significant cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Therefore, the effect on the LLCA remains minor adverse effect during construction. The built form associated with NSIP3 including the tall ship unloaders combined with the Proposed Development will not introduce uncharacteristic development into the landscape. However, it would further increase the influence of industrial development within the Tees estuary to a small extent. Therefore, the cumulative impact on the LLCA's within the study area is expected to be low during operation.		
NSIP8	NSIP8 comprises a carbon capture and storage enabled blue hydrogen production facility. The proposed flare stack is currently expected to be up to 110 m height above existing ground level (AGL) and the majority of built structures associated with NSIP8 are unlikely to exceed 50 m AGL. NSIP8 lies within the industrial landscape of the Tees Estuary (LLCA Tees Industry). If construction of both NSIP8 and the Proposed Development would occur simultaneously or consecutively the LLCA Tees Industry would receive a medium magnitude of impact which is not greater than the magnitude of impact assessed for the Proposed Development alone. Therefore, the effect on the LLCA remains minor adverse effect during construction. The built form associated with NSIP8 including the tall stacks combined with the Proposed Development will not introduce uncharacteristic development into the landscape. However, it would further increase the influence of industrial development within the Tees estuary to a small extent. Therefore, the cumulative impact on the LLCA's within the study area is expected to be low during operation.	No further mitigation is proposed as no significant adverse cumulative effects are assessed during construction or operation.	No significant cumulative effects.
NSIP9	NSIP89 comprises pipeline structures of approximately up to 1.5 – 3m height, security fencing of approximately up to 2.4 – 3.6m height and stacks of up to 15m height within an existing corridor.	No further mitigation is proposed as no significant adverse cumulative effects	No significant cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	Due to the scale and the different nature of NSIP89, no significant cumulative effects on the landscape resource are anticipated.	are assessed during construction or operation.	
RCBC3	RCBC3 comprises a data centre with maximum building heights of 46.2m AOD and lies within the industrial landscape of South Tees (LLCA Tees Industry). If construction of both RCBC3 and the Proposed Development would occur simultaneously or consecutively the LLCA Tees Industry would receive a medium magnitude of impact which is not greater than the magnitude of impact assessed for the Proposed Development alone. Therefore, the effect on the LLCA remains minor adverse effect during construction. The built form associated with RCBC3 combined with the Proposed Development will not introduce uncharacteristic development into the landscape. However, it would further increase the influence of industrial development within the Tees estuary to a small extent. Therefore, the cumulative impact on the LLCA's within the study area is expected to be low during operation.	No further mitigation is proposed as no significant adverse cumulative effects are assessed during construction or operation.	No significant cumulative effects.
RCBC4	RCBC4, which is situated within the existing industrial area of Redcar, includes a maximum 19.5m high vent and other structures of up to 8.5m height. Due to the distance and scale, no significant cumulative effects on the landscape resource are anticipated.	No further mitigation is proposed as no significant adverse effects are assessed during construction or operation.	No significant cumulative effects.
RCBC12	RCBC12 comprises a storage and assembly facility with ancillary buildings with maximum building heights of 50m AOD and lies within the industrial landscape of the Tees Estuary (LLCA Tees Industry). If construction of both RCBC12 and the Proposed Development would occur simultaneously or consecutively the LLCA Tees Industry would receive a medium magnitude of impact which is not greater than the magnitude of impact assessed for the Proposed Development alone. Therefore, the effect on the LLCA remains minor adverse effect.	No further mitigation is proposed as no significant adverse effects are assessed during construction or operation.	No significant cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	The built form associated with RCBC12 combined with the Proposed Development will not introduce uncharacteristic development into the landscape. However, it would further increase the influence of industrial development within the Tees estuary to a small extent. Therefore, the cumulative impact on the LLCAs within the study area is expected to be low during operation.		
RCBC14	RCBC14, which is situated within the existing Wilton industrial site, includes a maximum 30m high hydrogen vent or flare and oxygen stack and other structures of up to 20m height. Due to the distance and its scale no significant cumulative effects on the landscape resource are anticipated.	No further mitigation is proposed as no significant adverse effects are assessed during construction or operation.	No significant cumulative effects.
RCBC24	The scoping report for RCBC24 concludes that there would be no significant effects on landscape character and the visual environment as a result of the development. The rationale behind the scoping out of the landscape and visual topic was accepted by the local authority. RCBC24 comprises a facility for the production of SAF. Two co-located flares are anticipated to extend up to no more than 80m in height AGL with other proposed structures and buildings not exceeding 20m to 50m AGL in height. If construction of both RCBC24 and the Proposed Development would occur simultaneously or consecutively the LLCA Tees Industry would receive a medium magnitude of impact which is not greater than the magnitude of impact assessed for the Proposed Development alone. Therefore, the effect on the LLCA remains minor adverse effect. The built form associated with RCBC24 including the tall stacks combined with the Proposed Development will not introduce uncharacteristic development into the landscape. However, it would further increase the influence of industrial development within the Tees estuary to a small extent. Therefore, the cumulative impact on the LLCA's within the study area is expected to be low during operation.	No further mitigation is proposed as no significant adverse effects are assessed during construction or operation.	No significant cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
RCBC40	Due to the scale of RCBC40, no significant cumulative effects on the landscape resource are anticipated.	No further mitigation is proposed as no significant adverse effects are assessed during construction or operation.	No significant cumulative effects.
RCBC41 (see also NSIP3)	RCBC41 comprises a storage sheds, warehouses and other structures and lies within the industrial landscape of the Tees Estuary (LLCA Tees Industry) and use of the existing Redcar Bulk Terminal quay. If construction of both RCBC41 and the Proposed Development would occur simultaneously or consecutively the LLCA Tees Industry would receive a medium magnitude of impact which is not greater than the magnitude of impact assessed for the Proposed Development alone. Therefore, the effect on the LLCA remains minor adverse effect during construction. The built form associated with RCBC41 combined with the Proposed Development will not introduce uncharacteristic development into the landscape. However, it would further increase the influence of industrial development within the Tees estuary to a small extent. Therefore, the cumulative impact on the LLCA's within the study area is expected to be low during operation.	No further mitigation is proposed as no significant adverse effects are assessed during construction or operation.	No significant cumulative effects.
MMO10	Due to the scale and the different nature of MMO10, no significant cumulative effects on the landscape resource are anticipated.	No further mitigation is proposed as no significant adverse effects are assessed during construction or operation.	No significant cumulative effects.
HBC6	Due to the distance, the scale and the different nature of HBC6, no significant cumulative effects on the landscape resource are anticipated.	No further mitigation is proposed as no significant adverse effects are assessed	No change to effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
		during construction or operation.	

Table 22.12 Visual amenity cumulative assessment

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
NSIP1	NSIP1 comprises a gas fired power station with carbon capture with two stacks of maximum heights of 128m and 110m AOD. Other buildings are of a maximum height of 63m AOD. NSIP1 lies within the industrial landscape of the Tees Estuary (Local Landscape Character Area (LLCA) Tees Industry). During construction and operation, NSIP1 in combination with the Proposed Development is not likely to result in additional effects for visual receptors as the change would be seen in the context of existing large-scale heavy industry surrounding the Site within the Tees Estuary. Therefore, no significant cumulative effects on visual receptors are anticipated.	No further mitigation is proposed as no significant adverse cumulative effects are assessed during construction or operation.	No significant cumulative effects.
NSIP3 (see also RCBC41)	NSIP3 comprises the construction of a new wharf (including a material handling facility with two ship loaders capable of loading bulk), storage building and conveyors linking to Wilton International. NSIP3 lies within the industrial landscape of the Tees Estuary (LLCA Tees Industry). During construction and operation, NSIP3 in combination with the Proposed Development is not likely to result in additional effects for visual receptors as the change would be seen in the context of existing large-scale heavy industry surrounding the Site within the Tees Estuary. Therefore, no significant cumulative effects on visual receptors are anticipated.	No further mitigation is proposed as no significant adverse cumulative effects are assessed during construction or operation.	No significant cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
NSIP8	NSIP8 comprises a carbon capture and storage enabled blue hydrogen production facility. The proposed flare stack is currently expected to be up to 110m height above existing ground level (AGL) and the majority of built structures associated with NSIP8 are unlikely to exceed 50m AGL. NSIP8 lies within the industrial landscape of the Tees Estuary (LLCA Tees Industry). During construction and operation, NSIP8 in combination with the Proposed Development is not likely to result in additional effects for visual receptors as the change would be seen in the context of existing large-scale heavy industry surrounding the Site within the Tees Estuary. Therefore, no significant cumulative effects on visual receptors are anticipated.	No further mitigation is proposed as no significant adverse cumulative effects are assessed during construction or operation.	No significant cumulative effects.
NSIP9	NSIP9 comprises pipeline structures of approximately up to 1.5 – 3m height, security fencing of approximately up to 2.4 – 3.6m height and stacks of up to 15m height within an existing corridor. Due to the scale and the different nature of NSIP9, no significant cumulative effects on the visual resource are anticipated.	No further mitigation is proposed as no significant adverse cumulative effects are assessed during construction or operation.	No significant cumulative effects.
RCBC3	RCBC3 comprises a data centre with maximum building heights of 46.2m AOD and lies within the industrial landscape of South Tees (LLCA Tees Industry). During construction and operation, RCBC3 in combination with the Proposed Development is not likely to result in additional effects for visual receptors as the change would be seen in the context of existing large-scale heavy industry surrounding the Site within the Tees Estuary. Therefore, no significant cumulative effects on visual receptors are anticipated.	No further mitigation is proposed as no significant adverse cumulative effects are assessed during construction or operation.	No significant cumulative effects.
RCBC4	RCBC4, which is situated within the existing industrial area of Redcar, includes a maximum 19.5m high vent and other structures of up to 8.5m height. Due to the distance and scale, no significant cumulative effects on the visual resource are anticipated.	No further mitigation is proposed as no significant adverse effects are assessed	No significant cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
		during construction or operation.	
RCBC12	RCBC12 comprises a storage and assembly facility with ancillary buildings with maximum building heights of 50m AOD and lies within the industrial landscape of the Tees Estuary (LLCA Tees Industry). During construction and operation, RCBC12 in combination with the Proposed Development is not likely to result in additional effects for visual receptors as the change would be seen in the context of existing large-scale heavy industry surrounding the Site within the Tees Estuary. Therefore, no significant cumulative effects on visual receptors are anticipated.	No further mitigation is proposed as no significant adverse effects are assessed during construction or operation.	No significant cumulative effects.
RCBC14	RCBC14, which is situated within the existing Wilton industrial site, includes a maximum 30m high hydrogen vent or flare and oxygen stack and other structures of up to 20m height. Due to the distance and its scale no significant cumulative effects on the visual resource are anticipated.	No further mitigation is proposed as no significant adverse effects are assessed during construction or operation.	No significant cumulative effects.
RCBC24	The scoping report for RCBC24 concludes that there would be no significant effects on landscape character and the visual environment as a result of the development. The rationale behind the scoping out of the landscape and visual topic was accepted by the local authority. RCBC24 comprises a facility for the production of SAF. Two co-located flares are anticipated to extend up to no more than 80m in height AGL with other proposed structures and buildings not exceeding 20m to 50m AGL in height. During construction and operation, RCBC24 in combination with the Proposed Development is not likely to result in additional effects for visual receptors as the change would be seen in the context of existing large-scale heavy industry surrounding the Site within the Tees Estuary. Therefore, no significant cumulative effects on visual receptors are anticipated.	No further mitigation is proposed as no significant adverse effects are assessed during construction or operation.	No significant cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
RCBC40	Due to the scale of RCBC40, no significant cumulative effects on the visual resource are anticipated.	No further mitigation is proposed as no significant adverse effects are assessed during construction or operation.	No significant cumulative effects.
RCBC41 (see also NSIP3)	RCBC41 comprises a storage sheds, warehouses and other structures and lies within the industrial landscape of the Tees Estuary (LLCA Tees Industry) and use of the existing Redcar Bulk Terminal quay. During construction and operation, RCBC41 in combination with the Proposed Development is not likely to result in additional effects for visual receptors as the change would be seen in the context of existing large-scale heavy industry surrounding the Site within the Tees Estuary. Therefore, no significant cumulative effects on visual receptors are anticipated	No further mitigation is proposed as no significant adverse effects are assessed during construction or operation.	No significant cumulative effects.
MMO10	Due to the scale and the different nature of MMO10, no significant cumulative effects on the visual resource are anticipated.	No further mitigation is proposed as no significant adverse effects are assessed during construction or operation.	No significant cumulative effects.
HBC6	Due to the distance, the scale and the different nature of HBC6, no significant cumulative effects on the visual resource are anticipated.	No further mitigation is proposed as no significant adverse effects are assessed during construction or operation.	No significant cumulative effects.

22.5.6 Having carried out the landscape and visual assessment of the cumulative schemes in the table above, the overall conclusion of the landscape and visual cumulative effects assessment is set out below.

- 22.5.7 The character of landscape within the Zol is heavily industrialised along the Tees Estuary adjoined by large urban areas. Wetlands and Coastal landscape which reach into the industrial landscape create a stark contrast.
- 22.5.8 If all of the assessed cumulative projects are constructed and operational, their cumulative effects on the landscape and views within the Zol would strengthen the character of the landscape as one of heavy industry. However, due to the context of the existing industrial landscape, the cumulative schemes in combination with the Proposed Development are not likely to result in significant cumulative landscape or visual effects during both the construction and operation phase.

Socioeconomics

Table 22.13 Socioeconomics cumulative assessment

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
NSIP1	NSIP1 draws on the same Teesside construction labour market, specialist process-engineering trades and regional supply chain as Lighthouse Green Fuels, which would generate a combined uplift in regional construction employment, Gross Value Added (GVA) and supply-chain expenditure. The cumulative effect could be moderate adverse without mitigation, however implementation of the Proposed Development's Employment and Skills Plan would increase workforce capacity and reduce the extent of this effect.	The draft DCO (Application Document Ref. 3.1) for the Proposed Development contains a requirement which secures the agreement of an employment and skills plan, which would manage demand for construction labour and maximise local employment and training opportunities during the overlap period with NZT.	Minor adverse (no significant cumulative effects)
NSIP3 (see also RCBC41)	NSIP3 is in a different sector, so there is limited overlap with LGF's specialist labour pool. Contributes additional construction expenditure and employment to the regional economy and modest demand on the broader Teesside construction supply chain, without material competition for specialist trades. The cumulative effect assessed to be minor adverse without mitigation.	Employment and skills plan for the Proposed Development to manage demand for construction labour and maximise local employment and training opportunities.	No residual cumulative effects.
NSIP8	As NSIP8 is a major hydrogen NSIP drawing on the same specialist process-engineering labour pool, supply chain and local accommodation market, this represents a concentrated combined demand. The cumulative effect on regional employment, GVA and the emerging Teesside clean-energy supply chain would be major adverse (significant) without mitigation, however implementation of the Proposed Development's Employment and Skills Plan would increase workforce capacity and reduce the extent of this effect.	Employment and skills plan for the Proposed Development designed to take account of concurrent demand from other major Teesside NSIPs (including NSIP8) and to coordinate local training, apprenticeship and supply-chain initiatives.	Minor adverse (no significant cumulative effects)

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
NSIP9	NSIP-9 intersects LGF's Site boundary, concentrating a share of the construction workforce, supply-chain demand and local accommodation pressure on Teesside during LGF's build. While pipeline construction relies predominantly on pipeline/civils trades rather than LGF's specialist SAF/process-engineering labour pool, limiting direct competition for specialist trades, there is meaningful overlap on the emerging Teesside clean energy supply chain. At operation, NSIP9 enables transport of low-carbon hydrogen across the Teesside cluster, anchoring the regional hydrogen supply chain within which LGF operates. Cumulative effect could be moderate adverse (significant) without mitigation, however implementation of the Proposed Development's Employment and Skills Plan would increase workforce capacity and reduce the extent of this effect.	Employment and skills plan for the Proposed Development to coordinate with concurrent hydrogen-sector demand and support local recruitment, training and hydrogen supply-chain participation.	Minor adverse (no significant cumulative effects)
RCBC3	RCBC3's data centre construction uses different specialist trades to a process plant, so limited direct competition for LGF's specialist labour pool. The long temporal overlap provides a sustained additional contribution to regional construction employment, GVA and the local supply chain throughout LGF's build. Cumulative effect is assessed to be minor adverse without mitigation.	Employment and skills plan for the Proposed Development to support sustained local recruitment over LGF's construction period.	No residual cumulative effects.
RCBC4	RCBC4 draws on the same specialist labour pool and supply chain, generating a combined uplift in regional employment, GVA and clean-energy supply-chain activity. The workforce is small, limiting the scale of specialist-labour competition, but the sectoral overlap concentrates demand on a narrow shared pool. Cumulative effect could be moderate adverse (significant)	Employment and skills plan for the Proposed Development to manage demand for shared specialist trades and support local upskilling.	Minor adverse (no significant cumulative effects)

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	without mitigation, however implementation of the Proposed Development's Employment and Skills Plan would increase workforce capacity and reduce the extent of this effect.		
RCBC12	RCBC12 adds limited additional construction expenditure to the regional economy; effects on LGF's local labour or supply-chain capture, and on the local accommodation market, are minor. Different sector to LGF, so no material competition for specialist trades. Cumulative effect is assessed to be minor adverse without mitigation.	Employment and skills plan for the Proposed Development to support sustained local recruitment over LGF's construction period.	No residual cumulative effects.
RCBC14	RCBC14 draws on the same specialist process-engineering labour pool and regional clean-energy supply chain. The combination of sectoral overlap and timing alignment with LGF's peak generates a meaningful combined regional employment, GVA and supply-chain effect, with concentrated demand on shared specialist trades. Cumulative effect could be moderate adverse (significant) without mitigation, however implementation of the Proposed Development's Employment and Skills Plan would increase workforce capacity and reduce the extent of this effect..	Employment and skills plan for the Proposed Development to coordinate with concurrent hydrogen-sector demand and support local recruitment, training and supply-chain participation.	Minor adverse (no significant cumulative effects)
RCBC24	Draws on the same specialist SAF/process-engineering labour pool as LGF. The combined effect on regional employment, GVA and the Teesside SAF supply chain is the largest of any individual shortlisted scheme, both because of the scale of specialist demand and because the two schemes together establish Teesside as a SAF cluster of national significance. The narrowness of the shared specialist labour pool means competition for SAF/process-engineering trades during the overlap is the	Employment and skills plan for the Proposed Development. The plan will address concurrent SAF/process-engineering demand and support local training, apprenticeship and SAF supply-chain development to expand specialist capacity over the construction period.	Minor adverse (no significant cumulative effects)

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	principal adverse pathway. Cumulative effect could be major adverse (significant) without mitigation, however implementation of the Proposed Development's Employment and Skills Plan would increase workforce capacity and reduce the extent of this effect.		
RCBC40	Limited overlap with LGF's specialist labour pool. Contributes additional construction expenditure and employment to the regional economy and modest demand on the broader Teesside construction supply chain, without material competition for specialist trades. Cumulative effect is assessed to be minor adverse without mitigation.	Employment and skills plan for the Proposed Development to manage demand for construction labour and maximise local employment and training opportunities.	No residual cumulative effects.
RCBC41 (see also NSIP3)	Different sector, so limited overlap with LGF's specialist labour pool. Contributes additional construction expenditure and employment to the regional economy and modest demand on the broader Teesside construction supply chain, without material competition for specialist trades. Cumulative effect is assessed to be minor adverse without mitigation.	Employment and skills plan for the Proposed Development to manage demand for construction labour and maximise local employment and training opportunities.	No residual cumulative effects.
MMO10	Different sector, so limited overlap with LGF's specialist labour pool. Generates limited additional construction expenditure, employment and supply-chain demand alongside LGF. Cumulative effect is assessed to be negligible.	No specific additional mitigation required beyond the skills and training plan for the Proposed Development.	No residual cumulative effects.
HBC6	Different sector, so limited overlap with LGF's specialist labour pool. Construction contributes additional regional employment, GVA and supply-chain demand. Beyond the construction phase, the scheme increases housing stock and community-infrastructure capacity (dwellings, school and medical centre) in the Wider Impact Area during	Skills and training plan for the Proposed Development, to support recruitment from the expanded local labour pool created by HBC6 and to maximise local training and apprenticeship opportunities for residents.	No residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	LGF's build and into operation, generating a population increase and expanding the local labour pool from which LGF's operational workforce and supply chain can recruit. The new community infrastructure also supports health and amenity outcomes for the expanded local population, including LGF workers relocating to the area. Cumulative effect is assessed to be minor adverse without mitigation.		

Traffic and transport

Table 22.14 Traffic and transport cumulative assessment

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
NSIP1	Any traffic associated with this application is contained to the road network on the south side of the River Tees and has minimal to no interaction with traffic associated with the Proposed Development.	No mitigation measures required to reduce potential cumulative effects are required within this Application.	No residual cumulative effects.
NSIP3 (see also RCBC41)	Any traffic associated with this application is contained to the road network on the south side of the River Tees and has minimal to no interaction with traffic associated with the Proposed Development.	No mitigation measures required to reduce potential cumulative effects are required within this Application.	No residual cumulative effects.
NSIP8	Project is at scoping stage. Potential for cumulative effects if construction phases overlap but currently insufficient information to assess.	No mitigation measures currently required to reduce potential cumulative effects within this Application.	Minor adverse (no significant cumulative effects)
NSIP9	Project is at scoping stage. Potential for cumulative effects if construction phases overlap but currently insufficient information to assess.	No mitigation measures currently required to reduce potential cumulative effects within this Application.	Minor adverse (no significant cumulative effects)
RCBC3	No traffic impact	No mitigation measures required to reduce potential cumulative effects are required within this Application.	No residual cumulative effects.
RCBC4	No traffic impact	No mitigation measures required to reduce potential cumulative effects are	No residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
		required within this Application.	
RCBC12	No traffic impact	No mitigation measures required to reduce potential cumulative effects are required within this Application.	No residual cumulative effects.
RCBC14	Any traffic associated with this application is contained to the road network on the south side of the River Tees and has minimal to no interaction with traffic associated with The Development.	No mitigation measures required to reduce potential cumulative effects are required within this Application.	No residual cumulative effects.
RCBC24	Any traffic associated with this application is largely contained to the road network on the south side of the River Tees and has minimal to no interaction with traffic associated with The Development.	No mitigation measures required to reduce potential cumulative effects are required within this Application.	No residual cumulative effects.
RCBC40	Any traffic associated with this application is contained to the road network on the south side of the River Tees and has minimal to no interaction with traffic associated with The Development.	No mitigation measures required to reduce potential cumulative effects are required within this Application.	No residual cumulative effects.
RCBC41 (see also NSIP3)	Any traffic associated with this application is contained to the road network on the south side of the River Tees and has minimal to no interaction with traffic associated with The Development.	No mitigation measures required to reduce potential cumulative effects are required within this Application.	No residual cumulative effects.
MMO10	Any traffic associated with this application is contained to the road network immediately at the site access due to import of material from adjacent land.	No mitigation measures required to reduce potential cumulative effects are	No residual cumulative effects.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
		required within this Application.	
HBC6	Any traffic associated with this application is mostly contained to the road network near to the site and through Hartlepool. Minimal traffic using the A689 westbound could impact the A19 / A689 Wolviston Interchange, however, this is likely to be minimal levels and will be outside of peak traffic periods (i.e. outside of 0800-0900am and 1630-1730pm).	No mitigation measures required to reduce potential cumulative effects are required within this Application.	No residual cumulative effects.

Geology and soils

Table 22.15 Geology and soils cumulative assessment

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
NSIP1	It is assumed that excavation, trenching, piling and localised dewatering may be required during construction of the proposed development, including for pipelines, connections and associated infrastructure. 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 project 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 development affects contaminated land that results in the removal of potential contaminant sources or mitigation. However, it is not considered that	A CEMP will form part of the embedded mitigation for the construction phase. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)) and will take into account Land Contamination Risk Management guidance [Ref 9]. Ground investigations prior to construction works for the Proposed Development will provide further information on the ground contamination conditions. This data will inform risk assessments and a construction remediation strategy. No further mitigation measures to reduce potential cumulative effects are required.	No residual cumulative effect.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	this will result in any significant beneficial effects. There is unlikely to be any potential for cumulative effects.		
NSIP3 (see also RCBC41)	It is assumed that excavation, dredging, piling and, where required, localised dewatering may be undertaken during construction of the proposed development, including for the formation of the berth, construction of the wharf/jetty facilities, and installation of storage buildings, conveyors and associated materials handling infrastructure. 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 York Potash project 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 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.	A CEMP will form part of the embedded mitigation for the construction phase. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)) and will take into account Land Contamination Risk Management guidance [Ref 9]. Ground investigations prior to construction works for the Proposed Development will provide further information on the ground contamination conditions. This data will inform risk assessments and a construction remediation strategy. No further mitigation measures to reduce potential cumulative effects are required.	No residual cumulative effect.
NSIP8	It is assumed that excavation, trenching, piling and, where required, localised dewatering may be undertaken during construction of the proposed development, including for the hydrogen production facility, carbon capture and compression infrastructure, associated buildings and plant, and the installation of distribution and utility pipelines and connections. There may be some temporary minor adverse effects during	A CEMP will form part of the embedded mitigation for the construction phase. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)) and will take into account Land Contamination Risk Management guidance [Ref 9].	No residual cumulative effect.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	construction from ground disturbance or where groundwater controls may inadvertently mobilise contamination or create preferential pathways. It is assumed the H2NorthEast project 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 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.	Ground investigations prior to construction works for the Proposed Development will provide further information on the ground contamination conditions. This data will inform risk assessments and a construction remediation strategy. No further mitigation measures to reduce potential cumulative effects are required.	
NSIP9	It is assumed that excavation, trenching, localised dewatering and other groundworks may be required during construction of the proposed development, including for the installation, repurposing and connection of the underground hydrogen pipeline and associated infrastructure. 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 project 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 development affects contaminated land that results in the removal of potential contaminant sources or mitigation. However, it is not considered that	A CEMP will form part of the embedded mitigation for the construction phase. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)) and will take into account Land Contamination Risk Management guidance [Ref 9]. Ground investigations prior to construction works for the Proposed Development will provide further information on the ground contamination conditions. This data will inform risk assessments and a construction remediation strategy. No further mitigation measures to reduce potential cumulative effects are required.	No residual cumulative effect.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	this will result in any significant beneficial effects. There is unlikely to be any potential for cumulative effects.		
RCBC3	No cumulative effects are anticipated as the proposed development is located outside the defined zone of influence (ZOI) for geology and soils receptors.	N/A	N/A
RCBC4	No cumulative effects are anticipated as the proposed development is located outside the defined zone of influence (ZOI) for geology, hydrogeology and land contamination receptors.	N/A	N/A
RCBC12	No cumulative effects are anticipated as the proposed development is located outside the defined zone of influence (ZOI) for geology, hydrogeology and land contamination receptors.	N/A	N/A
RCBC14	No cumulative effects are anticipated as the proposed development is located outside the defined zone of influence (ZOI) for geology, hydrogeology and land contamination receptors.	N/A	N/A
RCBC24	No cumulative effects are anticipated as the proposed development is located outside the defined zone of influence (ZOI) for geology, hydrogeology and land contamination receptors.	N/A	N/A
RCBC40	It is assumed that excavation, trenching, localised dewatering and other groundworks may be required during the relocation of the wastewater treatment works outfall from Dabholm Gut to an offshore discharge	A CEMP will form part of the embedded mitigation for the construction phase. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES	No residual cumulative effect.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	point. 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 project will have its own CEMP and environmental controls to mitigate impacts during construction and therefore no resulting significant adverse effects are anticipated. There may be beneficial effects associated with remediation if the development affects contaminated land that results in the removal of potential contaminant 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.	Volume III, Application Document Ref. 6.3)) and will take into account Land Contamination Risk Management guidance [Ref 9]. Ground investigations prior to construction works for the Proposed Development will provide further information on the ground contamination conditions. This data will inform risk assessments and a construction remediation strategy. No further mitigation measures to reduce potential cumulative effects are required.	
RCBC41 (see also NSIP3)	It is assumed that excavation, tunnelling, localised dewatering and other groundworks may be required during construction of the proposed development. 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 project will have its own CEMP and environmental controls to mitigate impacts during construction and therefore no resulting significant adverse effects are anticipated. There may be beneficial effects associated with remediation if the development affects contaminated land that results in the removal of potential contaminant sources or mitigation. However, it is not considered that this will	A CEMP will form part of the embedded mitigation for the construction phase. A fCEMP has been prepared and is being submitted as part of the Application for the Proposed Development (Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)) and will take into account Land Contamination Risk Management guidance [Ref 9]. Ground investigations prior to construction works for the Proposed Development will provide further information on the ground contamination conditions. This data will inform risk assessments and a construction remediation strategy. No further mitigation measures to reduce potential cumulative effects are required.	No residual cumulative effect.

ID	Assessment of cumulative effect with the Proposed Development	Proposed mitigation	Residual cumulative effect
	result in any significant beneficial effects. There is unlikely to be any potential for cumulative effects.		
MMO10	No cumulative effects are anticipated as the proposed development is located outside the defined zone of influence (ZOI) for geology, hydrogeology and land contamination receptors.	N/A	N/A
HBC6	No cumulative effects are anticipated as the proposed development is located outside the defined zone of influence (ZOI) for geology, hydrogeology and land contamination receptors.	N/A	N/A

22.6 Combined Effects Assessment

- 22.6.1 Combined effects are those that may arise when several different impacts resulting from the Proposed Development have the potential to affect a single receptor.
- 22.6.2 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.
- 22.6.3 As described in Section 22.3, 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 not 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 include the potential effects on human receptors.
- 22.6.4 When considering combined effects, the mitigation measures as set out in **ES Volume I Chapters 8 to 21 (Application Document Ref. 6.1)** including embedded mitigation measures built into the Proposed Development's design and measures embedded in the **fCEMP (ES Volume III, Application Document Ref. 6.3)** must be taken into account prior to the assessment of residual effects. Therefore, only residual effects (post-mitigation) will be considered.
- 22.6.5 In assessing potential combined effects, human receptors experiencing effects of minor or greater magnitude are considered. The types of impacts that could be experienced by these receptors, and which may interact during construction are noise, air quality, traffic and transport, visual, and socioeconomic effects. The types of impacts that could be experienced by these receptors, and which may interact during operation are noise, air quality, visual and socioeconomic effects.
- 22.6.6 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 effects interacting and combining.
- 22.6.7 The following sections provide a qualitative assessment of the potential for combined effects to arise, following a review of **ES Volume I Chapters 8-21 (Application Document Ref. 6.1)**. Common receptors have been identified.

Combined effects during construction (air quality, noise and vibration, traffic and transport, landscape and visual amenity and socioeconomics)

- 22.6.8 **ES Volume I Chapter 8: Air Quality (Application Document Ref. 6.1)** 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 250m of the Site. Transient receptors using Public Rights of Way (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 amenity and traffic and transport effects, as identified in the respective chapters.
- 22.6.9 **ES Volume I Chapter 18: Traffic and Transport (Application Document Ref. 6.1)** considers a range of different traffic-related effects on roadway receptors, including severance, pedestrian amenity, fear and intimidation, highway safety and driver delay. There is potential for receptors close to the road network to experience combined effects from traffic (severance, pedestrian amenity, highway safety and driver delay), noise, vibration and air emissions during construction of the Proposed Development. However, given the controls on construction traffic that will be implemented, including the implementation of a Construction Worker Travel Plan and Construction Traffic Management Plan, no residual effects are anticipated. 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.
- 22.6.10 **ES Volume I Chapter 17: Socioeconomics (Application Document Ref. 6.1)** 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 dust are predicted to occur. The average estimated 4,460 full-time-equivalent job-years within Teesside during the construction phase of the Proposed Development is considered a major (significant) beneficial effects on the local area although the effects of this on individual receptors cannot be quantified/assessed and for this reason, is not taken into consideration in the combined effects assessment.

Table 22.16 Potential for significant combined effects (construction)

Receptors	Value/ Sensitivity	Traffic emissions	Air quality	Noise and Vibration	Visual	Socioeconomics	Mitigation	Combined Effect
Residential receptors (Port Clarence, Cowpen Bewley, Marsh House Avenue and surrounding communities)	High	Minor adverse due to temporary increases in construction traffic and heavy goods vehicle (HGV) movements	Negligible adverse	Negligible adverse	Minor to moderate adverse	Negligible beneficial	No additional mitigation measures are proposed beyond those set out in the technical chapters of this ES, including implementation of mitigation through detailed CEMP(s) as outlined in the fCEMP (Appendix 5A, ES Volume III, Application Document Ref. 6.3) .	Minor adverse (not significant). Visual impacts and temporary traffic changes combine but effects remain limited. Combined effect no greater than individual effects from each aspect of the EIA.
Users of PRoW, England Coast Path and recreational routes	High	Minor adverse due to temporary increases in traffic affecting amenity and crossing points on the A1185 corridor	Negligible adverse	Minor adverse	Moderate adverse	Negligible	No additional mitigation measures are proposed beyond those set out in the technical chapters of this ES, including implementation of mitigation through detailed CEMP(s) as outlined in the fCEMP (Appendix	Minor adverse (not significant). Combined temporary visual change, construction disturbance and reduced recreational amenity.

Receptors	Value/ Sensitivity	Traffic emissions	Air quality	Noise and Vibration	Visual	Socioeconomics	Mitigation	Combined Effect
							5A, ES Volume III, Application Document Ref. 6.3).	
Visitors to RSPB Saltholme, Cowpen Bewley Woodland and other recreational destinations	High	Minor adverse associated with temporary construction traffic on local routes	Negligible adverse	Minor adverse	Moderate adverse	Negligible	No additional mitigation measures are proposed beyond those set out in the technical chapters of this ES, including implementation of mitigation through detailed CEMP(s) as outlined in the fCEMP (Appendix 5A, ES Volume III, Application Document Ref. 6.3).	Moderate adverse (significant) at RSPB Saltholme. Construction activity and visual effects combine to reduce visitor amenity. Combined effect no greater than individual effects from each aspect of the EIA.
Local communities and businesses	Medium	Negligible adverse	Negligible adverse	Negligible adverse	Minor adverse	Moderate beneficial	No additional mitigation measures are proposed beyond those set out in the technical chapters of this ES, including implementation of mitigation through	Minor beneficial (not significant) . Socioeconomic benefits outweigh temporary environmental effects.

Receptors	Value/ Sensitivity	Traffic emissions	Air quality	Noise and Vibration	Visual	Socioeconomics	Mitigation	Combined Effect
							detailed CEMP(s) as outlined in the fCEMP (Appendix 5A, ES Volume III, Application Document Ref. 6.3).	
Construction workforce	Medium	Negligible	Negligible	Negligible	Negligible	Moderate beneficial	No additional mitigation measures are proposed beyond those set out in the technical chapters of this ES, including implementation of mitigation through detailed CEMP(s) as outlined in the fCEMP (Appendix 5A, ES Volume III, Application Document Ref. 6.3).	Moderate beneficial (significant) due to employment, training and expenditure benefits. Combined effect no greater than individual effects from each aspect of the EIA.
Users of A1185 corridor, Port Clarence Road and local highway network	Medium	Minor adverse due to temporary increases in traffic and HGV movements,	Negligible adverse	Negligible adverse	Negligible	Negligible beneficial	No additional mitigation measures are proposed beyond those set out in the technical chapters of this	Minor adverse (not significant). Traffic effects are temporary and remain below

Receptors	Value/ Sensitivity	Traffic emissions	Air quality	Noise and Vibration	Visual	Socioeconomics	Mitigation	Combined Effect
		although residual effects are not significant					ES, including implementation of mitigation through detailed CEMP(s) as outlined in the fCEMP (Appendix 5A, ES Volume III, Application Document Ref. 6.3).	significance thresholds.

Combined effects during operation (air quality, noise and vibration and landscape and visual)

- 22.6.11 **ES Volume I Chapter 8: Air Quality (Application Document Ref. 6.1)** 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 has concluded that the ELV will be met for the operational plant as required under the IED 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 **not significant** at all sensitive human receptors during the operation phase.
- 22.6.12 **ES Volume I Chapter 10: Noise and Vibration (Application Document Ref. 6.1)** concludes that there would be no residual significant adverse effects at all noise sensitive receptors.
- 22.6.13 Operational vibration was scoped out of further assessment (**refer to ES Volume I Chapter 10: Noise and Vibration, Application Document Ref. 6.1**) and is therefore not applicable to the combined effects assessment.
- 22.6.14 **ES Volume I Chapter 18: Traffic and Transport (Application Document Ref. 6.1)** 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**.
- 22.6.15 **ES Volume I Chapter 13: Landscape and Visual Amenity (Application Document Ref. 6.1)** identifies that there would be no adverse effects on visual receptors during the operation of the Proposed Development. Therefore, there would be no combined effects.
- 22.6.16 **ES Volume I Chapter 17: Socioeconomics (Application Document Ref. 6.1)** identifies that there would be no residual effects on socioeconomic receptors during operation. Therefore there would be no combined socioeconomic effects.
- 22.6.17 On the basis of the above, the potential for combined effects during operation is set out in Table 22.17 below.

Table 22.17 Potential for significant combined effects (operation)

Receptor	Value/ Sensitivity	Traffic emissions	Air Quality	Noise and Vibration	Visual	Socioeconomics	Mitigation	Combined Effect
Residential receptors (Port Clarence, Cowpen Bewley, Marsh House Avenue and surrounding communities)	High	Negligible adverse	Negligible adverse	Negligible adverse	Minor adverse	Negligible beneficial	No additional mitigation measures are proposed beyond those recommended in the technical chapters, including implementation of mitigation through detailed CEMP(s) as outlined in the fCEMP (Appendix 5A, ES Volume III, Application Document Ref. 6.3) .	Minor adverse (not significant). Landscape effects remain the dominant influence. Combined effect no greater than individual effects from each aspect of the EIA.
Users of PRoW, England Coast Path and recreational routes	High	Negligible adverse	Negligible adverse	Negligible adverse	Minor adverse	Negligible	No additional mitigation measures are proposed beyond those recommended in the technical chapters, including implementation of mitigation through detailed CEMP(s) as outlined in the fCEMP (Appendix 5A, ES Volume III, Application	Minor adverse (significant). Visual effects dominate; transport effects are negligible. Combined effect no greater than individual effects from

Receptor	Value/ Sensitivity	Traffic emissions	Air Quality	Noise and Vibration	Visual	Socioeconomics	Mitigation	Combined Effect
							Document Ref. 6.3).	each aspect of the EIA.
Recreational receptors and visitors to RSPB Saltholme	High	Negligible adverse	Negligible adverse	Negligible adverse	Moderate adverse	Negligible	No additional mitigation measures are proposed beyond those recommended in the technical chapters, including implementation of mitigation through detailed CEMP(s) as outlined in the fCEMP (Appendix 5A, ES Volume III, Application Document Ref. 6.3).	Moderate adverse (significant) at RSPB Saltholme. Permanent visual change remains the primary influence. Combined effect no greater than individual effects from each aspect of the EIA.
Local communities and businesses	Medium	Negligible adverse	Negligible adverse	Negligible adverse	Minor adverse	Moderate beneficial	No additional No additional mitigation measures are proposed beyond those recommended in the technical chapters, including implementation of mitigation through detailed CEMP(s) as outlined in the	Minor beneficial (not significant). Economic benefits outweigh limited adverse effects.

Receptor	Value/ Sensitivity	Traffic emissions	Air Quality	Noise and Vibration	Visual	Socioeconomics	Mitigation	Combined Effect
							fCEMP (Appendix 5A, ES Volume III, Application Document Ref. 6.3).	
Operational workforce and supply chain	Medium	Negligible	Negligible	Negligible	Negligible	Moderate beneficial	No additional mitigation measures are proposed beyond those recommended in the technical chapters, including implementation of mitigation through detailed CEMP(s) as outlined in the fCEMP (Appendix 5A, ES Volume III, Application Document Ref. 6.3).	Moderate beneficial (significant) through long-term employment and economic activity. Combined effect no greater than individual effects from each aspect of the EIA.
Users of the local highway network	Medium	Negligible adverse. Operational traffic below significance thresholds with no significant residual transport	Negligible adverse	Negligible adverse	Negligible	Negligible beneficial	No additional mitigation measures are proposed beyond those recommended in the technical chapters, including implementation of mitigation through detailed CEMP(s)	Negligible to minor adverse (not significant).

Receptor	Value/ Sensitivity	Traffic emissions	Air Quality	Noise and Vibration	Visual	Socioeconomics	Mitigation	Combined Effect
		effects identified					as outlined in the fCEMP (Appendix 5A, ES Volume III, Application Document Ref. 6.3).	

22.7 Limitations or difficulties

- 22.7.1 The cumulative assessment has been carried out using information available at the time of the assessment regarding the environmental effects of the other potential or committed schemes in the vicinity of the Site that have been scoped into the assessment. The methodology adopted for the cumulative effects assessment aligns with the staged approach set out in the PINS advice on cumulative effects assessment for NSIPs [Ref 3], including the identification of a long list of developments, refinement to a shortlist, information gathering and assessment.
- 22.7.2 As recognised in the PINS guidance, the availability and level of detail of information for third-party developments can vary depending on their stage in the planning process. In some cases, environmental information, programme details, design parameters or construction methodologies were not publicly available or had not been finalised at the time this assessment was undertaken. Where information was limited, professional judgement was applied using the best available information from planning applications, ESs, publicly available documentation and consultation responses. The level of certainty assigned to each development and any assumptions applied are set out in Table 22-2 and Table 22.5. A further summary of the key data inputs and approaches is summarised below in Table 22.18.
- 22.7.3 Any additional limitations that were encountered during the individual technical assessments of the effects of the Proposed Development itself are detailed within **ES Volume I Chapters 8-21 (Application Document Ref. 6.1)**. While there is inherent uncertainty associated with assessing interactions between developments that may evolve over time, it is considered that sufficient information was available to identify realistic cumulative pathways and undertake a robust assessment. Consequently, these limitations and uncertainties do not materially affect the findings of the assessment nor its conclusions of this assessment.

Table 22.18 Summary of methodology and assumptions

Assessment factor	Approach adopted
Search sources	PINS National Infrastructure Planning website, local authority planning portals, publicly available application documents and Environmental Statements
Search cut-off date	May 2026
Data gaps	Some developments had limited information on design, construction programming or environmental effects
Assumptions	Assessment based on the latest publicly available information and reasonable worst-case assumptions where necessary
Confidence in assessment	Moderate to high. Data limitations were not considered sufficient to alter the conclusions of the cumulative assessment

22.8 Summary of likely significant residual effects

- 22.8.1 The assessment of combined effects has considered the potential for the effects of minor significance and above, identified within relevant technical assessments reported in **ES Volume I Chapters 8 to 21 (Application Document Ref. 6.1)**, 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. The significant adverse residual effects at RSPB Saltholme in relation to visual amenity during both construction and operational phases would remain classified as moderate adverse (significant) combined effects. The design and impact avoidance and mitigation measures proposed for noise and vibration and air quality would mean that more significant combined effects are avoided.
- 22.8.2 The assessment of cumulative effects has considered other developments within 15km of the Proposed Development identifying 174 developments for consideration at Stage 1 in the long list, and 22 for inclusion in the short list of developments, although eight of these were determined by topic specialists to not be 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. For the majority of environmental topics, including air quality, noise and vibration, landscape and visual amenity, socioeconomics, traffic and transport, and geology and soils, no significant residual cumulative effects were identified.

- 22.8.3 The assessment identified the potential for significant cumulative effects associated with overlapping dredging and dredge disposal activities between the Proposed Development and the Woodsmith Project harbour works (NSIP3/RCBC41). These effects were assessed as moderate adverse for freshwater and marine ecology and the water environment if construction activities overlap temporally.
- 22.8.4 For certain ecological receptors associated with developments currently at an early stage of the planning process, limited information was available regarding design, construction methodologies and mitigation measures. Consequently, whilst residual cumulative ecological effects may be possible in some instances, there is currently insufficient information to confirm their significance. Future project promoters will be required to consider the Proposed Development within their own environmental assessments as further project information becomes available.
- 22.8.5 When a future project has not been fully assessed within this cumulative impact assessment due to a lack of planning application documentation and/or detail, 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.

References

- Ref 1 HM Government (2017) The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (SI 2017 No. 572). Available online: <https://www.legislation.gov.uk/ukxi/2017/572/contents/made> [Accessed June 2026].
- Ref 2 Department for Energy Security and Net Zero (2025) Overarching National Policy Statement for Energy (EN-1). Available online: <https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025/overarching-national-policy-statement-for-energy-en-1-2025-accessible-webpage> [Accessed August 2026].
- Ref 3 Planning Inspectorate (2024) Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment. Available online: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-cumulative-effects-assessment> [Accessed June 2026].
- Ref 4 UK Government (2015) The Town and Country Planning (Development Management Procedure) (England) Order 2015. Available online: <https://www.legislation.gov.uk/ukxi/2015/595/contents> [Accessed June 2026].
- Ref 5 Planning Inspectorate (2026) Register of applications. Available online: <https://national-infrastructure-consenting.planninginspectorate.gov.uk/register-of-applications> [Accessed June 2026].
- Ref 6 Institute of Air Quality Management (2024). Guidance of the assessment of dust from demolition and construction. Available online: <https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf> [Accessed March 2026].
- Ref 7 Institute of Air Quality Management (2018). Guidance on monitoring in the vicinity of demolition and construction sites. Available online: https://iaqm.co.uk/text/guidance/guidance_monitoring_dust_2018.pdf [Accessed July 2026].
- Ref 8 British Standards (2014). BS 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Noise (Part 1) and Vibration (Part 2).
- Ref 9 Environment Agency. (2025) Land Contamination Risk Management (LCRM) Guidance. [Online] Available online: <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm> [Accessed March 2026].

