Planning Inspectorate

REPORT on the IMPLICATIONS for EUROPEAN SITES

Proposed H2Teesside

An Examining Authority report prepared with the support of the Environmental Services Team

Planning Inspectorate Reference: EN070009

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1 INTRODUCTION

1.1 Background

1.1.1 H2Teesside Ltd (the applicant) has applied for a Development Consent Order (DCO) under section 37 of the Planning Act 2008 (PA2008) for the proposed H2Teesside project (the proposed development). On behalf of the Secretary of State for Housing, Communities and Local Government, an Examining Authority (ExA) has been appointed to conduct an Examination of the application. The ExA will report its findings and conclusions and make a recommendation to the relevant Secretary of State (SoS) as to the decision to be made on the application.

1.1.2 For applications submitted under the PA2008 regime, the relevant SoS is the competent authority for the purposes of The Conservation of Habitats and Species Regulations 2017 (The Habitats Regulations). The findings and conclusions on nature conservation issues reported by the ExA will assist the SoS in performing their duties under the Habitats Regulations.

1.1.3 This Report on the Implications for European sites (RIES) documents and signposts the information in relation to potential effects on European sites that was provided within the DCO application and submitted during the examination by the applicant and interested parties (IPs), up to deadline 6 (DL6) of the examination (13 January 2025). It is not a standalone document and should be read in conjunction with the Examination documents referred to. Where document references are presented in square brackets [] in the text of this report, that reference can be found in the Examination library published on the National Infrastructure Planning website at the following link:

H2Teesside - Examination Library

1.1.4 For the purpose of this RIES, in line with The Habitats Regulations and relevant Government policy, the term ‘European sites’ includes Special Areas of Conservation (SAC), candidate SACs, proposed SACs, Special Protection Areas (SPA), potential SPAs, Sites of Community Importance, listed and proposed Ramsar sites and sites identified or required as compensatory measures for adverse effects on any of these sites. For ease of reading, this RIES also collectively uses the term ‘European site’ for ‘European sites’ defined in The Habitats Regulations 2017 and ‘European Marine Sites’ defined in The Conservation of Offshore Marine Habitats and Species Regulations 2017, unless otherwise stated. The ‘UK National Site Network’ refers to SACs and SPAs belonging to the United Kingdom already designated under the Directives and any further sites designated under The Habitats Regulations.

1.1.5 This RIES is issued to ensure that IPs including the Appropriate Nature Conservation Bodies (ANCB) – Natural England (NE) – is consulted formally on Habitats Regulations matters. This process may be relied on by the SoS for the purposes of Regulation 63(3) of The Habitats Regulations.

1.1.6 It also aims to identify and close any gaps in the ExA’s understanding of IPs’ positions on Habitats Regulations matters, in relation to all European sites and

qualifying features as far as possible, in order to support a robust and thorough recommendation to the SoS.

1.1.7 Following consultation, the responses will be considered by the ExA in making their recommendation to the SoS and made available to the SoS along with this report. The RIES will not be revised following consultation.

1.2 Documents used to inform this RIES

1.2.1 The applicant's Habitats Regulations Assessment (HRA) report (the HRA report) comprised the following document:

- H2Teesside Project Report to Inform HRA [APP-040] [APP-041], updated to [AS-016] in response to s51 advice at acceptance relating to typographical and cross-referencing errors. The HRA report was further updated to [CR1-024] to support a change request and to [REP5-011] to reflect updates to assessment work. This RIES will refer to [AS-016] when describing the applicant's submission and [REP5-011] when describing examination matters.

1.2.2 The HRA report concluded that adverse effects on the integrity of all European sites could be excluded.

1.2.3 In addition to the HRA report, the RIES refers to representations submitted to the examination by IPs, Issue Specific Hearing (ISH) documents, Statements of Common Ground (SoCG) and other examination documents as relevant. All documents can be found in the Examination Library.

1.3 Change Requests

1.3.1 To date, the applicant has made one change application (17 October 2024) incorporating nine change requests [CR1-044] as summarised in annex 1 of the RIES (the change application).

1.3.2 On 21 October 2024, the ExA [PD-012] made a procedural decision to accept all the proposed changes and the examination proceeded in consideration of the change application.

1.3.3 Relevant HRA matters arising from these change requests are detailed in sections 2 and 3 of this RIES.

1.4 RIES questions

1.4.1 This RIES contains questions predominantly targeted at the applicant and ANCB, which are drafted in **blue bold text**.

The responses to the questions posed within the RIES and comments received on it will be of great value to the ExA in understanding IPs' positions on Habitats Regulations matters. It is stressed that responses to other matters discussed in the RIES are equally welcomed. In responding to the questions, please refer to the ID number.

1.4.2 In responding to the questions in tables 2.3 and 3.1, please refer to the ID number in the first column.

1.4.3 Comments on the RIES are timetabled for DL7 (6 February 2025).

1.5 Structure of this RIES

1.5.1 The remainder of this report is as follows:

- **Section 2** identifies the European sites screened by the applicant for potential likely significant effects (LSE), either alone or in-combination with other projects and plans. It also identifies issues that have emerged during the examination, up to DL6.
- **Section 3** identifies the European sites which have been considered in terms of adverse effects on site integrity, either alone or in-combination with other projects and plans. It also identifies issues that have emerged during the examination, up to DL6.
- **Annex 1** summarises the nine change requests forming the change application.
- **Annex 2** comprises a list of the European sites and qualifying features considered by the applicant in the HRA report and identified by IPs during the examination, up to DL6.

1.6 HRA matters considered during the examination

1.6.1 The examination to date has focussed on the following matters:

- The applicant's assessment approach for bird qualifying features of Teesmouth and Cleveland Coast Ramsar site and SPA. This had implications for the assessment of noise and visual disturbance.
- NE disputed the applicant's conclusions on LSE for atmospheric pollution (construction and operation) and visual disturbance (operation) to Teesmouth and Cleveland Coast Ramsar site and SPA.
- NE disputed the applicant's conclusions on LSE for atmospheric pollution (operation) to North Yorks Moors SAC and SPA and Northumbria Coast Ramsar site and SPA.
- NE sought further information about the applicant's approach to assessment of loss of functionally linked land (FLL) to Teesmouth and Cleveland Coast Ramsar site and SPA, and the mitigation proposed.
- NE sought further information about the applicant's approach to assessment of in-combination effects, including the other projects considered and the overlap between the proposed development and the Net Zero Teesside (NZT) DCO.

2 LIKELY SIGNIFICANT EFFECTS

2.1 European sites considered

Introduction

2.1.1 The proposed development is not connected with or necessary to the management for nature conservation of any European site.

2.1.2 The applicant has not identified any potential impacts on European sites in other European Economic Area (EEA) States [AS-016]. Only UK European sites are addressed in this RIES.

2.1.3 The HRA Report [AS-016] used Environment Agency (EA) guidance for large power generation developments greater than 50 megawatts (MW) to inform the zone of influence (ZoI) for identifying European sites. Paragraph 3.2.1 states that a minimum ZoI of 15km has been used.

2.1.4 Paragraph 3.2.4 of [AS-016] stated that potential for bird qualifying features of the Teesmouth and Cleveland Coast SPA and Ramsar site to be using FLL that could be affected by the proposed development was considered.

2.1.5 The HRA Report [AS-016] considered mobile qualifying features (marine mammals and migratory fish) of more distant European sites beyond the 15km ZoI (paragraph 3.2.6).

Sites within the UK National Site Network (NSN)

2.1.6 The applicant identified 13 European sites within the UK NSN for inclusion within the assessment. These are listed in tables 3-1 and 3-2, and annex D of the HRA Report [AS-016] and are as detailed in table 2.1 below.

Table 2.1: European sites in the UK NSN identified in the applicant's HRA Report [AS-016]

Name of European site	Distance at closest point (km)	
	Main Site	Connection Corridors
Berwickshire and North Northumberland Coast SAC	87.72km north	
Durham Coast SAC	13.7km south-east	11.4km south-east
Humber Estuary SAC	106.38km south	
North York Moors SAC	12.1km south-east	8km south-east
North York Moors SPA	12.1km south-east	8km south-east
Northumbria Coast SPA	13.7km south-east	11.3km south-east
Northumbria Coast Ramsar site	13.7km south-east	11.3km south-east

Name of European site	Distance at closest point (km)	
	Main Site	Connection Corridors
River Tweed SAC	107.27km north	
Southern North Sea SAC	101.34km east	
Teesmouth and Cleveland Coast SPA	Adjacent	Overlapping
Teesmouth and Cleveland Coast Ramsar site	Adjacent	Overlapping
The Wash and North Norfolk Coast SAC	187.05km south	
Tweed Estuary SAC	135.95km north	

2.1.7 Paragraph 3.2.3 of [AS-016] stated that Castle Eden Dene SAC was also considered in the context of operational stack emissions but was screened out from further assessment as it is more than 15km from the Main Site, and operational air quality effects would not be generated from the connection corridors (which are 14.2km at the closest point).

2.1.8 NE [RR-026] did not dispute the Applicant's approach to Castle Eden Dene SAC.

Q2.1.1 [To NE] Confirm if you agree with the Applicant's screening approach in respect of the Castle Eden Dene SAC. If not agreed, provide an explanation of NE's position.

2.1.9 The locations of these sites relative to the proposed development are depicted on figures 2 and 3 of appendix A of the HRA report [AS-016].

2.1.10 No additional UK European sites have been identified by IPs for inclusion within the assessment in the examination to date.

2.1.11 NE [RR-026] did not identify any additional European sites or features in its relevant representation. In response to a question from the ExA in [PD-008], NE [REP2-072], Q1.4.8 confirmed that it was satisfied that the HRA report [AS-016] identified all relevant European sites and qualifying features.

2.1.12 The HRA report [AS-016] identified potential effects on several cross-border sites, including the Berwickshire and North Northumberland Coast SAC and the River Tweed SAC. On 4 September 2024, the ExA [PD-009] wrote to NatureScot inviting it to make representations in the examination owing to potential impacts to these sites. NatureScot [REP1-037] confirmed that whilst the larger part of the River Tweed SAC is in Scotland, as the proposed development is located within England, it was content for NE to comment on its behalf although it would be happy to confer with NE if needed.

2.2 Potential impact pathways

2.2.1 Section 4 of the HRA report [AS-016] described potential LSEs on the relevant European sites, based on the different phases of the proposed development (construction, operation and decommissioning).

2.2.2 The potential impact pathways assessed by the applicant are set out in annex C of [AS-016]. Tables D-1 to D-11 in annex D set out the applicant's screening conclusions for each European site and qualifying feature assessed in respect of the impact pathways considered for that site.

2.2.3 Table 2.1 summarises the potential impact pathways that have been screened by European site and receptor type. Not all potential impacts were considered by the applicant for each qualifying feature, with reasoning provided in the HRA report [AS-016]. European sites are listed in table 2.2 if any of the potential impacts were assessed for any of their qualifying features. The full list of qualifying features for the sites considered is provided in annex 2 of this RIES.

2.2.4 The applicant [AS-016], paragraph 4.4.3, referred to a potential impact pathway of effects on foraging resources that support qualifying bird species during decommissioning that would be considered for Adverse Effects on Integrity (AEoI). The ExA [PD-008], Q1.4.2 sought clarification from the applicant, as this pathway was not referred to again in [AS-016]. The applicant [REP2-022] confirmed that the reference was included erroneously; it was removed from the next iteration of the HRA report [CR1-023].

Table 2.2: Impact pathways and European sites considered in the Applicant's screening assessment

Potential impacts	Relevant European sites assessed for LSE alone	Receptor type
Construction and decommissioning phases		
Direct habitat loss due to horizontal directional drilling (HDD) collapse	Teesmouth and Cleveland Coast SPA Teesmouth and Cleveland Coast Ramsar site	Habitats supporting bird qualifying features
Loss of functionally linked land	Teesmouth and Cleveland Coast SPA Teesmouth and Cleveland Coast Ramsar site	Habitats supporting bird qualifying features
Noise and visual disturbance	Teesmouth and Cleveland Coast SPA Teesmouth and Cleveland Coast Ramsar site	Bird qualifying features
Disturbance in functionally linked habitat	Berwickshire and North Northumberland Coast SAC	Grey seal
	Humber Estuary SAC	Grey seal River lamprey Sea lamprey
	River Tweed SAC	Atlantic salmon Otter Brook lamprey River lamprey Sea lamprey
	Southern North Sea SAC	Harbour porpoise
	The Wash and North Norfolk Coast SAC	Harbour seal Otter
	Tweed Estuary SAC	River lamprey Sea lamprey

Potential impacts	Relevant European sites assessed for LSE alone	Receptor type
Atmospheric pollution	Teesmouth and Cleveland Coast SPA Teesmouth and Cleveland Coast Ramsar site	Habitats supporting bird qualifying features
Water quality	Teesmouth and Cleveland Coast SPA Teesmouth and Cleveland Coast Ramsar site	Habitats supporting bird qualifying features
Operational phase		
Noise and visual disturbance	Teesmouth and Cleveland Coast SPA Teesmouth and Cleveland Coast Ramsar site	Bird qualifying features
Atmospheric pollution	Durham Coast SAC	Habitat qualifying features
	North York Moors SAC	Habitat qualifying features
	North York Moors SPA	Habitats supporting bird qualifying features
	Northumbria Coast SPA Northumbria Coast Ramsar site	Habitats supporting bird qualifying features
	Teesmouth and Cleveland Coast SPA Teesmouth and Cleveland Coast Ramsar site	Habitats supporting bird qualifying features
Water quality	Teesmouth and Cleveland Coast SPA Teesmouth and Cleveland Coast Ramsar site	Habitats supporting bird qualifying features
Coastal squeeze	Teesmouth and Cleveland Coast SPA Teesmouth and Cleveland Coast Ramsar site	Habitats supporting bird qualifying features

2.3 In-combination effects

2.3.1 Section 5 of the HRA report [AS-016] outlined the applicant's approach to assessing in-combination effects. The projects included in the in-combination assessment were detailed in table 5-1 of the HRA Report [AS-016] and their locations depicted on Environmental Statement (ES) figure 23-3 [APP-182].

2.3.2 The applicant's screening matrices in annex D of [AS-016] indicate that in-combination effects were screened in for each impact pathway which was screened in for potential LSE from the proposed development alone, for all relevant European sites and qualifying features.

2.3.3 Section 7 of the HRA report [AS-016] provides an assessment of the potential in-combination effects of the proposed development with other plans and projects in relation to effects on site integrity, rather than as part of the screening exercise for LSE.

2.3.4 In response to a question from the ExA [PD-008], Q1.4.5 seeking clarification of its approach, the applicant [REP2-022] stated that the HRA report [AS-016] considered plans and projects as set out in the report, and that the potential for all aspects to have in-combination LSE was considered. NE [RR-026] did not dispute this approach.

2.3.5 NE [RR-026] advised that the "developments scoped in for potential impacts in-combination… is comprehensive, in terms of inclusion of the correct types of development." NE stated that further information was required in relation to thematic areas and temporal overlap with neighbouring schemes to inform the assessment. These matters are addressed in section 3 of this RIES.

2.4 The applicant's assessment

2.4.1 The applicant's screening conclusions at the point of the DCO application were presented in section 4 of the HRA report [AS-016]. They are summarised in the applicant's screening matrices in annex D of [AS-016].

Sites for which the applicant concluded no LSE on all qualifying features

2.4.2 At the point of application, the applicant concluded that the proposed development would not be likely to give rise to significant effects, either alone or in combination with other projects or plans, on all qualifying features of the following European sites:

- Durham Coast SAC
- North York Moors SAC
- North York Moors SPA
- Northumbria Coast Ramsar site
- Northumbria Coast SPA
- Southern North Sea SAC

2.4.3 NE [RR-026] did not dispute the applicant's conclusion in respect of the Southern North Sea SAC.

Q2.4.1 [To NE] Confirm if you agree with the applicant's screening conclusions in respect of the Southern North Sea SAC. If not agreed, provide an explanation of NE's position.

2.4.4 The applicant's conclusions in respect of the other 5 European sites were disputed by NE [RR-026] and questioned by the ExA during examination. See section 2.5 of this RIES for further details.

Sites for which the applicant concluded LSE on some or all qualifying features

2.4.5 At the point of application, the applicant concluded that the proposed development would be likely to give rise to significant effects, either alone or in combination with other projects or plans, on one or more of the qualifying features of:

- Berwickshire and North Northumberland Coast SAC – grey seal
- Humber Estuary SAC – sea lamprey and grey seal
- River Tweed SAC – Atlantic salmon and sea lamprey
- Teesmouth and Cleveland Coast Ramsar site and SPA – all qualifying features
- The Wash and North Norfolk Coast SAC – harbour seal
- Tweed Estuary SAC – sea lamprey

2.4.6 The qualifying features and LSE pathways screened in are detailed in section 4 and annex D (screening matrices) of the HRA report [AS-016].

2.4.7 The applicant's decision to exclude certain LSE impact pathways was disputed by IPs and questioned by the ExA during examination. See section 2.5 of this RIES for further details.

2.5 Pre-examination and examination matters

Screening of operational emissions to air

2.5.1 The applicant [AS-016] identified that the main pollutants of concern from the proposed development are oxides of nitrogen (NO_x), ammonia (NH_3) and sulphur dioxide (SO_2). It stated that high levels of NO_x and NH_3 are likely to increase the total nitrogen deposition to soils, which could lead to deleterious effects in resident ecosystems. Table 4-7 in [AS-016] summarised the main sources and effects of air pollution on habitats and species.

2.5.2 The applicant used site relevant critical loads from the Air Pollution Information System (APIS) website to establish the sensitivity of the qualifying features of the European sites. It applied specific criteria for statutory nature conservation sites as described in [APP-191] based on the EA Air Emissions Risk

Assessment guidance (Defra and the EA, 2016, updated in 2023), which stated that impacts from stack emissions are insignificant if:

- the long term process contribution (PC) is less than 1% of the critical level, or if greater than 1% then the predicted environmental contribution (PEC) is less than 70% of the critical level, or
- the short term PC is less than 10% of the critical level.

2.5.3 The applicant stated that breeding terns and avocet are the only qualifying feature of the Teesmouth and Cleveland Coast sites that are sensitive to NO_x and nitrogen deposition. It stated that common tern is sensitive to acid deposition but the nesting habitat (calcareous grassland) that would be affected is not present in the SPA so acid deposition was not considered further. Based on modelling in [APP-060] and [APP-191] the applicant screened out operational NO_x emissions from the proposed development alone and in combination to the Teesmouth and Cleveland Coast sites as the PEC would remain below the 24 hour and annual critical level. It screened out nitrogen deposition from the proposed development alone on the same basis but concluded potential LSE from the proposed development in combination, as modelling indicated this would exceed 1% of the critical load.

2.5.4 The applicant [AS-016] screened out LSE to the North York Moors SAC and SPA on the basis that modelling in [APP-060] and [APP-191] concluded that the contribution of the proposed development was less than 0.01 kilograms per hectare per year (kgN/ha/yr), with the blanket bog and heathland qualifying features having a nitrogen critical load on APIS of 5 to 10kgN/ha/yr.

2.5.5 The applicant [AS-016] screened out Northumbria Coast Ramsar site and SPA as APIS showed nesting terns as the only qualifying feature that is sensitive to nitrogen deposition. Paragraph 4.3.9 stated that the colonies are located at the mouth of Long Nanny Burn in Beadnell Bay, much further north than the proposed development. It stated that the contribution of the proposed development is less than 0.0kgN/ha/yr at receptor OE_8 (selected to represent these European sites, as shown on [APP-097]).

2.5.6 NE [RR-026], NE15 provided advice about the applicant's approach. It stated that relevant habitat types and qualifying features and their associated critical loads (as reported on APIS) should be provided for each European site and receptor. It advised that the 1% critical load or level exceedance threshold used for screening should be applied to in-combination effects if the proposed development alone does not meet it.

2.5.7 NE [RR-026], NE15 advised that the screening assessment should follow its guidance in NEA001. It stated that if the PC from the proposed development alone exceeds 1% of the relevant critical load or level on APIS, an assessment of AEoI is required; the LSE conclusion does not depend on background or PEC. It acknowledged that ecological considerations about qualifying feature sensitivity are relevant but stated that these should be considered as part of the assessment of AEoI.

2.5.8 NE [RR-026], NE15, NE24 and NE25 disputed the applicant's conclusions of no LSE to Teesmouth and Cleveland Coast Ramsar site and SPA from NO_x

and nitrogen deposition (proposed development alone), North York Moors SAC and SPA from acid deposition (operation) and Northumbria Coast SPA and Ramsar site from nitrogen deposition (operation) (proposed development in combination with other projects and plans) on the basis of an exceedance of the 1% critical level.

2.5.9 The applicant [REP1-007] confirmed that relevant habitat types, qualifying features and associated critical loads (or critical levels for NO_x, SO_x and ammonia) would be clarified in an updated HRA report.

2.5.10 The applicant [REP1-007] stated that APIS showed that the only qualifying features of the Teesmouth and Cleveland Coast SPA and Ramsar site that are sensitive to atmospheric pollutants are nesting terns and avocet, being sensitive to nitrogen deposition but not NO_x, acid deposition or ammonia. Modelling of nitrogen deposition to these features from the proposed development alone and in combination is presented in tables 8B-29 to 8B-32 and tables 8B-40 to 8B-43 of [APP-191] respectively.

2.5.11 The applicant did not address acid deposition to North York Moors SAC and SPA in [AS-016]. At DL1, it [REP1-007] clarified that the contribution from the proposed development alone is effectively zero for acid deposition, as shown in [APP-191], table 8B-32.

2.5.12 The applicant submitted an updated HRA report with its change application [CR1-023], which included details about atmospheric pollution and cumulative road traffic emissions using NEA001. It concluded that annual NO_x and nitrogen deposition would exceed the 1% critical level at Teesmouth and Cleveland Coast Ramsar site and SPA for the proposed development alone but concluded no LSE as it was only marginally above the threshold (1.1% for both pollutants). In-combination effects were screened in for both NO_x and nitrogen deposition.

2.5.13 It concluded [CR1-023] that 24 hour NO_x from the proposed development in combination would exceed the 1% critical level at North York Moors SAC and SPA, and Northumbria Coast Ramsar site and SPA (table 4-9). The conclusion of no LSE was retained on the basis that the proposed development's contribution was below 10% of the critical level. Tables 4-11 and 4-12 of [CR1-023] showed that the 1% critical level would not be exceeded at these sites for nitrogen or acid deposition from the proposed development alone or in combination.

2.5.14 NE [REP4-028], NE15, advised that this matter was still under discussion for the Teesmouth and Cleveland Coast sites. It noted that the assessments did not include nitrogen deposition, NO_x or ammonia from road traffic, as highlighted at [RR-026], NE10 and that it still required clarification on cumulative impacts.

2.5.15 For North York Moors SAC and SPA, and Northumbria Coast Ramsar site and SPA, NE [REP4-028], NE15, NE24 and NE25, stated that the sites should be included in appropriate assessment for completeness but acknowledged that in practice 24 hour NO_x impacts would not alter the annual levels relevant to ecosystem impacts. It reported that matters in relation to NO_x, nitrogen and acid deposition on these sites were agreed.

2.5.16 The applicant submitted a further updated HRA report [REP5-011], with revised operational air quality modelling. Table 4-8 reported that the annual mean NO_x exceeded the 1% critical level for the proposed development in combination at North York Moors SAC and SPA (1.6%) and Northumbria Coast Ramsar site and SPA (1.6%). Table 4-11 showed that nitrogen deposition at these sites also exceeded the 1% critical level in combination (2.3% and 1.3% respectively). Table 4-12 showed that acid deposition exceeded the 1% critical level in combination at North Yorks Moors SAC and SPA (3.5%). The applicant [REP5-011] stated that although the in-combination PC exceeded the 1% critical level, the proposed development's contribution is imperceptible, as it is not visible in the modelling when report to 2 decimal places. It concluded no LSE.

Q2.5.1 [To NE] NE's advice in [REP4-028] was that operational emissions to air (NO_x, nitrogen and acid deposition) to North Yorks Moors SAC and SPA and Northumbria Coast Ramsar site and SPA from the proposed development in combination would not be significant on the basis of information presented in the applicant's HRA report [CR1-023], which concluded that the 1% critical level was not exceeded for these pollutants. A further updated HRA report [REP5-011] has resulted in a change to the modelling, with the 1% critical level now exceeded for annual NO_x, nitrogen deposition and acid deposition (North Yorks Moors SAC and SPA only). NE is requested to set out any implications for its advice on these matters as a result of [REP5-011].

2.5.17 The applicant [REP5-051] provided further comments to address NE10 and concerns about cumulative impacts and indirect effects to habitat used by SPA birds (see table 3.1, ID3.1.6).

Ground-strengthening works

2.5.18 The ExA [PD-008], Q1.9.28 sought confirmation from the applicant as to the nature of ground strengthening works referred to in Article 32 of the dDCO [CR1-015] and the implications should these be left in situ. It also asked NE to comment on the implications.

2.5.19 The applicant [REP2-027], Q1.9.28 stated that examples of ground-strengthening works would include strengthening to accommodate crane pads or heavy plant and machinery. It stated that it does consider that significant environmental effects would arise and that in principles it would not be beneficial to require works to be removed and incur additional impacts unless there is a good reason to do so. It considered that the works would likely constitute an improvement to the land.

2.5.20 NE [REP2-072], Q1.9.28, advised that the affected areas should be considered within the Report to Inform HRA, particularly if the ground-strengthening works are to be retained. It stated that the areas should be quantified and assessed for impacts on the designated site.

2.5.21 The applicant [REP3-006] stated that impacts of installing ground strengthening were accounted for in the ES construction phase assessment. It stated that Article 32 of the dDCO simply requires for such areas to be

retained. The applicant confirmed that this would not prevent it putting in place the commitments described in the Outline Landscape and Biodiversity Management Plan (LBMP) [REP2-009] to ensure habitats are restored.

Q2.5.2 [To NE] NE is requested to confirm if it is satisfied that the implications of installing and retaining ground-strengthening works have been adequately considered in the HRA. If concerns remain, confirm for which European sites and qualifying features, and what pathways to effect.

Further matters discussed during examination

2.5.22 Further matters raised in the examination to date, or those for which the ExA seeks clarity, in relation to LSEs are summarised in table 2.3 below.

2.5.23 The ExA understands that matters coloured green are resolved and matters coloured amber are outstanding.

2.5.24 Note that matters relating to semantics and minor clarification have not been included.

Table 2.3: Issues raised in the examination to date by the ExA and IPs in relation to the applicant's screening of LSEs (alone and in-combination)

ID	Issue	Details	ExA observation/ question
TEESMOUTH AND CLEVELAND COAST SPA AND RAMSAR			
2.3.1	Visual disturbance (operation)	The applicant [AS-016] screened out visual disturbance to bird qualifying features based on the site having a long history of industrial use and overwintering birds being used to activity from staff. NE [RR-026], NE7 did not agree. It noted there was no reference to activities along the pipeline corridor during operation. It requested that sources of visual disturbance were better quantified and a robust analysis of impacts undertaken to inform if mitigation is required. The applicant [REP1-007] stated that the bird assemblage is likely to be habituated to the industrial landscape and activity in the area. It provided information about likely operational activities along the proposed pipeline corridor and reiterated that it did not consider that these would lead to LSE. NE [REP2-072] confirmed its position remained as set out in [RR-026]. The applicant [REP5-051] referred to NatureScot research report 1283 – Disturbance Distance Review: and updated literature review of disturbance distances of selected bird species (Goodship and Furness, 2022) to support its position that assessment needs to be on a site specific basis taking into account context. It reiterated that land within and around the site has been subject to high levels of anthropogenic disturbance for many years.	The ExA understands that NE7 remains under discussion between the applicant and NE, and that the applicant proposes to submit updated information to address these matters at DL6A.
2.3.2	Sightlines from the Blast Furnace Pool (operation)	NE [RR-026], NE8 stated that it appeared that the hydrogen production facility would reduce sightlines from the Blast Furnace Pool (sector 3a), which could have negative impacts on waterbirds, such as increased vigilance and	**QT2.2.2a. NE is requested to comment on the**

ID	Issue	Details	ExA observation/ question
		increased predation risk to direct avoidance of the pool. NE described it as a construction impact but the ExA assumes for the purposes of this RIES that it relates to presence of new buildings during operation. The applicant [REP1-007] stated that there is little evidence that this pool or any part of the dune system is used more than occasionally, noting that 4 SPA bird features were recorded across 24 surveys and none more than twice. It stated that sightlines to the north and west would not be affected; sightlines to the south west may reduce in an area that previously had infrastructure. The change application [CR1-044], change 7 resulted in an increase in maximum height of the carbon dioxide (CO_2) absorber column and flash vessels. The applicant stated [CR1-047] that consideration of vertical scale in the context of sightlines from the Blast Furnace Pool would be discussed with NE and progressed through the SoCG; however, this component was not considered in the updated HRA report [CR1-023]. The applicant [AS-039] stated elsewhere that change 7 would not change the conclusions of the HRA and that any sightings would have opened recently given that the site was previously subject to ongoing demolition associated with the former steelworks. NE [REP4-028] noted the bird survey results but advised that use of the pool by SPA birds might be low, but it serves an important function as a refuge when tidal or weather conditions elsewhere in the estuary are less favourable. The applicant submitted a technical note in appendix 2 of [REP5-051], which provided an assessment of impacts arising from potential reduction in sightlines to the Blast Furnace Pool. It included change 7. It concluded that effects from reduction of sightlines and increased predation would be not significant. NE [REP5a-015] stated that it had engaged with the applicant to resolve issues associated with the SPA bird populations and was awaiting final report versions to confirm if they are sufficient to inform assessment.	**assessment in appendix 2 of [REP5-051] and if this addresses its outstanding concerns.** **QT2.2.2b. NE is requested to provide any evidence it holds that demonstrates the blast furnace pool as a function as a refuge for SPA birds during less favourable tidal or weather conditions. Which SPA birds use the pool and how frequently. Are these species sensitive to visual disturbance.**

ID	Issue	Details	ExA observation/ question
2.3.3	Atmospheric pollution (construction dust)	The applicant [AS-016] stated that the only pollutants likely to be associated with the proposed development are NO_x and NH_3, which would primarily be determined by traffic movements and diesel plant. Construction dust was not considered separately for LSE but the applicant proposed to manage construction impacts through measures set out in a Construction Environmental Management Plan (CEMP). NE [RR-026], NE9 sought clarification of how standard measures proposed to mitigate construction dust impacts would work to manage potential impacts to qualifying features and their likely effectiveness. The applicant [REP1-007] stated that the mitigation measures in the Framework CEMP [APP-043] originated from guidance published by the Institute of Air Quality Management and based on decades of adoption at UK construction sites with the aim of minimising emissions at source. NE [REP2-072] accepted that standard measures are generally effective at minimising dust beyond the site boundary but noted that the protected sites are very close and that measures designed for protection of human health would not automatically protect sensitive ecosystems. It advised that standard measures in the CEMP could be relied on if justification was given that there would be no impact on site integrity and that the European sites were included in the monitoring commitment in table 9.1 of the Framework CEMP [REP3-003]. It stated [REP2-072], paragraph 2.8.1, that measures were adequately demonstrated as being sufficient. The applicant [AS-039] stated that the Framework CEMP [REP3-003] includes vegetation protection as a main aim of monitoring, and there is also a requirement to consult NE on effectiveness of measures proposed (table 7-2). NE [REP4-028] stated that this matter was agreed.	N/A – resolved.

ID	Issue	Details	ExA observation/ question
2.3.4	Atmospheric pollution (traffic during construction)	The applicant [AS-016] screened out this impact pathway for LSE based on its air quality assessment [APP-191], which concluded that emissions would not exceed the first stage screening threshold of 1% of the environmental standard for annual mean NO_x concentrations and that the critical level (30 ugm^{-3}) would not be exceeded. It stated that nutrient nitrogen deposition would not exceed 1% of the environmental thresholds at any receptor. Paragraph 8.3.21 of [APP-060] states SO_2 can be present in vehicle exhaust but detailed consideration is not relevant as released concentrations are low enough to not give rise to significant effects due to anticipated vehicle numbers during construction. No areas within the administrative boundaries of the relevant councils are at risk of exceeding the relevant objective for SO_2. NE [RR-026], NE10 advised that the assessment of emissions from construction traffic should include consideration of NH_3 and acid deposition (from SO_2) in addition to NO_x and PM. It noted that following updates to assessment, mitigation may be needed. The applicant [REP1-007] committed to update its construction phase traffic air quality modelling using the Calculator for Road Emissions of Ammonia (CREAM) emissions database to account for ammonia emissions and acid deposition. It stated that the contribution was not expected to be material and noted that the only qualifying features of concern are nesting terns and nesting avocets, and that there are no nesting sites within 200m of affected roads. NE [REP2-072] accepted the comments on tern and avocet nesting locations but stated that evidence regarding broad habitat structure should be presented. The applicant [CR1-023] amended the HRA report [CR1-023] to address these comments. Annex G included detail on the assessment of cumulative road traffic assessment using NEA001.	N/A – resolved in respect of NE's screening concerns as this matter is now considered for AEoI in [REP5-011].

ID	Issue	Details	ExA observation/ question
		NE [REP4-028] advised it was unclear why areas used for feeding were not considered. It stated that the conservation objective includes maintain or restore the structure and function of the habitats of the qualifying features. It would be most precautionary to assume at screening stage that the qualifying feature is located at the boundary of the site – or could be – and evidence why this is not feasible should be provided to inform an appropriate assessment. It stated that this is especially the case for mobile species such as birds, which are not restricted to only known current nest sites. It requested updated modelling to reflect the worst case NH_3 contributions to nitrogen deposition, including from cumulative impacts. It stated that further consideration of affected habitat types in the underpinning Site of Special Scientific Interest (SSSI) should be made before assigning 'higher plant' critical level. The applicant [REP5-051] agreed to screen in atmospheric pollution from construction traffic and provide a rationale for no AEoI. It submitted an updated HRA report [REP5-011] on that basis.	
2.3.5	Atmospheric pollution (other pollutants during construction)	NE [RR-026], NE11 identified several potential sources of emissions to air during construction that it was not clear had been considered. This included emissions from non-road mobile machinery (NRMM), traffic on internal roads, emissions at the proposed Cowpen Bewley Open Space Replacement Land and from demolition and site clearance. It requested further information about these pollutants and noted that a mitigation plan should be produced. The applicant [REP1-007] responded on each of NE's concerns. It stated that NRMM are transient and sources of emission from NRMM are mainly within the Main Site, which is more than 200m from nesting areas of qualifying features (tern and avocet) that could be affected. The assessment considered road going vehicles at the site boundary and on public highways but not on the Main Site, given its distance from qualifying features that could be affected. Traffic	N/A – resolved.

ID	Issue	Details	ExA observation/ question
		flows at Cowpen Bewley would be below the threshold for assessment. Demolition and clearance works would be controlled by measures included in the Framework CEMP [REP5-013] or Permitted Preliminary Works (PPW) CEMP, which would be secured in Requirement 15 of the dDCO [REP5-006]. NE [REP2-072] was satisfied this matter was resolved.	
2.3.6	Atmospheric pollution (NO_x and nitrogen deposition during operation)	As discussed in section 2.5, NE [RR-026], NE15 did not agree with the applicant's decision to screen out LSE from the proposed development alone during operation, arising from NO_x and nitrogen deposition. The applicant [REP5-011] did screen this matter for the proposed development in combination.	The ExA understands that this matter remains unresolved with NE.
NORTH YORK MOORS SAC AND SPA			
2.3.7	Atmospheric pollution (NO_x, nitrogen and acid deposition during operation)	As discussed in section 2.5, NE [REP4-028], NE24, agreed with the application's conclusion of no LSE from the proposed development in combination during operation, arising from NO_x, nitrogen and acid deposition. However, this was based on an earlier iteration of the HRA report [CR1-023]. It is unclear if NE's advice would change based on [REP5-011] reporting an exceedance of the 1% critical level for those pollutants from the proposed development in combination.	The ExA understands that this matter was resolved with NE but seeks confirmation as to any change in advice, as sought in Q2.5.1 of this RIES.
NORTHUMBRIA COAST RAMSAR SITE AND SPA			
2.3.8	Atmospheric pollution (NO_x and nitrogen deposition during operation)	As discussed in section 2.5, NE [REP4-028], NE25, agreed with the application's conclusion of no LSE from the proposed development in combination during operation, arising from NO_x and nitrogen deposition. However, this was based on an earlier iteration of the HRA report [CR1-023]. It is unclear if NE's advice would change based on [REP5-011] reporting an exceedance of the 1% critical level for those pollutants.	The ExA understands that this matter was resolved with NE but seeks confirmation as to any change in

ID	Issue	Details	ExA observation/ question
			advice, as sought in Q2.5.1 of this RIES.
DURHAM COAST SAC			
2.3.9	Air quality (nitrogen deposition) during operation	The applicant screened out this pathway as APIS did not identify the SAC as being sensitive to nitrogen or acid deposition. Paragraph 4.3.9 of [AS-016] stated that there are no critical loads on APIS for the site. NE [RR-026], NE25 stated it was unclear why 10kgN/ha/yr was used as the critical load when APIS indicates that coastal dune grasslands have a lower critical load of 5kgN/ha/yr. It advised it would be precautionary to include the SAC in the appropriate assessment and justify use of calcareous grassland critical load. NE stated the levels did not include contribution from ammonia. The applicant [REP1-007] stated that the SAC does not have dune grasslands; the cliffs are magnesian limestone and flushed with calcareous water. The applicant stated that the 5kgN/ha/yr critical would not be appropriate. The ExA [PD-008], Q1.4.10 sought clarification if coastal dune grasslands (grey dunes) were a qualifying feature of the SAC, as it did not appear in the SAC citation in [AS-016] but was assessed in the ES [APP-191]. The applicant [REP2-022] and NE [REP2-072] confirmed that grey dunes are not a qualifying feature of the SAC. NE [REP2-072] was satisfied this matter was resolved.	N/A – resolved.

2.6 Summary of Examination outcomes in relation to screening

2.6.1 The ExA's understanding of the applicant's and NE's current positions in relation to LSEs is set out in the tables in annex 2 of this RIES.

2.6.2 The applicant has agreed during the examination that an LSE should also be screened in for:

- Atmospheric pollution during construction (construction traffic emissions) to Teesmouth and Cleveland Coast Ramsar site and SPA.
- Atmospheric pollution during operation (NO_x from the proposed development in combination) to Teesmouth and Cleveland Coast Ramsar site and SPA.

2.6.3 During the examination, NE [REP2-072] updated its advice to confirm that it agreed that LSE to Durham Coast SAC could be excluded. This European site is not considered further in the RIES.

2.6.4 To date in the examination, matters identified in table 2.3 of this RIES in respect of disputed LSEs remain unresolved. The ExA seeks responses from the applicant and NE, where indicated, to provide clarity on the outstanding matters.

2.6.5 NE [REP4-028] updated its advice to confirm that it did not consider that there would be a significant effect from atmospheric pollution during operation to North York Moors SAC and SPA, and Northumbria Coast Ramsar site and SPA. However, revised modelling was presented in [REP5-011] that resulted in exceedances of the 1% critical level by the proposed development in combination for annual NO_x, nitrogen and acid deposition (North York Moors SAC and SPA only). NE did not have an opportunity prior to RIES publication to confirm if this change affected its advice.

2.6.6 For the avoidance of doubt, as it is not clear to the ExA whether an LSE from atmospheric pollution during operation should be screened in for those European sites, the ExA has taken a precautionary approach in this RIES and considered them in section 3.

2.6.7 Similarly, as it is not clear to the ExA whether an LSE from visual disturbance during operation should be screened in for the Teesmouth and Cleveland Coast Ramsar site and SPA, the ExA has taken a precautionary approach in this RIES and considered this impact pathway in section 3.

2.6.8 This conclusion is not final and could be subject to change further to any additional representations received during the examination.

3 ADVERSE EFFECTS ON INTEGRITY

3.1 Conservation Objectives

3.1.1 The conservation objectives for all European sites considered in the applicant's screening assessment (including those for which the applicant concluded no LSE), other than Ramsar sites, were included within section 3.3 of the HRA Report [AS-016].

3.1.2 Conservation objectives were not provided for Teesmouth and Cleveland Coast and Northumbria Coast Ramsar sites. Further to [PD-008], Q1.4.3, the applicant [REP2-022] confirmed its approach. It stated that as there are no published conservation objectives for the Teesmouth and Cleveland Coast and Northumbria Coast Ramsar sites, the objectives for the SPAs were used and that NE had not disputed this approach.

Q3.1.1 [To NE]: Are you satisfied with the applicant's approach to assessment of the Ramsar sites in the absence of conservation objectives.

3.1.3 The HRA report [AS-016] did not state whether the sites were in favourable or unfavourable condition. NE [RR-026] advised that the Teesmouth and Cleveland Coast SPA and Ramsar site are in unfavourable condition for nutrients dues to high dissolved inorganic nutrient (DIN) concentrations in the Tees Estuary.

Q3.1.2 [To the applicant]: Confirm whether the European sites screened in for assessment are in favourable or unfavourable condition.

Q3.1.3 [To NE]: Submit any further information that you hold about whether the European sites screened in for assessment are in favourable or unfavourable condition.

3.2 The applicant's assessment

3.2.1 The European sites and qualifying features for which LSE were identified were further assessed by the applicant to determine if they could be subject to AEoI from the proposed development, either alone or in combination. The outcomes of the applicant's assessment of effects on integrity are summarised in section 6 of the HRA report [AS-016].

Mitigation measures

3.2.2 The HRA report identified mitigation measures in section 6 [AS-016]. These were taken into account in the applicant's assessment of effects on integrity. Measures included commitments on HDD design, timing of construction works, use of noise barriers and visual screening, a lighting scheme and water management plan (WMP).

3.2.3 The measures were set out in the Framework CEMP [APP-043] and its Appendix B Outline WMP [APP-045] and Appendix C Indicative Lighting Strategy [APP-046]. Submission and approval of a detailed CEMP that is

substantially in accordance with the Framework CEMP is secured through Requirements 15(3) and 15(4) of the draft Development Consent Order (dDCO) [AS-014].

The applicant's conclusions in relation to site integrity

3.2.4 At the point of application the applicant concluded that the proposed development would not adversely affect the integrity of any of the European sites and features assessed, either alone or in combination with other projects or plans.

3.2.5 The applicant's conclusions in respect of 7 European sites were initially disputed by NE [RR-026] and questioned by the ExA during the examination. See section 3.3 of this RIES for further details.

3.3 Pre-examination and examination matters

Matters agreed by ANCBs prior to examination commencing

3.3.1 NE [RR-026] confirmed it agreed with the applicant's conclusion of no AEoI in respect of the following European sites:

- North Northumberland Coast SAC
- Humber Estuary SAC
- The Wash and North Norfolk Coast SAC

Method for assessing effects to SPA bird populations

3.3.2 The HRA report [AS-016] was informed by baseline ornithology surveys carried out by the applicant, the results of which were summarised in tables by impact pathway (tables 4-1, 4-2 and 4-4 to 4-6). The full results were presented in ES Appendix 13A [APP-208]. Paragraph 13A.2.5 of [APP-208] stated that survey work was carried out in three broad areas, including the Foundry, Seal Sands and North Tees Marshes during 2022 and 2023. The survey areas were divided into count sectors based on factors including habitat suitability within a 500m radius of the proposed development (paragraph 13A.2.9). Due to access restrictions and conditions imposed by landowners, some sectors (Greenabella Marsh (Sector 22), Navigator Terminals foreshore (Sector 25), Dabholm Gut (Section 18) and Tank Farm (Sectors G13, G13a and B25)) were not fully surveyed at the point the ES was finalised and the applicant confirmed that survey work would be ongoing between January and March 2024. The applicant committed to providing an update in an ES Addendum.

3.3.3 The ExA [PD-008], Q1.4.1 sought clarification as to the implications (if any) of the updated bird survey work. The applicant [REP2-022] stated that the survey work at Greenabella Marsh, Navigator Terminals and Dabholm Gut had resulted in some change to bird numbers recorded but did not change the overall conclusions of the HRA report [AS-016]. It confirmed that further survey work was not carried out at Tank Farm, as this area was removed from the study area following reduction of optionality.

3.3.4 The Ornithology Supplementary Baseline Report [AS-037] set out changes from [APP-208] based on the final survey results for these sectors, including SPA species not previously recorded and those recorded in greater numbers. Table 13A-1 presents peak counts and frequency of occurrence for species exceeding 1% of the Teesmouth and Cleveland Coast SPA population.

Q3.3.1 [To NE]: Can NE advise if it is content that the applicant's waterbird survey effort in [APP-208] and [AS-037] provides sufficient baseline understanding to undertake assessment. If there are any outstanding concerns, confirm what they are.

3.3.5 NE [RR-026], NE2 advised that it did not support the applicant's method for assessing impacts (loss of FLL, noise and visual disturbance) to bird qualifying features of SPAs, which was based on numbers recorded in the applicant's survey work and percentage of the SPA population this represented. It stated that impacts on individual bird species should be assessed for the whole project rather than on a sector basis. It advised that the assessment should be presented for different stages of the proposed development, considering overlapping activities. It requested that data be combined to provide a waterbird total in the assessment. NE confirmed that its comments related to the impact pathways raised in NE3 to NE8 of [RR-026]. Table 3.1 of this RIES describes the position regarding these impact pathways in detail.

3.3.6 The applicant [REP1-007] stated that impacts were assessed on a field by field basis due to project complexity, duration of construction works and acknowledgement that works are not likely to occur across all parts of the proposed development simultaneously. It stated that the peak bird counts for the whole development area were not totalled as it covers a large area and birds would use different locations at different times. The applicant considered that sufficient conservatism was built into the assessment.

3.3.7 At DL2, NE [REP2-072] confirmed that discussions with the applicant were ongoing and it awaited an updated HRA report to reflect a review of bird survey data. The applicant submitted an Ornithology Supplementary Baseline Report [AS-037] and an updated HRA report [CR1-023] reflecting the information.

3.3.8 At DL4, NE [REP4-028] stated that it awaited further information from the applicant on a revised assessment method. At DL5, in response to a question from the ExA [PD-015], NE [REP5-065], Q2.4.2 stated that there was still inadequate information to fully assess the impacts of the proposed development on SPA bird populations. It stated that the applicant was undertaking an assessment of how the SPA birds might be impacted across sectors during construction and it was awaiting the results of this work.

3.3.9 The applicant [REP5-051] stated that it had developed a new bird count method with input from NE and it was progressing revised calculations and assessment that it planned to submit at DL6A as part of an updated HRA report (after publication of this RIES).

3.3.10 NE [REP5a-015] stated that it had engaged with the applicant to resolve issues associated with the SPA bird populations, in particular noise and visual disturbance impacts. It stated that progress had been made but it awaited final versions of reports to confirm if these were sufficient to inform assessment. It

stated that it was yet to fully review the updated HRA Report [REP5-011] but from initial checks the updated information did not appear to be reflected.

Implications of change application for bird assessments

3.3.11 The change application [CR1-044] [CR1-045] affected the assessment of loss of FLL, noise and visual disturbance to bird qualifying features of the Teesmouth and Cleveland Coast SPA and Ramsar site. The applicant provided an updated HRA report [CR1-023] to account for the change application. Section 6 included amended assessments in respect of:

- temporary loss of FLL during construction:
  - Sector 8 is no longer affected due to the removal of construction compound
  - Cowpen Bewley is confirmed as the transmission and distribution infrastructure connection option, increasing certainty that sectors B4, B5 and B6 could be affected and that mitigation described in the HRA report would be required, and
- visual disturbance during construction:
  - Sectors 6 and 7 are no longer affected due to the removal of a construction compound
  - Sectors G2 and G3 are no longer affected due to removal of the proposed AGI off Seaton Carew Road

3.3.12 The updated HRA report [CR1-023] did not identify any change in assessment of noise disturbance during construction because of the change application.

3.3.13 The following sectors identified in [AS-016], paragraph 4.2.36 as locations where bird numbers recorded were greater than or equal to 1% of the SPA population, would no longer be affected as a result of the change application and were removed from assessment in [CR1-023]:

- Sector 3a: black headed gull, lapwing, redshank and teal
- Sector 6: black headed gull, herring gull, knot, redshank and sanderling
- Sector 7: black headed gull, common tern, cormorant, herring gull, redshank, sandwich tern and lapwing
- Sector 8a: black headed gull, common tern, herring gull, lapwing, redshank and sandwich tern

Stack height and air quality effects

3.3.14 NE [RR-026], NE13 sought clarification of sensitivity testing undertaken in the air quality modelling of the stacks (as presented in ES Appendix 8B [APP-191]), and confirmation that greater dispersion from taller stacks would not impact European sites.

3.3.15 The applicant [REP1-007] stated that the stack height determination considered likely impacts within and at the upper and lower bounds of the Rochdale Envelope, as set out in [APP-191].

3.3.16 Paragraph 8B.7.2 of [APP-191] stated that emissions from the auxiliary boilers for Phases 1 and 2 were modelled at heights between 20m and 80m, at 5m increments between 30m and 70m. For the flare stack, emissions were modelled with an initial release height between 65m and 100m. Short-term emissions from the fired heaters were modelled at heights between 20m and 70m at 5m increments. The results of the modelling, showing predicted ground level concentrations for the annual mean and maximum one-hour NO_2 concentrations, are shown on Plate 8B-2.

3.3.17 Paragraphs 8B.7.3 to 8B.7.5 stated that the graphs show the optimum release heights for dispersion of pollutants against visual constraints for each of the stacks, with the applicant noting:

- Auxiliary boilers: the benefit of incremental increases in release heights become less pronounced at a height greater than 40m, although concentrations continue to reduce slowly. A release height of 70m is predicted to provide a sufficient degree of dispersion, with benefits levelling out above this height.
- Flare stacks: there is a predicted steady decline in ground level impacts with an increase in release height although there is no clear height at which the rate of decline diminishes. The minimum height proposed is 65m due to safety reasons.
- Fired heaters: the benefit of incremental increases in release height begins to be less pronounced at heights greater than 35m AGL.

3.3.18 Schedule 15 of the dDCO [REP2-004] secured minimum heights of each stack more than the minimum release heights noted in [APP-191].

3.3.19 The change application [CR1-044] [CR1-045] resulted in the proposed development comprising an additional flare stack for Phase 2 and removal of the air separation unit (ASU) from Phase 1. The additional flare stack would be subject to the same parameters as the Phase 1 flare stack, as specified in Schedule 15 of the dDCO [REP2-004]. The applicant [CR1-050] stated that these components had potential to change conclusions regarding operational emissions to air and provided an updated HRA report [CR1-023] reflecting revised air quality modelling [CR1-045].

3.3.20 Whilst there was some change recorded in [CR1-045], the applicant concluded that this would not affect the conclusions of AEoI in the HRA report [CR1-023].

3.3.21 The change application [CR1-044] [CR1-045] resulted in an increase to the maximum height of the CO_2 absorber column (from 48m AGL (or 56m Above Ordinance Datum (AOD)) to 59m AOD) and the flash vessels (from 58m to 73m AOD). The revised parameters were secured in Schedule 15 of the dDCO

[CR1-015]. The applicant [CR1-050] stated that these components would not affect the HRA.

3.3.22 NE [REP2-072], NE13, stated that following discussion with the applicant, it accepted the approach used is acceptable to establish the worst case for stack heights and that relevant ecological sites were considered. It stated that the application of the Rochdale Envelope has been demonstrated as satisfactory for NE13. NE [REP4-028], NE13, confirmed that this matter was agreed.

Assessment of in-combination effects

3.3.23 NE [RR-026], NE19 sought additional information about thematic areas and temporal overlap with neighbouring schemes to inform assessment.

3.3.24 The applicant [REP1-007] responded that ES Chapter 23 [APP-076] identifies the developments considered and potential for cumulative effects; those relevant to the HRA are summarised in table 5-1 of [AS-016].

3.3.25 In response to a question from the ExA [PD-008], NE [REP2-072], Q1.4.14, provided a Gantt chart indicating the scope for temporal overlap with a range of Teesside projects, which it described as being significant. [REP2-071] provided supplementary information to the Gantt chart. It stated that the in-combination assessment needed to fully quantify impacts on SPA bird qualifying features, including impact over time.

3.3.26 NE [RR-026], NE14 also queried the applicant's approach to assessment of in-combination effects, including the following matters:

- Confirmation as to whether allocations in the Local Plans of the relevant local authorities had been included in the cumulative traffic scenario assessed in ES Chapter 8 [APP-060].
- If point source emissions were included in the air quality assessment.
- Confirmation as to how the developments used in the cumulative assessment had been identified, noting that no agricultural schemes were included and that some projects were excluded as individual assessments did not highlight significant effects but that screening is required to consider if several non-significant impacts could result in a significant effect in-combination.

3.3.27 The applicant [REP1-007] responded as follows:

- TEMPRO was used to allow for allocations from the Local Plans, together with the combined impact from schemes listed in table 15A-42 of the Transport Assessment [APP-210] as included in the assessment.
- The planning regime does not provide a useful basis for understanding how individual farm operation and associated emissions to air vary year to year.
- A standard approach to assessing cumulative and combined effects has been undertaken, considering sources with the potential to be

considered cumulatively based on location, emission profiles and emissions' estimates and data where it exists.

3.3.28 The applicant [REP1-007] committed to carrying out a review of the in-combination assessment to determine if any projects dismissed on the basis that their own HRA concluded no in-combination LSE should be assessed. It stated that this information would be included in an updated HRA report but the timescales were not specified.

3.3.29 NE [REP2-072], Q1.3.9, identified the following additional projects, which it stated should be screened in to the in-combination assessment of operational air quality changes:

- Graythorpe Energy Centre
- Teesside Brinefields Hydrogen Storage
- Lighthouse Green Fuels
- H2NE Blue Hydrogen Facility
- Teesside Flexible Regas Port
- HyGreen Hydrogen Facility
- British Steel Electric Arc Furnace
- Biffa Redcar Plastics Recycling Facility
- Carbon Capture from Existing Waste Facility

3.3.30 NE [REP2-072], Q1.3.9, stated that there may be additional projects by virtue of the location of the proposed development in the Teesside Freeport Zone and Tees Valley Industrial Cluster.

3.3.31 The applicant [CR1-023] amended the in-combination assessment to include updates for HyGreen, York Potash and Teesside Flexible Regas Port. It committed [AS-039] to reviewing additional projects suggested and providing a further update to the HRA if needed. It added these projects, together with most of the other projects identified by NE in [REP2-072] to ES Appendix 23C Shortlist of other developments within the search area [REP5-028].

3.3.32 NE [REP4-028] reported that during a meeting with the applicant on 6 November 2024, the applicant advised that some information relating to neighbouring development schemes is not available or does not allow meaningful comparison or assessment. NE took an action to confirm what information is needed to achieve additional in-combination assessment work.

3.3.33 Regarding NE19, the applicant [REP5-042], Q2.4.2 confirmed it had updated the HRA report [REP5-011] to assess LSE alongside other plans and projects. It stated that [REP5-011], table 7-1 provides a comprehensive summary.

3.3.34 The applicant [REP5-051] stated that figure 7 of [REP5-011] shows spatial overlap between the proposed development, other projects and plans and the Ramsar site and SPA. It stated that temporal overlap is inherent within the

shortlisting process in ES Chapter 23 [REP5-015] so all other projects and plans shown on figure 7 can be considered to have temporal overlap.

3.3.35 The applicant stated [REP5-051] that impact pathways have been considered along with temporal overlaps in the assessment in [REP5-011] but it is not possible to include numbers of birds impacted for the proposed development in combination because data will have been collected at different times and following different methods.

3.3.36 Regarding NE14, the applicant [REP5-051] stated that the assessment was updated in [REP5-011]. ES Chapter 23 [REP5-015], table 23-1 stated that the assessment included additional developments as set out in the Technical Note: Updates to Air Quality and Traffic Cumulative Assessments [REP5-034], which reflected those in the updated ES Appendix 23C [REP5-028]. It included developments identified after the initial cut-off of 1 November 2023, to a new cut-off date of 18 September 2024.

3.3.37 For operational emissions to air for the proposed development in combination, [REP5-034], section 6.5 stated that there would be a PC of more than 1% of the long-term critical level for NO_x and nitrogen deposition at the Teesmouth and Cleveland Coast Ramsar site and SPA, but PECs were predicted to stay below 70% of the critical level. It would exceed these at Teesmouth and Cleveland Coast SSSI for NO_x (80.7%) but remain below 100% of the critical level. It stated that nitrogen deposition at sensitive features in the Ramsar site and SPA would have a PC of less than 1% of the critical load, as shown on figure 8-12 of [CR1-037]. Acid deposition was predicted to be below the screening criteria for further assessment.

3.3.38 The applicant [REP5-051] clarified that the future year base traffic data was increased using TEMPRO factors and that the TEMPRO database includes an allowance for traffic generated by schemes within local plans. It confirmed that the search terms used to establish the long list of other projects and plans were set out in ES Chapter 23 [REP5-015] and included:

- local authority planning application(s) that represent major development(s)
- DCO applications in England on the Planning Inspectorate website
- major developments being progressed through other statutory procedures
- allocations in adopted and emerging development plans of relevant local authorities
- other relevant development plans and projects

3.3.39 It stated that the method did not include a search by development type. If agricultural developments with a planning application submitted in the ZoI did not meet these criteria, they would not be included.

3.3.40 The applicant [REP5-051] confirmed that the in-combination assessment for traffic only includes vehicle emissions and not point source emissions, as these are existing and accounted for in the background or in construction.

3.3.41 NE [REP5a-015] noted that the applicant had provided an updated in-combination assessment but it had not yet reviewed this information and could not confirm if it was robust, particularly in relation to spatial overlap of construction timescales.

Further matters discussed during examination

3.3.42 Matters raised in the examination to date, or for which the ExA seeks clarity, in relation to AEoIs are summarised in table 3.1.

3.3.43 The ExA understands that matters coloured green are resolved and matters coloured amber are outstanding.

3.3.44 Note that matters relating to semantics and minor clarifications have not been included.

Table 3.1: Issues raised in the examination to date by the ExA and IPs in relation to the applicant's assessment of effects on integrity (alone and in-combination)

ID	Issue	Details	ExA observation/ question
TEESMOUTH AND CLEVELAND COAST SPA AND RAMSAR SITE			
3.1.1	Direct habitat loss due to HDD collapse	The applicant assessed the potential for AEoI arising from use of trenchless technologies, including HDD and micro-bored tunnelling (MBT), at watercourse crossings in section 6.1 of [AS-016]. The potential for HDD collapse and drilling fluid leakage to adversely affect water quality resulting in AEoI to the European sites was considered. Paragraph 6.1.9 concluded that, through detailed design of the HDD launch point following a ground investigation and management and monitoring during installation, there would be no AEoI. The applicant stated that commitments are specified in the Framework CEMP [APP-043], including a drilling method statement, which would form the basis of contingency plans for clean-up and pollution control in the event of accidental spillage. NE [RR-026], NE1 advised that commitments should be logged in a framework CEMP and mitigation and compensation plans for HDD collapse should be secured in the DCO. The ExA [PD-008], Q1.4.11 sought clarification as to what measures NE considered were needed, as the Framework CEMP [APP-043], tables 7-2 and 7-7 included measures. NE [REP2-072], NE1, stated it was awaiting an updated Framework CEMP for comment. It provided suggested wording for consultation on clean-up and advance agreement of access routes in intertidal areas. The applicant submitted an updated Framework CEMP [REP2-011], which included a commitment to produce a clean-up plan and to review any	N/A – resolved.

ID	Issue	Details	ExA observation/ question
		lessons learnt from HDD works on NZT. The applicant [AS-039] stated that [REP2-011] addressed the principle of what NE sought although it did not use NE's suggested wording. It confirmed that no access was required to the intertidal environment and consultation with NE about HDD works was secured in table 7-2 of [REP2-011]. The applicant [REP2-027], Q1.4.4 confirmed an "approximate worst case theoretical area of 708m^2 of the SPA could be subject to collapse and… direct loss if HDD collapse occurred." NE [REP4-028] confirmed this matter was agreed based on commitments at paragraph 6.1.8 of [CR1-023] being included in [REP2-011] and secured in a final iteration. Requirement 15(3) of the dDCO [REP5-006] requires submission and approval of a detailed CEMP.	
3.1.2	Loss of FLL (temporary and permanent)	The applicant [AS-016] assessed potential for AEoI from the permanent and temporary loss of FLL used by bird qualifying features of the SPA and Ramsar site. Section 6.2 stated that permanent loss would only occur in Main Site Sectors 9 and 12, where blacked-headed and herring gull were recorded but at frequencies below 1% of the site populations during the wintering period. The species were recorded at frequencies more than 1% of the population during breeding season but the designation is for non-breeding birds. The applicant stated that habitats within and surrounding the Main Site have been subject to ongoing disturbance from industrial activity and data shows that use of the habitats is opportunistic. Section 6.3 considered temporary FLL loss at The Foundry, Seal Sands and North Tees Marshes. At The Foundry, the applicant stated that blacked-headed and herring gull were recorded in some sectors at a frequency above 1% of the population (other species recorded were all below 1%) but for similar reasons as to the permanent loss AEoI would not	The ExA understands that NE3 remains under discussion between the applicant and NE, and that NE proposes to comment on the applicant's updated information at DL6A. In doing so, the ExA welcomes confirmation of any remaining

ID	Issue	Details	ExA observation/ question
		occur. At Sector G4, Seal Sands, the applicant committed to construction works only taking place between March and September to avoid disturbance of non-breeding birds recorded, including lapwing, shoveler and blacked-headed gull. It stated that habitat at Seal Sands would be restored post-construction and available to non-breeding birds. At Sectors B4, B5 and B6, North Tees Marshes the applicant made a similar commitment to avoid impacts from temporary loss of FLL to non-breeding shoveler, lapwing, ruff, wigeon and blacked-headed gull if connection at Cowpen Bewley (Option A) is selected. Figure 14a in [AS-016] showed locations subject to time limited works. NE [RR-026], NE3 asked the applicant to quantify FLL loss by type and function (roosting or foraging) and for more detail about unavailability and restoration timescales. The applicant [REP1-007] stated that the baseline report describes where birds were recorded roosting and identified key locations and functions for SPA birds. It considered the data was sufficiently robust to be confident about where roosting occurs. It reiterated that habitats temporarily lost would be reinstated like-for-like and the time to reach target condition would be as the Defra metric. It noted that much FLL that would be temporarily lost is linear, so suitable habitat would be retained either side of construction. NE [REP2-072], paragraph 2.10, stated that the scale of loss is unclear and requested an outline of the function of FLL to be lost through pipeline construction and a phasing plan for restoration. The applicant updated the HRA report [CR1-023] to reflect the Ornithology Supplementary Baseline Report [AS-037]. It [AS-039] stated that baseline information clearly identifies bird roosts and that other areas surveyed principally support foraging birds, although occasional roosting could not be	concerns (other than about the assessment method as outlined in NE2) and what further information is needed to address them.

ID	Issue	Details	ExA observation/ question
		ruled out. It confirmed that all habitats surveyed north of the River Tees had been considered as FLL in its assessment. In response to the ExA [PD-008], the applicant [REP2-022], Q1.4.20 stated that the approach to biodiversity reinstatement is set out in the Outline Landscape and Biodiversity Management Plan (LBMP) [APP-093], with paragraph 4.7.1 committing to this being like-for-like. Figure 1 of [APP-093] shows the location with detail available. A final LBMP is secured through Requirement 4 of the dDCO [CR1-015]. This matter remained under discussion with NE at DL4 [REP4-028] and the ExA [PD-008], 2.4.2 sought an update. NE [REP5-065] confirmed it was awaiting quantification of FLL losses and information on how soon temporarily lost FLL would be restored. The applicant [REP5-051] confirmed that in a worst-case scenario 21.9 hectares of FLL could be temporarily lost, comprising 14.15 hectares at Saltholme to Cowpen Bewley for 7 months between March and September (avoiding breeding season) and 7.75 hectares at Brinefields (avoiding breeding season but no duration specified). It stated that permanent FLL loss would be less than 21.9 hectares but was not yet quantified as the working width was undetermined. It confirmed [REP5-051] that land would be functional as soon as pipeline installation is complete and working areas removed, as the soft unvegetated surface soils would provide foraging resources regardless of efforts to restore habitats. It stated [REP5-051] that aside from the Main Site, permanent structures are located within or adjacent to existing infrastructure or areas undergoing earthworks or industrial activity that render habitat useless for anything other than opportunistic use by small numbers of water birds. It provided an updated HRA report [REP5-011] including this information.	

ID	Issue	Details	ExA observation/ question
		NE [REP5a-015] confirmed that it would provide comments on the applicant's additional information at DL6a (after publication of this RIES).	
3.1.3	Noise disturbance (construction and operation)	The applicant [AS-016] referred to guidelines in the Waterbird disturbance mitigation toolkit (Institute of Coastal and Estuarine Studies (IECS), 2013, as part of its assessment. Paragraph 4.2.26 stated that the methodology was discussed with NE and included a 70 decibel (dB) threshold, consistent with the NZT DCO, and change in baseline noise of more than 3dB. The applicant stated that it used worst case construction noise predictions in the absence of site-specific details, which would only be available after appointment of the contractor. With the proposed mitigation (outlined in ES Chapter 11 [PDA-007] and secured through the Framework CEMP [REP2-011]), the applicant concluded that there would be no AEoI during construction. It concluded no AEoI during operation, stating that predicted noise levels would be below 60dB at the worst affected location (a small area of dune habitat north of the Main Site, where black-headed gull and herring gull were recorded). NE [RR-026], NE4 and NE5 stated that it does not support the use of the Waterbird disturbance mitigation toolkit to establish noise levels for bird disturbance. It requested more detail about predicted change to the baseline noise environment, and quantification of impulsive noise. NE was supportive of the proposed mitigation (noise barriers and timing of works) but was unclear if measures would be effective in the absence of the requested information. NE disagreed that birds would be habituated to noise disturbance. It requested more detail about the works close to the River Tees pipeline crossing and an appraisal of mitigation opportunities, noting that this is a critical area for waterbirds.	The ExA understands that NE4 is resolved but notes that NE5 remains under discussion between the applicant and NE, and that the applicant proposes to submit updated information to address this matter at DL6A.

ID	Issue	Details	ExA observation/ question
		The applicant [REP1-007] reiterated that assessment had followed the approach used in the NZT DCO and had considered change from baseline in locations where a change of more than 3dB would occur, which would result in noise levels exceeding 55dB. It stated that baseline noise data is presented in table 4-3 of [AS-016], showing LA_{eq}^2 values (day and night) at each of the 13 noise monitoring locations. Predicted noise levels in the absence of mitigation were shown on figures 7 to 10 of [AS-016]. The applicant confirmed that construction of the River Tees crossing is expected to take 50 weeks (worst case), with acoustic barriers proposed to mitigate effects. Further assessment was not possible in the absence of a detailed programme. In response to the ExA [PD-008], NE [REP2-072], Q1.4.12, stated it is not aware of any formal guidance to follow as an alternative to the Waterbird toolkit. It stated that it had advised the Applicant during meetings how to approach the assessment. NE [REP2-072] stated that noise measurement type is required, without which the decibel level is meaningless. The level stated could be an average that masks damaging noise effects. NE [REP4-028] confirmed it was satisfied that NE4 (use of the Waterbird toolkit) was being resolved through dialogue with the applicant about NE5. At DL5, NE [REP5-065] awaited noise modelling of LAmax noise levels during construction and a technical note on noise and bird disturbance. It stated that once this was received, it could advise if the mitigation proposed is sufficient. The applicant [REP5-051] stated that the revised bird count method developed for NE2 would be used alongside noise contours showing the attenuation that would be achieved by acoustic barriers. It stated	

ID	Issue	Details	ExA observation/ question
		[REP5-051] that this would include LAmax contours from impulsive noise. It committed to providing this at DL6A, after RIES publication. The applicant [REP6-006] confirmed it was preparing an annex to the HRA Report for DL6A and this would conclude no AEoI with mitigation applied. It also confirmed that pipe-stringing had been assessed in the HRA Report [REP5-011] and mitigation applied in the form of screening.	
3.1.4	Visual disturbance (operation)	The ExA decided on a precautionary basis that this matter should be considered for AEoI as it was unclear if LSE could be excluded. The applicant maintains that there would be no LSE and therefore no AEoI, for the reasons set out in table 2.3, ID2.3.1 and 2.3.2 of this RIES.	**Q. Can NE comment on information in [REP5-051]. Does it have sufficient evidence to advise that AEoI can be excluded. If not, confirm what further information is needed.**
3.1.5	Visual disturbance (construction)	The applicant [AS-016] assessed visual disturbance of red knot, ruff, redshank, sandwich tern, common tern, northern shoveler, wigeon, lapwing, herring gull and black-headed gull, as species recorded at a frequency of above 1% of the SPA population in survey sectors affected by the Proposed Development. It concluded that with mitigation (timing of works, visual screening, and noise abatement in some locations), there would be no AEoI.	The ExA understands that this matter remains under discussion by the applicant and NE, and the applicant proposes to submit updated

ID	Issue	Details	ExA observation/ question
		NE ([RR-026], NE6) stated that areas proposed for visual screening may need to be modified once further analysis of noise disturbance and sightline loss is provided. The applicant [REP1-007] stated that assessments were carried out on a worst case scenario using available information, and that the proposed mitigation accounted for interaction between different factors (noise and visual disturbance). NE [REP2-072] maintained its position and stated that NE6 is linked to NE7 and NE8 due to cumulative effects of these pathways. The applicant [AS-039] stated that the location of proposed screening would be updated after further detailed assessment. It stated that the sound and noise reduction from a barrier depends on the path difference of the sound wave as it travels over the barrier compared with the direct transmission to receiver, and the frequency content of the sound. It stated a broad rule of thumb of a 10dB reduction where the source is totally obscured or 5dB reduction for partial obstruction. The applicant [REP5-051] confirmed that a technical note would be submitted at DL6A, which would inform an updated HRA. The applicant [REP6-006] confirmed it was preparing an annex to the HRA Report for DL6A and this would conclude no AEoI with mitigation applied. It also confirmed that pipe-stringing had been assessed in the HRA Report [REP5-011] and mitigation applied in the form of screening.	information to address this matter at DL6A.
3.1.6	Atmospheric pollution (traffic during construction)	The applicant initially screened this pathway out for LSE (see table 2.3, ID2.3.4) but at DL5 submitted an updated HRA report [REP5-011], which included an assessment of construction traffic emissions to inform appropriate assessment. ES Chapter 23 [REP5-015], table 23-1 confirmed	The ExA understands that NE10 and NE28 remain under

ID	Issue	Details	ExA observation/ question
		that the assessment of combined effects incorporated NH_3 from traffic. It concluded no AEoI. In response to NE's concerns [RR-026], NE10, the applicant confirmed [REP5-051] that away from nesting habitat, the only habitat tern and avocet particularly relies on during nesting is foraging habitat. In both cases the supporting foraging habitat is open water. Terns fish by plunge diving into the water column. It stated that there is no evidence on APIS or elsewhere that fish in the open sea or tidal river water column are sensitive to atmospheric nitrogen deposition, and there are no critical loads or levels available. It stated that avocet also forage in open water, by 'scything' their bills from side to side in shallow water to catch small prey (aquatic insects and small crustaceans). APIS indicates that nitrogen deposition may be positive for foraging avocets by increasing prey abundance. It stated [REP5-051] that the justification for using the 'higher plant' critical level of 3µg/m3 is that APIS explicitly states that none of the SPA birds are sensitive to NH_3, by which it means the ability of their habitats to support the SPA birds will not be affected. APIS has columns to list if lichens or bryophytes are integral to any feature for which a site is designated, and for the SPA these are blank; for the SSSI they are either blank or it says 'no'. In response to ExQ2 [PD-015], Q2.4.7, NE [REP5-065] confirmed that comments in relation to the underpinning Teesmouth and Cleveland Coast SSSI [RR-026], NE28 may also be of relevance as the HRA could not consider impacts on qualifying bird features without considering impacts on their habitat. It confirmed that this was reflected in its responses to the relevant European sites [RR-026], NE10 and NE11. It clarified that changes to the designated features of the SSSI could result in harm to the habitat features without adversely affecting the integrity of the Ramsar site and	discussion and that NE proposes to comment on the applicant's updated information at DL6A.

ID	Issue	Details	ExA observation/ question
		SPA, for example if the area of habitat affected is not used or never would be used by the qualifying birds, or any pollution-induced change would not affect how the birds used it. In response to the ExQ2 [PD-015], Q2.4.8 the applicant stated that it was confident that it would be able to resolve NE10 with NE as the European sites are designated for different features than the SSSI and the relevant sensitive locations to air quality are not significantly affected in combination. This contrasts with the SSSI, which is partly designated for sand dune vegetation that is sensitive to air quality and immediately north of the Main Site. It identified potential mitigation for effects to the SSSI, whilst noting that no significant effects were concluded from the proposed development alone. These included: • Manage recreational use to prevent excessive pressure on vegetation, by rotational exclusion of people, especially from fore-dunes and fixed dunes, and by retaining vegetation that can trap sand. • Minimise large-scale surface sand erosion on fixed dunes through flexible management. For example by adjusting stocking density and the timing of grazing in response to seasonal variation in growing conditions, while maintaining a proportion of bare sand. The applicant stated that it is willing to discuss such approaches with NE but that the contribution of the proposed development to a cumulative impact is so small as to be imperceptible, and therefore considers it would not be appropriate for one small initiative to be brought forward by the applicant to deal with its own small contribution to the overall impact. It stated that any mitigation should form part of a strategic approach to the Teesside area, given the number of developments coming forward and that as such the	

ID	Issue	Details	ExA observation/ question
		applicant does not propose to make any commitment to secure such mitigation. It also noted that the role of the proposed development is to decarbonise industry on Teesside, which would ultimately improve the baseline at the SSSI over time. NE [REP5a-015] stated that it would provide comments on the information in [REP5-034] at DL6A (after publication of this RIES). Regarding NE28, NE [REP5a-015] suggested that the applicant prepare and submit a separate report on the implications for SSSI, which provides clarity between the impacts to the SSSI interest features and the SPA qualifying features. The applicant [REP6-006] confirmed that a separate assessment of impacts on the SSSI was presented in [CR1-044] and [CR1-045] and the cumulative effects considered in updated cumulative documentation submitted at DL5 including [REP5-015].	
3.1.7	Atmospheric pollution (nitrogen deposition during operation)	The applicant [AS-016], section 6.6 assessed potential for AEoI from atmospheric pollution during operation of the proposed development in combination with other projects and plans. The assessment initially considered effects from nitrogen deposition, for which it was identified at screening that there could be exceedance of the 1% critical load (using the higher or lower loads from APIS, 10 kgN/ha/yr and 20 kgN/ha/yr respectively), and to which the breeding avocet and tern features could be sensitive. The applicant concluded no AEoI. NE [RR-026], NE12 stated it was not clear that all sources of operational pollutants outlined in [APP-056] were considered in the HRA, particularly for NH_3, which could underestimate contribution to nitrogen deposition. NE listed potential additional sources, including the effluent treatment plants, venting from pipework, amine emissions, CO_2 from the vent stack, emissions from the air separation unit, indirect emissions from waste removed from the	The ExA understands that these matters remain under discussion, and that NE proposes to comment on the applicant's updated information at DL6A. In doing so, the ExA welcomes confirmation of any remaining concerns and what

ID	Issue	Details	ExA observation/ question
		site, emissions associated with the identified 4 yearly major overhaul and combined operational traffic emissions. NE [RR-026], NE31 stated that the same issues raised in NE12 would also apply to SSSIs underlying European designations. It did not agree with the statement about the Teesmouth and Cleveland Coast SSSI in [APP-064] that calcareous dune habitat has developed and persisted in proximity to an operational steel works and industrial facilities when nitrogen deposition rates were higher than the lower critical load of 10 kgN/ha/yr, as it suggested that the dune system is of recent origin which is not the case. The applicant [REP1-007] confirmed NE's observations about likely release points for substances such as CO_2, H_2, O_2 and N_2 were correct but these emissions were not relevant since assessment is confined to NO_x, NH_3, deposition of nitrogen and acid in line with guidance. It stated that total emissions would be considered by the EA through the environmental permit process, on a mass balance basis assuming release to air at stated locations (providing a conservative basis for evaluation). The applicant confirmed that amines associated with the carbon capture facility would not be released to air, as it is a closed loop process. The applicant committed to providing information about operational traffic flows and combined impacts of ammonia emissions from road traffic and operational plant to NE. It confirmed that an updated HRA report would be submitted. NE [REP2-072], Q1.4.13, accepted that the environmental permit would address emissions but noted this would not cover the entire DCO boundary, for example traffic emissions. It stated that the full extent of emissions should be considered in the DCO application. It awaited further information on ammonia from traffic and the closed loop carbon capture process.	further information is needed to address them. In responding please also refer to NE18.

ID	Issue	Details	ExA observation/ question
		NE [REP2-072], paragraph 2.8.1, stated that further assessment of aerial emissions should be completed before monitoring and mitigation measures could be identified and agreed. Paragraph 2.1.4.1 listed the following pathways that remained of concern: • acid deposition from aerial emissions • in-combination nitrogen deposition • amines from aerial emissions • excluded sources • scope of emissions from main site • emissions during 4 year overhaul The applicant submitted an updated HRA report [CR1-023]. It stated [AS-039] that the HRA addressed comments about atmospheric pollution from traffic. It provided information about the closed loop carbon capture system, confirming that amines and associated degradation products are not discharged to the atmosphere. The amine solution would be recycled through a reclaimer system and returned for reuse, which the applicant stated is possible for a chemical production process such as hydrogen production. It confirmed that any amine wastes would be minimal. The applicant noted that ES Chapter 8 [APP-060] considered all emissions from the operational phase. ES Chapter 15 [APP-068] concluded that operational traffic movements are expected to be low, including for periodic maintenance, and below the screening threshold for further assessment. NE [REP4-028] stated that it commended the closed loop approach, which inherently limits emissions but requested more detail on handling of	

ID	Issue	Details	ExA observation/ question
		maintenance phases, unplanned events that might lead to temporary releases, and contingency planning for venting or emergency emissions. It stated that consideration of waste emissions should be provided, and confirmation of whether amine wastes were included in the air quality assessment (nitrogen deposition). It stated that responses had not been provided on chemical storage, waste from pre-treatment of natural gas to remove sulphur and emissions from the 4 yearly overhaul. The applicant [REP5-051] reiterated that plant emissions would be controlled via an environmental permit but responded on NE's comments to assist understanding. It confirmed the following: • Maintenance, including 4 yearly overhaul: any liquids in the plant would be drained and stored for re-use, or removed offsite. Unplanned releases would be contained by hardstanding in a bunded area, capture in the closed drain system. CO_2 venting would be limited and infrequent. • Unplanned events: hydrogen would be routed to the flare. The system includes a mechanism to prevent amines from reaching the flare. Flaring emissions are assessed in [APP-060] and [CR1-045]. • Inputs and outputs: natural gas comes into the plant as feedstock. Heat, water and oxygen are used to reform the natural gas into hydrogen and CO_2. Excess water that cannot be recycled into the process goes to the wastewater treatment plant and is treated prior to discharge via the outfall to sea. CO_2 is captured by the amine that is contained within a closed loop system so there are no emissions. Amine is cycled round the process between the carbon capture system and the regeneration system.	

ID	Issue	Details	ExA observation/ question
		• Amine waste: where it cannot be regenerated and re-used it will be drained from the process and taken off site for disposal. • Chemical storage: no emissions are anticipated from chemical storage. In the unlikely event of an unplanned release this will be captured by the closed drain system. • Waste from pre-treatment of natural gas: sulphur removed from natural gas will be trapped within removal beds. Filter material used to capture sulphur would be routinely replaced and spent material removed and taken offsite. NE [REP5a-015] welcomed the ExA's intention to seek further explanation of the closed loop carbon capture process and treatment of amine and non-amine emissions at the ISH on 14 January 2025. It stated it would provide feedback on any further information provided by the applicant at DL6A.	
3.1.8	Atmospheric pollution (nitrogen deposition during operation)	NE [RR-026], NE17 advised that further nitrogen deposition could undermine nesting sites and therefore attempts to improve conditions for breeding avocet and tern qualifying features. It requested clarification of the applicant's assessment about how existing sites had been considered. The applicant [REP1-007] stated that [APP-064] showed in combination nitrogen deposition is forecast to be 13.89 kgN/ha/yr at Teesmouth and Cleveland SSSI, whereas in 2003 it was up to 14.77 kgN/ha/yr. A net improvement is forecast and rates would be materially lower than when the habitat was established, at a time when there were industrial emissions in the area that have since ceased. It stated that despite the elevated nitrogen deposition rates, nesting locations for bird qualifying features are extremely sparsely vegetated, indicating that in practice nitrogen deposition is having little effect on vegetation encroachment and therefore the small increase due	**QT3.1.8a. NE is requested to provide any evidence it holds that pollutant emissions and nitrogen deposition to the SSSI may have reduced relative to information on APIS.**

ID	Issue	Details	ExA observation/ question
		to the proposed development in combination won't affect it. It stated the same case was used to support the NZT DCO. It stated that the HRA used the SPA boundary as the assessment location rather than the actual nesting location of terns and avocet, which are much further from the Main Site (circa 2.8km west). As such nitrogen deposition to these areas is much lower than reported in the HRA [AS-016]. NE [REP4-028] acknowledged the historical context regarding nitrogen deposition levels, which have gradually declined but advised that sensitive habitats within the Teesmouth and Cleveland Coast SSSI remain vulnerable, and even minor increases in nitrogen could delay recovery or encourage invasive vegetation. It stated that the sites are currently exceeding lower critical loads for nitrogen deposition for sand dunes (5 to 15kgN/ha/yr). It considered that the proposed development in combination has the potential to undermine the conservation objective to restore the site to below critical loads. It sought clarification on cumulative nitrogen sources and confirmation that minor increases would not hinder habitat recovery. It advised that little terns were known for shifting colony locations and linking an assessment to a single location would not be appropriate. The applicant [REP5-051] referred to information provided in its response to NE10 (see table 3.1, ID3.1.6). It considered that it had used the most recent known nesting locations and the closest nesting location as reported in the updated HRA report [REP5-011]. It stated that it was questionable if habitat could be restored without harming the botanical interest that has developed in the SSSI. It stated that even with habitat restoration there was no guarantee that terns would return to nest there. It further justified use of the slightly higher critical load of 10kgN/ha/yr on the basis that sand dunes at the SSSI were calcareous as demonstrated by the presence of calcareous	**QT3.1.8b. The applicant is requested to confirm if any mitigation is available to further reduce the contribution of the proposed development to nitrogen deposition at the SSSI and SPA.**

ID	Issue	Details	ExA observation/ question
		vegetation. It stated that notwithstanding any change in the critical load applied, its view remained that if the total nitrogen deposition rate remains lower with the proposed development than it has been historically, it cannot be argued that it would be harming the interest of the SSSI, even by impeding restoration. The applicant [REP5-042], 2.4.6 stated that a discussion was held with NE and the EA on 4 December 2024, where it was suggested that removal of industrial emitters and other industrial changes may have recently reduced pollutant emissions and nitrogen deposition to Teesmouth and Cleveland Coast SSSI. These recent changes may not yet be visible in the baseline data contained within APIS. It stated that this would reinforce the argument that there is headroom for limited further emissions. NE [REP5a-015] noted that [REP5-011] excluded the proposed development from in-combination assessment referencing the Wealden judgment and it did not agree with this approach. It stated that it would submit further advice on this issue at DL6A. It noted that the applicant proposed to submit further information on the issue at DL6 and committed to providing feedback at DL6A. It indicated that its comments also applied to outstanding concerns under NE31 (see table 3.1, ID3.1.7).	
3.1.9	Ecotoxicology (amines to air and water during operation)	NE [RR-026], NE18 requested further information about a range of potential contaminants including amine and amine degradation products, which it stated were alluded to in [APP-056]. NE sought confirmation of the worst case parameters for use of contaminants and release to air and water. It sought clarification about how process condensate is treated and how discharge of treated wastewater had been assessed and mitigated, noting the potential for impacts arising from a combination of discharge with toxic	The ExA understands this matter to be under discussion. NE is requested to comment on this matter as it relates to air quality in its

ID	Issue	Details	ExA observation/ question
		metals in the baseline (as reported in [APP-061], table 9-20) and a reduced volume of river water. The applicant [REP1-007] confirmed that a diagram presenting the full process would be provided to NE. It stated that process condensate was expected to contain only one contaminant subject to Environmental Quality Standard (EQS), which is NH_3. This would be limited through DIN EQS, with the final treated effluent discharged to Tees Bay containing 15 mg/l N as DIN as outlined in [APP-193]. It stated that the EA would carry out environmental assessment of operational emissions as part of the environmental permit application, upon which NE would be consulted. The applicant stated [REP3-006] that near and far field modelling results [APP-193] show that there is no significant impact on water quality in Tees Bay due to the cumulative impact of discharges and therefore the condition of Tees Bay would not be adversely impacted. The discharged substances would be rapidly dispersed and would not be expected to build up in the sediment based on the nature of the substances. Modelling of contaminants portioning into sediment is therefore not required. NE [REP4-028] noted that information provided by the applicant at DL3 related to water quality not air quality and its position remained as in [RR-026]. It stated that as far as it was aware, the requested diagram showing inputs, outputs and wastes had not been provided, and there have been no comments on emissions and associated impacts during maintenance. The applicant [REP5-051] referred to its DL5 response in respect of NE12 (see table 3.1, ID3.1.7) as addressing NE's comments. NE [REP5a-015] stated that details of the closed loop system were required in order to determine the release of pollutants (see table 3.1, ID3.1.7).	update on the matter discussed at table 3.1, ID3.1.7. **QT3.1.9a. Can NE confirm if it is content that the applicant's response in [REP3-006], NE18, NE20 and NE23, addressed its concerns relating to water contaminants.** **QT3.1.9b. Can the applicant submit the diagram requested by NE or confirm where it has been provided to the examination.**

ID	Issue	Details	ExA observation/ question
3.1.10	Water quality (operation)	The applicant [AS-016] included 2 options for the disposal of treated wastewater. Option 1A was minimalised Liquid Discharge (MLD) from an onsite effluent treatment plant and option 2B was treatment of processed effluent in the bio-treatment plant and discharge via outfall to the Tees Bay. NE [RR-026], NE20 requested confirmation of the level reduction that would be applied if option 1A was selected for handling of wastewater to ensure that the liquid waste discharge was nutrient neutral. The applicant confirmed [CR1-023] that disposal of treated wastewater would be via the NZT outfall at Tees Bay (option 2B). NE [REP2-072], Q1.2.9, acknowledged that option 2B is to be taken forward. It confirmed [REP4-028] that it accepted the modelling in ES Appendix 9B Water Quality Modelling Report [APP-193] demonstrated that the proposed development in combination with NZT is not sufficient to cause an increase in DIN that would adversely impact the condition of the Tees transitional waterbody or Tees Bay. Work No. 5 in the dDCO [REP5-006] provides for connection between the effluent treatment plant (Work Nos. 1B.1 and 1B.2) and the NZT outfall.	**QT3.1.10. The ExA understands this matter to be resolved but would welcome confirmation from the applicant as to how the dDCO restricts disposal of treated wastewater to the selected Option 2B.**
3.1.11	Water quality (increase in macroalgae during operation)	The applicant [AS-016] assessed potential nitrogen load discharge from wastewater if option 2B (described at table 3.1, ID 3.1.10) was selected. It noted that the Water Framework Directive (WFD) objectives for the Teesmouth and Cleveland Coast Ramsar site and SPA include a reduction in nitrogen loading but stated that the modelling of nitrogen transfer from the NZT outfall demonstrated it would not carry to the Tees Estuary. NE [RR-026], NE21 noted that the EA regularly monitor opportunistic macroalgae in the Tees Estuary, which is the ecological element expected to be most responsive to elevated nutrients. It requested the applicant to	N/A - resolved

ID	Issue	Details	ExA observation/ question
		consider this monitoring when accounting for potential adverse effects to the European sites in the Tees Estuary. NE [REP2-072] advised that this matter was agreed based on confirmation from the applicant in [REP1-007] that the WFD Assessment [APP-048] has considered the macroalgae element and demonstrated that there would be no deterioration or prevention of future improvement because of the proposed development, and that appropriate mitigation is included to ensure no additional nutrients enter the Tees Estuary including treatment of effluent.	
3.1.12	Water quality (surface water runoff during construction)	NE [RR-026], NE22 noted that the sites are in unfavourable condition for nutrients due to high DIN concentrations in the Tees Estuary and requested confirmation of the expected scale of temporary construction impacts to surface water quality arising from mobilisation of sediment and release of contaminants, and consideration of any negative impacts from increased scour and sedimentation where these could affect supporting SPA habitat. The applicant [REP1-007] stated that construction impacts would be short-term and temporary given that mitigation had been outlined in [APP-061], which would be secured through the Framework CEMP [APP-043] and Outline WMP [APP-045]. It stated there is relatively little requirement for direct in-channel works to watercourses, which would have the greatest risk of sediment or contaminant mobilisation, and that the closest works would be a tributary of Greatham Creek circa 350m away. It confirmed there would be no direct works to the Tees Estuary and that the method for HDD crossing of the River Tees and Greatham Creek would include measures to minimise risk to the environment as set out in [APP-043]. For the same reasons, no potential for increased scour and sedimentation to supporting SPA habitat is expected.	N/A - resolved

ID	Issue	Details	ExA observation/ question
		NE [REP2-072] stated that this matter was agreed on the basis presented, including mitigation commitments in the Framework CEMP [REP5-013].	
3.1.13	Water quality (discharged effluent during operation)	Based on the water quality modelling in [APP-193], the applicant [AS-016] concluded that there would be no AEoI arising from effluent discharged from the Main Site to Tees Bay (either alone or in-combination with NZT) as it would be diluted to below the EQS (0.252 mg/l as calculated in accordance with the WFD standards for moderate status) within a short distance and would not render the SPA and Ramsar site unfavourable for nutrients. The maximum increase recorded was 0.017mg/l for DIN. NE [RR-026], NE23 requested model outputs showing the total maximum increase in DIN for the proposed development alone and in combination, noting that information submitted for the NZT DCO suggested that discharges may be carried into the Tees Estuary via tides contrary to the position stated in [APP-193] and [AS-016], paragraph 6.6.34. It stated that the limits for denitrification treatment prior to discharge may need to be reconsidered once environmental permit limits are calculated so as not to allow exceedance. The applicant [REP1-007] stated that it understood revised modelling was being undertaken for NZT based on design progress including an onsite treatment plant that was not accounted for in the NZT modelling. The applicant stated that the cumulative discharge would not breach the EQS or change the WFD status for DIN, and that revised modelling to reflect the final design parameters for the proposed development and NZT would be provided at the appropriate stage and in the application for a discharge permit to Tees Bay.	N/A - resolved

ID	Issue	Details	ExA observation/ question
		The EA [REP2-065], Q1.2.9 confirmed that the 2 options proposed for effluent management were acceptable and it deferred to NE on nutrient neutrality matters. NE [REP2-072] sought clarity over in-combination effects of combined effluent discharge impact on the Tees Bay, and whether the discharge would result in an unfavourable condition. The applicant [REP3-006] confirmed that [APP-193] included combined modelling of the discharge of process water effluent and surface water runoff, and that this is done for the proposed development and NZT. NE [REP4-028] stated it accepted that the modelling includes the impact of discharge plus the combined discharge of process effluence and surface water. It agreed that the modelling showed that the combined effluent discharge does not change whether nutrients end up in the Tees Estuary. This matter was shown as agreed.	
NORTH YORK MOORS SPA AND SAC			
3.1.14	Atmospheric pollution during operation (annual NO_x, nitrogen and acid deposition in-combination)	The ExA decided on a precautionary basis that this matter should be considered for AEoI as it was unclear if LSE could be excluded given that an exceedance of the 1% critical level for the proposed development in combination was reported in [REP5-011]. The applicant maintains there would be no LSE and therefore no AEoI, for the reasons set out in table 2.3, ID2.3.7.	The ExA understands that NE agreed on this matter but seeks confirmation as to any change in advice, as sought in Q2.5.1 of this RIES.

ID	Issue	Details	ExA observation/ question
NORTHUMBRIA COAST RAMSAR SITE AND SPA			
3.1.15	Atmospheric pollution during operation (annual NO_x and nitrogen deposition in-combination)	The ExA decided on a precautionary basis that this matter should be considered for AEoI as it was unclear if LSE could be excluded given that an exceedance of the 1% critical level for the proposed development in-combination was reported in [REP5-011]. The applicant maintains that there would be no LSE and therefore no AEoI, for the reasons set out in table 2.3, ID2.3.8.	The ExA understands that NE agreed on this matter but seeks confirmation as to any change in advice, as sought in Q2.5.1 of this RIES.
NORTH NORTHUMBRIA COAST SAC, HUMBER ESTUARY SAC AND THE WASH AND NORTH NORFOLK COAST SAC			
3.1.16	Disturbance in functionally linked habitat (noise)	The applicant [AS-016] assessed potential noise disturbance to seal qualifying features of the European sites using functionally linked habitat at Seal Sands and Greatham Creek during construction. Paragraph 6.5.19 stated that indicative predictions of construction sound levels were used to determine impacts at two modelling locations (shown on [APP-160], ES figure 14-7); sound pressure levels for construction activities near to these locations were presented in [AS-016], table 6-5. The applicant used 134dB for the permanent threshold shift (PTS) and 154 dB for temporary threshold shift (TTS) at which there could be auditory impacts. Table 6-7 presented the predicted sound levels for construction at the Main Site and HDD site. It concluded that there would be an increase in total sound exposure level of 2dB above the ambient level (from 123dB to 125dB) at the HDD site that could result in perceptible change for seals but would be below the PTS and TTS. The applicant proposed trenchless technologies and noise abatement	**QT3.1.16. Can the applicant submit a construction monitoring programme for seal based on NE's advice, on a without prejudice basis. Confirm how it would secure this in the DCO, if required.**

ID	Issue	Details	ExA observation/ question
		barriers as mitigation, which it stated would achieve a 10dB reduction. It concluded no AEoI. The Framework CEMP [APP-043] identified barriers as a measure but did not specify noise reduction criteria. Proposed watercourse crossings of the River Tees and Greatham Creek were shown on [APP-093], ES figure 5-2 and the Indicative Hydrogen Distribution Network Plan [AS-008]: • V-River-1 (Greatham Creek, Sheet 6). • M-River-1 (River Tees, Sheet 10). The applicant [APP-057], table 5-4 confirmed these would be trenchless. NE [RR-026], NE26 agreed with the PTS and TTS used but stated that disturbance can occur at levels below these thresholds and that the predicted sound levels are close to the TTS. It requested additional assessment of cumulative noise and further information to provide confidence in the mitigation proposed. It advised that construction monitoring should be undertaken to assess efficacy of measures. NE [RR-026] also requested further information to justify the applicant's position that during HDD works seals would haul out at Seal Sands instead of Greatham Creek, including assessment of potential barrier effects that might prevent travel to Seal Sands. The applicant [REP1-007] provided a technical note, which included consideration of a new noise modelling location (Eb3) that was more appropriate as an assessment basis. It stated that ambient noise levels were only available at baseline monitoring locations, and it was not possible to model the whole area due to the complex noise environment. It used Eb3 to represent the ambient noise level at the mouth of Greatham Creek, which it considered to be conservative due to it being near Seaton Carew Road	

ID	Issue	Details	ExA observation/ question
		crossing and other industry. It provided updated modelling calculations using A-weighting to allow a better comparison with auditory injury thresholds, concluding that A-weighted values are considerably lower than the TTS and PTS thresholds. It concluded there was limited potential for disturbance and there would be no barrier to movement between Greatham Creek and Seal Sands. It did not consider a monitoring plan was needed. The ExA [PD-008] sought clarification of NE's position, and if it was satisfied that there would be no visual disturbance to seals as this was not discussed in its response. NE [REP2-072], Q1.4.9, stated that it was satisfied there would be no significant impact on seals of the Teesmouth and Cleveland Coast SSSI at Greatham Creek provided that the proposed mitigation was secured but it continued to advise that there was uncertainty about the noise reduction achieved, and that pre-construction monitoring should be conducted to assess behaviour of seals in normal conditions together with construction phase monitoring. It stated that further mitigation such as more effective barriers or machinery muffling should be put in place if behaviour indicating disturbance is identified during monitoring. The applicant submitted an updated HRA report [CR1-023] addressing NE's comments and incorporating information from its technical note [REP1-007]. NE [REP4-028] indicated that this matter remained under discussion. It had provided further advice to the applicant, which focused on the need for specific M (mammal) weighted noise assessment data to inform mitigation for noise impacts at Greatham Creek. It offered information to support a suitable seal monitoring programme for HDD works in this location. The applicant [REP5-051] stated it would submit a technical note at DL6A in response to NE's comments. It stated that it had updated modelling to provide M-weighted adjusted results. An M-weighted curve was generated	

ID	Issue	Details	ExA observation/ question
		using data provided by Southall (2019). Values were updated to use Eb6 as the estimated ambient sound level at the Greatham Creek noise modelling location (in the absence of baseline noise monitoring). The updated M-weighted modelling indicated that, even without noise abatement barriers in place, the M-weighted sound exposure levels (SEL) at Greatham Creek (104dB, using Eb6 as the ambient) are 30dB below the TTS threshold in a worst-case scenario. The M-weighted SEL value at Greatham Creek is only 4dB above the ambient sound level (100dB), a difference unlikely to be perceptible to seals or sufficient to cause disturbance. It stated that additional modelling is being explored to consider the change in SEL (using M-weighted noise contours) from the use of noise abatement barriers around the Greatham Creek HDD site. The addition of noise abatement barriers around the entire HDD site is expected to further reduce the SELs below ambient. The updated approach using NE's method highlights minimal potential for disturbance to seals during the HDD works. Therefore, additional monitoring of noise and seal behaviour before and during the works is not considered necessary. NE [REP5a-015] confirmed that it had been discussing this matter with the applicant but its position remained unchanged from [REP2-072].	
RIVER TWEED SAC AND TWEED ESTUARY SAC			
3.1.17	Disturbance in functionally linked habitat	NE [RR-026], NE27 stated it would provide advice on this matter at DL1. At DL2, NE [REP2-072] stated that noise and sediment can create a barrier to movement and that for works between 1 May and 30 November, activities should be restricted to daylight hours to avoid activity during peak migration periods for annual Salmonid migrations. It advised that AEoI of the European sites from impacts to Atlantic salmon and sea lamprey could be ruled out based on the proposed measures in tables E4 and E5 of [AS-016],	N/A – resolved.

ID	Issue	Details	ExA observation/ question
		including use of standard working hours and a lighting strategy when hours are extended, subject to the mitigation being secured in the DCO. An Indicative Lighting Strategy (Construction) [APP-046] forms appendix C to the Framework CEMP [REP5-013]. It would be secured by Requirement 15(7)(c) of the dDCO [REP5-006].	

3.4 Summary of examination outcomes in relation to adverse effects on integrity

3.4.1 Of the remaining outstanding matters detailed in table 3.1, the ExA seeks responses from the applicant and NE, where indicated.

3.4.2 The ExA also welcomes corrections from any parties should it have incorrectly marked a matter as resolved.

3.4.3 The ExA's understanding of the applicant's and ANCB's current positions in relation to AEoIs is set out in annex 2 of this RIES.

Q3.4.1 [To NE and the applicant] Confirm if the ExA's understanding as set out in annex 2 of this RIES is correct and advise on the position where the ExA has indicated it is unclear.

3.4.4 The ExA understands that at the point of publication of this RIES there is no agreement from NE that AEoI can be ruled out for:

- Teesmouth and Cleveland Coast SPA and Ramsar site – loss of FLL, visual and noise disturbance, atmospheric pollution during operation.

Q3.4.2 [To NE and the applicant] Confirm at DL7 if an AEoI on all European sites from the proposed development alone or in-combination with other plans or projects can be excluded.

Q3.4.3 [To the applicant] Should it not be possible to confirm AEoI on all European sites from the proposed development alone or in-combination with other plans or projects can be excluded by DL7, submit derogations information by the same deadline (DL7) to enable it to be examined.

ANNEX 1 SUMMARY OF CHANGE APPLICATION

Category A: engineering and design development			
Change No.	**Description**	**Work No.**	**Applicant changes to HRA Report**
1	Addition of a second flare stack for Phase 2 of the Hydrogen Production Facility located at the Main Site (no change to order limits).	Work No. 1A.2	Potential changes in air quality reassessed alone and in combination.
5	Removal of air separation unit from Phase 1 of the Hydrogen Production Facility (no change to the order limits).	Work No. 1A.1	Potential changes in air quality reassessed alone and in combination.
7	Updates to building dimensions at the Main Site (no change to the order limits).	Work No. 1	No changes required.
9	Removal of an AGI within the Work No. 2B area (no change to the order limits).	Work No. 2B	No changes required.
Category B: changes to construction approach			
Change No.	**Description**	**Work No.**	**Applicant changes to HRA Report**
3	Removal of temporary construction compound at Redcar Bulk Terminal (8.1 hectares removed from the order limits).	Work No. 9	Updated assessment of the potential for loss of FLL, noise, visual disturbance. HRA screening and appropriate assessment updated.
4	Addition of a temporary construction compound on land at Navigator Terminals (no change to the order limits).	Work No. 9	Updated assessment of the potential for noise and visual disturbance. HRA screening and appropriate assessment updated.
6	Reduction in plant at temporary construction compounds (no change to the order limits).	Work No. 9	HRA updated using updated noise modelling.

Category C: other order limits reductions			
Change No.	**Description**	**Work No.**	**Applicant changes to HRA Report**
2.A	Reduction at Cowpen Bewley (2.5 hectares removed from the order limits).	No Work No.	No changes required.
2.B	Reduction at Venator (2.5 hectares removed from the order limits).	Work Nos. 6A.1 and 6B.1	Updated assessment of the potential for loss of FLL, noise, visual disturbance. HRA screening and appropriate assessment updated.
2.C	Reduction to the east of the Main Site (50.7 hectares removed from the order limits).	Work No. 3A, 3B.2, 3B.3, 4, 5, 7A and 7B	
2.D	Reduction to the west of the Main Site and at the Main Site access point (27.9 hectares removed from the order limits).	Work No. 6A.1	
2.E	Reduction at Lazenby (4.9 hectares removed from the order limits).	Work Nos. 6A.1 and 9	
2.F	Removal of Northern Gas Networks Above Ground Installation ('AGI') off the A178 Seaton Carew Road (5.3 hectares removed from the order limits).	Work No. 6B.3	
Category D: order limit increases invoking CA Regulations			
Change No.	**Description**	**Work No.**	**Applicant changes to HRA Report**
8	Inclusion of additional land for existing Natural Gas pipeline (1.8 hectares added to the order limits) and changes to rights to allow for re-purposing of existing pipeline.	New Work No.2c	Updated assessment of the potential for loss of FLL, noise, visual disturbance. HRA screening and appropriate assessment updated.

ANNEX 2 EXA'S UNDERSTANDING OF POSITION AT POINT OF RIES PUBLICATION

3.4.5 The tables in this annex summarise the ExA's understanding of the applicant's screening exercise and assessment of effects on integrity, and agreement with the relevant ANCB at time of publication of this RIES.

Key to tables:

C = Construction

O = Operation

D = Decommissioning

✓ = LSE or AEoI cannot be excluded

X = LSE or AEoI can be excluded

Y = Yes

N = No

? = Unclear

N/A = not applicable

Table A2.1: Teesmouth and Cleveland Coast SPA and Ramsar site

Feature	Potential impact (C, O and D unless otherwise stated)	LSE?		AEoI?	
		Applicant's conclusion (alone or in combination)	Agreement with ANCB?	Applicant's conclusion (alone or in combination)	Agreement with ANCB?
Common tern Pied avocet Ruff Redshank Sandwich tern	HDD collapse (C)	✓	Y	N	Y
	Loss of FLL (C and D)	✓	Y	N	?
	Visual disturbance (C and D)	✓	Y	N	?
	Visual disturbance (O)	X	N	N/A	N/A
	Noise disturbance (C and D)	✓	Y	N	?
	Noise disturbance (O)	X	?	N/A	N/A
	Atmospheric pollution (C and D)	✓	Y	N	?
	Atmospheric pollution (O)	✓ (in-combination only)	N (alone)	N (in-combination)	?
	Water quality	✓	Y	N	Y
	Coastal squeeze	X	Y	N/A	N/A
	In-combination effects	✓	Y	N	?
Little tern	HDD collapse (C)	✓	Y	N	Y

Feature	Potential impact (C, O and D unless otherwise stated)	LSE?		AEoI?	
		Applicant's conclusion (alone or in combination)	**Agreement with ANCB?**	**Applicant's conclusion (alone or in combination)**	**Agreement with ANCB?**
	Loss of FLL (C and D)	X	N	N/A	N/A
	Visual disturbance	X	N	N/A	N/A
	Noise disturbance	X	?	N/A	N/A
	Atmospheric pollution (C and D)	✓	Y	N	?
	Atmospheric pollution (O)	✓ (in-combination only)	N (alone)	N (in-combination)	?
	Water quality	✓	Y	N	Y
	Coastal squeeze	X	Y	N/A	N/A
	In-combination effects	✓	Y	N	?
Knot	HDD collapse (C)	✓	Y	N	Y
	Loss of FLL (C and D)	X	N	N/A	N/A
	Visual disturbance (C and D)	✓	Y	N	?
	Visual disturbance (O)	X	N	N/A	N/A

Feature	Potential impact (C, O and D unless otherwise stated)	LSE?		AEoI?	
		Applicant's conclusion (alone or in combination)	**Agreement with ANCB?**	**Applicant's conclusion (alone or in combination)**	**Agreement with ANCB?**
	Noise disturbance (C and D)	✓	Y	N	?
	Noise disturbance (O)	X	?	N/A	N/A
	Atmospheric pollution (C and D)	✓	Y	N	?
	Atmospheric pollution (O)	✓ (in-combination only)	N (alone)	N (in-combination)	?
	Water quality	✓	Y	N	Y
	Coastal squeeze	X	Y	N/A	N/A
	In-combination effects	✓	Y	N	?
Waterbird assemblage	HDD collapse (C)	✓	Y	N	Y
	Loss of FLL (C and D)	✓	Y	N	?
	Visual disturbance (C and D)	✓	Y	N	?
	Visual disturbance (O)	X	N	N/A	N/A

Feature	Potential impact (C, O and D unless otherwise stated)	LSE?		AEoI?	
		Applicant's conclusion (alone or in combination)	**Agreement with ANCB?**	**Applicant's conclusion (alone or in combination)**	**Agreement with ANCB?**
	Noise disturbance	✓ (black-headed gull and herring gull)	Y	N	?
	Atmospheric pollution (C and D)	✓	Y	N	?
	Atmospheric pollution (O)	✓ (in-combination only)	N (alone)	N (in-combination)	?
	Water quality	✓	Y	N	Y
	Coastal squeeze	X	Y	N/A	N/A
	In-combination effects	✓	Y	N	?

Table A2.2: North York Moors SAC

Feature	Potential impact (O unless otherwise stated)	LSE?		AEoI?	
		Applicant's conclusion (alone or in combination)	Agreement with ANCB?	Applicant's conclusion (alone or in combination)	Agreement with ANCB?
Northern Atlantic wet heaths with Erica tetralix European dry heaths Blanket Bogs	Atmospheric pollution In-combination effects	X	?	N/A	N/A

Table A2.3: North Yorks Moors SPA

Feature	Potential impact (O unless otherwise stated)	LSE?		AEoI?	
		Applicant's conclusion (alone or in combination)	Agreement with ANCB?	Applicant's conclusion (alone or in combination)	Agreement with ANCB?
Merlin Golden plover	Atmospheric pollution In-combination effects	X	?	N/A	N/A

Table A2.4: Durham Coast SAC

Feature	Potential impact (O unless otherwise stated)	LSE?		AEoI?	
		Applicant's conclusion (alone or in combination)	Agreement with ANCB?	Applicant's conclusion (alone or in combination)	Agreement with ANCB?
Vegetated sea cliffs of the Atlantic and Baltic coasts	Atmospheric pollution In-combination effects	X	Y	N/A	N/A

Table A2.5: Northumbria Coast SPA and Ramsar site

Feature	Potential impact (C, O and D unless otherwise stated)	LSE?		AEoI?	
		Applicant's conclusion (alone or in combination)	Agreement with ANCB?	Applicant's conclusion (alone or in combination)	Agreement with ANCB?
Purple sandpiper Ruddy turnstone Little tern	Atmospheric pollution In-combination Effects	X	?	N/A	N/A

Table A2.6: Berwickshire and North Northumberland Coast SAC

Feature	Potential impact (C and D unless otherwise stated)	LSE?		AEoI?	
		Applicant's conclusion (alone or in combination)	Agreement with ANCB?	Applicant's conclusion (alone or in combination)	Agreement with ANCB?
Mudflats and sandflats not covered by seawater at low tide Large shallow inlets and bays Reefs Submerged or partially submerged sea caves	Disturbance in functionally linked habitat In-combination effects	N/A	Y	N/A	N/A
Grey seal	Disturbance in functionally linked habitat In-combination effects	✓	Y	N	Y

Table A2.7: Humber Estuary SAC

Feature	Potential impact (C and D unless otherwise stated)	LSE?		AEoI?	
		Applicant's conclusion (alone or in combination)	Agreement with ANCB?	Applicant's conclusion (alone or in combination)	Agreement with ANCB?
Estuaries Mudflats and sandflats not covered by seawater at low tide Sandbanks which are slightly covered by sea water all the time Coastal lagoons Salicornia and other annuals colonizing mud and sand Atlantic salt meadows Embryonic shifting dunes Shifting dunes along the shoreline with Ammophila arenaria (white dunes) Fixed coastal dunes with herbaceous vegetation (grey dune)	Disturbance in functionally linked habitat In-combination effects	N/A	Y	N/A	N/A

Feature	Potential impact (C and D unless otherwise stated)	LSE?		AEoI?	
		Applicant's conclusion (alone or in combination)	Agreement with ANCB?	Applicant's conclusion (alone or in combination)	Agreement with ANCB?
Dunes with Hippopha rhamnoides					
River lamprey	Disturbance in functionally linked habitat In-combination effects	X	Y	N/A	N/A
Sea lamprey	Disturbance in functionally linked habitat	✓	Y	N	Y
	In-combination effects	X	Y	N/A	N/A
Grey seal	Disturbance in functionally linked habitat In-combination effects	✓	Y	N	Y

Table A2.8: Southern North Sea SAC

Feature	Potential impact (C and D unless otherwise stated)	LSE?		AEoI?	
		Applicant's conclusion (alone or in combination)	Agreement with ANCB?	Applicant's conclusion (alone or in combination)	Agreement with ANCB?
Harbour porpoise	Disturbance in functionally linked habitat In-combination effects	X	?	N/A	N/A

Table A2.9: The Wash and North Norfolk Coast SAC

Feature	Potential impact (C and D unless otherwise stated)	LSE?		AEoI?	
		Applicant's conclusion (alone or in combination)	Agreement with ANCB?	Applicant's conclusion (alone or in combination)	Agreement with ANCB?
Sandbanks which are slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide Large shallow inlets and bays Reefs Salicornia and other annuals colonizing mud and sand Atlantic salt meadows Mediterranean and thermo-Atlantic halophilous scrubs Coastal lagoons	Disturbance in functionally linked habitat In-combination effects	N/A	Y	N/A	N/A
Harbour seal	Disturbance in functionally linked habitat In-combination effects	✓	Y	N	Y

Feature	Potential impact (C and D unless otherwise stated)	LSE?		AEoI?	
		Applicant's conclusion (alone or in combination)	Agreement with ANCB?	Applicant's conclusion (alone or in combination)	Agreement with ANCB?
Otter	Disturbance in functionally linked habitat In-combination effects	X	Y	N/A	N/A

Table A2.10: River Tweed SAC

Feature	Potential impact (C and D unless otherwise stated)	LSE?		AEoI?	
		Applicant's conclusion (alone or in combination)	Agreement with ANCB?	Applicant's conclusion (alone or in combination)	Agreement with ANCB?
Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	Disturbance in functionally linked habitat In-combination effects	N/A	Y	N/A	N/A
Atlantic salmon Sea lamprey	Disturbance in functionally linked habitat In-combination effects	✓	Y	N	Y
Otter Brook lamprey River lamprey	Disturbance in functionally linked habitat In-Combination effects	X	Y	N/A	N/A

Table A2.11: Tweed Estuary SAC

Feature	Potential impact (C and D unless otherwise stated)	LSE?		AEoI?	
		Applicant's conclusion (alone or in combination)	Agreement with ANCB?	Applicant's conclusion (alone or in combination)	Agreement with ANCB?
Estuaries Mudflats and sandflats not covered by seawater at low tide	Disturbance in functionally linked habitat In-combination Effects	N/A	Y	N/A	N/A
Sea lamprey	Disturbance in functionally linked habitat In-combination effects	✓	Y	N	Y
River lamprey	Disturbance in functionally linked habitat In-combination effects	X	Y	N/A	N/A