



The Planning Inspectorate
Yr Arolygiaeth Gynllunio

REPORT ON THE IMPLICATIONS FOR EUROPEAN SITES

Proposed Drax Bioenergy with Carbon Capture and Storage

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

Planning Inspectorate Reference: EN010120

14 June 2023

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1 INTRODUCTION

1.1 Background

- 1.1.1 Drax Power Limited (the Applicant) has applied to the Secretary of State (SoS) for a development consent order (DCO) under section 37 of the Planning Act 2008 (PA2008) for the proposed Drax Bioenergy with Carbon Capture and Storage project (the application). The SoS has appointed an Examining Authority (ExA) to conduct an examination of the application, to report its findings and conclusions, and to make a recommendation to the SoS as to the decision to be made on the application.
- 1.1.2 The relevant SoS is the competent authority for the purposes of the Habitats Directive¹ and the Habitats Regulations² for applications submitted under the PA2008 regime. 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 compiles, documents and signposts information provided within the DCO application, and the information submitted throughout the Examination by both the Applicant and Interested Parties (IPs), up to Deadline 7 (D7) of the Examination (24 May 2023) in relation to potential effects to European Sites³. 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:
[EN010120-000343-Drax BECCS Examination Library.pdf \(planninginspectorate.gov.uk\)](https://www.planninginspectorate.gov.uk/examination-library/EN010120-000343-Drax%20BECCS%20Examination%20Library.pdf)
- 1.1.4 It is issued to ensure that IPs, including Natural England (NE) as the statutory nature conservation body, are 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. 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.
- 1.1.5 The Applicant has not identified any potential impacts on European sites in any EEA States⁴ [REP6-021]. Only UK European sites are addressed in this Report.

¹ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (as codified) (the 'Habitats Directive').

² The Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations).

³ The term European Sites in this context includes Sites of Community Importance (SCIs), Special Areas of Conservation (SACs) and candidate SACs, Special Protection Areas (SPAs), possible SACs, potential SPAs, Ramsar sites, proposed Ramsar sites, and any sites identified as compensatory measures for adverse effects on any of the above. For a full description of the designations to which the Habitats Regulations apply, and/ or are applied as a matter of Government policy, see PINS Advice Note 10.

⁴ European Economic Area (EEA) States.

1.2 Documents used to inform this RIES

- 1.2.1 The Applicant's DCO application concluded that there is the potential for likely significant effects (LSE) on 10 European sites and therefore provided a Habitats Regulations Assessment report (HRAR) to inform an appropriate assessment entitled 'Habitats Regulations Assessment – Volume 1 – Main Text' [APP-185] with the DCO application. It was accompanied by screening and integrity matrices [APP-191 and APP-192, respectively] and a number of appendices [APP-189 to APP-194].
- 1.2.2 The Applicant submitted a change request to the Inspectorate on 5 December 2022 [AS-044 and AS-045]. This comprised two changes entitled 'Proposed Change 01' (PC-01) and 'Proposed Change 02' (PC-02), that required additional land to be included within the Order Limits (OLs) to incorporate a Flood Compensation Area (FCA) to the north of the existing Drax Power Station site (Work No. 7) and Overhead Line (OHL) and telecommunications undergrounding work on the road network between the power station site and Goole (Work No. 8). The Applicant considered that Work No. 8 could potentially impact the Humber Estuary SPA and Ramsar and Lower Derwent Valley SPA and Ramsar.
- 1.2.3 The ExA accepted the proposed changes on 13 December 2022 [PD-009]. Relevant Representations on the change request were invited for submission between 13 January and 12 February 2023.
- 1.2.4 The ExA issued first written questions (ExQ1) [PD-011] on 24 January 2023, which included questions relating to HRA issues.
- 1.2.5 In response to the ExA's questions and representations made by IPs during the Examination and acceptance of the Applicant's first change request, the Applicant provided an updated HRAR [REP2-101] and updated screening matrices [REP2-103] and integrity matrices [REP2-105] at D2. The updated HRAR included information relating to potential impacts of the changes included in the accepted change request. It reflected that the OLs were closer to the following European sites than previously: the Humber Estuary SAC, SPA and Ramsar; the Thorne and Hatfield Moors SPA; and the Thorne Moor SAC. It also included an update to the assessment of in-combination effects that incorporated new projects for which information was not publicly available when the application HRAR was prepared, updates to projects for which additional information had become available, and the removal of Keadby 2 Power Station (and incorporation into the future baseline) given that its commissioning was imminent.
- 1.2.6 The ExA issued second written questions (ExQ2) [PD-015] on 19 April 2023, which included questions relating to HRA issues.
- 1.2.7 The Applicant submitted a second change request on 21 April 2023 [AS-123 and AS-126], which was accepted by the ExA on 26 April 2023 [PD-017]. Relevant Representations on the change request were invited for submission by 11 June 2023. The request sought changes to Work. No 8, the subject of PC-02. It comprised an overall reduction in the land within the Order Limits, the addition of a small amount of temporary land, raising of the existing telecommunications line rather than undergrounding it, and

an alteration to some of the land powers previously sought. This RIES documents information relating to the Proposed Development as changed by the change requests.

- 1.2.8 The Applicant provided updated versions of the HRAR [REP6-021] which responded to NE submissions, incorporated updates to the in-combination assessment and to reflect updates that had been made at D3 to Appendix 8 [REP3-009] of the HRAR, and addressed the second change request. All references in this report to the HRAR are to this version unless indicated otherwise. The Applicant also submitted updated screening and integrity matrices at D6 [REP6-023 and REP6-025, respectively].
- 1.2.9 In addition to the HRAR, this RIES refers to representations submitted to the Examination by IPs, Issue Specific Hearing (ISH) documents, Statements of Common Ground (SoCGs) and other Examination documents as relevant. All documents can be found in the project Examination Library.

1.3 Structure of this RIES

1.3.1 The remainder of this report is as follows:

- **Section 2** identifies the European sites that have been considered within the DCO application and during the Examination period, up to 24 May 2023 (D7). It provides an overview of the issues that have emerged during the Examination.
- **Section 3** identifies the European sites and qualifying features screened for potential LSE, either alone or in combination with other plans and projects. This section also identifies where IPs have disputed the Applicant's conclusions, together with any additional European sites and qualifying features screened for potential LSE during the Examination.
- **Section 4** identifies the European sites and qualifying features which have been considered in terms of adverse effects on site integrity, either alone or in combination with other plans and projects. This section identifies where IPs have disputed the Applicant's conclusions, together with any additional European sites and qualifying features considered for adverse effects on integrity during the Examination.
- **Annex 1** contains Table 3.1, which shows the outcome of the Applicant's screening exercise for each of the sites and features considered in the HRA.

2 OVERVIEW

2.1 European Sites Considered

- 2.1.1 The project is not connected with or necessary to the management for nature conservation of any of the European sites considered within the Applicant's assessment (HRAR Section 3.2).
- 2.1.2 The Applicant's HRAR identified the following European sites and features for which the UK is responsible for inclusion within the assessment. The features are consistent with those identified in the relevant NE Conservation Objectives records and the Ramsar Information Sheets.

Table 2.1: Sites Screened into the HRA by the Applicant

Name of European Site	Qualifying Features
River Derwent Special Area of Conservation (SAC)	Water courses of plain to montane levels with the <i>Ranunculus fluitans</i> and <i>Callitriche-Batrachion</i> vegetation; rivers with floating vegetation often dominated by water-crowfoot
	River lamprey
	Sea lamprey
	Bullhead
	Otter
Lower Derwent Valley SAC	Lowland hay meadows
	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i>
	Otter
Lower Derwent Valley Special Protection Area (SPA)	Northern shoveler (breeding)
	Ruff (overwintering)
	Eurasian wigeon (overwintering)
	Bewick's swan (overwintering)
	Golden plover (overwintering)
	Teal (overwintering)
	Wintering bird assemblage including those listed above and also Lapwing, Pochard, Shoveler, Mallard and Wigeon

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Lower Derwent Valley Ramsar	Species-rich alluvial flood meadow habitat
	Rich assemblage of wetland invertebrates including 16 species of dragonfly and damselfly, 15 British Red Data Book wetland invertebrates, and a leafhopper
	Passage birds in spring: in particular, nationally important numbers of Ruff and Whimbrel
	Assemblage of international importance: peak count in winter of 31,942 waterfowl
	Species/populations occurring at levels of international importance: peak counts in winter of 8,350 Eurasian wigeon and 4,200 Eurasian teal
Humber Estuary SAC	Estuaries
	Mudflats and sandflats not covered by seawater at low tide
	Sandbanks which are slightly covered by sea water all the time
	Coastal lagoons
	Glasswort and other annuals colonising mud and sand
	Atlantic salt meadows
	Embryonic shifting dunes
	Shifting dunes along the shoreline with marram ("white dunes")
	Fixed coastal dunes with herbaceous vegetation ("grey dunes")
	Dunes with sea-buckthorn
	Sea lamprey
	River lamprey
	Grey seal

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Humber Estuary SPA	Avocet (breeding and non-breeding)
	Bittern (breeding and non-breeding)
	Hen harrier (non-breeding)
	Golden plover (non-breeding)
	Bartailed godwit (non-breeding)
	Ruff (non-breeding)
	Marsh harrier (breeding)
	Little tern (breeding)
	Shelduck (non-breeding)
	Knot (non-breeding)
	Dunlin (passage and wintering, non-breeding)
	Redshank (non-breeding)
	Black-tailed godwit (non-breeding)
	Waterbird assemblage: over 20,000 waterbirds in any season
Humber Estuary Ramsar	Representative example of a near-natural estuary with the following component habitats: dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/saline lagoons
	Breeding colony of grey seals
	Breeding site of natterjack toad
	Assemblages of international importance – 153,934 waterfowl (non-breeding)
	Eurasian golden plover (migratory and wintering)
	Red knot (migratory and wintering)
	Dunlin (migratory and wintering)

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	Black-tailed godwit (migratory and wintering)
	Redshank (migratory and wintering)
	Common shelduck (wintering)
	Bar-tailed godwit (wintering)
	River lamprey
	Sea lamprey
Skipwith Common SAC	Northern Atlantic wet heaths with cross-leaved heath
Thorne and Hatfield Moors SPA	Nightjar (breeding)
Thorne Moor SAC	Degraded raised bogs still capable of natural regeneration

- 2.1.3 The Applicant identified European sites within 15km of the main stack of Drax Power Station. This is based on emissions of treated flue gas to air, considered to be the impact pathway with the greatest Zone of Influence (ZoI) in relation to potential effects of the Proposed Development on European sites. No part of the application site is within any European site.
- 2.1.4 In response to question ExQ1 BIO.1.19 NE confirmed that it considered that the correct sites and features had been considered in the HRA [REP2-085].
- 2.1.5 Selby District Council and North Yorkshire County Council (joint) and the Environment Agency (EA) agreed within their dSoCGs [REP3-012 and REP5-016, respectively] that the European sites identified by the Applicant were the sites that were relevant to the assessment.

2.2 HRA Matters Considered During the Examination

- 2.2.1 The Examination has focussed on potential loss and/or disturbance of land functionally linked to the European sites during construction; and potential impacts of increased acid and nitrogen deposition and ammonia (NH₃) concentrations arising from aerial emissions during operation.

3 LIKELY SIGNIFICANT EFFECTS

3.0.1 The Applicant has described how they have determined what would constitute a 'significant effect' within Section 2 of their HRAR. This follows EC guidance on habitats assessment ('Managing Natura 2000 sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC' (2018) and 'Assessment of plans and projects significantly affecting Natura 2000 sites' (2001)).

3.0.2 The Applicant has addressed potential in-combination LSEs within Section 3.5 of their HRAR. Developments up to 30km away from the Proposed Development were considered on the basis that this was the maximum distance within which there was considered to be any prospect of in-combination effects occurring. Of the 74 projects included in the Applicant's 'short list' of developments for the cumulative environmental impact assessment it was determined that the following 10 projects, listed in Table 3.1 of the application HRAR [APP-185], had the potential to contribute to in-combination effects and so were considered in the in-combination assessment carried out by the Applicant:

- ID1 - Eggborough Combined Cycle Gas Turbine (CCGT) generating station, Goole;
- ID3 - Scotland to England Green Link 2 - an underground High Voltage Distribution Cable (HVDC) between Peterhead (Aberdeenshire) and Drax (North Yorkshire) which will run into the substation at Drax Power Station;
- ID4 - Keadby 3 Low Carbon Gas power station, Keadby;
- ID5 - Ferrybridge D Combined Cycle Gas Turbine power station, Knottingley;
- ID6 - Barlow Ash Mound - proposed additional recovery of ash resource from Barlow Mound on the western boundary of the Proposed Development;
- ID9 - Proposals for the erection and operation of five wind turbines and associated ancillary development, Selby;
- ID10 -Development of a ground-mounted solar farm including associated infrastructure, Selby;
- ID12 - Demolition of Flue Gas Desulphurisation (FGD) Plant and associated restoration works at Drax Power Station;
- ID47 - construction of an energy recovery facility involving the thermal treatment of residual waste and associated infrastructure including engineering, access, landscape, ground and landscaping works, Kirk Sandall; and

- ID74 - Keadby 2 Power Station, an 840MW gas fired power station, Keadby.

3.0.3 Table 3.1 of the HRAR was updated in the D2 version [REP2-101] to address the changes included in the first change request, incorporate new projects identified in the updated cumulative short list of developments within ES Appendix 18.2 [REP2-047], provide updates to information on other projects, and reflect the removal of Keadby 2 Power Station. The following additional projects were identified:

- ID7 - Development of an existing horticultural facility for indoor farming and agri-tech, Camblesforth;
- IDs 44, 52, 99 and 100 - Planning applications for a series of small industrial and/or commercial developments within 1km of the OLS where Work No. 8 would be located;
- ID92 – Hybrid planning application including the construction of a relief road with drainage and landscaping, erection of an industrial unit and outline permission for residential development, community facilities including a supermarket, small retail units and small business/employment space, a medical centre, public house and restaurant with accommodation, elderly care home accommodation, a primary school, community park, car parks, sports pitches and pavilion; and
- ID102 - Humber Low Carbon Pipelines: construction of carbon dioxide and hydrogen transportation pipelines between Drax in North Yorkshire and Easington in East Riding of Yorkshire and associated infrastructure comprising pipeline internal gauge (PIG) traps, a multi-junction, block valves, a compressor station and associated works.

3.0.4 It is subsequently determined in HRAR Table 3.14 that, following a review of the application documents for ID7, the impacts would be imperceptible and the in-combination impacts “de minimis”. This was on the basis that the potential for in-combination impacts from ID7 was limited to receptors in Camblesforth. It was concluded that ID7 could not contribute to significant in-combination effects and it was not considered further.

3.0.5 The following additional projects, identified in the updated ES Appendix 18.2 [REP4-004] at D4, were subsequently included in the in-combination assessment provided in the updated HRAR submitted at D6 [REP6-021]:

- ID103 - Installation of solar photovoltaic (PV) generating panels, associated electrical equipment, cabling and on-site energy storage facilities together with grid connection infrastructure; and
- ID106 - Demolition of existing buildings and creation of 28 dwellings with associated external works, highways and landscaping.

- 3.0.6 It was also highlighted that Keadby 2 Power Station was commissioned in March 2023 and was operational.
- 3.0.7 The Applicant's screening assessment (HRAR Section 3) concluded that the project would have **no LSE**, either **alone** or **in combination** with other projects or plans, on the qualifying feature (nightjar) of the Thorne and Hatfield Moors SPA. This was on the basis that the closest part of the SPA was approximately 9.1km from the Proposed Development and that nightjar are strongly associated with heathland, moorland, woodlands with large clearings and recently felled plantations, no such types of habitats of which are within or adjacent to the application site.
- 3.0.8 The HRAR concluded that the project **may give rise to LSE**, either **alone** or **in combination** with other plans or projects, on the qualifying features of the European sites listed below:
- River Derwent SAC
 - Lower Derwent Valley SAC
 - Lower Derwent Valley SPA
 - Lower Derwent Valley Ramsar
 - Humber Estuary SAC
 - Humber Estuary SPA
 - Humber Estuary Ramsar
 - Thorne Moor SAC

Likely significant effects from the Proposed Development alone

- 3.0.9 The HRAR concluded that during **construction and decommissioning** the following impact pathways from the Proposed Development alone could result in LSEs on the European sites (identified in Annex 1 of this RIES):
- loss or physical disturbance of functionally linked land (FLL) (locations depicted on HRA Figure 3 [APP-188];
 - dust emissions;
 - increased risk of pollution from sediment load on Carr Dyke;
 - accidental releases of water-borne pollutants; and
 - increased visual disturbance from plant and personnel.
- 3.0.10 It concluded that there would be no construction or decommissioning LSE on the qualifying features of the European sites as a result of disturbance from noise and vibration.
- 3.0.11 It concluded in the application HRAR [APP-185] that during **operation** the following impact pathways from the Proposed Development alone could result in LSEs on the qualifying features of the European sites (identified in Annex 1 of this RIES):

- treated flue gas to air emissions (acid deposition) on the Lower Derwent Valley SAC and Ramsar and Thorne Moor SAC; and
- accidental releases of water-borne pollutants.

3.0.12 As a result of additional air quality modelling and information gathered during the Examination the Applicant identified that the acid deposition critical loads (CLOs) for the Lower Derwent Valley SAC and Ramsar would not be exceeded and subsequently concluded in the D6 updated HRAR [REP6-021] that acid deposition would not result in a LSE on those sites.

3.0.13 It concluded that no operational LSE would arise from noise and vibration disturbance alone or in-combination; or from increased levels of visual disturbance alone. This was on the basis of the noise modelling predicting that very low levels of noise arising from the Proposed Development would be experienced at any functionally linked habitat and therefore no disturbance of any European site qualifying features would occur. It acknowledged that habitat management activities in the Habitat Provision Area and Off-site Habitat Provision Area could generate noise during operation and that these areas may be used by low numbers of SPA bird species and otter that are features of the nearby European sites. It was considered that they would generate insufficient noise to disturb qualifying features of the European sites, on the basis that these activities would be carried out only occasionally and would be equivalent to baseline agricultural and other activities in the local area.

Likely significant effects from the Proposed Development in combination with other plans and projects

3.0.14 The HRAR concluded that during construction and decommissioning the following impact pathways from the Proposed Development could in combination with other plans and projects result in LSEs on the qualifying features of the European sites (shown in Annex 1 of this RIES):

- loss or disturbance of functionally FLL (with IDs 3, 6, 9, 102, 103 and 106);
- dust emissions (with ID102 and ID103);
- increased risk of pollution from sediment load (with ID102);
- accidental releases of water-borne pollutants (with ID3, ID102 and ID103); and
- increased visual disturbance from plant and personnel (with IDs 6, 44, 52, 99, 100, 102 and 103).

3.0.15 The application HRAR [APP-185] concluded that during operation the following impact pathways could result in LSEs from the Proposed Development in combination with other plans and projects on the qualifying features of the European sites (shown in Annex 1 of this RIES):

- treated flue gas to air emissions (nitrogen and acid deposition for Thorne Moor SAC with IDs 1, 4, 47 and 92; acid deposition for Skipwith Common SAC with IDs 1, 4, 47 and 74); and

- accidental releases of water-borne pollutants (with ID3, ID12 and ID102).

3.0.16 As a result of the additional air quality modelling and information gathered during the Examination the Applicant identified that the acid deposition CLo for the Skipwith Common SAC would not be exceeded and subsequently concluded in the D6 updated HRAR [REP6-021] that acid deposition would not result in an in-combination LSE on that site.

3.1 Summary of HRA Screening Outcomes during the Examination

- 3.1.1 A total of 10 European sites were screened by the Applicant prior to Examination (see Table 2.1). Of these sites, the Applicant concluded that there would be no LSE on Thorne and Hatfield Moors SPA and its qualifying features (see Annex 1: Table 3.1). The IPs did not dispute this conclusion during the Examination.
- 3.1.2 The Applicant initially concluded potential LSE on nine European sites (see Table 3.1). The IPs did not dispute the Applicant's conclusion for these European sites and qualifying features. These sites are discussed further in Section 4 of this report. Subsequently, the Applicant concluded that there would be no LSE on Skipwith Common SAC and its qualifying features (see Annex 1: Table 3.1).
- 3.1.3 The Applicant screened out impacts on the European sites from construction traffic (HRAR paragraph 3.3.13) from the HRA, and it was not considered further within the HRAR. NE considered that additional information was required on impacts on the Humber Estuary SAC, SPA and Ramsar features **alone** and **in combination** arising from emissions to air from construction traffic using the M62 (RR Issue 1) [AS-011]. This is discussed in Section 4 of this report.

4 ADVERSE EFFECTS ON INTEGRITY

4.1 Conservation Objectives

4.1.1 The conservation objectives for all of the European sites taken forward to appropriate assessment and discussed in this section of this report were provided by the Applicant in Appendix 2 [APP-190] of their HRAR. In the absence of conservation objectives for Ramsar sites the Applicant has applied the conservation objectives that apply to other European sites that are in the same location.

4.2 The Integrity Test

No Adverse Effects on Site Integrity

4.2.1 The Applicant concluded that the Proposed Development will not adversely affect the integrity of the European sites and features listed in Table 2.1 alone or in combination with other plans and projects.

4.2.2 Mitigation measures are considered in Section 4.1 of the HRAR. The proposed mitigation is summarised; cross-reference is made to more detailed information contained in relevant ES chapters and appendices.

4.2.3 The Applicant's conclusions in relation to the sites and features listed below and shown in Table 3.1 were disputed by NE in their RR (Version 1.2) [AS-011]. NE were not satisfied that it could be ascertained beyond reasonable scientific doubt that the Proposed Development would not have an adverse effect on the integrity (AEoI) of the following European sites:

- Lower Derwent Valley SAC
- Lower Derwent Valley SPA
- Lower Derwent Valley Ramsar
- Humber Estuary SAC
- Humber Estuary SPA
- Humber Estuary Ramsar
- River Derwent SAC
- Skipwith Common SAC
- Thorne Moor SAC

4.2.4 NE considered that further information was required in relation to the following matters:

- impacts from emissions to air from construction traffic using the M62 on the Humber Estuary SAC/SPA/Ramsar designated features alone and in combination (RR Issue 1) (screened out of the HRA by the Applicant);
- impacts from potential loss of FLL in the Off-site Habitat Provision Area during construction associated with the Lower Derwent Valley SPA/Ramsar and Humber Estuary SPA/Ramsar alone (RR Issue 2);

- clarification on scenarios used to assess the impacts from aerial emissions during operation on the Humber Estuary SPA/SAC, Lower Derwent Valley SAC/SPA/Ramsar, Thorne Moor SAC, River Derwent SAC and Skipwith Common SAC designated features (RR Issue 18);
- impacts of acid deposition from aerial emissions during operation on the Lower Derwent Valley SAC/Ramsar designated features alone and in combination (RR Issue 19);
- impacts of nitrogen deposition from aerial emissions during operation on the Thorne Moor SAC in combination; and River Derwent SAC designated features alone and in combination (RR Issue 20);
- impacts of NH₃ from aerial emissions in combination during operation on the Thorne Moor SAC (RR Issue 21); and
- proposed mitigation for aerial emissions during operation on the Lower Derwent Valley SAC/Ramsar, Thorne Moor SAC, River Derwent SAC and Skipwith Common SAC designated features (RR Issue 22).

4.2.5 In NE's subsequent RR [RR-281] for CR1, in respect of the additional land included in the OLS it considered that the Applicant had provided insufficient evidence on the construction impacts from potential loss of/disturbance to land which was potentially functionally linked to the Humber Estuary SPA and Ramsar.

4.2.6 NE stated in AS-011 that subject to the proposed mitigation it considered that the Proposed Development was **not likely** to result in an AEoI of the European sites in respect of the following impact pathways:

- pollution from increased sediment load on FLL during construction;
- accidental releases of water-borne pollutants during construction and operation;
- dust impacts on FLL during construction; and
- visual disturbance on FLL during construction.

4.2.7 Biofuelwatch stated in AS-040 that it agreed with NE's comments on potential impacts on internationally (and nationally) designated sites, particularly in relation to loss of FLL and traffic emissions.

Construction and decommissioning LSEs from dust emissions on the European sites from the Proposed Development alone

4.2.8 It was determined in the HRAR that there could be a LSE from dust emissions on FLL related to otter associated with the River Derwent SAC and Lower Derwent Valley SAC and bird species associated with the Lower Derwent Valley SPA and Ramsar and Humber Estuary SPA and Ramsar. A number of proposed mitigation measures to minimise and/or suppress dust are identified. These would be contained in a CEMP, developed from the Register of Environmental Actions and Commitments (REAC) [REP7-010], and include measures to minimise dust generation from operating

vehicles and machinery, to minimise and/or suppress dust generation from demolition, fabrication, and construction activities; and to address dust generation from earthworks. It was concluded in the HRAR that this potential LSE would not result in an AEOI on any European site. NE confirmed its agreement with this conclusion in AS-011.

Construction and decommissioning LSEs from an increased risk of pollution from sediment load on the European sites from the Proposed Development alone

- 4.2.9 A LSE resulting from an increased risk of pollution from sediment load on FLL was identified in the HRAR for otter associated with the River Derwent SAC and Lower Derwent Valley SAC and bird species associated with the Lower Derwent Valley SPA and Ramsar and Humber Estuary SPA and Ramsar. The proposed CEMP and DEMP, secured by dDCO Requirements 14 and 18, would contain several measures proposed to mitigate the risk. These include the use of Method Statements, appropriate management of stockpiles, a construction surface water management plan (SWMP), temporary cut-off drains and wheel-washing facilities. It was concluded in the HRAR that this potential LSE would not result in an AEOI on any European site. NE confirmed its agreement with this conclusion in AS-011.

Construction and decommissioning LSEs from accidental releases of water-borne pollutants on the European sites from the Proposed Development alone

- 4.2.10 A LSE resulting from an increased risk of pollution from accidental releases of water-borne pollutants on FLL was identified in the HRAR for otter associated with the River Derwent SAC and Lower Derwent Valley SAC and bird species associated with the Lower Derwent Valley SPA and Ramsar and Humber Estuary SPA and Ramsar. The proposed CEMP and DEMP would contain several measures proposed to mitigate the risk. These include the incorporation of appropriate interceptors into on-site drainage systems, the location of hazardous substances stored in bunded areas more than 10m away from water bodies and drainage lines and the mixing of construction materials, such as cement, in designated areas located away from water bodies and drainage lines. It was concluded in the HRAR that this potential LSE would not result in an AEOI on any European site. NE confirmed its agreement with this conclusion in AS-011.

Construction and decommissioning LSEs from increased visual disturbance from plant and personnel on the European sites from the Proposed Development alone

- 4.2.11 A LSE resulting from visual disturbance on FLL was identified in the HRAR for otter associated with the River Derwent SAC and Lower Derwent Valley SAC and bird species associated with the Lower Derwent Valley SPA and Ramsar and Humber Estuary SPA and Ramsar. The proposed CEMP and DEMP would include measures to avoid or minimise potential visual disturbance effects. These include hoardings a minimum of 2.4m high around elements such as construction compounds, laydown and demolition areas; detailed lighting measures "substantially in accordance

with" the submitted Draft Lighting Strategy (secured via dDCO R8) [REP6-019] which would avoid or minimise potential increases in illumination of FLL; and a number of measures specifically related to otter. These include exclusion zones around holts and shelters, minimisation of light spill and maintenance of dark corridors, and capping of any exposed pipe systems and providing exit ramps from any exposed trenches or holes.

- 4.2.12 It was concluded in the HRAR that this potential LSE would not result in an AEoI on any European site. NE confirmed its agreement with this conclusion in AS-011.

Construction LSE from potential loss or disturbance of FLL in the Off-site Habitat Provision Area associated with the Lower Derwent Valley SPA and Ramsar and Humber Estuary SPA and Ramsar

- 4.2.13 In respect of impacts from potential loss of FLL in the Off-site Habitat Provision Area during construction associated with the Lower Derwent Valley SPA and Ramsar and Humber Estuary SPA and Ramsar, the Applicant responded to NE in AS-038 that it considered that there was no credible risk of the proposed habitat enhancement measures leading to loss or deterioration of FLL that may be used by SPA/Ramsar qualifying interest bird species. The information provided in the HRAR highlighted that the assessment was made on a precautionary basis and determined that the FLL in the Off-site Habitat Provision Area could be of limited value for the SPA and Ramsar qualifying bird species. Much of the Off-site Habitat Provision Area is comprised of habitats (woodland and scrub) that are unlikely to be used by SPA/Ramsar bird species and to which minimal change is proposed; bird sightlines are obstructed; and it is bisected by a public footpath that would remain unchanged. It is over 4.5km away from the European sites. The Applicant analysed desk studies within 1km of the Off-site Habitat Provision Area for relevant bird species, as requested by NE, and concluded that the habitat was unsuitable for the species recorded.
- 4.2.14 NE confirmed in the D1 dSoCG [REP-020] that it agreed that there would be no construction impacts from the potential loss of FLL in the Off-site Habitat Provision Area associated with the Lower Derwent Valley SPA and Ramsar and Humber Estuary SPA and Ramsar.

Construction LSE arising from additional land included in Change PC-02 from loss of or disturbance to land potentially functionally linked to the Humber Estuary SPA and Ramsar site

- 4.2.15 NE remained of the view in REP2-085 that further information was required in relation to the construction impacts from loss of/disturbance to potential FLL associated with the Humber Estuary SPA and Ramsar site, which formed part of the additional land included in the revised OLs in the Applicant's first change request. It recommended that further assessment of the potential suitability for SPA birds of the land within the proposed OLs and adjacent areas was carried out to inform the updated HRA. It would provide further comment once it had reviewed the updated air

quality assessment. Biofuelwatch stated at D3 [REP3-024] that it shared NE's concerns about the loss or disturbance of FLL during construction.

- 4.2.16 The Applicant responded to NE's concerns at D3 [REP3-020]. It stated that Work No. 8 would be entirely located within 120m of either a main road and/or occupied commercial or residential premises, which would reduce the likelihood of significant use by bird species associated with the Humber Estuary SPA and Ramsar. It also considered that even if the location had low-level use by SPA/Ramsar bird species, there could be no loss of FLL because the works had negligible potential for permanent habitat change and all the habitats present would be reinstated following the works completion. The works would cause temporary disturbance for up to approximately four weeks to a maximum of approximately 2.7 hectares of grassland and farmland crops (based on a worst-case scenario of all the habitat within the OLS being directly affected). It considered that there was abundant alternative comparable habitat present in the wider landscape and that the temporary non-availability of the limited area of land required was comparable to temporary fluctuations in land use in the wider surrounding agricultural landscape. The Applicant also provided further justification for its conclusion in the updated HRAR provided at D6.
- 4.2.17 NE stated at D4 [REP4-041] that, on the basis of the information provided by the Applicant about the type and limited spatial and temporary nature of the works and the proposed habitat reinstatement, it agreed that a LSE arising from Work No. 8 relating to permanent loss of and potential disturbance impacts to FLL could be ruled out.

Construction and decommissioning LSEs from increased risk of pollution from sediment load in combination with ID102

- 4.2.18 It is explained in the HRAR that the construction periods of the Proposed Development and ID102 could overlap and a LSE had been identified for the River Derwent SAC, Lower Derwent Valley SAC, SPA and Ramsar, and the Humber Estuary SPA and Ramsar. Both developments propose mitigation measures to minimise the risk of water-borne pollution, including sediment loading, during their construction. Relevant mitigation for the Proposed Development is set out in Items WE8, WE9, WE12, WE14, and WE15 of the REAC [REP7-010], secured by dDCO R14. The Preliminary Environmental Information Report (PEIR) for ID102 identifies that good practice measures contained within a proposed CEMP would reduce the risk of pollution of the water environment during construction by removing the pathways between sources and receptors. It is concluded in the HRAR that with these mitigation measures in place there would be no AEOI of any European sites resulting from sediment loading. NE stated its agreement to this in AS-011.

Construction and decommissioning LSEs from increased visual disturbance from plant and personnel on the European sites in combination with IDs 6, 44, 52, 99, 100, 102 and 103

- 4.2.19 A LSE had been identified during the construction and decommissioning phases of the Proposed Development for the River Derwent SAC, Lower

Derwent Valley SAC/SPA/Ramsar and the Humber Estuary SPA/Ramsar in relation to increased visual disturbance.

- 4.2.20 In relation to ID6 it is explained in the HRAR that mitigation measures to address potential visual disturbance effects of the Proposed Development include the use of solid hoarding to provide visual screening. The Off-site Habitat Provision Area is approximately 50m to the west of ID6. An existing band of dense scrub and tree cover would be maintained between the existing/proposed open habitats in the Off-site Habitat Provision Area and ID6, which would provide visual screening between the two areas.
- 4.2.21 IDs 44, 52, 99 and 100 are all within 1km of Work No. 8 (works to underground overhead power and telecommunications lines). The ecological information submitted with the planning application for ID44 stated that habitats within its application site were considered to be of no importance for wintering/passage bird species that may be associated with the Humber Estuary SPA and Ramsar and of negligible importance for breeding lapwing. It also detailed a number of mitigation measures proposed to further reduce any residual risk of disturbance to these features including the provision of acoustic fencing along the eastern boundary of the application site during site clearance and construction.
- 4.2.22 The ecological assessments for ID52 identified that habitats within its application site were considered unsuitable for bird species associated with the Humber Estuary SPA/SSSI/Ramsar, as a result of the application site being surrounded by mature trees to the east and existing buildings and industrial areas to the north, east, and west. Its HRA report also identified that the application site is surrounded by several existing land uses which generate noise and lighting and which also partially screen it. Its HRA Report concluded that there would be no risk of LSE to Humber Estuary bird species from disturbance, either alone or in-combination with other plans and projects.
- 4.2.23 The ecological information submitted with the ID99 planning application identified that the application site ground cover was dominated by scrub and rough grassland, habitats considered unsuitable for bird species associated with the Humber Estuary SPA and Ramsar. Its HRA Report concluded that there would be no risk of LSE to the bird features from disturbance, either alone or in-combination with other plans and projects.
- 4.2.24 The ecological assessment for ID100 identified that habitats within and adjacent to its site boundary were unsuitable for bird species associated with the Humber Estuary SPA and Ramsar. The site is dominated by dense scrub and poor semi-improved grassland with some tree cover, which are habitats of limited suitability for Humber Estuary SPA and Ramsar bird species. It is surrounded by major roads including the M62 and existing industrial land uses. The Proposed Development Work No. 8 OHL locations are adjacent to an existing main road and public footpaths, with residential and commercial properties present, making these locations less suitable for SPA and Ramsar bird species.
- 4.2.25 The western limit of ID102 is at the northern boundary of the existing Drax Power Station site and there would be some overlaps with the OLs of the Proposed Development. It is explained in the HRAR that NE agreed with

the conclusion that habitats within and adjacent to ID102's onshore works were of low importance for SPA/Ramsar/SSSI bird species, and the PEIR for ID102 confirmed that a suite of construction avoidance and mitigation measures would be implemented, with additional measures identified as necessary as the design progressed and further ecological surveys were completed.

- 4.2.26 The western limit of ID103 is at the eastern boundary of the existing Drax Power Station site and there would be minor overlaps with the OLS of the Proposed Development. FLL in the Habitat Provision Area north of the Power Station site and areas surrounding the East Construction Laydown Area, that may support Lower Derwent Valley SPA and Ramsar and Humber Estuary SPA and Ramsar bird features or River Derwent SAC and Lower Derwent Valley SAC otter features, could be affected. It is considered that there would be no significant visual disturbance should the construction programmes coincide. The wintering bird surveys for the Proposed Development recorded no SPA species in the East Construction Laydown Area including the eastern portion of the Habitat Provision Area. Both the Proposed Development and ID 103 propose mitigation to reduce visual disturbance effects on ecological receptors.
- 4.2.27 It is concluded in the HRAR that there would be no AEOI of any European sites arising from the Proposed Development in combination with other plans and projects in relation to visual disturbance during construction and decommissioning. NE stated its agreement to this conclusion in AS-011.

Construction, decommissioning and operational LSEs from accidental releases of water-borne pollutants on the European sites in combination with ID3, ID12, ID102 and ID103

- 4.2.28 A LSE was identified for the River Derwent SAC, Lower Derwent Valley SAC/SPA/Ramsar, and the Humber Estuary SAC/SPA/Ramsar for the construction, decommissioning and operational phases of the Proposed Development in combination with ID3 and ID102; during construction only with ID103; and during operation only with ID12. Potential was identified for effects on otter, river lamprey, sea lamprey and bird features of the respective European sites.
- 4.2.29 It is explained in the HRAR that the Proposed Development and these other projects propose mitigation measures to minimise the risk of water-borne pollution during their construction. Relevant mitigation for the Proposed Development is set out in Items WE8, WE9, WE12, WE14, and WE15 of the REAC [REP7-010]. The PEIR for ID102 and scoping information for ID103 identify good practice measures to be included in their CEMPs that would reduce the risk of pollution of the water environment during construction by removing the pathways between sources and receptors. It is concluded that with these mitigation measures in place there would be no AEOI of any European sites from the Proposed Development in combination with other plans and projects resulting from water-borne pollution. NE stated its agreement to this conclusion in AS-011.

Construction LSE from emissions to air from construction traffic using the M62 on the Humber Estuary SAC/SPA/Ramsar alone and in combination

- 4.2.30 The Applicant responded to NE's comments in AS-038. In respect of impacts from emissions to air from construction traffic using the M62 on the Humber Estuary SAC/SPA/Ramsar features it considered that there would be no risk of LSE. It stated that construction was a temporary activity and a conservative approach had been applied to the traffic modelling and the forecast peak construction year Annual Average Daily Traffic (AADT) was below the threshold of 200 Heavy Duty Vehicles (HDV). The M62 bridge over the Humber Estuary is raised approximately 30m above ground level and pollutants emitted by vehicles would be subject to considerable vertical and horizontal dispersion before reaching the Humber habitats. The latest projections for the UK vehicle fleet are for a continuing decline in NO_x emissions due to the continued uptake of low, ultra-low and zero-emission vehicles; it was therefore reasonable to assume that the contribution of M62 traffic to NO_x and NH₃ levels and nitrogen deposition on the Humber Estuary adjacent to the M62 crossing will continue to reduce over future years.
- 4.2.31 NE subsequently stated, as recorded in the D1 dSoCG [REP-020], that following the submission of this additional information it agreed no LSE on the Humber Estuary SAC, SPA, and Ramsar arising from emissions from construction traffic alone or in combination.

Construction LSE arising from loss of or disturbance to FLL in combination with IDs 103 and 106

- 4.2.32 The potential for IDs 103 and 106 to contribute to loss of or disturbance to FLL was identified in the HRAR submitted at D6.
- 4.2.33 It was considered that during cable installation ID103 could result in temporary loss and/or disturbance of minor watercourses, potentially used by otters associated with the River Derwent SAC and Lower Derwent Valley SAC, and loss and disturbance of farmland that could be used by wintering birds associated with the Lower Derwent Valley SPA and Ramsar and/or the Humber Estuary SPA and Ramsar. The majority of habitat loss would be short term and temporary; there would be minor permanent habitat loss from the arable field where a convertor station would be located.
- 4.2.34 It was stated that ID106 could result in permanent or temporary loss and/or disturbance of bankside habitats adjacent to the River Ouse that may be used by otters associated with the River Derwent SAC and Lower Derwent Valley SAC.
- 4.2.35 It was concluded that there would not be an adverse effect on the European sites. This was on the basis that the permanent habitat loss would be negligible, the temporary loss would be short-term, and the habitats affected by temporary works would be reinstated by 2027. It was highlighted that the Scoping Report for ID103 confirmed that a suite of avoidance and mitigation measures would be implemented during construction. The Preliminary Ecological Appraisal for ID106 confirmed

that further surveys would be carried out to determine the presence of otter near the site. It was assumed in the HRAR that the local planning authority would satisfy itself that the proposed works will have no adverse effect on the otter population associated with the European sites prior to granting permission. No IPs commented on this at D7.

Construction LSE arising from dust deposition on FLL in combination with ID102 and ID103

- 4.2.36 The potential for dust deposition effects on FLL arising from the Proposed Development together with IDs 102 and 103 was addressed in the updated HRAR submitted at D6. It was concluded that there would be no AEOI on any European site. In relation to ID102 it was stated in the PEIR that mitigation measures were proposed, as with the Proposed Development, to address construction dust impacts. Good practice measures to manage dust effects were proposed in the PEIR for ID102 and the Scoping Report for ID103 to be included within the CEMPs. No IPs commented on this at D7.

Operational LSE from accidental releases of water-borne pollutants on the European sites from the Proposed Development alone

- 4.2.37 It was determined in the HRAR that there could be a LSE from accidental releases of water-borne pollutants on FLL in relation to otter associated with the River Derwent SAC and Lower Derwent Valley SAC and bird species associated with the Lower Derwent Valley SPA and Ramsar and Humber Estuary SPA and Ramsar. Mitigation measures would be contained in the detailed drainage design, the approval of which is secured by dDCO R10 (REP6-005). This requires that the surface water drainage scheme must be "substantially in accordance" with the principles set out in the Surface Water Drainage Strategy (SWDS), contained in ES Chapter 12 Appendix 12.3 [REP2-043]. The proposed measures include containment measures to collect potentially contaminated surface water runoff and appropriate oil storage and management systems. It was concluded in the HRAR that there would be no operational AEOI on any European site arising from this pathway. NE stated its agreement to this in AS-011.
- 4.2.38 NE noted in its D2 submission [REP2-085] that 'substantially' was not defined in the dDCO and in the absence of that considered that there was uncertainty about whether changes could be made to the proposed mitigation which could result in the measures committed to in the HRAR not being strictly implemented and the conclusions of the HRA being undermined. The Applicant responded at D3 [REP3-020] that without use of 'substantially', 'in accordance with' could be construed as meaning 'exactly the same as', and that would be inappropriate for inclusion in R10 (or any DCO Requirement) as the SWDS is a final scheme to be developed based on the detailed design of the Proposed Development and any update in legislation or guidance. NE restated within the dSoCG submitted at D5 [REP5-017] that it would welcome clarification of the definition of 'substantially'. At D6 it confirmed [REP6-050] that it agreed that dDCO R10 appropriately secured the relevant surface water drainage measures

but reiterated its point about the dDCO terminology, as it did at D7. The Applicant responded at D7 [REP7-017] that, in order to provide more certainty, the procedure for discharge of the Requirements set out in dDCO Schedule 11 would be amended for D8 to require that a statement was submitted alongside an application to discharge a Requirement to confirm that its content (which would include mitigation) did not lead to a change to the HRA conclusions.

- 4.2.39 Biofuelwatch raised a concern in its WR [REP2-073] about a risk of amine and nitrosamine contamination of cooling water released into the River Ouse impacting on the European sites. The Applicant explained at D3 [REP3-020] that there would be no potential for water containing amines to be discharged to the water environment as the process water treatment plant would remove the amines from the water stream for containment and treatment offsite.

Operational scenarios used to assess the impacts from aerial emissions on the Humber Estuary SPA/SAC, Lower Derwent Valley SAC/SPA/Ramsar, Thorne Moor SAC, River Derwent SAC and Skipwith Common SAC designated features

- 4.2.40 The Applicant provided clarification in AS-038 and its Appendix B on the scenarios used to assess the impacts from operational aerial emissions on the Humber Estuary SPA and SAC; Lower Derwent Valley SAC, SPA and Ramsar; Thorne Moor SAC; River Derwent SAC; and Skipwith Common SAC features: termed the 'mid-merit' and the 'full load' scenarios. The realistic worst case scenario would be the mid-merit scenario, ie two Carbon Capture and Storage (CCS) units operating at full load for the entire year and in addition two non-CCS units operating at full load for 4000 hrs.
- 4.2.41 NE confirmed in the D1 dSoCG that, following the submission of the additional information provided in AS-038, it agreed the methodology and scenarios used to assess the operational impacts from aerial emissions on the features of the European sites.

Operational LSEs from treated flue gas to air emissions (acid deposition alone and in combination with IDs 1, 4, 47 and 92 and nitrogen deposition in combination with IDs 1, 4, 47 and 92 on Thorne Moor SAC; acid deposition and nitrogen deposition on Lower Derwent Valley SAC and Ramsar alone and in combination)

- 4.2.42 It is explained in the HRAR that the air quality modelling was based on the following conservative assumptions, which resulted in highly precautionary modelled outcomes:
- meteorological data for 2016 – 2020 was used with the results from the maximum (ie, worst) year presented;
 - the two bioenergy with carbon capture and storage (BECCS) biomass units would both operate at continuous full load (8,760 hrs/year), which in reality would be unlikely to occur;

- assessment of maximum impacts anywhere in a designated site, irrespective of area represented by the maximum;
- assessment against the lower threshold of the recommended CLo/CLes; and
- IDs 1, 4 and 47 would all be operational at the same time as the Proposed Development and would all operate at continuous full load (ie, 8,760 hrs/year), which in reality was an extremely unlikely scenario, so represents a conservative worst-case assessment of annual mean impacts.

4.2.43 Paras 4.1.20 to 4.1.25 of the HRAR propose operational stage mitigation for flue gas emissions of nitrogen deposition and acid deposition and identify two proposed design changes to the main stack: reducing the concentration of SO₂ emissions from the two BECCS biomass units by 40% compared to the Best Available Technology (BAT) Environmental Assessment Level (EAL); and increasing the exit temperature of flue gases from the BECCS units from 80°C to 100°C. The purpose of these measures would be to increase buoyancy in the flue gases leaving the main stack, thereby improving dispersion of all pollutants; and to reduce the concentration of SO₂ being emitted, thereby reducing the Proposed Development's contribution to acid deposition at the identified sensitive habitats. These measures would be secured through the proposed variation to the existing Drax environmental permit, for which the application has recently been made to the EA.

4.2.44 It was predicted in the application HRAR [APP-185] that following mitigation the modelled maximum acid deposition impact from the Proposed Development alone would be 1.1% of the CLo for the Lower Derwent Valley SAC and Ramsar site. It was concluded that as the modelling was based on several conservative assumptions (set out in para 4.2.174) the impact would be analogous to 1% of the CLo and would not result in any perceptible changes to the condition of function of the qualifying habitat and therefore no AEOI. In combination with other plans and projects, acidification was modelled to be 1.9% of the CLo. The Applicant concluded (paragraph 4.3.28) no AEOI based on the conservative assumptions applied to the modelling and therefore the highly precautionary outcomes, and the magnitude of the modelled acid deposition.

4.2.45 In respect of Thorne Moor SAC the modelled impacts for NH₃ (1.1%), nitrogen deposition (1.7%) and acid deposition (1.9%) resulting from the Proposed Development in combination with other plans and projects exceeded the critical levels (CLes) and CLoS, respectively. The Applicant concluded (paragraphs 4.3.39 – 4.3.43) that the exceedances were only marginally above the CLes and CLoS, that no perceptible effects on the SAC vegetation were predicted to arise and therefore no AEOI.

4.2.46 The Applicant concluded that there would be no AEOI of any European site resulting from operational emissions to air from the Proposed Development alone or in combination.

- 4.2.47 NE raised concerns in their RR [AS-011] about the following operational impacts from aerial emissions, which are addressed in further detail below:
- acid deposition on the Lower Derwent Valley SAC/Ramsar alone and in combination;
 - nitrogen deposition on the Thorne Moor SAC in combination and the River Derwent SAC alone and in combination; and
 - NH₃ concentrations on the Thorne Moor SAC in combination.
- 4.2.48 Biofuelwatch also raised concerns in its WR [REP2-073] about operational NH₃ and acid and nitrogen deposition impacts on the European sites and confirmed at D3 [REP3-024] that it shared NE's concerns.
- 4.2.49 Potential impacts of nitrogen deposition on the River Derwent SAC were not included in the air quality assessment contained in the application ES air quality chapter [APP-042]. They were included in the revised dispersion modelling that was subsequently undertaken (set out in REP2-065) which predicted that with mitigation the maximum annual mean nitrogen deposition would be 0.3% of the CLo alone and 0.7% in combination, ie the CLo threshold would not be exceeded.
- 4.2.50 In response to a request by NE in their RR [AS-011] for additional assessment of the potential for effects on the River Derwent SAC from nitrogen deposition the Applicant undertook additional analysis and survey work. NE had requested that (in the absence of CLoS) proxy habitats were used to enable air quality dispersion modelling against proxy habitats for the River Derwent SAC. The survey work undertaken to confirm the appropriate habitats for use in dispersion modelling of proxy habitats for the River Derwent is reported in HRAR Appendix 7 [REP2-107]. It was concluded as a result that the features of the SAC were not sensitive to nitrogen (or acid) deposition.
- 4.2.51 In relation to NE's concerns raised in its RR about the impacts of acid deposition, nitrogen deposition and NH₃ the Applicant provided information within AS-038 but confirmed that it was in continuing discussion with NE about the additional information that they required.
- 4.2.52 In its response to ExQ1 [REP2-060] the Applicant stated that updated dispersion modelling had been undertaken to account for updated operational emissions abatement of SO₂ and to reflect an updated approach to the assessment of Keadby 2, whereby it was included in the future baseline rather than the in-combination assessment. It explained that the abatement mitigation enabled a greater reduction in SO₂ mass emissions from the BECCS units, which leads to a corresponding reduction in the contribution to acid deposition. The annual Emission Limit Value (ELV) for SO₂ had been reduced to 45mg/Nm³ for the BECCS units.
- 4.2.53 The Applicant explained that full details of the modelling were provided in Air Quality Technical Note 2 – Rev 01 [REP2-065], which contained revised figures for pollutant deposition. The acid deposition rates were lower at all of the European sites than previously predicted. Acid deposition at the Lower Derwent Valley SAC and Ramsar had reduced to 0.96% of the CLo alone and 1.56% in combination, and to 0.6% alone and 1.49% in

combination at Thorne Moor SAC. In-combination nitrogen deposition was predicted to reduce to 1.25% of the CLo and in-combination NH₃ concentrations were predicted to reduce to 0.58% of the CLe at Thorne Moor SAC.

- 4.2.54 In response to NE's RR and in support of maintaining its conclusion of no AEOI on the European sites where the CLo/CLe was exceeded, the Applicant pointed in REP2-060 to the historical reductions in SO₂ nationally and regionally and the consequent effects on acid deposition, and the likelihood that further reductions would occur. It acknowledged that this was not certain and could not be relied upon when considering the potential for AEOI. It also stated that it had completed site surveys of parts of the Lower Derwent Valley SAC/Ramsar, the outcomes of which were provided in Appendix 7 [REP2-107] of the updated HRAR. It was acknowledged by the Applicant that the survey work was completed outside of the optimal period for botanical survey but explained that a number of botanical species could still be identified. The surveys found evidence of agricultural improvement within a number of field units within and bordering the Lower Derwent Valley, which the Applicant considered suggested that the surveyed locations are likely to be relatively insensitive to additional aerial nitrogen and acid deposition inputs. It maintained its position that the level of exceedance of the pollutants was insufficient to result in an AEOI.
- 4.2.55 NE, in REP2-085, stated that to ensure modelling uncertainty complies with the precautionary principle it was essential for conservative assumptions to be built into the model in order to reflect a realistic worst case. It acknowledged that this could result in overestimates of pollutant deposition or concentration but considered that these could not be discounted. It could not be concluded that a process contribution over 1% was analogous to 1% on the basis that certain assumptions will overestimate concentrations.
- 4.2.56 NE also noted that the Applicant had considered amine impacts for ecological receptors only in terms of deposition and not concentration, and that there was potential for amines to react in the atmosphere in a similar way to NH₃, a pollutant in its own right. It stated that recent reviews of current scientific understanding undertaken by the EA and the UK's Air Quality Technical Advisory Group (AQTAG) had suggested that the impact of atmospheric breakdown products from emitted amines may need to be considered in addition to deposition impacts.
- 4.2.57 At D3 the Applicant confirmed [REP3-020] that its position remained unchanged from D2. It highlighted that it had provided an updated assessment of air quality effects on European sites in relation to habitats at the River Derwent SAC (REP2-107); within AQ TN2 [REP2-065], which contained updated dispersion modelling results; and within the updated HRAR (REP2-101) submitted at D2. In relation to NE's point about amine concentration it would request copies of the relevant research from NE. However, it stated that predicted concentrations of total amines in the atmosphere would be a maximum of 0.03% of the NH₃ CLo over the designated sites, and that total concentrations of nitrosamines and nitramines would be a maximum of 0.001% of the NH₃ CLe. It considered

that on the basis of the extremely low concentrations required to meet conservative criteria relating to human health the risk of adverse effects on ecological systems was also likely to be negligible.

- 4.2.58 NE confirmed at D4 [REP4-041] that the additional information provided by the Applicant had addressed all of its concerns. It was satisfied that the Proposed Development would not have an adverse effect on any European site, subject to the HRA being further updated accordingly and the proposed mitigation being adequately secured.
- 4.2.59 In relation to impacts of acid deposition from aerial emissions on the Lower Derwent Valley SAC/Ramsar alone and in combination, NE noted the revised dispersion modelling results as set out in AQ TN2 and the updated HRAR, which predicted lower contributions to the CLo from the Proposed Development than previously predicted. It referenced the habitat survey work and analysis undertaken by the Applicant detailed in HRAR Appendix 7 [REP2-107] to confirm the habitats present along the River Derwent SAC and Lower Derwent Valley SAC. It agreed that the survey data evidenced agricultural improvement within a number of field units within and bordering the Lower Derwent Valley which suggested that the surveyed locations were likely to be relatively insensitive to additional aerial nitrogen and acid deposition inputs. It also noted that the Applicant had provided a habitat analysis report for the Lower Derwent Valley SAC (HRAR Appendix 8 [REP3-009] based on NE survey data, which concluded that neutral grassland was the most abundant broad habitat type and that more of the plots sampled were in the 'calcareous' rather than 'acid' or 'acid-neutral' pH ranges. It agreed that it was therefore more appropriate to apply the CLo for calcareous grassland rather than acid, which allowed for greater pH buffering capacity and so potentially makes the site less sensitive to acid deposition.
- 4.2.60 NE considered that the proposed monitoring, recording, and reporting to the EA was appropriate to ensure emissions from the Proposed Development remained within the limits used for the assessments. In relation to its recommendation that the Applicant undertake operational monitoring at the European sites it acknowledged the Applicant's concern that such monitoring would be unlikely to be able to distinguish between impacts arising from the Proposed Development and from other sources. It clarified that the purpose of the monitoring would be to support the Applicant's claims that acid deposition and other pollution was decreasing at the European sites and also that the precautionary assumptions applied to the modelling were appropriate. However, it accepted that the measure was unnecessary as it would not be possible to identify triggers for further measures and confirmed that it did not require such monitoring to be included in the DCO.
- 4.2.61 In respect of potential impacts of nitrogen deposition on Thorne Moor SAC in combination, NE noted the updated dispersion modelling figures and the additional site-specific information provided in the updated HRAR to address how the deposition could affect the conservation objectives. The updated HRAR provided clarification of the relevance to the SAC of the referenced NE Commissioned Report 210 (NECR210), including by comparing the species referenced within the SAC citation to 2019 data on

the SAC produced by the Thorne and Hatfield Moors Conservation Forum. NE agreed that the Applicant's conclusion that the level of deposition and the potential consequential vegetative change continues to fall within the bounds of natural variation and would lead to negligible (and imperceptible) effects on the SAC appeared justified based on the evidence presented and the overall comparatively low levels of in-combination nitrogen deposition.

- 4.2.62 In relation to potential impacts of nitrogen deposition on the River Derwent SAC alone and in combination, NE noted the information provided in HRAR Appendix 7 on survey work undertaken by the Applicant to confirm the habitats present and the most appropriate habitats to use as proxy habitats for the purposes of the air quality modelling. It was concluded that 'fen, marsh and swamp' habitat was the most appropriate and the associated CLo of 15kgN/ha/year was identified. NE considered that this CLo was appropriate and sufficiently precautionary. It noted that the impact of the Proposed Development according to the updated modelling figures was 0.4% of the CLo alone and 0.7% in combination. It also noted the information provided in HRAR Appendix 6 [APP-194] that the SAC is "skewed" towards phosphate limitation, which also indicates that there would be a limited impact on the qualifying features of the SAC from nitrogen deposition. Appendix 6 explains that where phosphate is the primary limiting nutrient additional inputs of nitrogen have limited effects on plant productivity.
- 4.2.63 NE highlighted that Table 3.6 of the updated HRAR [REP2-101] identified that the River Derwent SAC was not sensitive to nitrogen or acid deposition (notwithstanding that the HRAR did subsequently include the assessment of the proxy CLo for nitrogen deposition), although the UK Air Pollution Information System (APIS) indicates that the SAC is sensitive to both pollutants. However, NE considered that the information provided in the HRAR relating to the high acid buffering capacity and impact of acid deposition on otter habitat and prey indicated that the conservation objectives of the SAC would not be undermined by the modelled acid deposition.
- 4.2.64 In respect of in-combination impacts from NH₃ on the Thorne Moor SAC, NE noted the revised dispersion modelling results contained in AQ TN2 [REP2-065], particularly as a result of the removal of the now operational Keadby 2 Power Plant from the in-combination assessment and the consequential decrease in the NH₃ concentration on the SAC from 1.1% to 0.6% of the CLo. It considered that a LSE could be ruled out.
- 4.2.65 At ISH3 Biofuelwatch raised concerns that no reference had been made to uncertainties in the nitrogen deposition modelling [REP4-037]. The Applicant explained that a reasonable worst case scenario is inherently taken into account in the modelling, and provided further details in its updated Response to Issues Raised at D3 [REP4-030].
- 4.2.66 In its comments on the D4 submissions [REP5-030] Biofuelwatch queried what level of cumulative (in-combination) uncertainty NE had assumed when assessing whether nitrogen and acid deposition at Thorne Moor SAC fell within the bounds of natural variation. It also questioned why NE

considered "significant increased long-term" nitrogen and acid deposition on the Lower Derwent Valley sites and Thorne Moor SAC, even if within the bounds of natural variation, to be acceptable when CLOs are exceeded.

- 4.2.67 Both NE [REP6-050] and the Applicant [REP6-032] responded to Biofuelwatch's comments at D6. NE acknowledged that the use of modelling to predict pollutant deposition levels was subject to uncertainty. It noted that the Applicant had used precautionary/conservative assumptions in the model to mitigate for the uncertainty and that the modelling had been undertaken in accordance with good practice. It considered that there was nothing to suggest a need for further uncertainty to be applied to the assessment. It agreed with the conclusions in the HRAR that the Proposed Development would not impact on measures to reduce emissions from existing sources and from the dominant sources of N deposition in the area. It noted that the proposed mitigation would substantially decrease acid deposition from the Proposed Development and would be ensured through a monitoring condition in the environmental permit. It considered that the predicted additional in-combination quantities of acid deposition and nitrogen deposition would not undermine the conservation objectives even though the CLOs are already exceeded at the protected sites.
- 4.2.68 The Applicant responded that the deposition experienced at the designated sites varied considerably between years and the impacts of the Proposed Development would be considerably lower than the natural inter-annual variation in deposition. It also highlighted that NE had agreed that use of the 'calcareous grassland' CLO for acid deposition, rather than the 'acid grassland' CLO, was appropriate for the Lower Derwent Valley, and that therefore the CLO was not exceeded.
- 4.2.69 The Applicant provided additional justification for its conclusions in relation to operational acid deposition on Thorne Moors SAC in the updated HRAR submitted at D6 [REP6-021]. It highlighted that annual SO₂ emissions from Drax Power Station had fallen substantially over recent years, in line with EP requirements. There had been a reduction in SO₂ emissions from approximately 35 kilotonnes in 2012 to approximately 5 kilotonnes in 2020. It explained that as SO₂ has approximately 16 times the acidifying potential of NO_x, reductions in SO₂ emissions lead to a proportionately greater reduction in acidification potential. The UK set targets to reduce SO₂ emissions by 59% by 2020 and by 88% by 2030 compared to 2005 emissions, and achieved the 2020 target "with headroom". 2020 data indicates that SO₂ UK emissions were 83% lower than in 2005. The Applicant acknowledged that the trend according to the national targets could not be fully applied at a regional or local level and solely relied on in determining potential for AEOI, but considered that the information about future likely national SO₂ reductions supported its conclusion of no AEOI.
- 4.2.70 Biofuelwatch reiterated its concerns about uncertainties in the Applicant's modelling approach at D6 [REP6-034], and commented on NE's D6 response [REP6-050] at D7 [REP7-018]. It considered that the Applicant's modelling predictions may have underestimated the increase in pollution and that any exceedance of the CLOs would result in harm.

Proposed mitigation for aerial emissions during operation on the Lower Derwent Valley SAC/Ramsar, Thorne Moor SAC, River Derwent SAC, and Skipwith Common SAC designated features

- 4.2.71 In respect of proposed mitigation for operational aerial emissions on the Lower Derwent Valley SAC/Ramsar, Thorne Moor SAC, River Derwent SAC, and Skipwith Common SAC features the Applicant stated in AS-038 that the Proposed Development would be regulated by the EA under the Environmental Permitting Regulations, which would control its aerial emissions, including compounds associated with acid deposition including but not limited to SO₂. The Applicant had submitted an application to the EA to vary its existing environmental permit (EP) for Drax Power Station, which included a decrease in SO₂ concentrations from the units associated with BECCS (Units 1 and 2), due to a quencher system which reduces the sulphur load which enters the absorber system and which eventually is emitted to air. The HRA was based on the limits included in the variation application, which applied a realistic worst-case scenario.
- 4.2.72 In its response [REP2-060] to ExQ1 [PD-011] the Applicant confirmed that the existing EP contains mitigation and monitoring requirements and that similarly the varied EP would contain the proposed operational mitigation and monitoring arrangements for the Proposed Development. It also responded to NE's recommendation, as reflected in Rev 02 of the dSoCG [REP-020] that monitoring of the European sites should also be carried out for the identified pollutants and a relevant requirement included in the DCO. The Applicant considered that this monitoring was not possible and would not in any event yield useful information. It was not aware of any monitoring technique which would be capable of separating (and therefore detecting) pollutants from the Proposed Development from the other plans and projects considered in the in-combination assessment and from all other sources.
- 4.2.73 NE agreed, in its response to ExQ1 [REP2-085], that it was appropriate for arrangements for monitoring of emissions from the Proposed Development to be contained within the varied EP. It reiterated its suggestion that the protected sites should be monitored in addition.
- 4.2.74 The Applicant responded at D3 [REP3-020]. It confirmed that its position remained as set out at D2 and highlighted that since NE had raised this concern it had provided updated dispersion modelling information within AQ TN2 (REP2-065) and an updated assessment within a revised HRAR (REP2-101) of air quality effects on the European sites. The Applicant considered that no additional air quality monitoring and mitigation measures were required.
- 4.2.75 NE confirmed at D4 [REP4-041] that on the basis of the updated dispersion modelling and additional information on mitigation provided by the Applicant it agreed with the assessment conclusions.

Position of IPs at the time of publication of this RIES

- 4.2.76 It was confirmed in the dSoCG between the Applicant and NE [REP5-017] submitted at D5 that NE agreed with the Applicant that there would be no

AEoI of any of the European sites considered in the HRA arising from the Proposed Development, alone or in combination.

4.2.77 Biofuelwatch remain concerned about the air quality modelling and operational emissions of pollutants on the European sites [REP7-018].

ANNEX 1: TABLE 3.1: APPLICANT'S SCREENING EXERCISE

Key:

× = No LSE/AEoI assessment required

✓ = LSE/AEoI assessment required

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Features	Impact	Screening result*: LSE alone	Screening result*: LSE in combination	Assessment of effects on integrity required?
River Derwent SAC (0.7km from the OLS)				
Otter	Loss of FLL (through hedgerow planting in the Habitat Provision Area) during construction and decommissioning	✓	✓	✓
	Dust emissions on FLL during construction and decommissioning (Carr Dyke)	✓	x	✓
	Increased risk of pollution from sediment load during construction and decommissioning (Carr Dyke)	✓	x	✓
	Accidental releases of water-borne pollutants during construction and decommissioning (Carr Dyke and River Ouse)	✓	✓	✓
River lamprey	Accidental releases of water-borne pollutants during construction and decommissioning (River Ouse)	✓	✓	✓

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Features	Impact	Screening result*: LSE alone	Screening result*: LSE in combination	Assessment of effects on integrity required?
Sea lamprey	Accidental releases of water-borne pollutants during construction and decommissioning (River Ouse)	✓	✓	✓
Otter	Increased visual disturbance of FLL (land adjacent to the Proposed Development and the Habitat Provision Area) from plant and personnel during construction and decommissioning	✓	✓	✓
All features	Noise and vibration on FLL during construction and decommissioning	x	x	x
	Treated flue gas to air emissions during operation	x	x	x
	Operational noise and vibration disturbance	x	x	x
	Increased levels of visual disturbance during operation	x	x	x

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Features	Impact	Screening result*: LSE alone	Screening result*: LSE in combination	Assessment of effects on integrity required?
Otter River lamprey Sea lamprey	Accidental releases of water-borne pollutants (into Carr Dyke or River Ouse) during operation	✓	✓	✓
		✓	✓	✓
		✓	✓	✓
All other features	Accidental releases of water-borne pollutants during operation	x	x	x
<u>Lower Derwent Valley SAC (4.3km from the OLS)</u>				
Otter	Loss of FLL (through hedgerow planting in the Habitat Provision Area) during construction and decommissioning	✓	✓	✓
	Dust emissions on FLL during construction (Carr Dyke)	✓	x	✓
	Increased risk of pollution from sediment load during construction and decommissioning (Carr Dyke)	✓	x	✓

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Features	Impact	Screening result*: LSE alone	Screening result*: LSE in combination	Assessment of effects on integrity required?
	Accidental releases of water-borne pollutants during construction and decommissioning (Carr Dyke and River Ouse)	✓	✓	✓
	Increased visual disturbance of FLL (land adjacent to the Proposed Development and the Habitat Provision Area) from plant and personnel during construction and decommissioning	✓	✓	✓
All features	Noise and vibration on FLL during construction and decommissioning	x	x	x
Habitats	Treated flue gas to air emissions during operation (acid deposition)	✓	✓	✓
Species	Treated flue gas to air emissions during operation	x	x	x
All features	Operational noise and vibration disturbance	x	x	x
	Increased levels of visual disturbance during operation	x	x	x

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Features	Impact	Screening result*: LSE alone	Screening result*: LSE in combination	Assessment of effects on integrity required?
Otter	Accidental releases of water-borne pollutants (into Carr Dyke or River Ouse) during operation	✓	✓	✓
All other features	Accidental releases of water-borne pollutants during operation	x	x	✓
<u>Lower Derwent Valley SPA (4.3km from the OLS)</u>				
Wildfowl and waders – teal and shoveler	Loss and disturbance of FLL (Habitat Provision Area and Off-Site Habitat Provision Area)	✓	✓	✓
	Dust emissions on FLL during construction (Habitat Provision Area and Carr Dyke)	✓	x	✓
Wintering birds – Bewick’s swan, teal, shoveler, wigeon, golden plover Wildfowl and waders	Increased risk of pollution from sediment load during construction and decommissioning (Carr Dyke)	✓	x	✓

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Features	Impact	Screening result*: LSE alone	Screening result*: LSE in combination	Assessment of effects on integrity required?
	Accidental releases of water-borne pollutants during construction and decommissioning (Carr Dyke and River Ouse)	✓	✓	✓
	Increased visual disturbance of FLL (Habitat Provision Area) from plant and personnel during construction and decommissioning	✓	✓	✓
All features	Noise and vibration on FLL during construction and decommissioning	x	x	x
	Treated flue gas to air emissions during operation	x	x	x
	Operational noise and vibration disturbance	x	x	x
	Increased levels of visual disturbance during operation	x	x	x
Wintering birds – Bewick’s swan, teal, shoveler, wigeon, golden plover	Accidental releases of water-borne pollutants during operation (Carr Dyke and River Ouse)	✓	✓	✓

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Features	Impact	Screening result*: LSE alone	Screening result*: LSE in combination	Assessment of effects on integrity required?
<u>Lower Derwent Valley Ramsar (4.3km from the OLS)</u>				
Wildfowl and waders/Wintering birds – teal and wigeon	Loss and disturbance of FLL (Habitat Provision Area and Off-Site Habitat Provision Area)	✓	✓	✓
	Dust emissions on FLL during construction (Habitat Provision Area and Carr Dyke)	✓	x	✓
	Increased risk of pollution from sediment load during construction and decommissioning (Carr Dyke)	✓	x	✓
	Accidental releases of water-borne pollutants during construction and decommissioning (Carr Dyke and River Ouse)	✓	✓	✓
	Increased visual disturbance of FLL (Habitat Provision Area) from plant and personnel during construction and decommissioning	✓	✓	✓

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Features	Impact	Screening result*: LSE alone	Screening result*: LSE in combination	Assessment of effects on integrity required?
All features	Noise and vibration on FLL during construction and decommissioning	x	x	x
Habitats	Treated flue gas to air emissions during operation (acid deposition)	✓	x	✓
Species	Treated flue gas to air emissions during operation	x	x	x
All features	Operational noise and vibration disturbance	x	x	x
	Increased levels of visual disturbance during operation	x	✓	✓
Wintering birds - teal, widgeon	Accidental releases of water-borne pollutants during operation (Carr Dyke and River Ouse)	✓	✓	✓
<u>Humber Estuary SAC (2.9km from the OLS)</u>				
River lamprey	Accidental releases of water-borne pollutants during construction and decommissioning (River Ouse)	✓	✓	✓

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Features	Impact	Screening result*: LSE alone	Screening result*: LSE in combination	Assessment of effects on integrity required?
Sea lamprey	Accidental releases of water-borne pollutants during construction and decommissioning (River Ouse)	✓	✓	✓
Other features	Loss and disturbance of FLL during construction and decommissioning	x	x	x
	Dust emissions on FLL during construction and decommissioning	x	x	x
	Increased risk of pollution from sediment load during construction and decommissioning	x	x	x
All features	Noise and vibration on FLL during construction and decommissioning	x	x	x
	Increased visual disturbance of FLL from plant and personnel during construction and decommissioning	x	✓	✓
	Treated flue gas to air emissions during operation	x	x	x
	Operational noise and vibration disturbance	x	x	x

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Features	Impact	Screening result*: LSE alone	Screening result*: LSE in combination	Assessment of effects on integrity required?
	Increased levels of visual disturbance during operation	x	x	x
River lamprey	Accidental releases of water-borne pollutants during operation (River Ouse)	✓	✓	✓
Sea lamprey	Accidental releases of water-borne pollutants during operation (River Ouse)	✓	✓	✓
<u>Humber Estuary SPA (2.9km from the OLS)</u>				
Wildfowl and waders/ Wintering birds – waterbird assemblage (lapwing, curlew, shoveler, mallard, wigeon), marsh harrier, golden plover	Loss and disturbance of FLL (Habitat Provision Area and Off-Site Habitat Provision Area)	✓	✓	✓
	Dust emissions on FLL during construction (Habitat Provision Area and Carr Dyke)	✓	x	✓
	Increased risk of pollution from sediment load during construction and decommissioning (Carr Dyke)	✓	x	✓

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Features	Impact	Screening result*: LSE alone	Screening result*: LSE in combination	Assessment of effects on integrity required?
	Accidental releases of water-borne pollutants during construction and decommissioning (Carr Dyke and River Ouse)	✓	✓	✓
	Increased visual disturbance of FLL (Habitat Provision Area) from plant and personnel during construction and decommissioning	✓	✓	✓
All features	Noise and vibration on FLL during construction and decommissioning	x	x	x
	Treated flue gas to air emissions during operation	x	x	x
	Operational noise and vibration disturbance	x	x	x
	Increased levels of visual disturbance during operation	x	✓	✓
Wintering birds - waterbird assemblage (lapwing, curlew, shoveler, mallard, wigeon), marsh harrier, golden plover	Accidental releases of water-borne pollutants during operation (Carr Dyke and River Ouse)	✓	✓	✓

Features	Impact	Screening result*: LSE alone	Screening result*: LSE in combination	Assessment of effects on integrity required?
<u>Humber Estuary Ramsar (2.9km from the OLs)</u>				
Wildfowl and waders – waterbird assemblage (lapwing, curlew, shoveler, mallard, wigeon), golden plover	Loss and disturbance of FLL (Habitat Provision Area and Off-Site Habitat Provision Area)	✓	✓	✓
	Dust emissions on FLL during construction (Habitat Provision Area and Carr Dyke)	✓	x	✓
	Increased risk of pollution from sediment load during construction and decommissioning (Carr Dyke)	✓	x	✓
River lamprey	Accidental releases of water-borne pollutants during construction and decommissioning (River Ouse)	✓	✓	✓
Sea lamprey	Accidental releases of water-borne pollutants (during construction and decommissioning River Ouse)	✓	✓	✓

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Features	Impact	Screening result*: LSE alone	Screening result*: LSE in combination	Assessment of effects on integrity required?
Wildfowl and waders – waterbird assemblage (lapwing, curlew, shoveler, mallard, wigeon), golden plover	Accidental releases of water-borne pollutants during construction and decommissioning (Carr Dyke and River Ouse)	✓	✓	✓
	Increased visual disturbance of FLL (Habitat Provision Area) from plant and personnel during construction and decommissioning	✓	✓	✓
All features	Noise and vibration on FLL during construction and decommissioning	x	x	x
	Treated flue gas to air emissions during operation	x	x	x
	Operational noise and vibration disturbance	x	x	x
	Increased levels of visual disturbance during operation	x	x	x
River lamprey	Accidental releases of water-borne pollutants during operation (River Ouse)	✓	✓	✓

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Features	Impact	Screening result*: LSE alone	Screening result*: LSE in combination	Assessment of effects on integrity required?
Sea lamprey	Accidental releases of water-borne pollutants during operation (River Ouse)	✓	✓	✓
Wintering birds – waterbird assemblage (lapwing, curlew, shoveler, mallard, wigeon), golden plover	Accidental releases of water-borne pollutants during operation (Carr Dyke and River Ouse)	✓	✓	✓
<u>Skipwith Common SAC (7.6km from the OLS)</u>				
Northern Atlantic wet heaths with cross-leaved heath (single feature)	Loss and disturbance of FLL during construction and operation	x	x	x
	Dust emissions on FLL during construction and decommissioning	x	x	x
	Increased risk of pollution from sediment load during construction and decommissioning	x	x	x
	Accidental releases of water-borne pollutants during construction and decommissioning	x	x	x

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Features	Impact	Screening result*: LSE alone	Screening result*: LSE in combination	Assessment of effects on integrity required?
	Noise and vibration on FLL during construction and decommissioning	x	x	x
	Increased visual disturbance of FLL from plant and personnel during construction and decommissioning	x	x	x
	Treated flue gas to air emissions during operation	x	x	x
	Operational noise and vibration disturbance	x	x	x
	Increased levels of visual disturbance during operation	x	x	x
	Accidental releases of water-borne pollutants during operation	x	x	x
<u>Thorne & Hatfield Moors SPA (4.5km from the OLS)</u>				
Nightjar (single feature)	All impacts during construction and decommissioning	x	x	x
	Treated flue gas to air emissions during operation	x	x	x

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Features	Impact	Screening result*: LSE alone	Screening result*: LSE in combination	Assessment of effects on integrity required?
	Operational noise and vibration disturbance	x	x	x
	Increased levels of visual disturbance during operation	x	x	x
	Accidental releases of water-borne pollutants during operation	x	x	x
<u>Thorne Moor SAC (4.5km from the OLS)</u>				
Degraded raised bogs (single feature)	Loss and disturbance of FLL during construction and operation	x	x	x
	Dust emissions on FLL during construction and decommissioning	x	x	x
	Increased risk of pollution from sediment load during construction and decommissioning	x	x	x
	Accidental releases of water-borne pollutants during construction and decommissioning	x	x	x

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Features	Impact	Screening result*: LSE alone	Screening result*: LSE in combination	Assessment of effects on integrity required?
	Noise and vibration on FLL during construction and decommissioning	x	x	x
	Increased visual disturbance of FLL from plant and personnel during construction and decommissioning	x	x	x
	Treated flue gas to air emissions during operation	✓ (acid deposition)	✓ NH ₃ , nitrogen deposition, acid deposition	✓
	Operational noise and vibration disturbance	x	x	x
	Increased levels of visual disturbance during operation	x	x	x
	Accidental releases of water-borne pollutants during operation	x	x	x