



HABITATS REGULATIONS ASSESSMENT – VOLUME 3 - APPENDIX 3 (CLEAN)

Screening Matrices

Drax Bioenergy with Carbon Capture and Storage

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations, 2009 - Regulation 5(2)(g)

Document Reference Number: 6.8.3.3

Applicant: Drax Power Limited

PINS Reference: EN010120



REVISION: 03

DATE: May 2023

DOCUMENT OWNER: WSP UK Limited

AUTHOR: S. Ireland

APPROVER: P. Peterson

PUBLIC

Planning Inspectorate

Advice Note 10

Habitats Regulations Assessment

Screening Matrices

Potential Effects

Potential effects upon the European site(s)* which are considered within the submitted HRA report (REP2-101, Rev03 submitted at Deadline 6) are provided in the table below.

Effects considered within the screening matrices

Designation	Effects described in submission information	Presented in screening matrices as
River Derwent SAC	Loss or disturbance of habitats within European Sites	Loss or disturbance of habitats within European Sites
	Loss or physical disturbance of functionally-linked land	Loss or mechanical disturbance of functionally-linked land
	Emissions of dust	Emissions of dust
	Increased risk of pollution from increased sediment load	Increased risk of pollution from sediment load
	Accidental releases of water-borne pollutants	Accidental releases of water-borne pollutants
	Disturbance from noise and vibration; Operational noise disturbance of European Site qualifying features	Noise disturbance
	Increased visual disturbance from plant and personnel; Increased levels of visual disturbance during operation	Visual disturbance
	Emissions of treated flue gas to air	Emissions of treated flue gas to air

* As defined in Advice Note 10.

Designation	Effects described in submission information	Presented in screening matrices as
Lower Derwent Valley SAC	Loss or disturbance of habitats within European Sites	Loss or disturbance of habitats within European Sites
	Loss or physical disturbance of functionally-linked land	Loss or mechanical disturbance of functionally-linked land
	Emissions of dust	Emissions of dust
	Increased risk of pollution from increased sediment load	Increased risk of pollution from sediment load
	Accidental releases of water-borne pollutants	Accidental releases of water-borne pollutants
	Disturbance from noise and vibration; Operational noise disturbance of European Site qualifying features	Noise disturbance
	Increased visual disturbance from plant and personnel; Increased levels of visual disturbance during operation	Visual disturbance
	Emissions of treated flue gas to air	Emissions of treated flue gas to air
Lower Derwent Valley SPA	Loss or disturbance of habitats within European Sites	Loss or disturbance of habitats within European Sites
	Loss or physical disturbance of functionally-linked land	Loss or mechanical disturbance of functionally-linked land
	Emissions of dust	Emissions of dust
	Increased risk of pollution from increased sediment load	Increased risk of pollution from sediment load
	Accidental releases of water-borne pollutants	Accidental releases of water-borne pollutants
	Disturbance from noise and vibration; Operational noise disturbance of European Site qualifying features	Noise disturbance
	Increased visual disturbance from plant and personnel; Increased levels of visual disturbance during operation	Visual disturbance
	Emissions of treated flue gas to air	Emissions of treated flue gas to air
Lower Derwent Valley Ramsar	Loss or disturbance of habitats within European Sites	Loss or disturbance of habitats within European Sites
	Loss or physical disturbance of functionally-linked land	Loss or mechanical disturbance of functionally-linked land
	Emissions of dust	Emissions of dust
	Increased risk of pollution from increased sediment load	Increased risk of pollution from sediment load
	Accidental releases of water-borne pollutants	Accidental releases of water-borne pollutants
	Disturbance from noise and vibration; Operational noise disturbance of European Site qualifying features	Noise disturbance
	Increased visual disturbance from plant and personnel; Increased levels of visual disturbance during operation	Visual disturbance
	Emissions of treated flue gas to air	Emissions of treated flue gas to air
Skipwith Common SAC	Loss or disturbance of habitats within European Sites	Loss or disturbance of habitats within European Sites
	Loss or physical disturbance of functionally-linked land	Loss or mechanical disturbance of functionally-linked land
	Emissions of dust	Emissions of dust
	Increased risk of pollution from increased sediment load	Increased risk of pollution from sediment load
	Accidental releases of water-borne pollutants	Accidental releases of water-borne pollutants
	Disturbance from noise and vibration; Operational noise disturbance of European Site qualifying features	Noise disturbance
	Increased visual disturbance from plant and personnel; Increased levels of visual disturbance during operation	Visual disturbance
	Emissions of treated flue gas to air	Emissions of treated flue gas to air

Designation	Effects described in submission information	Presented in screening matrices as
Thorne Moor SAC	Loss or disturbance of habitats within European Sites	Loss or disturbance of habitats within European Sites
	Loss or physical disturbance of functionally-linked land	Loss or mechanical disturbance of functionally-linked land
	Emissions of dust	Emissions of dust
	Increased risk of pollution from increased sediment load	Increased risk of pollution from sediment load
	Accidental releases of water-borne pollutants	Accidental releases of water-borne pollutants
	Disturbance from noise and vibration; Operational noise disturbance of European Site qualifying features	Noise disturbance
	Increased visual disturbance from plant and personnel; Increased levels of visual disturbance during operation	Visual disturbance
	Emissions of treated flue gas to air	Emissions of treated flue gas to air
Thorne and Hatfield Moors SPA	Loss or disturbance of habitats within European Sites	Loss or disturbance of habitats within European Sites
	Loss or physical disturbance of functionally-linked land	Loss or mechanical disturbance of functionally-linked land
	Emissions of dust	Emissions of dust
	Increased risk of pollution from increased sediment load	Increased risk of pollution from sediment load
	Accidental releases of water-borne pollutants	Accidental releases of water-borne pollutants
	Disturbance from noise and vibration; Operational noise disturbance of European Site qualifying features	Noise disturbance
	Increased visual disturbance from plant and personnel; Increased levels of visual disturbance during operation	Visual disturbance
	Emissions of treated flue gas to air	Emissions of treated flue gas to air
Humber Estuary SAC	Loss or disturbance of habitats within European Sites	Loss or disturbance of habitats within European Sites
	Loss or physical disturbance of functionally-linked land	Loss or mechanical disturbance of functionally-linked land
	Emissions of dust	Emissions of dust
	Increased risk of pollution from increased sediment load	Increased risk of pollution from sediment load
	Accidental releases of water-borne pollutants	Accidental releases of water-borne pollutants
	Disturbance from noise and vibration; Operational noise disturbance of European Site qualifying features	Noise disturbance
	Increased visual disturbance from plant and personnel; Increased levels of visual disturbance during operation	Visual disturbance
	Emissions of treated flue gas to air	Emissions of treated flue gas to air
Humber Estuary SPA	Loss or disturbance of habitats within European Sites	Loss or disturbance of habitats within European Sites
	Loss or physical disturbance of functionally-linked land	Loss or mechanical disturbance of functionally-linked land
	Emissions of dust	Emissions of dust
	Increased risk of pollution from increased sediment load	Increased risk of pollution from sediment load
	Accidental releases of water-borne pollutants	Accidental releases of water-borne pollutants
	Disturbance from noise and vibration; Operational noise disturbance of European Site qualifying features	Noise disturbance
	Increased visual disturbance from plant and personnel; Increased levels of visual disturbance during operation	Visual disturbance
	Emissions of treated flue gas to air	Emissions of treated flue gas to air

Designation	Effects described in submission information	Presented in screening matrices as
Humber Estuary Ramsar	Loss or disturbance of habitats within European Sites	Loss or disturbance of habitats within European Sites
	Loss or physical disturbance of functionally-linked land	Loss or mechanical disturbance of functionally-linked land
	Emissions of dust	Emissions of dust
	Increased risk of pollution from increased sediment load	Increased risk of pollution from sediment load
	Accidental releases of water-borne pollutants	Accidental releases of water-borne pollutants
	Disturbance from noise and vibration; Operational noise disturbance of European Site qualifying features	Noise disturbance
	Increased visual disturbance from plant and personnel; Increased levels of visual disturbance during operation	Visual disturbance
	Emissions of treated flue gas to air	Emissions of treated flue gas to air

STAGE 1: SCREENING MATRICES

The European sites included within the screening assessment are:

- River Derwent SAC;
- Lower Derwent Valley SAC;
- Lower Derwent Valley SPA;
- Lower Derwent Valley Ramsar;
- Skipwith Common SAC;
- Thorne Moor SAC;
- Thorne and Hatfield Moors SPA;
- Humber Estuary SAC;
- Humber Estuary SPA; and
- Humber Estuary Ramsar.

Evidence for, or against, likely significant effects on the European site(s) and its qualifying feature(s) is detailed within the footnotes to the screening matrices below.

Matrix Key:

✓ = Likely significant effect **cannot** be excluded

✗ = Likely significant effect **can** be excluded

C = construction

O = operation

D = decommissioning

HRA Screening Matrix 1: River Derwent SAC

Name of European site and designation: River Derwent SAC																																	
EU Code: UK0030253																																	
Distance to NSIP: 0.7km																																	
European site features			Likely effects of NSIP																														
Effect	Loss or disturbance of habitats within European Site			Loss or mechanical disturbance of functionally-linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Noise disturbance			Visual disturbance			Emissions of treated flue gas to air			In combination effects								
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D			
Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation	xa		xa	xd		xd	xd		xd	xf	xf	xf	xf		xf													xk		xl	xm		xl
river lamprey <i>Lampetra fluviatilis</i>	xb		xb	xd		xd	xd		xd	✓g	✓g	✓g	xn		xn	xo	xo	xo	xh	xj	xh							xk		✓l	✓m		✓l
sea lamprey <i>Petromyzon marinus</i>	xb		xb	xd		xd	xd		xd	✓g	✓g	✓g	xn		xn	xo	xo	xo	xh	xj	xh							xk		✓l	✓m		✓l
bullhead <i>Cottus gobio</i>	xb		xb	xd		xd	xd		xd	Xf	xf	xf	xf		xf	xo	xo	xo	xh	xj	xh							xk		✓l	xm		✓l
otter <i>Lutra lutra</i>	xb		xb	✓c		✓c	✓e		✓e	✓g	✓g	✓g	✓g		✓g	xo	xo	xo	✓i	xj	✓i							xk		✓l	✓m		✓l

Evidence supporting conclusions:

- a. The Proposed Scheme is located 0.7 km from the closest European Site, which is the River Derwent SAC. There would therefore no loss of habitats within any European Site arising from construction or decommissioning of the Proposed Scheme (**Paragraph 3.5.2.** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 2), therefore no LSE are predicted.⁶
- b. There would be no loss or disturbance of habitats within any European Site supporting qualifying interest species (paragraph 3.5.2 of the HRA Report), therefore no LSE are predicted.
- c. Carr Dyke is located immediately north of Drax Power Station. Previous survey work for the Drax Repower Scheme recorded evidence of otters along Carr Dyke and adjacent to the River Ouse (WSP, 2018). Carr Dyke is within 50m of the Habitat Provision Area, where hedgerow planting is proposed as well as being adjacent to the Woodyard which would be used for construction laydown and fabrication (see paragraph 2.3.9 of Chapter 2 (Site and Project Description) of Volume 1 of the ES (APP-038). As such, otters are expected to be present that could form part of the qualifying interests, and could be affected by loss or disturbance of functionally-linked land. As such, it is not possible to rule out LSE without more detailed consideration.

- d. Qualifying interest feature is not expected to be present within land within the Order Limits or within 50 m of construction activities, due to absence of habitat or physical barriers to dispersal. As such there is no prospect of loss or mechanical disturbance of functionally-linked land or for impacts from dust (see **Table 3.3** in the **Habitats Regulations Assessment Report**, REP2-101, Rev03 submitted at Deadline 6), therefore no LSE are predicted.
- e. As set out in **paragraph 6.8.3** of **Chapter 6** (Air Quality) of Volume 1 of the ES (APP-042), emissions of dust from construction activities could be relevant to ecological receptors up to 50 m from construction activities. Dust deposition onto the Habitat Provision Area and Carr Dyke within 50m of the woodyard (see **Figure 3** of the **HRA Report**, APP-188) could have minor adverse effects on the habitats present. Dust deposition onto aquatic and terrestrial habitats can lead to soiling of plant surfaces, affecting photosynthesis and ecological functioning, which could reduce the suitability of the watercourses for foraging otter. Construction and decommissioning activities would last for more than a year and qualifying interest features may occasionally use habitats within 50 m of these activities. As such, there is the potential for LSE on these features due to dust emissions.
- f. These qualifying interests of the SAC do not occur in watercourses that could be affected by water-borne pollution. Carr Dyke does not support the 'Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation' qualifying interest. This habitat type does not tolerate saline or brackish water, so will not be found in the River Ouse adjacent or downstream of the Proposed Scheme (the River Ouse is tidal in excess of 1km upstream from the Proposed Scheme). In relation to bullhead, this fish is associated with freshwater habitats and will also not be found in the River Ouse adjacent or downstream of the Proposed Scheme, again due to the tidal nature of the River Ouse. In the event that Carr Dyke supported bullhead, any populations present would be functionally-isolated from the River Derwent by the River Ouse (there is also pumping station infrastructure at the confluence of Carr Dyke with the River Ouse, which is likely to present a barrier to fish movement) see **paragraph 3.5.13** of the **HRA Report**, (REP2-101, Rev03 submitted at Deadline 6). Therefore no LSE are predicted.
- g. As set out between **paragraph 12.9.3 and 12.9.6** of **Chapter 12** (Water Environment) in Volume 1 of the ES (APP-048), in the absence of mitigation Carr Dyke and River Ouse may be at risk of increased sediment loading during construction and decommissioning, and of increased risk of water-borne pollutants (hydrocarbons etc) during construction, decommissioning, and operation. These impacts could temporarily reduce the suitability of these watercourses for foraging otter. In the event of an accidental release of water-borne pollutants into Carr Dyke or River Ouse, this could temporarily reduce the suitability of these watercourses for foraging otter. Sea lamprey and river lamprey using the River Ouse are also likely to be part of the qualifying interest populations for which the River Derwent SAC has been designated and could be affected (see **paragraph 3.5.17** of the **HRA Report** (REP2-101, Rev-03 submitted at Deadline 6). As such, there is a potential for LSE on these features due to accidental release of waterborne pollutants and / or sediment loading.
- h. Bullhead, river lamprey and sea lamprey that form part of the qualifying interest populations are not expected to be present within the ZoI of visual disturbance, and are also not considered to be sensitive to visual disturbance (see **Table 3.5** of the **HRA Report** (REP2-101, Rev-03 submitted at Deadline 6)). As such, no LSE are predicted.
- i. Otter are known to use the Carr Dyke adjacent to the northern part of the Drax Power Station Site, where construction and laydown activities would occur. It is possible that these activities, including construction of the Carbon Dioxide Delivery Compound, could lead to visual disturbance of otter, through presence of construction personnel and machinery. As such, the potential for LSE has been identified (see **Table 3.5** in the **HRA Report**).
- j. Operational activities with potential to disturb qualifying interests of the River Derwent SAC include the presence of additional personnel within the Power Station site, potential requirements for operational lighting, and habitat management in the Habitat Provision Area and Off-Site Habitat Provision Area. These activities are considered to have very limited scope to lead to significant disturbance of European Site qualifying interests, due to being confined to within the Drax Power Station Site and/or due to being equivalent to ongoing agricultural activities. See **Table 3.5** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). As such, no LSE are predicted.
- k. The updated air quality dispersion modelling results (see **Revised Emissions Abatement Note**, REP2-065) show that the PC from the Proposed Scheme is $\leq 1\%$ of the critical level for all European Sites for NO_x, NH₃, and SO₂, and there is no exceedance of the Critical Level with or without the Proposed Scheme. Therefore, the Proposed Scheme alone will not result in LSE to any European Site in relation to these pollutants. The River Derwent SAC is not considered to be sensitive to doses of nitrogen deposition or acid deposition such as would arise from the Proposed Scheme (see **Appendix 5 and 6** of the **HRA Report**, APP-193 and APP-194). Natural England advised in their Relevant Representation (AS-011) that further assessment was required to support a finding of no AEOI. In particular, Natural England advised that '*...we recommend that the critical load for the most sensitive riparian habitat type is used as a proxy value; the relevant critical levels/loads for 'Fen, Marsh and Swamp' and 'Broadleaved, Mixed and Yew Woodland' can be found on Air Pollution Information System (APIS) (2022) to inform the assessment.* The Applicant has completed survey work, as reported in **HRA Appendix 7 (Habitats Regulations Assessment: SAC Habitat Monitoring)** (REP2-107) to assess the habitats present within and adjacent to the River Derwent SAC, at a number of locations within 15 km (air quality ZoI) of the Proposed Scheme. This has determined that the most suitable habitat proxies are fen, marsh and swamp' habitats, as advised by Natural England, and 'alluvial woodland' rather than 'broadleaved, mixed, and yew woodland'. The Applicant has also completed dispersion (air quality) modelling using the Critical Load for 'fen, marsh, and swamp' habitats as part of wider updates to the dispersion modelling for the Proposed Scheme. The Proposed Scheme impact is up to 0.4% of critical load, i.e. under the 1% screening criterion for potential significance and the risk of LSE can be discounted on numerical grounds. No dispersion modelling has been completed for 'alluvial woodland' habitats, as these are not sensitive to nitrogen or acid deposition and do not have critical loads to compare against. As such, the risk of LSE to the alluvial woodland habitats present can be discounted due to them not being sensitive to these impact pathways (see **Appendices 5 (APP-093) and 7 (REP2-107)** of the **HRA Report**). In relation to acid deposition, the River Derwent is deemed to have a high acid buffering capacity on the basis of Environment Agency monitoring data. This indicates that the pH of the river water is unlikely to be significantly affected by minor additional acid deposition. Given the ecological requirements of otters, they are also not expected to be sensitive to any minor acid deposition impacts that may occur (see paragraphs **3.5.51 to 3.5.53** of the **HRA Report**). The high acid buffering capacity of the River Derwent (see paragraphs **3.5.50** of the **HRA Report**) also mean that acid deposition is unlikely to have any effect on the fish qualifying interest features of the SAC. As such, no LSE are predicted to arise.
- l. In-combination LSE have been identified for Development 3, 6,102, 103, and 106 during construction and decommissioning of the Proposed Scheme. Development 3 involves permanent land take within the ZoI of the Proposed Scheme for a Converter Station. The development involves the installation of a cable crossing of the River Ouse downstream of the Proposed Scheme under the River Ouse by Horizontal Directional Drilling (HDD) or similar. The cable may also be installed across smaller watercourses and other land by open-cut techniques.

Installation of the cable could therefore lead to short-term temporary loss of functionally linked habitat that may be used by otter (**Table 3.8** of the **HRA Report**, REP2-101, Rev03 submitted at Deadline 6), and increased risk of accidental release of water-borne pollutants within watercourses including the River Ouse that may be used by otter, sea lamprey and river lamprey (**Table 3.10 and 3.11** of the **HRA Report**); these species are likely to form part of the River Derwent SAC population. Development 102 will involve the installation of a pipeline with crossings of a number of watercourses, some of which may be open-cut and would be upstream of the River Ouse and could therefore increase the risk of significant in-combination effects in relation to water-borne pollution, emissions of dust (see **Table 3.9** of the **HRA Report**), visual disturbance (**Table 3.13** of the **HRA Report**), and temporary loss/disturbance of functionally-linked land (**Table 3.8** of the **HRA Report**). In addition, there is potential for in-combination visual disturbance impacts between Development 6 and the Proposed Scheme to be worse than those of either project alone. LSE are therefore also identified in relation to visual disturbance (see **Table 3.13** of the **HRA Report**).

Development 103 includes the installation of an electrical cable which would run east from the eastern boundary of the Drax Power Station site and includes a crossing under the River Ouse. The cable may also be installed across smaller watercourses and other land by open-cut techniques. Installation of the cable could therefore lead to short-term temporary loss of functionally linked habitat that may be used by otter (**Table 3.8** of the **HRA Report**, REP2-101, Rev03 submitted at Deadline 6), and increased risk of dust deposition and accidental release of water-borne pollutants within watercourses including the River Ouse that may be used by otter, sea lamprey and river lamprey (**Table 3.9, 3.10 and 3.11** of the **HRA Report**); these species are likely to form part of the River Derwent SAC population. Development 103 could also contribute to increased cumulative visual disturbance of otter populations associated with the River Derwent SAC (see **Table 3.13** of the **HRA Report**). Development 106 is a residential development located near the northern bank of the River Ouse in excess of 2 km upstream of the Proposed Scheme. Development 106 could potentially lead to minor permanent loss of functionally linked habitat that may be used by otter (**Table 3.8** of the **HRA Report**, REP2-101, Rev03 submitted at Deadline 6). No in-combination effects on the 'Water courses of plain to montane levels' qualifying interest could occur, due to an absence of impact pathways from the Proposed Scheme that could lead to any conceivable effects, therefore no LSE are predicted.

- m.** In-combination LSE have been identified for Development 3, 12, 102 and 103 during operation. The risk relates to increased potential for adverse cumulative effects in relation to increased pollutants released by accidental spillage and leakage of oil, hydrocarbons and hazardous substances. These could impact the quality of the local drains and potentially the River Ouse (functionally-linked land used by otter, river lamprey, and sea lamprey). This could lead to increased impacts relative to operation of the Proposed Scheme alone (see **Table 3.17** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). No impacts to SAC habitats or bullhead are predicted, as these will not occur in the River Ouse or downstream of where cumulative impacts could occur, due to the tidal nature of the River Ouse in this location. This is because SAC habitats and bullhead are intolerant of the brackish or saline conditions in this part of the Ouse, therefore no LSE are predicted. The updated air quality dispersion modelling results (see **Revised Emissions Abatement Note**, REP2-065)) show that the PC from the Proposed Scheme and other plans and projects is $\leq 1\%$ of the critical level for all European Sites for NO_x, NH₃, and SO₂, with no exceedance of the Critical Level with or without the Proposed Scheme. Therefore, the Proposed Scheme in-combination will not result in LSE to any European Site in relation to these pollutants. The River Derwent SAC is not considered to be sensitive to doses of nitrogen deposition or acid deposition such as would arise from the Proposed Scheme in-combination (see **Appendix 5 and 6** of the **HRA Report**, APP-193 and APP-194)). Natural England advised in their Relevant Representation (AS-011) that further assessment was required to support a finding of no AEOI. In particular, Natural England advised that '*...we recommend that the critical load for the most sensitive riparian habitat type is used as a proxy value; the relevant critical levels/loads for 'Fen, Marsh and Swamp' and 'Broadleaved, Mixed and Yew Woodland' can be found on Air Pollution Information System (APIS) (2022) to inform the assessment.*' The Applicant has completed survey work to assess the habitats present within and adjacent to the River Derwent SAC, at a number of locations within 15 km (air quality ZoI) of the Proposed Scheme. This has determined that the most suitable habitat proxies are fen, marsh and swamp' habitats, as advised by Natural England, and 'alluvial woodland' rather than 'broadleaved, mixed, and yew woodland'. The Applicant has also completed dispersion (air quality) modelling using the Critical Load for 'fen, marsh, and swamp' habitats as part of wider updates to the dispersion modelling for the Proposed Scheme. The in-combination impact is up to 0.7% of critical load, i.e. under the 1% screening criterion for potential significance. No dispersion modelling has been completed for 'alluvial woodland' habitats, as these are not sensitive to nitrogen or acid deposition and do not have critical loads. As such, the risk of LSE to the alluvial woodland habitats present can be discounted due to them not being sensitive to these impact pathways (see **Appendix 5** to the **HRA Report** and **Appendix 5** to the **Applicant's Responses to Examining Authorities First Written Questions, Revised Emissions Abatement Technical Note** (REP2-065)). In relation to acid deposition, the River Derwent is deemed to have a high acid buffering capacity on the basis of Environment Agency monitoring data. This indicates that the pH of the river water is unlikely to be significantly affected by minor additional acid deposition. Given the ecological requirements of otters, they are also not expected to be sensitive to any minor acid deposition impacts that may occur (see paragraphs **3.5.51** to **3.5.53** of the **HRA Report**), therefore no LSE are predicted.
- n.** Sediment loading has been identified as a risk to water quality of the Carr Dyke during construction (see **paragraph 12.9.3 and 12.9.6** of **Chapter 12** (Water Environment) in Volume 1 of the ES (APP-048)). The River Ouse is not expected to be affected, due to the distance between the Proposed Scheme and the Ouse (>1 km from the existing Power Station Site). River and sea lamprey are not expected to use the Carr Dyke due to the barrier posed by pumping station infrastructure (see **Table 3.4** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). As such, no LSE are predicted.
- o.** River and sea lamprey are not expected to use the Carr Dyke due to the barrier posed by pumping station infrastructure and any bullhead populations in the Carr Dyke would not be functionally-linked with the River Derwent populations due to the intervening barriers (pumping station infrastructure and tidal nature of Ouse) (see **Table 3.4** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). Otters may use the Carr Dyke, adjacent to the Proposed Scheme. The assessment of noise and vibration presented in the ES considered several Biodiversity Receptors. The locations of these are shown on **Figure 7.2** of **Chapter 7** (Noise and Vibration) of the ES (APP-090). The results of the construction and operational noise modelling for Biodiversity Receptors are set out in **Table 1** of **Appendix 7.6** (Biodiversity Receptors) of **Chapter 7** (Noise and Vibration) of the ES (APP-135). The noise levels that would occur during construction are relatively low, and often do not exceed baseline conditions (see **Table 3.4** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). These noise levels are not predicted to lead to any significant change in the behaviour of otters using Carr Dyke. Operational noise generated by the Proposed Scheme would be lower than that produced during construction (see **Table 1** of **Appendix 7.6** (Biodiversity Receptors) of **Chapter 7** (Noise and Vibration) of the ES (APP-135)). As such, no LSE are predicted.

HRA Screening Matrix 2: Lower Derwent Valley SAC

Name of European site and designation: Lower Derwent Valley SAC																														
EU Code: UK0012844																														
Distance to NSIP: 4.3km																														
European site features	Likely effects of NSIP																													
	Loss or disturbance of habitats			Loss or physical disturbance of functionally-linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Noise disturbance			Visual disturbance			Emissions of treated flue gas to air			In combination effects					
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D			
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Lowland hay meadows (<i>Alopecurus parentsis</i> , <i>Sanguisorba officinalis</i>)	xa		xa	xb		xb	xd		xd	xg	xg	xg	xg		xg										xm		xn			
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)	xa		xa	xb		xb	xd		xd	xg	xg	xg	xg		xg										xm		xn			
Otter <i>Lutra lutra</i>	xa		xa	✓c		✓c	✓e		✓e	✓f	✓f	✓f	✓h		✓h	xi	xj	xi	✓k	xl	✓k				xm		✓o ✓n ✓o			

Evidence supporting conclusions:

- a. There would be no loss of habitats within any European Site arising from construction or decommissioning (see **Figure 8.1** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-092)), therefore no LSE are predicted.
- b. There are no Annex 1 qualifying interest habitat types within or adjacent to the Proposed Scheme (see **Figure 8.3** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094)). There is therefore no potential for loss of functionally-linked SAC habitats, and no LSE are predicted.
- c. Carr Dyke is located immediately north of Drax Power Station. Previous survey work for the Drax Repower Scheme recorded evidence of otters along Carr Dyke and adjacent to the River Ouse (see **Table 3.3** of the **HRA Report**). Carr Dyke is within 50m of the Habitat Provision Area, where hedgerow planting is proposed as well as being adjacent to the Woodyard which would be used for construction laydown and fabrication (see **paragraph 2.3.9** of **Chapter 2** (Site and Project Description) of Volume 1 of the ES (APP-038)). As such, otters are expected to be present that could form part of the qualifying interest, and could be affected by loss or disturbance of functionally-linked land. As such, it is not possible to rule out LSE without more detailed consideration.
- d. There are no Annex 1 qualifying interest habitat types within 50 m of the Proposed Scheme (see **Figure 8.3** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094)). There is therefore no potential for dust deposition onto functionally-linked SAC habitats and LSE are not predicted to arise.
- e. As set out in **paragraph 6.8.2** of **Chapter 6** (Air Quality) of Volume 1 of the ES (APP-042), emissions of dust from construction activities could be relevant to ecological receptors up to 50 m from construction activities. Dust deposition onto the Habitat Provision Area and Carr Dyke within 50m of the woodyard (see **Figure 3** of the **HRA Report**, APP-094) could have minor adverse effects on the habitats present. Dust deposition onto aquatic and terrestrial habitats can lead to soiling of plant surfaces, affecting photosynthesis and ecological

- functioning, which could reduce the suitability of the watercourses for foraging otter. Construction and decommissioning activities would last for more than a year and qualifying interest features may occasionally use habitats within 50 m of these activities. As such, there is the potential for LSE on these features.
- f. As set out between **paragraph 12.9.9** and **12.9.11** of **Chapter 12** (Water Environment) in Volume 1 of the ES (APP-048), in the absence of mitigation Carr Dyke may be at increased risk of pollution from accidental spillages of oils, hydrocarbons, and hazardous substances during construction, operation, and decommissioning. **Paragraph 12.9.15** of Chapter 12 (**Water Environment**) also identifies that River Ouse, approximately 1.4 km downstream of option 1 of the Carbon Dioxide Delivery Terminal Compound, is at risk of such pollution events. In the event of an accidental release of water-borne pollutants into Carr Dyke or River Ouse, this could temporarily reduce the suitability of these watercourses for foraging otter. In the event of a significant spill vegetation and fish populations could be impacted, reducing the suitability of the watercourse for foraging otter in the short to medium term (see **paragraphs 3.5.15 – 3.5.17** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). As such, LSE are predicted.
 - g. There are no Annex 1 qualifying interest habitat types within or adjacent to the Proposed Scheme and they do not occur along the tidal River Ouse downstream of the Site as the tidal conditions mean the banks of the river are unsuitable (see **Figure 8.3** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094)). As such, no LSE are predicted.
 - h. Increased sediment loading of the Carr Dyke during construction and decommissioning could temporarily reduce the suitability of this for foraging otter (see **paragraph 3.5.12** of the **HRA Report** (APP-185, Rev02 submitted at Deadline 2)). Any otters using the Carr Dyke may also be part of the qualifying interest populations of Lower Derwent Valley SAC. As such, there is the potential for LSE on these features.
 - i. Given the low level of predicted noise at Biodiversity Receptors, construction and decommissioning noise is not likely to lead to any changes in behaviour by otters, in the event they were using the Carr Dyke or other habitats within or adjacent to the Habitat Provision Area. The closest Biodiversity Receptors to the Carr Dyke (BR 2 – BR6) are predicted to experience maximum noise levels of 39 LAeq,T dB (see **Appendix 7.6 (Biodiversity Receptors)** of **Chapter 7** (Noise and Vibration) of the ES (APP-135)) and **Table 3.4** of the **HRA Report** (APP-185, Rev02 submitted at Deadline 2), therefore no LSE are predicted.
 - j. The maximum noise level at any Biodiversity Receptor considered to provide functionally linked habitat (Biodiversity Receptor 5) is 28 LAeq,T dB (see **Appendix 7.6 (Biodiversity Receptors)** of **Chapter 7** (Noise and Vibration) of the ES (APP-135)). Additional detail is presented in **paragraphs 3.5.64 to 3.5.67** of the **HRA Report** (APP-185, Rev02 submitted at Deadline 2). Given the very low levels of noise that would arise from operation of the Carbon Capture Plant, no disturbance of any European Site qualifying interests is predicted to arise, therefore no LSE are predicted.
 - k. Otters that form part of the Lower Derwent Valley SAC population may also use habitats outside the SAC, potentially including Carr Dyke adjacent to the Proposed Scheme. Otters may be discouraged from using areas of the Carr Dyke in proximity to construction activities in this area as a result of visual disturbance from plant and personnel. As such, there are potential LSE to the otter qualifying feature arising from works in the Woodyard area (see **Table 3.5** in the **HRA Report** (APP-185, Rev02 submitted at Deadline 2)).
 - l. Operational activities with potential to disturb qualifying interests of the Lower Derwent Valley SAC include the presence of additional personnel within the Power Station site, potential requirements for operational lighting, and habitat management in the Habitat Provision Area and Off-Site Habitat Provision Area. These activities are considered to have very limited scope to lead to significant disturbance of European Site qualifying interests, due to being confined to within the Drax Power Station Site and/or due to being equivalent to ongoing agricultural activities. This is analysed in detail between **paragraphs 3.5.68 to 3.5.77** of the **HRA Report** (APP-185, Rev02 submitted at Deadline 2). As such, no LSE are predicted to arise.
 - m. Potential LSE were previously identified in relation to acid deposition for Lower Derwent Valley SAC. The modelled PC in the with Proposed Scheme scenario for acid deposition was above 1% of the respective critical load at sensitive habitats within the Lower Derwent Valley SAC (2.0%) (see **Section 6.9** of **Chapter 6** (Air Quality), APP-042). No exceedances of the 1% screening criterion were predicted for other pollutants, and this continues to be the case. The dispersion (air quality) modelling has been updated since the Application was submitted (see **Appendix 5** to the **Applicant's Responses to Examining Authorities First Written Questions, Revised Emissions Abatement Technical Note** (document reference **8.9.5**). No dispersion modelling has been completed for 'alluvial woodland' habitats, as these are not sensitive to nitrogen or acid deposition and do not have critical loads. As such, the risk of LSE to the alluvial woodland habitats present can be discounted due to them not being sensitive to these impact pathways. Given the ecological requirements of otters, they are also not expected to be sensitive to any minor nitrogen or acid deposition impacts that may occur (see paragraphs **3.5.51 to 3.5.53** of the **HRA Report** REP2-101, Rev03 submitted at Deadline 6). The Applicant has also completed analysis of Natural England long-term habitat and soil monitoring data for the Lower Derwent Valley SAC, SPA and Ramsar. This is contained in Appendix 8 of the HRA Report (REP3-009). This analysis has determined that the most appropriate acidity critical load class to use for Lower Derwent Valley SAC/Ramsar is the 'calcareous grassland' critical load class. Previously, the 'acid grassland' critical load class was used. Calcareous grassland is less sensitive to acid deposition than acid grassland. The modelled PC from the Proposed Scheme pre-mitigation is below the 1% screening criterion for the lowland hay meadow habitat when using the calcareous grassland critical load class. Baseline acid deposition is also below the critical load when the calcareous grassland critical load class is used. potential LSE on this qualifying feature can therefore be ruled out and no further analysis is required (see **paragraphs 3.5.56 to 3.5.59** of the **HRA Report**).
 - n. In-combination LSE have been identified for Development 3, 12 and 102 during operation of the Proposed Scheme. The risk relates to increased potential for adverse cumulative effects in relation to increased pollutants released by accidental spillage and leakage of oil, hydrocarbons and hazardous substances. These could impact the quality of the local drains and potentially the River Ouse (functionally-linked land used by otter that could be part of Lower Derwent Valley SAC qualifying interest populations). This could lead to increased impacts relative to operation of the Proposed Scheme alone (see **Table 3.17** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6) in relation to the otter qualifying interest only, therefore LSE may arise. In-combination LSE have also been identified for Developments 1, 4, 7, 47, and 92 during operation in the with Proposed Scheme scenario. The risk arises because these developments would produce emissions of one or more pollutant that could combine with the Proposed Scheme's emissions to air in the with Proposed Scheme scenario. No dispersion modelling has been completed for 'alluvial woodland' habitats, as these are not sensitive to nitrogen or acid deposition and do not have critical loads. As such, the risk of LSE to the alluvial woodland habitats present can be discounted due to them not being sensitive to these impact pathways. Given the ecological requirements of otters, they are also not expected to be sensitive to any minor nitrogen or acid deposition impacts that may occur (see paragraphs **3.5.51 to 3.5.53** of the **HRA Report**). The Applicant has also completed

analysis of Natural England long-term habitat and soil monitoring data for the Lower Derwent Valley SAC, SPA and Ramsar. This is contained in Appendix 8 of the HRA Report (REP3-009). This analysis has determined that the most appropriate acidity critical load class to use for Lower Derwent Valley SAC/Ramsar is the 'calcareous grassland' critical load class. Previously, the 'acid grassland' critical load class was used. Calcareous grassland is less sensitive to acid deposition than acid grassland. The modelled PC from the Proposed Scheme and other plans and projects pre-mitigation is below the 1% screening criterion for the lowland hay meadow habitat when using the calcareous grassland critical load class (with a maximum predicted impact equivalent to 0.7% of critical load). Baseline acid deposition is also below the critical load when the calcareous grassland critical load class is used. potential LSE on this qualifying feature can therefore be ruled out and no further analysis is required (see **paragraphs 3.5.56 to 3.5.59** of the **HRA Report**).

- o. In-combination LSE have been identified for Development 3, 6, 102, 103 and 106 during construction and decommissioning of the Proposed Scheme. Development 3 involves permanent land take within the ZoI of the Proposed Scheme for a Converter Station. The development involves the installation of a cable crossing of the River Ouse downstream of the Proposed Scheme under the River Ouse by Horizontal Directional Drilling (HDD) or similar. The cable may also be installed across smaller watercourses and other land by open-cut techniques. Installation of the cable could therefore lead to short-term temporary loss of functionally linked habitat that may be used by otter (**Table 3.8** of the **HRA Report**, APP-185, Rev02 submitted at Deadline 2), and increased risk of accidental release of water-borne pollutants within watercourses including the River Ouse that may be used by otter (**Table 3.10 and 3.11** of the **HRA Report**); which are likely to form part of the Lower Derwent Valley SAC population, therefore LSE may arise. Development 102 will involve the installation of a pipeline with crossings of a number of watercourses, some of which may be open-cut and would be upstream of the River Ouse and could therefore increase the risk of significant in-combination effects in relation to water-borne pollution, emissions of dust (see **Table 3.9** of the **HRA Report**), visual disturbance (**Table 3.13** of the **HRA Report**), and temporary loss/disturbance of functionally-linked land (**Table 3.8** of the **HRA Report**), as such, LSE may arise. In addition, there is potential for in-combination visual disturbance impacts between Development 6 and the Proposed Scheme to be worse than those of either project alone. LSE are therefore also identified in relation to visual disturbance (see **Table 3.13** of the **HRA Report**). Development 103 includes the installation of an electrical cable which would run east from the eastern boundary of the Drax Power Station site and includes a crossing under the River Ouse. The cable may also be installed across smaller watercourses and other land by open-cut techniques. Installation of the cable could therefore lead to short-term temporary loss of functionally linked habitat that may be used by otter (**Table 3.8** of the **HRA Report**, APP-185, Rev02 submitted at Deadline 2), and increased risk of dust deposition and accidental release of water-borne pollutants within watercourses and supporting terrestrial habitat including the River Ouse that may be used by otter (**Table 3.9, 3.10 and 3.11** of the **HRA Report**); these species are likely to form part of the River Derwent SAC population. Development 103 could also contribute to increased cumulative visual disturbance of otter populations associated with the River Derwent SAC (see **Table 3.13** of the **HRA Report**). Development 106 is a residential development located near the northern bank of the River Ouse in excess of 2 km upstream of the Proposed Scheme. Development 106 could potentially lead to permanent loss of functionally linked habitat that may be used by otter (**Table 3.8** of the **HRA Report**, REP2-101, Rev03 submitted at Deadline 6).

HRA Screening Matrix 3: Lower Derwent Valley SPA

Name of European site and designation: Lower Derwent Valley SPA																											
EU Code: UK0006096																											
Distance to NSIP: 4.3km																											
European site features			Likely effects of NSIP																								
<i>Effect</i>	<i>Loss or disturbance of habitats</i>			<i>Loss or physical disturbance of functionally-linked land</i>			<i>Emission of dust</i>			<i>Accidental releases of waterborne pollutants</i>			<i>Increased risk of pollution from sediment load</i>			<i>Noise disturbance</i>			<i>Visual disturbance</i>			<i>Emissions of treated flue gas to air</i>			<i>In combination effects</i>		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Northern Shoveler (<i>Spatula clypeata</i>)	xa		xa	√b		√b	√c		√c	√d	√d	√d	√e		√e	xf	xg	xf	√h	xi	√h		xj		√k	√l	√k

Name of European site and designation: Lower Derwent Valley SPA																														
EU Code: UK0006096																														
Distance to NSIP: 4.3km																														
European site features			Likely effects of NSIP																											
Effect	Loss or disturbance of habitats			Loss or physical disturbance of functionally-linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Noise disturbance			Visual disturbance			Emissions of treated flue gas to air			In combination effects					
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Eurasian wigeon (<i>Anas clypeata</i>)	xa		xa	vb		vb	vc		vc	vd	vd	vd	ve		ve	xf	xg	xf	vh	xi	vh				xj			vk	vl	vk
Bewick's swan (<i>Cygnus columbianus bewickii</i>)	xa		xa	vb		vb	vc		vc	vd	vd	vd	ve		ve	xf	xg	xf	vh	xi	vh				xj			vk	vl	vk
Golden plover (<i>Pluvialis apricaria</i>)	xa		xa	vb		vb	vc		vc	vd	vd	vd	ve		ve	xf	xg	xf	vh	xi	vh				xj			vk	vl	vk
Ruff (<i>Philomachus pugnax</i>)	xa		xa	vb		vb	vc		vc	vd	vd	vd	ve		ve	xf	xg	xf	vh	xi	vh				xj			vk	vl	vk
Teal (<i>Anas cracca</i>)	xa		xa	vb		vb	vc		vc	vd	vd	vd	ve		ve	xf	xg	xf	vh	xi	vh				xj			vk	vl	vk
Lapwing (<i>Vanellus vanellus</i>)	xa		xa	vb		vb	vc		vc	vd	vd	vd	ve		ve	xf	xg	xf	vh	xi	vh				xj			vk	vl	vk
Pochard (<i>Aythya farina</i>)	xa		xa	vb		vb	vc		vc	vd	vd	vd	ve		ve	xf	xg	xf	vh	xi	vh				xj			vk	vl	vk
Mallard (<i>Anas platyrhynchos</i>)	xa		xa	vb		vb	vc		vc	vd	vd	vd	ve		ve	xf	xg	xf	vh	xi	vh				xj			vk	vl	vk

Evidence supporting conclusions:

- a. There would be no loss of habitats within any European Site arising from construction or decommissioning (see **Figure 8.1** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-092)), as such, no LSE are predicted.
- b. The off-site Habitat Provision Area includes scrub and former arable farmland habitats that could potentially be of some limited value to wintering SPA bird species for foraging and roosting. The off-site Habitat Provision Area would not be subject to construction activities, rather the habitat present would be enhanced to deliver ecological mitigation and support the delivery of Biodiversity Net Gain. The off-site Habitat Provision Area is not expected to support significant numbers of SPA bird species. In addition, the habitat enhancement works proposed in the Off-site Habitat Provision Area are not anticipated to materially change the suitability of this area for SPA birds. Therefore, no LSE are predicted in relation to the works in the Off-site Habitat Provision Area. The Habitat Provision Area and surrounding farmland habitats plus the Carr Dyke watercourse may also be used on occasion by low numbers of

wintering birds that are associated with the Lower Derwent Valley SPA and Ramsar Site (see **Table 3.3** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). As such, LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053).

- c. Emissions of dust from construction activities could be relevant to ecological receptors up to 50 m from construction activities. A limited extent of Carr Dyke is located within 50m of the Woodyard as are limited extents of farmland habitats within and adjacent to the Habitat Provision Area. Land within and adjacent to the Habitat Provision Area and Carr Dyke may form functionally-linked land that is used occasionally by some of the bird qualifying interests associated with Lower Derwent Valley SPA (see **Table 3.3** and **paragraphs 3.5.5 to 3.5.10** in the **HRA Report** (APP-185, Revision 02 submitted at Deadline 2). As such, LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053).
- d. As set out between **paragraph 12.9.9** and **12.9.11** of **Chapter 12** (Water Environment) in Volume 1 of the ES (APP-048), in the absence of mitigation Carr Dyke may be at increased risk of pollution from accidental spillages of oils, hydrocarbons, and hazardous substances during construction, operation, and decommissioning. **Paragraph 12.9.15** of Chapter 12 (**Water Environment**) also identifies that River Ouse, approximately 1.4 km downstream of option 1 of the Carbon Dioxide Delivery Terminal Compound, is at risk of such pollution events during construction. **Paragraph 12.9.31** of Chapter 12 (**Water Environment**) also identifies Carr Dyke and River Ouse would be at increased risk of deterioration of water quality due to surface water runoff from the Proposed Scheme during operation, leading to deterioration of the habitats present. Carr Dyke and River Ouse may be used on occasion by wintering birds that are associated with Lower Derwent Valley SPA and Ramsar. As such, LSE are predicted. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053).
- e. Increased sediment loading of the Carr Dyke during construction and decommissioning could lead to short term and temporary impacts on water quality and the plant communities it contains (see **paragraph 3.5.12** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). Carr Dyke may be used on occasion by birds that are associated with Lower Derwent Valley SPA and Ramsar. As such, LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Nos. 7 and 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053).
- f. Noise and vibration from habitat creation and management activities in the Off-site Habitat Provision Area and habitats in and adjacent to the Habitat Provision Area could potentially disturb low numbers of SPA bird species, should any be present at the time that habitat creation activities occurred. It should be noted that the Off-site Habitat Provision Area is bisected by a footpath, and as such is already subject to a degree of regular disturbance from human activity such as dog-walking. It also provides sub-optimal habitat and is in excess of 4.5 km from any European Site, limiting the likelihood of use. As such it is unlikely to be regularly used by SPA bird species. In the event that low numbers of SPA bird species were displaced, there is extensive alternative habitat available in the local area that they could occupy instead. As such, any displacement of SPA bird species that did occur is not expected to materially affect their condition or ability to persist in the environment. The assessment of noise and vibration presented in the ES considered several Biodiversity Receptor locations, including within and adjacent to the Habitat Provision Area north of the Power Station Site. The locations of these are shown on **Figure 7.2** of **Chapter 7** (Noise and Vibration) of the ES (APP-090). The results of the construction and operational noise modelling for Biodiversity Receptors are set out in **Table 1** of **Appendix 7.6** (Biodiversity Receptors) of Chapter 7 (Noise and Vibration) of the ES (APP-135). Several Biodiversity Receptors (BR 2 – BR6) are located to the north of Drax Power Station Site, within the Habitat Provision Area. The maximum predicted noise levels are 39 LAeq,T dB. Research collated to inform assessments of waterbird disturbance identifies that SPA bird species are unlikely to be displaced by noise levels under 55dB (see **Table 3.4** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). In light of the minimal noise impacts associated with construction and decommissioning, no LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053). The extent of Work Number 8 has also been reduced following the changes to the Proposed Scheme as set out in the Second Change Application Report (AS-126), further supporting this finding.
- g. The maximum noise level at any Biodiversity Receptor considered to provide functionally linked habitat (Biodiversity Receptor 5) is 28 LAeq,T dB (see **Appendix 7.6 (Biodiversity Receptors)** of **Chapter 7** (Noise and Vibration) of the ES (APP-135)). Additional detail is presented in **paragraphs 3.5.64 to 3.5.67** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). Given the very low levels of noise that would arise from operation of the Carbon Capture Plant, no LSE relating to disturbance of any European Site qualifying interests is predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053). No LSE are predicted in relation to the works associated with Work Number 8, as these would be completed during the construction phase, with no disturbing activities taking place during the operational phase.
- h. Birds that form part of the Lower Derwent Valley SPA population may occasionally also use habitats outside the SPA, potentially including Carr Dyke and farmland habitats within and adjacent to the Habitat Provision Area adjacent to the Proposed Scheme. SPA bird species may be discouraged from using areas close (within up to a maximum of 300 m, although most likely less) to construction activities in this area due to visual disturbance from plant and personnel. The potential for disturbance is considered to be limited to activities associated with construction and laydown in the Woodyard, in the north of the Power Station Site. Construction and decommissioning activities elsewhere are considered to have negligible potential to trigger visual disturbance due to absence of functionally-linked land or being located in areas which have limited intervisibility with functionally-linked land. As such, there are potential LSE to SPA bird qualifying feature arising from works in the Woodyard area (see **Table 3.5** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). No LSE are predicted in

relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053). The extent of Work Number 8 has also been reduced following the changes to the Proposed Scheme as set out in the Second Change Application Report (AS-126), further supporting this finding.

- i. Operational activities with potential to disturb qualifying interests of the Lower Derwent Valley SPA include the presence of additional personnel within the Power Station site, potential requirements for operational lighting, and habitat management in the Habitat Provision Area and Off-Site Habitat Provision Area. These activities are considered to have very limited scope to lead to significant disturbance of European Site qualifying interests, due to being confined to within the Drax Power Station Site and/or due to being equivalent to ongoing agricultural and public recreation activities in the Habitat Provision Area and Off-Site habitat Provision Area. This is analysed in detail between **paragraphs 3.5.68 to 3.5.77** of the **HRA Report** (APP-185, Rev02 submitted at Deadline 2). As such, no LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, as these would be completed during the construction phase, with no disturbing activities taking place during the operational phase.
- j. The bird qualifying interests of the Lower Derwent Valley SPA are not considered sensitive to the effects of acid deposition as per the Air Pollution Information System (APIS) website and there would be no exceedances of the 1% screening criterion for significance for any other pollutant. This is summarised in **Table 3.6** of the **HRA Report** (APP-185) and explored in detail in **Appendix 5** of the **HRA Report** (APP-193). As such, no LSE are predicted to arise.
- k. In-combination effects during construction and decommissioning have been identified for a number of the other developments assessed. The permanent land take for the convertor station and the temporary effects of construction for the HVDC cable for Development 3 could lead to disturbance / loss of farmland and other functionally-linked habitat used by SPA bird species, therefore, LSE are predicted (**Table 3.8** of the **HRA Report** REP2-101, Rev03 submitted at Deadline 6). Development 9 would involve the erection and subsequent operation of five wind turbines and is located approximately 1.9km west of the Proposed Scheme. Construction and operation of Development 9 could contribute to increased habitat loss/displacement for SPA bird populations using functionally linked land, if these use habitats within the ZoI of Development 9, therefore, LSE are predicted. Development 102 would result in permanent landtake of habitats north-east of the existing Drax Power Station site and to the south of the Eastern Laydown Area. There would also be temporary loss, disturbance, and fragmentation of habitats for the pipeline installation, which could affect habitats used by SPA bird species, as well as increased risk of emissions of dust (see **Table 3.9** of the **HRA Report**) and visual disturbance. This is explored in more detail in **Table 3.12, 3.13, and 3.16** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). Development 3 involves permanent land take within the ZoI of the Proposed Scheme for a Convertor Station. The development also involves the installation of a cable crossing of the River Ouse downstream of the Proposed Scheme under the River Ouse by Horizontal Directional Drilling (HDD) or similar. The cable may also be installed across smaller watercourses and other land by open-cut techniques. The cumulative assessment of effects on the Water Environment (see **Table 1** in **Appendix 18.5** (Cumulative Effects Assessment Matrix) of Volume 3 of the ES (REP4-002) identifies the potential for cumulative adverse effects, worsening the risk of water-borne pollution from the Proposed Scheme alone, therefore, LSE are predicted. Development 102 will involve the installation of a pipeline with crossings of a number of watercourses, some of which may be open-cut and would be upstream of the River Ouse and could therefore increase the risk of significant in-combination effects from emissions of dust (see **Table 3.9** of the **HRA Report**), sediment-loading (see **Table 3.10** in the **HRA Report**) and water-borne pollution (**Table 3.11** of the **HRA Report**). Development 6 could also lead to loss and disturbance of habitats on Barlow Mound in the vicinity of the Proposed Scheme that could be used by qualifying interest bird species (**Table 3.8** of the **HRA Report**). In addition, there is potential for in-combination visual disturbance impacts between Development 6 and the Proposed Scheme to be worse than those of either project alone. There is also potential for in-combination visual disturbance effects between the works associated with Work 8 and Developments 44, 52, 99, and 100, as explored in **Table 3.13** of the **HRA Report**. LSE are therefore also identified in relation to visual disturbance for the SPA bird qualifying interests of the Lower Derwent Valley SPA (see **Table 3.13** of the **HRA Report** (APP-185)). Development 103 includes the installation of an electrical cable which would run east from the eastern boundary of the Drax Power Station site and includes a crossing under the River Ouse. The cable may also be installed across smaller watercourses and other land by open-cut techniques. Installation of the cable could therefore lead to short-term temporary loss of functionally linked habitat that may be used by bird species that form part of qualifying interest populations of the SPA (**Table 3.8** of the **HRA Report**, REP2-101, Rev03 submitted at Deadline 6), and increased risk of dust deposition and accidental release of water-borne pollutants within watercourses and terrestrial habitats, including the River Ouse that may be used by SPA bird species (**Table 3.9, 3.10 and 3.11** of the **HRA Report**). Development 103 could also contribute to increased cumulative visual disturbance of SPA bird populations associated with the Lower Derwent Valley SPA (see **Table 3.13** of the **HRA Report**).
- l. In-combination LSE have been identified for Development 3, 12, and 102 during operation of the Proposed Scheme. The risk relates to increased potential for adverse cumulative effects in relation to increased risk of pollutants released by accidental spillage and leakage of oil, hydrocarbons and hazardous substances. These could impact the quality of the local drains and potentially the River Ouse (functionally-linked land that may be used on occasion by birds that could form part of Lower Derwent Valley SPA populations). This could lead to increased impacts relative to operation of the Proposed Scheme alone (see **Table 3.17** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). As such, LSE are predicted to arise.

HRA Screening Matrix 4: Lower Derwent Valley Ramsar

Name of European site and designation: Lower Derwent Valley Ramsar																														
EU Code: UK11037 (301)																														
Distance to NSIP: 4.3km																														
European site features			Likely effects of NSIP																											
Effect	Loss or disturbance of habitats within designated site			Loss or mechanical disturbance of functionally-linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Noise disturbance			Visual disturbance			Emissions of treated flue gas to air			In combination effects					
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Traditionally managed species-rich alluvial flood meadow	xa		xa	xb		xb	xd		xd	xf	xf	xf	xf		xf										xm		xo	xq	xo	
Rich assemblage of wetland invertebrates (including <i>Cicadula ornata</i>)	xa		xa	xb		xb	xd		xd	xf	xf	xf	xf		xf										xm		xo	xq	xo	
Ruff (<i>Philomachus pugnax</i>)	xa		xa	✓c		✓c	✓e		✓e	✓g	✓g	✓g	✓h		✓h	xi	xj	xi	✓k	xl	✓k				xn		✓p	✓r	✓p	
Whimbrel (<i>Numenius phaeopus</i>)	xa		xa	✓c		✓c	✓e		✓e	✓g	✓g	✓g	✓h		✓h	xi	xj	xi	✓k	xl	✓k				xn		✓p	✓r	✓p	
Wigeon (<i>Mareca penelope</i>)	xa		xa	✓c		✓c	✓e		✓e	✓g	✓g	✓g	✓h		✓h	xi	xj	xi	✓k	xl	✓k				xn		✓p	✓r	✓p	
Teal (<i>Anas cracca</i>)	xa		xa	✓c		✓c	✓e		✓e	✓g	✓g	✓g	✓h		✓h	xi	xj	xi	✓k	xl	✓k				xn		✓p	✓r	✓p	
Assemblage of international importance – peak counts in winter: 31,942 waterfowl	xa		xa	✓c		✓c	✓e		✓e	✓g	✓g	✓g	✓h		✓h	xi	xj	xi	✓k	xl	✓k				xn		✓p	✓r	✓p	

Evidence supporting conclusions:

- a. There would be no loss of habitats within any European Site arising from construction or decommissioning (see **Figure 8.1** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094)), therefore, no LSE are predicted.
- b. Qualifying interests of the Ramsar Site include flood meadow habitats and wetland invertebrate species. These habitats are not present within the Site (see **Figure 8.3** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094)), and there is no comparable wetland habitat within the Site that could support the wetland invertebrate community associated with the Ramsar Site. As such, no LSE are predicted to arise.
- c. The off-site Habitat Provision Area includes scrub and former arable farmland habitats that could potentially be of some limited value to Lower Derwent Valley Ramsar bird species for foraging and roosting. The off-site Habitat Provision Area would not be subject to construction activities, rather the habitat present would be enhanced to deliver ecological mitigation and support the delivery of Biodiversity Net Gain. The off-site Habitat Provision Area is not expected to support significant numbers of Ramsar bird species. In addition, the habitat

enhancement works proposed in the Off-site Habitat Provision Area are not anticipated to materially change the suitability of this area for Ramsar birds. Therefore, no LSE are predicted in relation to the works in the Off-site Habitat Provision Area. The Habitat Provision Area and surrounding farmland habitats including the Carr Dyke watercourse may also be used on occasion by low numbers of birds that are associated with the Lower Derwent Valley and Ramsar Site (see **Table 3.3** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). As such, LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053).

- d. Qualifying interests of the Ramsar Site include flood meadow habitats and wetland invertebrate species. These habitats are not present within the Site or within 50 m of the Proposed Scheme (see **Figure 8.3** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094)), and there is no comparable wetland habitat within 50 m of the Site that could support the wetland invertebrate community associated with the Ramsar Site. As such, no LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works and absence of qualifying interest features. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053).
- e. Emissions of dust from construction activities could be relevant to ecological receptors up to 50 m from construction activities. A limited extent of Carr Dyke is located within 50m of the Woodyard as are limited extents of farmland habitats within and adjacent to the Habitat Provision Area. Land within and adjacent to the Habitat Provision Area and Carr Dyke may form functionally-linked land that is used occasionally by some of the bird qualifying interests associated with Lower Derwent Valley Ramsar (see **Table 3.3** and **paragraphs 3.5.5 to 3.5.10** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). As such, LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053).
- f. There are no Ramsar criterion qualifying interest habitat types or habitats that would support the wetland invertebrate Ramsar community, within or adjacent to the Proposed Scheme. There are no suitable habitats along the River Ouse downstream of the Site as the tidal conditions mean the banks of the river are unsuitable (see **Figure 8.3** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094)). As such, no LSE are predicted. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works and absence of qualifying interest features. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053).
- g. As set out between **paragraph 12.9.9** and **12.9.11** of **Chapter 12** (Water Environment) in Volume 1 of the ES (APP-048), in the absence of mitigation Carr Dyke may be at increased risk of pollution from accidental spillages of oils, hydrocarbons, and hazardous substances during construction, operation, and decommissioning. **Paragraph 12.9.15** of Chapter 12 (**Water Environment**) also identifies that River Ouse, approximately 1.4 km downstream of option 1 of the Carbon Dioxide Delivery Terminal Compound, is at risk of such pollution events during construction. **Paragraph 12.9.31** of Chapter 12 (**Water Environment**) also identifies Carr Dyke and River Ouse would be at increased risk of deterioration of water quality due to surface water runoff from the Proposed Scheme during operation, leading to deterioration of the habitats present. Carr Dyke and River Ouse may be used on occasion by wintering birds that are associated with Lower Derwent Valley Ramsar. This is explored in more detail in **paragraphs 3.5.11 to 3.5.14** (construction and decommissioning) and **paragraphs 3.5.78 to 3.5.806** (operation) of the HRA Report (REP2-101, Rev03 submitted at Deadline 6)). As such, LSE are predicted. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053).
- h. Increased sediment loading of the Carr Dyke during construction and decommissioning could lead to short term and temporary impacts on water quality and the plant communities it contains (see **paragraph 3.5.12 to 3.5.14** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). Carr Dyke may be used on occasion by birds that are associated with Lower Derwent Valley Ramsar. As such, LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053).
- i. Noise and vibration from habitat creation and management activities in the Off-site Habitat Provision Area and habitats in and adjacent to the Habitat Provision Area could potentially disturb low numbers of Ramsar bird species, should any be present at the time that habitat creation activities occurred. It should be noted that the Off-site Habitat Provision Area is bisected by a footpath, and as such is already subject to a degree of regular disturbance from human activity such as dog-walking. As such it is unlikely to be regularly used by Ramsar bird species. In the event that low numbers of Ramsar bird species were displaced, there is extensive alternative habitat available in the local area that they could occupy instead. As such, any displacement of Ramsar bird species that did occur is not expected to materially affect their condition or ability to persist in the environment. The assessment of noise and vibration presented in the ES considered several Biodiversity Receptor locations, including within and adjacent to the Habitat Provision Area north of the Power Station Site. The locations of these are shown on **Figure 7.2** of **Chapter 7** (Noise and Vibration) of the ES (APP-090). The results of the construction and operational noise modelling for Biodiversity Receptors are set out in **Table 1** of **Appendix 7.6** (Biodiversity Receptors) of Chapter 7 (Noise and Vibration) of the ES (APP-135). Several Biodiversity Receptors (BR 2 – BR6) are located to the north of Drax Power Station Site, within or adjacent to the Habitat Provision Area. The maximum predicted noise levels are 39 LAeq,T dB. Research collated to inform assessments of waterbird disturbance identifies that Ramsar bird species are unlikely to be displaced by noise levels under 55dB (see **Table 3.4** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). In light of the minimal noise impacts associated with construction and decommissioning, no LSE are predicted to arise. In addition, no LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053). The extent of Work Number 8 has also been reduced following the changes to the Proposed Scheme as set out in the Second Change Application Report (AS-126), further supporting this finding.

- j.** The maximum noise level at any Biodiversity Receptor considered to provide functionally linked habitat (Biodiversity Receptor 5) is 28 LAeq,T dB (see **Appendix 7.6 (Biodiversity Receptors)** of **Chapter 7** (Noise and Vibration) of the ES (APP-135)). Additional detail is presented in **paragraphs 3.5.64 to 3.5.67** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). Given the very low levels of noise that would arise from operation of the Carbon Capture Plant, no disturbance of any European Site qualifying interests is predicted to arise, therefore, no LSE are predicted.
- k.** Birds that form part of the Lower Derwent Valley Ramsar populations may occasionally also use habitats outside the Ramsar, potentially including Carr Dyke and farmland habitats within and adjacent to the Habitat Provision Area, adjacent to the Proposed Scheme. Ramsar bird species may be discouraged from using areas close (within up to a maximum of 300 m, although most likely less) to construction activities in this area due to visual disturbance from plant and personnel. The potential for disturbance is considered to be limited to activities associated with construction and laydown in the Woodyard, in the north of the Power Station Site. Construction and decommissioning activities elsewhere are considered to have negligible potential to trigger visual disturbance due to absence of functionally-linked land (see **Figure 3** in the **HRA Report** (APP-094) or being located in areas which have limited intervisibility with functionally-linked land. As such, there are potential LSE to Ramsar bird qualifying features arising from works in the Woodyard area (see **Table 3.5** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053). The extent of Work Number 8 has also been reduced following the changes to the Proposed Scheme as set out in the Second Change Application Report (AS-126), further supporting this finding.
- l.** Operational activities with potential to disturb qualifying interests of the Lower Derwent Valley Ramsar include the presence of additional personnel within the Power Station site, potential requirements for operational lighting, and habitat management in the Habitat Provision Area and Off-Site Habitat Provision Area. These activities are considered to have very limited scope to lead to significant disturbance of European Site qualifying interests, due to being confined to within the Drax Power Station Site and/or due to being equivalent to ongoing agricultural and public recreation activities in the Habitat Provision Area and Off-Site habitat Provision Area. This is analysed in detail between **paragraphs 3.5.68 to 3.5.77** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). As such, no LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, as these would be completed during the construction phase, with no disturbing activities taking place during the operational phase.
- m.** The Applicant has completed analysis of Natural England long-term habitat and soil monitoring data for the Lower Derwent Valley SAC, SPA and Ramsar. This is contained in Appendix 8 of the HRA Report (REP3-009). This analysis has determined that the most appropriate acidity critical load class to use for Lower Derwent Valley SAC/Ramsar is the 'calcareous grassland' critical load class. Previously, the 'acid grassland' critical load class was used. Calcareous grassland is less sensitive to acid deposition than acid grassland. The modelled PC from the Proposed Scheme pre-mitigation is below the 1% screening criterion for the lowland hay meadow habitat when using the calcareous grassland critical load class. Baseline acid deposition is also below the critical load when the calcareous grassland critical load class is used. potential LSE on this qualifying feature can therefore be ruled out and no further analysis is required (see **paragraphs 3.5.56 to 3.5.59** of the **HRA Report**).
- n.** The bird qualifying interests of the Lower Derwent Valley SPA are not considered sensitive to the effects of acid deposition as per the Air Pollution Information System (APIS) website for Lower Derwent Valley SPA (there is no information on APIS for the Lower Derwent Valley Ramsar, although bird species qualifying interests are comparable) and there would be no exceedances of the 1% screening criterion for significance for any other pollutant. This is summarised in **Table 3.6** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6) and explored in detail in **Appendix 5** of the **HRA Report** (APP-193). As such, no LSE are predicted to arise.
- o.** The Proposed Scheme is not predicted to have any effects whatsoever on these Ramsar features during construction or decommissioning. This is because there is no prospect of the impact pathways identified for the Proposed Scheme alone to lead to biophysical changes that could affect these features. As such, it is not possible for the Proposed Scheme to contribute to in-combination effects and no LSE are predicted to arise.
- p.** In-combination effects during construction and decommissioning have been identified for a number of the other developments assessed. The permanent land take for the convertor station and the temporary effects of construction for the HVDC cable for Development 3 could lead to disturbance / loss of farmland and other functionally-linked habitat used by Ramsar bird species, therefore, LSE are predicted (**Table 3.8** of the **HRA Report** REP2-101, Rev03 submitted at Deadline 6). Development 9 would involve the erection and subsequent operation of five wind turbines and is located approximately 1.9km west of the Proposed Scheme. Construction and operation of Development 9 could contribute to increased disturbance or displacement of Ramsar bird populations using functionally linked land, if these use habitats within the ZoI of Development 9, therefore, LSE are predicted. Development 102 would result in permanent landtake of habitats north-east of the existing Drax Power Station site and to the south of the East Construction Laydown Area. There would also be temporary loss, disturbance, and fragmentation of habitats for the pipeline installation, which could affect habitats used by Ramsar bird species as well as increased risk of emissions of dust (see **Table 3.9** of the **HRA Report**) and visual disturbance. This is explored in more detail in **Table 3.12, 3.13, and 3.16** of the **HRA Report** (APP-185), therefore, LSE are predicted. Development 3 involves permanent land take within the ZoI of the Proposed Scheme for a Convertor Station. The development also involves the installation of a cable crossing of the River Ouse downstream of the Proposed Scheme under the River Ouse by Horizontal Directional Drilling (HDD) or similar. The cable may also be installed across smaller watercourses and other land by open-cut techniques, therefore, LSE are predicted in relation to water-borne pollutants (**Table 3.11** of the **HRA Report**). Development 102 will involve the installation of a pipeline with crossings of a number of watercourses, some of which may be open-cut and would be upstream of the River Ouse and could therefore increase the risk of significant in-combination effects from emissions of dust (see **Table 3.9** of the **HRA Report**), sediment-loading (see **Table 3.10** in the **HRA Report**) and water-borne pollution (**Table 3.11** of the **HRA Report**). The cumulative assessment of effects on the Water Environment (see **Table 1** in **Appendix 18.5** (Cumulative Effects Assessment Matrix) of Volume 3 of the ES (APP-177, Rev02 submitted at Deadline 2) identifies the potential for cumulative adverse effects, worsening the risk of water-borne pollution from the Proposed Scheme alone. This is explored in more detail in **Table 3.11** of the **HRA Report** (APP-185), therefore, LSE are predicted. Development 6 could also lead to loss and disturbance of habitats on Barlow Mound in the vicinity of the Proposed Scheme that could be used by qualifying interest bird species. In addition, there is potential for in-combination visual disturbance impacts between Development 6 and the Proposed Scheme to be worse than those of either project alone. LSE are therefore also identified in relation to visual disturbance (see **Table 3.13** of the **HRA Report** (APP-185)).

There is also potential for in-combination visual disturbance effects between the works associated with Work No. 8 and Developments 44, 52, 99, and 100, as explored in **Table 3.13** of the **HRA Report**. Development 103 includes the installation of an electrical cable which would run east from the eastern boundary of the Drax Power Station site and includes a crossing under the River Ouse. The cable may also be installed across smaller watercourses and other land by open-cut techniques. Installation of the cable could therefore lead to short-term temporary loss of functionally linked habitat that may be used by bird species that form part of qualifying interest populations of the Ramsar site (**Table 3.8** of the **HRA Report**, REP2-101, Rev03 submitted at Deadline 6), and increased risk of dust deposition and accidental release of water-borne pollutants within watercourses and terrestrial habitats, including the River Ouse that may be used by Ramsar bird species (**Table 3.9, 3.10 and 3.11** of the **HRA Report**). Development 103 could also contribute to increased cumulative visual disturbance of bird populations associated with the Lower Derwent Valley Ramsar (see **Table 3.13** of the **HRA Report**).

- q. In-combination LSE have been identified for Developments 1, 4, 7, 47, and 92 during operation in the with Proposed Scheme scenario. The risk arises because these developments would produce emissions of one or more pollutant that could combine with the Proposed Scheme’s emissions to air in the with Proposed Scheme scenario. The Applicant has completed analysis of Natural England long-term habitat and soil monitoring data for the Lower Derwent Valley SAC, SPA and Ramsar. This is contained in Appendix 8 of the HRA Report (REP3-009). This analysis has determined that the most appropriate acidity critical load class to use for Lower Derwent Valley SAC/Ramsar is the ‘calcareous grassland’ critical load class. Previously, the ‘acid grassland’ critical load class was used. Calcareous grassland is less sensitive to acid deposition than acid grassland. The modelled PC from the Proposed Scheme and other plans and projects pre-mitigation is below the 1% screening criterion for the lowland hay meadow habitat when using the calcareous grassland critical load class (with a maximum predicted impact equivalent to 0.7% of critical load). Baseline acid deposition is also below the critical load when the calcareous grassland critical load class is used. potential LSE on this qualifying feature can therefore be ruled out and no further analysis is required (see **paragraphs 3.5.56 to 3.5.59** of the **HRA Report**).
- r. In-combination LSE have been identified for Development 3, 12, and 102 during operation of the Proposed Scheme. The risk relates to increased potential for adverse cumulative effects in relation to increased risk of pollutants being released including accidental spillage and leakage of oil, hydrocarbons and hazardous substances. These could impact the quality of the local drains and potentially the River Ouse (functionally-linked land that may be used on occasion by birds that could form part of Lower Derwent Valley SPA populations). This could lead to increased impacts relative to operation of the Proposed Scheme alone (see **Table 3.17** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). As such, LSE are predicted to arise.

HRA Screening Matrix 5: Skipwith Common SAC

Name of European site and designation: Skipwith Common SAC																														
EU Code: UK0030276																														
Distance to NSIP: 7.6 km																														
European site features	Likely effects of NSIP																													
	Loss or disturbance of habitats within designated site			Loss or mechanical disturbance of functionally-linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Noise disturbance			Visual disturbance			Emissions of treated flue gas to air			In combination effects					
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development																														
Northern Atlantic wet heaths with <i>Erica tetralix</i>	xa		xa	xb		xb	xc		xc	xd	xd	xd	xd	xd	xd										xe			xf	xg	xf
European dry heaths	xa		xa	xb		xb	xc		xc	xd	xd	xd	xd	xd	xd										xe			xf	xg	xf

Evidence supporting conclusions:

- a. There would be no loss of habitats within any European Site arising from construction or decommissioning (see **Figure 8.1** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094)), therefore, no LSE are predicted.

- b.** The closest part of Skipwith Common SAC is located approximately 7.2 km from the Proposed Scheme. Qualifying Interests of the SAC include heathland habitats, as set out in **Table 3.2** of the **HRA Report** (APP-185). None of the qualifying interest habitats occur within or adjacent to the Site (see **Figure 8.3** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094)). This is explored in more detail in **Table 3.3** of the **HRA Report**. As such, the Proposed Scheme would not result in the loss or disturbance of functionally linked land and no LSE are predicted to arise.
- c.** There are no Annex 1 qualifying interest habitat types within 50 m of the Proposed Scheme (see **Figure 8.3** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094)). This is explored in more detail **between paragraphs 3.5.5 and 3.5.10** of the **HRA Report**. There is therefore no potential for dust deposition onto functionally-linked SAC habitats and LSE are not predicted to arise.
- d.** There are no Annex 1 qualifying interest habitat types within or adjacent to the Proposed Scheme and they do not occur along any watercourses downstream of the Site (see **Figure 8.3** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094)). As such, no LSE are predicted to arise.
- e.** Updated dispersion (air quality) modelling is provided in **Appendix 5** to the **Applicant’s Responses to Examining Authorities First Written Questions, Revised Emissions Abatement Technical Note** (REP2-065) The updated air quality dispersion modelling results show that the PC in the with Proposed Scheme scenario is ≤1% of the critical level for Skipwith Common SAC for NO_x, NH₃, and SO₂, as per the dispersion modelling completed for the DCO application. The impacts of the operation of the with Proposed Scheme scenario alone on annual nitrogen deposition rates and annual acid deposition rates are also classified as insignificant (≤1% of the critical load) for Skipwith Common SAC. This matter is explored in more detail in **paragraphs 3.5.35 to 3.5.63** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6) with full dispersion modelling results in the **Revised Emissions Abatement Technical Note**. Given the results of the air quality dispersion modelling, no LSE are predicted to arise.
- f.** The Proposed Scheme is not predicted to have any effects whatsoever on these SAC features during construction or decommissioning. This is because there is no prospect of the impact pathways identified for the Proposed Scheme alone to lead to biophysical changes that could affect these features, i.e. the SAC habitats are entirely outside the ZoI of construction and decommissioning impacts. As such, it is not possible for the Proposed Scheme to contribute to in-combination effects and no LSE are predicted to arise.
- g.** In-combination LSE were considered for Developments 1, 4, 7, 47, and 92 during operation in the with Proposed Scheme scenario. The risk arose because these developments would produce emissions of one or more pollutant that could combine with the Proposed Scheme’s emissions to air in the with Proposed Scheme scenario. The maximum cumulative PC impacts on annual acid deposition is 1.0% of critical load (0.998% if expressed to three decimal places) (see **Appendix 5** to the **Applicant’s Responses to Examining Authorities First Written Questions, Revised Emissions Abatement Technical Note** (document reference **8.9.5**) As there is not an exceedance of the 1% screening criteria, no LSE are predicted to arise.

HRA Screening Matrix 6: Thorne and Hatfield Moors SPA

Name of European site and designation: Thorne and Hatfield Moors SPA																											
EU Code: UK9005171																											
Distance to NSIP: 9.1 km																											
European site features	Likely effects of NSIP																										
<i>Effect</i>	<i>Loss or disturbance of habitats within designated site</i>			<i>Loss or mechanical disturbance of functionally-linked land</i>			<i>Emission of dust</i>			<i>Accidental releases of waterborne pollutants</i>			<i>Increased risk of pollution from sediment load</i>			<i>Noise disturbance</i>			<i>Visual disturbance</i>			<i>Emissions of treated flue gas to air</i>			<i>In combination effects</i>		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Nightjar <i>Caprimulgus europaeus</i>	xa		xa	xb		xb	xb		xb	xb	xb	xb	xb	xb	xb	xb	xb	xb	xb	xb	xb		xc		xd	xd	xd

Evidence supporting conclusions:

- a.** There would be no loss of habitats within any European Site arising from construction or decommissioning (see **Figure 8.1** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-092)), therefore, no LSE are predicted.

- b.** The closest part of Thorne and Hatfield Moors SPA is located approximately 9.1 km from the Proposed Scheme. The only qualifying interest of the SPA is nightjar, as set out in **Table 3.2** of the **HRA Report** (APP-185, Rev02 submitted at Deadline 2). This species is strongly associated with heathland, moorland, woodlands with large clearings and recently felled plantations. There are no such habitats within or adjacent to the Site (see **Figure 8.3** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094) or within the Zone of Influence of the impact pathways from the Proposed Scheme (with the exception of operational air quality impacts). As such, none of the biophysical changes occurring during construction, operation, or decommissioning from the Proposed Scheme (with the possible exception of air quality impacts) would have a likely significant effect on the qualifying interests of Thorne and Hatfield Moors SPA. This is analysed in more detail in Section 3.5 of the HRA Report (REP2-101, Rev03 submitted at Deadline 6).
- c.** The sole qualifying interest of the Thorne and Hatfield Moors SPA (nightjar) is not considered sensitive to the effects of acid deposition, as per the Air Pollution Information System (APIS) website. This is summarised in **Table 3.6** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6) and explored in detail in **Appendix 5** of the **HRA Report** (APP-193). There are no exceedances of the 1% significance screening criterion for any other air pollutant (**Appendix 5** to the **Applicant’s Responses to Examining Authorities First Written Questions, Revised Emissions Abatement Technical Note** (REP2-065)). As such, no LSE are predicted to arise.
- d.** The closest part of Thorne and Hatfield Moors SPA is located approximately 9.1 km from the Proposed Scheme. The only qualifying interest of the SPA is nightjar, as set out in **Table 3.2** of the HRA Report (REP2-101, Rev03 submitted at Deadline 6). This species is strongly associated with heathland, moorland, woodlands with large clearings and recently felled plantations. There are no such habitats within or adjacent to the Site (see **Figure 8.3** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094) or expected to be within the Zone of Influence of the impact pathways from the Proposed Scheme, with the possible exception of air quality effects. As identified above in relation to operational emissions to air for the Proposed Scheme alone, nightjar is not considered to be sensitive to acid deposition. There are no exceedances of the 1% significance screening criterion for any other air pollutant in-combination with other plans and projects (see **Appendix 5** to the **Applicant’s Responses to Examining Authorities First Written Questions, Revised Emissions Abatement Technical Note** (REP2-065)). As such, none of the biophysical changes occurring during construction, operation, or decommissioning from the Proposed Scheme would have a likely significant effect on the qualifying interests of Thorne and Hatfield Moors SPA. This is analysed in more detail in **Table 3.14** of the HRA Report in relation to air quality (REP2-101, Rev03 submitted at Deadline 6) and Appendix 5 of the HRA report (APP-193).

HRA Screening Matrix 7: Thorne Moor SAC

Name of European site and designation: Thorne Moor SAC																													
EU Code: UK0012915																													
Distance to NSIP: 9.1 km																													
European site features			Likely effects of NSIP																										
<i>Effect</i>			<i>Loss or disturbance of habitats within designated site</i>			<i>Loss or mechanical disturbance of functionally-linked land</i>			<i>Emission of dust</i>			<i>Accidental releases of waterborne pollutants</i>			<i>Increased risk of pollution from sediment load</i>			<i>Noise disturbance</i>			<i>Visual disturbance</i>			<i>Emissions of treated flue gas to air</i>			<i>In combination effects</i>		
<i>Stage of Development</i>			<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Degraded raised bogs still capable of natural regeneration			xa		xa	xb		xb	xb		xb	xb	xb	xb	xb	xb	xb								√c		xb	√d	xb

Evidence supporting conclusions:

- a.** There would be no loss of habitats within any European Site arising from construction or decommissioning (see **Figure 8.1** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-092)). As such, no LSE are predicted to arise.
- b.** The closest part of Thorne Moor SAC is located approximately 9.1 km from the Proposed Scheme. The only qualifying interest of the SAC is the degraded raised bog feature, as set out in **Table 3.2** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). There are no such habitats within or adjacent to the Site (see **Figure 8.3** of Chapter 8 (Ecology) in Volume 2 of the ES (APP-094) or within the Zone of Influence of the impact pathway from the Proposed Scheme (with the exception of operational air quality impacts, at Thorne Moor itself). As such,

none of the biophysical changes occurring during construction, operation, or decommissioning from the Proposed Scheme (with the possible exception of air quality impacts) would have any effect on the qualifying interests of Thorne Moor SAC. As such, no LSE are predicted to arise.

- c. Potential LSE were identified in relation to acid deposition for Thorne Moor SAC at the time of the Application. The modelled PC in the with Proposed Scheme scenario for acid deposition was above 1% of the respective critical load at sensitive habitats within the Thorne Moor SAC (2.0%) (see **Section 6.9 of Chapter 6 (Air Quality)**, APP-042). With the revisions to the dispersion (air quality) modelling (as set out in **Appendix 5 to the Applicant’s Responses to Examining Authorities First Written Questions, Revised Emissions Abatement Technical Note (REP2-065)**), the modelled PC from the Proposed Scheme has reduced to be a maximum of 1.3% of critical load. The contribution of the Proposed Scheme to acid deposition therefore continues to exceed the 1% screening criterion and potential LSE cannot be ruled out and require further analysis (see **paragraphs 3.5.35 to 3.5.63 of the HRA Report (REP2-101, Rev03 submitted at Deadline 6)**).
- d. In-combination LSE have also been identified for Developments 1, 4, 7, 47, and 92 during operation in the with Proposed Scheme scenario. The risk arises because these developments would produce emissions of one or more pollutant that could combine with the Proposed Scheme’s emissions to air in the with Proposed Scheme scenario. The maximum cumulative PC impacts on annual acid deposition and annual nitrogen deposition, exceed the 1% screening criterion for the degraded raised bog habitat at Thorne Moor SAC (see **Appendix 5 to the Applicant’s Responses to Examining Authorities First Written Questions, Revised Emissions Abatement Technical Note (REP2-065)**). Impacts are predicted to be up to 1.3% of critical load for nitrogen deposition, and up to 2.1% for acid deposition. Given the existing levels of acid deposition and nitrogen deposition at these sites, the maximum PEC exceeds the respective critical loads. Potential LSE cannot be ruled out and require further analysis (see **Table 3.14 of the HRA Report (REP2-101, Rev03 submitted at Deadline 6)**).

HRA Screening Matrix 8: Humber Estuary SAC

Name of European site and designation: Humber Estuary SAC																													
EU Code: UK0030170																													
Distance to NSIP: 6.3 km																													
European site features			Likely effects of NSIP																										
<i>Effect</i>			<i>Loss or disturbance of habitats within designated site</i>			<i>Loss or mechanical disturbance of functionally-linked land</i>			<i>Emission of dust</i>			<i>Accidental releases of waterborne pollutants</i>			<i>Increased risk of pollution from sediment load</i>			<i>Noise disturbance</i>			<i>Visual disturbance</i>			<i>Emissions of treated flue gas to air and construction traffic emissions</i>			<i>In combination effects</i>		
<i>Stage of Development</i>			<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Estuaries			xa		xa	xb		xb	xd		xd	xe	xe	xe	xh	xh	xh							xo	xj	xo	xk	xm	xk
Mudflats and sandflats not covered by seawater at low tide			xa		xa	xb		xb	xd		xd	xe	xe	xe	xh	xh	xh							xo	xj	xo	xk	xm	xk
Sandbanks which are slightly covered by sea water all the time			xa		xa	xb		xb	xd		xd	xe	xe	xe	xh	xh	xh							xo	xj	xo	xk	xm	xk
Coastal lagoons			xa		xa	xb		xb	xd		xd	xe	xe	xe	xh	xh	xh							xo	xj	xo	xk	xm	xk
Salicornia and other annuals colonising mud and sand			xa		xa	xb		xb	xd		xd	xe	xe	xe	xh	xh	xh							xo	xj	xo	xk	xm	xk

Name of European site and designation: Humber Estuary SAC																																	
EU Code: UK0030170																																	
Distance to NSIP: 6.3 km																																	
European site features	Likely effects of NSIP																																
	Loss or disturbance of habitats within designated site			Loss or mechanical disturbance of functionally-linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Noise disturbance			Visual disturbance			Emissions of treated flue gas to air and construction traffic emissions			In combination effects								
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D			
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Atlantic salt meadows	xa		xa	xb		xb	xd		xd	xe	xe	xe	xh	xh	xh							xo	xj	xo	xk	xm	xk						
Embryonic shifting dunes	xa		xa	xb		xb	xd		xd	xe	xe	xe	xh	xh	xh							xo	xj	xo	xk	xm	xk						
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> "white dunes"	xa		xa	xb		xb	xd		xd	xe	xe	xe	xh	xh	xh							xo	xj	xo	xk	xm	xk						
Fixed coastal dunes with herbaceous vegetation "grey dunes"	xa		xa	xb		xb	xd		xd	xe	xe	xe	xh	xh	xh							xo	xj	xo	xk	xm	xk						
Dunes with <i>Hippophae rhamnoides</i>	xa		xa	xb		xb	xd		xd	xe	xe	xe	xh	xh	xh							xo	xj	xo	xk	xm	xk						
Sea lamprey <i>Petromyzon marinus</i>	xa		xa	xc		xc	xd		xd	vf	vf	vf	xh	xh	xh	xi	xi	xi	xi	xi	xi	xo	xj	xo	vl	vn	vl						
River lamprey <i>Lampetra fluviatilis</i>	xa		xa	xc		xc	xd		xd	vf	vf	vf	xh	xh	xh	xi	xi	xi	xi	xi	xi	xo	xj	xo	vl	vn	vl						
Grey seal <i>Halichoerus grypus</i>	xa		xa	xc		xc	xd		xd	xg	xg	xg	xh	xh	xh	xi	xi	xi	xi	xi	xi	xo	xj	xo	xk	xm	xk						

Evidence supporting conclusions:

- a. There would be no loss of habitats within any European Site arising from construction or decommissioning (see **Figure 8.1** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-092)). As such, no LSE are predicted to arise.
- b. None of the qualifying interest habitats occur within 50 m of the Site (see **Figure 8.3** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094)). As such, no LSE are predicted to arise.

- c. There are no habitats suitable to support the qualifying interest species (sea and river lamprey, and grey seal) within the Site (see **Table 3.3** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). As such, no LSE are predicted to arise.
- d. There are no Annex 1 qualifying interest habitat types within 50 m of the Proposed Scheme and no habitat suitable for grey seal (see **Figure 8.3** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094)). No construction activities will take place within 50 m of functionally-linked habitat (the River Ouse) used by river and sea lamprey. There is therefore no potential for dust deposition onto functionally-linked SAC habitats. As such, no LSE are predicted to arise.
- e. None of the qualifying interest habitats occur within the ZoI of water-borne pollutants, as set out in **Table 12.2** of **Chapter 12** (Water Environment) of Volume 1 of the ES (APP-048). As such, no LSE are predicted to arise.
- f. **Paragraph 12.9.15** of **Chapter 12** (Water Environment) of Volume 1 of the ES (APP-048) identifies that River Ouse, approximately 1.4 km downstream of the Carbon Dioxide Delivery Compound, is at risk of pollution events arising from accidental spillages of oils, hydrocarbons, and hazardous substances during construction and decommissioning. The River Ouse is a migratory route for river and sea lamprey. Sea and river lamprey using the River Ouse are also likely to be part of the qualifying interest populations for which the Humber Estuary SAC has been designated. **Paragraph 12.9.31** of **Chapter 12** (Water Environment) also identifies Carr Dyke and River Ouse would be increased risk of deterioration of water quality due to surface water runoff from the Proposed Scheme during operation, which could lead to deterioration of the habitats present. This is explored in more detail in paragraph **3.5.17** of the **HRA Report** (APP-185, Rev-02 submitted at Deadline 2), and **paragraphs 3.5.78 to 3.5.80** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). As such, LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053).
- g. Grey seal is unlikely to occur within the ZoI of water-borne pollutants, as they are unlikely to travel upstream along the River Ouse beyond the boundaries of the SAC. As set out in **Table 12.2** of **Chapter 12** (Water Environment) of Volume 1 of the ES (APP-048), the SAC itself is considered to be outside the ZoI for impacts on the Water Environment. As such, no LSE are predicted to arise.
- h. Sediment loading has been identified as a risk to water quality of the Carr Dyke during construction (see **paragraph 12.9.3 and 12.9.6** of **Chapter 12** (Water Environment) in Volume 1 of the ES (APP-048)). The River Ouse is not expected to be affected, due to the distance between the Proposed Scheme and the Ouse. River and sea lamprey are not expected to use the Carr Dyke due to the barrier posed by pumping station infrastructure (see **Table 3.4** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)), and there are no qualifying interest habitats or potential for other qualifying interest species (grey seal) to be present. As such, no LSE are predicted.
- i. None of the qualifying interest habitats occur within the Site (see **Figure 8.3** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094)). There are no habitats suitable to support the qualifying interest species (sea and river lamprey, and grey seal) in areas that could be subject to noise and vibration or visual disturbance. This is explored in more detail in **Table 3.4, Table 3.5,** and between **paragraphs 3.5.23 to 3.5.29** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). In light of this, no LSE are predicted in relation to noise and vibration or visual disturbance of SAC qualifying interests.
- j. Humber Estuary SAC qualifying interests are not considered to be sensitive to acid deposition impacts as per the Air Pollution Information System (APIS website). This is summarised in **Table 3.6** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6), with additional analysis in **Appendix 5** of the **HRA Report** (APP-193). The air quality dispersion modelling results at the time of the Application (see **Section 6.9** of **Chapter 2** (Air Quality) of Volume 1 of the ES (APP-042)) found that the PC from the Proposed Scheme would be $\leq 1\%$ of the critical level for all European Sites for NO_x, NH₃, and SO₂, with no exceedance of the Critical Level with or without the Proposed Scheme. The PC from the Proposed Scheme was also below 1% of Critical Load for nitrogen deposition. The dispersion (air quality) modelling has been updated since the Application was submitted (see **Appendix 5** to the **Applicant's Responses to Examining Authorities First Written Questions, Revised Emissions Abatement Technical Note** (REP2-065)). This continues to demonstrate that the PC from the Proposed Scheme would be $\leq 1\%$ of the critical level for all European Sites for NO_x, NH₃, SO₂, and acid deposition. As such, no LSE are predicted to arise.
- k. Qualifying interest habitats of the SAC do not occur within the ZoI of the Proposed Scheme during construction and decommissioning nor is there suitable habitat for grey seal present. As such, these qualifying interests are not predicted to be subject to any effects during this phase of the Proposed Scheme (see **Tables 3.8 – 3.13** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). Consideration of the potential for emissions from construction traffic to lead to significant air quality effects on the Humber Estuary SAC has been made following advice received from Natural England in their Relevant Representation (AS-011). The Applicant has considered the potential for Proposed Scheme construction traffic, both alone and in-combination with other plans and projects, to lead to significant air quality effects. The risks arise in relation to construction traffic using the M62 bridge over the Humber Estuary SAC. No LSE are predicted to arise, due to: construction being a temporary activity with a predicted duration up to approximately six years; the peak traffic flows calculated for the Proposed Scheme being based on a series of conservative assumptions; limited sensitivity of SAC habitats that may be present; and projected future improvements in per-vehicle emissions in the UK vehicle fleet, due to the continued uptake of ultra-low and zero-emissions. This is set out in more detail between **paragraphs 3.5.91 and 3.5.95** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6).
- l. In-combination LSE have been identified for Development 3 during construction and decommissioning of the Proposed Scheme. Development 3 involves permanent land take within the ZoI of the Proposed Scheme for a Converter Station and cable installation. The development involves the installation of a cable crossing of the River Ouse downstream of the Proposed Scheme under the River Ouse by Horizontal Directional Drilling (HDD) or similar. The cable may also be installed across smaller watercourses and other land by open-cut techniques. Installation of the cable could therefore lead to an increased risk of accidental release of water-borne pollutants within watercourses including the River Ouse, which is used by sea lamprey and river lamprey qualifying interests to migrate between the Humber Estuary and upstream spawning grounds including the River Derwent (see **Tables 3.8 and 3.11** of the **HRA Report** (APP-185)) for further analysis. Development 103 includes the installation of an electrical cable which would run east from the eastern boundary of the Drax Power Station site and includes a crossing under the River Ouse. The cable may also be installed across smaller watercourses and other land by open-cut techniques. Installation of the cable could

therefore lead to increased risk of accidental release of water-borne pollutants within watercourses including the River Ouse that may be used by SAC fish species (**Table 3.11** of the **HRA Report**); these species are likely to form part of the Humber Estuary SAC populations. therefore, LSE are predicted.

- m. Humber Estuary SAC qualifying interests are not considered to be sensitive to acid deposition impacts as per the Air Pollution Information System (APIS website). This is summarised in **Table 3.6** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6), with additional analysis in **Appendix 5** of the **HRA Report** (APP-193). The air quality dispersion modelling results (see **Appendix 5** to the **Applicant’s Responses to Examining Authorities First Written Questions, Revised Emissions Abatement Technical Note** (REP2-065) show that the PC from the Proposed Scheme in-combination with other emitting developments is ≤1% of the critical level for all European Sites for NO_x, NH₃, and SO₂. The PC from the Proposed Scheme in-combination with other plans and projects is also below 1% of Critical Load for nitrogen deposition. Qualifying interest habitats of the SAC and grey seal do not occur within the ZoI of the Proposed Scheme for any other impact pathways during operation. As such, no LSE are predicted to arise.
- n. In-combination LSE have been identified for Development 3, 12, and 102 during operation. The risk relates to increased potential for adverse cumulative effects in relation to increased pollutants released by accidental spillage and leakage of oil, hydrocarbons and hazardous substances. These could impact the quality of the local drains and potentially the River Ouse (functionally-linked land used by river lamprey and sea lamprey). This could lead to increased impacts relative to operation of the Proposed Scheme alone (see **Table 3.17** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). As such, in-combination LSE are predicted to arise.
- o. Consideration of the potential for emissions from construction traffic to lead to significant air quality effects on the Humber Estuary SAC has been made following advice received from Natural England in their Relevant Representation (AS-011). The Applicant has considered the potential for Proposed Scheme construction traffic, both alone and in-combination with other plans and projects, to lead to significant air quality effects. The risks arise in relation to construction traffic using the M62 bridge over the Humber Estuary SAC. No LSE are predicted to arise, due to: construction being a temporary activity with a predicted duration up to approximately six years; the peak traffic flows calculated for the Proposed Scheme being based on a series of conservative assumptions; limited sensitivity of SAC habitats that may be present; and projected future improvements in per-vehicle emissions in the UK vehicle fleet, due to the continued uptake of ultra-low and zero-emission vehicles. This is set out in more detail in paragraphs **3.5.30** to **3.5.55** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6).

HRA Screening Matrix 9: Humber Estuary SPA

Name of European site and designation: Humber Estuary SPA																											
EU Code: UK9006111																											
Distance to NSIP: 6.3km																											
European site features	Likely effects of NSIP																										
<i>Effect</i>	<i>Loss or disturbance of supporting habitats within designated site</i>			<i>Loss or mechanical disturbance of functionally-linked land</i>			<i>Emission of dust</i>			<i>Accidental releases of waterborne pollutants</i>			<i>Increased risk of pollution from sediment load</i>			<i>Noise disturbance</i>			<i>Visual disturbance</i>			<i>Emissions of treated flue gas to air and construction traffic emissions</i>			<i>In combination effects</i>		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Eurasian teal <i>Anas crecca</i>	xa		xa	vb		vb	vc		vc	vd	vd	vd	ve		ve	xf	xg	xf	vh	xi	vh	xm	xj	xm	vk	vl	vk
Eurasian wigeon <i>Mareca penelope</i>	xa		xa	vb		vb	vc		vc	vd	vd	vd	ve		ve	xf	xg	xf	vh	xi	vh	xm	xj	xm	vk	vl	vk
Mallard <i>Anas platyrhynchos</i>	xa		xa	vb		vb	vc		vc	vd	vd	vd	ve		ve	xf	xg	xf	vh	xi	vh	xm	xj	xm	vk	vl	vk
Turnstone <i>Arenaria interpres</i>	xa		xa	vb		vb	vc		vc	vd	vd	vd	ve		ve	xf	xg	xf	vh	xi	vh	xm	xj	xm	vk	vl	vk
Common pochard <i>Aythya farina</i>	xa		xa	vb		vb	vc		vc	vd	vd	vd	ve		ve	xf	xg	xf	vh	xi	vh	xm	xj	xm	vk	vl	vk

Name of European site and designation: Humber Estuary SPA																														
EU Code: UK9006111																														
Distance to NSIP: 6.3km																														
European site features	Likely effects of NSIP																													
	Loss or disturbance of supporting habitats within designated site			Loss or mechanical disturbance of functionally-linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Noise disturbance			Visual disturbance			Emissions of treated flue gas to air and construction traffic emissions			In combination effects					
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development																														
Greater scaup <i>Aythya marila</i>	Xa		Xa	✓b		✓b	✓c		✓c	✓d	✓d	✓d	✓e		✓e	xf	xg	xf	✓h	xi	✓h	xm	xj	xm	✓k	✓l	✓k			
Brent goose <i>Branta bernicla bernicla</i>	xa		xa	✓b		✓b	✓c		✓c	✓d	✓d	✓d	✓e		✓e	xf	xg	xf	✓h	xi	✓h	xm	xj	xm	✓k	✓l	✓k			
Common goldeneye <i>Bucephala clangula</i>	xa		xa	✓b		✓b	✓c		✓c	✓d	✓d	✓d	✓e		✓e	xf	xg	xf	✓h	xi	✓h	xm	xj	xm	✓k	✓l	✓k			
Sanderling <i>Calidris alba</i>	xa		xa	✓b		✓b	✓c		✓c	✓d	✓d	✓d	✓e		✓e	xf	xg	xf	✓h	xi	✓h	xm	xj	xm	✓k	✓l	✓k			
Avocet <i>Recurvirostra avosetta</i>	xa		xa	✓b		✓b	✓c		✓c	✓d	✓d	✓d	✓e		✓e	xf	xg	xf	✓h	xi	✓h	xm	xj	xm	✓k	✓l	✓k			
Bittern <i>Botaurus stellaris</i>	xa		xa	✓b		✓b	✓c		✓c	✓d	✓d	✓d	✓e		✓e	xf	xg	xf	✓h	xi	✓h	xm	xj	xm	✓k	✓l	✓k			
Hen harrier <i>Circus cyaneus</i>	xa		xa	✓b		✓b	✓c		✓c	✓d	✓d	✓d	✓e		✓e	xf	xg	xf	✓h	xi	✓h	xm	xj	xm	✓k	✓l	✓k			
Golden plover <i>Pluvialis apricaria</i>	xa		xa	✓b		✓b	✓c		✓c	✓d	✓d	✓d	✓e		✓e	xf	xg	xf	✓h	xi	✓h	xm	xj	xm	✓k	✓l	✓k			
Bar-tailed godwit <i>Limosa lapponica</i>	xa		xa	✓b		✓b	✓c		✓c	✓d	✓d	✓d	✓e		✓e	xf	xg	xf	✓h	xi	✓h	xm	xj	xm	✓k	✓l	✓k			
Ruff <i>Philomachus pugnax</i>	xa		xa	✓b		✓b	✓c		✓c	✓d	✓d	✓d	✓e		✓e	xf	xg	xf	✓h	xi	✓h	xm	xj	xm	✓k	✓	✓k			
Marsh harrier <i>Circus aeruginosus</i>	xa		xa	✓b		✓b	✓c		✓c	✓d	✓d	✓d	✓e		✓e	xf	xg	xf	✓h	xi	✓h	xm	xj	xm	✓k	✓	✓k			

Name of European site and designation: Humber Estuary SPA																														
EU Code: UK9006111																														
Distance to NSIP: 6.3km																														
European site features	Likely effects of NSIP																													
	Loss or disturbance of supporting habitats within designated site			Loss or mechanical disturbance of functionally-linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Noise disturbance			Visual disturbance			Emissions of treated flue gas to air and construction traffic emissions			In combination effects					
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development																														
Little tern <i>Sternula albifrons</i>	xa		xa	√b		√b	√c		√c	√d	√d	√d	√e		√e	xf	xg	xf	√h	xi	√h	xm	xj	xm	√k	√	√k			
Common ringed plover <i>Charadrius hiaticula</i>	xa		xa	√b		√b	√c		√c	√d	√d	√d	√e		√e	xf	xg	xf	√h	xi	√h	xm	xj	xm	√k	√l	√k			
Eurasian curlew <i>Numenius arquata</i>	xa		xa	√b		√b	√c		√c	√d	√d	√d	√e		√e	xf	xg	xf	√h	xi	√h	xm	xj	xm	√k	√l	√k			
Whimbrel <i>Numenius Phaeopus</i>	xa		xa	√b		√b	√c		√c	√d	√d	√d	√e		√e	xf	xg	xf	√h	xi	√h	xm	xj	xm	√k	√l	√k			
Greenshank <i>Tringa nebularia</i>	xa		xa	√b		√b	√c		√c	√d	√d	√d	√e		√e	xf	xg	xf	√h	xi	√h	xm	xj	xm	√k	√l	√k			
Lapwing <i>Vanellus vanellus</i>	xa		xa	√b		√b	√c		√c	√d	√d	√d	√e		√e	xf	xg	xf	√h	xi	√h	xm	xj	xm	√k	√l	√k			
Shelduck <i>Tadorna tadorna</i>	xa		xa	√b		√b	√c		√c	√d	√d	√d	√e		√e	xf	xg	xf	√h	xi	√h	xm	xj	xm	√k	√l	√k			
Knot <i>Calidris canutus</i>	xa		xa	√b		√b	√c		√c	√d	√d	√d	√e		√e	xf	xg	xf	√h	xi	√h	xm	xj	xm	√k	√l	√k			
Dunlin <i>Calidris alpina</i> (passage and wintering)	xa		xa	√b		√b	√c		√c	√d	√d	√d	√e		√e	xf	xg	xf	√h	xi	√h	xm	xj	xm	√k	√l	√k			
Redshank <i>Tringa totanus</i>	xa		xa	√b		√b	√c		√c	√d	√d	√d	√e		√e	xf	xg	xf	√h	xi	√h	xm	xj	xm	√k	√l	√k			
Black-tailed godwit <i>Limosa limosa</i>	xa		xa	√b		√b	√c		√c	√d	√d	√d	√e		√e	xf	xg	xf	√h	xi	√h	xm	xj	xm	√k	√l	√k			

Name of European site and designation: Humber Estuary SPA																														
EU Code: UK9006111																														
Distance to NSIP: 6.3km																														
European site features	Likely effects of NSIP																													
Effect	Loss or disturbance of supporting habitats within designated site			Loss or mechanical disturbance of functionally-linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Noise disturbance			Visual disturbance			Emissions of treated flue gas to air and construction traffic emissions			In combination effects					
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Eurasian oystercatcher <i>Haematopus ostralegus</i>	xa		xa	✓b		✓b	✓c		✓c	✓d	✓d	✓d	✓e		✓e	xf	xg	xf	✓h	xi	✓h	xm	xj	xm	✓k	✓l	✓k			
Grey plover <i>Pluvialis squatarola</i>	xa		xa	✓b		✓b	✓c		✓c	✓d	✓d	✓d	✓e		✓e	xf	xg	xf	✓h	xi	✓h	xm	xj	xm	✓k	✓l	✓k			

Evidence supporting conclusions:

- a. There would be no loss of habitats within any European Site arising from construction or decommissioning (see **Figure 8.1** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-092)). As such, no LSE are predicted to arise.
- b. The off-site Habitat Provision Area includes scrub and former arable farmland habitats that could potentially be of some limited value to wintering SPA bird species for foraging and roosting. The off-site Habitat Provision Area would not be subject to construction activities, rather the habitat present would be enhanced to deliver ecological mitigation and support the delivery of Biodiversity Net Gain, which is not expected to materially affect the suitability of the habitats present for SPA bird species. The off-site Habitat Provision Area is not expected to support significant numbers of SPA bird species. Therefore, no LSE are predicted in relation to the works in the Off-site Habitat Provision Area. The Habitat Provision Area and surrounding farmland habitats plus the Carr Dyke watercourse may also be used on occasion by low numbers of wintering birds that are associated with the Humber Estuary SPA (see **Table 3.3** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). As such, LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053).
- c. Emissions of dust from construction activities could be relevant to ecological receptors up to 50 m from construction activities. A limited extent of Carr Dyke is located within 50m of the Woodyard as are limited extents of farmland habitats within and adjacent to the Habitat Provision Area. Land within and adjacent to the Habitat Provision Area and Carr Dyke may form functionally-linked land that is used occasionally by some of the bird qualifying interests associated with the Humber Estuary SPA (see **Table 3.3** and **paragraphs 3.5.5 to 3.5.10** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). As such, LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053).
- d. As set out between **paragraph 12.9.9** and **12.9.11** of **Chapter 12** (Water Environment) in Volume 1 of the ES (APP-048), in the absence of mitigation Carr Dyke may be at increased risk of pollution from accidental spillages of oils, hydrocarbons, and hazardous substances during construction, operation, and decommissioning. **Paragraph 12.9.15** of Chapter 12 (**Water Environment**) also identifies that River Ouse, approximately 1.4 km downstream of option 1 of the Carbon Dioxide Delivery Terminal Compound, is at risk of such pollution events during construction. **Paragraph 12.9.31** of Chapter 12 (**Water Environment**) also identifies Carr Dyke and River Ouse would be at increased risk of deterioration of water quality due to surface water runoff from the Proposed Scheme during operation, leading to deterioration of the habitats present. Carr Dyke and River Ouse may be used on occasion by wintering birds that are associated with Humber Estuary SPA. As such, LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053).
- e. Increased sediment loading of the Carr Dyke during construction and decommissioning could lead to short term and temporary impacts on water quality and the plant communities it contains (see **paragraph 3.5.12** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). Carr Dyke may be used on occasion by birds that are associated with Humber Estuary SPA. As such, LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature

and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053).

- f. Noise and vibration from habitat creation and management activities in the Off-site Habitat Provision Area and habitats in and adjacent to the Habitat Provision Area could potentially disturb low numbers of SPA bird species, should any be present at the time that habitat creation activities occurred. It should be noted that the Off-site Habitat Provision Area is bisected by a footpath, and as such is already subject to a degree of regular disturbance from human activity such as dog-walking. It also provides sub-optimal habitat and is in excess of 4.5 km from any European Site, limiting the likelihood of use. As such it is unlikely to be regularly used by SPA bird species. In the event that low numbers of SPA bird species were displaced, there is extensive alternative habitat available in the local area that they could occupy instead. As such, any displacement of SPA bird species that did occur is not expected to materially affect their condition or ability to persist in the environment. The assessment of noise and vibration presented in the ES considered several Biodiversity Receptor locations, including within and adjacent to the Habitat Provision Area north of the Power Station Site. The locations of these are shown on **Figure 7.2** of **Chapter 7** (Noise and Vibration) of the ES (APP-090). The results of the construction and operational noise modelling for Biodiversity Receptors are set out in **Table 1** of **Appendix 7.6** (Biodiversity Receptors) of **Chapter 7** (Noise and Vibration) of the ES (APP-135). Several Biodiversity Receptors (BR 2 – BR6) are located to the north of Drax Power Station Site, within the Habitat Provision Area. The maximum predicted noise levels are 39 LAeq,T dB. Research collated to inform assessments of waterbird disturbance identifies that SPA bird species are unlikely to be displaced by noise levels under 55dB (see **Table 3.4** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). In light of the minimal noise impacts associated with construction and decommissioning, no LSE are predicted to arise. In addition, no LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053). The extent of Work Number 8 has also been reduced following the changes to the Proposed Scheme as set out in the Second Change Application Report (AS-126), further supporting this finding.
- g. The maximum noise level at any Biodiversity Receptor considered to provide functionally linked habitat (Biodiversity Receptor 5) is 28 LAeq,T dB (see **Appendix 7.6 (Biodiversity Receptors)** of **Chapter 7** (Noise and Vibration) of the ES (APP-135)). Additional detail is presented in **paragraphs 3.5.64 to 3.5.67** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). Given the very low levels of noise that would arise from operation of the Carbon Capture Plant, no disturbance of any European Site qualifying interests is predicted to arise, and, therefore, no LSE are predicted. No LSE are predicted in relation to the works associated with Work Number 8, as these would be completed during the construction phase, with no disturbing activities taking place during the operational phase.
- h. Birds that form part of the Humber Estuary SPA population may occasionally also use habitats outside the SPA, potentially including Carr Dyke and farmland habitats within and adjacent to the Habitat Provision Area. SPA bird species may be discouraged from using areas close (within up to a maximum of 300 m, although most likely less) to construction activities in this area due to visual disturbance from plant and personnel. The potential for disturbance is considered to be limited to activities associated with construction and laydown in the Woodyard, in the north of the Power Station Site. Construction and decommissioning activities elsewhere are considered to have negligible potential to trigger visual disturbance due to absence of functionally-linked land or being located in areas which have limited intervisibility with functionally-linked land. As such, there are potential LSE to SPA bird qualifying feature arising from works in the Woodyard area (see **Table 3.5** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053). The extent of Work Number 8 has also been reduced following the changes to the Proposed Scheme as set out in the Second Change Application Report (AS-126), further supporting this finding.
- i. Operational activities with potential to disturb qualifying interests of the Humber Estuary SPA include the presence of additional personnel within the Power Station site, potential requirements for operational lighting, and habitat management in the Habitat Provision Area and Off-Site Habitat Provision Area. These activities are considered to have very limited scope to lead to significant disturbance of European Site qualifying interests, due to being confined to within the Drax Power Station Site and/or due to being equivalent to ongoing agricultural and public recreation activities in the Habitat Provision Area and Off-Site habitat Provision Area. This is analysed in detail between **paragraphs 3.5.68 to 3.5.77** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). As such, no LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, as these would be completed during the construction phase, with no disturbing activities taking place during the operational phase.
- j. Humber Estuary SPA qualifying interests are not considered to be sensitive to acid deposition impacts as per the Air Pollution Information System (APIS website). This is summarised in **Table 3.6** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6), with additional analysis in **Appendix 5** of the **HRA Report** (APP-193). The air quality dispersion modelling results (see Appendix 5 to the Applicant's Responses to Examining Authorities First Written Questions, Revised Emissions Abatement Technical Note (REP2-065)) show that the PC from the Proposed Scheme in-combination with other emitting developments is $\leq 1\%$ of the critical level for all European Sites for NO_x, NH₃, and SO₂. The PC from the Proposed Scheme in-combination with other plans and projects is also below 1% of Critical Load for nitrogen deposition, therefore, no LSE are predicted.
- k. In-combination effects during construction and decommissioning have been identified for a number of the other developments assessed. The permanent land take for the convertor station and the temporary effects of construction for the HVDC cable for Development 3 could lead to disturbance / loss of farmland and other functionally-linked habitat used by SPA bird species, therefore, LSE are predicted (**Table 3.8** of the **HRA Report** REP2-101, Rev03 submitted at Deadline 6). Development 9 would involve the erection and subsequent operation of five wind turbines and is located approximately 1.9km west of the Proposed Scheme. Construction and operation of Development 9 could contribute to increased habitat loss/displacement for SPA bird populations using functionally linked land, if these use habitats within the ZoI of Development 9, therefore, LSE are predicted. Development 102 would result in permanent landtake of habitats north-east of the existing Drax Power Station site and to the south of the Eastern Laydown Area. There would also be temporary loss, disturbance, and fragmentation of habitats for the pipeline installation, which could affect habitats used by SPA bird species, as well as increased risk of emissions of dust (see **Table 3.9** of the **HRA Report**) and visual disturbance. This is explored in more detail in **Table 3.12, 3.13, and 3.16** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). Development 3 involves permanent land take within the ZoI of the Proposed Scheme for a Convertor Station. The development also involves the installation of a cable crossing of the

River Ouse downstream of the Proposed Scheme under the River Ouse by Horizontal Directional Drilling (HDD) or similar. The cable may also be installed across smaller watercourses and other land by open-cut techniques. The cumulative assessment of effects on the Water Environment (see **Table 1** in **Appendix 18.5** (Cumulative Effects Assessment Matrix) of Volume 3 of the ES (REP4-002) identifies the potential for cumulative adverse effects, worsening the risk of water-borne pollution from the Proposed Scheme alone, therefore, LSE are predicted. Development 102 will involve the installation of a pipeline with crossings of a number of watercourses, some of which may be open-cut and would be upstream of the River Ouse and could therefore increase the risk of significant in-combination effects from emissions of dust (see **Table 3.9** of the **HRA Report**), sediment-loading (see **Table 3.10** in the **HRA Report**) and water-borne pollution (**Table 3.11** of the **HRA Report**). Development 6 could also lead to loss and disturbance of habitats on Barlow Mound in the vicinity of the Proposed Scheme that could be used by qualifying interest bird species (**Table 3.8** of the **HRA Report**). In addition, there is potential for in-combination visual disturbance impacts between Development 6 and the Proposed Scheme to be worse than those of either project alone. LSE are therefore also identified in relation to visual disturbance for the SPA bird qualifying interests of the Lower Derwent Valley SPA (see **Table 3.13** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). There is also potential for in-combination visual disturbance effects between the works associated with Work 8 and Developments 44, 52, 99, and 100, as explored in **Table 3.13** of the **HRA Report**. Development 103 includes the installation of an electrical cable which would run east from the eastern boundary of the Drax Power Station site and includes a crossing under the River Ouse. The cable may also be installed across smaller watercourses and other land by open-cut techniques. Installation of the cable could therefore lead to short-term temporary loss of functionally linked habitat that may be used by bird species that form part of qualifying interest populations of the SPA (**Table 3.8** of the **HRA Report**, REP2-101, Rev03 submitted at Deadline 6), and increased risk of dust deposition and accidental release of water-borne pollutants within watercourses and terrestrial habitats, including the River Ouse that may be used by SPA bird species (**Table 3.9, 3.10 and 3.11** of the **HRA Report**). Development 103 could also contribute to increased cumulative visual disturbance of SPA bird populations associated with the Humber Estuary SPA (see **Table 3.13** of the **HRA Report**). The Applicant has also considered the potential for Proposed Scheme construction traffic, both alone and in-combination with other plans and projects, to lead to significant air quality effects. The risks arise in relation to construction traffic using the M62 bridge over the Humber Estuary SPA. No LSE are predicted to arise, due to: construction being a temporary activity with a predicted duration up to approximately six years; the peak traffic flows calculated for the Proposed Scheme being based on a series of conservative assumptions; limited sensitivity of supporting habitats that may be present; and projected future improvements in per-vehicle emissions in the UK vehicle fleet, due to the continued uptake of ultra-low and zero-emission vehicles. This is set out in more detail in paragraphs **3.5.91** to **3.5.95** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6).

- l.** In-combination LSE have been identified for Development 3, 12, and 102 during operation of the Proposed Scheme. The risk relates to increased potential for adverse cumulative effects in relation to increased sediment load and pollutants released by accidental spillage and leakage of oil, hydrocarbons and hazardous substances. These could impact the quality of the local drains and potentially the River Ouse (functionally-linked land that may be used on occasion by birds that could form part of Humber Estuary SPA populations). This could lead to increased impacts relative to operation of the Proposed Scheme alone (see **Table 3.17** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). As such, in-combination LSE are predicted to arise.
- m.** Consideration of the potential for emissions from construction traffic to lead to significant air quality effects on the Humber Estuary SPA has been made following advice received from Natural England in their Relevant Representation (AS-011). The Applicant has considered the potential for Proposed Scheme construction traffic, both alone and in-combination with other plans and projects, to lead to significant air quality effects. The risks arise in relation to construction traffic using the M62 bridge over the Humber Estuary SPA. No LSE are predicted to arise, due to: construction being a temporary activity with a predicted duration up to approximately six years; the peak traffic flows calculated for the Proposed Scheme being based on a series of conservative assumptions; limited sensitivity of supporting habitats that may be present; and projected future improvements in per-vehicle emissions in the UK vehicle fleet, due to the continued uptake of ultra-low and zero-emission vehicles. This is set out in more detail in paragraphs **3.5.30** to **3.5.34** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6).

HRA Screening Matrix 10: Humber Estuary Ramsar

Name of European site and designation: Humber Estuary Ramsar																														
EU Code: UK0012915																														
Distance to NSIP: 6.3 km																														
European site features	Likely effects of NSIP																													
	Loss or disturbance of habitats within designated site including supporting habitat for species			Loss or physical disturbance of functionally-linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Noise disturbance			Visual disturbance			Emissions of treated flue gas to air and construction traffic emissions			In combination effects					
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development																														
Dune systems and humid dune slacks	xa		xa	xc		xc	xf		xf	xh	xh	xh	xk		xk								xy	xr	xy	xs	xt	xs		
Estuarine waters	xa		xa	xc		xc	xf		xf	xh	xh	xh	xk		xk								xy	xr	xy	xs	xt	xs		
Intertidal mud and sand flats	xa		xa	xc		xc	xf		xf	xh	xh	xh	xk		xk								xy	xr	xy	xs	xt	xs		
Saltmarshes	xa		xa	xc		xc	xf		xf	xh	xh	xh	xk		xk								xy	xr	xy	xs	xt	xs		
Coastal brackish/saline lagoons	xa		xa	xc		xc	xf		xf	xh	xh	xh	xk		xk								xy	xr	xy	xs	xt	xs		
Grey seals (<i>Halichoerus grypus</i>)	xa		xa	xd		xd	xf		xf	xi	xi	xi	xk		xk	xm	xm	xm	xm	xm	xm	xy	xr	xy	xs	xt	xs			
Natterjack toad (<i>Epidalea calamita</i>)	xb		xb	xb		xb	xb		xb	xb	xb	xb	xb		xb	xb	xb	xb	xb	xb	xb	xy	xb	xy	xb	xb	xb			
Assemblages of international importance – 153,934 waterfowl (non-breeding season)	xa		xa	✓e		✓e	✓g		✓g	✓j	✓j	✓j	✓l		✓l	xn	xo	xn	✓p	xq	✓p	xy	xr	xy	✓u	✓v	✓u			
Golden plover (<i>Pluvialis apricaria latifrons</i>)	xa		xa	✓e		✓e	✓g		✓g	✓j	✓j	✓j	✓l		✓l	xn	xo	xn	✓p	xq	✓p	xy	xr	xy	✓u	✓v	✓u			
Knot (<i>Calidris canutus islandica</i>)	xa		xa	✓e		✓e	✓g		✓g	✓j	✓j	✓j	✓l		✓l	xn	xo	xn	✓p	xq	✓p	xy	xr	xy	✓u	✓v	✓u			
Dunlin (<i>Calidris alpina alpina</i>)	xa		xa	✓e		✓e	✓g		✓g	✓j	✓j	✓j	✓l		✓l	xn	xo	xn	✓p	xq	✓p	xy	xr	xy	✓u	✓v	✓u			
Black-tailed godwit (<i>Limosa limosa islandica</i>)	xa		xa	✓e		✓e	✓g		✓g	✓j	✓j	✓j	✓l		✓l	xn	xo	xn	✓p	xq	✓p	xy	xr	xy	✓u	✓v	✓u			
Redshank (<i>Tringa totanus brittanica</i>)	xa		xa	✓e		✓e	✓g		✓g	✓j	✓j	✓j	✓l		✓l	xn	xo	xn	✓p	xq	✓p	xy	xr	xy	✓u	✓v	✓u			

Name of European site and designation: Humber Estuary Ramsar																														
EU Code: UK0012915																														
Distance to NSIP: 6.3 km																														
European site features	Likely effects of NSIP																													
Effect	Loss or disturbance of habitats within designated site including supporting habitat for species			Loss or physical disturbance of functionally-linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Noise disturbance			Visual disturbance			Emissions of treated flue gas to air and construction traffic emissions			In combination effects					
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Shelduck (<i>Tadorna tadorna</i>)	xa		xa	ve		ve	vg		vg	vj	vj	vj	vl		vl	xn	xo	xn	vp	xq	vp	xy	xr	xy	vu	vv	vu			
River lamprey (<i>Lampetra fluviatilis</i>)	xa		xa	xd		xd	xf		xf	vj	vj	vj	xk		xk	xm	xm	xm	xm	xm	xm	xy	xr	xy	w	x	w			
Sea lamprey (<i>Petromyzon marinus</i>)	xa		xa	xd		xd	xf		xf	vj	vj	vj	xk		xk	xm	xm	xm	xm	xm	xm	xy	xr	xy	w	x	w			

- a. There would be no loss of habitats within any European Site arising from construction or decommissioning (see **Figure 8.3** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094)), therefore, no LSE are predicted.
- b. The dune slacks at Saltfleetby-Theddlethorpe on the southern extremity of the Ramsar site are the most north-easterly breeding site in Great Britain of the natterjack toad *Epidemaea calamita* in the UK. This location is more than 30 km from the Proposed Scheme, and therefore outside the ZoI for all impact pathways arising during construction and operation, with no prospect for the Proposed Scheme to have any effect on the natterjack toad population. As such, no LSE are predicted to arise.
- c. None of the qualifying interest habitats occur within 50 m of the Site (see **Figure 8.3** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094)). As such, no LSE are predicted to arise.
- d. There are no habitats suitable to support the qualifying interest species sea and river lamprey, and grey seal, within the Site (see **Table 3.3** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). As such, no LSE are predicted to arise.
- e. The off-site Habitat Provision Area includes scrub and former arable farmland habitats that could potentially be of some limited value to wintering Ramsar bird species for foraging and roosting. The off-site Habitat Provision Area would not be subject to construction activities, rather the habitat present would be enhanced to deliver ecological mitigation and support the delivery of Biodiversity Net Gain. The off-site Habitat Provision Area is not expected to support significant numbers of Ramsar bird species. In addition, the habitat enhancement works proposed in the Off-site Habitat Provision Area are not anticipated to materially change the suitability of this area for Ramsar birds. Therefore, no LSE are predicted in relation to the works in the Off-site Habitat Provision Area. The Habitat Provision Area and surrounding farmland habitats plus the Carr Dyke watercourse may also be used on occasion by low numbers of wintering birds that are associated with the Humber Estuary Ramsar (see **Table 3.3** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 62)). As such, LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 (Ecological Walkover Technical Note) (AS-053).
- f. There are no Ramsar qualifying interest habitat types within 50 m of the Proposed Scheme and no habitat suitable for grey seal (see **Figure 8.3** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094)). No construction activities will take place within 50 m of functionally-linked habitat (the River Ouse) used by river and sea lamprey. There is therefore no potential for dust deposition onto functionally-linked Ramsar habitats. See **Table 3.5** of the **HRA Report** for additional analysis (REP2-101, Rev03 submitted at Deadline 6)). As such, no LSE are predicted to arise.
- g. Emissions of dust from construction activities could be relevant to ecological receptors up to 50 m from construction activities. A limited extent of Carr Dyke is located within 50m of the Woodyard as are limited extents of farmland habitats within and adjacent to the Habitat Provision Area. land within and adjacent to the Habitat Provision Area and Carr Dyke may form functionally-linked land that is used occasionally by some of the bird qualifying interests associated with Humber Estuary Ramsar (see **Table 3.3** and **paragraphs 3.5.5 to 3.5.10** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). As such, LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, due to the

limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053).

- h. None of the qualifying interest habitats occur within the ZoI of water-borne pollutants, as set out in **Table 12.2** of **Chapter 12** (Water Environment) of Volume 1 of the ES (APP-048). As such, no LSE are predicted to arise.
- i. Grey seal is unlikely to occur within the ZoI of water-borne pollutants, as they are unlikely to travel upstream along the River Ouse beyond the boundaries of the Ramsar. As set out in **Table 12.2** of **Chapter 12** (Water Environment) of Volume 1 of the ES (APP-048), the Ramsar itself is considered to be outside the ZoI for impacts on the Water Environment. As such, no LSE are predicted to arise.
- j. As set out between **paragraph 12.9.9** and **12.9.11** of **Chapter 12** (Water Environment) in Volume 1 of the ES (APP-048), in the absence of mitigation Carr Dyke may be at increased risk of pollution from accidental spillages of oils, hydrocarbons, and hazardous substances during construction, operation, and decommissioning. **Paragraph 12.9.15** of Chapter 12 (**Water Environment**) also identifies that River Ouse, approximately 1.4 km downstream of the Carbon Dioxide Delivery Compound, is at risk of such pollution events during construction. **Paragraph 12.9.31** of Chapter 12 (**Water Environment**) also identifies Carr Dyke and River Ouse would be at increased risk of deterioration of water quality due to surface water runoff from the Proposed Scheme during operation, leading to deterioration of the habitats present. Carr Dyke and River Ouse may be used on occasion by birds that are associated with Humber Estuary Ramsar. The River Ouse is also known to be used by river lamprey and sea lamprey that are associated with the Humber Estuary Ramsar. As such, LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053).
- k. Sediment loading has been identified as a risk to water quality of the Carr Dyke during construction (see **paragraph 12.9.3** and **12.9.6** of **Chapter 12** (Water Environment) in Volume 1 of the ES (APP-048). The River Ouse is not expected to be affected, due to the distance between the Proposed Scheme and the Ouse. River and sea lamprey are not expected to use the Carr Dyke due to the barrier posed by pumping station infrastructure (see **Table 3.4** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6), and there are no qualifying interest habitats or potential for other qualifying interest species (grey seal) to be present. As such, no LSE are predicted.
- l. Increased sediment loading of the Carr Dyke during construction and decommissioning could lead to short term and temporary impacts on water quality and the plant communities it contains (see **paragraph 3.5.12** to **3.5.14** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). Carr Dyke may be used on occasion by birds that are associated with Humber Estuary Ramsar. As such, LSE are predicted to arise.
- m. None of the qualifying interest habitats occur within the Site (see **Figure 8.3** of **Chapter 8** (Ecology) in Volume 2 of the ES (APP-094). There are no habitats suitable to support the qualifying interest species (sea and river lamprey, and grey seal) in areas that could be subject to noise and vibration or visual disturbance. This is explored in more detail in **Table 3.4**, **Table 3.5** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). In light of this, no LSE are predicted in relation to noise and vibration or visual disturbance of these Ramsar qualifying interests.
- n. Noise and vibration from habitat creation and management activities in the Off-site Habitat Provision Area and habitats in and adjacent to the Habitat Provision Area could potentially disturb low numbers of Ramsar bird species, should any be present at the time that habitat creation activities occurred. It should be noted that the Off-site Habitat Provision Area is bisected by a footpath, and as such is already subject to a degree of regular disturbance from human activity such as dog-walking. It also provides sub-optimal habitat and is in excess of 4.5 km from any European Site, limiting the likelihood of use. As such it is unlikely to be regularly used by Ramsar bird species. In the event that low numbers of Ramsar bird species were displaced, there is extensive alternative habitat available in the local area that they could occupy instead. As such, any displacement of Ramsar bird species that did occur is not expected to materially affect their condition or ability to persist in the environment. The assessment of noise and vibration presented in the ES considered several Biodiversity Receptor locations, including within and adjacent to the Habitat Provision Area north of the Power Station Site. The locations of these are shown on **Figure 7.2** of **Chapter 7** (Noise and Vibration) of the ES (APP-090). The results of the construction and operational noise modelling for Biodiversity Receptors are set out in **Table 1** of **Appendix 7.6** (Biodiversity Receptors) of **Chapter 7** (Noise and Vibration) of the ES (APP-135). Several Biodiversity Receptors (BR 2 – BR6) are located to the north of Drax Power Station Site, within the Habitat Provision Area. The maximum predicted noise levels are 39 LAeq,T dB. Research collated to inform assessments of waterbird disturbance identifies that Ramsar bird species are unlikely to be displaced by noise levels under 55dB (see **Table 3.4** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). In light of the minimal noise impacts associated with construction and decommissioning, no LSE are predicted to arise. In addition, no LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053). The extent of Work Number 8 has also been reduced following the changes to the Proposed Scheme as set out in the Second Change Application Report (AS-126), further supporting this finding.
- o. The maximum noise level at any Biodiversity Receptor considered to provide functionally linked habitat (Biodiversity Receptor 5) is 28 LAeq,T dB (see **Appendix 7.6 (Biodiversity Receptors)** of **Chapter 7** (Noise and Vibration) of the ES (APP-135)). Additional detail is presented in **paragraphs 3.5.64** to **3.5.67** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). Given the very low levels of noise that would arise from operation of the Carbon Capture Plant, no disturbance of any European Site qualifying interests is predicted to arise, therefore no LSE is predicted. No LSE are predicted in relation to the works associated with Work Number 8, as these would be completed during the construction phase, with no disturbing activities taking place during the operational phase.
- p. Birds that form part of the Humber Estuary Ramsar population may occasionally also use habitats outside the Ramsar and close to the Proposed Scheme, potentially including Carr Dyke and farmland habitats within and adjacent to the Habitat Provision Area. Ramsar bird species may be discouraged from using areas close (within up to a maximum of 300 m, although

most likely less) to construction activities in this area due to visual disturbance from plant and personnel. The potential for disturbance is considered to be limited to activities associated with construction and laydown in the Woodyard, in the north of the Power Station Site. Construction and decommissioning activities elsewhere are considered to have negligible potential to trigger visual disturbance due to absence of functionally-linked land or being located in areas which have limited intervisibility with functionally-linked land. As such, there are potential LSE to SPA bird qualifying feature arising from works in the Woodyard area (see **Table 3.5** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053). The extent of Work Number 8 has also been reduced following the changes to the Proposed Scheme as set out in the Second Change Application Report (AS-126), further supporting this finding.

- q. Operational activities with potential to disturb qualifying interests of the Humber Estuary Ramsar include the presence of additional personnel within the Power Station site, potential requirements for operational lighting, and habitat management in the Habitat Provision Area and Off-Site Habitat Provision Area. These activities are considered to have very limited scope to lead to significant disturbance of European Site qualifying interests, due to being confined to within the Drax Power Station Site and/or due to being equivalent to ongoing agricultural and public recreation activities in the Habitat Provision Area and Off-Site habitat Provision Area. This is analysed in detail between **paragraphs 3.5.68 to 3.5.77** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6). As such, no LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, as these would be completed during the construction phase, with no disturbing activities taking place during the operational phase.
- r. Humber Estuary Ramsar qualifying interest habitats and species within the ZoI of air quality impacts (15 km radius around Main Stack) are not considered to be sensitive to acid deposition impacts as per the Air Pollution Information System (APIS website) information for the SAC and SPA. This is summarised in **Table 3.6** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6), with additional analysis in **Appendix 5** of the **HRA Report** (APP-193). The air quality dispersion modelling results (see **Appendix 5** to the **Applicant's Responses to Examining Authorities First Written Questions, Revised Emissions Abatement Technical Note** (REP2-065)) show that the PC from the Proposed Scheme is $\leq 1\%$ of the critical level for all European Sites for NO_x, NH₃, and SO₂, with no exceedance of the Critical Level with or without the Proposed Scheme. The PC from the Proposed Scheme is also below 1% of Critical Load for nitrogen deposition. As such, no LSE are predicted to arise.
- s. Qualifying interest habitats of the Ramsar do not occur within the ZoI of the Proposed Scheme during construction and decommissioning nor is there suitable habitat for grey seal present. As such, these qualifying interests are not predicted to be subject to any effects during this phase of the Proposed Scheme (see **Tables 3.8 – 3.13** in the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). The Proposed Scheme is considered *de minimis*, with no prospect of contributing to significant effects on the Ramsar that may arise from other Plans and Projects. As such, no in-combination LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053). Consideration of the potential for emissions from construction traffic to lead to significant air quality effects on the Humber Estuary SPA has been made following advice received from Natural England in their Relevant Representation (AS-011). The Applicant has considered the potential for Proposed Scheme construction traffic, both alone and in-combination with other plans and projects, to lead to significant air quality effects. The risks arise in relation to construction traffic using the M62 bridge over the Humber Estuary SAC. No LSE are predicted to arise, due to: construction being a temporary activity with a predicted duration up to approximately six years; the peak traffic flows calculated for the Proposed Scheme being based on a series of conservative assumptions; limited sensitivity of SAC habitats that may be present; and projected future improvements in per-vehicle emissions in the UK vehicle fleet, due to the continued uptake of ultra-low and zero-emission vehicles. This is set out in more detail in **paragraphs 3.5.91 to 3.5.95** of the HRA Report (APP-185, Rev02 submitted at Deadline 2).
- t. Humber Estuary Ramsar bird qualifying interests are not considered to be sensitive to acid deposition impacts as per the Air Pollution Information System (APIS website). This is summarised in **Table 3.6** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6), with additional analysis in **Appendix 5** of the **HRA Report** (APP-193). The air quality dispersion modelling results (see Appendix 5 to the Applicant's Responses to Examining Authorities First Written Questions, Revised Emissions Abatement Technical Note (document reference 8.9.5)) show that the PC from the Proposed Scheme in-combination with other emitting developments is $\leq 1\%$ of the critical level for all European Sites for NO_x, NH₃, and SO₂. The PC from the Proposed Scheme in-combination with other plans and projects is also below 1% of Critical Load for nitrogen deposition. Qualifying interest habitats of the Ramsar and grey seal also do not occur within the ZoI of the Proposed Scheme for any other impact pathways during operation. As such, no in-combination LSE are predicted to arise.
- u. In-combination effects during construction and decommissioning have been identified for a number of the other developments assessed. The permanent land take for the convertor station and the temporary effects of construction for the HVDC cable for Development 3 could lead to disturbance / loss of farmland and other functionally-linked habitat used by Ramsar bird species, therefore, LSE are predicted (**Table 3.8** of the **HRA Report** REP2-101, Rev03 submitted at Deadline 6)). Development 9 would involve the erection and subsequent operation of five wind turbines and is located approximately 1.9km west of the Proposed Scheme. Construction and operation of Development 9 could contribute to increased habitat loss/displacement for Ramsar bird populations using functionally linked land, if these use habitats within the ZoI of Development 9, therefore, LSE are predicted. Development 102 would result in permanent landtake of habitats north-east of the existing Drax Power Station site and to the south of the Eastern Laydown Area. There would also be temporary loss, disturbance, and fragmentation of habitats for the pipeline installation, which could affect habitats used by Ramsar bird species, as well as increased risk of emissions of dust (see **Table 3.9** of the **HRA Report**) and visual disturbance. This is explored in more detail in **Table 3.12, 3.13, and 3.16** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). Development 3 involves permanent land take within the ZoI of the Proposed Scheme for a Convertor Station. The development also involves the installation of a cable crossing of the River Ouse downstream of the Proposed Scheme under the River Ouse by Horizontal Directional Drilling (HDD) or similar. The cable may also be installed across smaller watercourses and other land by open-cut techniques. The cumulative assessment of effects on the Water Environment (see **Table 1** in **Appendix 18.5** (Cumulative Effects Assessment Matrix, REP4-002) of Volume 3 of the ES (APP-177) identifies the potential for cumulative adverse effects, worsening the risk of water-borne pollution from the Proposed Scheme alone, therefore, LSE are predicted. Development 102 will involve the installation of a pipeline with crossings of a number of watercourses, some of which may be open-cut and would be upstream of the River

Ouse and could therefore increase the risk of significant in-combination effects from emissions of dust (see **Table 3.9** of the **HRA Report**), sediment-loading (see **Table 3.10** in the **HRA Report**) and water-borne pollution (**Table 3.11** of the **HRA Report**). Development 6 could also lead to loss and disturbance of habitats on Barlow Mound in the vicinity of the Proposed Scheme that could be used by qualifying interest bird species (**Table 3.8** of the **HRA Report**). In addition, there is potential for in-combination visual disturbance impacts between Development 6 and the Proposed Scheme to be worse than those of either project alone. LSE are therefore also identified in relation to visual disturbance for the Ramsar bird qualifying interests (see **Table 3.13** of the **HRA Report**). There is also potential for in-combination visual disturbance effects between the works associated with Work Number 8 and Developments 44, 52, 99, and 100, as explored in **Table 3.13** of the **HRA Report**. Development 103 includes the installation of an electrical cable which would run east from the eastern boundary of the Drax Power Station site and includes a crossing under the River Ouse. The cable may also be installed across smaller watercourses and other land by open-cut techniques. Installation of the cable could therefore lead to short-term temporary loss of functionally linked habitat that may be used by bird species that form part of qualifying interest populations of the Ramsar (**Table 3.8** of the **HRA Report**, REP2-101, Rev03 submitted at Deadline 6), and increased risk of dust deposition and accidental release of water-borne pollutants within watercourses and terrestrial habitats, including the River Ouse that may be used by Ramsar bird species (**Table 3.9, 3.10 and 3.11** of the **HRA Report**). Development 103 could also contribute to increased cumulative visual disturbance of Ramsar bird populations associated with the Humber Estuary Ramsar (see **Table 3.13** of the **HRA Report**). The Applicant has also considered the potential for Proposed Scheme construction traffic, both alone and in-combination with other plans and projects, to lead to significant air quality effects. The risks arise in relation to construction traffic using the M62 bridge over the Humber Estuary SPA. No LSE are predicted to arise, due to: construction being a temporary activity with a predicted duration up to approximately six years; the peak traffic flows calculated for the Proposed Scheme being based on a series of conservative assumptions; limited sensitivity of supporting habitats that may be present; and projected future improvements in per-vehicle emissions in the UK vehicle fleet, due to the continued uptake of ultra-low and zero-emission vehicles. This is set out in more detail in paragraphs **3.5.91 to 3.5.95** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6).

- v. In-combination LSE have been identified for Development 3, 12, and 102 during operation of the Proposed Scheme. The risk relates to increased potential for adverse cumulative effects in relation to increased risk of pollutants being released including accidental spillage and leakage of oil, hydrocarbons and hazardous substances. These could impact the quality of the local drains and potentially the River Ouse (functionally-linked land that may be used on occasion by birds that could form part of Humber Estuary Ramsar populations). This could lead to increased impacts relative to operation of the Proposed Scheme alone (see **Table 3.17** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). As such, in-combination LSE are predicted to arise.
- w. In-combination LSE have been identified for Development 3 and 102 during construction and decommissioning of the Proposed Scheme. Development 3 involves permanent land take within the ZoI of the Proposed Scheme for a Converter Station and temporary works for cable installation. The development involves the installation of a cable crossing of the River Ouse downstream of the Proposed Scheme under the River Ouse by Horizontal Directional Drilling (HDD) or similar. The cable may also be installed across smaller watercourses and other land by open-cut techniques. Installation of the cable could therefore lead to an increased risk of accidental release of water-borne pollutants within watercourses including the River Ouse, which is used by sea lamprey and river lamprey qualifying interests to migrate between the Humber Estuary and upstream spawning grounds including the River Derwent (see **Table 3.11** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6) for further analysis). Development 102 could also contribute to temporary in-combination increased risk of accidental release of water-borne pollutants within watercourses, which could affect river lamprey and sea lamprey using functionally-linked habitats in watercourses including the river Ouse. As such, in-combination LSE are predicted to arise. No LSE are predicted in relation to the works associated with Work Number 8, due to the limited extent, location, temporary nature and short duration (~four weeks) of these works. This is explored further in Section 6.2 of the Proposed Changes Appraisal Report (AS-045) and the underpinning Appendix 4 - Ecological Walkover Technical Note (AS-053). Consideration of the potential for emissions from construction traffic to lead to significant air quality effects on the Humber Estuary Ramsar has been made following advice received from Natural England in their Relevant Representation (AS-011). Development 103 includes the installation of an electrical cable which would run east from the eastern boundary of the Drax Power Station site and includes a crossing under the River Ouse. The cable may also be installed across smaller watercourses and other land by open-cut techniques. Installation of the cable could therefore lead to increased risk of accidental release of water-borne pollutants within watercourses including the River Ouse that may be used by SAC fish species (**Table 3.11** of the **HRA Report**); these could form part of Humber Estuary Ramsar populations. The Applicant has considered the potential for Proposed Scheme construction traffic, both alone and in-combination with other plans and projects, to lead to significant air quality effects. The risks arise in relation to construction traffic using the M62 bridge over the Humber Estuary SAC. No LSE are predicted to arise, due to: construction being a temporary activity with a predicted duration up to approximately six years; the peak traffic flows calculated for the Proposed Scheme being based on a series of conservative assumptions; limited sensitivity of SAC habitats that may be present; and projected future improvements in per-vehicle emissions in the UK vehicle fleet, due to the continued uptake of ultra-low and zero-emission vehicles. This is set out in more detail between **paragraph 3.5.91 and 3.5.95** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6).
- x. In-combination LSE have been identified for Development 3, 12, and 102 during operation. The risk relates to increased potential for adverse cumulative effects in relation to increased pollutants released by accidental spillage and leakage of oil, hydrocarbons and hazardous substances. These could impact the quality of the local drains and potentially the River Ouse (functionally-linked land used by river lamprey and sea lamprey). This could lead to increased impacts relative to operation of the Proposed Scheme alone (see **Table 3.17** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6)). As such, in-combination LSE are predicted to arise.
- y. Consideration of the potential for emissions from construction traffic to lead to significant air quality effects on the Humber Estuary SPA has been made following advice received from Natural England in their Relevant Representation (AS-011). The Applicant has considered the potential for Proposed Scheme construction traffic, both alone and in-combination with other plans and projects, to lead to significant air quality effects. The risks arise in relation to construction traffic using the M62 bridge over the Humber Estuary SAC. No LSE are predicted to arise, due to: construction being a temporary activity with a predicted duration up to approximately six years; the peak traffic flows calculated for the Proposed Scheme being based on a series of conservative assumptions; limited sensitivity of SAC habitats that may be present; and projected future improvements in per-vehicle emissions in the UK vehicle fleet, due to the continued uptake of ultra-low and zero-emission vehicles. This is set out in more detail in **3.5.30 to 3.5.55** of the **HRA Report** (REP2-101, Rev03 submitted at Deadline 6).