EP UK Investments

South Humber Bank Energy Centre Project

Planning Inspectorate Reference: EN010107

South Marsh Road, Stallingborough, DN41 8BZ

The South Humber Bank Energy Centre Order

Document Ref: 5.8: Habitats Regulations Assessment Signposting

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

Applicant: EP Waste Management Ltd
Date: April 2020

DOCUMENT HISTORY

Document ref	5.8 Habitats Regulations Assessment Signposting		
Revision	1.0		
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Signed		**Date**	April 2020
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Signed		**Date**	April 2020
Document Owner	AECOM		

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS

Abbreviation	Description
ACC	Air Cooled Condensor
AGIs	Above Ground Installations
CCGT	Combined Cycle Gas Turbine
CEMP	Construction Environmental Management Plan
CFA	Continuous Flight Auger
DCO	Development Consent Order
ECJ	European Court of Justice
EcIA	Ecological Impact Assessment
EfW	Energy from waste
EIA	Environmental Impact Assessment
EPH	Energetický A Prumyslový Holding
EPUKI	EP UK Investments Limited
EPWM	EP Waste Management Limited
ES	Environmental Statement
GWTEs	Groundwater Dependant Terrestrial Ecosystems
HRA	Habitat Regulations Assessment
IROPI	Imperative Reasons of Overriding Public Interest
kV	Kilovolt
mAOD	m Above Ordnance Datum
MW	megawatt
NELC	North East Lincolnshire Council
NSIP	Nationally Significant Infrastructure Project
ODPM	Office of Deputy Prime Minister
PA 2008	The Planning Act 2008
RDF	Refuse derived fuel
SAC	Special Area of Conservation
SHBPS	South Humber Bank Power Station
SHG	South Humber Gateway
SoS	Secretary of State
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
tpa	tonnes per annum

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TABLES

1.0 EXECUTIVE SUMMARY

1.1.1 EP Waste Management Limited (EPWM) is seeking development consent for the construction, operation and maintenance of an energy from waste power station, a new site access, and other associated development on land at South Humber Bank Power Station, South Marsh Road, near Stallingborough in North East Lincolnshire. This report comprises the Habitats Regulations Assessment (HRA) Signposting document for the Proposed Development.

1.1.2 The power station will be constructed on land adjacent to the Humber Estuary SAC/ SPA/ Ramsar site, and will result in the loss of habitat that is considered functionally linked to the SPA/ Ramsar site.

1.1.3 Mitigation for this loss of habitat will be delivered through the South Humber Gateway (SHG) strategic mitigation approach under Policy 9 of the North East Lincolnshire Local Plan. The appropriate financial contribution towards mitigation required by Policy 9 will be secured via Section 106 Agreement. It is therefore concluded that the loss of functionally linked habitat within the Site will not result in any adverse effects on the integrity of the Humber Estuary SPA/ Ramsar.

1.1.4 There are two other developments proposed in the area that will result in the loss of functionally linked habitat in the vicinity of the power station, but these other developments are also committed to the delivery of habitat mitigation through the SHG strategic mitigation route, so it is concluded that there would be no adverse in-combination effects on the Humber Estuary SPA/ Ramsar site.

1.1.5 Likely significant effects as a result of noise impacts during construction (primarily associated with drop hammer piling noise) and during operation have been identified, however, it is concluded that construction and operation noise would not give rise to an adverse effect on the integrity of the Humber Estuary SAC/ SPA/ Ramsar site.

1.1.6 Likely significant effects as a result of changes in air quality during operation were identified, however, it is concluded that in-combination air quality impacts will not result in an adverse effect on the integrity of the Humber Estuary SAC/ SPA/ Ramsar site.

2.0 INTRODUCTION

2.1 Overview

2.1.1 This HRA Signposting document (Document Ref. 5.8) has been prepared on behalf of EP Waste Management Limited ('EPWM' or the 'Applicant'). It forms part of the application (the 'Application') for a Development Consent Order (a 'DCO'), that has been submitted to the Secretary of State (the 'SoS') for Business, Energy and Industrial Strategy, under section 37 of 'The Planning Act 2008' (the 'PA 2008').

2.1.2 EPWM is seeking development consent for the construction, operation and maintenance of an energy from waste ('EfW') power station with a gross electrical output of up to 95 megawatts (MW) including an electrical connection, a new site access, and other associated development (together 'the Proposed Development') on land at South Humber Bank Power Station ('SHBPS'), South Marsh Road, near Stallingborough in North East Lincolnshire ('the Site').

2.1.3 A DCO is required for the Proposed Development as it falls within the definition and thresholds for a 'Nationally Significant Infrastructure Project' (a 'NSIP') under sections 14 and 15(2) of the PA 2008.

2.1.4 The DCO, if made by the SoS, would be known as the 'South Humber Bank Energy Centre Order' ('the Order').

2.1.5 Full planning permission ('the Planning Permission') was granted by North East Lincolnshire Council ('NELC') for an EfW power station with a gross electrical output of up to 49.9 MW and associated development ('the Consented Development') on land at SHBPS ('the Consented Development Site') under the Town and Country Planning Act 1990 on 12 April 2019. Since the Planning Permission was granted, the Applicant has assessed potential opportunities to improve the efficiency of the EfW power station, notably in relation to its electrical output. As a consequence, the Proposed Development would have a higher electrical output (up to 95 MW) than the Consented Development, although it would have the same maximum building dimensions and fuel throughput (up to 753,500 tonnes per annum (tpa)).

2.2 The Applicant

2.2.1 The Applicant is a subsidiary of EP UK Investments Limited ('EPUKI'). EPUKI owns and operates a number of other power stations in the UK. These include SHBPS and Langage (Devon) Combined Cycle Gas Turbine ('CCGT') power stations, Lynemouth (Northumberland) biomass-fired power station, and power generation assets in Northern Ireland. EPUKI also owns sites with consent for new power stations in Norfolk (King's Lynn 'B' CCGT) and North Yorkshire (Eggborough CCGT).

2.2.2 EPUKI is a subsidiary of Energetický A Prumyslový Holding ('EPH'). EPH owns and operates energy generation assets in the Czech Republic, Slovak Republic, Germany, Italy, Hungary, Poland, Ireland, and the United Kingdom.

2.3 The Proposed Development Site

2.3.1 The Proposed Development Site (the 'Site' or the 'Order limits') is located within the boundary of the SHBPS site, east of the existing SHBPS, along with part of

the carriageway within South Marsh Road. The principal access to the site is off South Marsh Road.

2.3.2 The Site is located on the South Humber Bank between the towns of Immingham and Grimsby; both over 3 km from the Site. The surrounding area is characterised by industrial uses dispersed between areas of agricultural land with the nearest main settlements being the villages of Stallingborough, Healing and Great Coates. The Site lies within the parish of Stallingborough although Stallingborough village lies over 2 km away.

2.3.3 The Site lies within the administrative area of NELC, a unitary authority. The Site is owned by EP SHB Limited, a subsidiary of EPUKI, and is therefore under the control of the Applicant, with the exception of the highway land on South Marsh Road required for the new Site access.

2.3.4 The existing SHBPS was constructed in two phases between 1997 and 1999 and consists of two CCGT units fired by natural gas, with a combined gross electrical capacity of approximately 1,400 MW. It is operated by EP SHB Limited.

2.3.5 The Site is around 23 hectares ('ha') in area and is generally flat, and typically stands at around 2.0 m Above Ordnance Datum (mAOD).

2.3.6 The land surrounding the Site immediately to the south, west and north-west is in agricultural use with a large polymer manufacturing site, Synthomer, and a waste management facility, NEWLINCS, both located to the north of the Site and also accessed from South Marsh Road. The estuary of the River Humber lies around 175 m to the east of the Site.

2.3.7 Access to the South Humber Bank is via the A180 trunk road and the A1173. The Barton railway line runs north-west to south-east between Barton-on-Humber and Cleethorpes circa 2.5 km to the south-west of the Site and a freight railway line runs north-west to south-east circa 300 m (at the closest point) to the Site.

2.3.8 A more detailed description of the Site is provided at Chapter 3: Description of the Proposed Development Site in the Environmental Statement ('ES') Volume I (Document Ref. 6.2).

2.4 The Proposed Development

2.4.1 The main components of the Proposed Development are summarised below:

- Work No. 1— an electricity generating station located on land at SHBPS, fuelled by refuse derived fuel ('RDF') with a gross electrical output of up to 95 MW at ISO conditions;
- Work No. 1A— two emissions stacks and associated emissions monitoring systems;
- Work No. 1B— administration block, including control room, workshops, stores and welfare facilities;
- Work No. 2— comprising electrical, gas, water, telecommunication, steam and other utility connections for the generating station (Work No. 1);
- Work No. 3— landscaping and biodiversity works;

- Work No. 4— a new site access on to South Marsh Road and works to an existing access on to South Marsh Road; and
- Work No. 5— temporary construction and laydown areas.

2.4.2 Various types of ancillary development further required in connection with and subsidiary to the above works are detailed in Schedule 1 of the DCO. A more detailed description of the Proposed Development is provided at Schedule 1 'Authorised Development' of the Draft DCO and Chapter 4: The Proposed Development in the ES Volume I (Document Ref. 6.2) and the areas within which each of the main components of the Proposed Development are to be built is shown by the coloured and hatched areas on the Works Plans (Document Ref. 4.3).

2.5 Relationship with the Consented Development

2.5.1 The Proposed Development comprises the works contained in the Consented Development, along with additional works not forming part of the Consented Development ('the Additional Works'). The Additional Works are set out below along with an explanation of their purpose.

- a larger air-cooled condenser (ACC), with an additional row of fans and heat exchangers – this will allow a higher mass flow of steam to be sent to the steam turbine whilst maintaining the exhaust pressure and thereby increasing the amount of power generated;
- a greater installed cooling capacity for the generator – additional heat exchangers will be installed to the closed-circuit cooling water system to allow the generator to operate at an increased load and generate more power;
- an increased transformer capacity – depending on the adopted grid connection arrangement the capacity will be increased through an additional generator transformer operating in parallel with the Consented Development's proposed generator transformer or a single larger generator transformer. Both arrangements would allow generation up to 95 MW; and
- ancillary works – the above works will require additional ancillary works and operations, such as new cabling or pipes, and commissioning to ensure that the apparatus has been correctly installed and will operate safely and as intended.

2.5.2 The likely construction scenario is for work on the Consented Development (pursuant to the Planning Permission) to commence in Quarter 2 ('Q2') of 2020 and to continue for around three years. Following grant of a DCO for the Proposed Development (approximately halfway through the three-year construction programme), the Applicant would initiate powers to continue development under the Order instead of the Planning Permission. The Order includes appropriate powers and notification requirements for the 'switchover' between consents, to provide clarity for the relevant planning authority regarding the development authorised and the applicable conditions, requirements, and other obligations. Once the Order has been implemented the additional works would be constructed and the Proposed Development would be built out in full. The Proposed Development would commence operation in 2023.

2.5.3 Alternative construction scenarios, involving construction entirely pursuant to the Order, are also possible. Accordingly, three representative scenarios are described within Chapter 5: Construction Programme and Management in the ES Volume I (Document Ref. 6.2) and assessed in the Environmental Impact Assessment ('EIA').

2.6 The Purpose and Structure of this Document

2.6.1 This report represents the Habitats Regulations Assessment (HRA) Signposting Document for the Proposed Development. The terms of reference used in this report are consistent with those defined within the main chapters of the ES Volume I (Document Ref. 6.2). References are included, under relevant subject headings, to those chapters, technical appendices and paragraphs within the ES that contain the information required by the competent authority to undertake an 'Appropriate Assessment' under the terms of Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (commonly referred to as the 'Habitats Regulations'). It is designed to serve two key functions:

- to assist the competent authority by making it easier to undertake and consult on a Habitats Regulations Assessment; and
- to act as a confirmatory checklist that can be used to ensure that the relevant information needed for a HRA is adequately presented.

3.0 SCOPE OF ASSESSMENT

3.1 Introduction

3.1.1 It is a requirement of the EC Habitats Directive 1992 and the Habitats Regulations that plans and projects are subject to an Appropriate Assessment if it is likely that they will lead to significant adverse effects on a Natura 2000 site (the collective name for European designated sites). It is the duty of the 'competent authority' to determine if significant adverse effects are likely and, if necessary, to then undertake the Appropriate Assessment, but the proponent of the Proposed Development can be asked to supply sufficient data/ reports to enable such a decision to be reached.

3.1.2 In the past, the term Appropriate Assessment has been used to describe both the overall process and a particular stage of that process (see below). The term Habitats Regulations Assessment (HRA) has come into use in order to refer to the process that leads to an Appropriate Assessment, thus avoiding confusion. Throughout this report, HRA is used to refer to the overall procedure required by the Habitats Regulations. The Habitats Regulations set out a stepwise process, including an Appropriate Assessment to consider the impacts and effects of the Proposed Development on the Natura 2000 site. Although the necessity for an Appropriate Assessment has not been established, based on engagement with the competent authority and Natural England regarding the similar Consented Development, this document has been prepared on the assumption that the competent authority will conclude that one is required.

3.1.3 For statutory designated nature conservation sites subject to the provisions of the Habitats Regulations, it is usual to consider a search radius of 10 km when examining the potential pathways for air quality impacts on the sites.

3.1.4 One European designated site has been identified within this radius; this is the Humber Estuary Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar site, which is approximately 175 m east of the Proposed Development. The SAC supports qualifying Annex I habitats that are potentially susceptible to the effects of emissions to air from the Proposed Development. The SPA/ Ramsar site supports internationally important assemblages of wintering and passage waterbirds that may be displaced from functionally linked habitats outside the designation boundary as a result of the Proposed Development.

3.1.5 Surface water pathways to the designated habitats (and thus the qualifying species they support) have also been considered because the surrounding surface water drainage network, into which surface water from the construction and operation of the Proposed Development will outfall, drains into the Humber Estuary.

3.2 The Legislative Basis for Determining Likely Significant Effects and for Subsequent Appropriate Assessment, If Required

3.2.1 The Habitats Directive (1992) states that:

> *"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to*

appropriate assessment of its implications for the site in view of the site's conservation objectives." (Article 6 (3))

3.2.2 The Conservation of Habitats and Species Regulations (2017) states that:

"A competent authority, before deciding to … give any consent for a plan or project which is likely to have a significant effect on a European site or a European Offshore Marine Site (either alone or in combination with other plans or projects) … must make an appropriate assessment of the implications for the site in view of that sites conservation objectives … The authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site …".(Regulation 63)

3.3 European Legislation and Withdrawal from the European Union

3.3.1 The United Kingdom (UK) left the European Union (EU) on 31 January 2020 under the terms set out in the European Union (Withdrawal Agreement) Act 2020 ('the Withdrawal Act'). This established a transition period, which is currently set to end on 31 December 2020, although it can be extended once by either one or two years if both the UK and EU agree to an extension by 1 July 2020. The Withdrawal Act also retains the body of existing EU-derived law (which includes the Habitats Regulations) within our domestic law.

3.3.2 During the transition period:

- EU law applies to and in the UK, including all EU Directives referenced within the DCO Application documents. If new EU legislation enters into force, it will become part of the EU 'acquis' with which the UK is expected to comply;
- it will remain possible for UK courts and tribunals to hear and decide on cases involving EU law principles and for UK courts and tribunals to seek a preliminary ruling from the Court of Justice of the EU on a point of EU law interpretation.

3.3.3 After the transition period:

- if an agreement on the future relationship is negotiated between the UK and the EU, trade will take place subject to the terms of that agreement. The extent to which new EU legislative proposals will be considered by the UK will largely depend on the terms of the agreement but continuity of law would be ensured by the Withdrawal Act;
- if the UK and EU have not concluded an agreement on the future relationship, then trade will take place subject to world trade organisation (WTO) rules. Continuity of law in the UK will be provided by the Withdrawal Act unless, and subject to the provisions of the Northern Ireland Protocol, the UK legislates to diverge from EU law.

3.4 Overview of HRA Procedure and Context

3.4.1 The Planning Inspectorate Advice Note 10: Habitats Regulations Assessment Relevant to National Significant Infrastructure Projects (Planning Inspectorate, 2017) provides guidance on how the Habitats Regulations should be implemented. This is interpreted and summarised as follows - it should be noted that not all steps must be gone through in every case (see Figure 3.1):

- determination of whether the proposal is likely to have a significant effect, either alone or cumulatively (referred to as 'in-combination' in HRA terms) with other plans or projects, on a European site;
- if a significant effect is likely (or cannot be ruled out), the competent authority must conduct an Appropriate Assessment of the implications for the site in view of the site's conservation objectives (Natural England, 2008);
- in considering the project's effects on the site's conservation objectives, the competent authority must determine whether it can ascertain that the proposal will not adversely affect the integrity of the site;
- taking account of the way in which works are proposed to be carried-out, and the site conditions or other restrictions;
- being satisfied that there are no alternative solutions which would have a lesser effect on site integrity;
- considering whether there are Imperative Reasons of Overriding Public Interest (IROPI) to justify granting of permission for the development despite a potentially negative effect on site integrity; and
- in the absence of alternatives, and where the importance of the development outweighs the harm to a European site, consideration of proposed compensatory measures (to ensure that the overall coherence of the network of Natura 2000 sites is protected).

3.4.2 A flow chart of the HRA process (showing the decisions that are required at each stage) is provided as Figure 3.1 below. A four-stage methodology for HRA would therefore include:

- HRA Stage 1: Screening (including a 'likely significant effect' judgement);
- HRA Stage 2: Appropriate Assessment;
- HRA Stage 3: Assessment of Alternatives; and
- HRA Stage 4: Assessment of Imperative Reasons of Overriding Public Interest (IROPI) (where no alternative solutions exist and where adverse effects remain).

3.4.3 With regards to NSIPs, The Planning Inspectorate published a technical advice note in 2017, which sets out the approach to HRA that has already been summarised above. A set of matrices has been developed by the Planning Inspectorate to assist the relevant secretary of state, as the competent authority, in fulfilling the requirements of the Habitats Directive and the Habitats Regulations in the context of the 2008 Act process. The matrices comprise:

- Screening Matrices (HRA Stage 1: Screening) - which summarise the screening exercise for LSE of the project on the European sites and qualifying features considered (presented in this report as Appendix 1); and
- Integrity Matrices (HRA Stage 2: AA) - which summarise the potential adverse effects on integrity of the European sites, where LSE have been identified (presented in this report as Appendix 2).

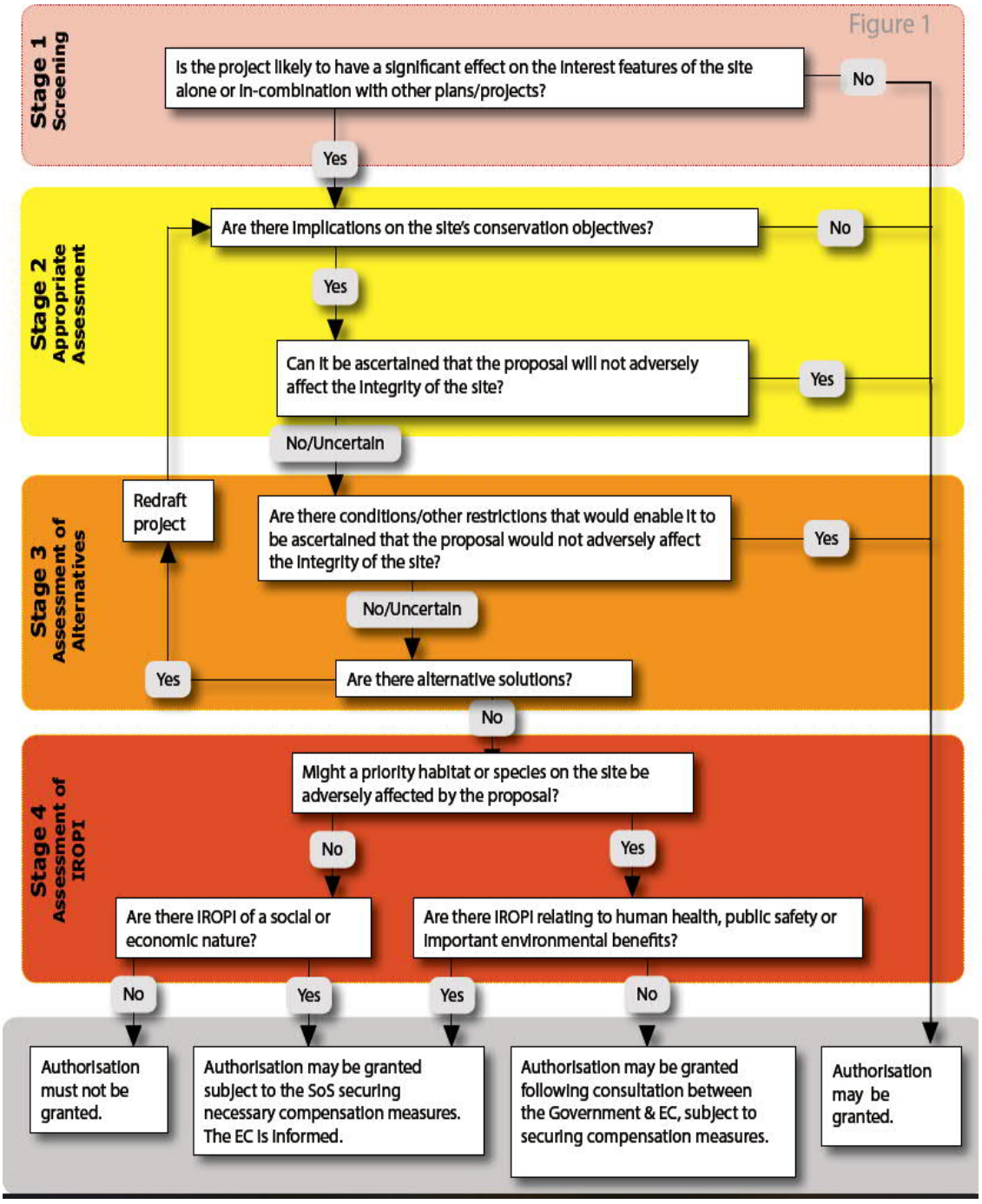
3.4.4 Whilst the Appropriate Assessment and any subsequent assessments are undertaken by a competent authority, the information needed to undertake the assessments is generally provided by the applicant. For the Proposed Development the necessary information is presented within the following chapters in ES Volume I (Document Ref. 6.2):

- Chapter 4: The Proposed Development;
- Chapter 5: Construction Programme and Management;
- Chapter 6: Need, Alternatives and Design Evolution;
- Chapter 7: Air Quality;
- Chapter 8: Noise and Vibration;
- Chapter 10: Ecology;
- Chapter 14: Water Resources, Flood Risk and Drainage; and
- Chapter 17: Cumulative and Combined Effects.

3.4.5 ES Volume I (Document Ref. 6.2) concludes that the Proposed Development will not result in any significant adverse residual effects on the statutory designated sites identified above. It should be appreciated that the mechanism for Environmental Impact Assessment (EIA) used in the ES (including how terminology is used, and how the importance of receptors is evaluated) differs from that adopted for HRA. Consequently, whilst it is considered that all the information necessary to undertake an HRA is contained within the main chapters of the ES in Volume I , a separate process is required to address the specific obligations of the Habitats Regulations. This is the role that this document seeks to provide by assisting the competent authority in directing them to the necessary topic Chapters in ES Volume I.

3.4.6 One primary difference between EIA and HRA relates to the context of the assessments. HRA is specifically designed to consider the effects of a plan or project on the integrity of a Natura 2000 site, including its designated features (regardless of whether or not they are geographically located within the site at the time). It considers the whole of the Natura 2000 site in some detail, and by definition focuses on a site acknowledged to be of international importance. EIA, on the other hand, adopts a different perspective. It considers the impacts resulting from a development, and whether they have the potential to affect different receptors. The significance of the effect on any receptor is generally measured by combining the magnitude of the impact, and the importance and sensitivity of the receptor itself. EIA therefore seeks to establish the level at which significant effects occur, which may include Natura 2000 receptors at less than an international (possibly just at a local) level. Readers should be aware of this distinction when applying this signposting document.

Figure 3.1: HRA process (Planning Inspectorate, 2017)



3.5 Consideration of People Over Wind, Peter Sweetman v Coillte Teoranta ECJ Ruling

3.5.1 This report has been prepared having regard to all relevant case law relating to the Habitats Regulations. In particular, the ruling by the European Court of Justice (ECJ) in the case of *People Over Wind, Peter Sweetman v Coillte Teoranta* (C-323/17) has been taken into account, because it influences the approach to HRA Screening Stage 1.

3.5.2 This case held that "*it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site*" (paragraph 40). This establishes that 'mitigation measures' cannot be taken into account at the screening stage, but it is important to note that not all mitigation measures are excluded from consideration – only those "*intended to avoid or reduce the harmful effects of the… project on that site*" (emphasis added). Mitigation measures which are, for example, intended to avoid effects on a local watercourse outside the European site designated boundary but which outfalls into the European designated site, can be taken into account as the benefit conveyed to the European site is coincidental and the measures would be delivered as part of good practice even if no European sites were present.

3.5.3 This represents a deviation from the approach usually adopted in the EIA, which considers embedded mitigation (even those measures that are included to directly avoid or reduce harmful effects on a European designated site) to form a part of the Proposed Development, and takes these measures into account when assessing the potential impacts on qualifying habitats and species.

3.5.4 Where mitigation measures are mentioned in this report and taken into account at the screening stage, they are therefore ones which may reduce or avoid harmful effects on certain (local) habitats or species, but are not introduced or relied on to directly avoid or reduce harmful effects on the European sites that are the subject of this signposting report. This includes standard good practice mitigation measures incorporated into the Construction Environmental Management Plan (CEMP) such as surface water drainage attenuation. This approach is therefore compliant with the People over Wind case.

4.0 BASELINE EVIDENCE GATHERING

4.1 Proposed Development Description and Alternatives

4.1.1 A detailed description of the Proposed Development is provided in Chapter 4: The Proposed Development in ES Volume I (Document Ref. 6.2).

4.1.2 The Proposed Development is an energy from waste power station with a gross electrical output of up to 95 MW.

4.1.3 The Proposed Development will operate 24 hours a day, 7 days a week with occasional offline periods for maintenance. The Proposed Development will utilise Refuse Derived Fuel (RDF) as the main source of fuel.

4.1.4 Consideration of the alternatives identified by the Applicant, and a comparison of their environmental effects, is provided in Chapter 6: Need, Alternatives and Design Evolution in ES Volume I (Document Ref. 6.2).

4.2 The Need for the Proposed Development

4.2.1 A description of the Proposed Development's rationale is presented in Chapter 6: Need, Alternative and Design Evolution in ES Volume I (Document Ref. 6.2).

4.3 Designated Sites Scoped in to HRA Screening

4.3.1 Three European and international designations associated with the Humber Estuary have been scoped into the impact assessment in ES Volume I Chapter 10: Ecology (Document Ref. 6.2).

4.3.2 A summary of the qualifying features for each of the three sites and their distance from the Proposed Development is summarised in Table 4.1 below.

Table 4.1: Natura 2000 sites scoped into HRA screening

SITE	APPROX. DISTANC-E FROM SITE	TOTAL AREA (HA)	SUMMARY OF PRIMARY REASONS FOR SITE SELECTION	SUMMARY OF QUALIFYING FEATURES
Humber Estuary SAC	175 m east	36,657.15	Estuaries Mudflats and sandflats not covered by seawater at low tide	Sandbanks which are slightly covered by sea water all the time Coastal lagoons *Salicornia* and other annuals colonizing mud and sand Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Embryonic shifting dunes Shifting dunes along the shoreline with European marram grass (*Ammophila*

SITE	APPROX. DISTANC-E FROM SITE	TOTAL AREA (HA)	SUMMARY OF PRIMARY REASONS FOR SITE SELECTION	SUMMARY OF QUALIFYING FEATURES
				arenaria) (white dunes) Fixed coastal dunes with herbaceous vegetation (grey dunes) Dunes with common sea buckthorn (*Hippophae rhamnoides*) River lamprey (Lampetra fluviatilis) Sea lamprey (*Petromyzon marnius*) Grey seal (*Halichoerus grypus*)
Humber Estuary SPA	175 m east	37,630.24	Populations of European importance of Annex I and Annex II over-wintering wildfowl and wading birds. Internationally important assemblage of migratory and wintering birds.	N/A
Humber Estuary Ramsar site	175 m east	37,987.8	Estuarine habitats including dune systems, intertidal mud and sand flats, saltmarshes and brackish lagoons. Grey seal Internationally important populations of passage wildfowl and waders.	N/A

4.4 Conservation Objectives

4.4.1 The conservation objectives for each relevant site are summarised in Table 4.2 below.

Table 4.2: Conservation objectives for relevant Natura 2000 sites

SITE	CONSERVATION OBJECTIVES
Humber Estuary SAC	Ensure that the integrity of the qualifying natural habitat is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring: the extent and distribution of qualifying natural habitats and habitats of qualifying species; the structure and function (including typical species) of the qualifying natural habitats; the structure and function of the habitats of qualifying species; the supporting processes on which qualifying natural habitats and habitats of qualifying species rely; the populations of qualifying species, and the distribution of qualifying species within the site.
Humber Estuary SPA	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring: the extent and distribution of the habitats of the qualifying features; the structure and function of the qualifying features; the supporting processes on which the habitats of the qualifying features rely; the populations of each of the qualifying features; and the distribution of the qualifying features within the site.
Humber Estuary Ramsar site	Not specifically listed. Assumed as for Humber Estuary SAC and SPA.

5.0 STAGE 1: SCREENING FOR LIKELY SIGNFICANT EFFECTS

5.1 Identification of Potential Construction Impacts

Source-Receptor Pathways Scoped In

5.1.1 The potential source-receptor pathways by which the Proposed Development could impact the qualifying features of each Natura 2000 site during construction, and which were scoped into the ecological impact assessment, are as follows:

- physical displacement of SPA/ Ramsar birds – loss of high tide feeding, roosting and loafing habitat within the Proposed Development that is functionally linked to the Humber Estuary;
- noise/ vibration and visual disturbance to SPA/ Ramsar birds – disturbance to birds feeding, roosting and loafing in the large arable fields to the north and south of the Proposed Development, which are functionally linked to the Humber Estuary, and on mudflats within the boundary of the Natura 2000 site;
- surface water quality – potential pathways for the surface water pollution to the adjacent drainage network, and ultimately to the Humber Estuary SAC/ SPA/ Ramsar into which the surface water drainage flows during the construction phase of the Proposed Development e.g. sedimentation, vehicle fuel spill; and
- air quality - potential pathways identified through emissions to air from fugitive dust emissions during the construction phase of Proposed Development resulting in smothering of susceptible habitats within the Humber Estuary SAC/ SPA/ Ramsar.

Source-Receptor Pathways Scoped Out

5.1.2 There is no suitable habitat for the qualifying species of breeding birds (bittern, marsh harrier, avocet and little tern) within the potential zone of influence of noise and visual disturbance arising from the Proposed Development. This pathway is therefore scoped out.

5.1.3 No pathways by which underwater noise could give rise to likely significant effects on marine mammals and fish that are part of the Humber Estuary SPA/ SAC/ Ramsar/ SSSI have been identified, given that any works associated with the Proposed Development will be 175 m from the nearest part of the designated site. Over this distance it is reasonable to conclude that there would be no propagation of underwater noise such that the qualifying features could be affected. This pathway is therefore scoped out.

5.1.4 Given the distance between the Natura 2000 sites and the Proposed Development there is no pathway that could result in direct habitat loss or direct physical damage to any of the designated habitats.

5.1.5 Similarly, there are no groundwater pathways over this distance through which the Proposed Development could give rise to any effects on the groundwater dependent terrestrial ecosystems (GWTEs) of the Natura 2000 sites. These pathways are therefore scoped out.

5.1.6 Given the distance between the Proposed Development and the South Humber Gateway (SHG) mitigation area at Cress Marsh (*c*. 500 m), it is considered that there is no potential for likely significant effects on birds using this habitat as a

result of noise and visual disturbance during construction. All construction activities will be on the eastern side of the existing power station, which provides screening of the construction works to waterbirds using the Cress Marsh mitigation area. These pathways are therefore scoped out.

5.2 Identification of Potential Operational Impacts

Source-Receptor Pathways Scoped In

5.2.1 The potential source-receptor pathways by which the Proposed Development could impact the qualifying features of each Natura 2000 site during operation, and which were scoped into the ecological impact assessment are as follows:

- noise and visual disturbance to SPA/ Ramsar birds – disturbance to birds feeding, roosting and loafing in the large arable field to the north and south of the Proposed Development, which is functionally linked to the Humber Estuary, and on mudflats within the boundary of the Natura 2000 site;
- surface water quality – potential pathways for surface water pollution to the adjacent drainage network, and ultimately to the Humber Estuary SAC/ SPA/ Ramsar into which the surface water drainage flows e.g. sedimentation, vehicle fuel spill, discharge of treated foul drainage from a package treatment plant; and
- air quality - potential pathways identified through emissions to air during the operational phase of Proposed Development resulting in effects on susceptible habitats within the Humber Estuary SAC/ SPA/ Ramsar.

Source-Receptor Pathways Scoped Out

5.2.2 There is no suitable habitat for the qualifying species of breeding birds (bittern, marsh harrier, avocet and little tern) within the potential zone of influence of noise and visual disturbance arising from the operation of the Proposed Development. This pathway is therefore scoped out.

5.2.3 Potential air quality impacts on intertidal and subtidal habitats in the Humber Estuary SAC/ SSSI were scoped out of the assessment because intertidal habitats are not susceptible to the effects of changes in air quality arising from stack emissions during operation (increased nitrogen and acid deposition) because of their regular tidal inundation. Subtidal habitats have similarly been scoped out.

5.3 Summary of HRA Signposting

5.3.1 Table 5.1 below presents the signposting to the relevant ES Volume I (Document Ref. 6.2) chapters in which detailed assessment of the relevant potential construction source-receptor pathways identified above can be found.

5.3.2 Table 5.2 below presents the signposting to the relevant ES Volume I (Document Ref. 6.2) chapters in which detailed assessment of the relevant operational construction source-receptor pathways identified above can be found.

Table 5.1: HRA signposting: Likely Significant Effects during construction

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
Humber Estuary SAC					
Embryonic shifting dunes Shifting dunes along the shoreline with European marram grass (*Ammophila arenaria*) (white dunes) Fixed coastal dunes with herbaceous vegetation (grey dunes) Dunes with common sea buckthorn (*Hippophae rhamnoides*)	Changes in air quality during construction phase	Dust deposition during site clearance works resulting in smothering of vegetation and damage to habitats	These habitat types are not present in close proximity to the Proposed Development. The nearest terrestrial habitat within the designations (coastal saltmarsh) is approximately 500 m from the Proposed Development, and at this distance no dust smothering would be anticipated. This pathway was therefore scoped out of the ecological impact assessment.	Chapter 10: Ecology Paragraph 10.6.4 Chapter 7: Air Quality Paragraph 7.6.8	No
Estuaries	Surface water pollution during	Pollution/ siltation of Humber Estuary via adjacent surface	Standard environmental measures to control pollution to the drains	Chapter 10: Ecology	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
Mudflats and sandflats not covered by seawater at low tide Sandbanks which are slightly covered by seawater all the time Coastal lagoons *Salicornia* and other annuals colonising mud and sand Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	construction phase	water drain, into which surface water run-off from the Proposed Development will outfall.	during construction phase will adequately minimise risk to local surface water bodies (consequently minimising risk to the Humber Estuary too).	Paragraphs 10.6.33 to 10.6.35 Chapter 14: Water Resources, Flood Risk and Drainage Paragraph 14.6.18	
Humber Estuary SPA					

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
Populations of European importance of Annex I and Annex II over-wintering wildfowl and wading birds. Internationally important assemblage of migratory and wintering birds.	Loss of habitat within Proposed Development boundary	Permanent displacement of birds from habitat that is 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Loss of habitat will be addressed through South Humber Bank strategic mitigation, with the mitigation area at Cress Marsh having already been created. Impacts on passage and wintering waterbirds will therefore be avoided, because this habitat will be delivered prior to the commencement of construction. However, this has not been taken into account in the stage 1 screening due to the *People Over Wind* ruling.	Chapter 10: Ecology Paragraphs 10.5.3 to 10.5.5 (impact avoidance) and 10.6.6 to 10.6.7 (assessment)	Yes
	Surface water pollution during construction phase to habitats supporting internationally important bird populations	Pollution/ siltation of Humber Estuary via adjacent surface water drain, into which surface water run-off from the Proposed Development will outfall.	Standard environmental measures to control pollution to the drains during construction phase will adequately minimise risk.	Chapter 10: Ecology Paragraphs 10.6.33 to 10.6.35 Chapter 14: Water Resources,	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
				Flood Risk and Drainage Paragraph 14.6.18	
	Noise impacts during construction to birds using Pyewipe mudflats	Disturbance/ displacement of birds from mudflats. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Piling activity (drop hammer piling) results in estimated levels of 75 dB L_{Amax} at the nearest part of the Estuary. This is significantly higher than the ambient noise level at the measured location on the edge of the SAC.	Chapter 10: Ecology Paragraphs 10.6.8 to 10.6.14 Chapter 8: Noise and Vibration Paragraph 8.6.14	Yes
	Noise/ vibration impacts during construction to birds using arable field to the south (field 37)	Disturbance/ displacement of birds from field to the south that is 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and	Piling activity (drop hammer piling) results in predicted noise levels of 62 dB $L_{Aeq,1hr}$, which in excess of the ambient noise level. Peak noise resulting from piling is estimated to be 76 dB L_{Amax}.	Chapter 10: Ecology Paragraphs 10.6.16 to 10.6.22 Chapter 8: Noise and Vibration Paragraph 8.6.15 (noise) and paragraphs	Yes

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
		reduced survival rates.		8.6.20 to 8.6.24 (vibration)	
	Noise/ vibration impacts during construction to birds using arable fields to the north (fields 30 and 31)	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Piling activity (drop hammer piling) results in predicted noise levels of 59 dB $L_{Aeq,1hr}$, which is slightly higher than the ambient noise level. Peak noise resulting from piling is estimated to be 72 dB L_{Amax}.	Chapter 10: Ecology Paragraphs 10.6.24 to 10.6.27 Chapter 8: Noise and Vibration Paragraph 8.6.15 (noise) and paragraphs 8.6.20 to 8.6.24 (vibration)	Yes

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	Visual impacts during construction to birds using Pyewipe mudflats	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Minimal risk of visual disturbance, seawall provides substantial screening to birds on the mudflats.	Chapter 10: Ecology Paragraph 10.6.29	No
	Visual impacts during construction to birds using arable field to the south (field 37)	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy	Nature and scale of development similar to existing, but potential for some visual impacts identified.	Chapter 10: Ecology Paragraphs 10.6.30 to 10.6.32	Yes

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
		expenditure and reduced survival rates.			
Humber Estuary Ramsar					
Estuarine habitats including dune systems, intertidal mud and sand flats, saltmarshes and brackish lagoons.	Surface water pollution during construction phase to habitats	Pollution/ siltation of Humber Estuary via adjacent surface water drain, into which surface water run-off from the Proposed Development will outfall.	Standard environmental measures to control pollution to the drains during construction phase will adequately minimise risk.	Chapter 10: Ecology Paragraphs 10.6.33 to 10.6.35 Chapter 14: Water Resources, Flood Risk and Drainage Paragraph 14.6.18	No
Grey seal	Surface water pollution during construction phase to habitats supporting	Pollution/ siltation of Humber Estuary via adjacent surface water drain, into which surface water run-off from the Proposed	Standard environmental measures to control pollution to the drains during construction phase will adequately minimise risk.	Chapter 10: Ecology Paragraphs 10.6.33 to 10.6.35	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	breeding grey seal	Development will outfall. Impacts on fish resources/ food chain sustaining breeding colony.		Chapter 14: Water Resources, Flood Risk and Drainage Paragraph 14.6.18	
Internationally important populations of passage wildfowl and waders.	Surface water pollution during construction phase to habitats supporting internationally important bird populations	Pollution/ siltation of Humber Estuary via adjacent surface water drain, into which surface water run-off from the Proposed Development will outfall.	Standard environmental measures to control pollution to the drains during construction phase will adequately minimise risk.	Chapter 10: Ecology Paragraphs 10.6.33 to 10.6.35 Chapter 14: Water Resources, Flood Risk and Drainage Paragraph 14.6.18	No
	Noise impacts during construction to birds using Pyewipe mudflats	Disturbance/ displacement of birds from mudflats. This may result in reduced feeding times, increased energy expenditure and	Piling activity results in estimated levels of 75 dB L_{Amax} at the nearest part of the Estuary. This is significantly higher than the ambient noise level at the measured location on the edge of the SAC.	Chapter 10: Ecology Paragraphs 10.6.8 to 10.6.14	Yes

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
		reduced survival rates.		Chapter 8: Noise and Vibration Paragraph 8.6.14	
	Noise/ vibration impacts during construction to birds using arable field to the south (field 37)	Disturbance/ displacement of birds from field to the south that is 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Piling activity results in predicted noise levels of 62 dB $L_{Aeq,1hr}$, which in excess of the ambient noise level. Peak noise resulting from piling is estimated to be 76 dB L_{Amax}.	Chapter 10: Ecology Paragraphs 10.6.16 to 10.6.22 Chapter 8: Noise and Vibration Paragraph 8.6.15 (noise) and paragraphs 8.6.20 to 8.6.24 (vibration)	Yes
	Noise/ vibration impacts during construction to birds using arable fields to the north (fields 30 and 31)	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide	Piling activity results in predicted noise levels of 59 dB $L_{Aeq,1hr}$, which is slightly higher than the ambient noise level.	Chapter 10: Ecology Paragraphs 10.6.24 to 10.6.28	Yes

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
		roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Peak noise resulting from piling is estimated to be 72 dB L_{Amax}.	Chapter 8: Noise and Vibration Paragraph 8.6.15 (noise) and paragraphs 8.6.20 to 8.6.24 (vibration)	
	Visual impacts during construction to birds using Pyewipe mudflats	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Minimal risk of visual disturbance, seawall provides substantial screening to birds on the mudflats.	Chapter 10: Ecology Paragraph 10.6.29	No
	Visual impacts during construction to birds using	Disturbance/ displacement of birds from fields to the north that are	Nature and scale of development similar to existing, but potential for	Chapter 10: Ecology	Yes

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	arable field to the south (field 37)	'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	some visual impacts identified.	Paragraphs 10.6.30 to 10.6.32	

Table 5.2: HRA signposting: Likely Significant Effects during Operation

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
Humber Estuary SAC					
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Embryonic shifting dunes Shifting dunes along the shoreline with European marram grass (*Ammophila arenaria*) (white dunes) Fixed coastal dunes with	Changes in air quality during operational phase	NO_x emissions resulting in changes to critical levels and potential effects on vegetation assemblage.	Annual mean NO_x change > 1% of critical level. This exceeds the 1% screening threshold beyond which the effects should be considered in more detail.	Chapter 10: Ecology Paragraphs 10.6.63 – 10.6.64 Chapter 7: Air Quality Paragraphs 7.6.32 to 7.6.34	Yes
		Nutrient nitrogen deposition resulting in changes to critical loads and potential effects on vegetation assemblage.	Change is >1% of critical load. This exceeds the 1% screening threshold beyond which the effects should be considered in more detail.	Chapter 10: Ecology Paragraphs 10.6.65 – 10.6.66 Chapter 7: Air Quality Paragraphs 7.6.32 to 7.6.34	Yes

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
herbaceous vegetation (grey dunes) Dunes with common sea buckthorn (*Hippophae rhamnoides*)		Acid deposition resulting in changes to critical loads and potential effects on vegetation assemblage.	Change resulting from Proposed Development is negligible and is well below the 1% screening threshold beyond which the effects should be considered in more detail.	Chapter 10: Ecology Paragraph 10.6.67 Chapter 7: Air Quality Paragraphs 7.6.32 to 7.6.34	No
		SO_2 emissions resulting in changes to critical levels and potential effects on vegetation assemblage.	Change <1% of critical load and is not significant. This does not exceed the 1% screening threshold beyond which the effects should be considered in more detail.	Chapter 10: Ecology Paragraph 10.6.68 Chapter 7: Air Quality Paragraphs 7.6.32 to 7.6.34	No
Estuaries Mudflats and sandflats not covered by	Surface water pollution during operational phase	Pollution of Humber Estuary via adjacent surface water drains, into which surface water run-off and treated	Standard environmental measures to control pollution to the drain during operational phase	Chapter 10: Ecology Paragraphs 10.6.70 – 10.6.71	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
seawater at low tide Sandbanks which are slightly covered by seawater all the time Coastal lagoons *Salicornia* and other annuals colonising mud and sand Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)		foul drainage from the Proposed Development will outfall.	will adequately minimise risk.	Chapter 14: Water Resources, Flood Risk and Drainage Paragraph 14.6.36	
Humber Estuary SPA					

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
Populations of European importance of Annex I and Annex II over-wintering wildfowl and wading birds. Internationally important assemblage of migratory and wintering birds.	Surface water pollution during operational phase to habitats supporting internationally important bird populations	Pollution of Humber Estuary via adjacent surface water drain, into which surface water run-off and treated foul drainage from the Proposed Development will outfall.	Standard environmental measures to control pollution to the drain during operational phase will adequately minimise risk.	Chapter 10: Ecology Paragraphs 10.6.70 – 10.6.71 Chapter 14: Water Resources, Flood Risk and Drainage Paragraph 14.6.36	No
	Noise impacts during operation to birds using Pyewipe mudflats	Disturbance/ displacement of birds from mudflats. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Predicted operational noise levels are 5 dB below the ambient noise level of 52 dB L_{Aeq}.	Chapter 10: Ecology Paragraphs 10.6.72 – 10.6.75 Chapter 8: Noise and Vibration Table 8.30 and paragraphs 8.6.39-8.6.40, and 8.6.44	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	Noise impacts during operation to birds using arable field to the south (field 37)	Disturbance/ displacement of birds from field to the south that is 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Predicted operational noise levels are within ambient range across central portion of field where birds are most likely to be located due to predator avoidance reasons.	Chapter 10: Ecology Paragraphs 10.6.76 – 10.6.77 Chapter 8: Noise and Vibration Table 8.31 and paragraphs 8.6.39, 8.6.41, 8.6.42 and 8.6.44	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	Noise impacts during operation to birds using arable fields to the north (fields 30 and 31)	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Predicted operational noise levels are within ambient range across central and eastern portions of field where birds are most likely to be located due to predator avoidance reasons.	Chapter 10: Ecology Paragraphs 10.6.76 – 10.6.77 Chapter 8: Noise and Vibration Table 8.32 and paragraphs 8.6.39, 8.6.41 8.6.43 and 8.6.44	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	Visual impacts during operation to birds using Pyewipe mudflats	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Topic scoped out of assessment due to distance and presence of similar structures in the surrounding environment.	Chapter 10: Ecology Paragraph 10.6.55	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	Visual impacts during operation to birds using arable field to the south (field 37)	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Reasonable to assume that waterbirds using this field are habituated to presence of existing power station and its industrial nature, as such that they would not be disturbed by the presence of tall chimney structures and other buildings on adjacent land; Proposed Development operation not significantly different to this.	Chapter 10: Ecology Paragraphs 10.6.80 – 10.6.81	No
Humber Estuary Ramsar					
Estuarine habitats including dune systems, intertidal mud and sand flats, saltmarshes	Changes in air quality during operational phase	NOx emissions resulting in changes to critical levels and potential effects on	Annual mean NOx change > 1% of critical level. This exceeds the 1% screening threshold	Chapter 10: Ecology Paragraphs 10.6.63 – 10.6.64	Yes

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
and brackish lagoons.		vegetation assemblage.	beyond which the effects should be considered in more detail.	Chapter 7: Air Quality Paragraphs 7.6.32 to 7.6.34	
		Nutrient nitrogen deposition resulting in changes to critical loads and potential effects on vegetation assemblage.	Change is >1% of critical load. This exceeds the 1% screening threshold beyond which the effects should be considered in more detail.	Chapter 10: Ecology Paragraphs 10.6.65 – 10.6.66 Chapter 7: Air Quality Paragraphs 7.6.32 to 7.6.34	Yes
		Acid deposition resulting in changes to critical loads and potential effects on vegetation assemblage.	Change <1% of critical load and is not significant. This does not exceed the 1% screening threshold beyond which the effects should be considered in more detail.	Chapter 10: Ecology Paragraph 10.6.67 Chapter 7: Air Quality Paragraphs 7.6.32 to 7.6.34	No
		SO_2 emissions resulting in changes	Change <1% of critical load and is	Chapter 10: Ecology	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
		to critical levels and potential effects on vegetation assemblage.	not significant. This does not exceed the 1% screening threshold beyond which the effects should be considered in more detail.	Paragraph 10.6.68 Chapter 7: Air Quality Paragraphs 7.6.32 to 7.6.34	
	Surface water pollution during operational phase to habitats	Pollution of Humber Estuary via adjacent surface water drain, into which surface water run-off and treated foul drainage from the Proposed Development will outfall.	Standard environmental measures to control pollution to the drain during operational phase will adequately minimise risk.	Chapter 10: Ecology Paragraphs 10.6.70 – 10.6.71 Chapter 14: Water Resources, Flood Risk and Drainage Paragraph 14.6.36	No
Grey seal	Surface water pollution during operational phase to habitats supporting	Pollution of Humber Estuary via adjacent surface water drain, into which surface water run-off from the	Standard environmental measures to control pollution to the drain during operational phase	Chapter 10: Ecology Paragraphs 10.6.70 – 10.6.71	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	breeding grey seal	Proposed Development will outfall.	will adequately minimise risk.	Chapter 14: Water Resources, Flood Risk and Drainage Paragraph 14.6.36	
	Foul drainage pollution during operational phase to habitats supporting breeding grey seal	Pollution of Humber Estuary via adjacent surface water drains, into which foul drainage discharge from an on-site package treatment plant for the Proposed Development will outfall.	Foul drainage will be processed via an on-site package treatment plant. The volume of processed discharge is anticipated to be below the threshold for which a Permit is required; and as such is not considered to represent a significant effect	Chapter 10: Ecology, Paragraph 10.5.16	No
Internationally important populations of	Surface water pollution during operational phase to habitats	Pollution of Humber Estuary via adjacent surface water drain, into	Standard environmental measures to control pollution to the	Chapter 10: Ecology	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
passage wildfowl and waders.	supporting internationally important bird populations	which surface water run-off from the Proposed Development will outfall.	drain during operational phase will adequately minimise risk.	Paragraphs 10.6.70 – 10.6.71 Chapter 14: Water Resources, Flood Risk and Drainage Paragraph 14.6.36	
	Noise impacts during operation to birds using Pyewipe mudflats	Disturbance/ displacement of birds from mudflats. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Predicted operational noise levels are 5 dB below the ambient noise level of 52 dB L_{Aeq}.	Chapter 10: Ecology Paragraphs 10.6.72 – 10.6.75 Chapter 8: Noise and Vibration Table 8.30 and paragraphs 8.6.39, 8.6.40 and 8.6.44	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	Noise impacts during operation to birds using arable field to the south (field 37)	Disturbance/ displacement of birds from field to the south that is 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Predicted operational noise levels are within ambient range across central portion of field where birds are most likely to be located due to predator avoidance reasons.	Chapter 10: Ecology Paragraphs 10.6.78 – 10.6.79 Chapter 8: Noise and Vibration Table 8.31 and paragraphs 8.6.39, 8.6.41, 8.6.42 and 8.6.44	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	Noise impacts during operation to birds using arable fields to the north (fields 30 and 31)	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Predicted operational noise levels are within ambient range across central and eastern portions of field where birds are most likely to be located due to predator avoidance reasons.	Chapter 10: Ecology Paragraphs 10.6.76 – 10.6.77 Chapter 8: Noise and Vibration Table 8.32 and paragraphs 8.6.39, 8.6.41, 8.6.43 and 8.6.44	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	Visual impacts during operation to birds using Pyewipe mudflats	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Topic scoped out of assessment due to distance and presence of similar structures in the surrounding environment.	Chapter 10: Ecology Paragraph 10.6.55	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	Visual impacts during operation to birds using arable field to the south (field 37)	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Reasonable to assume that waterbirds using this field are habituated to presence of existing power station and its industrial nature, as such that they would not be disturbed by the presence of tall chimney structures and other buildings on adjacent land; Proposed Development operation not significantly different to this.	Chapter 10: Ecology Paragraphs 10.6.80 – 10.6.81	No

6.0 IN-COMBINATION EFFECTS WITH OTHER PLANS OR PROJECTS

6.1.1 As part of the Stage 1 Screening exercise, it is also necessary to undertake an assessment in combination with other plans or projects. Relevant projects considered as part of the cumulative effects assessment undertaken for the ecological impact assessment, along with potential cumulative effect topics of relevance to the HRA in-combination assessment are signposted below, along with the relevant signposting to ES Volume I (Document Ref. 6.2) chapters.

6.1.2 Plans or projects (schemes) that could potentially result in cumulative and combined effects with the Proposed Development are identified in Chapter 17: Cumulative and Combined Effects of the ES Volume I (Document Ref. 6.2). Developments have been scoped in to the screening task only where they could potentially affect the European site through loss of functionally linked habitat, noise or visual disturbance/ displacement to Humber Estuary SPA/ Ramsar waterbirds, or air quality impacts on sensitive habitats.

6.1.3 A summary of the HRA stage 1 screening exercise for cumulative construction impacts arising from the shortlisted schemes identified in ES Volume I Chapter 17: Cumulative and Combined Effects (Document Ref. 6.2) is provided in Table 6.1. A summary of the HRA stage 1 screening exercise for cumulative operational impacts arising from the shortlisted schemes identified in Chapter 17 is provided in Table 6.2. Topics are highlighted in shaded cells where likely significant effects have been identified and they have been taken forward to HRA stage 2 appropriate assessment.

Table 6.1: HRA signposting: potential Likely Significant in-combination effects during construction

PLAN/ PROJECT	POTENTIAL LIKELY SIGNIFICANT CUMULATIVE EFFECT?		
	NOISE DISTURBANCE TO SPA/ RAMSAR	**NOISE DISTURBANCE TO FUNCTIONALLY LINKED HABITAT**	**LOSS OF FUNCTIONALLY LINKED HABITAT**
1 – Stallingborough Link Road DM/0094/18/FUL	No – HRA concluded that the distance of the scheme from the designated site (c. 1 km), along with visual screening provided by existing developments north-east of Moody Lane that were between the scheme and the SPA/ Ramsar, resulted in there being no potential for construction-related disturbance to qualifying features within the boundaries of the designations.	Yes – HRA concluded that there was potential for temporary noise disturbance to functionally linked habitat and could not rule out likely significant effects.	Yes – HRA identified potential for scheme to result in loss of supporting habitat (i.e. functionally linked land).
2 – Sustainable Transport Fuels Facility DM/0664/19/FUL	No - HRA states that potential direct noise and vibration disturbance of SPA was scoped out of the assessment.	Yes - HRA states that significant effects would be unlikely, but included for further consideration as likely significant effects cannot be ruled out at this stage.	Yes - HRA states that significant effects would be unlikely, but included for further consideration as likely significant effects cannot be ruled out at this stage.

PLAN/ PROJECT	POTENTIAL LIKELY SIGNIFICANT CUMULATIVE EFFECT?		
	NOISE DISTURBANCE TO SPA/ RAMSAR	**NOISE DISTURBANCE TO FUNCTIONALLY LINKED HABITAT**	**LOSS OF FUNCTIONALLY LINKED HABITAT**
3 – Engineering Works – Paragon House SM/0147/16/FUL	No – due to distance from Estuary (c. 1.2 km) and presence of industrial areas between the scheme and the Estuary.	No - not considered in impact assessment therefore assume scoped out.	No – habitats not used by large aggregations of waterbirds above 1% Humber Estuary populations, and are not considered to be functionally linked to the SPA/ Ramsar.
4 – Renewable Energy Power Facility – Kiln Lane DM/0848/14/FUL	No - not considered in impact assessment therefore assume scoped out.	No - not considered in impact assessment therefore assume scoped out.	No – habitats within the scheme boundary are not suitable for wintering birds and therefore not functionally linked to the SPA/ Ramsar.
5 – Selvic Shipping CHP Boilers DM/0449/17/FUL	No – no potential for cumulative noise effects identified.	No – no potential for cumulative noise effects identified.	No – habitats not suitable for wintering birds and therefore not functionally linked to the SPA/ Ramsar.
6 – Waste Tyre Pyrolysis – Immingham Rail Freight DM/0333/17/FUL	No – no potential for cumulative noise effects identified.	No – no potential for cumulative noise effects identified.	No – habitats not suitable for wintering birds and therefore not functionally linked to the SPA/ Ramsar.

PLAN/ PROJECT	POTENTIAL LIKELY SIGNIFICANT CUMULATIVE EFFECT?		
	NOISE DISTURBANCE TO SPA/ RAMSAR	**NOISE DISTURBANCE TO FUNCTIONALLY LINKED HABITAT**	**LOSS OF FUNCTIONALLY LINKED HABITAT**
7 – VPI Immingham - Energy Park A PA/2018/918	No – HRA concluded no likely significant effects.	No – HRA concluded no likely significant effects.	No – habitats not suitable for wintering birds and therefore not functionally linked to the SPA/ Ramsar.
8 – Great Coates Renewable Energy Centre DM/0329/18/FUL	No – HRA concluded no likely significant effects. Operational noise levels within ambient range at Pyewipe mudflats.	No – HRA concluded no likely significant effects.	No – habitats not suitable for wintering birds and therefore not functionally linked to the SPA/ Ramsar.
9 – Waste to Energy – Immingham Rail Freight DM/0628/18/FUL	No - not considered in impact assessment therefore assume scoped out.	No - not considered in impact assessment therefore assume scoped out.	No – habitats not suitable for wintering birds and therefore not functionally linked to the SPA/ Ramsar.
10 – North Beck Energy Centre DM/0026/18/FUL	No – implementation of best practice construction methods means that there will be no potential for cumulative effects.	No – not considered in noise impact assessment so assume scoped out.	No – habitats not suitable for wintering birds and therefore not functionally linked to the SPA/ Ramsar.

PLAN/ PROJECT	POTENTIAL LIKELY SIGNIFICANT CUMULATIVE EFFECT?		
	NOISE DISTURBANCE TO SPA/ RAMSAR	**NOISE DISTURBANCE TO FUNCTIONALLY LINKED HABITAT**	**LOSS OF FUNCTIONALLY LINKED HABITAT**
11 – Stallingborough Interchange Business Park DM/0105/18/FUL	No – not specifically addressed in impact assessment, but reasonable to scope out on the basis of distance (*c*. 2 km from SPA/ Ramsar).	No – not considered in impact assessment so assume scoped out.	No – habitats do not support important assemblages of SPA/ Ramsar wintering birds and are therefore not functionally linked to the SPA/ Ramsar.
12 – VPI Immingham OCGT DCO EN010097	No – no potential for cumulative noise effects identified.	No – no potential for cumulative noise effects identified.	No – habitats do not support important assemblages of SPA/ Ramsar wintering birds and are therefore not functionally linked to the SPA/ Ramsar.
13 – 525 Residential Development DM/0728/18/OUT	No – not specifically addressed in impact assessment, but reasonable to scope out on the basis of distance (*c*. 2 km from SPA/ Ramsar).	No – not considered in impact assessment so assume scoped out.	No – habitats not suitable for wintering birds and therefore not functionally linked to the SPA/ Ramsar.

Table 6.2: HRA Signposting: Potential Likely Significant In-Combination Effects during Operation

PLAN/ PROJECT	POTENTIAL LIKELY SIGNIFICANT CUMULATIVE EFFECT?		
	AIR QUALITY	NOISE DISTURBANCE TO SPA/ RAMSAR	NOISE DISTURBANCE TO FUNCTIONALLY LINKED HABITAT
1 – Stallingborough Link Road DM/0094/18/ FUL	No – no potential for cumulative air quality effects identified.	No – HRA concluded that the distance of the scheme from the designated site (c. 1 km), along with visual screening provided by existing developments north-east of Moody Lane that were between the scheme and the SPA/ Ramsar, resulted in there being no potential for operational disturbance to qualifying features within the boundaries of the designations.	Yes – HRA concluded that there was potential for noise disturbance to functionally linked habitat and could not rule out likely significant effects due to an increase in ambient noise.
2 – Sustainable Transport Fuels Facility DM/0664/19/ FUL	Yes – ADMS 5 modelling has been undertaken to consider cumulative air quality effects.	No – due to distance from Estuary (c. 1 km) and presence of industrial areas between the scheme and the Estuary.	Yes - HRA states that significant effects would be unlikely, but included for further consideration as likely significant effects cannot be ruled out at this stage.
3 – Engineering Works – Paragon House SM/0147/16/ FUL	No – scheme will not result in emissions to air.	No – due to distance from Estuary (c. 1.2 km) and presence of industrial areas between the scheme and the Estuary.	No - not considered in impact assessment therefore assume scoped out.

PLAN/ PROJECT	POTENTIAL LIKELY SIGNIFICANT CUMULATIVE EFFECT?		
	AIR QUALITY	NOISE DISTURBANCE TO SPA/ RAMSAR	NOISE DISTURBANCE TO FUNCTIONALLY LINKED HABITAT
4 – Renewable Energy Power Facility – Kiln Lane DM/0848/14/ FUL	No – no potential for cumulative air quality effects identified. Air quality assessment for the scheme concluded that emissions were insignificant and would not affect the Humber Estuary designated site.	No – no potential for cumulative noise effects identified.	No – no potential for cumulative noise effects identified.
5 – Selvic Shipping CHP Boilers DM/0449/17/ FUL	No – no potential for cumulative air quality effects identified	No – no potential for cumulative noise effects identified.	No – no potential for cumulative noise effects identified.
6 – Waste Tyre Pyrolysis – Immingham Rail Freight DM/0333/17/ FUL	Yes – ADMS 5 modelling undertaken to consider cumulative air quality effects.	No – no potential for cumulative noise effects identified.	No – no potential for cumulative noise effects identified.
7 – VPI Immingham Energy Park A PA/2018/918	Yes – ADMS 5 modelling undertaken to consider cumulative air quality effects.	No – no potential for cumulative noise impacts identified	No – no potential for cumulative noise impacts identified

PLAN/ PROJECT	POTENTIAL LIKELY SIGNIFICANT CUMULATIVE EFFECT?		
	AIR QUALITY	NOISE DISTURBANCE TO SPA/ RAMSAR	NOISE DISTURBANCE TO FUNCTIONALLY LINKED HABITAT
8 – Great Coates Renewable Energy Centre DM/0329/18/ FUL	Yes – ADMS 5 modelling undertaken to consider cumulative air quality effects.	No – no potential for cumulative noise effects identified.	No – no potential for cumulative noise effects identified.
9 – Waste to Energy – Immingham Rail Freight DM/0628/18/ FUL	No – no potential for cumulative air quality effects identified. Scheme occupies the same space as Development Ref: 6 and it is not possible for both developments to occur.	No – noise impact assessment concluded that there would be no increase in ambient noise during operation.	No – noise impact assessment concluded that there would be no increase in ambient noise during operation.
10 – North Beck Energy Centre DM/0026/18/ FUL	Yes – ADMS 5 modelling undertaken to consider cumulative air quality effects.	No – no potential for cumulative noise effects identified.	No – no potential for cumulative noise effects identified.
11 – Stallingborough Interchange Business Park DM/0105/18/ FUL	No – information provided in the planning application is inadequate to undertake dispersion modelling.	No – operational noise for this scheme is 5dB below ambient levels.	No – not considered in impact assessment so assume scoped out.
12 – VPI Immingham OCGT DCO EN010097	Yes – ADMS 5 modelling undertaken to consider cumulative air quality effects.	No – no potential for cumulative noise effects identified.	No – no potential for cumulative noise effects identified.

PLAN/ PROJECT	POTENTIAL LIKELY SIGNIFICANT CUMULATIVE EFFECT?		
	AIR QUALITY	NOISE DISTURBANCE TO SPA/ RAMSAR	NOISE DISTURBANCE TO FUNCTIONALLY LINKED HABITAT
13 – 525 Residential Development DM/0728/18/ OUT	No – no potential for cumulative air quality effects identified due to the type of development.	No – no potential for cumulative noise effects identified.	No – no potential for cumulative noise effects identified.

7.0 STAGE 2: APPROPRIATE ASSESSMENT

7.1 Introduction

7.1.1 The Proposed Development has been identified at the HRA stage 1 screening as resulting in likely significant effects on the Humber Estuary SAC/ SPA/ Ramsar as a result of the following pathways:

- loss of functionally linked habitat used by SPA/ Ramsar waterbirds during construction of the Proposed Development alone and in-combination with other proposed developments;
- noise disturbance to SPA/ Ramsar waterbirds using Pyewipe mudflats during construction of the Proposed Development alone;
- noise disturbance to SPA/ Ramsar waterbirds using functionally linked arable field (Field 37) to the south of the Proposed Development during construction and operation of the Proposed Development alone and in-combination with other proposed developments;
- noise disturbance to SPA/ Ramsar waterbirds using functionally linked arable fields (Fields 30 and 31) to the north of the Proposed Development during construction and operation of the Proposed Development alone and in-combination with other proposed developments;
- visual disturbance to SPA/ Ramsar waterbirds using functionally linked arable field (Field 37) to the south of the Proposed Development during construction and operation of the Proposed Development alone and in combination with other proposed developments; and
- changes in air quality during the operation of the Proposed Development resulting in impacts on sensitive SAC/ Ramsar habitats alone and in combination with other proposed developments.

7.2 Construction Impacts

Loss of Functionally Linked Habitat

7.2.1 The loss of functionally linked habitat within the Main Development Area, in the absence of mitigation, has the potential to displace SPA/ Ramsar waterbirds, which could result in decreased resting/ feeding times and increased energy expenditure (as birds seek new areas to roost/ feed in that are further from the mudflats), and have subsequent impacts on body condition and winter survival rates.

7.2.2 When examining the potential for adverse effects on integrity, the Stage 2 appropriate assessment has taken into account the mitigation at Cress Marsh that has been delivered to meet Policy 9 of the Local Plan. Within the Mitigation Zone identified on the policies map, development proposals on greenfield land that adversely affect the Humber Estuary SPA/ Ramsar site due to the loss of functionally linked land are required to make contributions towards the provision and management of the mitigation sites identified. This is secured on a proportional approach relating to the site area. As the Site lies within the Mitigation Zone, as per the policy, the Applicant is required to commute a sum of

money based on the relevant site area lost to the Cress Marsh SHG strategic mitigation site.

7.2.3 The calculation of the sum of money required for the application of Policy 9 to the Proposed Development was undertaken for the Consented Development. The same will apply to the Proposed Development as the area of land to be lost is the same. The financial contribution for the Consented Development was secured by a Section 106 agreement and this provision would be varied to ensure that the financial contribution would also be secured for the Proposed Development (although the sum would only need to be paid once, for either the Consented Development or the Proposed Development). The relevant area of mitigation land at Cress Marsh has already been created by the Council.

7.2.4 There will therefore be no net loss of functionally linked habitat available for SPA/ Ramsar waterbirds.

7.2.5 It is considered that the rationale presented in ES Volume I Chapter 10: Ecology paragraphs 10.6.4 to 10.6.5, embedded mitigation and payment by the Applicant to of the sum of money towards the SHG strategic mitigation scheme (via a Section 106 agreement) as presented in ES Volume I Chapter 10: Ecology paragraphs 10.5.3 to 10.5.4 is sufficient to provide evidence that the Proposed Development will result in no adverse effects on the integrity of the Humber Estuary SPA/ Ramsar.

Noise Disturbance to Pyewipe Mudflats

7.2.6 The impact assessment has identified that construction noise during piling works will give rise to noise levels of up to 75 dB L_{Amax} at the nearest part of the mudflats to the Proposed Development. Noise levels of this magnitude may be expected to result in disturbance to birds. However, the assessment concludes that there would only be a minor adverse effect on birds given that there would be some attenuation of noise reaching the mudflats as a result of the seawall.

7.2.7 Predicted ambient noise levels across the nearest mudflats for the majority of the construction activities (excluding piling) are below 44 dB $L_{Aeq,1hr}$ and are therefore within the ambient range. The majority of construction activities would therefore not be expected to disturb birds.

7.2.8 Piling activity associated with construction would be temporary, and the elevated noise levels would only reach the portion of Pyewipe mudflats closest to the Main Development Area. This may result in some localised disturbance, which would likely cause displacement of waterbirds within the mudflat area, rather than causing them to leave the mudflats altogether. However, this would be temporary for the duration of the piling activity nearest the SPA/ Ramsar boundary, and thus would occur over a relatively short period of time (i.e. weeks rather than months). Any such short-term displacement would not reasonably be considered likely to adversely affect the survival of waterbirds, or result in them being permanently displaced from the Pyewipe mudflats or wider Estuary.

7.2.9 It is also necessary to examine the context of any temporary displacement of birds against the availability of large areas of this mudflat, which is at its narrowest point (and thus least area of exposed mudflat across low tide) in the closest part to the Proposed Development, and which extends for over 6 km south-east, that

would be unaffected by elevated noise resulting from piling. It is reasonable to assume that such a large area of mudflat would be able to accommodate any birds displaced from the area potentially affected by piling noise.

7.2.10 The ecological assessment of noise impacts on birds feeding, roosting and loafing at Pyewipe mudflats is presented in ES Volume I Chapter 10: Ecology paragraphs 10.6.8 to 10.6.14. It is concluded that piling noise reaching this location will not result in an adverse effect on the integrity of the Humber Estuary SPA/ Ramsar.

Noise Disturbance to Arable Field to the South (Field 37)

7.2.11 The potential for piling activity to result in the displacement of birds (either partially or entirely) from or within field 37, which is adjacent to the southern boundary of the Main Development Area, was identified in the ecological impact assessment. Although only temporary in duration given the limited duration of piling, this has the potential to result in increased energy expenditure while birds attempt to seek alternative feeding, roosting and loafing locations, and reduced feeding times over the high tide period when favoured mudflats are covered by seawater. This has implications on body condition and winter survival rates.

7.2.12 At this stage, the noise mitigation measures to be employed have not been fixed; this is to allow the contractor to determine the best available technique for noise abatement during the piling works which will be agreed with North East Lincolnshire Council. For the purposes of this HRA Signposting document, it is assumed that mitigation will comprise:

- seasonal piling restrictions – piling will be restricted for two hours either side of high tide in the period September to March inclusive, to avoid the most sensitive winter months, and the time period when birds are most likely to be present in the fields (i.e. when they are pushed off the coastal mudflats at high tide); and/ or
- Continuous Flight Auger (CFA) piling – this technique is virtually vibration free, and one of the quietest forms of piling because it does not require the loud 'bangs' associated with drop hammer piling techniques. If this technique is adopted, it will be possible to reduce construction noise to within ambient levels. The use of alternative piling methods e.g. CFA piling are expected to reduce the noise to 50 dB $L_{Aeq,1h}$ to mitigate impacts on waterbirds in the fields to the south of the Site (R4). This is up to 8 dB below the ambient noise level measured at the Site boundary. In addition, the nature of the noise from CFA piling is less disturbing to birds as there is no impulsive noise.

7.2.13 The assessment of piling noise on the field to the south of the Proposed Development is presented in ES Volume I Chapter 10: Ecology paragraphs 10.6.16 to 10.6.23. The mitigation measures are discussed in ES Volume I Chapter 10: Ecology paragraphs 10.7.2 to 10.7.3. Whilst the specific mitigation measures are not fixed at this stage, the commitment to implement appropriate mitigation (to be secured by DCO requirement) reduces the moderate adverse (significant) effect at Receptor R4 (field to south of the Site) before mitigation to a residual minor adverse effect (not significant) (see ES Volume I Chapter 10: Ecology, paragraph 10.9.4). It is therefore concluded that piling noise reaching

this location will not result in an adverse effect on the integrity of the Humber Estuary SPA/ Ramsar.

Noise Disturbance to Arable Fields to the North (Fields 30 and 31)

7.2.14 The potential for piling activity to result in the displacement of birds (either partially or entirely) from or within fields 30 and 31, which are on the opposite side of South Marsh Road to the Proposed Development, was identified in the ecological impact assessment. Although only temporary in duration given the limited duration of piling, this has the potential to result in increased energy expenditure while birds attempt to seek alternative feeding, roosting and loafing locations, and reduced feeding times over the high tide period when favoured mudflats are covered by seawater. This has implications on body condition and winter survival rates.

7.2.15 The assessment concluded that there could be minor localised displacement of birds within the fields, although it was considered that the noise levels were not sufficiently high to result in complete displacement from the fields, particularly given that the southern and western extents of these fields (particularly field 30) were subject to relatively high ambient noise levels as result of traffic along Hobson Way and South Marsh Road.

7.2.16 The assessment of piling noise on the fields to the north of the Proposed Development is presented in Chapter 10: Ecology paragraphs 10.6.24 to 10.6.28. It is concluded that piling noise reaching these locations will not result in an adverse effect on the integrity of the Humber Estuary SPA/ Ramsar.

Visual Disturbance to Arable Field to the South (Field 37)

7.2.17 The assessment concluded that there could be minor localised displacement of birds within the field given its proximity to construction works. Precautionary mitigation in the form of a 2.5 m high close-boarded fence will be installed along part of the southern boundary of the Site (see Figure 4.2 in ES Volume II, Document Ref. 6.3) to provide visual screening from vehicle and personnel movements during construction to any waterbirds feeding, roosting or loafing in the field. Construction temporary lighting will be arranged so that glare is minimised outside the construction site. Measures to minimise the impact of lighting are detailed in the ES Volume III Appendix 5A CEMP (ES Volume III, Document Ref. 6.4).

7.2.18 The assessment of visual impacts on the field to the south of the Proposed Development is presented in Chapter 10: Ecology paragraphs 10.6.30 to 10.6.32. Embedded mitigation measures are described in Chapter 10: Ecology paragraph 10.6.31. It is concluded that visual disturbance at this location will not result in an adverse effect on the integrity of the Humber Estuary SPA/ Ramsar.

7.3 Operational Impacts

Changes in Air Quality

7.3.1 The assessment of likely significant effects concluded that there was a risk of air quality impacts on the nearest sensitive habitats within the SAC/ Ramsar as a result of increased NOx emissions and increased nutrient N deposition during operation.

7.3.2 The assessment of air quality impacts on the relevant designated habitats is presented in ES Volume I Chapter 10: Ecology paragraphs 10.6.57 to 10.6.69. It is concluded that air quality impacts will not result in an adverse effect on the integrity of the Humber Estuary SPA/ Ramsar.

Visual Disturbance to Arable Field to the South (Field 37)

7.3.3 The precautionary mitigation in the form of a 2.5 m high close-boarded fence installed along part of the southern boundary of the Site (see Figure 4.2 in ES Volume II, Document Ref. 6.3) during construction (as described at paragraph 7.2.17 above) will be retained during operation to provide visual screening from vehicle and personnel movements to any waterbirds feeding, roosting or loafing in the field.

7.3.4 Operational lighting impacts beyond the Site boundary will be minimised as far as possible, for example by directing lighting away from adjacent habitats, in accordance with the Indicative Lighting Strategy (Document Ref 5.12).

7.4 In-Combination Impacts (Construction)

Losses of Functionally Linked Habitat

In-Combination Effects with Stallingborough Link Road and Sustainable Transport Fuels Facility

7.4.1 The applicants for these developments have committed to commuting sums of money via Local Plan Policy 9 to the SHG strategic mitigation scheme, which will draw down mitigation habitat. With this mitigation, there is therefore no potential for adverse in-combination effects on the integrity of the Humber Estuary SPA/ Ramsar as a result of the loss of functionally linked habitat.

Noise Disturbance to Functionally Linked Habitats

In-Combination Effects with Stallingborough Link Road and Sustainable Transport Fuels Facility

7.4.2 The cumulative (in-combination) noise and vibration assessment presented in Chapter 17: Cumulative and Combined Effects (ES Volume I, Document Ref. 6.2) concludes that the construction of the Proposed Development at the same time as the construction or use of the other developments would not result in a significant cumulative noise effect on functionally linked fields to the north and south of the Proposed Development. As described above the other developers will commit to commuting sums of money to enable mitigation habitat to be created. With this mitigation providing alternative bird habitat, and taking into account the proposed contributions to the SHG strategic mitigation scheme, there is therefore no potential for cumulative adverse effects the Humber Estuary SPA/ Ramsar as a result of construction disturbance to functionally linked habitat.

Visual Disturbance to Functionally Linked Habitats

In-Combination Effects with Stallingborough Link Road and Sustainable Transport Fuels Facility

7.4.3 Construction related visual impacts from the Proposed Development will be minimised through the installation of the 2.5 m high fence to the south of the Proposed Development and appropriate temporary lighting design. The

applicants for the other developments will also be required to ensure no adverse construction related visual effects to functionally linked habitats.

7.4.4 There is therefore considered to be no potential for adverse in-combination construction related visual effects to functionally linked habitats.

7.5 In-Combination Impacts (Operation)

Changes in Air Quality

In-Combination Effects with Waste Tyre Pyrolysis, VPI Immingham Energy Park A, Great Coates Renewable Energy Centre, North Beck Energy Centre, Sustainable Transport Fuels Facility and VPI Immingham OCGT DCO

7.5.1 The assessment of likely significant effects concluded that there was a risk of cumulative (in-combination) air quality impacts on the nearest sensitive habitats within the SAC/ Ramsar as a result of increased NO_x emissions and increased nutrient N deposition during the simultaneous operation of these developments.

7.5.2 The cumulative assessment for air quality is presented in ES Volume I Chapter 17: Cumulative and Combined Effects paragraphs 17.5.12 to 17.5.15 and paragraphs 17.8.6 to 17.8.15 and detailed in Appendix 7A in ES Volume III (Document Ref. 6.4). The assessment has concluded that there would be no adverse cumulative air quality effects on the Humber Estuary SAC/ SPA/ Ramsar, and it is considered that the assessment is sufficient to demonstrate no adverse effects on integrity for the Proposed Development in-combination with these other schemes.

Noise Disturbance to Functionally Linked Habitat

Cumulative Effects with Stallingborough Link Road and Sustainable Transport Fuels Facility

7.5.3 The cumulative (in-combination) noise and vibration assessment presented in Chapter 17: Cumulative and Combined Effects (ES Volume I, Document Ref. 6.2) concludes that the operation of the Proposed Development at the same time as the construction or use of other developments would not result in a significant cumulative noise effect. The other developers will also be required to commit to commuting a sum of money via Local Plan Policy 9 to the South Humber Gateway strategic mitigation scheme. With this mitigation providing alternative bird habitat, and taking into account the proposed contribution to the SHG strategic mitigation scheme for the Proposed Development, there is therefore no potential for cumulative adverse effects the Humber Estuary SPA/ Ramsar as a result of operational disturbance to functionally linked habitat.

8.0 CONCLUSIONS

8.1.1 The Proposed Development will be constructed on land adjacent to the Humber Estuary SAC/ SPA/ Ramsar site, and will result in the loss of habitat that is considered functionally linked to the SPA/ Ramsar site due to the aggregations of feeding, roosting and loafing waterbirds it supports over the high tide period.

8.1.2 Mitigation for this loss will be delivered through the SHG strategic mitigation approach which has been put in place through the North East Lincolnshire Local Plan (Policy 9). It is therefore concluded that the loss of functionally linked habitat within the Site will not result in any adverse effects on the integrity of the Humber Estuary SPA/ Ramsar.

8.1.3 There are two other developments proposed in the area that will result in the loss of functionally linked habitat in the vicinity of the Site (Stallingborough Link Road and Sustainable Transport Fuels Facility), and the potential for likely significant effects was identified at the HRA screening stage. However, these other developments are also committed to the delivery of habitat mitigation through the SHG strategic mitigation route, so it is concluded that there would be no adverse effects on the Humber Estuary SPA/ Ramsar in-combination with the Proposed Development as a result of the losses of functionally linked habitat.

8.1.4 Likely significant effects as a result of noise impacts during construction (primarily associated with drop hammer piling noise) were identified at the HRA screening stage. However, following detailed assessment in ES Volume I (Document Ref. 6.2) Chapter 8: Noise and Vibration, Chapter 10: Ecology and Chapter 17: Cumulative and Combined Effects and, it is concluded that construction noise would not give rise to an adverse effect on the integrity of the Humber Estuary SAC/ SPA/ Ramsar site. This conclusion applies to the Proposed Development alone or in-combination with other plans or projects.

8.1.5 Likely significant effects as a result of noise impacts during operation were also identified at the HRA screening stage. However, following detailed assessment in Chapter 8: Noise and Vibration, Chapter 10: Ecology and Chapter 17: Cumulative and Combined Effects, it is concluded that construction noise would not give rise to an adverse effect on the integrity of the Humber Estuary SAC/ SPA/ Ramsar site, alone or in-combination with other plans or projects.

8.1.6 Likely significant effects as a result of changes in air quality during operation were identified at the HRA screening stage. However, following detailed assessment in Chapter 7: Air Quality, it is concluded that cumulative air quality impacts will not result in an adverse effect on the integrity of the Humber Estuary SAC/ SPA/ Ramsar site, alone or in-combination with all other plans or projects that have been assessed to date.

9.0 REFERENCES

European Commission (2007) *Guidance Document on Article 6(4) of the 'Habitats Directive' 92/43/EEC. Published online:*

http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/guidance_art6_4_en.pdf

European Commission (2001) *Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.*

Planning Inspectorate (2017) *Advice Note Ten: Habitats Regulations Assessment Relevant to Nationally Significant Infrastructure Projects, version 4, November 2017*

APPENDIX 1: PLANNING INSPECTORATE HRA SCREENING MATRICES

Table 1A.1: Effects Considered Within the Screening Matrices

DESIGNATION	EFFECTS DESCRIBED IN SUBMISSION INFORMATION	PRESENTED IN SCREENING MATRICES AS
Humber Estuary SAC	Deterioration in air quality	Air quality
	Deterioration in water quality during construction or operation	Water quality
Humber Estuary SPA	Displacement of qualifying species using functionally linked habitat	Loss of functionally linked habitat
	Deterioration in water quality during construction or operation	Water quality
	Deterioration in air quality	Air quality
	Disturbance of qualifying species using functionally linked habitat	Noise / visual disturbance
Humber Estuary Ramsar site	Displacement of qualifying species using functionally linked habitat	Loss of functionally linked habitat
	Deterioration in water quality during construction or operation	Water quality
	Deterioration in air quality	Air quality
	Disturbance/ displacement of qualifying species using functionally linked habitat	Noise/ visual disturbance

1A.1 The European sites included within this screening assessment are:

- Humber Estuary SAC;
- Humber Estuary SPA; and
- Humber Estuary Ramsar site.

1A.2 Evidence for, or against, likely significant effects on the European site(s) and its qualifying feature(s) is detailed as necessary within the footnotes to the screening matrices below.

Matrix key:

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

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

NA = feature not susceptible to potential effect OR is outside the zone of influence

C = construction

O = operation

D = decommissioning

Table 1A.2: Screening Matrix for Humber Estuary SAC

QUALIFYING FEATURES	LIKELY EFFECTS OF PROPOSED DEVELOPMENT											
EFFECT	AIR QUALITY			AIR QUALITY IN-COMBINATION EFFECTS			WATER QUALITY			WATER QUALITY IN-COMBINATION EFFECTS		
STAGE OF PROPOSED DEVELOPMENT	C	O	D	C	O	D	C	O	D	C	O	D
Estuaries	NA	NA	NA	NA	NA	NA	×a	×a	×a	×a	×a	×a
Mudflats and sandflats not covered by seawater at low tide	NA	NA	NA	NA	NA	NA	×a	×a	×a	×a	×a	×a
Sandbanks which are slightly covered by seawater all the time	NA	NA	NA	NA	NA	NA	×a	×a	×a	×a	×a	×a
Coastal lagoons	NA	NA	NA	NA	NA	NA	×a	×a	×a	×a	×a	×a
Salicornia and other annuals colonizing mud and sand	NA	NA	NA	NA	NA	NA	×a	×a	×a	×a	×a	×a
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	NA	NA	NA	NA	NA	NA	×a	×a	×a	×a	×a	×a

QUALIFYING FEATURES	LIKELY EFFECTS OF PROPOSED DEVELOPMENT											
EFFECT	AIR QUALITY			AIR QUALITY IN-COMBINATION EFFECTS			WATER QUALITY			WATER QUALITY IN-COMBINATION EFFECTS		
STAGE OF PROPOSED DEVELOPMENT	C	O	D	C	O	D	C	O	D	C	O	D
Embryonic shifting dunes	×b	✓c	×b	×b	✓c	×b	NA	NA	NA	NA	NA	NA
Shifting dunes along the shoreline with European marram grass (white dunes)	×b	✓c	×b	×b	✓c	×b	NA	NA	NA	NA	NA	NA
Fixed coastal dunes with herbaceous vegetation (grey dunes)	×b	✓c	×b	×b	✓c	×b	NA	NA	NA	NA	NA	NA
Dunes with common sea buckthorn	×b	✓c	×b	×b	✓c	×b	NA	NA	NA	NA	NA	NA
River lamprey	NA	NA	NA	NA	NA	NA	×a	×a	×a	×a	×a	×a
Sea lamprey	NA	NA	NA	NA	NA	NA	×a	×a	×a	×a	×a	×a
Grey seal	NA	NA	NA	NA	NA	NA	×a	×a	×a	×a	×a	×a

a. Standard environmental measures to control pollution to the drains during construction, operation and decommissioning will adequately minimise risk to local surface water bodies (consequently minimising risk to the Humber Estuary too).

b. Habitat type not within the zone of influence of dust emissions during construction/ decommissioning and therefore no pathway for likely significant effects.

c. Emissions to air of nutrient nitrogen and NOx will result in increases in the critical levels and loads respectively at the nearest part of the SAC. This pathway is assessed in paragraphs 10.6.55 to 10.6.68 in the ES Volume I, Chapter 10: Ecology (Document Ref. 6.2), which concluded no adverse effect on the SAC. The Stage 2 Appropriate Assessment conclusion is therefore **no adverse effects on the integrity of the SAC**.

Table 1A.3: Screening Matrix for Humber Estuary SPA

QUALIFYING FEATURES	LIKELY EFFECTS OF PROPOSED DEVELOPMENT											
EFFECT	LOSS OF FUNCTIONALLY LINKED HABITAT			LOSS OF FUNCTIONALLY LINKED HABITAT IN COMBINATION EFFECTS			VISUAL DISTURBANCE			VISUAL DISTURBANCE IN COMBINATION EFFECTS		
STAGE OF PROPOSED DEVELOPMENT	C	O	D	C	O	D	C	O	D	C	O	D
Populations of European importance of Annex I and Annex II non-breeding wildfowl and wading birds	✓a	×	×	✓a	×	×	✓b	×c	×c	×c	×c	×c
Internationally important assemblage of migratory and wintering birds	✓a	×	×	✓a	×	×	✓b	×c	×c	×c	×c	×c

QUALIFYING FEATURES	LIKELY EFFECTS OF PROPOSED DEVELOPMENT																	
EFFECT	**WATER QUALITY**			**WATER QUALITY IN COMBINATION EFFECTS**			**AIR QUALITY**			**AIR QUALITY IN COMBINATION EFFECTS**			**NOISE DISTURBANCE**			**NOISE DISTURBANCE IN COMBINATION EFFECTS**		
STAGE OF PROPOSED DEVELOPMENT	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**
Populations of European importance of Annex I and Annex II non-breeding wildfowl and wading birds	×d	× d	× d	× d	× d	×d	NA	NA	NA	NA	NA	NA	✓e	×f	×	✓g	✓g	×
Internationally important assemblage of migratory and wintering birds	×d	× d	× d	× d	× d	×d	NA	NA	NA	NA	NA	NA	✓e	×f	×	✓**g**	✓g	×

a. Loss of habitat will be addressed through Policy 9 of NE Lincs Local Plan with drawdown from the SHG strategic mitigation at Cress Marsh. Impacts on this feature will therefore be avoided, however this has not been taken into account in the Stage 1 screening due to the *People over Wind* ruling. This pathway is therefore screened into the Stage 2 Appropriate Assessment. This is also the case for the two developments identified in Table 6.1 as having the potential to result in likely significant

effects in combination with the Proposed Development, which will also pay into the SHG strategic mitigation scheme at Cress Marsh.

b. Paragraph 10.6.29 of the ES Volume I, Chapter 10: Ecology (Document Ref. 6.2) states that there is minimal risk of visual disturbance to birds within the SAC/ Ramsar as the seawall provides substantial screening to birds on the mudflats. However, there is a risk of visual disturbance to birds using the fields to thesouth that is functionally linked. This is assessed in paragraphs 10.6.30 to 10.6.32 of the ES Volume I, Chapter 10: Ecology.

c. Reasonable to assume that waterbirds are habituated to presence of existing power station; Proposed Development operation not significantly different to this.

d. Standard environmental measures to control pollution to the drains during construction, operation and decommissioning will adequately minimise risk to local surface water bodies (consequently minimising risk to the Humber Estuary too).

e. Paragraphs 10.6.8 to 10.6.27 in ES Volume I, Chapter 10: Ecology (Document Ref. 6.2) states that piling activity (drop hammer piling) during construction results in peak noise above ambient levels at the nearest part of the SAC/ Ramsar, and at the nearest parts of the fields to the north and south (Field 37) that are used by SPA/ Ramsar birds and therefore functionally linked to the designated site. Mitigation measures are proposed (to be secured by DCO requirement).

f. Predicted operational noise levels are within ambient range at the nearest part of the SPA/ Ramsar, and the fields to the north and south which are functionally linked.

g. Table 6.1 identifies two developments that could potentially result in likely significant effects in combination with the Proposed Development.

Table 1A.4: Screening Matrix for Humber Estuary Ramsar Site

QUALIFYING FEATURES	LIKELY EFFECTS OF PROPOSED DEVELOPMENT											
EFFECT	LOSS OF FUNCTIONALLY LINKED HABITAT			LOSS OF FUNCTIONALLY LINKED HABITAT IN COMBINATION EFFECTS			VISUAL DISTURBANCE			VISUAL DISTURBANCE IN COMBINATION EFFECTS		
STAGE OF PROPOSED DEVELOPMENT	C	O	D	C	O	D	C	O	D	C	O	D
Internationally important populations of non-breeding wildfowl and waders	✓a	×	×	✓a	×	×	✓b	×f	×f	✓b	×f	×f

QUALIFYING FEATURES	LIKELY EFFECTS OF PROPOSED DEVELOPMENT																	
EFFECT	WATER QUALITY			WATER QUALITY IN COMBINATION EFFECTS			AIR QUALITY			AIR QUALITY IN COMBINATION EFFECTS			NOISE DISTURBANCE			NOISE DISTURBANCE IN COMBINATION EFFECTS		
Stage of Proposed Development	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**	**C**	**O**	**D**
Estuarine habitats including dune systems, intertidal mud and sand flats, saltmarshes and brackish lagoons	×c	×c	×c	×c	×c	×c	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Grey seal	×c	×c	×c	×c	×c	×c	NA	NA	NA	NA	NA	NA	×e	×e	×e	×e	×e	×e
Natterjack toad	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

QUALIFYING FEATURES	LIKELY EFFECTS OF PROPOSED DEVELOPMENT																	
EFFECT	**WATER QUALITY**			**WATER QUALITY IN COMBINATION EFFECTS**			**AIR QUALITY**			**AIR QUALITY IN COMBINATION EFFECTS**			**NOISE DISTURBANCE**			**NOISE DISTURBANCE IN COMBINATION EFFECTS**		
Internationally important populations of non-breeding wildfowl and waders	×c	×c	×c	×c	×c	×c	NA	NA	NA	NA	NA	NA	✓d	Xf, g	Xe, g	Xh	Xh	Xh
Migrating river lamprey and sea lamprey	×c	×c	×c	×c	×c	×c	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

a. Loss of habitat will be addressed through Policy 9 of NE Lincs Local Plan with drawdown from the SHG strategic mitigation at Cress Marsh. Impacts on this feature will therefore be avoided, however this has not been taken into account in the Stage 1 screening due to the *People over Wind* ruling. This pathway is therefore screened into the Stage 2 Appropriate Assessment. This is also the case for the two developments identified in Table 6.1 as having the potential to result in likely significant effects in combination with the Proposed Development, which will also pay into the SHG strategic mitigation scheme at Cress Marsh.

b. Paragraph 10.6.29 of the ES Volume I, Chapter 10: Ecology (Document Ref. 6.2) states that there is minimal risk of visual disturbance to birds within the SAC/ Ramsar as the seawall provides substantial screening to birds on the mudflats. However, there is a risk of visual disturbance to birds using the fields to the north and south that are functionally linked. However the assessment in the ES concludes that this will not be significant. Similarly, no significant in combination effects were identified.

c. Paragraphs 10.6.33 to 10.6.35 of the ES Volume I, Chapter 10: Ecology (Document Ref. 6.2) state that standard environmental measures to control pollution to the drains during construction phase will adequately minimise risk to local surface water bodies (consequently minimising risk to the Humber Estuary too) during construction, operation and decommissioning.

d. Paragraphs 10.6.8 to 10.6.28 of the ES Volume I, Chapter 10: Ecology (Document Ref. 6.2) states that piling activity (drop hammer piling) during construction results in peak noise above ambient levels at the nearest part of the SAC/ Ramsar, and at the nearest parts of the fields to the north and south (Field 37) that are used by SPA/ Ramsar birds and therefore functionally linked to the designated site. The assessment concluded that the elevated noise levels would not be sufficiently loud to displace waterbirds.

e. Feature is not within the zone of influence and is therefore screened out. The nearest grey seal breeding colony is over 30 km to the east at Donna Nook.

f. Reasonable to assume that waterbirds are habituated to presence of existing power station; Proposed Development operation not significantly different to this.

APPENDIX 2: PLANNING INSPECTORATE HRA INTEGRITY MATRICES

2A.1 Where Likely Significant Effects (LSE) upon the sites were identified in the screening stage, the sites have been subject to further assessment in order to establish if the NSIP could have an adverse effect on their integrity. Evidence for the conclusions reached on integrity is detailed within the footnotes to the matrices below.

Matrix Key

✓ = Adverse effect on integrity cannot be excluded

× = Adverse effect on integrity can be excluded

C = construction

O = operation

D = decommissioning

Table 2A.1: Integrity Matrix for Humber Estuary SAC

QUALIFYING FEATURES	ADVERSE EFFECT ON INTEGRITY											
EFFECT	AIR QUALITY			AIR QUALITY IN COMBINATION EFFECTS			WATER QUALITY			WATER QUALITY IN COMBINATION EFFECTS		
STAGE OF PROPOSED DEVELOPMENT	C	O	D	C	O	D	C	O	D	C	O	D
Embryonic shifting dunes		× [a]			× [a]							
Shifting dunes along the shoreline with		× [a]			× [a]							

QUALIFYING FEATURES	ADVERSE EFFECT ON INTEGRITY												
EFFECT	AIR QUALITY			AIR QUALITY IN COMBINATION EFFECTS			WATER QUALITY			WATER QUALITY IN COMBINATION EFFECTS			
European marram grass (white dunes)													
Fixed coastal dunes with herbaceous vegetation (grey dunes)		✗ a			✗ a								
Dunes with common sea buckthorn		✗ a			✗ a								

a. Emissions to air of nutrient nitrogen and NOx will result in increases in the critical levels and loads respectively at the nearest part of the SAC. This pathway is assessed in paragraphs 10.6.57 to 10.6.66 in the ES, which concluded no adverse effect on the SAC. The Stage 2 Appropriate Assessment conclusion is therefore **no adverse effects on the integrity of the SAC**.

Table 2A.2: Screening Matrix for Humber Estuary SPA

QUALIFYING FEATURES	ADVERSE EFFECT ON INTEGRITY											
EFFECT	LOSS OF FUNCTIONALLY LINKED HABITAT			LOSS OF FUNCTIONALLY LINKED HABITAT IN COMBINATION EFFECTS			VISUAL DISTURBANCE			VISUAL DISTURBANCE IN COMBINATION EFFECTS		
STAGE OF PROPOSED DEVELOPMENT	C	O	D	C	O	D	C	O	D	C	O	D
Populations of European importance of Annex I and Annex II non-breeding wildfowl and wading birds	✕[a]			✕[a]			✕[b]					
Internationally important assemblage of migratory and wintering birds	✕[a]			✕[a]			✕[b]					

QUALIFYING FEATURES	ADVERSE EFFECT ON INTEGRITY																	
EFFECT	WATER QUALITY			WATER QUALITY IN COMBINATION EFFECTS			AIR QUALITY			AIR QUALITY IN COMBINATION EFFECTS			NOISE DISTURBANCE			NOISE DISTURBANCE IN COMBINATION EFFECTS		
STAGE OF PROPOSED DEVELOPMENT	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Populations of European importance of Annex I and Annex II non-breeding wildfowl and wading birds													×[c]			×[d]	×[d]	
Internationally important assemblage of migratory and wintering birds													×[c]			×[d]	×[d]	

a. Loss of habitat will be addressed through Policy 9 of NE Lincs Local Plan with drawdown from the SHG strategic mitigation at Cress Marsh. Impacts on this feature will therefore be avoided, however this has not been taken into account in the Stage 1 screening due to the *People over Wind* ruling. This pathway is therefore screened into the Stage 2 Appropriate Assessment. With this mitigation in place, it is concluded that there will be **no adverse effect on the integrity of the SPA/**

Ramsar. This is also the case for the two developments identified in Table 6.1 as having the potential to result in likely significant effects in combination with the Proposed Development, which will also pay into the SHG strategic mitigation scheme at Cress Marsh.

b. Paragraph 10.6.29 of the ES states that there is minimal risk of visual disturbance to birds within the SAC/ Ramsar as the seawall provides substantial screening to birds on the mudflats. However, there is a risk of visual disturbance to birds using the field to the south that is functionally linked. This is assessed in paragraphs 10.6.30 to 10.6.32 of the ES, and it is therefore concluded at the Stage 2 Assessment that there will be **no adverse effect on the integrity of the SPA/ Ramsar**.

c. Paragraphs 10.6.8 to 10.6.28 states that piling activity (drop hammer piling) during construction results in peak noise above ambient levels at the nearest part of the SAC/ Ramsar, and at the nearest parts of the fields to the north and south (Field 37) that are used by SPA/ Ramsar birds and therefore functionally linked to the designated site. Mitigation measures are proposed (to be secured by DCO requirement) (see paragraphs 10.7.2 to 10.7.3). The Stage 2 Appropriate Assessment therefore concludes that there will be **no adverse effect on the integrity of the SPA/ Ramsar**.

d. Table 6.1 identifies two developments that could potentially result in likely significant effects in combination with the Proposed Development. However, any displacement of birds will be offset by the mitigation habitat delivered at Cress Marsh, and therefore it is concluded in the Stage 2 Appropriate Assessment that there will be **no adverse effect on the integrity of the SPA/ Ramsar**.

Table 2A.3: Screening Matrix for Humber Ramsar site

QUALIFYING FEATURES	ADVERSE EFFECT ON INTEGRITY											
EFFECT	LOSS OF FUNCTIONALLY LINKED HABITAT			LOSS OF FUNCTIONALLY LINKED HABITAT IN COMBINATION EFFECTS			VISUAL DISTURBANCE			VISUAL DISTURBANCE IN COMBINATION EFFECTS		
STAGE OF PROPOSED DEVELOPMENT	C	O	D	C	O	D	C	O	D	C	O	D
Internationally important populations of non-breeding wildfowl and waders	×[a]			×[a]			×[b]			×[b]		

QUALIFYING FEATURES	ADVERSE EFFECT ON INTEGRITY																	
EFFECT	WATER QUALITY			WATER QUALITY IN COMBINATION EFFECTS			AIR QUALITY			AIR QUALITY IN COMBINATION EFFECTS			NOISE DISTURBANCE			NOISE DISTURBANCE IN COMBINATION EFFECTS		
STAGE OF PROPOSED DEVELOPMENT	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Internationally important populations of non-breeding wildfowl and waders													×[c]					

a. Loss of habitat will be addressed through Policy 9 of NE Lincs Local Plan with drawdown from the SHG strategic mitigation at Cress Marsh. Impacts on this feature will therefore be avoided, however this has not been taken into account in the Stage 1 screening due to the *People over Wind* ruling. This pathway is therefore screened into the Stage 2 Appropriate Assessment. With this mitigation in place, it is concluded that there will be **no adverse effect on the integrity of the SPA/ Ramsar**. This is also the case for the two developments identified in Table 6.1 as having the potential to result in likely significant effects in combination with the Proposed Development, which will also pay into the SHG strategic mitigation scheme at Cress Marsh.

b. Paragraph 10.6.29 states that there is minimal risk of visual disturbance to birds within the SAC/ Ramsar as the seawall provides substantial screening to birds on the mudflats. However, there is a risk of visual disturbance to birds using the field to the south that is functionally linked. However the assessment in the ES concludes that this will not be significant, and therefore the Stage 2 Appropriate Assessment has concluded that there will be no adverse effect on the integrity of the SPA/ Ramsar. Similarly, no significant in combination effects were identified.

c. Paragraphs 10.6.8 to 10.6.28 states that piling activity (drop hammer piling) during construction results in peak noise above ambient levels at the nearest part of the SAC/ Ramsar, and at the nearest parts of the fields to the north and south (Field 37) that are used by SPA/ Ramsar birds and therefore functionally linked to the designated site. Mitigation measures are proposed (to be secured by DCO requirement) (see paragraphs 10.7.2 to 10.7.3). The Stage 2 Appropriate Assessment therefore concludes that there will be **no adverse effect on the integrity of the SPA/ Ramsar**.