VikingCCS

Viking CCS Pipeline

Environmental Statement Volume II - Chapter 6: Ecology and Biodiversity

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6.1 Introduction

6.1.1 This chapter of the Environment Statement (ES) presents the results of an assessment of the likely significant effects of the Viking CCS Pipeline (the Proposed Development) on ecology and biodiversity during construction, operation and decommissioning. The assessment includes consideration of impacts to sensitive ecological features such as designated sites, habitats of principal importance and protected and notable species.

6.1.2 Ecology and biodiversity are interrelated with other environmental effects and so this chapter should be read in conjunction with other *ES Volume II chapters (Application Document 6.2)*, including:

- Chapter 7: Landscape and Visual;
- Chapter 11: Water Environment;
- Chapter 13: Noise and Vibration;
- Chapter 14: Air Quality; and,
- Chapter 20: Cumulative Effects Assessment.

6.1.3 This chapter is supported by Figures 6-1 to 6-3 (higher resolution versions are included in *ES Volume III: Figures, Application Document 6.3*) and additional information contained in the following appendices:

- Appendix 6.1: Phase 1 Habitat Survey Report (*Application Document 6.4.6.1*);
- Appendix 6.2: Bat Survey Report (*Application Document 6.4.6.2*);
- Appendix 6.3: Otter and Water Vole Survey (*Application Document 6.4.6.3*);
- Appendix 6.4: Badger Survey Report (Confidential) (*Application Document 6.4.6.4*);
- Appendix 6.5: Hedgerow Survey Report (*Application Document 6.4.6.5*);
- Appendix 6.6: Aquatic Ecology Survey Report (*Application Document 6.4.6.6*);
- Appendix 6.7: Ornithology Baseline Report (*Application Document 6.4.6.7*);
- Appendix 6.8: Ornithology and Impact Assessment Report (Confidential) (*Application Document 6.4.6.8*);
- Appendix 6.9: GCN District Level Licensing Certificate (*Application Document 6.4.6.9*); and
- Appendix 6.10: Arboricultural Impact Assessment (AIA) Report (*Application Document 6.4.6.10*).

6.1.4 In addition to the above documents, this Chapter should be read with reference to the Report to inform Habitats Regulations Assessment (HRA) (*Application document 6.5*), the Initial Biodiversity Net Gain Assessment (*Application Document 6.7.1*), the Draft Biodiversity Net Gain Strategy (*Application Document 6.7.2*) and the Outline Landscape and Ecology Management Plan (OLEMP) (*Application Document 6.8*).

6.2 Legislation, Policy and Guidance

Introduction

6.2.1 This section provides an overview of the legislation, planning policy and technical guidance relevant to the ecology and biodiversity assessment.

Legislation

The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations) (as amended) (Ref 6-1)

6.2.2 The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations) consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive), into national law. They also transpose elements of Directive 2009/147/EC on the conservation of wild birds (the Birds Directive) in England and Wales.

6.2.3 All species listed under Annex IV of the Habitats Directive require strict protection and are known as European Protected Species (EPS). Under Regulation 42 of the Habitats Regulations, it is unlawful to: Deliberately kill, capture or disturb; Deliberately take or destroy the eggs of; and Damage or destroy the breeding site/resting place of any species protected under this legislation.

6.2.4 If it is determined that impacts to an EPS are unavoidable then the works may need to be carried out under a site-specific mitigation licence from the relevant statutory body.

6.2.5 Certain EPS are also listed under Annex II of the Habitats Directive and are afforded protection by the establishment of core areas of habitat known as Special Areas of Conservation (SACs). This means these species are a relevant consideration in a Habitats Regulations Assessment (HRA) (see Habitats Regulations Assessment, *Application Document* 6.5 for further detail).

6.2.6 The Birds Directive seeks to maintain populations of all wild bird species across their natural range (Article 2). All bird species listed under Annex I of the Birds Directive are rare or vulnerable and afforded protection by the classification of Special Protection Areas (SPAs) or Ramsar, these are also designated under all regularly occurring migratory species, with regard to the protection of wetlands of international importance (Article 4). This means these bird species and communities are a relevant consideration in an HRA.

The Wildlife and Countryside Act 1981 (WCA) (Ref. 6-2)

6.2.7 Protected birds, animals and plants are listed under Schedules 1, 5, 8 and 9 respectively of the Wildlife and Countryside Act 1981 (WCA).

6.2.8 Birds listed under Schedule 1 of the WCA are afforded additional protection with regard to intentional or reckless disturbance whilst nest-building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

6.2.9 Species listed in Schedule 5 can either be fully protected or be partially protected under Section 9, which makes it unlawful to intentionally: kill, injure or take; possess or control (live or dead animal, part or derivative); damage or destruct any structure used for shelter or protection; disturb them in a place of shelter or protection; obstruct access to place of shelter or protection; sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative); and advertise for buying or selling.

6.2.10 The Act makes it an offence (subject to exceptions) to pick, uproot, trade in, or possess (for the purposes of trade) any wild plant listed in Schedule 8.

6.2.11 Invasive species listed under Schedule 9 are prohibited from release into the wild and the Act prohibits planting or "causing to grow" in the wild of any plant species listed in Schedule 9. It should be noted that certain bird species listed on Schedule 1 of the WCA are also listed on Schedule 9 to prevent release of non-native and captive individuals, this includes barn owl, red kite, goshawk and corncrake.

6.2.12 Under the WCA, all birds, their nests and eggs (with exception of species listed under Schedule 2) are protected by the WCA.

Countryside Rights of Way Act 2000 (Ref. 6-3)

6.2.13 The Countryside and Rights of Way (CRoW) Act has amended the WCA in England and Wales strengthening the protection afforded to Sites of Special Scientific Interest (SSSI) and the legal protection for threatened species. It adds the word 'reckless' to the wording of the offences listed under Section 9(4) of the WCA. This alteration makes it an offence to recklessly commit an offence, where previously an offence had to be intentional to result in a breach of legislation.

The Natural Environment and Rural Communities (NERC) Act 2006 (Ref. 6-4)

6.2.14 Species and Habitats of Principal Importance are listed under Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC Act). Section 41 requires the Secretary of State to publish a list of species that are of principal importance for the conservation of biodiversity in England and should be used to guide decision-makers such as local and regional authorities when implementing their duty to have regard for the conservation of biodiversity in the exercise of their normal functions, as required under Section 40 of the NERC Act.

The Protection of Badgers Act 1992 (Ref. 6-5)

6.2.15 It is an offence to wilfully take, kill, injure, possess or ill-treat a badger. Under the Protection of Badgers Act 1992 their setts are protected against intentional or reckless interference. Sett interference includes damaging or destroying a sett, obstructing access to any part of the sett, or disturbance of a badger whilst it is occupying a sett. The Act defines a badger sett as 'any structure or place, which displays signs indicating the current use by a badger' and statutory bodies takes this definition to include seasonally used setts that are not occupied but that show sign of recent use by badgers.

The Hedgerows Regulations 1997 (Ref. 6-6)

6.2.16 Under The Hedgerows Regulations 1997 (the Hedgerows Regulations) it is an offence to remove a hedgerow (as defined within the Regulations) without obtaining local planning authority (LPA) permission. Should the hedgerow be deemed unimportant according to the criteria within the Regulations, the LPA is obliged to allow removal; however, if the hedgerow qualifies as 'Important' under the Regulations the LPA must decide whether the reasons for removal justify the loss of an 'Important Hedgerow', with a presumption for retention.

The Wild Mammals (Protection) Act 1996 (Ref. 6-7)

6.2.17 The Wild Mammals (Protection) Act 1996 provides protection for wild mammals against certain acts of deliberate harm. "Wild mammal" means any mammal which is not a "protected animal" within the meaning of the Animal Welfare Act 2006 (Schedule 3, Section 13 of the 2006 Act). The following offences are specified in relation to any wild mammal: to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate. The offences require proof of intent to inflict unnecessary suffering.

Salmon and Freshwater Fisheries Act 1975 (Ref. 6-8)

6.2.18 This Act covers regulation of fisheries in England and Wales and includes legislation that covers the introduction of polluting effluents, the obstruction of fish passage (screens, dams,

weirs, culverts etc) illegal means of fishing, permitted times of legal fishing and fishing licencing (which covers electric fishing).

6.2.19 Under this act any person who causes or knowingly permits to flow, or puts or knowingly permits to be put, into any waters containing fish or into any tributaries of waters containing fish, any liquid or solid matter to such an extent as to cause the waters to be poisonous or injurious to fish or the spawning grounds, spawn or food of fish, shall be guilty of an offence.

6.2.20 The act also requires that fish passes are installed on new and rebuilt barriers that affect waters frequented by salmon or migratory trout. In the future, it is likely that fish passage facilities will need to be designed to accommodate all fish species and life stages, with nature-like bypass channels being the most appropriate solution currently available.

The Eels (England and Wales) Regulations 2009 (Ref. 6-9)

6.2.21 The Eels (England and Wales) Regulations 2009 implement Council Regulation (EC) No 1100/2007 of the Council of the European Union, which required Member States to establish measures for the recovery of the stock of European eel. The regulations apply to England and Wales.

6.2.22 They give powers to the regulators (the Environment Agency in respect of the Proposed Development) to implement recovery measures in all freshwater and estuarine waters in England and Wales. The aim of the regulations is to achieve 40 per cent escapement of adult eels relative to escapement levels under pristine conditions. The measures, as set out in the legislation, by which this is to be achieved are to reduce fishing pressures, improve access and habitat quality and reduce the impact of impingement and entrainment.

6.2.23 Under the Regulations, the Environment Agency can serve notice to companies detailing their legal obligation to screen intakes and outfalls for eel and/or to remove or modify obstructions to eel migration. However, it is possible for companies to be granted with exemptions if the costs of works greatly exceeds the benefits. In such a situation it is likely the regulator will seek a package of more cost-effective, “alternative measures”.

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (2000/60/EC) (Ref. 6-10)

6.2.24 The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 revoke and replace the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003. They continue to transpose for England and Wales Directive 2000/60/EC establishing a framework for Community action in the field of water policy (the Water Framework Directive).

6.2.25 They also transpose aspects of Directive 2006/118/EEC on the protection of groundwater against pollution and deterioration (the Groundwater Directive) and of Directive 2008/105/EC on environmental quality standards in the field of water policy (the Environmental Quality Standards Directive). The Regulations impose duties on the Secretary of State and the Environment Agency to carry out certain functions so as to ensure compliance with the EU directives, in particular when deciding whether to grant, vary or revoke certain permits and licences which affect water quality.

6.2.26 The purpose of the Water Framework Directive (WFD) is to establish a framework for the protection of inland surface waters (rivers and lakes), transitional waters (estuaries), coastal waters and groundwater and for all water bodies (unless artificial or heavily modified) to achieve “good” ecological status.

6.2.27 Ecological Status is expressed in terms of five classes (high, good, moderate, poor or bad). These classes are established on the basis of specific criteria and boundaries defined against biological, physico-chemical and hydromorphological elements. Biological assessment uses numeric measures of communities of plants and animals (for example, fish and rooted plants). Physico-chemical assessment looks at elements such as

temperature and the level of nutrients, which support the biology. Hydromorphological quality looks at water flow, sediment composition and movement, continuity (in rivers) and the structure of physical habitat.

6.2.28 The overall Ecological Status of a water body is determined by whichever of these assessments is the poorer. For example, a water body might pass 'Good Status' for chemical and physico-chemical assessments but be classed as 'Moderate Status' for the biological assessment. In this case it would be classed overall as 'Moderate Ecological Status'. To achieve the overall aim of good surface water status, the Directive requires that surface waters be of at least Good Ecological Status and Good Chemical Status. To achieve High Status, the Directive requires that the hydromorphological Quality Elements are also in place.

6.2.29 When considering the effect of a development or activity on a water body it is a regulatory requirement under the WFD to assess if it will cause or contribute to a deterioration in status or jeopardise the water body achieving good status in the future.

6.2.30 Where a scheme is considered to cause deterioration, or where it may contribute to the failure of the water body to meet Good Ecological Status or Good Ecological Potential, then an Article 4.7 assessment would be required which makes provision for deterioration of status provided that certain stringent conditions are met.

Environment Act 2021 (Ref. 6-11)

6.2.31 The Environment Act 2021 has two main functions:

- To give a legal framework for environmental governance in the UK.
- To bring in measures for improvement of the environment in relation to waste, resource efficiency, air quality, water, nature and biodiversity, and conservation.

6.2.32 Schedule 7A of the Environment Act makes provisions for grants of planning permission in England to be subject to a condition to secure BNG. There is currently a transition period before mandatory requirements come into force (in January 2024 for Town and Country Planning Applications).

6.2.33 The government intends that the BNG requirement should apply across all terrestrial infrastructure projects, or terrestrial components of projects, accepted for examination by the Planning Inspectorate through the Nationally Significant Infrastructure Projects (NSIP) regime by November 2025 (subject to the provisions of the applicable National Policy Statements or biodiversity gain statement). Projects accepted for examination before the specified commencement date are not required to deliver mandatory BNG.

National Planning Policy

6.2.34 The overarching National Planning Policy for Energy (EN-1) (Ref 6-12) sets out national policy for energy infrastructure and is part of a suite of National Policy Statements (NPS) issued by the Secretary of State for Energy and Climate Change. A further five technology-specific NPSs for the energy sector cover: fossil fuel electricity generation (EN-2); renewable electricity generation (both onshore and offshore) (EN-3); gas supply infrastructure and gas and oil pipelines (EN-4); the electricity transmission and distribution network (EN-5); and nuclear electricity generation (EN-6). These should be read in conjunction with this NPS where they are relevant to an application.

6.2.35 NPS EN-4 (Ref 6-13) is relevant for the Proposed Development, as although this NPS only covers those nationally significant infrastructure pipelines which transport natural gas or oil, the information is useful in identifying impacts to be considered in applications for pipelines intended to transport other substances.

6.2.36 A review of the NPS was announced in the 2020 Energy white paper: Powering our net zero future (Ref 6-42). This review was to ensure the NPSs were brought up to date to reflect the

policies set out in the white paper. A public consultation was held on the revised NPSs EN1 to EN5 between March 2023 and June 2023. The draft NPS aim to strengthen the process for delivering major new energy infrastructure in England and Wales, reinforcing the country's national priorities regarding energy security, reducing costs, and delivering on net zero, while creating new green jobs and industries for the UK.

6.2.37 The National Planning Policy Framework (NPPF) (Ref 6-14) sets out the Governments planning policies for England and how these are expected to be applied by Local Authorities within their Local Development Frameworks (LDF). Chapter 15 of the NPPF 'Conserving and enhancing the natural environment' sets out the requirements to consider biodiversity in planning decisions.

6.2.38 **Table 6-1** provides quotations from national planning policy relevant to ecology and biodiversity. An overview of how relevant national planning policy has been complied with is provided within the *Planning Statement (Application Document 7.1)*.

Table 6-1: National Planning Policy Relevant to Ecology and Biodiversity

Policy Reference	Policy Context
National Policy Statement	
Overarching National Policy Statement for Energy (EN-1) (Ref 6-12)	
5.3.3	"*Where the development is subject to EIA the applicant should ensure that the ES clearly sets out any effects on internationally, nationally and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity. The applicant should provide environmental information proportionate to the infrastructure where EIA is not required to help the [Secretary of State] consider thoroughly the potential effects of a proposed project*."
5.3.4	"*The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests*".
5.3.5	The Government's biodiversity strategy is set out in 'Working with the grain of nature'99. Its aim is to ensure: • a halting, and if possible, a reversal, of declines in priority habitats and species, with wild species and habitats as part of healthy, functioning ecosystems; and • the general acceptance of biodiversity's essential role in enhancing the quality of life, with its conservation becoming a natural consideration in all relevant public, private and non-governmental decisions and policies.
5.3.6	In having regard to the aim of the Government's biodiversity strategy the [Secretary of State] should take account of the context of the challenge of climate change: failure to address this challenge will result in significant adverse impacts to biodiversity. The policy set out in the following sections recognises the need to protect the most important biodiversity and geological conservation interests. The benefits of

Policy Reference	Policy Context
	nationally significant low carbon energy infrastructure development may include benefits for biodiversity and geological conservation interests and these benefits may outweigh harm to these interests. The [Secretary of State] may take account of any such net benefit in cases where it can be demonstrated.
5.3.7	As a general principle, and subject to the specific policies below, development should aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives (as set out in Section 4.4 above); where significant harm cannot be avoided, then appropriate compensation measures should be sought.
5.3.8	In taking decisions, the [Secretary of State] should ensure that appropriate weight is attached to designated sites of international, national and local importance; protected species; habitats and other species of principal importance for the conservation of biodiversity; and to biodiversity and geological interests within the wider environment.
5.3.9	The most important sites for biodiversity are those identified through international conventions and European Directives. The Habitats Regulations provide statutory protection for these sites but do not provide statutory protection for potential Special Protection Areas (pSPAs) before they have been classified as a Special Protection Area. For the purposes of considering development proposals affecting them, as a matter of policy the Government wishes pSPAs to be considered in the same way as if they had already been classified. Listed Ramsar sites should, also as a matter of policy, receive the same protection100.
5.3.10	Many SSSIs are also designated as sites of international importance and will be protected accordingly. Those that are not, or those features of SSSIs not covered by an international designation, should be given a high degree of protection. All National Nature Reserves are notified as SSSIs.
5.3.11	Where a proposed development on land within or outside an SSSI is likely to have an adverse effect on an SSSI (either individually or in combination with other developments), development consent should not normally be granted. Where an adverse effect, after mitigation, on the site's notified special interest features is likely, an exception should only be made where the benefits (including need) of the development at this site101, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs. The [Secretary of State] should use requirements and/or planning obligations to mitigate the harmful102 aspects of the development and, where possible, to ensure the conservation and enhancement of the site's biodiversity or geological interest.
5.3.12	Marine Conservation Zones (MCZs) (Marine Protected Areas in Scotland), introduced under the Marine and Coastal Access Act 2009,

Policy Reference	Policy Context
	are areas that have been designated for the purpose of conserving marine flora or fauna, marine habitats or types of marine habitat or features of geological or geomorphological interest. The protected feature or features and the conservation objectives for the MCZ are stated in the designation order for the MCZ, which provides statutory protection for these areas implemented by the MMO (see paragraph 1.2.2). As a public authority, the [Secretary of State] is bound by the duties in relation to MCZs imposed by sections 125 and 126 of the Marine and Coastal Access Act 2009.
5.3.13	Sites of regional and local biodiversity and geological interest, which include Regionally Important Geological Sites, Local Nature Reserves and Local Sites, have a fundamental role to play in meeting overall national biodiversity targets; contributing to the quality of life and the well-being of the community; and in supporting research and education. The [Secretary of State] should give due consideration to such regional or local designations. However, given the need for new infrastructure, these designations should not be used in themselves to refuse development consent.
5.3.14	Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as woodland. Once lost it cannot be recreated. The [Secretary of State] should not grant development consent for any development that would result in its loss or deterioration unless the benefits (including need) of the development, in that location outweigh the loss of the woodland habitat. Aged or 'veteran' trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided. Where such trees would be affected by development proposals the applicant should set out proposals for their conservation or, where their loss is unavoidable, the reasons why.
5.3.15	Development proposals provide many opportunities for building-in beneficial biodiversity or geological features as part of good design. When considering proposals, the [Secretary of State] should maximise such opportunities in and around developments, using requirements or planning obligations where appropriate.
5.3.16	Many individual wildlife species receive statutory protection under a range of legislative provisions.
5.3.17	Other species and habitats have been identified as being of principal importance for the conservation of biodiversity in England and Wales and thereby requiring conservation action. The [Secretary of State] should ensure that these species and habitats are protected from the adverse effects of development by using requirements or planning obligations. The [Secretary of State] should refuse consent where harm to the habitats or species and their habitats would result, unless the benefits (including need) of the development outweigh that harm. In this context the [Secretary of State] should give substantial weight to any such harm to the detriment of biodiversity features of national or regional importance which it considers may result from a proposed development.

Policy Reference	Policy Context
5.3.18	The applicant should include appropriate mitigation measures as an integral part of the proposed development. In particular, the applicant should demonstrate that: • during construction, they will seek to ensure that activities will be confined to the minimum areas required for the works; • during construction and operation best practice will be followed to ensure that risk of disturbance or damage to species or habitats is minimised, including as a consequence of transport access arrangements; • habitats will, where practicable, be restored after construction works have finished; and • opportunities will be taken to enhance existing habitats and, where practicable, to create new habitats of value within the site landscaping proposals.
5.3.19	Where the applicant cannot demonstrate that appropriate mitigation measures will be put in place the [Secretary of State] should consider what appropriate requirements should be attached to any consent and/or planning obligations entered into.
5.3.20	The [Secretary of State] will need to take account of what mitigation measures may have been agreed between the applicant and Natural England (or the Countryside Council for Wales) or the Marine Management Organisation (MMO), and whether Natural England (or the Countryside Council for Wales) or the MMO has granted or refused or intends to grant or refuse, any relevant licences, including protected species mitigation licences.
National Policy Statement for Gas Supply and Infrastructure and Gas and Oil Pipelines **(EN-4)** (Ref 6-13)	
2.21.3	"*The ES should include an assessment of the biodiversity and landscape and visual effects of the proposed route and of the main alternative routes considered (see Section 5.9 of EN-1). The application should also include proposals for reinstatement of the pipeline route as close to its original state as possible and take into account any requirements for agreements with the landowner to access areas for aftercare and management work. Where it is unlikely to be possible to restore landscape to its original state, the applicant should set out measures to avoid, mitigate, or employ other landscape measures to compensate for, any adverse effect on the landscape.*"
2.21.5	"*Mitigation measures to protect the landscape and ecology could include reducing the working width required for the installation of the pipeline in order to reduce the impact on the landscape where it will not be possible to fully reinstate the route*."

Policy Reference	Policy Context
2.21.6	"*In circumstances where the habitat to be crossed contains ancient woodland, trees subject to a Tree Preservation Order, or hedgerows subject to the Hedgerows Regulations 1997, the applicant should consider whether it would be feasible to use horizontal direct drilling under the ancient woodland or thrust bore under the protected tree or hedgerow and the [Secretary of State] should consider requiring this, where not included in the proposal*."
Draft Overarching National Policy Statement for Energy (EN-1) (Ref 6-12)	
5.4.2	*The government's policy for biodiversity in England is set out in the Environmental Improvement Plan174, Biodiversity 2020175, the National Pollinator Strategy176 and the UK Marine Strategy177. The aim is to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people. This aim needs to be viewed in the context of the challenge presented by climate change. Healthy, naturally functioning ecosystems and coherent ecological networks will be more resilient and adaptable to climate change effects. Failure to address this challenge will result in significant adverse impact on biodiversity and the ecosystem services it provides.*
5.4.20	*Applicants should consider wider ecosystem services and benefits of natural capital when designing enhancement measures.*
5.4.21	*As set out in Section 4.6, the design process should embed opportunities for nature inclusive design. Energy infrastructure projects have the potential to deliver significant benefits and enhancements beyond Biodiversity Net Gain, which result in wider environmental gains (see Section 4.5 on Environmental and Biodiversity Net Gain). The scope of potential gains will be dependent on the type, scale, and location of each project.*
5.4.22	*The design of Energy NSIP proposals will need to consider the movement of mobile / migratory species such as birds, fish and marine and terrestrial mammals and their potential to interact with infrastructure. As energy infrastructure could occur anywhere within England and Wales, both inland and onshore and offshore, the potential to affect mobile and migratory species across the UK and more widely across Europe (transboundary effects) requires consideration, depending on the location of development.*
5.4.25	*The applicant should seek the advice of the appropriate SNCB and provide the Secretary of State with such information as the Secretary of State may reasonably require, to determine whether an Appropriate Assessment (AA) is required. Applicants can request and agree 'Evidence Plans' with SNCBs, which is a way to agree and record upfront the information the applicant needs to supply with its application, so that the HRA can be efficiently carried out. If an AA is required, the applicant must provide the Secretary of State with such information as may reasonably be required to enable the Secretary of State to conduct*

Policy Reference	Policy Context
	the AA. This should include information on any mitigation measures that are proposed to minimise or avoid likely significant effects.
5.4.26	*If, during the pre-application stage, the SNCB indicate that the proposed development is likely to adversely impact the integrity of HRA sites, the applicant must include with their application such information as may reasonably be required to assess a potential derogation under the Habitats Regulations.*
5.4.27	*If the SNCB gives such an indication at a later stage in the development consent process, the applicant must provide this information as soon as is reasonably possible and before the close of the examination. This information must include assessment of alternative solutions, a case for Imperative Reasons of Overriding Public Interest (IROPI) and appropriate environmental compensation.*
5.4.28	*Provision of such information will not be taken as an acceptance of adverse impacts and if an applicant disputes the likelihood of adverse impacts, it can provide this information as part of its application 'without prejudice' to the Secretary of State's final decision on the impacts of the potential development. If, in these circumstances, an applicant does not supply information required for the assessment of a potential derogation, there will be no expectation that the Secretary of State will allow the applicant the opportunity to provide such information following the examination.*
5.4.29	*It is vital that applicants consider the need for compensation as early as possible in the design process as 'retrofitting' compensatory measures will introduce delays and uncertainty to the consenting process.*
5.4.30	*Applicants should work closely at an early stage in the pre-application process with SNCB and Defra/Welsh Government to develop a compensation plan for all protected sites adversely affected by the development.*
5.4.31	*Before submitting an application, applicants should seek the views of the SNCB and Defra/Welsh Government as to the suitability, securability and effectiveness of the compensation plan to ensure the development will not hinder the achievement of the conservation objectives for the protected site. In cases where such views are provided, the applicant should include a copy of this information with the compensation plan in their application for further consideration by the Examining Authority.*
5.4.36	*Applicants should produce and implement a Biodiversity Management Strategy as part of their development proposals. This could include provision for biodiversity awareness training to employees and contractors so as to avoid unnecessary adverse impacts on biodiversity during the construction and operation stages.*
5.4.38	*To further minimise any adverse impacts on geodiversity, where appropriate applicants are encouraged to produce and implement a*

Policy Reference	Policy Context
	Geodiversity Management Strategy to preserve and enhance access to geological interest features, as part of relevant development proposals.
5.4.39	*The government's 25 Year Environment Plan187 and the Environment Act 2021 mark a step change in ambition for wildlife and the natural environment. The Secretary of State should have regard to the aims and goals of the government's Environmental Improvement Plan and any relevant measures and targets, including statutory targets set under the Environment Act or elsewhere.*
5.4.41	*The benefits of nationally significant low carbon energy infrastructure development may include benefits for biodiversity and geological conservation interests and these benefits may outweigh harm to these interests. The Secretary of State may take account of any such net benefit in cases where it can be demonstrated.*
5.4.44	*The Secretary of State should consider what appropriate requirements should be attached to any consent and/or in any planning obligations entered into, in order to ensure that any mitigation or biodiversity net gain measures, if offered, are delivered and maintained. Any habitat creation or enhancement delivered including linkages with existing habitats for compensation or biodiversity net gain should generally be maintained for a minimum period of 30 years, or for the lifetime of the project, if longer.*
5.4.47	*When considering proposals, the Secretary of State should maximise such reasonable opportunities in and around developments, using requirements or planning obligations where appropriate. This can help towards delivering biodiversity net gain as part of or in addition to the approach set out at Section 4.5.*
Draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (Ref 6-13)	
2.21.24-25	*Additional considerations apply during the construction of a pipeline (which, without mitigation, can affect both landscape, visual amenity and ecology).* *These comprise the effects upon specific landscape elements within and adjacent to the pipeline route, such as grasslands, field boundaries (hedgerows, hedge banks, drystone walls, fences), trees, woodlands, and watercourses.*
2.21.26-27	*There will also be temporary visual and landscape impacts caused by the need to access the working corridor and to remove flora and soil.* *The working width of the pipeline will vary depending on the surrounding terrain. Temporary impacts could include large excavations where deep pits are needed for boring beneath rivers, roads, and sensitive features.*

Policy Reference	Policy Context
2.21.28	*The considerations in this section also apply to any pipeline maintenance or protection that may be additionally required and associated impacts.*
2.21.29	*Long term impacts upon the landscape for pipelines are likely to be limited, as once operational the main infrastructure is usually buried. They are likely to include:* • *limitations on the ability to replant landscape features such as hedgerows or deep-rooted trees over or adjacent to the pipeline; and* • *structures and indication points necessary to identify the pipeline route and provide it with service access.*
2.21.30	*The ES must include an assessment of the biodiversity and landscape and visual effects of the proposed route and of the main alternative routes considered (see Section 5.10 of EN-1).*
2.21.31	*The application should also include proposals for reinstatement of the pipeline route as close to its original state as possible and take into account any requirements for agreements with the landowner to access areas for aftercare and management work.*
2.21.32	*Where it is unlikely to be possible to restore landscape to its original state, the applicant should set out measures to avoid, mitigate, or employ other landscape measures to compensate for, any adverse effect on the landscape.*
2.21.33	*Requirements to be included within the Marine Licence15 (detailed in Section 2.21.4 of EN-3) should also be duly considered for infrastructures within coastal and marine zones.*
National Planning Policy Framework (NPPF) (Ref 6-14)	
Chapter 15, para 180-182	*"When determining planning applications, local planning authorities should apply the following principles:* *a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;* *b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;* *c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should*

Policy Reference	Policy Context
	be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and *d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.* *The following should be given the same protection as habitats sites:* *a) potential Special Protection Areas and possible Special Areas of Conservation;* *b) listed or proposed Ramsar sites; and* *c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.* *The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site."*

Local Planning Policies

6.2.39 Local Planning Policies relevant to ecology and biodiversity are detailed in **Table 6-2**. An overview of how relevant local planning policy has been complied with is provided within the *Planning Statement (Application Document 7.1)*.

Table 6-2: Local Planning Policies Relevant to Ecology and Biodiversity

Policy Reference	Policy Context
The North-East Lincolnshire Local Plan 2013 to 2032 (Ref 6-15)	
Policy 9 – Habitat Mitigation – South Humber Bank	1. Within the mitigation Zone identified on the Policies Map (covering an area of agricultural land on the South Humber Bank between Pyewipe and Immingham), proposals which adversely affect the Humber Estuary SPA/Ramsar site due to the loss of functionally linked land will normally be required to provide their own mitigation in order to comply with the requirements of the Habitats Regulations. 2. The Strategic Mitigation Sites, circa 120 ha, identified on the Policies Map, represent those sites which have been identified to deliver appropriate mitigation which will address the adverse impacts of development within the Mitigation Zone at a strategic level. The identified Mitigation Sites will be safeguarded against development, and appropriate habitat will be delivered and managed on these sites in accordance with the North East Lincolnshire South Humber Gateway Ecological Mitigation Delivery Plan.

Policy Reference	Policy Context
	3. Development proposals on greenfield land[1] within the Mitigation Zone will be required to make contributions towards the provision and management of the mitigation sites identified on the Policies Map. Where landowners have contributed to the implementation strategy through the donation of land, the required contribution will be reduced by an equivalent value. 4. The Council will secure such contributions, based on a proportional approach relating to the site area. The formula for the calculation or the relevant contribution is as follows: Contribution (£) = SA x (£MC/ha) The Mitigation Contribution (£MC/ha) will be £11,580/ha. This contribution is not index linked. The Contribution shall be paid when development commences on site, or through agreement with the Council where a phase approach to delivery is accepted by the Council. 5. All other planning requirement will also be expected to be met. 6. On an exceptional basis, independent alternative mitigation proposals will be considered on sites within the identified Mitigation Zone. Proposals should be supported by evidence that demonstrates that the alternative mitigation contributes to the overall mitigation strategy and ensures that the development avoids adverse effects on the integrity of the SPA/Ramsar site, alone or in combination. It will be a requirement of any planning consent that mitigation is implemented prior to the commencement of development.
Policy 41–- Biodiversity and Geodiversity. The Council will have regard to biodiversity and geodiversity when considering development proposals, seeking specifically to: 1. establish and secure appropriate management of long-term mitigation areas within the Estuary Employment Zone, managed specifically to protect the integrity of the internationally important biodiversity sites (see Policy 9"Habitat Mitigation–- South Humber Ban"); 2. designate Local Wildlife Sites (LWSs) and Local Geological Sites (LGSs) in recognition of particular wildlife and geological value; 3. protect, manage and enhance international, national and local sites of biological and geological conservation importance, having regard to the hierarchy of designated sites, and the need for appropriate buffer zones; 4. minimise the loss of biodiversity features, or where loss is unavoidable and justified, ensure appropriate mitigation and compensation measures are provided; 5. create opportunities to retain, protect, restore and enhance features of biodiversity value, including priority habitats and species; and 6. take opportunities to retain, protect and restore the connectivity between components of the Borough's ecological network.	

[1] Exceptionally brownfield sites may be required to contribute if evidence identifies that SPA/Ramsar birds have been using the site in significant numbers.

Policy Reference	Policy Context
Any development which would, either individually or cumulatively, result in significant harm to biodiversity which cannot be avoided, adequately mitigated or as a last resort compensated for, will be refused.	
North Lincolnshire Core Strategy 2006–- 2026 (Adopted 2011) (Ref 6-16)	
CS1 – Spatial Strategy for North Lincolnshire	Internationally and nationally designated sites of conservation importance of the Humber Estuary and Thorne and Hatfield Moors will be protected and enhanced. In the Humber Estuary areas, a strategic approach to the creation of habitats will be adopted.
CS16 – North Lincolnshire's Landscape, Greenspace and Waterscape	The council will protect, enhance and support a diverse and multi-functional network of landscape, greenspace and waterscape through: 1. Identifying in supporting documents within or evidencing the Local Development Framework, a network of strategically and locally important landscape, greenspace and waterscape areas. Development on or adjacent to these areas will not be permitted where it would result in unacceptable conflict with the function(s) or characteristic of that area. 2. Requiring development proposals to improve the quality and quantity of accessible landscape, greenspace and waterscape, where appropriate. 3. Requiring development proposals to address local deficiencies in accessible landscape, waterscape and greenspace where appropriate. 4. Requiring the protection of trees, hedgerows and historic landscape to be specified where appropriate. The creation and maintenance of the network of landscape, green space and waterscapes will be secured by a range of measures, including protecting open space, creating new open spaces as part of new development, and by using developer contributions to create, improve and maintain green infrastructure assets where appropriate
CS17– Biodiversity	The council will promote effective stewardship of North Lincolnshire's wildlife through: 1. Safeguarding national and international protected sites for nature conservation from inappropriate development. 2. Appropriate consideration being given to European and nationally important habitats and species. 3. Maintaining and promoting a North Lincolnshire network of local wildlife sites and corridors, links and stepping stones between areas of natural green space. 4. Ensuring development retains, protects and enhances features of biological and geological interest and provides for the appropriate management of these features.

Policy Reference	Policy Context
	5. Ensuring development seeks to produce a net gain in biodiversity by designing in wildlife, and ensuring any unavoidable impacts are appropriately mitigated for. 6. Supporting wildlife enhancements that contribute to the habitat restoration targets set out in the North Lincolnshire's Nature Map and in national, regional and local biodiversity action plans. 7. Improving access to and education/interpretation of biodiversity sites for tourism and the local population, providing their ecological integrity is not harmed
The East Lindsey Local Plan Core Strategy (Ref 6-17)	
Strategic Policy 24 (SP24) – Biodiversity and Geodiversity	1. Development proposals should seek to protect and enhance the biodiversity and geodiversity value of land and buildings and minimise fragmentation and maximise opportunities for connection between natural habitats. 2. The Council will protect sites designated internationally, nationally or locally for their biodiversity and geodiversity importance, species populations and habitats identified in the Lincolnshire Biodiversity Action Plan and the Natural Environment and Rural Communities (NERC) Act 2006. Development, which could adversely affect such a site, will only be permitted in exceptional circumstances: • In the case of internationally designated sites, where there is no alternative solution and there are overriding reasons of public interest for the development; • In the case of nationally designated sites, there is no alternative solution and the reasons for the development clearly outweigh the biodiversity value of the site; or • In the case of locally designated sites, and sites that meet the criteria for selection as a Local Site, the reasons for the development clearly outweigh the need to protect the site in the long term. 3. In exceptional circumstances, where adverse impacts are demonstrated to be unavoidable and development is permitted which would damage the nature conservation or geological value of a site, the Council will ensure that such damage is kept to a minimum and will ensure appropriate mitigation, compensation, or enhancement of the site through the use of planning conditions or planning obligations. Compensation measures towards loss of habitat will be used only as a last resort where there is no alternative. Where any mitigation and compensation measures are required, they should be in place before development activities start that may disturb protected or important habitats and species. Proposals to provide or enhance a site will be supported.

Policy Reference	Policy Context
	4. Where new habitat is created it should, where possible, be linked to other similar habitats to provide a network of such sites for wildlife. 5. Planning permission will only be granted for development which directly or indirectly leads to loss or harm to ancient woodland or aged or veteran trees, in exceptional circumstances, where the developer can demonstrate that the wider benefits of that loss clearly outweigh the protection of the trees.
Strategic Policy 27 (SP27) - Renewable and Low Carbon Energy	1. Large-scale renewable and low carbon energy development, development for the transmission and interconnection of electricity, and infrastructure required to support such development, will be supported where their individual or cumulative impact is, when weighed against the benefits, considered to be acceptable in relation to: a) residential amenity; b) surrounding landscape, townscape and historic landscape, character, and visual qualities; c) the significance (including the setting) of a historic garden, park, battlefield, building, conservation area, archaeological site or other heritage asset; d) sites or features of biodiversity or geodiversity importance, or protected species; e) the local economy; f) highway safety; and g) water environment and water quality. 3. Development within or affecting the setting of the Lincolnshire Wolds Area of Outstanding Natural Beauty, and landscape areas defined as highly sensitive within the East Lindsey Landscape Character Assessment, will only be permitted in exceptional circumstances, where the development is in the public interest and considering the following: a) The need for the development, including any national considerations, and the impact of permitting it, or refusing it, upon the local economy; and, b) the cost of, and scope for, developing elsewhere outside the designated area, or meeting the need for it in some other way; and, c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be satisfactorily moderated. 4. The presumption will be for connecting cables to be placed underground, or use made of existing or replacement infrastructure (of the same size and scale) along existing routes to carry any additional base load cabling. 5. Small scale and micro renewable energy development will be supported where their individual or cumulative impact, when weighed against the benefits, is not considered to have an unacceptable impact on residential amenity; the context and setting of any areas of cultural or

Policy Reference	Policy Context
	historic importance or heritage assets; and local landscape character and visual qualities.
Central Lincolnshire Local Plan (Ref 6-18)	
S60–- Protecting Biodiversity and Geodiversity	All development should: a) protect, manage, enhance and extend the ecological network of habitats, species and sites of international, national and local importance (statutory and non-statutory), including sites that meet the criteria for selection as a Local Site; b) minimise impacts on biodiversity and features of geodiversity value; c) deliver measurable and proportionate net gains in biodiversity in accordance with Policy S61; and d) protect and enhance the aquatic environment within or adjoining the site, including water quality and habitat. Part 1 Development, which could adversely affect designated sites will only be permitted in exceptional circumstances: • Internationally Designated Sites–- Development proposals that will have an adverse impact on the integrity of such areas, will not be supported other than in exceptional circumstances, in accordance with the NPPF. Development proposals that are likely to result in a significant adverse effect, either alone or in combination with other proposals, on any internationally designated site, must satisfy the requirements of the Habitats Regulations (or any superseding similar UK legislation). • Nationally designated sites–- Development proposals within or outside such a site will not normally be supported unless the benefits of the development, at this site, clearly outweigh both the adverse impacts on the features of the site and any adverse impacts on the wider network of nationally protected sites. • Locally Designated Sites–- Development likely to have an adverse effect on locally designated sites, their features or their function as part of the ecological network, will only be supported where the benefits of the development clearly outweigh the loss, and the coherence of the local ecological network is maintained. Where significant harm cannot be avoided, the mitigation hierarchy should be followed. Planning permission will be refused for development resulting in the loss, deterioration or fragmentation of irreplaceable habitats, including ancient woodland and aged or veteran trees, unless there are wholly exceptional reasons, and a suitable compensation strategy will be delivered. Part 2 Development should seek to preserve, restore and re-create priority habitats, ecological networks and the protection and recovery of priority species set out in the Natural Environment and Rural Communities Act

Policy Reference	Policy Context
	2006, Lincolnshire Biodiversity Action Plan, Lincolnshire Geodiversity Strategy and Local Nature Recovery Strategy. Where adverse impacts are likely, development will only be supported where the need for and benefits of the development clearly outweigh these impacts. In such cases, appropriate mitigation or compensatory measures will be required. Part 3 Development should avoid adverse impact on existing biodiversity and geodiversity features as a first principle, in line with the mitigation hierarchy. Where adverse impacts are unavoidable, they must be adequately and proportionately mitigated. If full mitigation cannot be provided, compensation will be required as a last resort where there is no alternative. Development will only be supported where the proposed measures for mitigation and/or compensation along with details of net gain are acceptable to the Local Planning Authority in terms of design and location and are secured for the lifetime of the development with appropriate funding mechanisms that are capable of being secured by condition and/or legal agreement. If significant harm to biodiversity resulting from development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission will be refused.
S61–- Biodiversity Opportunity and Delivering Measurable Net Gains	Following application of the mitigation hierarchy, all development proposals should ensure opportunities are taken to retain, protect and enhance biodiversity and geodiversity features proportionate to their scale. Development proposals should create new habitats, and links between habitats, in line with Central Lincolnshire Biodiversity Opportunity and Green Infrastructure Mapping evidence.
S66–- Trees, Woodland and Hedgerows	Development proposals should be prepared based on the overriding principle that: • the existing tree and woodland cover is maintained, improved and expanded; and • opportunities for expanding woodland are actively considered and implemented where practical and appropriate to do so.

Local Biodiversity Action Plans

6.2.40 The UK Biodiversity Action Plan (BAP) was withdrawn in March 2011, the lists of Priority Species and Habitats being superseded by those within Section 41 of the NERC Act. Local Biodiversity Action Plans (LBAPs) are no longer used as a formal expression of delivery of biodiversity targets but identify sub-regional priorities for nature conservation and propose agreed actions to conserve, maintain, enhance and increase local Priority Species and Habitats.

6.2.41 The Lincolnshire Biodiversity Plan (Ref 6-19) is the relevant LBAP for the Study Area and was drafted by the Lincolnshire Biodiversity Partnership in 2011. The LBAP outlines

biodiversity conservation objectives within the region and identifies priorities for action for priority habitats, species, locally important wildlife, and sites.

Guidance

6.2.42 The Ecological Impact Assessment (EcIA) has been carried out with regard to the Chartered Institute of Ecology and Environmental Management's (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland (Ref 6-20). Species specific guidance used to inform this EcIA is referenced throughout the chapter and includes:

- The CIEEM guidelines for Preliminary Ecological Appraisal (Ref 6-21);
- Natural England's Standing Advice for protected species (Ref 6-22);
- The Joint Nature Conservation Committee's published Herpetofauna Workers' Manual and the Great Crested Newt Conservation Handbook (Ref 6-23 and Ref 6-24);
- The Bat Conservation Trust's Bat Surveys for Professional Ecologists: Good Practice Guidelines (Ref 6-25) and interim guidance on the use of night vision aids for bat emergence surveys (Ref 6-26);
- Otter survey guidance outlined in Monitoring the Otter (Ref 6-27);
- Water vole survey guidance outlined in the Water Vole Mitigation Handbook (Ref 6-28); and
- Badger survey guidance outlined in Surveying Badgers (Ref 6-29);

6.2.43 Stanbury *et al*. (2021; Ref 6-31) have published lists of Birds of Conservation Concern (BoCC). Red List species are those whose breeding population or range is rapidly declining (50% or more in the last 25 years), recently or historically, and those of global conservation concern. Amber List species are those whose breeding population is in moderate decline (25 – 49% in the last 25 years), rare breeders, internationally important and localised species and those of unfavourable conservation status in Europe. Green List species are those not of immediate conservation concern. Non-native species are classified as Not Assessed. These lists confer no legal status; however, they are useful when assessing the significance of predicted impacts and determining the level of mitigation that may be required when birds are affected by development or any other activity. Furthermore, inclusion on the Red List was a factor in determining the species for which BAPs were developed.

6.3 Scope of Assessment and Consultation

Introduction

6.3.1 A scoping exercise was undertaken in early 2022 to establish the content of the EcIA and the approach and methods to be followed. The Scoping Report (*ES Volume IV: Appendix 5.1 (Application Document 6.4.5.1*) records the findings of the scoping exercise and details the technical guidance, standards, best practice and criteria proposed to be applied in the assessment to identify and evaluate the likely significant effects of the Proposed Development on ecology and biodiversity.

Scoping Report and Scoping Opinion

6.3.2 A Scoping Opinion was provided by the Planning Inspectorate on the 5 May 2022 (a copy of which is included in *ES Volume IV: Appendix 5.2 (Application Document 6.4.5.2)).* A full list of the responses from the Planning Inspectorate and Statutory Consultees, and how these requirements have been addressed by the Applicant are set out in *ES Volume IV: Appendix 5.3 – (Application Document 6.4.5.3)*. A summary of stakeholder engagement specific to ecology and biodiversity has been provided in **Table 6-3**.

Table 6-3: Ecology and Biodiversity Scoping Opinion

Section Reference to Scoping Opinion	Applicant's proposed matter	Comments	Response
Planning Inspectorate Table 6-2	Impacts to foraging and commuting bats	The Scoping Report identifies the intention to limit bat activity surveys to areas of suitable habitat which will be permanently lost. The Inspectorate accepts, as stated in Table 6-2 [in the scoping report], that such surveys may not be warranted in relation to temporary habitat loss. However, the Inspectorate considers that they may be required to inform the assessment of likely significant effects and the design of appropriate mitigation in relation to the effects of construction lighting and effects resulting from impacts to linear habitat features. These matters should be considered in the ES where likely significant effects could occur, supported by appropriate evidence such as bat activity survey data. The Applicant should seek agreement from relevant consultees and provide a description of the approach taken in the ES, incorporating any relevant advice.	Linear features such as hedgerows and watercourses are present within the DCO site boundary and will be temporarily impacted by the Proposed Development. Bat crossing point surveys and emergence surveys have been completed to inform the ecological baseline. The route has been designed to minimise effects upon woodland and HDD will be used to avoid woodland habitat loss at Immingham. The preferred pipeline route will be micro sited within the DCO Site Boundary to avoid mature trees and use existing gaps in hedgerows where possible. Lighting will be avoided where possible during the construction phase, and any necessary lighting will be directed away from trees, hedgerows and watercourses to maintain dark corridors. Any sections of hedgerows temporarily lost during construction will be reinstated. As such all matters raised have been assessed within this chapter and appropriate mitigation, including the measures set out above, has been identified and committed to. This is a standard approach to survey and assessment,

Section Reference to Scoping Opinion	Applicant's proposed matter	Comments	Response
			though specific elements were not discussed with consultees.
Planning Inspectorate Table 6-2, 6-5	Detailed terrestrial invertebrate surveys	The Scoping Report proposes to scope out detailed terrestrial invertebrate surveys on the basis that areas of high habitat suitability are likely to be avoided by the Proposed Development which is located in predominantly arable land. It also explains that the requirement for such surveys will be reviewed following the completion of the Phase 1 habitat survey and desk study. The Inspectorate notes that neither the Potential Pipeline Offtake Facility Site at Immingham nor the Former TGT Site are situated on arable land. In the absence of the habitat survey and desk study information, and of evidence demonstrating clear agreement with relevant statutory bodies, the Inspectorate does not agree to scope this matter out at this stage but agrees that it may be appropriate to scope out detailed surveys once the results of these investigations are known. The ES should include an assessment of effects on terrestrial invertebrates, or the information referred to above to evidence that no likely significant effects would occur.	Invertebrate surveys covering the Immingham Facility site were completed to inform the Humber Zero Phase 1 Project (Ref 6-33) and the results of these surveys were shared with the applicant and have been used to inform the ecological baseline around the Immingham Facility. Potential effects on invertebrates in this location have been assessed and included in this chapter. Habitats at the Theddlethorpe Facility comprised bare ground and were considered highly unlikely to support a protected or notable invertebrate assemblage (refer to *ES Volume IV: Appendix 6.1 (Application Document 6.4.6.1)*). Potential effects on terrestrial invertebrates are reported in section 6.7 and section 6.9 of this chapter.

Section Reference to Scoping Opinion	Applicant's proposed matter	Comments	Response
Planning Inspectorate Table 6-2, 6-5	Detailed surveys for reptile species	The Scoping Report states that areas of high habitat suitability for reptiles are likely to be avoided by the Proposed Development meaning that detailed surveys are not likely to be required but that the need for such surveys will be reviewed following completion of the Phase 1 habitat survey and desk study. In the absence of this information, and of evidence demonstrating agreement with the relevant statutory bodies, the Inspectorate does not agree to scope out detailed assessment for reptiles at this stage but agrees with the approach set out. Accordingly, the ES should include an assessment or the information referred to demonstrating the absence of a likely significant effect.	Habitats where the Immingham Facility is proposed have suitability to support reptiles. Reptile surveys were completed to inform the Humber Zero Phase 1 Project (Ref 6-33), which covered the proposed Immingham Facility, and these results were shared with the Applicant. Reptiles were confirmed to be absent. The results of these surveys have been used to inform the ecological baseline. There is potential for species such as grass snake (*Natrix natrix)* to be present along watercourses and drainage ditches within the DCO Site Boundary. Precautionary working methods are committed to, to avoid effects upon reptiles during the construction phase. The absence of likely significant effects is therefore confirmed in section 6.9 of this chapter
Planning Inspectorate Table 6-2, Table 6-5	Aquatic ecology – specific flora and fauna surveys	The Scoping Report suggests that predicted temporary construction impacts will be adequately addressed though standard mitigation techniques, therefore specific aquatic flora and fauna surveys are unlikely to be required. In the absence of information such as river crossing methodologies and the mitigation techniques to be employed, the Inspectorate is not in a position to agree to scope these matters from the assessment. The Inspectorate accepts	A suite of terrestrial, aquatic and ornithology surveys have been completed to inform the ecological baseline and the potential for significant effects upon flora and fauna has been assessed within this ES in section 6.9.

Section Reference to Scoping Opinion	Applicant's proposed matter	Comments	Response
		that as this information becomes known the scope of the assessment could be refined, however. Accordingly, the ES should include an assessment of likely significant effects on aquatic flora and fauna where these could occur, or the information referred to demonstrating that no likely significant effects will occur and detailing where agreement has been reached with the relevant consultation bodies.	
Planning Inspectorate Table 6-4 and Chapter 12 (Air Quality Chapter 12)	Air quality effects on sensitive ecological receptors	Table 6-4 of the scoping report does not identify Nitrogen deposition or acid deposition as potential impacts which could affect sensitive ecological receptors, however these matters are not explicitly proposed as scoped out. It is noted that Chapter 12 of the Scoping Report (Air Quality) considers these potential impacts as a possibility and sets out the approach to modelling relevant emissions from construction traffic if detailed assessment is deemed necessary. For the avoidance of doubt, the potential for Nitrogen deposition and/or acid deposition to arise and result in effects on ecological receptors should be considered in the ES, and subject to assessment where a pathway for significant effects is identified.	The potential for significant effects resulting from Nitrogen deposition (which can lead to acidification) has been assessed in *ES Volume II: Chapter 14 Air Quality (Application Document 6.2.14)* and within the *Report to inform HRA (Application Document 6.5).*
Planning Inspectorate Table 6-1, Figure 6-1, Paragraph 6.2.7	Location of designated sites	The information in Table 6-1 of the scoping report does not appear to be consistent with the information in Figure 6-1 of the scoping report in terms of the proximity of the Proposed Development to the designated sites. Paragraph	Information on Statutory designated sites including distances and directions from the Proposed Development are provided in Section 6.5 of this chapter of the ES.

Section Reference to Scoping Opinion	Applicant's proposed matter	Comments	Response
		6.2.7 of the scoping report provides more information however, it remains unclear if the Proposed Development lies within these designations. This must be clarified within the ES.	
Planning Inspectorate Paragraph 6.2.13 to 6.2.15	Impacts to existing agricultural drainage and effects on habitats	The Scoping Report indicates a likely commitment to trenchless crossing of watercourses in the ES, but also describes the potential for direct impacts to grazing marsh where the proposed pipeline route crosses this habitat. The intention to assess impacts related to construction activities is set out, however, the Inspectorate advises that the ES should also explain whether significant effects could arise from impacts to existing agricultural drainage, including effects on habitats outside of agricultural land relating to hydrological changes or degradation of water quality.	The Proposed Development has been designed to avoid areas of floodplain grazing marsh. The potential for effects upon hydrology are assessed in *ES Volume II Chapter 11: Water Environment (Application Document 6.2.11).*
Planning Inspectorate Paragraph 6.3.7 to 6.3.9	Identification of functionally linked land and ornithological survey scope.	The justification in the Scoping Report for the selection of the functionally linked land described is lacking in detail. The Inspectorate would expect the ES to give a full description of how these areas have been identified, the levels of precaution applied to this process, and the outcomes of consultation and degree of agreement reached with key stakeholders. It is also advised that the scope and methodology of the ornithological surveys is discussed with the relevant consultees and agreed where possible.	Additional information on the identification of functionally linked land is provided in paragraphs 6.3.11 – 6.3.15 of the *Baseline Ornithology Report* (*ES Volume IV: Appendix 6.7 (Application Document 6.4.6.7));* the survey methods applied across these areas and elsewhere within the environs of the Proposed Development are described in detail in paragraph 6.3.16 – 6.3.46 of the same appendix.

Section Reference to Scoping Opinion	Applicant's proposed matter	Comments	Response
Planning Inspectorate Table 6-2	Great crested newts – information to support the assessment of effects.	GCN: The Scoping Report states that the presence/absence surveys proposed in Table 6-2 [of the scoping report] will be sufficient to support an application for a traditional European Protected Species Mitigation licence or a licence through the Natural England District Level Licensing (DLL) scheme. It also sets out the circumstances where populations size class assessment may be undertaken to inform the assessment of effects. The Inspectorate understands that the DLL approach includes strategic area assessment and the identification of risk zones and strategic opportunity area maps. The ES should include information to demonstrate whether the Proposed Development is located within a risk zone for GCN. If the Applicant enters into the DLL scheme, NE will undertake an impact assessment and inform the Applicant whether their scheme is within one of the amber risk zones and therefore whether the Proposed Development is likely to have a significant effect on GCN. The outcome of this assessment will be documented on an Impact Assessment and Conservation Payment Certificate (IACPC). The IACPC can be used to provide additional detail to inform the findings in the ES, including information on the Proposed Development's impact on GCN and the appropriate compensation required	DLL will be used to avoid significant effects upon GCN. The IACPC is provided in *ES Volume IV: Appendix 6.9 (Application Document 6.4.6.9*).

Section Reference to Scoping Opinion	Applicant's proposed matter	Comments	Response
Planning Inspectorate	Confidential Annexes	Public bodies have a responsibility to avoid releasing environmental information that could bring about harm to sensitive or vulnerable ecological features. Specific survey and assessment data relating to the presence and locations of species such as badgers, rare birds and plants that could be subject to disturbance, damage, persecution, or commercial exploitation resulting from publication of the information, should be provided in the ES as a confidential annex. All other assessment information should be included in an ES chapter, as normal, with a placeholder explaining that a confidential annex has been submitted to the Inspectorate and may be made available subject to request.	Information on sensitive species has been provided in Confidential Appendices and can be found in *ES Volume IV: Appendix 6.5 (Application Document 6.4)* and *ES Volume IV: Appendix 6.8 (Application Document 6.4*). There are no plant species identified in the baseline that would require their presence to remain confidential.
Mablethorpe and Sutton Town Council	Preservation of flora, fauna and local wildlife.	Should the proposal go ahead, it urges that all due care and consideration be given and taken with regard to preservation of flora, fauna and local wildlife along the planned route of the pipeline.	Habitats were appraised for their potential to support protected and notable flora and fauna during the Phase 1 habitat survey. Further surveys have been conducted where appropriate, and recommendations for avoidance, mitigation and compensation are provided (where appropriate) in line with relevant planning policy and guidance.
Ministry of Defence	Creation of new habitats attracting birds.	The development partly occupies the statutory safeguarding Range zone surrounding Donna Nook. Within this zone, the principal concern of the MOD is that the creation of new habitats may	The Proposed Development will not include habitat creation which aims to attract flocking birds. Where habitats will be lost, they will be reinstated with the same or similar habitat types.

Section Reference to Scoping Opinion	Applicant's proposed matter	Comments	Response
		attract and support populations of large and, or, flocking birds and if there is any flying activity including gliding and microlight aircraft.	
North Lincolnshire Council	Approach to EcIA	Having reviewed this Chapter of the report the Council's Ecologist has confirmed that they support the approach to the assessment of ecological impacts.	Noted.
Natural England	Impact Risk Zones	The proposal falls within Natural England's Impact Risk Zones of the following sites: • Saltfleetby – Theddlethorpe Dunes Site of Special Scientific Interest (SSSI); • Saltfleetby – Theddlethorpe Dunes and Gibraltar Point Special Area of Conservation (SAC); • Humber Estuary SSSI and SAC; • North Killingholme Haven Pits SSSI • Humber Estuary Compensation Land. Accidental damage and other direct or indirect effects may occur to these designated sites. The ES would need to show any potential effects on these designations, including impacts on foraging habitat, noise, water quality, air quality or other disturbance which may damage or destroy the interest features for which these SSSIs have been notified. Impacts would need to be considered at all stages of the Project i.e., construction, operation and de-commissioning. It	Potential effects upon designated sites have been considered within this chapter. Also refer to the HRA (Application Document 6.5).

Section Reference to Scoping Opinion	Applicant's proposed matter	Comments	Response
		should also detail the mitigation required to avoid any identified impacts on designated sites.	
Natural England	The Humber Habitat Compensation and Mitigation Plan (HHCMP)	helps identify the scope of potential habitat creation needed to enable developers/investors to achieve sustainable economic development in the region. It provides essential information for those wishing to bring forward development within the requirements of the regulatory framework surrounding the Humber Estuary's various national and international environmental and historical designations. Further information is available at South Humber Gateway strategic mitigation scheme: https://www.nelincs.gov.uk/planning-and-building-control/planning-policy/the-localplan/local-plan-background-information/south-humber-gateway/	Noted.
Natural England	Construction and Environmental Management Plan (CEMP)	Mitigation for all these [designated] sites should be secured through a CEMP which will set out the locations of these features and the measures proposed for their protection.	A Draft CEMP is provided in *ES Volume IV: Appendix 3.1 (Application Document 6.4.3.1)*. Also refer to Section 6.8 of this Chapter. The CEMP includes mitigation measures in respect of designated sites where this is considered necessary.
Natural England	Discretionary Advice Service	Natural England are engaging with the applicant via our Discretionary Advice Service with regard to avoiding adverse impacts to designated sites and protected species.	Consultation has been ongoing with Natural England via the Discretionary Advice Service.

Section Reference to Scoping Opinion	Applicant's proposed matter	Comments	Response
Natural England	Designated Sites Impact Assessment	The ES should consider any impacts upon local wildlife and geological sites, including local nature reserves. The ES should set out proposals for mitigation of any impacts and if appropriate, compensation measures and opportunities for enhancement and improved connectivity with wider ecological networks. Consultation should therefore take place with the Ecology Officers for Lincolnshire County Council. Non-statutory consultees such as the Wildlife Trusts should also be approached.	Potential effects upon local wildlife sites, geological sites and nature reserves have been considered within the ES, refer to Sections 6.7, 6.8 and 6.9.
Natural England	Impact Assessment	The ES should assess the impact of all phases of the proposal on protected species (including, for example, great crested newts, reptiles, birds, water voles, badgers and bats). It should also provide details of any proposed mitigation measures required to protect these species. Consideration should be given to the wider context of the site, for example in terms of habitat linkages and protected species populations in the wider area. Natural England is engaging with the applicant regarding Natural England's District Level Licensing for Great Crested Newts.	Effects upon protected and notable species from all phases of the development have been considered within this chapter, refer to Section 6.5 for baseline information and 6.7 to 6.9 for the impact assessment and mitigation proposed.
Natural England	BNG	The ES should include a BNG Assessment and Habitat Management Plan. The Habitat Management Plan should explain how the site will continue to be managed and secured for the lifetime of the development. The Habitat	An Initial BNG assessment has been included within the ES, refer to Application Document 6.7.1, along with a BNG Strategy Report (Application Document 6.7.2). An outline Landscape

Section Reference to Scoping Opinion	Applicant's proposed matter	Comments	Response
		Management Plan should also provide details on retention and enhancement of existing habitat features such as hedgerows, woodland and ponds. We would also particularly need details on proposed habitat connectivity to surrounding habitats which would contribute to the wider Nature Recovery Network.	and Ecological Mitigation Plan (OLEMP) has also been prepared, refer *to Application Document 6.8*.
Natural England	BNG	Biodiversity Metric 3.0 provides a way of measuring and accounting for biodiversity losses and gains resulting from development or land management change. It can be found at The Biodiversity Metric 3.0 - JP039 (nepubprod.appspot.com).	An Initial BNG assessment has been undertaken using the most up to date metric at the time of submission (metric 4.0) – refer to *Application Document 6.7.1*.

Feedback on the Preliminary Environmental Information Report

6.3.3 The PEIR was presented as part of the Statutory Consultation in November 2022. A summary of stakeholder engagement specific to ecology and biodiversity has been provided in **Table 6-4**.

Table 6-4: Ecology and Biodiversity Feedback on PEIR

Stakeholder	Date of communication	Comments	Response
Natural England	10 February 2023	Natural England note that there are five internationally designated sites within 10 km of the DCO Site Boundary. As surveys were ongoing, Natural England advise that they could provide additional advice on the results of the surveys and what this means for the HRA through the Discretionary Advice Service contract.	The potential for Likely Significant Effects on European designated sites has been assessed within this ES and the Report to inform HRA.
Natural England	10 February 2023	Natural England broadly welcome the measure proposed to prevent impacts upon local wildlife sites. They recommend consultation with the relevant site owners / managers which have extensive knowledge of these sites.	The potential for effects upon local wildlife sites has been assessed within this ES (refer to Sections 6.7 to 6.9).
Natural England	10 February 2023	Advice was sought on the 17 March 2022 on the possibility of applying for DLL which may become available in Lincolnshire. Natural England are willing to engage further to determine if DLL is appropriate for this project.	A DLL approach has been agreed for the Proposed Development and the IACPC is provided in *ES Volume IV: Appendix 6.9 (Application Document 6.4.6.9*).
Natural England	10 February 2023	Natural England welcome the intention of the applicant to make a positive contribution to biodiversity net gain and the intention to include an assessment within the ES. Natural England would be pleased to advise on any plan of	*An initial BNG Assessment has been completed for the Proposed Development (refer to Application Document 6.7.1)*

Stakeholder	Date of communication	Comments	Response
		action regarding BNG. Please be advised that the DEFRA metric should not be used to assess impacts and calculate compensation for habitat damage of loss in designated sites or irreplaceable habitats. Any impacts on such habitats and sites should be assessed in accordance with planning policy and via the environmental assessment.	
Forestry Commission	1 December 2022	The Forestry Commission notes that there is no ancient woodland within the project area. They note that there are three parcels of woodland which have received grant payments and the landowner will be required to meet the Terms and Conditions of the agreement contract.	The Proposed Development has been designed to avoid effects upon woodland habitat where possible. Should the proposed works impact on areas where grant payments have been received, we will work with owners of the parcels to ensure they can still meet the terms of their agreement contract.
North Lincolnshire Council	20 January 2023	The applicant should provide the competent authority with the information 'reasonably required' to carry out a HRA of the proposal, alone and in combination with other plans and projects. The council notes that it is relatively easy for a hedgerow to be 'important' in North Lincolnshire due to the reduced criteria and the potential to count additional features. The survey methods used and the effort deployed are appropriate for the site in question and for the target species. Appropriate measures are proposed to deal with any invasive non-native species.	A report to inform HRA has been prepared and assesses the potential for likely significant effects upon European designated sites either alone or in combination with other plans or projects. The hedgerow survey report identifies any Important Hedgerows within the DCO Site Boundary (*ES Volume IV: Appendix 6.5 (Application Document 6.4*.6.5).

Stakeholder	Date of communication	Comments	Response
		The proposals for BNG are compatible with current guidance.	

Additional Consultation

6.3.4 Additional consultation was undertaken with Natural England to agree an approach to DLL and other matters. A summary of stakeholder engagement specific to Ecology and Biodiversity has been provided in **Table 6-5**.

Table 6-5: Ecology and Biodiversity Additional Consultation

Stakeholder	Date of meeting / communication	Summary of discussions
Natural England	17 March 2022	Natural England were contacted by email to confirm whether DLL would be available for the Proposed Development. It was confirmed that there was not currently a DLL scheme in operation in North East Lincolnshire, and Natural England would need to gain some confidence in regard to pond delivery, before formally committing the Proposed Development into DLL. Natural England advised that they are aware of delivery options from some of their existing partners, which they would explore.
Natural England	6 September 2022	E-mail exchange between the Applicant and Natural England confirming whether any ponds would be directly impacted or lost.
Natural England	3 November 2022	Online meeting to provide an update with regards to the Proposed Development.
Environment Agency	23 November 2022	Online meeting to provide an update with regards to the Proposed Development.
Natural England	14 December 2022	Online meeting regarding DLL approach and to confirm next steps for application to DLL scheme.

Stakeholder	Date of meeting / communication	Summary of discussions
Natural England	1 March 2023	Submission of enquiry form and GIS shapefile to DLL scheme.
Natural England	3 March 2023	Receipt of provisional Great Crested Newt DLL Impact Assessment and Conservation Payment Certificate from Natural England. A copy of which is provided in *ES Volume IV: Appendix 6.9 (Application Document 6.4.6.9)* of this ES.
Natural England	18 July 2023	Meeting to provide a project update, including survey progress and mitigation proposals.

Scope of Assessment

6.3.5 The scope of this assessment has been established through the scoping process. Further information can be found in *ES Volume II Chapter 5 – EIA Methodology (Application Document 6.2.5)*.

6.3.6 This section provides an update to the scope of the assessment and re-iterates the evidence base for scoping out elements following further iterative assessment.

6.3.7 In the absence of embedded and additional mitigation, the following ecological features have the potential to be significantly affected and have been scoped into the EcIA:

- Statutory and non-statutory designated sites;
- Semi-natural broadleaved woodland;
- Broadleaved plantation woodland;
- Hedgerows;
- Running water;
- Open water;
- Scattered trees;
- Sand dunes;
- Invertebrates (including aquatic macroinvertebrates);
- Great crested newt (*Triturus cristatus*);
- Reptiles;
- Fish;
- Non-breeding waders, duck and geese;
- Non-breeding passerines;
- Breeding birds;
- Roosting bats;
- Foraging and commuting bats;
- Water vole (*Arvicola amphibius*);
- Otter (*Lutra lutra*);
- Badger (*Meles meles*);
- Brown hare (*Lepus europaeus*);
- Hedgehog (*Erinaceus europaeus*);
- Aquatic macrophytes; and,
- Invasive non-native species (INNS).

6.4 Assessment Methodology

Overview

6.4.1 Potential impacts on important ecological features have been assessed in accordance with CIEEM best practice guidance (Ref 6-18). The aims of the EcIA are to:

- Identify relevant ecological features (i.e., designated sites, habitats, species or ecosystems) which may be impacted as a consequence of the Proposed Development;
- Provide a scientifically rigorous and transparent assessment of the likely ecological impacts and resultant effects of the Proposed Development, which may be beneficial (i.e., positive) or adverse (i.e., negative);
- Facilitate scientifically rigorous and transparent determination of the consequences of the Proposed Development in terms of national, regional and local policies relevant to nature conservation and biodiversity, where the level of detail provided is proportionate to the scale of the development and the complexity of its potential impacts; and
- Set out the steps to be taken to adhere to legal requirements relating to the relevant ecological features concerned.

6.4.2 It is not necessary in the assessment to address all habitats and species with potential to occur in the zone of influence of the Proposed Development. Instead, the focus should be on those that are 'relevant'. CIEEM guidance makes it clear that there is no need to "*carry out detailed assessment of ecological features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable*". This does not mean that efforts should not be made to safeguard wider biodiversity, and requirements for this have been considered throughout the design evolution process. The development has been designed to avoid designated sites and habitats of principal importance wherever possible. Impacts upon areas of woodland and watercourses have also been avoided where possible through use of trenchless crossing techniques.

6.4.3 To support focussed EcIA, there is a need to determine the scale at which the ecological features identified through the desk studies and field surveys are of value. The value of each ecological feature will be defined with reference to the geographical level at which it matters, and the results of this assessment will be used to identify the relevant features requiring impact assessment. The frames of reference that will be used for this assessment, based on CIEEM guidance, are:

- International (generally this is within a European context, reflecting the general availability of good data to allow cross-comparison);
- National (Great Britain, but considering the potential for certain ecological features to be more notable (of higher value) in an England context relative to Great Britain as a whole);
- Regional (e.g., East Midlands);
- County (Lincolnshire);
- District (town or parish area e.g., Grimsby or Louth);
- Local (ecological features that do not meet criteria for valuation at a District or higher level, but that have sufficient value to merit retention or mitigation); and
- Negligible (common and widespread ecological features of such low priority that they do not require retention or mitigation at the relevant location to otherwise maintain a favourable nature conservation status).

6.4.4 All ecological features of Local importance and above, where there is the potential for the Proposed Development to impact them directly or indirectly, are included in the impact assessment and will be the 'relevant ecological features' for the purposes of the EcIA. Further information on how the importance of ecological receptors has been determined can be found within the relevant technical appendices.

6.4.5 In line with the CIEEM guidelines, the terminology used within the EcIA will draw a clear distinction between the terms 'impact' and 'effect'. For the purposes of the EcIA, these terms are defined as follows:

- *Impact* – actions resulting in changes to an ecological feature; for example, site clearance activities leading to the felling of a tree utilised as a bat roost; and
- *Effect* – outcome resulting from an impact, acting upon the conservation status or structure and function of an ecological feature; for example, killing/injury of bats and reducing the availability of breeding habitat because of the loss of a bat roost may lead to an adverse effect on the conservation status of the population concerned.

6.4.6 With reference to the CIEEM Guidelines, the following parameters have been considered when assessing effects on ecological features:

- *Positive or negative*; Whether the impact will have a positive (beneficial) or negative (adverse) change on the quality of the ecological feature.
- *Extent / complexity*: The geographical area over which the effect occurs, whether Direct, Indirect or Cumulative.
- *Magnitude*: The 'size' or 'amount' of an effect determined on a quantitative basis e.g., total or partial.
- *Duration*: The period over which the effect is expected to last prior to recovery or replacement of the resource or feature, for example, short-term (up to 3 months), medium term (between 3 months and 2 years) or long-term (greater than 2 years).
- *Reversibility*: Whether recovery from the effect is possible or not, e.g., irreversible (permanent) effects or reversible (temporary) effects.
- *Frequency and timing*: The number of times an activity occurs will influence the resulting effect. The timing of an activity or change may alter the impact.

Significance Criteria

6.4.7 For each ecological feature only those characteristics relevant to understanding the ecological effect and determining the significance are described. The determination of the significance of effects will be made based on the predicted effect on the structure and function, or conservation status, of relevant ecological features, as follows:

- Not significant - no effect on structure and function, or conservation status; and
- Significant - structure and function, or conservation status is affected.

6.4.8 Significant effects (both adverse and beneficial) will be qualified with reference to the geographic scale at which the effect is significant (e.g., an adverse effect significant at a national level).

6.4.9 The CIEEM approach described above broadly accords with the EIA methodology described in *ES Volume II Chapter 5 (Application Document 6.2.5)*. However, a matrix approach will not be used to classify effects, as this deviates from CIEEM guidance. To provide consistency of terminology in the EcIA with other chapters of the ES, the findings of the CIEEM assessment will be translated into the classification of effects scale as outlined in **Table 6-6** below.

Table 6-6: Classification of Effects

Effect Classification	Terminology used in other ES Chapters	Equivalent CIEEM Assessment
Significant (beneficial)	Major beneficial	Beneficial effect on structure/function or conservation status at regional, national or international level.
	Moderate beneficial	Beneficial effect on structure/function or conservation status at District or County level.
Not significant	Minor beneficial	Beneficial effect on structure/function or conservation status at a Local level.
	Negligible	No effect on structure/function or conservation status.
	Minor adverse	Adverse effect on structure/function or conservation status at a Local level.
Significant (adverse)	Moderate adverse	Adverse effect on structure/function or conservation status at District or County level. Contravention of wildlife legislation.
	Major adverse	Adverse effect on structure/function or conservation status at Regional, National or International level. Contravention of wildlife legislation.

6.4.10 Any significant adverse effects would be mitigated or compensated for, whilst ecological enhancements may be recommended where appropriate to meet planning policy objectives. Following the implementation of any mitigation and compensation, as appropriate, any residual effects on ecological features will be identified.

Application of Biodiversity Metric

6.4.11 The Environment Act 2021 was passed into law at the end of 2021 and serves as enabling legislation for future regulations and policy making in respect of environmental protection. Section 99 and Schedule 15 of the Environment Act relate to the provision of a BNG assessment for nationally significant infrastructure projects. However, these sections of the Environment Act have not yet come into force, and there is currently no relevant secondary legislation in force stemming from the same. Similarly, the NPS has not yet been updated to include a requirement to provide BNG. As such, it is not yet a legislative or policy requirement to provide BNG for nationally significant infrastructure projects.

6.4.12 An initial BNG Metric Calculation has been carried out for the Proposed Development focussed on those areas where permanent facilities are to be located (the Immingham Facility, Theddlethorpe Facility and the three Block Valve Stations), to quantify biodiversity losses and gains, as reported in the *Initial BNG Assessment (Application Document 6.7.1)*. The assessment has been completed taking guidance from Natural England's Biodiversity Metric 4.0 (Ref. 6-33) where relevant to the Applicant's proposed BNG strategy. Condition assessment data to inform the metric was collected during the Phase 1 habitat surveys.

Assumptions and Limitations

6.4.13 Broad assumptions and limitations are provided below. Ecological Feature specific assumptions and limitations are provided within *ES Volume IV: Appendices 6.1 to 6.10 (Application Document 6.4)*, as required.

6.4.14 No residential properties are required to be lost to facilitate the construction of the Proposed Development. However, where residential and non-residential properties have been considered to be at risk of indirect effects, taking into consideration existing disturbance levels, due to their proximity to the Proposed Development, these have been assessed for their potential to support protected and/or notable species.

6.4.15 Although sufficient survey information has been gathered, or else precautionary assumptions applied, to ensure the assessment is robust, some surveys and assessment within the DCO Site Boundary will continue post DCO Application in relation to bats and riparian mammals. The results of this small number of remaining surveys will be used to update the assessment findings where necessary, to ensure the assessment, conclusions and proposed mitigations developed based on the precautionary approach remain valid.

6.4.16 All efforts have been made to complete field surveys across the entirety of the DCO Site Boundary including the use of land access powers (S172 powers) where necessary. However, there were some areas of land where access was unable to be gained (Figure 6-3). In the absence of field survey data, it has been necessary to apply a precautionary approach to assessment and proposed mitigation (in line with CIEEM guidance (Ref. 6-18)). In such cases, the employment of a reasonable worst-case scenario (for example, assumed presence) has been applied and is considered sufficient to inform this impact assessment.

6.4.17 The exact route of the Proposed Development within the DCO Site Boundary will be determined at Detailed Design. For the purposes of the EcIA, a reasonable worst-case scenario has been assumed to inform this impact assessment and mitigation requirements.

6.5 Baseline Conditions and Study Area

Study Area

6.5.1 The Study Areas used in this assessment were defined with reference to the likely zone of influence over which the Proposed Development may have potential to result in significant effects on relevant ecological features. A 10 km study area around the DCO Site Boundary has been used to identify European and statutory designated sites, particularly those with mobile qualifying features such as birds. The 10 km study area is worst case and reflects standard guidance for air quality impact assessment (Ref 6-40).

6.5.2 The study area for the identification of local non-statutory conservation sites and for gathering third party records of habitats and protected and notable species is a more focused area of 2 km from the Proposed Development. This distance is again informed by standard guidance for air quality impact assessment (Ref 6-40) and best practice guidelines (Ref 6-20 and 6-21).

6.5.3 It is important to recognise that the potential zone of influence of the Proposed Development may vary over time (e.g., the construction zone of influence may differ from the operational zone of influence) and/or depend on the individual sensitivities of different ecological features.

6.5.4 For ease of reporting, the DCO Site Boundary has been separated in to five sections (Sections 1-5) (refer to Chapter 3):

- Section 1 – Immingham Facility to A180;
- Section 2 – A180 to A46
- Section 3 – A46 to Pear Tree Lane;
- Section 4 – Pear Tree Lane to Manby Middlegate (B1200); and,
- Section 5 – Manby Middlegate (B1200) to Theddlethorpe and down to Mean Water Low Springs.

Sensitive Ecological Features

6.5.5 The following ecological features are relevant to this assessment:

- Statutory and non-statutory designated sites designated for their ecological interest;
- Habitats including habitats of Principal Importance; and,
- Protected and notable species of flora and fauna.

Baseline Conditions

6.5.6 A large number of data sources have been used to develop this baseline. The information sources are set out in the individual species and habitat appendices that accompany this chapter (*Application Documents 6.4.6.1 to 6.4.6.8*)

Statutory Designated Sites

6.5.7 There are four European designated sites within the DCO Site Boundary:

- The Humber Estuary SPA;
- The Humber Estuary Ramsar;
- Saltfleetby-Theddlethorpe Dunes and Gibraltar Point SAC[2]; and,

[2] Although the Humber Estuary SPA and Ramsar and Saltfleetby-Theddlethorpe Dunes & Gibraltar Point SAC are crossed by the DCO Site Boundary, there will be no intrusive works in this location as the existing LOGGS pipeline will be used to transport CO_2.

- Greater Wash SPA with marine components[3]

6.5.8 There is one further European designated site within 10 km of the DCO Site Boundary – the Humber Estuary SAC, located 1.27 km north-east of the DCO Site Boundary at its closest point.

6.5.9 There are 15 nationally designated sites (i.e., Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR)) within 10 km of the DCO Site Boundary. There is one nationally designated site within the DCO Site Boundary, which is Saltfleetby - Theddlethorpe Dunes SSSI.

6.5.10 Statutory designated sites that are overlapped by, or within 10 km of the DCO Site Boundary, and the reasons for their designation, are summarised in **Table 6-7**.

6.5.11 **Figure 6-1** shows the locations of the statutory designated sites in relation to the DCO Site Boundary.

Non-Statutory Designated Sites

6.5.12 There are 33 non-statutory sites designated for their nature conservation value within 2 km of the DCO Site Boundary; these designations include Local Wildlife Sites (LWS), Sites of Nature Conservation Interest (SNCI) Local Wildlife Trust (LWT) sites or Roadside Nature Reserve (RNR) sites. These are summarised in **Table 6-8** below. The locations of non-statutory designated sites in relation to the DCO Site Boundary are provided in **Figure 6-2**.

[3] The end of the DCO Site Boundary and the beginning of the SPA boundary are contiguous with Mean Low Water Springs.

Table 6-7: Statutory Designated Sites for Nature Conservation within 10 km of the DCO Site Boundary

Site	Grid Reference	Proximity to DCO Site Boundary	Summary of Reasons for Designation	Importance
Humber Estuary SPA	TA241148	Within Section 5 of the DCO Site Boundary.	Qualifying features: • avocet (*Recurvirostra avosetta*) (wintering and breeding); • bittern (*Botaurus stellaris*) *(wintering);* • hen harrier (*Circus cyaneus*) *(wintering)*, golden plover (*Pluvialis apricaria*) (wintering), bar-tailed godwit (*Limosa lapponica)* (wintering); • ruff (*Philomachus pugnax*) (passage); • bittern (*Botaurus stellaris*) (breeding); • marsh harrier (*Circus aeruginosus*) (breeding); • little tern (*Sternula albifrons*) (breeding), shelduck (*Tadorna tadorna*) (wintering); • knot (*Calidris canutus*) (wintering and passage); • dunlin (*Calidris alpina*) (wintering and passage); • black tailed godwit (*Limosa limosa*) (wintering and passage); and • redshank (*Tringa totanus*) (wintering and passage). The site is used regularly over winter by over 20,000 waterbirds.	International
Humber Estuary Ramsar	TA238148	Within Section 5 of the DCO Site Boundary	Designated for habitats including dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/saline lagoons.	International

Site	Grid Reference	Proximity to DCO Site Boundary	Summary of Reasons for Designation	Importance
			The Humber Estuary Ramsar site supports a breeding colony of grey seals (*Halichoerus grypus*) at Donna Nook. The dune slacks at Saltfleetby-Theddlethorpe on the southern extremity of the Ramsar site are the most north-easterly breeding site in Great Britain of the natterjack toad (*Bufo calamita*). The estuary supports a waterfowl assemblage of international importance (153,934 waterfowl, non-breeding season (5-year peak mean 1996/97-2000/2001)). The following bird species / populations occur at levels of international importance over winter and/or during the passage period (spring and autumn): golden plover, red knot, dunlin, black-tailed godwit, common redshank, common shelduck and bar-tailed godwit (JNCC, 2008).	
Saltfleetby-Theddlethorpe Dunes & Gibraltar Point SAC	TF478909	Within Section 5 of the DCO Site Boundary	Habitats that are a primary reason for selection of this site: shifting dunes along the shoreline with marram grass (*Ammophila arenaria*), fixed coastal dunes with herbaceous vegetation, dunes with sea buckthorn (*Hippophae rhamnoides*), and humid dune slacks. Habitats present as a qualifying feature, but not a primary reason for selection of this site: embryonic shifting dunes.	International
Greater Wash SPA with marine components	TF821744	Within Section 5 of the DCO Site Boundary	Qualifying features: • red-throated diver (*Gavia stellata*) (wintering); • little gull (*Hydrocoloeus minutus*);	International

Site	Grid Reference	Proximity to DCO Site Boundary	Summary of Reasons for Designation	Importance
			• sandwich tern (*Thalasseus sandvicensis*) (breeding); • common tern (*Sterna hirundo*) (breeding); • little tern (*Sternula albifrons*) (breeding); and • common scoter (*Melanitta nigra*) (non-breeding).	
Humber Estuary SAC	TA232154	1.27 km north-east of Section 1 at the closest point	Habitats that are a primary reason for selection of this site: Estuaries and mudflats and sandflats not covered by seawater at low tide. Habitats present as a qualifying feature, but not a primary reason for selection of this site: Sandbanks which are slightly covered by seawater all the time, coastal lagoons, *Salicornia* and other annuals colonizing mud and sand, Atlantic salt meadows, embryonic shifting dunes, shifting dunes along the shoreline with marram grass (*Ammophila arenaria*), fixed coastal dunes with herbaceous vegetation and dunes with sea buckthorn (*Hippopha rhamnoides*). Species present as a qualifying feature, but not a primary reason for site selection: sea lamprey (*Petromyzon marinus*), river lamprey (*Lampetra fluviatilis*), and grey seal (*Halichoerus grypus)*.	International
Saltfleetby - Theddlethorpe Dunes SSSI	TF481908	Within Section 5 of the DCO Site Boundary	Includes flats, dunes, salt and freshwater marsh and support an exceptionally rich flora and fauna. There are outstanding assemblages of vascular plants, invertebrates and breeding birds and it is the most north-easterly breeding site in Britain for the natterjack toad. The intertidal sands and muds provide extensive feeding and roosting grounds for	National

Site	Grid Reference	Proximity to DCO Site Boundary	Summary of Reasons for Designation	Importance
			wildfowl and waders including brent geese (*Branta bernicla*), shelduck and dunlin.	
Humber Estuary SSSI	TA232155	1.28 km north-east of Section 1 at the closest point	The Humber Estuary supports nationally important habitats including intertidal mudflats and sandflats, coastal saltmarsh and associated saline lagoons, sand dunes and standing waters. The estuary supports nationally important numbers of 22 wintering waterfowl and nine passage waders, and a nationally important assemblage of breeding birds of lowland open waters and their margins. It is also nationally important for a breeding colony of grey seal, river lamprey and sea lamprey, a vascular plant assemblage and an invertebrate assemblage.	National
North Killingholme Haven Pits SSSI	TA166197	2.35 km north of Section 1	Large saline lagoons which provide roosting and feeding grounds for waterfowl. Nine species of specialist lagoonal species are recorded from the pits include the polychaete worm (*Alkmaria romijni*). Designated for aggregations of non-breeding birds, including nationally important numbers of: • Black-tailed Godwit (*Limosa limosa islandica*).	National
Swallow Wold SSSI	TA168048	2.90 km south-west of Section 2	Designated for: • CG2 - *Festuca ovina - Avenula pratensis* lowland calcareous grassland; and • CG4 - *Brachypodium pinnatum* lowland calcareous grassland.	National
Tetney Blow Wells SSSI	TA320007	4.25 km south-east of Section 3	Tetney Blow Wells consists of reedbeds together with base-rich fern and swamp vegetation	National

Site	Grid Reference	Proximity to DCO Site Boundary	Summary of Reasons for Designation	Importance
			associated with the calcareous water of four large artesian springs.	
Muckton Wood SSSI	TF382811	7.02 km south-west of Section 5	An example of primary woodland on boulder clay at the eastern edge of the Lincolnshire Wolds. Alder replaces the typical oak/ash canopy with a hazel understorey in areas where there is sub-surface water movement towards Muckton Beck. The area is managed as hazel coppice-with-standards. The site supports one of the largest heronries in the county, with over 30 breeding pairs.	National
Sea Bank Clay Pits SSSI	TF532792	7.69 km south-east of Section 5	A series of isolated flooded clay workings of varying size, depth and topography which now support uncommon aquatic plant communities characteristic of the slightly brackish, eutrophic (nutrient-rich) water in addition to extensive reedbeds and a rich marginal wetland flora.	National
Swaby Valley SSSI	TF391776	9.42 km south of Section 5	This glacial overflow valley supports two habitats now scarce in Lincolnshire – floristically diverse, lime-rich marsh and unimproved chalk turf. The marsh borders a stream bisecting the valley floor and the interest of the grassland is increased by the terraced nature of the slopes. Designated for botanical interest.	National
Calceby Marsh SSSI	TF398772	9.43 km south of Section 5	An outstanding example of a base-rich marsh.	National
Saltfleetby – Theddlethorpe Dunes NNR	TF481908	Within Section 5 of the DCO Site Boundary	Includes flats, dunes, salt and freshwater marsh, supports an exceptionally rich flora and fauna.	National

Site	Grid Reference	Proximity to DCO Site Boundary	Summary of Reasons for Designation	Importance
Donna Nook NNR	TF447961	6.69 km north of Section 5	The reserve consists of dunes, slacks and inter-tidal areas. In winter, there is a breeding colony of grey seals, with more than 2,000 pups born annually.	National
Bradley & Dixon Woods LNR	TA242059	2.27 km north-east of Section 3	Ancient woodland.	County
Weelsby Woods Park LNR	TA285073	5.97 km north-east of Section 3	A large urban public park and woodland.	County
Cleethorpes Country Park LNR	TA306067	6.52 km north-east of Section 3	A 64-hectare country park which includes a lake, wetland, woodland, grassland, hedgerows and scrub habitats.	County
Cleethorpes LNR[4]	TA331070	8.62 km north-east of Section 3	Habitats include saltmarshes, mud flats, sand dunes and sand banks.	County

[4] This site is also widely referred to as Cleethorpes Sands LNR by Natural England (such as on Natural England's Designated Sites View web page: https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1009538, accessed September 2023).

Table 6-8: Non-statutory Designated Sites

Site	Grid Reference	Proximity to DCO Site Boundary	Summary Reasons for Designation	Importance
River Freshney Headwaters LWS	TA222053	Within Section 3 of the DCO Site Boundary	Designated for its wetland habitat.	County
Waithe Beck East LWS	TA247018	Within Section 3 of the DCO Site Boundary	Designated for its standing water and mosaic of standing water, neutral grassland and flowing water.	County
Great Eau SNCI	TF440844	Within Section 5 of the DCO Site Boundary	Designated for its woodland, wet woodland, running water, and habitat mosaic.	County
Long Eau, East SNCI	TF439881	Within Section 5 of the DCO Site Boundary	Designated for its wetland with a biodiverse species assemblage and habitat mosaic.	County
Great Eau LWS	TF443849	Within Section 5 of the DCO Site Boundary	Designated for its woodland, wet woodland, running water, and habitat mosaic.	County
Brackenborough Road Verge LWS	TF339918	5 m east of Section 4	Designated for its species rich neutral grassland.	County
Brackenborough RNR	TF339918	5 m north-east of Section 4	Designated for its species rich neutral grassland.	County
Rosper Road Pools LWS	TA175170	45 m east of Section 1	Designated for its standing water with botanical interest.	County
Red Leas Lane Verges LWS	TF386904	84 m north-west of Section 4	Unimproved calcareous grassland, damp grassland.	County
Brackenborough Wood LWS	TF340908	216 m south-west of Section 4	Designated for its structurally diverse woodland.	County

Site	Grid Reference	Proximity to DCO Site Boundary	Summary Reasons for Designation	Importance
Mablethorpe North Dunes LWS	TF501864	217 m south of Section 5	Designated for its dune habitats.	County
Long Eau, West SNCI	TF412866	281 m west of Section 5	Designated for its running water with biodiverse species assemblage and its wetland with a biodiverse species assemblage.	County
Irby Dales LWS	TA193054	371 m south-west of Section 2	Designated for its mosaic of species rich neutral and calcareous grassland.	County
Roxton Wood LWS	TA161116	374 m south-west of Section 2	Designated for its woodland	County
Saltfleetby - Theddlethorpe Dunes LWT	TF467917	517 m north-east of Section 5	The reserve contains tidal sand and mudflats, salt and freshwater marshes and sand dunes.	County
Mayflower Wood Meadow LWS	TA159158	591 m north-west of Section 1	Designated for its species rich neutral grassland	County
Medieval Village of Beesby LWS	TF264963	605 m south-west of Section 3	Designated for its mosaic of species rich neutral and calcareous grassland.	County
Burkinshaw's Covert LWS	TA160 183	881 m north-west of Section 1	Designated for its species rich wet woodland and neutral grassland	County
Station Road Field LWS	TA168181	882 m north-west of Section 1	Designated for its mosaic of species rich neutral grassland and species rich calcareous grassland. Habitat is no longer present.	County
Long Eau, East LWS	TF441883	1.05 km north-east of Section 5	Designated for its wetland with a biodiverse species assemblage and habitat mosaic.	County

Site	Grid Reference	Proximity to DCO Site Boundary	Summary Reasons for Designation	Importance
Long Eau, West LWS	TF407862	1.06 km south-west of Section 5	Designated for its running water with biodiverse species assemblage and its wetland with a biodiverse species assemblage.	County
Irby Holmes Wood LWS	TA203032	1.09 km south-west of Section 3	Designated for its plantation on ancient woodland.	County
Roxton Wood RNR	TA164111	1.12 km south-west of Section 2	Road verge	County
Roxton Wood Road Verges LWS	TA165112	1.12 km south-west of Section 2	Road verge / green lane / path	County
Eastfield Road Railway Embankment LWS	TA152170	1.13 km west of Section 1	Designated for its species rich neutral grassland and species rich calcareous grassland.	County
Irby Dales Wood West LWS	TA184051	1.27 km south-west of Section 2	Designated for its plantation on ancient woodland.	County
Great Carlton Wetlands LWS	TF409863	1.30 km west of Section 5	Wetland habitats – no further information available.	County
Manby Wetlands LWS	TF407863	1.55 km west of Section 4	Designated for its species rich neutral grassland, running or standing water with botanical interest and its botanically interesting wetland areas.	County
Helen House Farm Grassland LWS	TF462853	1.67 km west of Section 5	Grassland – no further information available.	County

Site	Grid Reference	Proximity to DCO Site Boundary	Summary Reasons for Designation	Importance
Stallingborough Meadow LWS	TA199116	1.72 km east of Section 2	Designated for its standing water with botanical interest	County
Stallingborough Meadows East LWS	TA200116	1.84 km east of Section 2	Designated for its species rich neutral grassland	County

Habitats

6.5.13 A preliminary ecological appraisal, which included a Phase 1 habitat survey of all land within the DCO Site Boundary, was undertaken between March 2022 and May 2023. Full methodology and results are presented within *ES Volume IV: Appendix 6.1 (Application Document 6.4.6.1)*. The vegetation and broad habitat types within the site were recorded in accordance with the categories specified for a Phase 1 Vegetation and Habitat Survey (Ref 6-32). Dominant plant species were recorded for each habitat present using nomenclature according to Stace (2010).

6.5.14 Habitats of Principal Importance (HPI) or those listed within Local Biodiversity Action Plans (LBAP) for relevant local authorities were identified during the desk study. The site was also appraised for its suitability to support protected and notable species with reference to the CIEEM Guidelines for Preliminary Ecological Appraisal (Ref 6-19). The locations of any invasive non-native plant species were also recorded during the survey.

6.5.15 The habitats within the DCO Site Boundary are summarised below and shown in Figure 6-4 within *ES Volume IV: Appendix 6.1 (Application Document 6.4.6.1)*.

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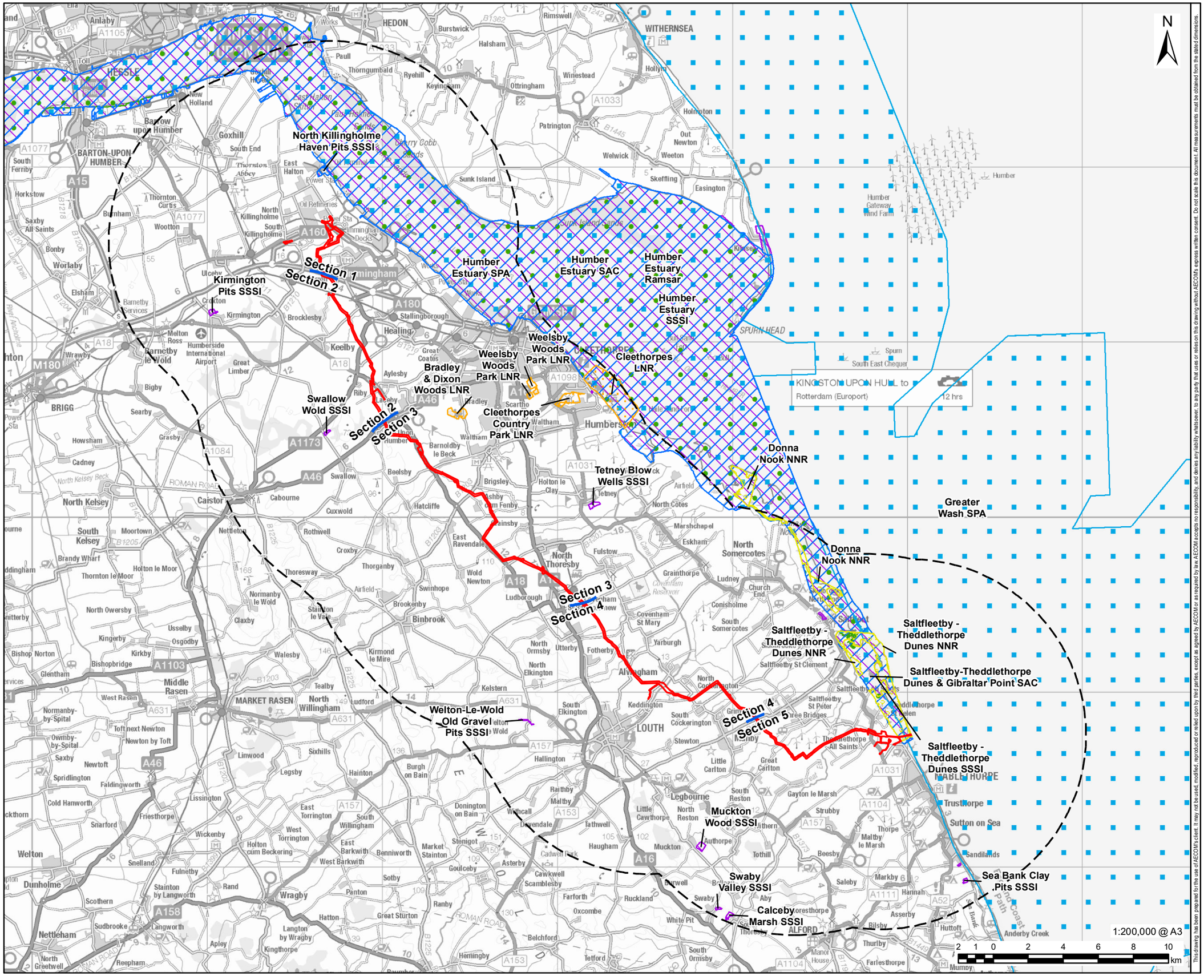

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- 10km Study Area

Statutory Designated Sites

- Local Nature Reserve (LNR)
- National Nature Reserve (NNR)
- Ramsar
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)

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FIGURE TITLE

Figure 6-1
Statutory Designated Sites within 10km

ISSUE PURPOSE

ENVIRONMENTAL STATEMENT

PROJECT NUMBER / REFERENCE

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Burkinshaw's Covert
Station Road Field
Eastfield Road Railway Embankment
Rosper Road Pools
Mayflower Wood Meadow
Homestead Park Pond
Section 1
Section 2
Roxton Wood
Roxton Wood Road Verges
Stallingborough Meadows East
Stallingborough Meadow
River Freshney Headwaters

N

1:50,000 @ A3

1 0.5 0 1 2 3 4 5 km

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VikingCCS

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PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- 2km Study Area

Non-Statutory Designated Sites

- Local Wildlife Site
- Road Nature Reserve

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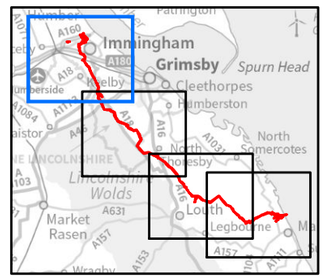

FIGURE TITLE

Figure 6-2 (1 of 4)
Non-Statutory Designated Sites within 2km

ISSUE PURPOSE

ENVIRONMENTAL STATEMENT

PROJECT NUMBER / REFERENCE

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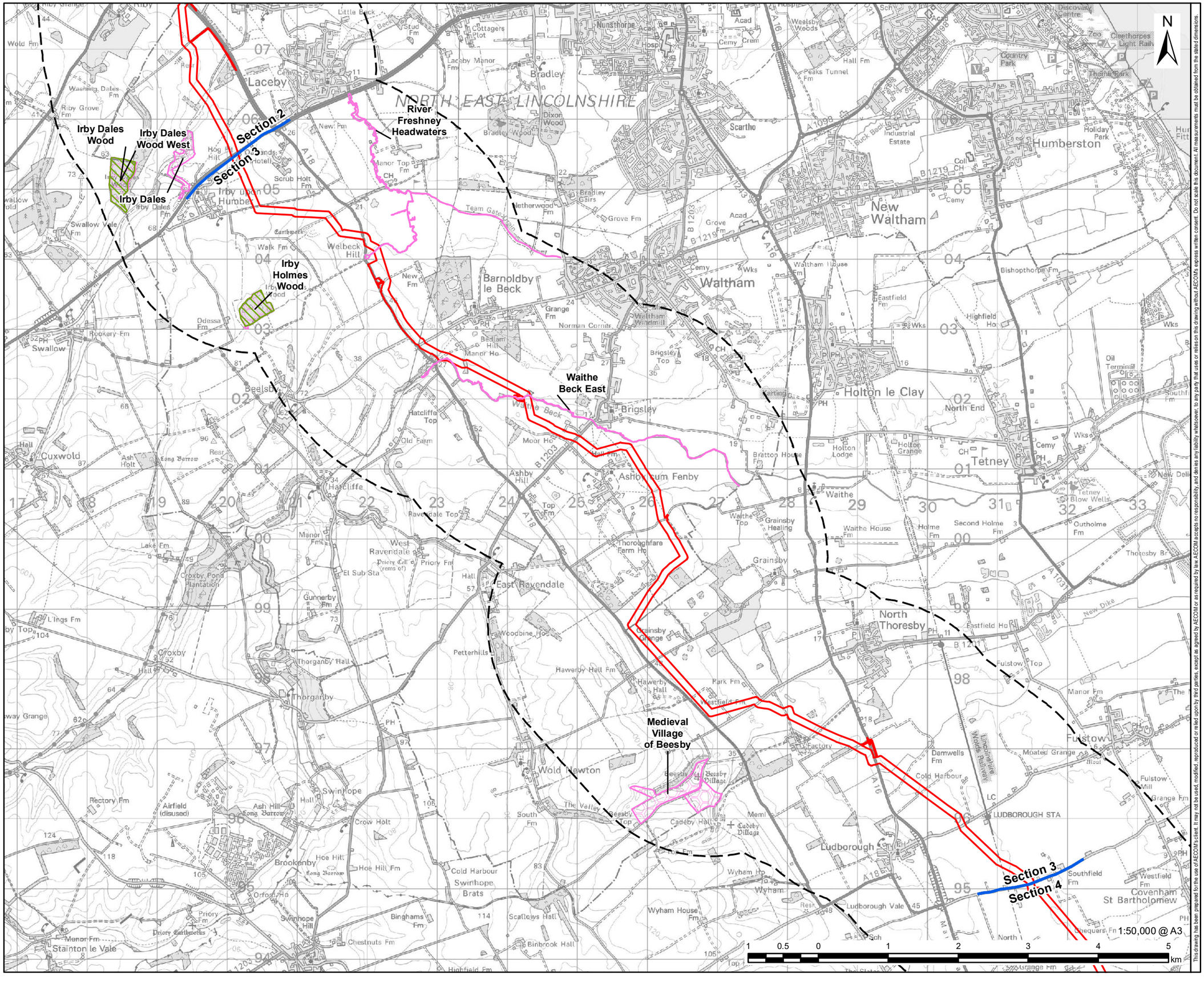

VikingCCS

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PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- 2km Study Area

Non-Statutory Designated Sites

- Ancient Woodland
- Local Wildlife Site

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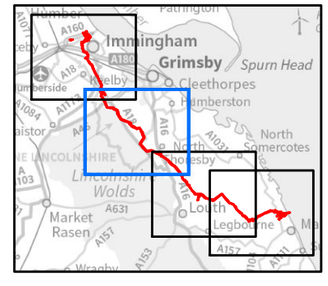

FIGURE TITLE

Figure 6-2 (2 of 4)
Non-Statutory Designated Sites within 2km

ISSUE PURPOSE

ENVIRONMENTAL STATEMENT

PROJECT NUMBER / REFERENCE

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Section 3
Section 4
Section 5

Brackenborough Road Verge
Brackenborough
Brackenborough Wood
Red Leas Lane Verges
Long Eau, East
Long Eau, West
Manby Wetlands
Great Carlton Wetlands
Great Eau

1:50,000 @ A3

1 0.5 0 1 2 3 4 5 km

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VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- 2km Study Area

Non-Statutory Designated Sites

- Local Wildlife Site
- Road Nature Reserve
- Site of Nature Conservation Interest

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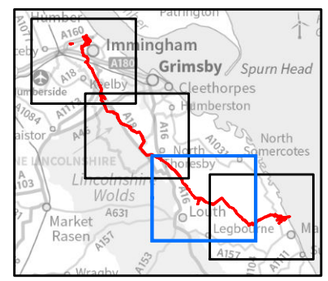

FIGURE TITLE

Figure 6-2 (3 of 4)
Non-Statutory Designated Sites within 2km

ISSUE PURPOSE

ENVIRONMENTAL STATEMENT

PROJECT NUMBER / REFERENCE

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Saltfleetby-Theddlethorpe Dunes
Saltfleetby-Theddlethorpe Dunes
Saltfleetby-Theddlethorpe Dunes
Saltfleetby-Theddlethorpe Dunes
Red Leas Lane Verges
Great Eau
Long Eau, East
Great Eau
Saltfleetby-Theddlethorpe Dunes
Section 4
Section 5
Long Eau, East
Great Eau
Long Eau, West
Manby Wetlands
Great Carlton Wetlands
Great Eau
Mablethorpe North Dunes
Helen House Farm Grassland
Long Eau, West
Great Eau
Great Eau
Great Eau
Great Eau

N

1:50,000 @ A3

1 0.5 0 1 2 3 4 5 km

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- 2km Study Area

Non-Statutory Designated Sites

- Local Wildlife Site
- Local Wildlife Trust
- Site of Nature Conservation Interest

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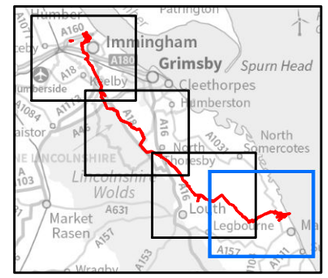

FIGURE TITLE

Figure 6-2 (4 of 4)
Non-Statutory Designated Sites within 2km

ISSUE PURPOSE

ENVIRONMENTAL STATEMENT

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230914_ES_6-2

Section 1 – Rosper Road, Immingham to the A180

Arable

6.5.16 Arable was the dominant habitat type in this section. Several arable fields were present between Immingham and the A180. Arable fields included areas that had been harvested and contained stubble, fields used for cereal production and fields containing grass leys. Arable habitats (a common and widespread habitat type) are of **negligible** importance.

Broad-leaved Plantation Woodland

6.5.17 There was immature broad-leaved plantation woodland to the north of the former Immingham golf course. Canopy species included ash (*Fraxinus excelsior*), sycamore (*Acer pseudoplatanus*), alder (*Alnus glutinosa*), pedunculate oak (*Quercus robur*), wild cherry (*Prunus avium*), silver birch (*Betula pendula*) and poplar (*Populus* sp.). Broad leaved-leaved plantation woodland supports invertebrates, nesting birds, foraging and commuting bats and small mammals and is a habitat of **local** importance.

Dense Scrub

6.5.18 There was an area of dense scrub to the north-east of Manby Road (the A1173) dominated by dense bramble (*Rubus fruticosus* agg.), hawthorn (*Crataegus monogyna*) and dogrose (*Rosa canina* agg.). There was also dense scrub adjacent to the railway line. Dense scrub is common and widespread in Lincolnshire and is of **negligible** importance.

Poor Semi-improved Neutral Grassland

6.5.19 Poor semi-improved grassland was present on the site of the former Immingham Golf Club. Typical plant species included perennial rye grass (*Lolium perenne*), nettle (*Urtica dioica*), docks (*Rumex* spp.), cock's foot (*Dactylis glomerata*) and thistles (*Cirsium* spp.). The sward is of a uniform height with areas of the grassland becoming more rank around the old bunkers of the golf course. Due to the low species diversity poor semi-improved grassland is of **negligible** importance.

Semi-Improved Neutral Grassland

6.5.20 Areas of higher quality semi-improved grassland occur in association with Mayflower Wood as rides and glades, as well as larger stands of meadow. Species found within this area included pepper saxifrage (*Silaum silaus*). This grassland is not succinctly botanically diverse to represent a priority grassland habitat type and is assessed as **local** importance.

Open Mosaic Habitat on Previously Developed Land

6.5.21 Within the Immingham Facility there was an area of Open Mosaic Habitat on Previously Developed Land, an HPI. The habitat had developed over a gravel substrate and supported a sparse flora including common spotted orchid (*Dactylorhiza fuchsii*), southern marsh orchid (*Dactylorhiza praetermissa*), yellow-wort (*Blackstonia perfoliata*), mouse-ear hawkweed (*Pilosella officinarum*) and fern grass (*Catapodium rigidum*), with self-set birch (*Betula* spp.) and willow (*Salix* spp.) scrub. Due to the high proportion of bare ground, this habitat has been assessed to be of **local** importance.

Tall Ruderal

6.5.22 Tall ruderal vegetation was present along field margins dominated by common nettle. Tall ruderal habitat is common and widespread and is of **negligible** importance.

Ephemeral / Short Perennial

6.5.23 There were ephemeral / short perennial habitats to the west of Rosper Road. Species present included mosses, willowherb (*Epilobium* sp) and fescue (*Festuca* sp). Ephemeral / short perennial vegetation is common and widespread and a habitat of **negligible** importance.

Open Water

6.5.24 There were water bodies within the Philips 66 refinery which appeared to be settlement ponds however, these were not accessible during the surveys (refer to limitations within *ES Volume IV: Appendix 6.1 (Application Document 6.4.6.1)*. These water bodies are of **negligible** importance. Based upon aerial photography, there are some water bodies south of Philips 66 which have been colonised by plant species. Ponds are an HPI and based upon a precautionary approach, these are assessed as **local** importance.

Running Water

6.5.25 This habitat only occurs as ditches. They occurred widely but, as the primary function of the ditches is land drainage within an agricultural landscape, they are generally of poor water quality. Ditches within the landscape provide habitat connectivity and may create opportunities for invertebrates, amphibians, fish, nesting birds and reptiles such as grass snake. Therefore, they are assessed to be of **local** importance.

Intact Species Poor Hedgerows with Trees

6.5.26 Hedgerows with trees were present on the arable field boundaries. These were generally dominated by hawthorn with occasional dogrose, and an understory of common nettle, bramble., perennial rye grass, common hogweed (*Heracleum sphondylium*), creeping buttercup (*Ranunculus repens*) and cleavers (*Galium aparine*). Hedgerows are an HPI and of **local** importance.

Buildings

6.5.27 There were buildings and hardstanding within the Phillips 66 refinery. These buildings are industrial and therefore of **negligible** ecological importance.

Bare Ground / Hardstanding

6.5.28 Buildings and structures in the north of the DCO Site Boundary were surrounded by roads and hardstanding. Access was not granted to survey these areas at the time of writing. Bare ground and hardstanding are common and widespread and are of **negligible** importance.

Section 2 – A180 to A46

Arable

6.5.29 Arable habitats were present throughout Section 2 comprised of fields used to grow crops. Arable habitats are common and widespread of **negligible** importance.

Semi-improved Neutral Grassland

6.5.30 This habitat occurred in one distinct area in Section 2. A mix of coarse grasses, with herbs including cuckooflower (*Cardamine pratensis*), buttercups, common vetch (*Vicia sativa*), and dandelion (*Taraxacum* agg). The grassland does not meet the criteria for lowland meadows however it does have some ecological value in the context of the largely agricultural landscape. Semi-improved neutral grassland is of **local** importance.

Marshy Grassland

6.5.31 This habitat occurred in one distinct area in Section 2. Grasses included a mix of meadow foxtail (*Alopecurus pratensis*), Yorkshire fog (*Holcus lanatus),* common reed (*Phragmites australis*), cock's-foot and tufted hairgrass (*Deschampsia cespitosa*). Marshy grassland can support invertebrates and nesting birds and is of **local** importance.

Broad-leaved Plantation Woodland

6.5.32 This habitat occurs in one distinct area in Section 2. Canopy of oak, silver birch (*Betula pendula*), hornbeam (*Carpinus betulus*), willow (*Salix* sp.) and field maple (*Acer campestre*) with an understorey of elder (*Sambucus nigra*), hawthorn and rowan (*Sorbus aucuparia*). Broad-leaved plantation woodland is of **local** importance.

Scattered Trees

6.5.33 A line of semi-mature trees was present on the boundaries of arable fields in the middle of Section 2. Species comprised of cherry (*Prunus* sp). and whitebeam (*Sorbus aria*). Scattered trees can support invertebrates, nesting birds and roosting, foraging and commuting bats, and are of **local** importance.

Veteran Trees

6.5.34 Veteran trees were identified within the DCO site boundary (refer to *ES Volume IV: Appendix 6.10 (Application Document 6.4)* for locations). Veteran trees can provide holes, cavities and crevices which are important for wildlife. Veteran trees are of **national** importance.

Poor Semi-improved Grassland

6.5.35 This occurs locally in a matrix with arable fields. Typical species include perennial ryegrass, Yorkshire fog and red fescue with docks and thistles. Poor semi-improved grassland is common and widespread and is of **negligible** importance.

Improved Grassland

6.5.36 Improved grassland habitat was identified to the north of Keelby Road. The habitat had been grazed and was dominated by perennial ryegrass. Improved grassland is a common and widespread habitat and is of **negligible** importance.

Running Water

6.5.37 North Beck Drain contained slow flowing water and some emergent vegetation. Invasive Himalayan balsam (*Impatiens glandulifera*) was present. Four further watercourses / field drains were present within the DCO Site Boundary. Watercourses and field drains are of **local** importance.

Hedgerow with Trees

6.5.38 Both species rich and species poor hedgerows with trees were present on the boundaries of arable fields within Section 2 of the DCO Site Boundary. Hedgerows are an HPI and of **local** importance.

Hardstanding

6.5.39 The DCO Site Boundary cross several roads. These include Keelby Road, the A1173, Wells Road and the A18. Hardstanding is of **negligible** importance.

Section 3 – A46 to Pear Tree Lane

Arable

6.5.40 The majority of the habitats within this section of the route were arable fields used to grow crops. Arable habitats are common and widespread and are of **negligible** importance.

Semi-natural Broad-leaved Woodland

6.5.41 There was a small area of semi-natural broad-leaved woodland south of Barnoldby Le Beck. Tree species present included pedunculate oak, ash, horse chestnut (*Aesculus hippocastanum*), elm (*Ulmus* sp.), beech (*Fagus sylvatica*) and cherry (*Prunus* sp.).

6.5.42 There was also woodland located to the south of Ashby-cum-Fenby which had a canopy of hornbeam, ash and sessile oak (*Quercus petraea*). Semi-natural broad-leaved woodland is of **local** importance.

Broad-leaved Plantation Woodland

6.5.43 There was a stand of newly planted woodland adjacent to Waithe Beck with canopy species including oak, alder, ash and hazel (*Corylus avellana*). Broadleaved plantation woodland is a habitat of **local** importance.

Broad-leaved Parkland

6.5.44 Broad-leaved parkland is present within Barnoldby le Beck. The parkland was comprised of a grassland that had been improved which was dominated by coarse grasses including Yorkshire fog and perennial ryegrass with creeping buttercup and common sorrel (*Rumex acetosa*). The parkland trees consisted of pedunculate oak, sycamore and a cherry (*Prunus sp.*). Woodpasture and parkland is a HPI and has been assessed to be of **county** importance due to the presence of mature and veteran trees.

Veteran Trees

6.5.45 Veteran trees were identified within Barnoldby le Beck parkland (refer to *ES Volume IV: Appendix 6.10 (Application Document 6.4.6.10)* for locations). Veteran trees are of **national** importance.

Hedgerow with Trees

6.5.46 Both species rich and species poor hedgerows were present along the route. Hedgerows varied in composition, but were generally dominated by hawthorn, with occasional blackthorn, ash, field maple, dog rose and elder. Hedgerows with trees are a HPI and of **local** importance.

Defunct Hedgerow

6.5.47 There was a defunct hawthorn hedgerow within the DCO Site Boundary. The defunct hedgerow is a HPI and of **local** importance.

Improved Grassland

6.5.48 Improved grassland dominated by species such as perennial rye grass, dandelion, white clover (*Trifolium repens*) and docks were prevalent within this section. Improved grassland is common and widespread and offers little to the local biodiversity resource and is of **negligible** importance.

Open Water

6.5.49 There was one pond present within Section 3 of the DCO Site Boundary, to the north of Hall Farm at Ashby Cum Fenby. Ponds are an HPI and of **local** importance.

Running Water

6.5.50 The watercourse from Welbeck Spring was found to have a depth approximately 30 cm, banks were grassy and at an approximate angle of 45 degrees. The watercourse is part of the River Freshney Headwaters LWS and is of **county** importance.

6.5.51 Waithe Beck was a small watercourse, approximately 1.5 m wide and 20 cm deep with a moderate flow and gravel substrate. Waithe Beck is part of the Waithe Beck East LWS and of **county** importance.

6.5.52 There were also un-named watercourses and ditches within the DCO Site Boundary. Watercourses and ditches are of **local** importance.

Dry Ditch

6.5.53 There was a dry ditch, densely vegetated with tall ruderal species within the DCO Site Boundary. Dry ditches are habitats of **negligible** importance.

Hardstanding

6.5.54 This habitat was present where the DCO Site Boundary crosses roads. Hardstanding is of **negligible** importance.

Section 4 – Pear Tree Lane to Manby Middlegate (B1200)

Arable

6.5.55 The majority of the habitats within this section of the route were arable fields used to grow crops. Arable habitats are common and widespread and are of **negligible** importance.

Semi-improved Neutral Grassland

6.5.56 Semi-improved neutral grassland with a high proportion of tall ruderal species was present to the north of Ings Lane and adjacent to the Louth Canal. This habitat was in moderate condition and is of **local** importance.

Veteran Trees

6.5.57 Veteran trees were identified within the DCO Site Boundary (refer to *ES Volume IV: Appendix 6.10 (Application Document 6.4.6.10)* for locations). Veteran trees are of **national** importance.

Running Water

6.5.58 The route crosses Yarburgh beck, the Louth canal, and several ditches / unnamed watercourses. Watercourses and ditches are of **local** importance.

Bare Ground / Hardstanding

6.5.59 This habitat was present where the DCO Site Boundary crosses roads. Bare ground / hardstanding is of **negligible** importance.

Section 5 – Manby Middlegate (B1200) to Theddlethorpe and down to MLWS

Arable

6.5.60 The majority of the habitats within this section of the route were arable fields used to grow crops. Arable habitats are of **negligible** importance.

Mixed Plantation Woodland

6.5.61 There is a strip of mixed plantation woodland to the east of The Cut watercourse. The woodland is largely semi-mature, with occasional mature trees also present. It predominantly comprises deciduous trees, although there are a number of mature Scots pines (*Pinus sylvestris*) present. Mixed plantation woodland is of **local** importance.

Semi-improved Neutral Grassland

6.5.62 There was semi-improved neutral grassland to the east of the former Theddlethorpe Gas Terminal. Semi-improved grassland is of **local** importance.

Improved Grassland

6.5.63 Improved grassland was dominated by perennial rye grass with a uniform sward height. Improved grassland is of **negligible** importance.

Running Water

6.5.64 The route crosses the Long Eau river which was approximately 6 m wide and slow flowing. The Long Eau is a LWS and is of **county** importance. The route also crosses the Two Mile Bank drain, the Great Eau, the Cut and unnamed ditches and watercourses. The Great Eau is also a LWS and of **county** importance. Two-mile bank drain, the cut and other unnamed ditches and watercourses are of **local** importance.

Dune Grassland, Dune Scrub and Open Dunes

6.5.65 Dune habitats are present at the south-eastern end of the route at Theddlethorpe St Helen. The sand dunes are part of Saltfleetby-Theddlethorpe Dunes & Gibraltar Point SAC and are of **international** importance.

Bare Ground

6.5.66 There is bare ground on the site of the former Theddlethorpe Gas Terminal. Bare ground is of **negligible** importance.

Summary

6.5.67 As discussed in Section 6.4.4, only features of local importance and above, where there is the potential for the project to impact them directly or indirectly, will be taken forward to impact assessment. As such, the following habitats are taken forward to ecological impact assessment:

- Open mosaic habitat on previously developed land – local importance;
- Semi-natural broadleaved woodland – local importance;
- Broad-leaved plantation woodland – local importance;
- Woodpasture and parkland – county importance;
- Hedgerows – local importance;
- Scattered trees – local importance;
- Veteran Trees – National importance;
- Semi-improved grassland – local importance;
- Running water – local and county importance;
- Open water (ponds) – local importance; and,
- Dune grassland, Dune Scrub and Open Dune – international importance.

Protected and Notable Species

6.5.68 The desk study and preliminary ecological appraisal identified habitats suitable for the following species or species groups:

- Invertebrates;
- Amphibians;
- Reptiles;
- Fish;
- Birds;
- Bats;
- Water vole;
- Otter;
- Badger;
- Brown hare;
- Hedgehog;
- Aquatic macroinvertebrates and macrophytes;
- Invasive non-native species.

6.5.69 Species-specific surveys were completed to obtain baseline information to determine the presence, or otherwise, of protected and notable species within the DCO Site Boundary. Full methodologies and results of each ecological feature surveyed are detailed within *ES*

Volume IV: Appendices 6.1 to 6.10 (Application Document 6.4.6.10) and have been summarised below.

Terrestrial Invertebrates

6.5.70 The desk study identified records for molluscs, moths, beetles, butterflies and true bugs within 2 km of the DCO Site Boundary. The full list of species is provided in *ES Volume IV: Appendix 6.1 (Application Document 6.4.6.1).* Arable habitats along the route will support a wide variety of invertebrate species; however, as they are managed for crop production, they are unlikely to support a significant assemblage of protected or notable species.

6.5.71 Woodland and hedgerows along the DCO Site Boundary will support a more diverse range of invertebrate species. Watercourses and ditches along the route will support aquatic invertebrates. Habitats associated with industrial land in the north of the route near Immingham and the south of the route near Theddlethorpe may support invertebrate communities associated with brownfield or coastal habitats.

6.5.72 Effects upon invertebrate communities are only considered likely where there are permanent losses of habitat; i.e., where the Immingham Facility is proposed. Invertebrate surveys were completed at the VPI site at Immingham to inform the Humber Zero Phase 1 Project (Ref 6-33). The VPI site is within the DCO Site Boundary of the Proposed Development. All areas of the VPI site were walked over on the 9 July 2021 by an experienced entomologist. The walkover survey was completed during suitable weather conditions i.e., sunny (20–22°C) and habitats were appraised for features of potential value for supporting key species (including species listed under S41 of the NERC Act, Red Data Book or nationally scarce and species of interest) or rich assemblages of invertebrates.

6.5.73 A follow-up site visit was made on 23 May 2022 in warm and sunny conditions (16–18°C) to determine whether habitats on Site supported colonies of dingy skipper and wall brown butterflies, both of which are S41 species. The survey comprised an initial walkover of all areas to locate any new suitable breeding habitat for the dingy skipper and wall brown butterfly. Following the identification of key areas, a series of transect walks covering each area were conducted at least twice during the visit. Any other notable (S41) butterfly species were also noted during the transect walks.

6.5.74 Invertebrate species recorded during the surveys are summarised in **Table 6-9** below.

Table 6-9: Invertebrate species recorded on the 23 May 2022 (Ref 6-35)

Common Name	Scientific Name	UK Status
Cinnabar moth	*Tyria jacobaeae*	NERC Act S41 (research only)
Common blue	*Polyommatus icarus*	-
Drinker moth (caterpillar)	*Euthrix potatoria*	-
Lackey moth (caterpillar)	*Malacomsoma neustria*	-
Mother Shipton	*Callistege mi*	-
Painted lady	*Vanessa cardui*	-
Peacock	*Aglais io*	-
Small heath	*Coenonympha pamphilus*	NERC Act S41
Small tortoiseshell	*Aglais urticae*	-

Common Name	Scientific Name	UK Status
Small white	*Pieris rapae*	-

6.5.75 Although no site is devoid of invertebrate interest, owing to a lack of niches or variation in habitat and features, the bulk of the VPI Site provides few opportunities for a rich invertebrate assemblage or scarce species. However, it does support small heath butterfly which are a SPI under S41 of the NERC Act. Therefore, the VPI Site is of **county** importance for invertebrates.

6.5.76 There will be some localised habitat loss at the Block Valve Station sites and Theddlethorpe Facility Option 2, however these areas are within arable habitats and are unlikely to support protected or notable invertebrate assemblages. Option 1 proposes permanent works at the eastern end of the route at the former Theddlethorpe Gas Terminal. Habitats in this area comprised of bare ground with hardstanding and had limited suitability to support protected or notable invertebrate assemblages. With the exception of land proposed for the Immingham Facility, habitats within the DCO Site Boundary are unlikely to support significant assemblages of protected or notable invertebrates and are of **negligible** importance.

Amphibians

6.5.77 The desk study identified records of great crested newt (GCN), smooth newt (*Lissotriton vulgaris*), palmate newt (*Lissotriton helveticus*), common frog (*Rana temporaria*), common toad (*Bufo bufo*) and natterjack toad (*Epidalea calamita*) within 2 km of the DCO Site Boundary. A search of the Magic website identified three European Protected Species Mitigation Licences (EPSML) for GCN within 2 km of Section 1 of the DCO Site Boundary. The full results of the desk study are provided in *ES Volume IV: Appendix 6.1 (Application Document 6.4.6.1).*

6.5.78 GCN and natterjack toad are afforded protection under the Habitats Regulations (Ref. 6-1) and WCA (Ref. 6-2) and are SPI under S41 of the NERC Act (Ref. 6-4). Common toad is a SPI under S41 of the NERC Act.

6.5.79 A review of Ordnance Survey Maps and Aerial photography identified 92 potential water bodies within 250 m of the DCO Site Boundary.

6.5.80 As the development has the potential to result in the loss of suitable habitat for GCN, a district level licence for the Proposed Development will be sought. Natural England have undertaken an Impact Assessment for the Proposed Development documented in an Impact Assessment and Conservation Payment Certificate (IACPC) (refer to *ES Volume IV: Appendix 6.9 (Application Document 6.4.6.9)*. Based upon a precautionary approach, GCN have been assessed as a receptor of **county** importance.

6.5.81 Natterjack toad is listed as a species present within the Saltfleetby-Theddlethorpe dunes SSSI and NNR in Section 5 of the DCO Site Boundary. Natterjack toads are found in coastal sand dune systems, coastal marshes, and sandy heaths. They breed in warm, shallow water such as pools within dune slacks.

6.5.82 The dune habitats at Theddlethorpe will remain unaffected by the development as they are to the east of the dune valve, which is the eastern most extent of intrusive construction work. There will be no direct loss of dune habitat or potential breeding ponds during construction or operation, and there will be no changes in habitat management. The connection at Theddlethorpe will link to the existing LOGGS pipeline, therefore there will be no changes in hydrology. As such, no effects upon natterjack toad are anticipated during the construction or operational phases of the development and natterjack toad are scoped out of assessment within this ES.

6.5.83 Terrestrial habitats within the DCO Site Boundary have suitability to support small numbers of common toad and this species has been assessed as an ecological feature of **local** importance.

Reptiles

6.5.84 There were records for common lizard (*Zootoca vivipara*), grass snake (*Natrix Helvetica*) and slow worm (*Anguis fragilis*) within 2 km of the DCO Site Boundary. The full results of the desk study are provided in *ES Volume IV: Appendix 6.1 (Application Document 6.4.6.1).* Common reptiles are protected under the WCA (Ref 6-2) and slow worm, common lizard, adder (*Vipera berus*) and grass snake are SPI under S41 of the NERC Act (Ref 6-4).

6.5.85 Areas of habitat suitable for reptiles were identified within the north of the DCO Site Boundary at Immingham. This area was surveyed to inform the Humber Zero Phase 1 Project (Ref 6-33). One-hundred and eleven Artificial Cover Objects (0.5m² black corrugated bitumen sheets often called 'tins') were placed in areas of suitable reptile habitat to determine the presence of any reptiles within the VPI Site. Seven survey visits were completed between 22 June 2021 and the 24 September 2021 during suitable weather conditions. No reptiles recorded during the surveys and reptiles are considered to be absent from this area.

6.5.86 The majority of habitats within the DCO Site Boundary are arable and lack the connectivity and structural diversity to support reptile populations. Habitats surrounding ponds, wet ditches and small watercourses may support species such as grass snake. Coastal habitats at the southern end of the Project have suitability for common lizard. Based upon a precautionary approach, reptiles are considered to be of **local** importance.

Fish

6.5.87 There were no desk study records for fish within the DCO Site Boundary. However, verified records were identified of brown trout (*Salmo trutta*), European eel (*Anguilla anguilla*), and bullhead (*Cottus gobio*) downstream in water bodies that are within the DCO Site Boundary (Table 5, *ES Volume IV: Appendix 6.7 (Application Document 6.4.6.7))*. There were records of brown trout in Waithe Beck, Laceby Beck and Louth canal. European eel was recorded in Waithe Beck, Louth canal and Long Eau. European eel was also recorded in The Beck, a water body that is hydrologically linked to Long Eau. Bullhead was recorded in Waithe Beck and Laceby Beck.

6.5.88 Records of stone loach (*Barbatula barbatula*), dace (*Leuciscus leuciscus*), and perch (*Perca fluviatilis*) were also recorded in Waithe Beck.

6.5.89 Stone loach, dace, gudgeon (*Gobio gobio*), roach (*Rutilus rutilus*) and three-spined stickleback (*Gasterosteus aculeatus*) were also recorded in Louth canal.

6.5.90 River lamprey (*Lampetra fluviatillis*) was recorded in The Beck and whilst outside the DCO Site Boundary, The Beck is connected to Long Eau.

6.5.91 Records of stone loach, dace, rudd (*Scardinius erythropthalmus*), roach, three-spined stickleback and pike (*Esox Lucius*) were also recorded in Long Eau.

6.5.92 No field surveys for fish were carried out.

6.5.93 Based upon a precautionary approach and the presence of brown trout and European eel present in water bodies that flow within the DCO Site Boundary, fish are considered to be of **county** importance.

Birds

6.5.94 A desk study was completed to identify statutory and non-statutory designated sites and notable species potentially relevant to the assessment of the Proposed Development. Sources of information used to inform the desk study which are relevant to birds are

summarised in Appendix 6.7 Ornithology Baseline Report (*Application Document 6.4.6.7*) and 6.8 Confidential Ornithology and Impact Assessment Report (*Application Document 6.4.6.8*).

6.5.95 Protected and notable species include those listed under Schedules 1 of the Wildlife and Countryside Act, 1981 (as amended) Annex 1 of the EU Birds Directive and species of principal importance for nature conservation in England listed under Section 41 of the NERC Act.

6.5.96 Other notable species have also been considered and assessed on a case-by-case basis (e.g., in national Red Data Books and Lists; those within the Local Biodiversity Action Plan (LBAP) and/or those listed on RSPB red/amber lists, but not protected by legislation). This is consistent with the requirements of relevant planning policy. Such species are herein referred to (in the context of both surveys and desk study) as “Priority Species”.

6.5.97 The study areas summarised in Table 2 were defined with reference to the likely ZoI over which the Project may have potential to result in significant effects on relevant ornithological features.

6.5.98 It is important to recognise that the potential ZoI of the Project may vary over time (e.g., the construction zone of influence may differ from the operational zone of influence) and/or depending on the individual sensitivities of different ecological features.

6.5.99 This was considered when defining study areas and these are sufficient to address the potential worst-case ZoI of the Project on the relevant ornithological features.

6.5.100 Thus, the baseline section for birds below provides a summary of the key locations for birds rather, the key species/assemblages present and their distribution within the Survey Area and Study Areas, with reference to figures where required/appropriate. A detailed description of the data sources, methods of baseline data collection (including survey methodologies) and the detailed baseline is presented in the baseline report (*ES Volume IV Chapter 6: Appendix 6-7 Ornithology Baseline Report (Application Document 6.4.6.7*)) and, for breeding Schedule 1 birds, the Confidential Baseline and Assessment Report (*ES Volume IV Chapter 6: Appendix 6-8 Confidential Ornithology Baseline and Assessment Report (Application Document 6.4.6.8*)). The latter also includes impact assessments and species – specific mitigation for each species (where required) in order to retain confidentiality around the whereabouts of such species.

Key Locations for Birds

6.5.101 The desk study identified designated sites within the Study Area. All of the sites, regardless of reasons for designation, are summarised in Table 6-7 and Figure 6-1 (for statutory designated sites); and Table 6-8 and Figure 6-2 (for non-statutory designated sites). Table 6-10 below summarises the sites designated specifically for ornithological interest features and provides a justified ecological evaluation for each. Table 5 of the baseline ornithology report (*Application Document 6.4.6.7*) sets out the ornithological reasons for designation of each site in greater detail and should be referred to for further information specific to each site.

6.5.102 The designations are:

- Humber Estuary SPA;
- Humber Estuary Ramsar;
- Greater Wash SPA with marine components;
- Saltfleetby – Theddlethorpe Dunes and Gibraltar Point SSSI;
- Humber Estuary SSSI;
- North Killingholme Haven Pits SSI;

- Saltfleetby – Theddlethorpe Dunes and Gibraltar Point NNR;
- Donna Nook NNR;
- Dixon Woods LNR;
- Cleethorpes Country Park LNR;
- Cleethorpes Sands LNR;
- Rosper Road Pools LWS;
- Burkinshaw's Covert LWS;
- Great Carlton Wetlands LWS; and
- Manby Wetlands LWS.

6.5.103 Breeding and non-breeding birds are present throughout the Survey and Study Areas and by default birds will be present with potential to interact with the Proposed Development across its entire footprint. However, the distribution of birds overall, and of individual species, is mostly non-random. In other words, there are certain parts of the Study and Survey Areas that support concentrations of some species and these can be regarded as the most relevant or significant locations for the purposes of assessing the potential impacts on birds of the Proposed Development. In summary these are:

- Statutory designated sites (Figure 6-1) within coastal and estuarine habitats (Humber Estuary Ramsar, SPA and SSSI, plus the designations that form part of the SPA or that support a similar or overlapping suite of species and that can be regarded as playing a supporting role to the function of the SPA (particularly North Killingholme Haven Pits SSSI and Saltfleetby -Theddlethorpe Dunes SSSI and NNR; Cleethorpes Sands LNR and Cleethorpes Country Park LNR);
- Non – statutory designated sites (Figure 6-2) that by virtue of the species assemblages they support play a supporting role to the Humber Estuary SPA (namely Rosper Road Pools LWS; Great Carlton Wetlands LWS and Manby Wetlands LWS (and associated WeBS core count sector Manby and Carlton Washlands) and/or that feature a range of breeding and non-breeding birds irrespective of any other designations;
- The fields north of Rosper Road Pools and east of Rosper Road (North Killingholme Marshes), which regularly support qualifying species of the Humber Estuary SPA and SSSI over winter, plus some breeding waders and Priority Species of passerine;
- The wet grazing marshes/grasslands immediately east of TGT (referred to as fields east of the former TGT site[5] and represented by the WeBS core count sector of that name shown on Figure 11 of the Baseline Ornithology Report (*ES Volume IV Chapter 6: Appendix 6-7 Ornithology Baseline Report (Application Document 6.4*))), which support several qualifying species of the Humber Estuary SPA in significant numbers over winter, plus a small number of breeding waders;
- A small number of arable fields close to Immingham golf course and Immingham Cemetery, which supported feeding curlew over winter (as shown on the distribution for Curlew in Figure 14 accompanying the baseline ornithology report (*ES Volume IV Chapter 6: Appendix 6-7 Ornithology Baseline Report (Application Document 6.4*)));
- For feeding pink-footed goose and, to a lesser extent, curlew, lapwing and golden plover in winter the broad area of flat, open arable farmland between TGT and Manby can be

[5] Viking Fields is the nomenclature used by BTO to define the Wetland Birds Survey (WeBS) core count sector that covers the field between the former TGT site and the dunes to the east. For the sake of clarity this nomenclature has been adopted for the purposes of discussing the occurrence of birds at this location in this report, the confidential ornithology baseline report (Environmental Statement (ES) Volume IV Appendix 6.8 Confidential Ornithology Baseline Report ((Application Document 6.4.6.8)) and Chapter 6 of the Environmental Statement (ES Volume II Chapter 6 ((Application Document 6.2.6)).

regarded as a key foraging resource (see Tables 21 – 22 and Figures 22 - 24 of baseline ornithology report (*ES Volume IV Chapter 6: Appendix 6-7 Ornithology Baseline Report (Application Document 6.4*)). The distribution of these species from year to year will be determined in part by crop rotations and the availability of suitable foraging habitat, however the baseline gathered to date identified that several fields northwest of TGT and some fields further west towards Manby, Grimoldby and Grimoldby Ings are in regular use, with occasional use of other fields throughout the wider area. Notably, there was no more than occasional occurrence of these species between the FLL survey areas identified in Section 6.3 and Figure 3); and

- The farmland between Aylesby and The Lindens, north-east of the A18 supports both breeding and non-breeding lapwing although given the distance inland from the Humber Estuary SPA and the small numbers of lapwing recorded here this location is not regarded as a key functional link to the SPA.
- The wider Saltfleetby sub-area of the LCGM Project area, around 400 m to the north of Section 5 of the DCO Site Boundary.

6.5.104 The areas outlined above are represented on Figures 32 – 45 accompanying the baseline ornithology report (*ES Volume IV Chapter 6: Appendix 6-7 Ornithology Baseline Report (Application Document 6.4*)) by the distribution of individual species; broad locations that can be clearly defined (such as clear groupings of fields, designated sites or wetlands counted regularly by the BTO Wetland Birds Survey (WeBS)) that support these species are also shown. The figures summarise the results of the desk study and all of the surveys presented in Section 1.4 of the baseline ornithology report baseline ornithology report (*ES Volume IV Chapter 6: Appendix 6-7 Ornithology Baseline Report (Application Document 6.4*)), which also includes Figures 13 – 31 showing the frequency of occurrence and peak counts of each species, where they occurred.

6.5.105 The baseline demonstrates that the qualifying species of the Humber Estuary statutory designations are mostly absent from the central 40 km of the Proposed Pipeline route between approximately Stallingborough in the north and Grimoldby in the south (Sections 2 - 4_of the Proposed Development), barring scattered occurrences of curlew, golden plover, and lapwing feeding and resting on arable fields ((see figures 33, 34 and 36 in *ES Volume IV: Ornithology Baseline Report (Application Document 6.4.6.7*)). However, the irregular and apparently occasional occurrence of these species points to opportunistic habitat use by birds flying through the Survey Area rather than any regular dependency on the habitats in these areas.

6.5.106 The presence of mallard within suitable habitat across the whole Survey Area serves as a reminder of the common and widespread occurrence of this species across the British countryside and therefore only those locations that supported this species routinely within habitat that are close (within 2-3 km) to the Humber Estuary, including Rosper Road Pools and fields east of the former TGT site, can be confidently identified as functionally linked to the Humber Estuary SPA. A small fishing pond (Homestead Park Pond) immediately north of Immingham and approximately 430 m east of the DCO Site Boundary regularly supported this species at numbers that exceeded 1 % of the Humber Estuary SPA population and this also represents a functional linkage to the SPA.

6.5.107 Beyond the Survey Area, Covenham Reservoir, the fields adjacent to it and much of the coastline of north and east Lincolnshire are known to support large numbers of water birds including roosting and feeding qualifying species of the Humber Estuary SPA at all times of year and this was borne out by some of the casual and incidental observations of lapwing and grey geese summarised in Table 27. Casey *et al.* (2021; Ref 6-11) and the records returned by GLNP (see Table 7) confirm that Covenham Reservoir is a very important site for birds in North-East Lincolnshire.

6.5.108 Irrespective of the occurrence of designated sites and individual species, the environs of the Proposed Development support wintering and breeding bird assemblages typical of open lowland mixed farmland, species being distributed according to their habitat preferences. Among these, there are several species of breeding Schedule 1 birds, the details of which are set out in the Confidential Baseline report (*ES Volume IV: Appendix 6.8 (Application Document 6.4.6.8*)) and will not be discussed here.

6.5.109 The footprint and immediate environs of the proposed Immingham Facility supports an assemblage of birds in the breeding season, including 24 species that bred, of which 11 are Priority Species (including 2 pairs of lapwing). By contrast, baseline surveys found no evidence for a breeding bird assemblage within the footprint of TGT.

Relevant Ornithology Features

6.5.110 Table 6-10 sets out the key ornithology features (designated sites, species assemblages, individual species and broad areas or discrete locations) that make up the ornithology baseline on which the assessments in Section 6.7 are based. This draws upon the detailed baseline set out in Section 6.4 with reference, where appropriate, to the figures that support the baseline narrative therein.

6.5.111 The proposed pipeline route has been split into Sections 1-5 to facilitate assessment in the ES chapter and this frame of reference is used in addition to more specific locational information where required. Wherever possible Table 6-10 sets out the spatial relationship of the ornithology feature to the Proposed Development; because of the linear scale of the Proposed Development, in many cases the spatial context is described in relation only to the relevant parts, elements or sections of the Proposed Development (for example a species occurring at Rosper Road Pools at the northern end of Section 1 would clearly not be affected by the construction and operation of the Theddlethorpe facility nearly 43 km to the south-east at the southern terminus of Section 5).

6.5.112 Figures 13 - 45 in *ES Volume IV:* Appendix 6.7 (*Application Document 6.4.6.7)* summarise the spatial distribution of qualifying species of the Humber Estuary Ramsar, SPA and SSSI in the context of the Proposed Development footprint, the designated sites identified within the Study Area and any other locations that have been identified as important for them in in the section “Key Locations for Birds” (above). Figures 13 – 31 in *ES Volume IV: Appendix 6.7 (Application Document 6.4.6.7)* present the frequency of occurrence and peak counts for qualifying species of the Humber Estuary SPA wherever these were recorded in Functionally Linked land (FLL). Figures 32-45 in *ES Volume IV: Appendix 6.7 (Application Document 6.4.6.7)* present the wider distribution of these species, drawing on the results of the Desk Study and all surveys carried out (including point counts, drive over surveys and incidental records as described in Section 6.4 of the ornithology baseline report (*Application Document 6.4.6.7*) and are set out in the following order:

- Black-tailed godwit;
- Curlew;
- Golden plover;
- Greenshank;
- Lapwing;
- Mallard;
- Oystercatcher;
- Redshank;
- Ruff;

- Shelduck;
- Teal;
- Whimbrel;
- Wigeon; and.
- Pink-footed goose.

Table 6-10: Key Ornithological Features

Feature	Location(s)[6]	Section(s)	Distance from Proposed Development	Nature Conservation Value	Justification	Description[7]	Figure(s)*
Humber Estuary Ramsar and SPA	TA238 148	1 and 5	1.27 km northeast of Section 1; Overlapping Section 5	International	Designated under international law (and domestic equivalent)	Supports a range of breeding and non-breeding wetland birds in internationally important numbers. Qualifying species regularly present at Rosper Road Pools, North Killingholme Marshes, Fields adjacent to Immingham Golf Course, fields east of the former TGT site, Carlton and Manby Wetlands, Saltfleetby Coastal Grazing Marshes, Farmland between TGT and Manby.	Figure 6-1 Figures 13 – 45 for occurrence of individual species and supporting habitats
Greater Wash SPA with marine components	TF821 744	5	Overlapping Proposed Development boundaries offshore and within intertidal habitat	International	Designated under international law (and domestic equivalent)	Supports breeding and non-breeding seabirds in internationally important numbers. No significant occurrence of qualifying species inland.	Figure 6-1
Humber Estuary SSSI	TA232 155	1 and 5	1.27 km northeast of Section 1; Overlapping Section 5	National	Designated at national level.	Supports a range of breeding and non-breeding wetland birds in nationally important numbers. Qualifying species regularly present at Rosper Road Pools, North Killingholme Marshes, Fields adjacent to Immingham Golf Course, fields east of the former TGT site, Carlton and Manby Wetlands, Saltfleetby Coastal Grazing Marshes, Farmland between TGT and Manby.	Figure 6-1 Figures 13 – 45 for occurrence of individual species and supporting habitats
Saltfleetby-Theddlethorpe Dunes & Gibraltar Point SSSI and NNR	TF481 908	5	Overlapping	National	Designated at National level	Site supports qualifying features under the relevant EC Directives that are of international importance and a breeding bird assemblage in dune scrub. Qualifying species regularly present at fields east of the former TGT site, Carlton and Manby Wetlands, Saltfleetby Coastal Grazing Marshes and scattered occurrence across farmland between TGT and Manby.	Figure 6-1 Figures 13 – 45 for occurrence of individual species and supporting habitats
North Killingholme Haven Pits SSSI	TA166 197	1	2.35 km north	National	Designated at National level	Supports non-breeding wetland birds in nationally important numbers. Qualifying species regularly present at Rosper Road Pools and North Killingholme Marshes.	Figure 6-1 Figures 13 – 45 for occurrence of individual species and supporting habitats
Donna Nook NNR	TF447 961	5	6.69 km north	National	Designated at National level	Supports habitats and species of national importance including bird species for which the Humber Estuary SSSI is designated. Further details in Table 5	Figure 6-1

[6] Summarised from both third party and survey data where appropriate.
[7] In the case of species, primarily described using survey data.

Feature	Location(s)[6]	Section(s)	Distance from Proposed Development	Nature Conservation Value	Justification	Description[7]	Figure(s)*
Bradley and Dixon Woods LNR	TA242 059	3	2.29 km northeast	County	Designated at local level under statutory legislation.	Ancient woodland, meadow areas, ponds, and bird feeding area. No further detail available.	Figure 6-1
Cleethorpes Country Park LNR	TA306 067	3	3.88 km northeast	County	Designated at local level under statutory legislation and plays a supporting role to the Humber Estuary SPA and SSSI in winter.	Supports skylark during summer and overwintering waders in winter; waders use the park as a roosting site at high tide.	Figure 6-1
Cleethorpes LNR[8]	TA331 070	3	5.80 km northeast	County/National	Designated at local level under statutory legislation and plays a supporting role to the Humber Estuary SPA and SSSI in winter and passage periods.	Supports wintering and migratory birds including waders.	Figure 6-1
Rosper Road Pools LWS	TA175 170	1	0.005 km east	National	Designated at County level and plays a supporting role to the Humber Estuary SPA and SSSI.	Supports many wintering, breeding, and migrant birds associated with wetland and scrub habitats.	Figure 6-2
Burkinshaw's Covert LWS	TA160 183	1	0.87 km north-west	County	Designated at County level.	Supports (likely breeding) willow tit populations as the site is adjacent to a known breeding site.	Figure 6-2
Great Carlton Wetlands LWS	TF409 863	5	1.36 km south-west	County	Designated at County level and plays a supporting role to the Humber Estuary SPA and SSSI.	Wetland habitats important for breeding birds of prey including peregrine, hobby, and marsh harrier. Also significant for shoveler, lapwing, little ringed plover, avocet, reed bunting, reed warbler, and sedge warbler. High numbers of grey herons and little egrets.	Figure 6-2
Manby Wetlands LWS	TF407 863	5	1.66 km south-west	County	Designated at County level and plays a supporting role to the Humber Estuary SPA and SSSI.	Regular breeding site of lapwing, reed bunting, reed warbler, and sedge warbler. Supports high numbers of wigeon, teal, and shoveler. Important site for autumn passage birds (green sandpiper, ruff, snipe, and common sandpiper).	Figure 6-2
Waterfowl assemblage: Rosper Road Pools	TA175 170	1	0.005 km	Local	Priority species present as well as non-priority species. All are common and fairly common species of resident, winter and	As well as qualifying species of the Humber Estuary Ramsar and SPA, supports a suite of water birds including coot, moorhen, pintail, greylag goose, mute swan, little grebe, tufted duck, grey heron, herring gull, black – headed gull, lesser black-backed gull.	Location of LWS shown on Figure 6-2

[8] This site is also widely referred to as Cleethorpes Sands LNR by Natural England (such as on Natural England's Designated Sites View web page: https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1009538, accessed September 2023).

Feature	Location(s)[6]	Section(s)	Distance from Proposed Development	Nature Conservation Value	Justification	Description[7]	Figure(s)*
					passage bird in Lincolnshire		
Breeding terrestrial bird assemblage	Immingham Facility, TA1689 1694	1	Overlapping	Local	Assemblage comprises common and widespread species but includes declining species and Priority Species.	Assemblage of common and widespread breeding species including 20 Priority species and 24 species that bred, including species that are declining in Lincolnshire (lapwing).	None
Non-breeding terrestrial bird assemblage	Proposed pipeline route and up to 1 km radius	All	Overlapping	Local	Assemblage comprises common and widespread species but includes declining species and Priority Species.	Regularly occurring assemblage of common and widespread species including 51 Priority Species (exclusive of qualifying species of the Humber Estuary SPA).	None
Breeding terrestrial bird assemblage	Proposed pipeline route and up to 1 km radius	All	Overlapping	Local	Assemblage comprises common and widespread species but includes declining species and Priority Species.	Regularly occurring assemblage of common and widespread species including 47 Priority Species (exclusive of qualifying species of the Humber Estuary SPA). At least 1 pair of lapwing bred near Aylesby (Section 2) and a minimum of 2 pairs bred at Rosper Road Pools and North Killingholme Marshes. Greylag goose and black-headed gull bred at Rosper Road Pools. Corn bunting present as a probable breeder near Irby on Humber (Section 3) and Gayton le Marsh (Section 5) with declining status and restricted distribution in Lincolnshire.	None
SPA qualifying species within Functionally Linked Land at the Immingham end of the Proposed Development– Black-tailed godwit, curlew, golden plover, lapwing, redshank, mallard, shelduck, teal, wigeon.	Key locations supporting the majority of birds are Rosper Road Pools and North Killingholme Marshes; Fields close to Immingham Golf Course support feeding curlew; scattered records of golden plover across farmland near Stallingborough; and	Functionally linked land occurs within Sections 1 and 2. Scattered occurrence of individual species across other sections.	Between 100m east at Rosper Road Pools up to 1.1km north-east across north Killingholme Marshes; various distances for curlew and golden plover across arable farmland, from overlapping/adjacent to the proposed Development boundary (curlew), up to 1km from it (golden plover)	County	An assemblage of 9 species including 8 Priority Species ranging from very common to fairly common in Lincolnshire; all occurring within habitats that are outside of the Humber Estuary SPA but that play a supporting role to the Internationally designated site by supporting these species.	Species feeding and roosting across the locations stated, the details of which are set out in detail within this report.	Figures 13-21 and 32-45

Feature	Location(s)[6]	Section(s)	Distance from Proposed Development	Nature Conservation Value	Justification	Description[7]	Figure(s)*
	Homestead Park Pond (mallard only). Individual species distributions set out in detail in Section 1.4 of the baseline ornithology report and associated figures.						
SPA qualifying species within Functionally Linked Land at the Theddlethorpe end of the Proposed Development – Black-tailed godwit, Curlew, golden plover, greenshank, lapwing, oystercatcher, whimbrel, redshank, ruff, mallard, shelduck, teal, wigeon.	Occurrence in variable numbers within Manby Washlands; LCGMP Saltfleetby area; fields east of the former TGT site inland variable distances as far as Manby; fields east of the former TGT site; and occasional use of TGT by oystercatcher and redshank. Individual species distributions set out in detail in Section 1.4 of the baseline ornithology report and associated figures.	Functionally linked land occurs within Sections 4 and 5. Scattered occurrence of individual species across other sections.	Overlapping/immediately adjacent at TGT and fields east of the former TGT site; Birds occurring across farmland inland of TGT occur at distances from immediately adjacent to or overlapping the Proposed Development, up to 1km from it.	County	An assemblage of 13 species including 12 Priority Species ranging from very common to fairly common in Lincolnshire; all occurring within habitats that are outside of the Humber Estuary SPA but that play a supporting role to the Internationally designated site by supporting these species.	Species feeding and roosting across the locations stated, the details of which are set out in detail within this report.	Figures 13-21 and 32-45
Non-breeding Pink-footed goose	fields east of the former TGT site, multiple locations across farmland west of TGT as far as Grimoldby, LCGMP Saltfleetby Area, Manby Washlands	4 and 5	Overlapping and various distances up to approx. 1km between fields east of the former TGT site and Grimoldby	District	Priority Species (Amber List). Very common winter visitor to Lincolnshire. Occurs on Humber estuary at internationally important numbers although is not a qualifying feature.	Feeding flocks numbering over 2,000 present on farmland between TGT and Manby Washlands (regularly occurring north of Theddlethorpe All Saints with a peak of 2,100 here; and at Grimoldby Ings with peaks of 2,200). Occasional occurrence at fields east of the former TGT site with a peak count of 85. Occurs at Manby Washlands, Saltfleetby LCGM areas and coastal sites along the Lincolnshire Coastline.	Figures 27 and 39

Feature	Location(s)[6]	Section(s)	Distance from Proposed Development	Nature Conservation Value	Justification	Description[7]	Figure(s)*
Breeding willow tit	Burkinshaw's Covert with potential for more widespread but localised occurrence	1	0.87km north-west	County	Priority species (Amber List and NERC Act Section 41). Scarce in Lincolnshire.	Has bred and is assumed to be breeding within woodlands. Not recorded during surveys.	Location of LWS in Figure 9
Breeding and non-breeding grey wagtail	Widespread but localised	Potentially all (recorded in Sections 1, 4 and 5)	Overlapping	County	Priority Species (Amber List). Scarce passage migrant and winter visitor in Lincolnshire. Scarce breeder in Lincolnshire.	Localised non-breeding occurrence at Immingham facility and feeding near Theddlethorpe All Saints Recorded on Louth Canal, where it is likely to breed.	None

*Note that figures that are not prefixed with '6-' are provided in *ES Volume IV: Appendix 6.7 (Application Document 6.4.6.7)*

Bats

6.5.113 The desk study returned records for common pipistrelle (*Pipstrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus auritus)*, *Myotis* genus bats, noctule (*Nyctalus noctula*), Leisler's bat (*Nyctalus leisleri*), Daubenton's bat (*Myotis daubentonii*) and Natterer's bat (*Myotis nattereri*) within 2 km of the DCO Site Boundary. The full results of the desk study are provided in *ES Volume IV: Appendix 6.2 (Application Document 6.4.6.2*).

Roosting Bats

6.5.114 All bat species in the UK are principally afforded protection under the Habitats Regulations (Ref. 6-1) and WCA (Ref. 6-2). Certain bat species (soprano pipistrelle (*Pipistrellus pygmaeus*), Barbastelle bat (*Barbasella barbastellus)*, Bechstein's bat (*Myotis bechnsteinii)*, brown long eared bat (*Plecotus auritus*), Noctule, greater horseshoe (*Rhinolophus ferrumequinum)* and lesser horseshoe (*Rhinolophus hipposideros)*) are listed as SPI under S41 of the NERC Act (Ref 6-4).

6.5.115 There are buildings and structures within the north of the DCO Site Boundary at Immingham. These buildings form part of the Philips 66 refinery and will not be directly impacted by the Proposed Development. The industrial nature of the buildings and existing levels of noise and 24-hour lighting substantially reduce the likelihood of roosting bats being present. No other buildings are present within the DCO Site Boundary.

6.5.116 There are trees within the DCO Site Boundary which have suitability for roosting bats. 14 trees with moderate suitability and eight trees with high suitability were identified within the DCO Site Boundary. Bat emergence / re-entry surveys have been completed to inform the Proposed Development and the results are provided in *ES Volume IV: Appendix 6.2 Bat Survey Report (Application Document 6.4.6.2)*.

6.5.117 Bat roosts have been identified in two trees (T10 and T35) within the DCO Site Boundary. At T10 a single bat *Pipistrellus* genus bat was observed entering the tree on one occasion and it is considered that this roost is a day roost or transitional roost. At T35 the emergence of two bats was observed on one occasion and this roost is also considered to be a non-breeding day roost or transitional roost. Due to some limitations associated with survey of the trees T9, T20 & T21 a precautionary approach has been taken and it has been assumed that these trees support bat roosts. Roosting bats are assessed to be of **local** importance.

Foraging and Commuting bats

6.5.118 Habitats within the DCO Site Boundary at Immingham are open and subject to lighting from existing industry. Bat activity surveys were completed to inform the Humber Zero project and recorded common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle (*Pipistrellus nathusii*), noctule and bats from the Myotis genus (not identified to species level). Overall, it was considered that bat activity levels within the DCO Site Boundary at Immingham were low (Ref 6-33).

6.5.119 There are blocks of woodland immediately south of the Phillips 66 refinery at Immingham including Houlton's covert and Mayflower Woods. The Proposed Development has been designed to avoid direct impacts upon woodland habitat through the use of trenchless techniques. As such, these habitats will remain unaffected and will be available to foraging and commuting bats during construction, operation and decommissioning.

6.5.120 Habitats at Theddlethorpe are open and exposed, comprising of bare ground with ephemeral / short perennial and tall ruderal vegetation. As such, this location is considered to have negligible suitability for foraging and commuting bats.

6.5.121 Arable habitats within the DCO Site Boundary are considered to have low suitability for foraging and commuting bats. Small numbers of bats are likely to use hedgerows, woodland and watercourses within the DCO Site Boundary for foraging and commuting.

6.5.122 Crossing point surveys were completed where linear features will be temporarily severed to quantify bat activity. The results of the crossing point surveys are provided in *ES Volume IV: Appendix 6.2 (Application Document 6.4.6.2).* The most frequently recorded species were common pipistrelle and soprano pipistrelle. *Myotis* genus bats were also recorded using hedgerows and watercourses. Foraging and commuting bats are assessed to be of **local** importance.

Otter

6.5.123 The desk study identified 19 records of otter within the DCO Site Boundary and 145 records of otter within 2 km of the DCO Site Boundary. Otter is a SPI and are afforded protection under the Habitats Regulations (Ref. 6-1) and WCA (Ref. 6-2).

6.5.124 Otter surveys were completed on suitable habitat between May 2022 and August 2023 and the results are provided in *ES Volume IV: Appendix 6.3 (Application Document 6.4.6.3)*. Although the majority of watercourses provide commuting routes, potential otter holts and resting places were identified within the DCO Site Boundary at the following crossing point locations DX025P, RVX001CP and RVX001FP, and also within 200m of the DCO Site Boundary at RVX001BP and DX064P (refer to *ES Volume IV: Appendix 6.3, Figure 1 (Application Document 6.4.6.3)*. Potential resting places have been identified within or immediately adjacent the DCO Site Boundary at an additional ten locations. No evidence of otter has been recorded in association with these potential holts or resting places (*ES Volume IV: Appendix 6.3 (Application Document 6.4.6.3)*).

6.5.125 Evidence of otter was recorded within 200 m of the following crossing point locations:

- DX012P (un-named ditch) – otter footprints recorded;
- RVX003AP (Grayfleet Drain) - otter footprints recorded;
- RVX002P (Long Eau) – otter observed swimming in the channel;
- DX090P (Two Mile Bank Drain) – otter footprints and feeding remains;
- DX095P (unnamed drain) – Otter footprints recorded; and
- RVX007P (Great Eau) – Otter observed swimming in the channel.

6.5.126 Otters have large home ranges and will use both main watercourses and small ditches and field drains for foraging and to cross watersheds. Otter is known to be present on all river catchments across Lincolnshire, and consistent with national trends their population is expected to expand (Ref 6-19). Based upon a precautionary approach and given the presence of some suitable holts and resting places, otter is considered to be of **county** importance.

Water vole

6.5.127 The desk study returned 122 records of water vole within the DCO Site Boundary and 1,166 records of water vole within 2 km of the DCO Site Boundary. Water vole are a SPI and are afforded protection under the WCA (Ref. 6-2). Water vole surveys were completed between May 2022 and April 2023 and the results are provided in *ES Volume IV: Appendix 6.3 (Application Document 6.4.6.3).*

6.5.128 In total water vole surveys were undertaken at 52 crossing points and were found to be present on three watercourses (consisting of 5 crossing points) and potentially present on a further four watercourse crossing points due to desk study records, where pre-existing records are either on the same watercourse or are directly connected to it. Further to this another 38 watercourse crossing points were classified as having water voles potentially present and surveys are being completed to confirm presence / absence. Water vole are absent from the remaining four watercourse crossing points.

6.5.129 Water vole are listed as priority species in the Lincolnshire Biodiversity Action Plan (LBAP) (Ref 6-17). The LBAP states that the Lincolnshire population of water vole is of national importance due to their widespread nature across the county. As such, the water vole population has been assessed to be of **national** importance.

Brown Hare

6.5.130 The desk study returned 57 records of brown hare (*Lepus europaeus)* within the DCO Site Boundary and 162 records of brown hare within 2 km of the DCO Site Boundary. Arable and grassland habitats within the DCO Site Boundary have suitability to support brown hare. Brown hare are a SPI and are considered to be of **local** importance.

Hedgehog

6.5.131 The desk study returned 42 records of hedgehog (*Erinaceus europaeus)* within the DCO Site Boundary and 143 records of hedgehog within 2 km of the DCO Site Boundary. Hedgerows, woodland and grassland within the DCO Site Boundary have suitability to support hedgehog. Hedgehogs are a SPI and their numbers are in decline within the United Kingdom (UK). As such, hedgehog is considered to be of **local** importance.

Badger

6.5.132 The desk study returned 55 records of badger (*Meles meles)* within the DCO Site Boundary and 345 records of badger within 2 km of the DCO Site Boundary. Badger and their setts are afforded protection within the UK under the Protection of Badgers Act 1992 (Ref. 6-5) and the WCA (Ref. 6-2). However, badger are not identified as a SPI. Information on badger is provided in *ES Volume IV: Appendix 6.4 Confidential Appendix 6.4 (Application Document 6.4.6.4*). Badger are of **local** importance.

Aquatic Macroinvertebrates

6.5.133 No protected or notable species were identified during the desk study.

6.5.134 The only notable species found in samples from the field surveys was the leech *Dina lineata* from the family Erpobdellidae which had a Conservation Score (as part of the Community Conservation Index metric) score of 6 (Regionally Notable). This species was recorded in a sample from the drain at crossing point DX114P (for aquatic survey locations see *ES Volume IV: Appendix 6.6 Figure 1 (Application Document 6.4.6.6)* which is potentially to be open cut. However, this species is not protected under statutory legislation.

6.5.135 Aquatic macroinvertebrates are therefore of **local** importance.

Aquatic Macrophytes

6.5.136 No protected species of macrophytes were recorded during the desk study.

6.5.137 No field surveys were carried out for aquatic macrophytes due to the limited nature of potential impacts at crossing points. The presence of INNS plant species was detected as incidental observations during other surveys, as there may be constraints in relation to the presence of INNS.

6.5.138 Due to the lack of aquatic macrophyte data, a precautionary approach has been taken and aquatic macrophytes are assessed as of **local** importance.

Invasive Non-native Species

6.5.139 The desk study returned records of the following INNS within the DCO Site Boundary including the Schedule 9 of the Wildlife and Countryside Act 1981 species Japanese rose (*Rosa rugosa)*, Montbretia (*Crocosmia x crocosmiiflora*), Japanese knotweed (*Reynoutria japonica*), New Zealand pigmyweed (*Crassula helmsii*), water fern (*Azolla filiculoides*), Canadian pondweed (*Elodea canadensis*) and Virginia creeper (*Parthenocissus quinquefolia*).

6.5.140 Other invasive macrophytes included Spanish bluebell (*Hyacinthoides hispanica*), Nuttall's waterweed (*Elodea nuttallii*), and Himalayan balsam (*Impatiens glandulifera*) and are an offense to spread under the Invasive Alien Species (Enforcement and Permitting) Order 2019.

6.5.141 The non-native fish, Rainbow trout (*Oncorhynchus mykiss*), was recorded in the desk study in the River Lud 1km upstream of Horizontal Directional Drilling (HDD) crossing point RVX001P.

6.5.142 A single specimen of crayfish Astacidae was recorded at crossing point DX090BP during the field surveys (for aquatic survey locations see *ES Volume IV: Appendix 6.6 Figure 1 (Application Document 6.4.6.6))*, however it was too small to be identified further. There are no records of white-clawed crayfish (*Austropotamobius pallipes)* within 10 km of the Proposed Development, and the nearest record of American signal crayfish (*Pacifastacus leniusculus)* is approximately 9 km to the south. Therefore, this is considered to be the latter species. American signal crayfish is an invasive non-native species listed under Schedule 9 of the WCA (Ref. 6-2); refer to Section 4.

6.5.143 Invasive species listed under Schedule 9 of the WCA (Ref. 6-2) are prohibited from release into the wild and prohibits the planting or "causing to grow" in the wild of any plant species listed. Their importance is **negligible**; however they are taken forward to impact assessment as it would be an offence to plant or allow the spread of these species in the wild.

Summary

6.5.144 As discussed in Section 6.4.4, only features of local importance and above, where there is the potential for the Proposed Development to impact them directly or indirectly, will be taken forward to impact assessment. As such, the following species or species groups are taken forward to ecological impact assessment:

- Terrestrial invertebrates – county importance;
- Great crested newt – county importance;
- Common toad – local importance;
- Reptiles – local importance;
- Fish – county importance;
- Birds – local, district and county importance depending upon species;
- Roosting bats – local importance;
- Foraging and commuting bats – local importance;
- Otter – county importance;
- Water vole – national importance;
- Brown hare – local importance;
- Hedgehog – local importance;
- Badger – local importance;
- Aquatic macroinvertebrates and macrophytes – local importance; and
- Invasive non-native species – negligible but a legal offence to plant or otherwise allow to spread in the wild.

Future Baseline

6.5.145 For a future baseline scenario, it is considered likely that habitats within the study area would remain similar to that of the current baseline. The current land use is predominately

agricultural, with a combination of arable and grazing pastures, thus it is considered that ecological conditions would be unlikely to significantly change in the absence of the Proposed Development. Where agricultural management practices cease or lapse over time, natural succession would be expected.

6.5.146 Although species abundance and distribution within the study area may naturally fluctuate, in the absence of the Proposed Development it is assessed there would be no significant changes to species or habitat status aside from natural succession of habitats and natural increases and decreases in species populations and geographical extent.

6.6 Development Design and Embedded Mitigation

6.6.1 EIA is an iterative process which informs the development of the project design. Where the outputs of the preliminary assessment identify likely significant effects, changes to the design can be made or mitigation measures can be built-in to the proposal to reduce these effects.

6.6.2 This type of mitigation is defined as embedded mitigation, as mitigation measures which have been identified and adopted as part of the evolution of the project design ("embedded" into the project design).

6.6.3 The design of the Proposed Development has been further developed to reflect the findings of ongoing environmental studies, comments raised during the statutory consultation and ongoing engagement with stakeholders. As the design has developed, embedded mitigation measures have been refined as part of an iterative process. In some instances, this has been achieved by limiting works to the parameters set out in *ES Chapter 3 Description of the Proposed Development (Application Document 6.2.3)*

6.6.4 The route of the Proposed Development has been refined to avoid or minimise effects on features of ecological importance. These include statutory and non-statutory designated sites and Habitats of Principal Importance. Habitats such as woodland and ponds have been avoided where possible to minimise ecological effects. An example of this is the use of trenchless construction techniques to avoid effects on woodland habitat at Immingham. Trees with confirmed bat roosts will be avoided. **Table 6-11** summarises the mitigation embedded into the Proposed Development design.

Table 6-11: Summary of Embedded Mitigation Designed into the Proposed Development

Receptor/ Location	Description
Statutory and non-statutory designated sites and aquatic receptors	The design of the Proposed Development has avoided sites and habitats subject to nature conservation designations where possible. Where significant crossings of designated sites are required, such as the North Beck Drain, Long Eau SNCI and LWS and Great Eau LWS, trenchless installation techniques will be employed preventing the need for open-cut construction methods. Through use of trenchless installation techniques, impacts arising from construction upon habitats and species associated with designated sites will be avoided and reduced.
Woodland habitats	Where possible, direct loss of woodland habitats has been avoided. The route has been designed to avoid Houlton's Covert and Mayflower Woods at Immingham.

Receptor/ Location	Description
Mature trees	All veteran trees within the DCO Site Boundary will be retained and protected. Trees will be retained and protected in accordance with British Standard (BS) 5837 - Trees in Relation to Design, Demolition and Construction to Construction – Recommendations (Ref 6-38). The extent of demarcation of retained trees will be driven by assessed Root Protection Areas (RPA) of retained trees. Where encroachment within RPAs is required to facilitate construction, ECoW and arboriculturist advice will be sought to discuss sensitive working methods in order to protect retained trees. This mitigation is secured through the *Outline Landscape and Ecology Management Plan (Application Document 6.8).*
Water bodies	All water bodies identified during baseline surveys will be retained. Retained water bodies within the construction easement of the Proposed Development will be demarcated by a minimum 5 m exclusion buffer to avoid/reduce potential adverse impacts to water bodies, associated terrestrial bankside habitat and associated aquatic receptors from construction.
Terrestrial Habitats	Permanent built structures (Above Ground Infrastructure (AGIs) and Block Valve Stations (BVSs)) are sited in locations where habitats are of low ecological importance, such as arable fields.
Terrestrial Habitats	Localised and Centralised Compounds and storage areas to facilitate construction of the Proposed Development have been sited within habitats of low ecological importance such as arable fields or existing hardstanding/sealed surface areas.
Aquatic Habitats and Species	A 10 m working width at watercourse crossings will be adopted as committed to in the CEMP (*Application Document 6.4.3.1*), to minimise potential impacts of open-cut watercourse crossings.
Aquatic Habitats and Species	All entry and exit pits for all trenchless crossings will be sited a minimum of 10 m away from any main river bank tops, as confirmed in the CEMP (*Application Document 6.4.3.1*). Stand-off distances around watercourses will be implemented prior to the commencement of works and clearly demarcated through the use of physical barriers (fencing, tape or similar). With regards the trenchless crossings under watercourses, these will be a minimum of 2 m and a maximum of 20 m below the true bottom of the watercourse and designed to avoid impacts upon watercourses.
Habitats and Species	Plant, personnel and site traffic will be constrained to a prescribed working corridor through the use of temporary barriers, where practicable, to firstly avoid and secondly minimise damage to habitats, encroachment of the construction easement, and potential direct mortality and/or disturbance of fauna located within

Receptor/ Location	Description
	and adjacent to the construction corridor. This is secured through the CEMP (*Application Document 6.4.3.1*)
Roosting Bats	Trees with confirmed bat roosts will be retained and protected. A minimum buffer of 10 m will be applied to avoid disturbance and lighting of roost features will be avoided. This is secured through the CEMP (A*pplication Document 6.4.3.1*).

6.7 Potential Impacts and Assessment of Effects

Introduction

6.7.1 This section details the assessment of predicted impacts and effects of the Proposed Development during the Construction, Operational and Decommissioning Stages after the implementation of embedded mitigation, but prior to consideration of any additional mitigation.

6.7.2 As discussed in Section 6.4.4, only features of local importance and above, where there is the potential for the project to impact them directly or indirectly, are taken forward to impact assessment. In addition, consideration is given to INNS where in the absence of mitigation there is potential for a legal offence.

Assessment of Potential Impacts: Construction Phase

General Overview

6.7.3 This section predicts and characterises the likely construction phase impacts on the sensitive ecological features identified in light of the embedded mitigation above, but in the absence of any other additional mitigation measures.

Construction Stage

6.7.4 The construction phase of the Proposed Development is summarised in *ES Volume II Chapter 3: Description of the Proposed Development (Application Document 6.2.3)* and will include:

- Site preparation (establishing construction compounds, site access and laydown areas);
- Main pipelaying construction work;
- Specialist crossing requirements (auger bore crossings, HDD crossings and open-cut crossings);
- Construction of Immingham and Theddlethorpe Facilities and Block Valve Stations;
- Hydrostatic testing and pre-commissioning; and,
- Reinstatement works.

6.7.5 The likely significant effects for Biodiversity associated with the Construction Stage, in the absence of additional mitigation, are set out below in **Table 6-12**.

Table 6-12: Summary of Potential Impacts – Construction Phase

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
Statutory Designated Sites within the DCO Site Boundary (SPA, SAC, Ramsar)	International	The following statutory designated sites lie within the DCO Site Boundary: • Humber Estuary SPA; • Humber Estuary Ramsar; • Saltfleetby-Theddlethorpe Dunes and Gibraltar Point SAC; and • Greater Wash SPA with marine components. The above designated sites are all located within Section 5 of the DCO Site Boundary. Potential pathways of effect during construction are detailed within the report to inform HRA (Application Document 6.5). There will be no direct loss of habitat within the designated sites as the Proposed Development will connect to the existing and re-purposed LOGGS offshore pipeline at Theddlethorpe. This is located beneath the dune and intertidal habitats at the southernmost extent of the DCO Site Boundary. There will be no effects upon the Greater Wash SPA with marine	Significant (major adverse - disturbance, temporary loss of functionally linked land, dust). This applies to Humber Estuary SPA and Humber Estuary Ramsar only.

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		components as the qualifying bird species are pelagic and habitats within the DCO Site Boundary are unsuitable for these species. The Humber Estuary SPA and Ramsar are designated for their assemblage of breeding and non-breeding birds. Although there will be no direct loss of habitat within the boundary of the designated sites, there is potential for the temporary loss of functionally linked habitat used by the qualifying bird species. This will affect the following species that occur on farmland outside the boundary of the designated site: • Lapwing feeding widely on arable farmland between TGT and Manby; • Curlew feeding widely on arable farmland between TGT and Manby and within fields adjacent to Immingham Golf Course and Immingham Cemetery; • Golden plover, which feeds occasionally on arable farmland between TGT and Manby, and was recorded once on a field near Stallingborough;	

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		• Teal, which occasionally occurs on farmland west of TGT, near Theddlethorpe St. Helens; and • Mallard, which occurs occasionally in small numbers on farmland between TGT and Manby. There is also potential for noise and visual disturbance to affect the qualifying bird species during the construction phase (refer to Chapter 7). Based on the recorded distribution of SPA qualifying species, this impact is predicted to occur at: • Rosper Road Pools and North Killingholme Marshes (teal, mallard, wigeon, shelduck, black-tailed godwit, redshank, lapwing and curlew); • fields east of the former TGT site (mallard, teal, wigeon, shelduck, ruff, lapwing, curlew, redshank, oystercatcher); • Fields adjacent to Immingham Golf Course (curlew); and • Farmland between TGT and Manby (curlew,	

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		lapwing, golden plover, mallard, teal). In the absence of mitigation there is potential for dust emissions to affect European designated sites (refer to *ES Volume II Chapter 14 – Air Quality (Application Document 6.2.14*)). There is also potential for changes in water quality including changes in surface water runoff, mobilisation of sediment, changes in hydromorphology, mobilisation of oils and other chemicals affecting water quality (refer to ES Chapter 11 – Water Environment).	
Statutory Designated Sites outside the DCO site boundary but within 10km of the DCO Site Boundary (SPA, SAC, Ramsar)	International	There is one internationally designated site within 10 km of the DCO Site Boundary: the Humber Estuary SAC located 1.27 km north-east of Section 1 at the closest point. There will be no direct loss of habitat from the SAC. The potential impact pathways which could affect the SAC are atmospheric pollution, water quality and impacts on river and sea lamprey. There is no potential for atmospheric pollution to impact	Significant (major adverse - impacts of atmospheric pollution and water quality and temporary impacts on river and sea lamprey).

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		this site due to the distance of the SAC the Proposed Development Site and the ARN. There is potential for changes in water quality to impact the SAC. However due to the distance of the SAC from the Proposed Development Site and with embedded mitigation, it is anticipated that there would be no effect on the integrity of the SAC. Main rivers within the Proposed Development will be crossed using HDD or Auger Bore to avoid direct effects upon the structure of the watercourses. Smaller watercourses will be crossed using open-cut techniques. As a result of open-cut crossing methodologies, there is a risk of direct mortality and / or injury to river lamprey and sea lamprey which are qualifying species of the SAC. There is also a risk of noise and vibration impacts on these species from drilling techniques particularly if carried out during spawning or migration periods. Indirect impacts from surface runoff from constructions areas could also have an adverse effect on these species.	

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
Statutory Designated Sites within the DCO site boundary (SSSI and NNR)	National	Saltfleetby - Theddlethorpe Dunes SSSI and NNR is located within Section 5 of the DCO Site Boundary. There will be no direct loss of habitat within the SSSI as the Proposed Development will connect to the existing and re-purposed LOGGS offshore pipeline at Theddlethorpe. In the absence of mitigation there is potential for dust emissions and changes in water quality to affect the habitats for which the SSSI is designated. There is also potential for noise and visual disturbance of the bird assemblage.	Significant (major adverse - changes in air quality, water quality and noise and visual disturbance of the bird assemblage)
Statutory Designated Sites outside the DCO site boundary but within 10km of the DCO Site Boundary	National	The Humber Estuary SSSI is located 1.27 km north-east of Section 1 at the closest point. Although no direct effects upon habitats are anticipated, there is potential for noise and visual disturbance of birds within functionally linked land. Since the qualifying species of the Humber Estuary SPA and the SSSI overlap, the discussion of impacts on the Humber Estuary SPA qualifying species above can be applied equally to the SSSI.	Significant (major adverse - disturbance, temporary loss of functionally linked land)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
Statutory Designated Sites (LNR)	County	The closest LNR is Bradley and Dixon Woods located 2.29 km north-east of Section 3 and designated for ancient woodland. As this site is over 200 m from the Proposed Development, potential changes in air quality can be screened out. Due to the separation distances between the Proposed Development and other designated sites, no other affects are anticipated.	Not significant (negligible – no direct or indirect impacts anticipated)
Non-statutory Designated Sites (SNCI, LWS)	County	The River Freshney Headwaters LWS, Waithe Beck East LWS, Great Eau SNCI, Long Eau SNCI and Great Eau LWS are within the DCO Site Boundary. Brackenborough Road verge is 5 m east of Section 4. In the absence of mitigation there is potential for physical or chemical pollution of watercourses. There is also potential for damage to habitats from the use of machinery. There is potential for noise and visual disturbance of the bird assemblage at Rosper Road Pools LWS during construction.	Significant (moderate adverse damage to habitats, changes in air quality and water quality, disturbance of the bird assemblage at Rosper Road Pools LWS)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
Open Mosaic Habitat on Previously Developed Land	Local	Approximately 1.1 ha of open mosaic habitat on previously developed land will be lost during construction of the Immingham Facility.	Not Significant (minor adverse – permanent loss of habitat at the local level)
Semi-natural Broad-leaved woodland Broadleaved plantation woodland	Local	Impacts upon woodland habitat at Immingham will be avoided through the use of HDD. The final pipeline route will aim to avoid areas of woodland and trees within the DCO Site Boundary, however where this is not possible, there is the potential for small areas of woodland habitat to be directly lost. In the absence of mitigation, direct damage to other trees could result from use of machinery, compaction of soil or damage to roots. There is also potential for dust emissions, noise and vibration disturbance and artificial illumination from lighting due to the proximity of construction activities.	Not Significant (minor adverse – potential for long-term minor habitat loss)
Woodpasture and parkland	County	A small area of parkland habitat will be lost within the DCO Site Boundary. Veteran trees within parkland habitat will be avoided however there will be some	Significant (moderate adverse – potential for medium-term habitat loss and disturbance of veteran trees)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		temporary loss of grassland habitat. In the absence of mitigation, damage to habitats could result from use of machinery, compaction of soil or damage to tree roots.	
Hedgerows	Local	Temporary and permanent direct and indirect loss and/or damage (through compaction and disturbance) of all hedgerows within the footprint of the DCO Site Boundary due to open-cut trench techniques. Hedgerows include: • Species-rich intact and defunct hedgerows, • Species-poor intact and defunct hedgerows; and, • Hedgerows with trees, species rich and species poor). Temporary and short-term fragmentation of hedgerows due to land clearance requirements to facilitate construction. Potential for dust emissions, noise and vibration disturbance and artificial illumination from lighting due to the proximity of construction activities. Damage to retained habitats/features (e.g., damage to	Not Significant (minor adverse – temporary reversible damage to hedgerows in the long term)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		roots of trees and hedgerows), impacting health or longevity.	
Scattered Trees	Local	Direct loss of scattered trees. In the absence of mitigation, direct damage to other trees could result from use of machinery, compaction of soil or damage to roots.	Not Significant (minor adverse - temporary reversible damage to scattered trees in the long term)
Veteran Trees	National	There will be no direct loss of veteran trees. Embedded mitigation will reduce impacts that could result compaction of soil or damage to roots.	Not Significant (minor adverse – veteran trees retained, embedded mitigation to prevent damage to tree roots)
Semi-improved grassland	Local	Direct loss of habitat.	Not significant (minor adverse - temporary reversible damage to semi-improved grassland in the medium term)
Running water	County / Local	Direct loss of habitat from open-cut trench crossing techniques, both at the bank and in-channel resulting in a potential loss of sensitive life stage dependent habitat types, flow refugia and cover. Installation of cofferdams and over-pumping of water may lead to a potential disruption in flow dynamics and associated sedimentation processes, with	Effects range from: Not significant (negligible / minor adverse) To Significant (moderate adverse) (refer to *ES Volume II Chapter 11 Water Environment (Application Document 6.2.11*).

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		consequential further loss of sensitive habitat both upstream and downstream of the crossing point. Where temporary culverts are to be installed at watercourse crossing points, there is potential for direct impacts through localised loss and/or damage of habitats. Accidental pollution and discharge of materials (sediment/drill fluid) into watercourses (including blow-out/frac-out from trenchless installation techniques) may impact water quality, which may negatively impact aquatic ecology (for example, increased turbidity and consequent reduction in dissolved oxygen) and potentially a decrease in biodiversity through a loss of sensitive habitat. Potential for pollution event dispersal downstream in the event of discharge to watercourses, with potential for effects to be spread over a larger distance than the point of origin. Construction activities in close proximity to water may result in	

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		the spread of invasive non-native species.	
Open water (ponds)	Local	Construction activities in close proximity to water may result in the spread of invasive non-native species. Accidental pollution and discharge of materials (sediment / drill fluid) into ponds may impact water quality, which may negatively impact aquatic ecology (for example, reduction in oxygen content or increased turbidity) and potentially decrease biodiversity through loss of habitat.	Significant (moderate adverse – long-term and short-term degradation of habitat)
Dune Grassland, Dune Scrub, Open Dune	International	There is no potential for direct effects on the habitat as it is outside of the DCO Site Boundary. Although of international importance the effects would not have an adverse effect on structure/function or conservation status at an International level.	Not Significant (Negligible – no direct impact; minor works of which the extent and magnitude will not affect the integrity or key characteristics of this habitat)
Terrestrial Invertebrates	County	There will be loss of 1.1 ha of habitat which supports invertebrate species including small heath butterfly. Small heath butterfly can be found in a range	Not Significant (Minor Adverse – the extent and magnitude of loss is not expected to have an adverse effect on the

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		of habitat types, and the loss of this relatively small parcel of land is unlikely to have a significant effect upon the small heath population.	conservation value of terrestrial invertebrates).
Great crested newt	County	There is a risk of direct mortality and/or injury of GCN as a result of habitat clearance and construction activities (e.g., vehicle movement/activity, pollution events) within 250m of a confirmed GCN water body. This would be a legal offence under the WCA (Ref 6-2) and Habitats Regulations (Ref 6-1). Temporary (short-term) and permanent loss and/or damage to supporting terrestrial habitats within 250 m of a confirmed GCN water body, for example as a result of topsoil stripping and vegetation clearance, and temporary removal of connective features, such as hedgerows to facilitate construction. Temporary short-term reduction in foraging and sheltering opportunities and temporary severance of commuting habitats.	Significant (moderate adverse – temporary and permanent loss)
Common toad	Local	There is a risk of direct mortality and / or injury of common toad as	Not Significant (minor adverse – temporary and permanent loss of

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		a result of habitat clearance and construction activities (e.g., vehicle movement/activity, pollution events). Temporary (short-term) and permanent loss and/or damage to supporting terrestrial habitats as a result of topsoil stripping and vegetation clearance, and temporary removal of connective features, such as hedgerows to facilitate construction. Temporary short-term reduction in foraging and sheltering opportunities and temporary severance of commuting habitats.	habitat of which the extent, duration and magnitude does not affect the integrity of the toad population)
Reptiles	Local	There is a risk of direct mortality and / or injury of common reptile species as a result of habitat clearance and construction activities. This would be a legal offence under the WCA (Ref 6-2). There will be temporary (short-term) loss of suitable habitat (hedgerows / bankside vegetation) where open-cut crossings of watercourses are proposed.	Significant (moderate adverse – injury or direct mortality)
Fish	County	There is a risk of direct mortality and / or injury to fish as a result of open-cut crossing methodologies.	Significant (moderate adverse - direct mortality and / or injury)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		There is also a risk of noise and vibration impacts on fish species from drilling techniques particularly if carried out during spawning or migration periods. There is potential risk of indirect impacts from surface runoff from constructions areas (i.e., fine sediments) and impacts on water quality from potential pollution incidents (i.e., chemical spills) thereby having potential effects on fish where there are requirements for works taking place above or in proximity to aquatic habitats. There is also a potential indirect impact on fish from light pollution if lighting used during the construction phase is shining directly on water bodies.	
Waterfowl assemblage: Rosper Road Pools (excluding SPA qualifying species)	Local	*Noise and Visual Disturbance* Potential temporary disturbance to breeding and non-breeding birds associated with Rosper Road Pools may occur during the construction phase due to noise, artificial light, movement of heavy plant and construction activities such as site clearance and digging. This would be expected to occur for a period of up to 12 months.	Not significant (minor adverse)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		Baseline levels at Rosper Road Pools are 53dB(A). Construction works will have a maximum unmitigated average noise level of 55-60 dB at Rosper Road Pools, which is up to 7 dB above the baseline (note that for the purposes of this assessment a change of 5dB above baseline noise levels is considered sufficiently precautionary to denote a change which is not just perceptible as a difference but may adversely affect bird behaviour and habitat use). Therefore, noise disturbance, without mitigation, would be expected to cause short-term temporary disturbance of birds on Rosper Road Pools, resulting in reduced foraging and breeding success of species that occur there with short term adverse population impacts. The proposed construction activity will occur within an industrial environment characterised by street lighting, heavy industrial traffic using Rosper Road at all times of day, and existing industrial infrastructure with associated lighting and movements of staff	

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		and vehicles. The contribution of visual disturbance during works is therefore expected to be minor.	
Breeding terrestrial bird assemblage at Immingham Facility	Local	*Potential for Destruction/Damage of Nests* If site clearance and construction activities should occur during the breeding season (typically March-August for most species) this could result in the destruction of and/or damage to nests, affecting an assemblage that includes 24 breeding species, of which 24 are Priority Species. *Temporary Habitat Loss* Construction of the proposed facility would result in the temporary loss of open mosaic habitat, tall ruderal reedbed and short turf grassland habitats that collectively support a range of 20 species of nesting bird typical of these habitats, resulting in a short-term impact. *Noise and Visual Disturbance* If works were to take place during the breeding season, temporary disturbance to breeding birds is likely during the construction phase due to noise, artificial light, movement of heavy plant and	Significant (destruction/damage of nests) – moderate adverse Not significant (temporary habitat loss & noise/visual disturbance)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		construction activities such as site clearance and digging. This disturbance is likely to occur in the immediate footprint of the construction works and could also adversely affect breeding populations occurring within adjacent habitats. Increases in ambient noise levels are likely to occur within and near breeding bird territories in habitats immediately adjacent to the construction works. Therefore, there is the potential for effects relating to the audibility of territorial song and hence possible adverse effects on the ability of birds to hold territory and breed successfully. However, this is considered to be temporary and short-term impact given the works involved, with relatively low noise levels produced during the construction works.	
Non-breeding terrestrial bird assemblage -proposed pipeline route and up to 1 km radius	Local	*Temporary Habitat Loss* Construction of the proposed pipeline route would result in the temporary loss of arable, hedgerow and grassland habitat that is utilised by wintering birds for foraging, roosting and resting, within the entirety of the DCO	Not significant (minor adverse for temporary habitat loss; and noise and visual disturbance)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		application boundary along the pipeline route, covering a 100 m wide swathe over the full 55.5km length of the proposed pipeline (approximately 560ha in total) for a period of up to 9 months, after which the habitats would be restored to their previous condition and extent. *Noise and Visual Disturbance* Temporary disturbance to wintering birds is likely during the construction phase due to noise, artificial light, movement of heavy plant and construction activities such as site clearance and digging. This disturbance is likely to occur in the immediate footprint of the construction works and could also adversely affect wintering populations occurring within adjacent habitats. The disturbance has the potential to cause displacement of wintering birds, however it is expected that any negative effects relating to displacement will be minor considering the relatively small areas of farmland habitat potentially affected in comparison to the availability of similar habitat which is ubiquitous in the wider	

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		locality, and the limited duration of the construction period.	
Breeding terrestrial bird assemblage -proposed pipeline route and up to 1 km radius	Local	*Potential for Destruction/Damage of Nests* If site clearance and construction activities should occur during the breeding season (typically March-August for most species) this could result in the destruction of and/or damage to nests *Temporary Habitat Loss* Construction of the proposed pipeline route would result in the temporary loss of arable, hedgerow and grassland habitat that is utilised by breeding birds for nesting and foraging within the entirety of the DCO application boundary along the pipeline route, covering a 100 m wide swathe over the full 56km length of the proposed pipeline (approximately 560 ha in total) or a period of 9 months, after which the habitats would be restored to their previous condition and extent, resulting in a short-term impact. *Noise and Visual Disturbance* If works were to take place during the breeding season, temporary disturbance to breeding birds is	Significant (moderate adverse for destruction/damage of nests) – moderate adverse Not significant (minor adverse for temporary habitat loss & noise/visual disturbance)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		likely during the construction phase due to noise, artificial light, movement of heavy plant and construction activities such as site clearance and digging. This disturbance is likely to occur in the immediate footprint of the construction works and could also adversely affect breeding populations occurring within adjacent habitats. Increases in ambient noise levels are likely to occur within and near breeding bird territories in habitats immediately adjacent to the construction works. Therefore, there is the potential for effects relating to the audibility of territorial song and hence possible adverse effects on the ability of birds to hold territory and breed successfully. However, this is considered to be temporary and short-term impact given the works involved, with relatively low noise levels produced during the construction works.	
SPA qualifying species within Functionally Linked Land at the Immingham end of the Proposed Development– Black-tailed godwit, curlew, golden plover,	County	*Temporary Habitat Loss* Construction of the proposed pipeline route would result in the temporary loss of arable and grassland habitat that is utilised	Not significant (minor adverse) – temporary habitat loss

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
lapwing, redshank, mallard, shelduck, teal, wigeon.		by birds foraging within functionally linked land, covering a 100 m corridor through approximately 5km for farmland south of Immingham (approximately 50 ha in total) for a period of 9 months, after which the habitats would be restored to their previous condition and extent, resulting in a short-term effect on the foraging success of SPA species. Species affected would be curlew and golden plover feeding in relatively small numbers on open farmland between Stallingborough and Immingham. All other species are restricted to habitats at Rosper Road Pools and North Killingholme Mashes, which will not be affected by habitat loss. However, in practice, the nature of farmland in the wider foraging / roosting zone around an SPA / Ramsar is that pockets of habitat will be moving in and out of suitability constantly due farm management, such as crop rotation and farming activities (e.g., ploughing and harvesting). What is important is the long-term preservation of a sufficiently large amount of foraging habitat in the	Significant (moderate adverse) - disturbance of SPA qualifying species at Rosper Road Pools only.

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		wider landscape around designated sites to sustain the SPA/Ramsar populations. Even if a small amount of foraging habitat is temporarily lost, this will not affect the long-term cumulative resource availability to SPA / Ramsar birds, especially when the habitats involved are widespread and easily recreated, and the original land use of impacted fields will be reinstated immediately following completion of the works. *Noise and Visual Disturbance* Potential temporary disturbance to non-breeding SPA species utilising Rosper Road Pools, North Killingholme Marshes and the farmland between Immingham and Stallingborough may occur during the construction phase due to noise, artificial light, movement of heavy plant and construction activities such as site clearance and digging. This would be expected to occur for a maximum period of up to 12 months. Baseline noise levels at Rosper Road Pools are 53dB(A). Construction works will have a maximum unmitigated average	

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		noise level of 55-60 dB at Rosper Road Pools, which is up to 7 dB above the baseline (NB for the purposes of this assessment a change of 5dB above baseline noise levels is considered sufficiently precautionary to denote a change which is not just perceptible as a difference but may be disturbing to the extent that it may represent an adverse effect on bird behaviour and habitat use) Therefore noise disturbance, without mitigation, would be expected to cause short-term temporary disturbance of SPA birds on Rosper Road Pools, resulting in reduced foraging and breeding success of species that occur there with short term adverse population impacts. Minimum baseline noise levels across North Killingholme Marshes (as measured at noise monitoring location A1) are 44dB(A) LAeq and 60dB(A) LAmax, with noise levels higher than this at noise monitoring locations closer to the Proposed Immingham Facility. At all noise monitoring locations, the predicted noise emissions either	

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		do not exceed baseline levels or, where they are predicted to be higher, will be within 5db(A) of baseline LAmax. The habitats across North Killingholme Marshes are sufficiently distant from the Proposed Immingham Facility that visual disturbance would not occur at significant levels there. South of Immingham, noise monitoring location E3 recorded baseline noise levels of 52dB(A) LAeq and 86dB(A) LAmax close to habitats on which feeding curlew were repeatedly recorded in small numbers. Predicted noise levels will be up to 8dB(A)higher than baseline over a small area of farmland that intersects this location on which curlew were recorded feeding in small numbers (golden plover occurred at only one location distant from the Proposed Development and would not be affected by noise and visual disturbance). The relatively small numbers of curlew and the widespread presence of similar habitat within which these birds can feed further from the Proposed Development means	

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		that any effects on this species here would be insignificant since they could move away from the source of disturbance. For HDD works baseline LAmax levels are not forecast to be exceeded except in the immediate vicinity of the HDD (see Figures XX -XX). At noise monitoring location E2 (Immingham/Northern FLL; Appendix E Figures 6-7) LAmax levels are forecast to be exceeded by up to 5dB up to 200m from the HDD in the absence of mitigation, although this location was not identified as being important for SPA qualifying species. Therefore, HDD works in northern functionally linked land are not expected to contribute to a significant adverse effect on SPA birds here, over and above the wider works to install the pipeline. The proposed construction activity at the Immingham Facility will occur within an industrial environment characterised by street lighting, heavy industrial traffic using Rosper Road at all times of day, and existing industrial infrastructure with	

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		associated lighting and movements of staff and vehicles. The contribution of visual disturbance during works is therefore expected to be minor here; south of Immingham, the contribution of visual disturbance is not likely to be significant for the reasons discussed above regarding noise impacts.	
SPA qualifying species within Functionally Linked Land at the Theddlethorpe end of the Proposed Development – Black-tailed godwit, Curlew, golden plover, greenshank, lapwing, oystercatcher, whimbrel, redshank, ruff, mallard, shelduck, teal, wigeon.	County	*Temporary Habitat Loss* Construction of the proposed pipeline route would result in the temporary loss of arable and grassland habitat that is utilised by qualifying species of the Humber Estuary SPA foraging within functionally linked land, covering a 100 m corridor through approximately 8km for farmland south of Immingham (approximately 80 ha in total) for a period of 9 months, after which the habitats would be restored to their previous condition and extent, resulting in a short-term impact. At the TGT Site (Theddlethorpe; FLL South) a mole plough would be used to make the electrical connection through fields east of the former TGT site between TGT	Not significant (minor adverse) – Temporary Habitat Loss

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		and the dune valve. This will create a small slit in the turf in which the cable duct will be immediately installed, and the turf closed behind by a small mini digger. No wetland features in this area will be directly affected and there will be no habitat loss. Installation is expected to be undertaken in one pass in a single day. Species affected would be curlew, lapwing, golden plover and small numbers of feeding ducks (wigeon, teal and mallard) feeding on open farmland between TGT and Manby/Grimoldby, with curlew, lapwing, redshank, teal, mallard and wigeon occurring regularly at fields east of the former TGT site and occasional use of this area by ruff and oystercatcher. In practice, the nature of farmland in the wider foraging / roosting zone around an SPA / Ramsar and more generally across lowland farmland, is that pockets of habitat will be moving in and out of suitability constantly due farm management, such as crop rotation and farming activities (e.g., ploughing and harvesting).	Significant (moderate adverse) - Noise and Visual Disturbance

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		What is important is the long-term preservation of a sufficiently large amount of foraging habitat in the wider landscape around designated sites to sustain the SPA/Ramsar populations. Even if a small amount of foraging habitat is temporarily lost, this will not affect the long-term cumulative resource availability to SPA / Ramsar birds, especially when the habitats involved are widespread and easily recreated, and the original land use of impacted fields will be reinstated immediately following completion of the works. *Noise and Visual Disturbance* Noise levels (both baseline and project-related) vary across the proposed Development but in general, baseline typical (LAeq) noise levels are in the region of 48 dB on average (LAeq averaged across noise monitoring locations E4 to E20) and are generally lower than this at the Theddlethorpe end of the Proposed Development. Project average construction noise levels (LAeq) therefore exceed 5dB above the average baseline LAeq up to c. 500m from the works	

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		footprint as a worst-case (see Figure XX, showing the Theddlethorpe section of the route – Southern FLL - where the average construction noise levels are highest compared to the baseline). At noise monitoring locations E13 and E16 relevant to HDD activity across Long Eau (Southern FLL; see Figures XX – XX)) construction LAmax would be more than 5 dB above baseline LAmax up to approximately 250-300m from the HDD. Construction noise would therefore be expected to deter birds from feeding and would cause displacement of SPA birds, in numbers that are significant in the context of the SPA populations, into other habitats further from the construction area. This effect is expected to be diluted by the relatively small areas of farmland and grazing marsh habitat potentially affected as a proportion of the habitat available more widely; however, the relative importance of habitats functionally linked to the SPA means that the effects on SPA	

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		birds would be significant without mitigation.	
Non-breeding Pink-footed goose	District	*Temporary Habitat Loss* - construction of the proposed pipeline route would result in the temporary loss of arable and grassland habitat that may be utilised by non-breeding populations of pink-footed geese for foraging, roosting and resting, across an area measuring (based on the regular occurrence of this species within the Survey Area between TGT and Manby and the footprint of the proposed pipeline route through this area) approximately 100 ha. However, lowland farmland typically moves into and out of suitability within an agricultural landscape on a regular basis. Regular farming activities (such as ploughing, spraying, fertilising and harvesting) will present a similar disturbing presence to construction crews installing pipelines. While birds may displace from the immediate vicinity of the works while they are occurring, they will move to the opposite side of fields, or utilise other fields, returning when the	Not significant (minor adverse for temporary habitat loss and noise and visual disturbance)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		works have ceased. Moreover, earth disturbance to install pipelines can attract foraging birds by bringing earthworms, seeds and other food items to the surface. Even if birds are temporarily displaced from a linear corridor of habitat within a given field, this will not affect the long-term cumulative resource availability to SPA / Ramsar birds, especially when the habitats involved are widespread and easily recreated, and the original land use of impacted fields will be reinstated immediately following completion of the works. Therefore, the potential effects of habitat loss will not be significant for pink-footed goose. *Noise and Visual Disturbance* - If site clearance and construction activities should occur during the wintering season (typically October-March for this species) then temporary disturbance to wintering pink-footed geese is likely during the construction phase due to noise, artificial light, movement of heavy plant and construction activities such as site clearance and digging. This disturbance is likely to occur in	

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		the immediate footprint of the construction works and could also adversely affect geese feeding within adjacent habitats up to 500 m either side of the DCO boundary, where this involves open – cut trench installation of the proposed pipe or other works above ground. Within this distance of the construction area, predicted noise levels without mitigation would increase by more than 5dB(A) above ambient levels (based on the LAeq values averaged from noise monitoring locations E15 – E19 as shown on Figure XX). The disturbance has the potential to cause displacement of wintering pink-footed geese in numbers that are significant in the context of the wintering population of the Humber Estuary, from feeding areas on arable farmland. However, it is expected that any negative effects relating to displacement will be minor considering the short-term nature of the construction period and the relatively small areas of farmland habitat potentially affected as a proportion of the feeding habitat available, which is both ubiquitous in the wider locality and	

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		unaffected by the proposed development, plus the wider coastal grazing marshes and Manby Washlands that are known to support this species regularly.	
Breeding willow tit at Burkinshaw's Covert	County	*Noise and Visual Disturbance* If works were to take place during the breeding season, temporary disturbance to breeding willow tit could occur during the construction phase due to noise, artificial light, movement of heavy plant and construction activities such as site clearance and digging. Increases in ambient noise levels may occur within and near breeding bird territories at Burkinshaw's Covert. Therefore, there is the potential for effects relating to the audibility of territorial song and hence possible adverse effects on the ability of birds to hold territory and breed successfully. However, this is considered to be temporary and short-term impact given the works involved, with relatively low noise levels produced during the construction works. Additionally, Burkinshaw's Covert is relatively remote from the construction footprint (minimum distance of	Not significant (negligible)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		0.87km); therefore, noise levels at the woodland are expected to be considerably below any level that would produce a significant effect on breeding willow tit.	
Breeding and non-breeding grey wagtail	County	*Noise and Visual Disturbance* The only recorded occurrences of this species were at Louth Canal, where habitat suitable for breeding is present, Immingham facility and near Theddlethorpe All Saints (as non - breeding birds). If works were to take place during the breeding season, potential temporary disturbance to breeding grey wagtail may occur during the construction phase due to noise, artificial light, movement of heavy plant and construction activities such as site clearance and directional drilling underneath watercourses. However, the use of trenchless methods to install the proposed pipeline across Louth Canal will avoid any impacts to this species at that location and the baseline data indicate that this species is unlikely to have bred elsewhere within the Survey Area and is absent from most parts of the survey area. Therefore, the potential for noise and visual disturbance of this species is	Not significant (negligible)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		negligible. Should disturbance occur to non-breeding birds, this is considered to be temporary and short-term impact that will not be significant.	
Roosting bats	Local	Buildings within the DCO Site Boundary at Immingham are industrial and subject to noise, lighting and anthropogenic disturbance. As such they are considered to have negligible suitability for roosting bats. Trees within the DCO Site Boundary have suitability to support roosting bats. Trees with moderate or high suitability within the DCO Site Boundary have been subject to nocturnal bat emergence / re-entry surveys to confirm presence or likely absence of roosting bats. Bat roosts have been identified within T10 and T35, both of which are also veteran trees. Bats and their roosts are protected under the Habitats Regulations (Ref 6-1) and the WCA (Ref 6-2). There will be no direct effects on roosting bats as trees with bat roosts will be retained and	Not Significant (minor adverse) (temporary disturbance of two bat roosts in trees).

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		protected during the construction phase. To prevent indirect effects, a 10 m buffer from the edge of the canopy will be applied and sound abatement measures used to present disturbance from noise. Any lighting required will be directed away from roost features.	
Foraging and commuting bats	Local	The only areas where habitats will be permanently lost are within Section 1 of the DCO Site Boundary where the Immingham Facility will be located, and Section 5 of the DCO Site Boundary where the proposed Theddlethorpe Facility will be located. Small areas of habitat will be lost where Block Valves are proposed, but these are mainly located within arable habitats. At Immingham, habitats are open and exposed and subject ton24 hour lighting from existing industry; therefore, these habitats are considered to have low suitability for foraging and commuting bats. Habitats are also open and exposed at Theddlethorpe, comprising of bare ground with ephemeral / short perennial and tall ruderal	Not Significant (minor adverse – permanent and temporary habitat loss of which the extent, duration and magnitude does not affect the integrity of the bat population)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		vegetation (Option 1) or arable (Option 2). As such, this location is also considered to have negligible suitability for foraging and commuting bats. Arable habitats within the DCO Site Boundary are considered to have low suitability for foraging and commuting bats. Small numbers of bats use hedgerows, woodland, and watercourses within the DCO Site Boundary for foraging and commuting. Construction may result in temporary short-term disturbance of foraging and commuting bats due to the proximity to construction and associated disturbance (noise, vibration, and light levels). Permanent or temporary (short-term) loss of foraging and commuting habitats as a result of construction of the Proposed Development. Permanent or temporary (short-term) severance of habitats, for example hedgerows, as a result of construction of the Proposed Development. Given the short term, temporary and localised nature of	

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		construction of the Proposed Development, despite the localised severance of hedgerows to facilitate construction, alternative linear features and flight lines will remain intact. In the context of the impacts of construction of the Proposed Development a value of Local is considered proportionate for all species. Direct and indirect effects to foraging and commuting bats, including both temporary and short term, and permanent effects, may result in negative effects significant at a Local scale.	
Otter	County	Otter and their resting places are protected under the Habitats Regulations (Ref 6-1) and WCA (Ref 6-2). Potential effects on otter include direct mortality and/or injury to otter as a result of construction activities. Loss or disturbance of resting places (holts and couches) as a result of temporary land take to facilitate construction. Temporary and short-term loss of foraging and commuting habitats	Significant (moderate adverse)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		as a result of construction activities. Temporary and short-term disturbance (through noise, vibration, and lighting) and displacement of animals through loss of suitable foraging or commuting habitat during construction activities along and adjacent to watercourses. Temporary and short-term riparian habitat degradation and alteration of aquatic habitats and water quality as a result of pollution events in the absence of mitigation, resulting in impacts to foraging and commuting opportunities.	
Water vole	National	Water vole are protected under the WCA (Ref 6-2). Potential effects on water vole include direct mortality and/or injury to water vole as a result of construction activities. Destruction or disturbance of resting places (burrows) as a result of temporary land take to facilitate construction.	Significant (major adverse)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		Temporary and short-term loss of foraging habitats as a result of construction activities. Temporary and short-term disturbance (through noise, vibration) and displacement of animals through loss of suitable foraging or commuting habitat during construction activities along and adjacent to watercourses. Temporary and short-term riparian habitat degradation and alteration of aquatic habitats and water quality as a result of pollution events in the absence of mitigation, resulting in impacts to foraging opportunities.	
Brown hare	Local	Arable and grassland habitats within the DCO Site Boundary have suitability to support brown hare. There may be temporary disturbance and displacement of brown hare during the construction phase of the development, however as brown hares have large home ranges, and there is suitable habitat in the wider area, effects are unlikely to be significant at a population level.	Not Significant (minor adverse temporary loss of habitat, of which the extent, duration and magnitude does not affect the integrity of the brown hare population)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
Hedgehog	Local	Hedgerows, woodland and grassland within the DCO Site Boundary have suitability to support hedgehog. In the absence of mitigation, there is potential for injury/mortality of hedgehog during site clearance.	Not Significant (minor adverse - temporary loss of habitat, of which the extent, duration and magnitude does not affect the integrity of the hedgehog population)
Badger	Local	Seven badger setts were identified within the DCO Site Boundary and 50 m buffer. Direct permanent and / or temporary (short-term) loss of these setts may occur as a result of construction. There is also the risk of direct mortality and/or injury to badger as a result of construction activities (e.g., entrapment in voids or vehicle collision risk). Temporary and permanent loss of habitat, such as scrub, grassland and hedgerows impacting foraging and commuting opportunities, as well as potential sett building habitat. Temporary short-term indirect impacts, for example noise, light, dust, visual and vibration disturbance, may occur as a result of construction of the Proposed Development.	Significant (moderate adverse) (permanent loss of badger setts and direct badger mortality)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		Temporary short-term and permanent habitat fragmentation/severance.	
Aquatic macroinvertebrates	Local	There is potential for direct impacts on aquatic macroinvertebrates at sites that are to be crossed using open-cut construction techniques. These impacts are likely to be temporary and short term as the aquatic macroinvertebrate community should recover quickly. There is potential risk of indirect impacts from surface runoff from constructions areas (i.e., fine sediments) and impacts on water quality from potential pollution incidents (i.e., chemical spills) thereby having potential effects on aquatic macroinvertebrates where there are requirements for works taking place above or in proximity to aquatic habitats. Desk-based assessment and site surveys undertaken have demonstrated that macroinvertebrate species within the water bodies surveyed are relatively common, widespread and typical of habitats that are found in the majority of water bodies that are to be open-cut	Not significant (minor adverse - temporary loss of habitat, of which the extent, duration and magnitude is not considered to affect the integrity of aquatic macroinvertebrates as in the short term the community should recover)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		(field drains). The aquatic macroinvertebrate community of sites surveyed were dominated by species considered to be relatively tolerant to pollution-therefore communities are likely to be insensitive to impacts on water quality in the event any minor incidents occur.	
Aquatic macrophytes	Local	There is potential for direct impacts on aquatic macrophytes at sites that are to be crossed using open-cut construction techniques due to their possible removal and/or damage. Potential impacts of runoff and pollution during construction, and the associated smothering of aquatic macrophytes, will be controlled by mitigation as detailed *in ES Volume II Chapter 11 Water Environment (Application Document 6.2.11).* With consideration of mitigation including the implementation of best practice construction techniques, the impact on macrophytes is considered to be not significant (minor adverse).	Not significant (minor adverse - temporary loss of habitat, of which the extent, duration and magnitude is not considered to affect the integrity of aquatic macrophytes)
INNS	Negligible	In the absence of mitigation, there is the potential for invasive species to be spread during the	Significant (moderate adverse) (permanent effect)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		construction phase of the proposed development. This would be in contravention to wildlife legislation.	

Assessment of Potential Impacts: Operational Phase

6.7.6 The operational phase of the Proposed Development is summarised in *ES Volume II Chapter 3: Description of the Proposed Development (Application Document 6.2.3)* with permanent above ground infrastructure at Immingham, Theddlethorpe and the Block Valve Stations. Operational lighting will be zoned to provide light only where required and will follow BS EN 12464 (Part 2) and guidance notes from the Institution of Lighting Professionals GN01. The Theddlethorpe Facility and Block Valve Stations will be unmanned, and routine visits will be made only during the hours of daylight. Lighting will be installed at these locations as described above but will only be activated if required for an unexpected maintenance visit, during low light conditions or in the event of an emergency. Lighting will therefore only be used for short temporary time periods.

6.7.7 The likely significant effects for Biodiversity associated with the Operational stage of the Proposed Development are presented below in **Table 6-13**.

Table 6-13: Summary of Potential Impacts – Operational Phase

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
Statutory Designated Sites of international importance. (SPA, SAC, Ramsar)	International	Qualifying species of the Humber Estuary SPA that occur in the environs of the Immingham Facility, at Rosper Road Pools and North Killingholme Marshes, include teal, mallard, wigeon, shelduck, black-tailed godwit, redshank, lapwing and curlew. Qualifying species of the Humber Estuary SPA that occur in the environs of the Theddlethorpe facility Option 1 include mallard, teal, wigeon, shelduck, ruff, lapwing, curlew, redshank and oystercatcher, although all of these species apart from oystercatcher (peak count of two on one occasion within TGT) and redshank (one bird on a single occasion) occurred exclusively on fields east of the former TGT site, which is separated from the proposed facility by a minimum distance of 112 metres but is otherwise not screened from it visually by any existing habitat or topographical features. Theddlethorpe facility Option 2 is a minimum of 575 m west of fields east of the former TGT site and is visually separated from it by a stand of mature shelter belt woodland along the western edge of the existing TGT site. Qualifying species of the Humber Estuary SPA at fields east of the former TGT site would therefore not be affected by this option and the recoded occurrence of SPA birds west of TGT suggests that impacts on them would not occur at this location. The effects of permanent habitat loss are not anticipated to be significant for either option as there were few records of SPA species occurring within TGT (Theddlethorpe facility Option 1); and the plot of land on which Theddlethorpe Option 2 is proposed is suboptimal for the most SPA birds due to the lack of sightlines and unhindered flightlines eastwards towards the coastal marshes and intertidal habitats. Once the Immingham and Theddlethorpe Facilities are constructed, it is anticipated that the bird assemblages which form the Humber Estuary SPA and Ramsar will become habituated to the new buildings and structures. The tallest structures within the Immingham and Theddlethorpe Facilities will be the venting system which comprises of a vent stack 24” diameter and up to 25 m high. The venting system is designed to operate within accepted operational noise levels and as such, no	Not Significant (minor adverse - Permanent habitat loss and temporary disturbance)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		disturbance of qualifying bird within the designated sites or functionally linked land is anticipated. At Theddlethorpe, noise levels during operation of either of the facility options would not exceed 55dB(A) within any part of the facility and will exceed 40 dB(A) only across a negligible area of the habitat surrounding the facility. Therefore, the effects of operational noise will be negligible and not significant. It is assumed that noise emissions from the operational Immingham facility will be of a similar magnitude to those at the Theddlethorpe facility, which would be well below baseline noise levels. Therefore, operational noise emissions will not result in significant effects on habitat use by SPA birds and by default this impact pathway is not significant for the Humber Estuary SPA. Operational lighting will be zoned to provide light only where required. Lighting will be directed only into the facility area and will incorporate measures such as louvres and/or barn-doors to minimise light-spill on the occasions that the lighting is required. Security lighting will provide illumination of security fence areas and be activated upon unauthorised access to the pipeline facilities. A security lighting override switch will be provided for Operator control at any time. Given the above considerations, light spill on to North Killingholme Marshes and Rosper Road Pools will not exceed baseline light levels from existing operational industrial infrastructure and road lighting on Rosper Road itself. The Theddlethorpe Facility and Block Valve Stations will be unmanned. Lighting will be installed at these locations but will be activated only if required for an unexpected maintenance visit (should such a visit occur during low light conditions) or in the event of an emergency. Lighting will therefore be used for short temporary time periods only. Furthermore, the design measures set out above to limit light spill on to habitats surrounding the facility will be put in place. As such, there will be no significant effects from changes in lighting. Emissions during the operational phase would be restricted to occasional maintenance activities with little traffic generated and it is unlikely that these traffic volumes will exceed the IAQM threshold for detailed assessment. Routine emissions from the venting system will not be harmful to ecologically sensitive	

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
		receptors (refer to ES Volume II Chapter 14 – Air Quality (Application Document 6.2.14)). No significant effects resulting from changes in water quality are anticipated during the operation phase of the Proposed Development (refer to *ES Volume II Chapter 11 - Water Environment (Application Document 6.2.11)).*	
Statutory Designated Sites (SSSI and NNR)	National	Saltfleetby - Theddlethorpe Dunes SSSI and NNR is located within Section 5 of the DCO Site Boundary. No direct effects upon habitats are anticipated during the operational phase of the development. Emissions during the operational phase would be restricted to occasional maintenance activities with little traffic generated and it is unlikely that these traffic volumes will exceed the IAQM threshold for detailed assessment. Routine emissions from the venting system will not be harmful to ecologically sensitive features (refer to *ES Volume II Chapter 14 – Air Quality (Application Document 6.4.14)*). No significant effects resulting from changes in water quality are anticipated during the operation phase of the Proposed Development (refer to *ES Chapter 11 - Water Environment (Application Document 6.2.11))*.	Not Significant (negligible)
Statutory Designated Sites (LNR)	County	The closest LNR is Bradley and Dixon Woods located 2.29 km north-east of Section 3 and designated for ancient woodland. The only potential pathway of effect between the LNR and Proposed Development is changes in air quality. Emissions during the operational phase would be restricted to occasional maintenance activities with little traffic generated and it is unlikely that these traffic volumes will exceed the IAQM threshold for detailed assessment. Routine emissions from the venting system will not be harmful to ecologically sensitive features (refer to *ES Volume II Chapter 14 – Air Quality (Application Document 6.4.14)).*	Not Significant (negligible)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
Non-statutory Designated Sites (SNCI, LWS)	National	There is potential for noise and visual disturbance of the bird assemblage at Rosper Road pools during operation. However, the bird assemblage is likely to habituate to the new building / structures and operational noise. The Immingham Facility is located within an industrial area and it is envisaged that the plant, machinery, vehicles and structures used during operation will not result in any significant change in the conditions within the locality. Equipment on the Immingham Facility is expected to require planned maintenance every two years (or less frequently as required). Systems will typically be designed with a duty/standby configuration that will allow the process to remain online whilst allowing the required maintenance to be undertaken safely. No other effects upon non-statutory designated sites are anticipated during the operational phase of the development.	Not significant (negligible)
Open Mosaic Habitat on Previously Developed Land	Local	No effects upon open mosaic habitat are anticipated during the operational phase of the Proposed Development.	Not significant (negligible)
Semi-natural Broad-leaved woodland Broad-leaved plantation woodland	Local	No effects upon woodland habitat are anticipated during the operational phase of the Proposed Development.	Not significant (negligible)
Woodpasture and parkland	Local	No effects upon wood pasture and parkland are anticipated during the operational phase of the development.	Not significant (negligible)
Hedgerows	Local	Hedgerows will be reinstated post construction. No effects upon hedgerows are anticipated during the operational phase of the development.	Not significant (negligible)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
Semi-improved grassland	Local	Grassland habitat will be reinstated post construction. No effects upon semi-improved grassland are anticipated during the operational phase of the development	Not significant (negligible)
Running water	Local	No effects upon watercourses are anticipated during the operational phase of the Proposed Development.	Not significant (negligible)
Open water (ponds)	Local	No effects upon water bodies are anticipated during the operational phase of the Proposed Development.	Not significant (negligible)
Scattered trees	Local	No effects upon retained habitats anticipated.	Not significant (negligible)
Veteran Trees	County	No effects upon retained habitats anticipated.	Not significant (negligible)
Dune Grassland, Dune Scrub, Open Dune	International	No effects upon sand dunes are anticipated during the operational phase of the Proposed Development.	Not significant (negligible)
Terrestrial Invertebrates	County	No effects upon invertebrates are anticipated during the operational phase of the Proposed Development.	Not significant (negligible)
Great crested newt	County	No effects upon great crested newts are anticipated during the operational phase of the Proposed Development.	Significant (negligible)
Common toad	Local	No effects upon common toad are anticipated during the operational phase of the Proposed Development.	Not significant (negligible)
Reptiles	Local	No effects upon reptiles are anticipated during the operational phase of the Proposed Development.	Not significant (negligible)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
Fish	County	No effects upon fish are anticipated during the operational phase of the Proposed Development.	Not significant (negligible)
Waterfowl assemblage: Rosper Road Pools (excluding qualifying species of the Humber Estuary SPA)	Local	The narrative provided for potential impacts on the Humber Estuary SPA applies equally to this receptor. There will be new lighting at the Immingham Facility, however this location is already subject to lighting from existing roads and industry and no significant effects are anticipated. Operational noise from the Immingham facility will have no significant effects on water birds at Rosper Road Pools.	Not significant (negligible)
Breeding terrestrial bird assemblage at Immingham Facility	Local	There will be new lighting at the Immingham Facility, however this location is already subject to lighting from existing roads and industry and no significant effects are anticipated.	Not significant (negligible)
Non-breeding terrestrial bird assemblage - proposed pipeline route and up to 1km radius	Local	No effects upon the non-breeding terrestrial bird assemblage are anticipated during the operational phase of the Proposed Development.	Not significant (negligible)
Breeding terrestrial bird assemblage - proposed pipeline route and up to 1km radius.	Local	No effects upon the breeding terrestrial bird assemblage are anticipated during the operational phase of the Proposed Development.	Not significant (negligible)
SPA qualifying species within Functionally Linked Land at the	County	No effects on SPA qualifying species are anticipated during the operational phase of the Proposed Development because: Noise and visual disturbance arising from operation of the Immingham facility will be insufficient to disturb SPA birds using Rosper Road Pools and North Killingholme	Not significant (negligible)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
Immingham end of the Proposed Development– Black-tailed godwit, curlew, golden plover, lapwing, redshank, mallard, shelduck, teal, wigeon.		Marshes as per the narrative for "Statutory Designated Sites (SAC, SPA and Ramsar) provided in this table; and The proposed pipeline across farmland south of Immingham will be buried and all habitats reinstated to the original condition immediately after installation.	
SPA qualifying species within Functionally Linked Land at the Theddlethorpe end of the Proposed Development – Black-tailed godwit, Curlew, golden plover, greenshank, lapwing, oystercatcher, whimbrel, redshank, ruff, mallard, shelduck, teal, wigeon.	County	No effects on SPA qualifying species are anticipated during the operational phase of the Proposed Development because: Noise and visual disturbance arising from operation of either of the Theddlethorpe Facility options will be insufficient to disturb SPA birds using surrounding habitats as per the narrative for "Statutory Designated Sites (SAC, SPA and Ramsar) provided in this table; and The proposed pipeline across farmland west of TGT will be buried and all habitats reinstated to the original condition immediately after installation.	Not significant (negligible)
Non-breeding pink-footed goose	District	No effects upon non-breeding pink-footed goose are anticipated during the operational phase of the Proposed Development.	Not significant (negligible)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
Breeding willow tit at Burkinshaw's Covert	County	No effects upon willow tit are anticipated during the operational phase of the Proposed Development.	Not significant (negligible)
Breeding and non-breeding grey wagtail	County	Breeding and foraging habitats will be undisturbed during operation. Block Valve Stations are located in suboptimal habitats on field margins, adjacent to roads and away from watercourses, therefore no effects upon grey wagtail are anticipated.	Not significant (negligible)
Roosting bats	Local	No effects upon roosting bats are anticipated during the operational phase of the Proposed Development.	Not Significant (negligible)
Foraging and commuting bats	Local	There will be new lighting at the Immingham Facility, however this location is already subject to lighting from existing roads and industry and no significant effects are anticipated. Habitats within the Theddlethorpe Facility comprise of bare ground and ephemeral / short perennial vegetation and have negligible suitability for foraging and commuting bats. The pipeline route will be unlit during operation. Block Valve Stations would be unlit except during maintenance or potential breakdown/emergency requirements, when permanent task lighting columns (approximately 4m high) would be employed. As Block Valve Stations will remain unlit for most of the time, no disturbance effects upon foraging and commuting bats are anticipated.	Not significant (negligible)
Otter	County	Watercourses will be undisturbed, and the pipeline route will be unlit during operation. Block Valve Stations are located away from watercourses and would be unlit except during maintenance or potential breakdown/emergency requirements. Therefore, no effects upon otter are anticipated.	Not significant (negligible)
Water vole	National	Watercourses will be undisturbed during operation. Block Valve Stations are located away from watercourses and no effects upon water vole are anticipated.	Not significant (negligible)

Ecological Receptor	Importance	Potential Impacts and Effects	Potential Effect/ Significance
Brown hare	Local	No effects upon brown hare are anticipated during the operational phase of the Proposed Development.	Not significant (negligible)
Hedgehog	Local	No effects upon hedgehog are anticipated during the operational phase of the Proposed Development.	Not significant (negligible)
Badger	Local	Habitats will be available to foraging badger post construction. The pipeline route will be unlit during operation. Block Valve Stations would be unlit except during maintenance or potential breakdown/emergency requirements. Therefore, no significant effects upon badger are anticipated during the operational phase of the Proposed Development.	Not significant (negligible)
Aquatic macroinvertebrates	Local	No effects upon aquatic macroinvertebrates are anticipated during the operational phase of the Proposed Development.	Not significant (negligible)
Aquatic macrophytes	Local	No effects upon aquatic macrophytes are anticipated during the operational phase of the Proposed Development.	Not significant (negligible)
INNS	Negligible	There is no potential for INNS to be spread as a result of the operation of the Proposed Development.	Not Significant (negligible)

Assessment of Potential Impacts: Decommissioning Phase

6.7.8 An initial Draft Decommissioning Strategy has been developed for the Proposed Development and is presented in *ES Volume IV: Appendix 3.5 (Application Document 6.4.3.5).* The Proposed Development has a design life of 25 years, which may be extended further with suitable inspection and maintenance of the installed equipment. At the end of the Proposed Development's operations, the pipeline and associated infrastructure would be decommissioned. The decommissioning programme would be developed in line with all applicable legislation and best practice in place at the time and would include engagement with relevant stakeholders and consultees as appropriate, to understand any possible re-use options for the pipeline and associated infrastructure. The decommissioning strategy would apply to the Immingham Facility, the pipeline between Immingham and Theddlethorpe, the Block Valve Stations, the Theddlethorpe Facility and the Dune Isolation Valve.

6.7.9 The likely significant effects for Biodiversity associated with the Decommissioning phase of the Proposed Development are presented in **Table 6-14** below.

Table 6-14: Summary of Potential Impacts – Decommissioning Phase

Ecological Receptor	Importance	Potential Impacts and Effects	Likely Significant Effects
Statutory Designated Sites within the DCO Site Boundary (SPA, SAC, Ramsar)	International	There is potential for noise and visual disturbance to affect the qualifying bird species of the Humber Estuary SPA and Ramsar during the decommissioning phase (refer to *ES Volume IV: Appendix 6.7 (Application Document 6.4.6.7) and Confidential Appendix 6.8(Application Document 6.4.6.8).* Noise and visual disturbance are relevant only to decommissioning of the Immingham and Theddlethorpe facilities as the majority of the pipeline would be left in situ. The magnitude of noise emissions during decommissioning is assumed to be analogous to those predicted for construction. This could potentially affect species using Rosper Road Pools (with respect to the Immingham facility) including teal, mallard, wigeon, shelduck, black-tailed godwit, redshank, lapwing and curlew; and fields east of the former TGT site (with respect to Theddlethorpe facility option 1), including mallard, teal, wigeon, shelduck, ruff, lapwing, curlew, redshank and oystercatcher). Given the recorded distribution of SPA qualifying species, effects of decommissioning Theddlethorpe option 2 would not be expected to be significant. In the absence of mitigation there is potential for dust emissions during decommissioning to affect Habitats sites (refer to ES Chapter 14 – Air Quality).	Significant (major adverse – noise and visual disturbance of the bird assemblage and dust)
Statutory Designated Sites outside the DCO site boundary but within 10km of the DCO Site Boundary (SPA, SAC, Ramsar)	International	No effects on the Humber Estuary SAC are anticipated during decommissioning.	Not Significant (Negligible)

Ecological Receptor	Importance	Potential Impacts and Effects	Likely Significant Effects
Statutory Designated Sites within the DCO site boundary (SSSI and NNR)	National	In the absence of mitigation there is potential for dust emissions and changes in water quality to affect the habitats for which the Saltfleetby – Theddlethorpe Dunes SSSI is designated.	Significant (major adverse – temporary effects due to dust and changes in water quality)
Statutory Designated Sites outside the DCO site boundary but within 10km of the DCO Site Boundary	National	The Humber Estuary SSSI is located 1.27 km north-east of Section 1 at the closest point. No direct effects upon habitats are anticipated, there is potential for noise and visual disturbance of the of birds within functionally linked land.	Significant (major adverse – temporary noise and visual disturbance of the bird assemblage and dust)
Statutory Designated Sites (LNR)	County	The closest LNR is Bradley and Dixon Woods located 2.29 km north-east of Section 3 and designated for ancient woodland. Due to the separation distances between the Proposed Development and the LNR no effects are anticipated.	Not significant (negligible)
Non-statutory Designated Sites (SNCI, LWS)	County	The River Freshney Headwaters LWS, Waithe Beck East LWS, Great Eau SNCI, Long Eau SNCI and Great Eau LWS are within the DCO Site Boundary. Brackenborough Road verge is 5 m east of Section 4. As the majority of the pipeline route will be left in situ, no effects are anticipated. There is potential for noise and visual disturbance of the bird assemblage at Rosper Road Pools LWS during decommissioning.	Significant (moderate adverse – temporary noise and visual disturbance of the bird assemblage)

Ecological Receptor	Importance	Potential Impacts and Effects	Likely Significant Effects
			(Rosper Road Pools LWS only) Not significant (negligible) for all other LWS
Open mosaic habitat on previously developed land	Local	No effects upon open mosaic habitat are anticipated during the decommissioning Phase of the Proposed Development.	Not significant (negligible)
Semi-natural Broad-leaved woodland Broad-leaved plantation woodland	Local	No effects upon woodland habitats are anticipated during the decommissioning Phase of the Proposed Development.	Not significant (negligible)
Wood pasture and parkland	Local	No effects upon wood pasture and parkland are anticipated during the decommissioning Phase of the Proposed Development.	Not significant (negligible)
Hedgerows	Local	No effects upon hedgerows are anticipated during the decommissioning Phase of the Proposed Development.	Not significant (negligible)
Semi-improved grassland	Local	No effects upon grassland are anticipated during the decommissioning Phase of the Proposed Development.	Not significant (negligible)
Running water	Local	No effects upon running water are anticipated during the decommissioning Phase of the Proposed Development.	Not significant (negligible)

Ecological Receptor	Importance	Potential Impacts and Effects	Likely Significant Effects
Open water (ponds)	Local	No effects upon open water are anticipated during the decommissioning Phase of the Proposed Development.	Not significant (negligible)
Dune Grassland, Dune Scrub, Open Dune	International	No effects upon open dune habitats are anticipated during the decommissioning Phase of the Proposed Development.	Not significant (negligible)
Invertebrates	County	No additional effect on Invertebrates is anticipated as a result of decommissioning.	Not significant (negligible)
Great crested newt	County	No effects upon great crested newt are anticipated during the decommissioning Phase of the Proposed Development.	Not significant (negligible)
Common toad	Local	No effects upon common toad are anticipated during the decommissioning Phase of the Proposed Development.	Not significant (negligible)
Reptiles	Local	There is a risk of direct mortality and / or injury of common reptile species if decommissioning activities occur within suitable habitat. This would be a legal offence under the WCA (Ref 6-2).	Significant (moderate adverse)
Fish	County	There will be no direct impacts given that there will be no requirement to remove or disturb aquatic habitats to remove buried infrastructure and no species associated with these habitats will be affected. However, there is the potential of temporary and indirect impacts on aquatic habitats and their water quality via accidental pollution or uncontrolled site runoff which could impact fish species but will be limited to those located in close proximity to the built footprint of the Proposed Development.	Not significant (minor adverse – temporary impact on water quality)

Ecological Receptor	Importance	Potential Impacts and Effects	Likely Significant Effects
Waterfowl assemblage: Rosper Road Pools (excluding SPA qualifying species)	Local	Decommissioning effects on non-SPA birds using Rosper Road Pools are expected to be analogous to those during construction i.e., noise and visual disturbance. The narrative provided for this receptor in Table 6-13 is applicable.	Not significant (minor adverse)
Non-breeding terrestrial bird assemblage - proposed pipeline route and up to 1 km radius	Local	No effects upon the non-breeding terrestrial bird assemblage are anticipated during the decommissioning Phase of the Proposed Development.	Not significant (negligible)
Breeding terrestrial bird assemblage - proposed pipeline route and up to 1 km radius	Local	No effects upon the breeding terrestrial bird assemblage are anticipated during the decommissioning Phase of the Proposed Development.	Not significant (negligible)
SPA qualifying species within Functionally Linked Land at the Immingham end of the Proposed Development– Black-tailed godwit, curlew, golden plover, lapwing, redshank,	County	The pipeline will be left in situ and therefore effects on SPA birds using farmland south of Immingham will not occur. There will be no losses of habitat during the decommissioning phase at any location. Noise emissions and visual disturbance during decommissioning of the Immingham facility are likely to be analogous to those during construction, therefore the narrative provided in Table 6-13 for this impact is applicable. Without mitigation, noise and visual disturbance would reduce the occurrence of SPA birds at Rosper Road Pools	Significant (moderate adverse) - disturbance of SPA qualifying species at Rosper Road Pools only.

Ecological Receptor	Importance	Potential Impacts and Effects	Likely Significant Effects
mallard, shelduck, teal, wigeon.			
SPA qualifying species within Functionally Linked Land at the Theddlethorpe end of the Proposed Development – Black-tailed godwit, Curlew, golden plover, greenshank, lapwing, oystercatcher, whimbrel, redshank, ruff, mallard, shelduck, teal, wigeon.	County	As the pipeline and electrical connections will be left in situ, there will be no habitat losses at fields east of the former TGT site or along the pipeline route across farmland west of TGT, nor will there be any noise emissions at these locations, except for localised noise emissions at the Theddlethorpe facilities (either option). Noise emissions and visual disturbance during decommissioning of the Theddlethorpe facility are likely to be analogous to those during construction, therefore the narrative provided in Table 6-13 for this impact is applicable. Construction noise would be expected to deter birds from feeding and would cause displacement of SPA birds, in numbers that are significant in the context of the SPA populations, into other habitats further from the construction area. This effect is expected to be diluted by the relatively small areas of farmland and grazing marsh habitat potentially affected as a proportion of the habitat available more widely, and (in contrast to the construction phase) because there will be no decommissioning activities within fields east of the former TGT site, this impact is not expected to be significant.	Not significant (minor adverse) – disturbance of SPA qualifying species across farmland and grazing marsh.
Non-breeding Pink-footed goose	District	No effects upon the non-breeding pink-footed goose receptor are anticipated during the decommissioning Phase of the Proposed Development because this species occurs predominantly across farmland away from TGT where the pipeline will remain in situ.	Not significant (negligible)
Breeding willow tit at Burkinshaw's Covert	County	No effects upon the breeding willow tit receptor are anticipated during the decommissioning Phase of the Proposed Development.	Not significant (negligible)

Ecological Receptor	Importance	Potential Impacts and Effects	Likely Significant Effects
Breeding and non-breeding grey wagtail	County	There will be no direct impacts given that there will be no requirement to remove or disturb aquatic habitats to remove buried infrastructure and no bird species associated with these habitats will be affected.	Not significant (negligible)
Roosting bats	Local	No effects upon roosting bats are anticipated during the decommissioning Phase of the Proposed Development.	Not significant (negligible)
Foraging and commuting bats	Local	No effects upon foraging and commuting bats are anticipated during the decommissioning Phase of the Proposed Development.	Not significant (negligible)
Otter	County	There will be no direct impacts given that there will be no requirement to remove or disturb aquatic habitats to remove buried infrastructure and no species associated with these habitats will be affected. However, there is the potential of temporary and indirect impacts on aquatic habitats and their water quality via accidental pollution or uncontrolled site runoff which could affect the food sources for otter. The potential for pollution incidents will be limited to locations in close proximity to the Immingham and Theddlethorpe facilities and potential effects on watercourses will be avoided through embedded mitigation.	Not significant (negligible)
Water vole	National	There will be no direct impacts given that there will be no requirement to remove or disturb aquatic habitats to remove buried infrastructure and no species associated with these habitats will be affected. However, there is the potential of temporary and indirect impacts on aquatic habitats and their water quality via accidental pollution or uncontrolled site runoff which could affect habitat used by water vole. The potential for pollution incidents will be limited to locations in close proximity to the Immingham and Theddlethorpe facilities and water vole were not present near these locations. Potential effects on watercourses will also be avoided through embedded mitigation.	Not significant (negligible)

Ecological Receptor	Importance	Potential Impacts and Effects	Likely Significant Effects
Brown hare	Local	No effects upon brown hare are anticipated during the decommissioning Phase of the Proposed Development.	Not significant (negligible)
Hedgehog	Local	Soft landscaping surrounding the Theddlethorpe Option B facilities will have suitability for small mammals such as hedgehog. This habitat is likely to be retained following decommissioning.	Not significant (negligible)
Badger	Local	There is potential for badger to be disturbed during decommissioning if present in the vicinity of the Theddlethorpe and Immingham facilities. This would be a contravention of legislation.	Significant (moderate adverse)
Aquatic macroinvertebrates	Local	There will be no direct impacts given that there will be no requirement to remove or disturb aquatic habitats to remove buried infrastructure and no species associated with these habitats will be affected. However, there is the potential of temporary and indirect impacts on aquatic habitats and their water quality via accidental pollution or uncontrolled site runoff which could impact aquatic macroinvertebrate species but will be limited to those located in close proximity to the built footprint of the Proposed Development and avoided or mitigated by procedures during the works.	Not significant (minor adverse)
Aquatic macrophytes	Local	There will be no effects of the decommissioning of the Proposed Development on aquatic macrophytes.	Not significant (negligible)
INNS	Negligible	There is potential for invasive species to be spread (if present) through use of machinery and plant during the decommissioning Phase of the Proposed Development. This would be a contravention of legislation.	Significant (moderate adverse)

6.8 Additional Mitigation and Enhancement Measures

Additional Mitigation and Enhancement – Construction Phase

6.8.1 The Draft Construction Environmental Management Plan (CEMP) (*ES Volume IV: Appendix 3.1 (Application Document 6.4.3.1)*) sets out the additional mitigation measures identified in this assessment of likely significant effects within the Mitigation Register. This section summarises the types of mitigation measures that will be considered to mitigate against the effects on ecology and biodiversity where required. Each entry in the Mitigation Register has an alpha-numerical reference e.g., "B1" to provide a cross reference to the secured commitment. Additional mitigation entries which are specific to Schedule 1 bird species are shown separately as part of the impact assessment within the Confidential Bird Baseline Report (*ES Volume IV: Appendix 6.8(Application Document 6.4.6.8*)).

- **B1**: An Invasive Species Management Plan will be developed (this will form part of the Final CEMP), identifying relevant invasive non-native species within the area to ensure that all necessary precautions are taken to prevent their spread;
- **B2**: Undertake pre-construction ecology surveys (species specific surveys will be determined for the next iteration of this Draft CEMP);
- **B3**: Establish a Construction Exclusion Zone (CEZ) to define working areas and protect habitats outside of the DCO Site Boundary and retained habitats throughout the Proposed development. The CEZ may need to be extended beyond 10m for certain Important Ecological Features, such as dune habitat, woodlands and mature / veteran trees, for example to protect root protection zones. The location of CEZ's will be defined within the Final CEMP and informed by a pre-construction ecological walkover (to identify any changes to the baseline and a tree survey (to BS 5837:2012);
- **B4**: Undertake any small-scale hedgerow removal for access purposes within the construction site outside of the breeding bird season (March – September). This will avoid contravention of the Wildlife and Countryside Act 1981 (as amended) by preventing destruction, damage and disturbance of established nests. This will prevent birds nesting within the proposed construction works prior to construction. If scrub, hedgerow, arable or grassland clearance is undertaken during the bird breeding season, then a breeding bird check will be undertaken by an experienced ecologist prior to any removal. If a nest is found, a suitable buffer will be erected and works will be required to stop within the vicinity until the young fledge.

  Ground nesting species may be dissuaded from nesting in construction/site access routes by removing the surface vegetation from the desired area before the breeding season commences. Where this is not possible bird deterrent measures will be deployed to deter birds from nesting, followed by the completion of a pre works survey to check for presence of nests.

  Any works that occur during the breeding season will comply with the Wildlife and Countryside Act 1981 (as amended). An Environmental Advisor/Ecological Clerk of Works (ECoW) will be appointed to monitor construction operations during the breeding bird season. If Schedule 1 species are found breeding within the working area, works will stop immediately and Natural England advised;
- **B5**: Develop a method statement to ensure that site clearance is undertaken in a sensitive manner to allow the temporary displacement of common toad, reptiles, hedgehogs and brown hare;

- **B6**: Develop a method statement to ensure works within watercourse crossings include suitable measures to allow the passage of otters, water vole and fish throughout construction (i.e., during fluctuating water levels);
- **B7**: Ensure accordance with details within Important Ecological Features (IEF) specific method statements which may include monitoring of some of the IEF's before the construction phase;
- **B8**: Where temporary habitat is removed, these are to be reinstated. For habitats identified as IEF's, reinstatement will be to a condition of ecological value equal to or above the baseline conditions;
- **B9**: Hedgerows temporarily lost during construction are to be reinstated and, where appropriate, improved from their baseline condition: defunct or species-poor hedges will be replanted so as to achieve species-rich and continuous hedgerows, once re-established. Where possible, hedgerow removal is to be kept to 15m to minimise habitat loss;
- **B10**: The working width would be reduced to the minimum necessary to enable plant to cross the boundary and for the pipeline to be laid safely, whilst only removing the minimum length of hedgerow required. Where possible, hedgerow removal is to be kept to 15 m to minimise habitat loss.
- **B11**: Within the DCO Site Boundary, and taking account of other local considerations, the detailed design will select the least impactful point at which to cross, taking advantage of gaps within existing hedgerows or reducing the number of trees removed where possible. For example, if there is a tree within the hedgerow, the tree will be retained, if possible, by positioning the working area to the side. Similarly, utilising existing gaps or entrances already within the hedgerow will reduce the amount of vegetation to be removed.
- **B12**: A minimum buffer of 10m (where practicable) will be retained around retained IEF's to reduce any potential direct or indirect impacts on the species and habitats associated with them;
- **B13**: Where there is the loss of any tree with bat roost suitability, this is to be replaced on a 2:1 ratio; for each bat box installed, an equivalent number of bird boxes are to also be installed at the same location, where feasible;
- **B14**: A suitably qualified ecologist is to be available for the duration of the construction period to resolve any uncertainties regarding ecological issues and to monitor compliance with good practice mitigation measures (as defined in the Final CEMP).

  The ecologist will undertake all necessary surveys (e.g., for breeding birds) during the construction period to ensure up-to-date information is available;
- **B15**: Standard good practice and pollution control measures will be implemented during vegetation clearance;
- **B16**: Topsoil stripping will be undertaken outside of the winter period (October to March inclusive) where possible. If there is more than 15mm of rain over 24hr period then top soil stripping will cease until the soil is dry or 24 hours has passed, whichever is the sooner, or as agreed with Lands Officer;
- **B17**: Habitat loss should be compensated with the creation of replacement habitats and habitat management on site;
- **B18**: Implementation of European Protected Species Mitigation licences where necessary, including (for example) DLL for great crested newt, licences to permit the

disturbance of bats or creation of alternative habitat features (e.g., bat roosts), if required;

- **B19**: Monitoring of some of the IEF's may also be necessary during the construction phase, which will be detailed within IEF specific method statements;
- **B20**: On completion of the works, dead hedging will be installed at all hedgerow removal locations to restore ecological connectivity until permanent reinstatement can be undertaken;
- **B21**: Trees with confirmed bat roosts, which are also veteran trees, will be retained and protected. A minimum buffer of 10 m from the edge of the canopy will be applied to avoid disturbance and lighting of roost features will be avoided.
- **B22**: A 10 m working width at watercourse crossings will be adopted, as far as practicable, to minimise potential impacts of open cut watercourse crossings.
- **Op09**: Establish an aftercare period to monitor all habitat reinstatement/creation/mitigation measures/net gain assessment by a suitably qualified ecologist to assess success. Where necessary, identify and implement remedial measures such as replacement of failed trees within newly planted hedgerows;
- **Op10**: Careful design (e.g., selection plant species for landscape planting that will be beneficial to a range of bird and insect species);
- **Op11**: Controls on noise generation and propagation where necessary;
- **Decom1**: A check for INNS will be completed at least one year prior to decommissioning to inform the decommissioning plan;
- **G5**: Water quality monitoring will be undertaken pre, during and post-construction on all watercourses alongside daily inspections. Where effects are identified through monitoring then additional mitigation should be identified;
- **G7**: All temporary works including construction of compounds, haul roads, earthworks, pipeline crossings of watercourses etc. will be undertaken in accordance with good practice guidance to prevent pollution of water features and / or physical impacts. In England the UK Government has published general advice on the Gov.uk website (https://www.gov.uk/guidance/pollution-prevention-for-businesses). Although prepared by the environmental agencies for the UK Devolved Administrations, the Guidance on Pollution Prevention advice notes provide relevant good practice for pollution prevention (https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/). Further good practice information is available in various Construction Industry Research and Information Association (CIRIA) publications including CIRIA Report C750 'Groundwater Control: Design and Practice', C648 'Control of Water Pollution from Linear Construction Projects', and C741 Environmental good practice on site guide (fourth edition);
- **G8**: Watercourse crossing locations will be micro-sited to make the crossing as close to perpendicular to the watercourse as reasonably practicable, ensuring the crossing is as short as possible and for open cut / temporary access crossings reducing the risk of localised scour at the embankments;
- **G9**: The temporary watercourse crossings will be designed to maintain downstream flows and to allow continued and unobstructed passage for aquatic organisms and mammals (otter and water vole) using river corridors. An EPS licence will exclude water vole from the area if present and if an otter holt is identified, this would be covered by the license also;

- **G12**: Hazardous liquids such as diesel fuel will be securely stored on flat hardstanding with interception of surface water drainage so that it can be treated prior to discharge (using either SuDS or proprietary measures). Fuel will be protected either by double-walled tanks or stored in a bunded area with a capacity of 110% of the maximum stored volume. Smaller quantities of chemicals will be stored in lockable containers. Spill kits would be located nearby;
- **G13**: Appropriate equipment (e.g., spill kits) will be made available for all items of plant on site to deal with accidental spillages and the Pollution Prevention Plan will provide a full list of protocols and communication channels with the Environment Agency in the event of an accidental pollution incident;
- **G14**: Surface water runoff from the pipeline spread will be managed to prevent discharge of silted or contaminated water into any surface water feature or land drain. Details to be included in the Water Management Plan;
- **G15**: Where practicable, plant to be filled with biodegradable oil, in line with the plant manufacturer's instruction, to reduce the potential for pollution to watercourses in the event of a hydraulic oil pipe failure;
- **G16**: Watercourses near work sites would be inspected daily when work activity is being carried out. Inspections will need to consider locations upstream (control) and downstream of the working area so comparisons can be made. The Contractor should familiarise themselves with any other potential sources of contamination in advance of the works starting. During inspections any signs of pollution should be considered using visual and olfactory observations and in-situ water quality testing using hand-held water quality meters (that may include temperature, dissolved oxygen, pH, turbidity and electrical conductivity). Evidence of water pollution may include, but not limited to, siltation, deposits of aggregates and other materials or litter, turbidity, oil sheens, odours, dis-colourisation, surface foam and scum. Monitoring should continue daily for the duration of the works affecting each watercourse. Work site drainage and any interception, containment or treatment measures would also be regularly inspected and maintained as required during the works, so that it continues to operate to their design standard;
- **G17**: If a wheel washing system is proposed (rather than regular road sweeping), the wash down of construction vehicles and equipment will take place in designated washdown areas within construction compounds. Waste wash water should be prevented from passing untreated into watercourses or groundwater. Appropriate measures will include use of sediment traps;
- **G18**: Implement working methods that reduce water consumption and measures that improve water-use efficiency on site including:
  - Undertake water audits that identify all water-using processes, activities, and equipment on Site (these will be updated periodically to reflect any significant changes in site activities through the Project life cycle);
  - Develop an action plan, including staff engagement and training for relevant staff, to reduce water consumption by all water-using processes, activities, and equipment on site;
  - Undertake monitoring regime to assess the effectiveness of water conservation measures in the action plan; and
  - Establish a reporting regime to advise on the effectiveness of the action plan (which will be completed at a minimum of annually);

- **G20**: Topsoil and subsoil will not be stored directly adjacent to the watercourse but will be stored a minimum of 20m from the watercourse, with additional mitigation such as silt fences installed if there is a risk of sediment entering the watercourse. No topsoil or subsoil will be stored within a fluvial or surface water flood zone (flood zone 2 and 3) unless supported by a risk assessment (i.e., consideration of weather forecast and duration of storage) and additional mitigation (i.e., drainage bypass channel for overland flow). Where site constraints mean that it is not possible to maintain a 20m buffer from a water body, additional mitigation measures will be implemented to provide an adequate barrier between the potential source of contaminated runoff and the receptor. Smaller stockpiles could be created, reducing the pile height.
- **G21**: A 'frac-out' (the unintentional return of drilling fluids to the surface) is a potential risk when HDD techniques is used in sensitive habitats and water environments. Frac-out during a trenchless operation can happen due to various reasons. To minimise the potential risk and potential impacts of a frac-out, risk assessments and contingency plans should be prepared.
- **G24**: Where temporary crossings and open-cut crossings of drains connect to chalk streams, additional sediment management should be used such as straw bales being placed downstream of the crossing prior to flume removal. These will trap suspended sediment while allowing water to pass through the bales;
- **G25**: For water features that are being flumed, a phased approach of flume removal should be undertaken to remove the risk of large sediment plumes. There are multiple watercourses which drain into sensitive receptors which have the potential to increase the cumulative effects on the water features, particularly through sediment inputs. A phased approach of removal would ensure that water features would not be impacted by multiple sources of sediment from upstream receptors simultaneously;
- **G26**: In the event that construction activities, including watercourse crossings, result in deposition of sediment within watercourses resulting in siltation of river beds, changes to morphology or result in loss of channel capacity, post-works restoration will be applied; and
- **G33**: Produce an Environmental Emergency Response Plan documenting measures to prevent pollutants infiltrating into the soils beneath the site and reaching surface and groundwater receptors.

6.8.2 The following measures are also included in the CEMP that are specifically targeted at avoiding disturbance of SSSI and SPA birds using land or waterbodies outside the designated site boundaries may be required, including the following:

- **B25**: Visual screening of works within sensitive areas that regularly support qualifying features of the SSSI and SPAs;
- **B26**: The use of noise abatement/reduction measures (such as acoustic fencing or other barriers) in such areas, including in relation to the breeding and wintering bird assemblages at Rosper Road Pools and the Coastal Grazing Marshes within fields east of the former TGT site at Theddlethorpe;
- **B27**: Careful lighting design to minimise light spill onto adjacent habitats from working areas at above ground installations and to limit use of artificial lighting;
- **B28**: Employing an Ecological Clerk of Works (ECoW) to supervise works, with an agreed threshold of disturbance response beyond which working practices/locations can be amended as required, or if necessary, works can be temporarily halted, under advisement of the ECoW and where safe to do so.

6.8.3 A schedule of aforementioned environmental commitments is presented as the Draft Mitigation Register -Table 2 within *ES Volume IV: Appendix 3.1 Construction Environmental Management Plan (Application Document 6.4.3.1).*

Additional Mitigation and Enhancement – Operational Phase

6.8.4 As well as providing additional detail regarding measures set out in the CEMP, the OLEMP outlines a number of other measures as part of an ecology strategy. Some of these measures are not necessarily designed to mitigate potentially significant effects, but rather to provide additional safeguards, for example providing tool box talks relating to wildlife, or retention of brash piles over winter for hedgehogs.

Additional Mitigation and Enhancement – Decommissioning Phase

6.8.5 The decommissioning phase would apply similar design and mitigation measures as the Construction Phase. Standard pollution prevention and construction best practices would be adopted to mitigate potential impacts upon the water environment where required and reasonably practicable.

6.8.6 Any necessary surveys to confirm the presence / likely absence of protected or notable species would be completed approximately 1 year prior to decommissioning to inform the decommissioning plan.

6.9 Residual Effects

6.9.1 This section summarises the residual effects of the Proposed Development on Ecology and Biodiversity following the implementation of additional mitigation outlined in Section 6.8. Note that unless otherwise stated all mitigation measures are secured via inclusion in the *ES Volume IV Appendix 3.1 Construction Environmental Management Plan (Application Document 6.4.3.1)*.

Table 6-15: Summary of Construction Phase Residual Effects

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measures	Residual Effect / Significance
Statutory Designated Sites of international importance within the DCO Site Boundary. (SPA, SAC, Ramsar)	International	Noise and visual disturbance of qualifying bird species, fugitive dust, changes in water quality.	Significant (major adverse - disturbance, temporary loss of functionally linked land, dust). This applies to Humber Estuary SPA and Humber Estuary Ramsar only.	Measures to prevent and control pollution, noise and visual disturbance during construction as detailed within a CEMP. The CEMP will include details of visual screening of works and the use of noise abatement/reduction measures (such as close-board acoustic fencing or other barriers).	**Not Significant (minor adverse)**
Statutory Designated Sites of international importance outside the DCO site boundary but within 10km of the DCO Site Boundary. (SPA, SAC, Ramsar)	International	Impacts on river and sea lamprey through direct mortality and changes to water quality	Significant (major adverse - impacts of atmospheric pollution and water quality and temporary impacts on river and sea lamprey).	Measures to prevent and control pollution during construction and impacts on sea and river lamprey will be detailed within a CEMP.	**Not Significant (minor adverse)**
Statutory Designated Sites (SSSI and NNR)	National	Noise and visual disturbance of the bird assemblage. Fugitive dust, changes in water quality.	Significant (major adverse - changes in air quality, water quality and noise and visual disturbance of the bird assemblage)	An ECoW will be appointed to oversee works required adjacent to sensitive habitats. Measures to prevent harm to habitats and to control	**Not Significant (minor adverse)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measures	Residual Effect / Significance
				pollution, noise and visual disturbance will be detailed within a CEMP.	
Statutory Designated Sites outside the DCO site boundary but within 10km of the DCO Site Boundary	National	Noise and visual disturbance of the bird assemblage.	Significant (major adverse - disturbance, temporary loss of functionally linked land)	Measures to control noise and visual disturbance during construction will be detailed within a CEMP. Visual screening of works and the use of noise abatement/reduction measures (such as close-board acoustic fencing or other barriers).	**Not Significant (minor adverse)**
Statutory Designated Sites (LNR)	County	No effects.	Not Significant (negligible – no direct or indirect impacts anticipated)	N/A	**Not Significant (negligible)**
Non-statutory Designated Sites (SNCI, LWS)	County	Physical or chemical pollution of watercourses. Damage to habitats from the use of machinery. Disturbance of bird assemblage at Rosper Road Pools.	Significant (moderate adverse - damage to habitats, changes in air quality and water quality, disturbance of the bird assemblage at Rosper Road Pools LWS)	Measures to prevent harm to habitats and to control pollution will be detailed within a CEMP. Visual screening of works and the use of noise abatement/reduction measures (such as close-board acoustic fencing or other barriers).	**Not Significant (negligible)**
Open mosaic habitat on	Local	Direct habitat loss	Not Significant (minor adverse – permanent loss of habitat at the local level)	Measures will be taken to retain as much of the habitat as possible but there will be a	**Not Significant (minor adverse)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measures	Residual Effect / Significance
previously developed land				permanent loss of open mosaic habitat	
Semi-natural Broad-leaved woodland Broadleaved plantation woodland	Local	Direct habitat loss. Damage to retained trees through use of machinery, compaction of soil or damage to roots. Dust emissions, noise and vibration disturbance and artificial illumination from construction activities.	Not Significant (minor adverse – potential for long-term minor habitat loss)	Woodland habitats will be avoided where possible. Retained trees will be protected in accordance with BS 5837 (2012). Measures to prevent harm to habitats and to control pollution, noise and visual disturbance will be detailed within a CEMP.	**Not Significant (negligible)**
Woodpasture and parkland	County	Direct habitat loss (grassland). Damage to retained trees through use of machinery, compaction of soil or damage to roots. Dust emissions, noise and vibration disturbance and artificial illumination from construction activities.	Significant (moderate adverse – potential for medium-term habitat loss and disturbance of veteran trees).	Veteran trees will be avoided. Retained trees will be protected in accordance with BS 5837 (2012). Measures to prevent harm to habitats and to control pollution, noise and visual disturbance will be detailed within a CEMP.	**Not Significant (minor adverse)**
Hedgerows	Local	Direct loss of hedgerows. Damage to retained hedgerows due to encroachment of	Not Significant (minor adverse – temporary reversible damage to hedgerows in the long term)	Where sections of hedgerow are to be lost, these will be reinstated post construction.	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measures	Residual Effect / Significance
		machinery, compaction of soil or a pollution event.		Retained sections of hedgerow will be protected in accordance with BS 5837 (2012). A CEMP will detail measures to prevent and control pollution during construction.	
Scattered Trees	Local	Direct loss of trees. Damage to retained trees due to encroachment of machinery, compaction of soil or a pollution event.	Not Significant (minor adverse - temporary reversible damage to scattered trees in the long term).	Mature trees within the DCO Site Boundary will be avoided where possible. New trees will be planted to offset any losses at a ratio of 2:1.	**Not Significant (minor adverse)**
Veteran Trees	County	Damage to retained trees due to encroachment of machinery, compaction of soil or a pollution event.	Not Significant (minor adverse – veteran trees retained, embedded mitigation to prevent damage to tree roots)	Veteran trees will be retained and protected in accordance with BS 5837 (2012). A CEMP will detail measures to prevent and control pollution during construction.	**Not Significant (negligible)**
Semi-improved grassland	Local	Direct loss of habitat.	Not Significant (minor adverse - temporary reversible damage to semi-improved grassland in the medium term)	Semi-improved grassland will be reinstated post construction.	**Not Significant (negligible)**
Running water	County / Local	Changes in water quality (chemical or physical) resulting from	Effects range from: Not Significant (negligible / minor adverse) To	All WFD main rivers will be crossed by non-intrusive methods. Where minor watercourses and ditches are crossed, they will be	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measures	Residual Effect / Significance
		watercourse crossings or a pollution event. Crossing or culverting of watercourses – temporary during construction, or permanent.	Significant (moderate adverse) (refer to ES Chapter 11 Water Environment (Application Document 6.2.11).	reinstated, and culverts will include a natural bed to maintain longitudinal connectivity. A CEMP will detail measures to prevent and control pollution during construction.	
Open water (ponds)	Local	Damage to or degradation of pond habitat, though noting that no ponds will be lost as a result of the Proposed Development.	Significant (moderate adverse – long-term and short-term degradation of habitat)	A CEMP will detail measures to prevent and control pollution during construction. Pond habitat will be created under the GCN DLL scheme.	**Not Significant (negligible)**
Dune Grassland, Dune Scrub, Open Dune	International	Damage to habitats through a pollution event.	Not Significant (negligible – no direct impact; minor works of which the extent and magnitude will not affect the integrity or key characteristics of this habitat)	An Ecological Clerk of Works (ECoW) will be appointed to oversee works required adjacent to sensitive habitats. A CEMP will detail measures to prevent and control pollution during construction and prevent vehicles encroaching into sensitive areas.	**Not Significant (negligible)**
Terrestrial Invertebrates	County	Loss of open mosaic habitat, the extent and magnitude of which is not anticipated to affect the conservation value of terrestrial invertebrates.	Not Significant (minor adverse – the extent and magnitude of loss is not expected to have an adverse effect on the conservation value of terrestrial invertebrates).	None identified	**Not Significant (minor adverse)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measures	Residual Effect / Significance
Great crested newt	County	Habitat loss. Killing, injury or disturbance of GCN.	Significant (moderate adverse – temporary and permanent loss)	Strategic mitigation to be implemented under the DLL scheme.	**Not Significant (negligible)**
Common toad	Local	Habitat loss, killing or injury.	Not Significant (minor adverse – temporary and permanent loss of habitat of which the extent, duration and magnitude does not affect the integrity of the toad population)	Not required.	**Not Significant (minor adverse)**
Reptiles	Local	Killing or injury of common reptile species.	Significant (moderate adverse –injury or direct mortality)	An ECoW will be appointed to oversee works required adjacent to suitable habitats (Theddlethorpe dunes). Precautionary pre-works check to be completed prior to works at the dune valve commencing. A CEMP will detail precautionary working methods to prevent harm to reptiles during construction.	**Not Significant (negligible)**
Fish	County	Death or injury to fish species and their habitats.	Significant (moderate adverse - direct mortality and / or injury)	All WFD main rivers will be crossed by non-intrusive methods. Where minor watercourses and ditches are crossed, they will be reinstated, and culverts will include a natural bed to	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measures	Residual Effect / Significance
				maintain longitudinal connectivity. A CEMP will detail measures to prevent and control pollution during construction.	
Waterfowl assemblage: Rosper Road Pools (excluding qualifying species of the Humber Estuary SPA)	Local	Noise and visual disturbance	Not significant (minor adverse)	Visual screening of works and the use of noise abatement/reduction measures (such as close-board acoustic fencing or other barriers).	**Not Significant (negligible)**
Breeding terrestrial bird assemblage at Immingham Facility	Local	Potential for destruction/damage of nests Temporary habitat loss Noise and visual disturbance	Significant (destruction/damage of nests) – moderate adverse Not significant (temporary habitat loss and noise/visual disturbance)	Undertake hedgerow removal outside of the breeding bird season (March – September). If scrub, hedgerow, arable or grassland clearance is undertaken during the bird breeding season, then a breeding bird check will be undertaken by an ECoW and, if a nest is found, a suitable buffer will be erected and works will be required to stop within the vicinity until the young fledge.	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measures	Residual Effect / Significance
				Dissuade ground nesting species by removing the surface vegetation from the desired area before the breeding season commences. A pre works survey to check for presence of nests will be undertaken by the ECoW if any site clearance works. If Schedule 1 species are found breeding within the working area, works will stop immediately and Natural England advised. A CEMP will detail measures to ensure legal compliance for nesting birds during construction.	
Non-breeding terrestrial bird assemblage - proposed pipeline route and up to 1km radius	Local	Temporary habitat loss Noise and visual disturbance	Not Significant (minor adverse for temporary habitat loss; and noise and visual disturbance)	A CEMP will detail measures to mitigate noise and visual disturbance during construction. Habitat will be reinstated post construction.	**Not Significant (negligible)**
Breeding terrestrial bird assemblage - proposed pipeline route	Local	Potential for destruction/damage of nests	Significant (moderate adverse for destruction/damage of nests) – moderate adverse	Undertake hedgerow removal outside of the breeding bird season (March – September). If scrub, hedgerow, arable or grassland clearance is	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measures	Residual Effect / Significance
and up to 1km radius		Temporary habitat loss Noise and visual disturbance	Not Significant (minor adverse for temporary habitat loss and noise/visual disturbance)	undertaken during the bird breeding season, then a breeding bird check will be undertaken by an ECoW and, if a nest is found, a suitable buffer will be erected and works will be required to stop within the vicinity until the young fledge. Dissuade ground nesting species by removing the surface vegetation from the desired area before the breeding season commences. A pre works survey to check for presence of nests will be undertaken by the ECoW if any site clearance works. If Schedule 1 species are found breeding within the working area, works will stop immediately and Natural England advised. A CEMP will detail measures to ensure legal compliance for nesting birds during construction.	
SPA qualifying species within Functionally Linked Land at	County	Temporary Habitat Loss	Not Significant (minor adverse) – temporary habitat loss	A CEMP will detail measures to mitigate noise and visual	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measures	Residual Effect / Significance
the Immingham end of the Proposed Development– Black-tailed godwit, curlew, golden plover, lapwing, redshank, mallard, shelduck, teal, wigeon		Noise and Visual Disturbance	Significant (moderate adverse) - disturbance of SPA qualifying species at Rosper Road Pools only.	disturbance during construction. Such measures will include close-board acoustic fencing, which will reduce noise levels at the receptor by approximately, 10dB to 45-50dB (which is below the baseline). Nosie fencing will be used over short sections of the proposed pipeline route where curlew congregate south of Immingham.	
SPA qualifying species within Functionally Linked Land at the Theddlethorpe end of the Proposed Development – Black-tailed godwit, Curlew, golden plover, greenshank, lapwing, oystercatcher, whimbrel, redshank, ruff,	County	Temporary habitat loss Noise and visual disturbance	Not Significant (minor adverse) – Temporary Habitat Loss Significant (moderate adverse) - Noise and Visual Disturbance	A CEMP will detail measures to mitigate noise and visual disturbance during construction. Such measures will include close-board acoustic fencing, which will reduce noise levels at the receptor by approximately, 10dB to reduce noise effects to non-significant levels at HDD locations and the Theddlethorpe facility locations. Where this is insufficient to reduce noise levels to non-disturbing levels (within fields east of the former TGT site), work will be phased	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measures	Residual Effect / Significance
mallard, shelduck, teal, wigeon.				to take place during August – September after the breeding period for birds in general and before the and key non-breeding period for SPA qualifying species. Works within fields east of the former TGT site will be undertaken under a watching brief by a suitably qualified ecologist and works will be stopped temporarily should qualifying species show disturbance – response behaviours. Works on fields east of the former TGT site will not be carried out on Spring tides and/or during storm-swell conditions in which larger numbers of qualifying species might be expected to make use of sheltered feeding habitats on land.	
Non-breeding Pink-footed goose	District	Temporary habitat loss Noise and visual disturbance	Not Significant (minor adverse for temporary habitat loss and noise and visual disturbance)	A CEMP will detail measures to mitigate noise and visual disturbance during construction. Close-board acoustic fencing will be used where required (i.e., along parts of the proposed pipeline route and at	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measures	Residual Effect / Significance
				HDD locations within the southern functionally linked land to reduce noise impacts within 500m of where pink-footed geese congregate at the southern end of the Proposed Development, between TGT and Grimoldby/Manby. Habitat will be reinstated post construction.	
Breeding willow tit at Burkinshaw's Covert	County	Noise and visual disturbance	Not Significant (negligible)	A CEMP will detail measures to mitigate noise and visual disturbance during construction.	**Not Significant (negligible)**
Breeding and non-breeding grey wagtail	County	Noise and visual disturbance	Not Significant (negligible)	A CEMP will detail measures to mitigate noise and visual disturbance during construction.	**Not Significant (negligible)**
Roosting bats	Local	Disturbance of roosting bats.	Not Significant (minor adverse) (temporary disturbance of two bat roosts in trees).	Trees with bat roosts will be retained and a 10 m buffer applied to minimise disturbance. Noise abatement measures will be used, and any lighting directed away from roost features.	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measures	Residual Effect / Significance
Foraging and commuting bats	Local	Temporary severance of foraging or commuting habitat.	Not Significant (minor adverse – permanent and temporary habitat loss of which the extent, duration and magnitude does not affect the integrity of the bat population)	Any trees or hedgerows lost during the construction phase will be replaced within the DCO Site Boundary, though not necessarily above the pipeline. Illumination of woodland, trees and hedgerows will be avoided.	**Not Significant (negligible)**
Otter	County	Loss or temporary disturbance of otter resting places. Pollution (physical or chemical) of watercourses.	Significant (moderate adverse)	Potential otter holts and resting places identified within the DCO Site Boundary at DX025P, RVX001CP and RVX001FP, and also within 200m of the DCO Site Boundary at RVX001BP and DX064P. Potential resting places have been identified within or immediately adjacent the DCO Site Boundary at an additional ten locations. A precautionary pre-construction check will be completed to confirm the status of any otter holts or couches. Works will be located to avoid the loss of any active otter holts or resting places, where practicable.	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measures	Residual Effect / Significance
				Works will also be timed to avoid disturbance of active otter holts (natal dens) present within 200 m of works or couches within 30m of works, where possible. Illumination of watercourses will be avoided during construction. The CEMP details measures to prevent and control pollution during construction.	
Water vole	National	Harm to or disturbance of water vole. Damage or destruction of water vole burrows. Pollution (physical or chemical) of watercourses.	Significant (major adverse)	Water vole have been confirmed present at the following watercourses crossing points: RVX003AP, DX110P, DX11P, DX111AP & DX111APa. In addition, water vole is potentially present at a further 39 watercourses. Where water vole is present, a mitigation licence from Natural England will be sought to permit derogation from legislation. The licence will detail the appropriate timing and supervision of construction to permit the temporary dispersal of water vole from	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measures	Residual Effect / Significance
				the working area. Habitat will be reinstated following the completion of works. The draft CEMP details measures to prevent and control pollution during construction.	
Brown hare	Local	Disturbance or displacement of brown hare.	Not Significant (minor adverse temporary loss of habitat, of which the extent, duration and magnitude does not affect the integrity of the brown hare population)	None required – suitable alternative habitat available in the wider area.	**Not Significant (negligible)**
Hedgehog	Local	Harm to hedgehog during site clearance.	Not Significant (minor adverse - temporary loss of habitat, of which the extent, duration and magnitude does not affect the integrity of the brown hare population)	Any potential hibernacula to be dismantled outside of the hibernation period (November to February). If hedgehogs are found during works, they will be moved to a safe area away from construction. Habitat will be reinstated post construction.	**Not Significant (negligible)**
Badger	Local	Harm to badger or disturbance of setts	Significant (moderate adverse) (permanent loss of badger setts and direct badger mortality)	Setts within the DCO Site Boundary will be avoided where possible.	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measures	Residual Effect / Significance
				Where it is not possible to avoid setts, a mitigation licence from Natural England will be sought to permit derogation of legislation. Mitigation will include the provision of artificial setts within the DCO Site Boundary where main setts will be closed. Measures to prevent harm to badger and other mammals will be included in the CEMP.	
Aquatic macroinvertebrates	Local	Loss of habitat and potential pollution impacts	Not significant (minor adverse - temporary loss of habitat, of which the extent, duration and magnitude is not considered to affect the integrity of aquatic macroinvertebrates as in the short term the community should recover)	A CEMP will detail measures to prevent and control pollution during construction.	**Not Significant (negligible)**
Aquatic macrophytes	Local	Removal of or damage to species	Not significant (minor adverse - temporary loss of habitat, of which the extent, duration and magnitude is not considered to affect the	A CEMP will detail measures to prevent and control pollution during construction.	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measures	Residual Effect / Significance
			integrity of aquatic macrophytes)		
INNS	Negligible	Spread of INNS resulting in a legal offence.	Significant (moderate adverse) (permanent effect)	An INNS method statement will be prepared. This plan will set out the measures which will be implemented to avoid the spread of INNS during construction and ensure legal compliance.	**Not Significant (negligible)**

Table 6-16: Summary of Operational Phase Residual Effects

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measure(s)	Residual Effect/ Significance
Statutory Designated Sites of international importance. (SPA, SAC, Ramsar)	International	Noise and visual disturbance (birds)	Not Significant (minor adverse) (Permanent habitat loss and temporary disturbance)	Not required	**Not Significant (minor adverse)**
Statutory Designated Sites (SSSI and NNR)	National	No effects anticipated	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Statutory Designated Sites (LNR)	County	No effects anticipated	Not Significant (negligible)	Not required	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measure(s)	Residual Effect/ Significance
Non-statutory Designated Sites (SNCI, LWS)	County	Potential for noise and visual disturbance of the bird assemblage at Rosper Road Pools LWS.	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Open mosaic habitat on previously developed land	County	No effects upon retained habitat anticipated.	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Semi-natural Broad-leaved woodland Broadleaved plantation woodland	Local	No effects upon retained habitats anticipated.	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Woodpasture and parkland	County	No effects upon retained habitats anticipated.	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Hedgerows	Local	No effects upon retained habitats anticipated. New habitats created to offset any losses.	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Semi-improved grassland	Local	No effects upon retained habitats anticipated. New habitats created to offset any losses.	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Running water	Local / County	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measure(s)	Residual Effect/ Significance
Open water (ponds)	Local	No effects.	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Scattered trees	Local	No effects upon retained habitats anticipated.	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Veteran Trees	County	No effects upon retained habitats anticipated.	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Dune Grassland, Dune Scrub, Open Dune	International	No effects.	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Terrestrial Invertebrates	County	No effects upon retained habitats anticipated. New habitats created to offset any losses.	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Great crested newt	County	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Common toad	Local	No Effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Reptiles	Local	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Fish	County	No effects	Not Significant (negligible)	Not required.	**Not Significant (negligible)**
Waterfowl assemblage:	Local	No effects	Not Significant (negligible)	Not required.	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measure(s)	Residual Effect/ Significance
Rosper Road Pools (excluding qualifying species of the Humber Estuary SPA)					
Breeding terrestrial bird assemblage at Immingham Facility	Local	No effects	Not Significant (negligible)	Not required.	**Not Significant (negligible)**
Non-breeding terrestrial bird assemblage - proposed pipeline route and up to 1km radius	Local	No effects	Not Significant (negligible)	Not required.	**Not Significant (negligible)**
Breeding terrestrial bird assemblage - proposed pipeline route and up to 1km radius	Local	No effects	Not Significant (negligible)	Not required.	**Not Significant (negligible)**
SPA qualifying species within Functionally Linked Land at the Immingham end of the Proposed Development– Black-tailed godwit, curlew, golden plover, lapwing,	County	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measure(s)	Residual Effect/ Significance
redshank, mallard, shelduck, teal, wigeon.					
SPA qualifying species within Functionally Linked Land at the Theddlethorpe end of the Proposed Development – Black-tailed godwit, Curlew, golden plover, greenshank, lapwing, oystercatcher, whimbrel, redshank, ruff, mallard, shelduck, teal, wigeon.	County	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Non-breeding Pink-footed goose	District	No effects	Not Significant (negligible)	Not required.	**Not Significant (negligible)**
Breeding willow tit at Burkinshaw's Covert	County	No effects	Not Significant (negligible)	Not required.	**Not Significant (negligible)**
Breeding and non-breeding grey wagtail	County	No effects	Not Significant (negligible)	Not required.	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measure(s)	Residual Effect/ Significance
Roosting bats	Local	No effects	Not Significant (negligible)	Not required.	**Not Significant (negligible)**
Foraging and commuting bats	Local	No effects	Not Significant (negligible)	There will be no additional lighting within suitable habitats during the operational phase. Habitats will be reinstated post construction to maintain habitat connectivity.	**Not Significant (negligible)**
Otter	County	No effects	Not Significant (negligible)	There will be no additional lighting within suitable habitats during the operational phase.	**Not Significant (negligible)**
Water vole	National	No effects	Not Significant (negligible)	Monitoring of mitigation will be completed as specified within the mitigation licence.	**Not Significant (negligible)**
Brown hare	Local	No effects	Not Significant (negligible)	Habitats will be returned to farmland post construction.	**Not Significant (negligible)**
Hedgehog	Local	No effects	Not Significant (negligible)	Habitats will be reinstated post construction to maintain connectivity.	**Not Significant (negligible)**
Badger	Local	No effects	Not Significant (negligible)	Monitoring of mitigation will be completed as specified within the mitigation licence. Remedial actions will be taken if it is not.	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Potential Effect/ Significance	Mitigation Measure(s)	Residual Effect/ Significance
				Habitats will be reinstated post construction.	
Aquatic macroinvertebrates	Local	No effects	Not Significant (negligible)	Not required.	**Not Significant (negligible)**
Aquatic macrophytes	Local	No effects	Not Significant (negligible)	Not required.	**Not Significant (negligible)**
INNS	Negligible	There is no potential for INNS to continue to spread.	Not Significant (negligible)	Not required.	**Not Significant (negligible)**

Table 6-17: Summary of Decommissioning Phase Residual Effects

Receptor	Importance	Description of Potential Impact	Significance	Mitigation Measure(s)	Residual Effect / Significance
Statutory Designated Sites within the DCO site boundary (SPA, SAC, Ramsar)	International	Noise and visual disturbance of breeding and non-breeding birds from the Humber Estuary SPA and Ramsar. In the absence of mitigation there is potential for dust emissions during decommissioning to affect Habitats sites.	Significant (major adverse – noise and visual disturbance of the bird assemblage and dust)	Mitigation measures will be detailed within the decommissioning plan. This will include use of closed-board acoustic fencing to maintain noise levels at Rosper Road Pools at baseline levels or below.	**Not Significant (minor adverse)**

Receptor	Importance	Description of Potential Impact	Significance	Mitigation Measure(s)	Residual Effect / Significance
Statutory Designated Sites outside the DCO site boundary but within 10km of the DCO Site Boundary	National	No effects	Not Significant (Negligible)	Not required	**Not Significant (Negligible)**
Statutory Designated Sites within the DCO site boundary (SSSI and NNR)	National	Noise and visual disturbance of the bird assemblage. Fugitive dust, changes in water quality.	Significant (major adverse – temporary effects due to dust and changes in water quality)	Mitigation measures will be detailed within the decommissioning plan. This will include use of closed-board acoustic fencing to maintain noise levels at Rosper Road Pools at baseline levels or below.	**Not Significant (minor adverse)**
Statutory Designated Sites outside the DCO site boundary but within 10km of the DCO Site Boundary	National	Since the qualifying species of the Humber Estuary SPA and the SSSI overlap, the discussion of impacts on the Humber Estuary SPA qualifying species above can be applied equally to the SSSI	Significant (major adverse – temporary noise and visual disturbance of the bird assemblage and dust)	Mitigation measures will be detailed within the decommissioning plan. This will include use of closed-board acoustic fencing to maintain noise levels at Rosper Road Pools at baseline levels or below.	**Not Significant (minor adverse)**
Statutory Designated Sites (LNR)	County	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Significance	Mitigation Measure(s)	Residual Effect / Significance
Non-statutory Designated Sites (SNCI, LWS)	County	Disturbance of bird assemblage at Rosper Road Pools.	Significant (moderate adverse – temporary noise and visual disturbance of the bird assemblage) (Rosper Road Pools LWS only) Not Significant (negligible) for all other LWS	Mitigation measures will be detailed within the decommissioning plan	**Not Significant (negligible)**
Open mosaic habitat on previously developed land	County	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Semi-natural Broad-leaved woodland Broadleaved plantation woodland	Local	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Woodpasture and parkland	County	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Hedgerows	Local	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Scattered trees	Local	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Significance	Mitigation Measure(s)	Residual Effect / Significance
Running water	Local	Physical or chemical pollution	Not Significant (negligible)	The decommissioning plan will detail measures to prevent and control pollution.	**Not Significant (negligible)**
Open water (ponds)	Local	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Dune Grassland, Dune Scrub, Open Dune	International	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Invertebrates	County	There is potential for open mosaic habitat to be created at the Theddlethorpe and Immingham Facilities following decommissioning which would be suitable for invertebrate species.	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Great crested newt	County	No effects upon great crested newt are anticipated.	Not Significant (negligible)	Update surveys will be completed as necessary to inform the decommissioning plan. A licence from Natural England will be sought if GCN will be affected.	**Not Significant (negligible)**
Common toad	Local	No effects	Not Significant (negligible)	Not required	**Not Significant (minor adverse)**

Receptor	Importance	Description of Potential Impact	Significance	Mitigation Measure(s)	Residual Effect / Significance
Reptiles	Local	Killing or injury of reptiles if decommissioning works required within areas of suitable habitat.	Significant (moderate adverse)	Update surveys will be completed as necessary to inform the decommissioning plan.	**Not Significant (negligible)**
Fish	County	No direct impacts anticipated but potential for temporary impact of accidental pollution or uncontrolled runoff that could impact fish health and/or habitat	Not Significant (minor adverse – temporary impact on water quality)	The decommissioning plan will detail measures to prevent and control pollution.	**Not Significant (negligible)**
Waterfowl assemblage: Rosper Road Pools (excluding SPA qualifying species)	Local	No effects	Not Significant (minor adverse)	Not required	**Not Significant (minor adverse)**
Breeding terrestrial bird assemblage at Immingham Facility	Local	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Non-breeding terrestrial bird assemblage - proposed pipeline route and up to 1 km radius	Local	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Breeding terrestrial bird assemblage - proposed pipeline	Local	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Significance	Mitigation Measure(s)	Residual Effect / Significance
route and up to 1 km radius					
SPA qualifying species within Functionally Linked Land at the Immingham end of the Proposed Development– Black-tailed godwit, curlew, golden plover, lapwing, redshank, mallard, shelduck, teal, wigeon.	County	Noise and visual disturbance of birds at Rosper Road Pools	Significant (moderate adverse) - disturbance of SPA qualifying species at Rosper Road Pools only.	A decommissioning plan will detail measures to mitigate noise and visual disturbance. This will include use of closed-board acoustic fencing to maintain noise levels at Rosper Road Pools at baseline levels or below.	**Not Significant (negligible)**
SPA qualifying species within Functionally Linked Land at the Theddlethorpe end of the Proposed Development – Black-tailed godwit, Curlew, golden plover, greenshank, lapwing, oystercatcher, whimbrel, redshank, ruff, mallard,	County	Noise and visual disturbance of birds	Not Significant (minor adverse) – disturbance of SPA qualifying species across farmland and grazing marsh.	A CEMP will detail measures to mitigate noise and visual disturbance but specific measures are not required for decommissioning of the Theddlethorpe Facility.	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Significance	Mitigation Measure(s)	Residual Effect / Significance
shelduck, teal, wigeon.					
Non-breeding Pink-footed goose	District	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Breeding willow tit at Burkinshaw's Covert	County	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Breeding and non-breeding grey wagtail	County	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Roosting bats	Local	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Foraging and commuting bats	Local	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Otter	County	There will be no direct impacts given that there will be no requirement to remove or disturb aquatic habitats to remove buried infrastructure and no species associated with these habitats will be affected. However, there is the potential of temporary and indirect impacts on aquatic habitats and their water quality via accidental	Not Significant (negligible)	Update surveys will be completed as necessary to inform the decommissioning plan. Avoidance measures will be implemented if an active holt / resting place is identified during decommissioning. Alternatively, a licence from Natural England will be sought if otter will be affected.	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Significance	Mitigation Measure(s)	Residual Effect / Significance
		pollution or uncontrolled site runoff which could affect the food sources for otter. The potential for pollution incidents will be limited to locations in close proximity to the Immingham and Theddlethorpe facilities and potential effects on watercourses will be avoided through embedded mitigation.		The decommissioning plan will detail measures to prevent and control pollution.	
Water vole	National	There will be no direct impacts given that there will be no requirement to remove or disturb aquatic habitats to remove buried infrastructure and no species associated with these habitats will be affected. However, there is the potential of temporary and indirect impacts on aquatic habitats and their water quality via accidental pollution or uncontrolled site runoff which could affect habitat used by water vole. The potential for pollution incidents will	Not Significant (negligible)	Update surveys will be completed as necessary to inform the decommissioning plan. A licence from Natural England will be sought if water vole is likely to be affected. The decommissioning plan will detail measures to prevent and control pollution.	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Significance	Mitigation Measure(s)	Residual Effect / Significance
		be limited to locations in close proximity to the Immingham and Theddlethorpe Facilities and water vole were not present near these locations. Potential effects on watercourses will also be avoided through embedded mitigation.			
Brown hare	Local	No effects.	Not Significant (negligible)	Not needed	**Not Significant (negligible)**
Hedgehog	Local	No effects.	Not Significant (negligible)	Not required	**Not Significant (negligible)**
Badger	Local	There is potential for badger to be disturbed during decommissioning if present in the vicinity of the Theddlethorpe and Immingham facilities.	Significant (moderate adverse)	Mitigation would depend upon the circumstances at the time but would be in line with requirements to obtain a badger licence.	**Not Significant (negligible)**
Aquatic macroinvertebrates	Local	No direct impacts anticipated but potential for temporary impact of accidental pollution or uncontrolled runoff	Not Significant (minor adverse)	The decommissioning plan will detail measures to prevent and control pollution.	**Not Significant (negligible)**
Aquatic macrophytes	Local	No effects	Not Significant (negligible)	Not required	**Not Significant (negligible)**

Receptor	Importance	Description of Potential Impact	Significance	Mitigation Measure(s)	Residual Effect / Significance
INNS	Negligible	Spread of INNS resulting in a legal offence.	Significant (moderate adverse)	Update surveys will be completed as necessary to inform the decommissioning plan. The decommissioning plan will include measures to avoid the spread of INNS (if present).	**Not Significant (negligible)**

6.10 Monitoring

Construction Monitoring

6.10.1 During construction an ECoW will monitor the construction works of the Construction Contractor to ensure compliance with, for example and not limited to, the detailed CEMP, any permits or exemptions, protected species licences and best practice construction guidelines and standards. The ECoW will additionally ensure compliance with all mitigation prescriptions detailed within this ES, as well as any subsequent mitigation prescriptions following pre-construction survey completion.

6.10.2 The above approach will be also applied during decommissioning.

Post Construction Monitoring

6.10.3 Monitoring upon completion of construction will be undertaken to confirm the successful establishment of all reinstated habitats as well as mitigation planting areas, and any additional ecological mitigation features.

6.10.4 Protected species licences required to facilitate construction of the Proposed Development are likely to require a period of monitoring post implementation to ensure mitigation performs as expected and as required of any licence. Post-completion monitoring surveys may be required for species subject to protected species licencing and will be specific to the individual species/feature/receptor.

6.11 Cumulative Effects

6.11.1 As summarised in *ES Volume II Chapter 20: Cumulative Effects Assessment (Application Document 6.2.20*), sources of cumulative effects are defined as follows:

- **Intra-project effects:** These combined effects occur where a single receptor is affected by more than one source of effect arising from different aspects of the project. An example of an intra-project effect would be where a local resident is affected by dust, noise and traffic disruption during the construction of a scheme, with the resulting cumulative effect on amenity being greater than each individual effect alone; and
- **Inter-project effects:** These effects occur as a result of a number of developments, which individually might not be significant, but when considered together could create a significant cumulative effect on a shared receptor and will include developments separate from and related to the project. An example of such an effect may be where construction traffic relating to two different developments impact on users of a single road link.

6.11.2 The potential for intra-project effects and inter-project effects is discussed in further detail below.

Assessment of Intra-Project Effects

6.11.1 All potential sources of effects resulting from the Proposed Development that could affect ecology and biodiversity receptors are contained within this the assessment as reported in section 6.9. As such it is not necessary to undertake any further assessment of intra-project effects.

Assessment of Inter-Project Effects

6.11.2 It is not considered likely that a negligible effect resulting from the Proposed Development, could combine with the effects of another development, to create an overall cumulative effect of greater significance. This is because negligible effects are considered to be barely perceptible. The following receptors are the only features identified where residual effects

are assessed as minor, as a result of the Proposed Development (noting no effects are considered to be moderate or major):

- Statutory Designated Sites of international importance within the DCO Site Boundary (SPA, SAC, Ramsar);
- Statutory Designated Sites of international importance outside the DCO site boundary but within 10km of the DCO Site Boundary. (SPA, SAC, Ramsar);
- Statutory Designated Sites (SSSI and NNR);
- Statutory Designated Sites outside the DCO site boundary but within 10km of the DCO Site Boundary;
- Open mosaic habitat on previously developed land;
- Woodpasture and parkland;
- Scattered Trees;
- Terrestrial Invertebrates (only in relation to open mosaic habitat on previously developed land); and
- Common toad.

6.11.3 It is therefore only these elements that are considered in the cumulative effects assessment.

6.11.4 In many instances no ecological reports were provided for the other development. Where this is the case, it has not been possible to assess potential cumulative effects.

6.11.5 Table 6-15 summarises the potential for other projects to have significant effects in combination with other developments.

Table 6-18: Summary of Projects with the Potential for Inter-Project Effects

ID	Application Reference	Development Name and Details	Reported Effects of Other Development	Mitigation proposed to address effects of Other Development	Potential for Cumulative Effects with Proposed Development and Potential Additional Mitigation	Likelihood and Significance of Cumulative Effects
Nationally Significant Infrastructure Projects						
#DCO-5	TR030007	Immingham Eastern Ro-Ro Terminal – Pre-examination Stage A new roll-on/roll-off facility comprising a new jetty with up to four berths, improved hardstanding, Terminal buildings and an internal side bridge to cross over existing port infrastructure.	All effects were marine other than potential effects on waterbirds which were assessed as minor. However, the ES stated that "*habitats within the proposed development area are not considered to support functionally linked feeding or roosting habitats for wintering/passage coastal waterbirds*"	Screening during operation	Impacts for the are mainly forecast to arise on intertidal habitat, whereas the Proposed Development will mainly affect onshore terrestrial habitat. No additional mitigation required.	Given the lack of spatial overlap between the project and the Proposed Development, and the mitigation included in the Proposed Development, no cumulative effect is predicted. Not significant (negligible)
#DCO-7	EN070006	Humber Low Carbon Pipelines (previously developed by National Grid Ventures) – Pre application stage. A new onshore pipeline network to transport captured carbon dioxide from the region's emitters for safe subsea storage and to enable industries to fuel-switch from fossil fuels to low carbon hydrogen.	Direct impact to the Humber Estuary or land functionally linked to it from: Physical disturbance i.e., habitat loss, fragmentation, and reduction/loss of quality or function, and disturbance/harm/mortality of associated species; and Pollution risk - direct and indirect impact to habitat and species from construction pollution, changes in air quality, dust, noise, vibration and visual and lighting pollution.	Embedded mitigation within CEMP and Conservation Strategy to include: Pre-construction surveys (where required); Mitigation strategies and method statements; Habitat reinstatement, creation and enhancement; and ECoW presence HRA/ES to document additional measures to reduce significance of pollution (e.g., construction hoarding and habitat provision during construction period). Project would only proceed if it could be demonstrated that it had passed the tests	There is limited spatial overlap between this project and the Proposed Development. However, there is potential for effects upon the qualifying species of the Humber Estuary SPA and Ramsar which may use functionally linked land. No additional mitigation required.	There is insufficient detail about the potential effects of the other development to undertake cumulative assessment. The proposed Development is likely to have only a minor effect on the qualifying species of the Humber Estuary designations. There is no additional mitigation available that would reduce the potential effects of the Proposed Development, and the spatial separation between the developments means that shared mitigation is not possible. Overall, it is considered unlikely that there would be any cumulative effects of greater significance than those that would be generated by the other development alone. Not significant (negligible)

ID	Application Reference	Development Name and Details	Reported Effects of Other Development	Mitigation proposed to address effects of Other Development	Potential for Cumulative Effects with Proposed Development and Potential Additional Mitigation	Likelihood and Significance of Cumulative Effects
				of the Habitats Regulations		
#DCO-8	TR030008	Immingham Green Energy Terminal (Associated British Ports) – pre-application stage. The Project comprises a new liquid bulk import terminal and associated processing facility, the purpose of which is to deliver a green hydrogen production facility. Imported ammonia will be stored and processed at the site to create green hydrogen, for onward transport to filling stations throughout the UK. Key project infrastructure comprises; a new approach trestle; jetty superstructure and topside infrastructure; and land side processing infrastructure.	The PEIR identifies the potential for significant effects upon woodland habitat. The ornithology chapter of the PEIR identifies the potential for direct loss of terrestrial habitats that are functionally linked to the Humber Estuary SPA, Ramsar.	To avoid adverse effects upon designated sites / birds, a contribution to the South Humber Bank Strategic Mitigation Delivery Plan, or other alternative mitigation will be considered.	The Proposed Development will avoid the loss of woodland habitats at Immingham, therefore no cumulative effects upon woodland habitats are anticipated. There will be no permanent loss of functionally linked land at Immingham as a result of the Proposed Development. Any temporary loss of functionally linked land will be not significant. No additional mitigation required.	As strategic mitigation will be provided, no cumulative effects are anticipated. Not significant (negligible)
North East Lincolnshire Council						
#NELC CULM-1	DM/0211/20/REM	Keigar Homes Ltd – Residential Development off Station Road, Habrough. Reserved matters application following DM/0950/15/OUT (Outline application for a residential development of up to 118 dwellings, with access to be considered) to erect 118 dwellings with appearance, landscaping, layout and scale to be considered.	No ecology reports provided.	N/A	No potential cumulative effects have been identified. No additional mitigation required.	As there were no ecology reports submitted there is insufficient information for the other development to allow for cumulative assessment to be undertaken.

ID	Application Reference	Development Name and Details	Reported Effects of Other Development	Mitigation proposed to address effects of Other Development	Potential for Cumulative Effects with Proposed Development and Potential Additional Mitigation	Likelihood and Significance of Cumulative Effects
#NELC CULM-2	DM/1175/17/FUL	Peter Ward Homes – Brocklesby Avenue Habrough Road Residential development for 145 dwellings with associated parking, landscaping and emergency vehicular access only onto Mill Lane (amended plans and documents January 2019).	No significant effects upon designated sites, habitats or protected / notable species are identified within the ecology report.	N/A	No potential cumulative effects have been identified. No additional mitigation required.	As likely effects on the majority of species and habitats assessed for the Proposed Development are considered to be negligible, and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant. Not significant (negligible)
#NELC CULM-3	DM/0696/19/FUL	Cyden Homes – Residential development at Midfield Road, Humberston. Erection of 225 dwellings with access off Midfield Road and Andrew Road with ancillary parking, garaging and associated infrastructure and widening of Andrew Road (additional information supplied: Habitat Regulations Assessment June 2022) - amended plans and information July 2022	No significant effects upon designated sites, habitats or protected / notable species are identified within the ecology report.	Pre-construction checks for nesting birds. Sympathetic management of hedgerows.	No potential cumulative effects have been identified. No additional mitigation required.	As likely effects on the majority of species and habitats assessed for the Proposed Development are considered to be negligible, and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant.
#NELC CULM-5	DM/1240/21/FUL	Barratt York – New Waltham Phase 2 Residential Development Erection of 227 dwellings, garaging, creation of new vehicular access on Louth Road, landscaping and associated works (Amended Plans and Description to include 3 additional units).	The ecological appraisal report states that there will be no significant effects upon designated sites within 2 km. No significant effects upon GCN, bats, birds, reptiles, otter, water vole or hedgehog.	Retention and protection of hedgerow / boundary trees, a sympathetic lighting scheme, buffer of 50 m between Buck Beck and the development area, soft landscaping.	No potential cumulative effects have been identified. No additional mitigation required.	As likely effects on the majority of species and habitats assessed for the Proposed Development are considered to be negligible, and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant.
#NELC CULM-6	DM/0026/18/FUL	North Beck Energy Ltd – North Beck Energy Centre Erect an Energy Recovery Facility with an electricity export capacity of up to 49.5MW and associated infrastructure including a stack to 90m high, parking areas, hard and soft landscaping, access road, weighbridge facility and drainage infrastructure.	The ecology chapter of the ES states that there will be no significant effects upon statutory designated sites, habitats, breeding birds or water vole.	Mitigation is proposed to prevent adverse effects upon water quality. Habitat creation is also proposed to achieve no net loss in biodiversity.	No potential cumulative effects have been identified. No additional mitigation required.	As likely effects on the majority of species and habitats assessed for the Proposed Development are considered to be negligible, and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant.

ID	Application Reference	Development Name and Details	Reported Effects of Other Development	Mitigation proposed to address effects of Other Development	Potential for Cumulative Effects with Proposed Development and Potential Additional Mitigation	Likelihood and Significance of Cumulative Effects
#NELC CULM-7	DM/1145/19/FUL	Engie - NEL Energy Park Construction and operation of an energy park comprising photovoltaic (PV) solar panels together with energy (battery) storage and associated infrastructure.	The ecology chapter prepared to inform NEL Energy Park confirmed that there will be no significant effects upon statutory designated sites. There is potential for loss or damage of trees and hedgerows. There will be loss of species poor grassland and arable habitats. No significant effects predicted for otter, water vole, bats, badger, breeding birds or wintering birds.	Effects upon trees and hedgerows to be avoided through buffers and root protection zones. Pollution control measures to be implemented. Restorative landscaping following completion of works. Avoidance of artificial lighting. Implementation of ecological supervision, mitigation and licensing as appropriate.	No potential cumulative effects have been identified. No additional mitigation required.	As likely effects on the majority of species and habitats assessed for the Proposed Development are considered to be negligible, and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant. Not significant (negligible)
#NELC CULM-8	DM/0105/18/FUL	Engie – SHIIP Stallingborough Interchange Hybrid application seeking outline consent with access, landscaping and scale to be considered for the development of a 62ha Business Park comprising up to 120,176 sq. m for B1 (Business), B2 (General Industrial) and B8 (Storage and Distribution), associated infrastructure and internal highways. Full application for the creation of a new roundabout, new access roads, associated highway works, substations, pumping stations, drainage and landscaping. (Amended FRA and Drainage Strategy July 2018).	The report to inform HRA concluded that there would be no likely significant effects upon European designated sites, either alone or in combination with other plans or projects. The ecology chapter of the ES identified the potential for adverse effects in the absence of mitigation. These included habitat loss, habitat disturbance, and potential effects on water vole, otter, bats, reptiles and breeding birds.	Mitigation proposed included a CEMP, Ecology and Landscape Management Plan (ELMP), works under a water vole mitigation licence, buffers between the works and potential water vole habitat, vegetation clearance outside of the nesting bird season and sensitive lighting.	Both projects have the potential to affect water vole. As works affecting water vole will take place under a licence from Natural England, mitigation will be secured as part of the licence to make sure the water vole population is maintained. No additional mitigation required.	As likely effects on the majority of species and habitats assessed for the Proposed Development are considered to be negligible, and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant. Not significant (negligible)
#NELC CULM-9	DM/0198/20/REM	Cyden Homes – Proposed Residential Development at Land Off Larkspur Avenue Reserved matters application following DM/0378/15/OUT (Outline planning application with means of access to be considered for the construction of up to 250 residential dwellings, a new primary access with Stallingborough Road and secondary / emergency access via Larkspur Avenue, public open space, and landscaping,	No ecology reports provided.	N/A	No potential cumulative effects have been identified. No additional mitigation required.	As there were no ecology reports submitted there is insufficient information for the other development to allow for cumulative assessment to be undertaken.

ID	Application Reference	Development Name and Details	Reported Effects of Other Development	Mitigation proposed to address effects of Other Development	Potential for Cumulative Effects with Proposed Development and Potential Additional Mitigation	Likelihood and Significance of Cumulative Effects
		surface water drainage attenuation and associated works) to erect 150 dwellings, play equipment, public open space and infrastructure with appearance, landscaping, layout and scale to be considered (Amended Plans January 2021).				
#NELC CULM-12	DM/0899/21/FUL	Grimsby Solar Farm – Aura Power Install solar farm with associated works and infrastructure to include ground mounted solar panels, access tracks, inverters, transformers, storage units, substation compound, underground cables and conduits, temporary construction compound, perimeter fencing and planting scheme.	The Project was screened out for EIA, and, as such, it can be concluded that the local planning authority concluded that the project had no potential for significant effects alone, or cumulatively, given cumulative effects are considered as part of screening.	A mitigation and management plan and a CEMP.	No potential cumulative effects have been identified. No additional mitigation required.	As likely effects on the majority of species and habitats assessed for the Proposed Development are considered to be negligible, and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant.
#NELC CULM-20	DM/0728/18/OUT	Brocklesby Estate – Residential Development on Land East of Stallingborough Road, Immingham. Outline planning application for the development of up to 525 residential dwellings together with an extra care facility for the elderly with up to 80 units with access to be considered.	The ecology report confirms no significant effects upon statutory designated sites. No significant adverse effects upon protected or notable species identified. Giant hogweed (invasive species) recorded.	Retained hedgerows to be protected during construction. Site clearance to be completed outside of the nesting bird season. Eradication strategy recommended to prevent spread of giant hogweed.	No potential cumulative effects have been identified. No additional mitigation required.	As likely effects on the majority of species and habitats assessed for the Proposed Development are considered to be negligible, and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant. Not significant (negligible)
#NELC CULM-24	DM/0118/15/OUT	Monmouth Properties - Residential Development on Land at Toll Bar New Waltham. Outline application with access to be considered for residential development (of up to 400 dwellings) including the provision of a small corner shop, open space and associated infrastructure.	No effects upon statutory or non-statutory designated sites are identified. Potential for adverse effects upon hedgerows and Buck Beck watercourse. Changes in lighting could affect foraging bats and otter. GCN present within 500 m of the development.	Standard pollution prevention measures were recommended. Recommended that hedgerows are retained. An undeveloped buffer adopted adjacent to Buck Beck and lighting minimised. Site clearance to be completed outside of the nesting bird season.	No potential cumulative effects have been identified. No additional mitigation required.	As likely effects on the majority of species (including GCN, bats and otter) and habitats (including hedgerows) assessed for the Proposed Development are considered to be negligible, and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant. Not significant (negligible)

ID	Application Reference	Development Name and Details	Reported Effects of Other Development	Mitigation proposed to address effects of Other Development	Potential for Cumulative Effects with Proposed Development and Potential Additional Mitigation	Likelihood and Significance of Cumulative Effects
				Precautionary working methods to prevent adverse effect upon GCN.		
#NELC CULM-28	DM/0769/22/FUL	CHI Investments – The Willows Construction of new foul sewer and associated works.	The addendum ecology report confirms the presence of GCN in water bodies within 500 m of the application.	A mitigation licence from Natural England will be required to make sure there are no adverse effects upon the GCN population.	The Proposed Development mitigation will be delivered under the DLL scheme to make sure there are no adverse effects on GCN populations. Therefore, no potential cumulative effects are identified, and no additional mitigation will be required.	There is no potential for cumulative effects with the proposed development as the Proposed Development will have no adverse effects on GCN. Not significant
#NELC CULM-31	DM/1133/17/OUT	Humberside Land Developers Ltd - Residential Development in Laceby Outline application for 152 dwellings with means of access to be considered, including an emergency vehicular access onto Charles Avenue. (amended Transport Assessment and Travel Plan 13th April 2018)	Arboricultural report provided only.	A tree protection plan is recommended.	No potential cumulative effects have been identified. No additional mitigation required.	As there were no ecology reports submitted, other than an arboriculture report, there is insufficient information available for the other development to allow for cumulative assessment to be undertaken.
#NELC CULM-33	DM/1167/16/FUL / AP/001/19	Cyden Homes – Residential Development Land off Brigsley Road, Waltham Hybrid application to include Full Planning for 194 dwellings (houses and bungalows) and an Outline application to erect 5 detached dwellings with associated works including foul pumping station, landscaping, public open space, parking areas and garaging (Amended plans for layout, road details, landscaping and Transport Assessment - 24th November 2017)	No ecology report provided.	N/A	No potential cumulative effects have been identified. No additional mitigation required.	As there were no ecology reports submitted there is insufficient information available for the other development to allow for cumulative assessment to be undertaken.
#NELC CULM-38	DM/0118/23/FUL	Land Developers (LIncs) Ltd – Residential Development at Land off Field Head Road, Laceby Erection of 60 dwellings including access from Fieldhead Road with emergency vehicular access onto Caistor Road and associated works	Potential for effects upon GCN and bats.	Precautionary working methods to avoid effects upon GCN and bats. Removal of vegetation outside of nesting bird season. Retention of hedgerows.	No potential cumulative effects have been identified. No additional mitigation required.	There is no potential for cumulative effects with the proposed development in relation to GCN, as the Proposed Development will have no adverse effects. As likely effects on the majority of species (bats) and habitats (including

ID	Application Reference	Development Name and Details	Reported Effects of Other Development	Mitigation proposed to address effects of Other Development	Potential for Cumulative Effects with Proposed Development and Potential Additional Mitigation	Likelihood and Significance of Cumulative Effects
						hedgerows) assessed for the Proposed Development are considered to be negligible, and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant. Not significant (negligible)
#NELC CULM-39	DM/0261/23/OUT	Residential Development at Land off Waltham Road, Barnoldby Outline erection of 42 dwellings and associated infrastructure (all matters reserved)	Potential for effects upon foraging and commuting bats.	Artificial lighting to be kept to a minimum. Habitat clearance to be completed outside of the nesting bird season. Retain and protect existing hedgerows.	No potential cumulative effects have been identified. No additional mitigation required.	As likely effects on the majority of species (including bats) and habitats assessed for the Proposed Development are considered to be negligible, and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant. Not significant (negligible)
North Lincolnshire Council						
#NLC CULM-2	PA/2022/1223	Associated British Ports (ABP) – Land Adjacent to the Westgate Entrance, Port of Immingham A hybrid application comprising full planning permission for the development of land adjacent to the West Gate Entrance of the Port of Immingham for port related employment uses.	Noise and visual disturbance during construction to functionally linked land for the Humber Estuary SPA and Ramsar (Rosper Road Pools). Potential for significant adverse effects.	Noise barriers proposed to reduce noise levels to acceptable levels. Ecological clerk of works. Site clearance outside of the nesting bird season. Maintain and enhance habitats for foraging and commuting bats. Minimise lighting outside of the construction area.	Mitigation is proposed to reduce noise to acceptable levels for both the ABP development and the Proposed Development. As such, there will be no cumulative effects from noise or visual disturbance of birds.	Potential for cumulative effects. However, given the mitigation included in the Proposed Development for those impacts that were identified as being significant (particularly noise impacts on Rosper Road Pools), no cumulative effect is expected. Not significant (negligible)
#NLC CULM-3	PA/2022/1548	VPI Immingham - VPI Immingham Pilot Carbon Capture Plant	The ecological assessment states that there will be no adverse effects on statutory designated sites.	No mitigation required.	No potential cumulative effects have been identified. No additional mitigation required.	As likely effects on the majority of species and habitats assessed for the Proposed Development are considered to be negligible,

ID	Application Reference	Development Name and Details	Reported Effects of Other Development	Mitigation proposed to address effects of Other Development	Potential for Cumulative Effects with Proposed Development and Potential Additional Mitigation	Likelihood and Significance of Cumulative Effects
		Planning permission to construct and operate a temporary pilot post-combustion carbon capture plant and associated infrastructure	There are no habitats of principal importance within the site. There will be no noise or visual disturbance. No additional lighting will be installed for the pilot plant. There will be no adverse air quality effects. There will be no impacts in water quality.			and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant. Not significant (negligible)
#NLC CULM-4	PA/2022/628	MF Strawson Limited – Residential Development at Main Road, Sturton Hybrid application comprising full planning permission to erect 32 dwellings and outline planning permission for 85 dwellings with appearance, landscaping, layout and scale reserved for subsequent consideration	Potential for effects upon GCN and bats in the absence of mitigation.	Non licensed method statement to prevent affects upon GCN, A bat sensitive lighting scheme	The Proposed Development has the potential to affect GCN and strategic mitigation will be delivered under the DLL scheme to make sure there are no adverse effects on GCN populations. Therefore, no potential cumulative effects are identified and no additional mitigation will be required	As likely effects on the majority of species and habitats assessed for the Proposed Development are considered to be negligible, and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant. Not significant (negligible)
#NLC CULM-5	PA/2022/443	Lightrock Power Ltd – Sweetbriar Farm Planning permission for the installation of a solar photovoltaic array/solar farm & associated infrastructure. This development is approximately 70 hectares (ha) in size.	Potential for noise and visual disturbance of passage and wintering wildfowl and displacement of passage and wintering wildfowl from functionally linked land considered. HRA concluded that there would be no likely significant effects.	Five metre buffer between ditches and developed area to prevent effects upon water vole, root protection zones implemented where hedgerows will be retained. Best practice working methods to avoid effects upon badger and otter, bat sensitive lighting, precautionary working methods to avoid harm to GCN.	The ornithology report for Sweetbriar farm concludes that the site is unlikely to be used by the qualifying features of the Humber Estuary SPA and Ramsar. Therefore, no potential cumulative effects from loss of functionally linked land for birds have been identified. No additional mitigation required.	As likely effects on the majority of species and habitats assessed for the Proposed Development are considered to be negligible, and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant. Not significant (negligible)
#NLC CULM-9	PA/SCO/2022/13	Orsted Gigastack Limited and Phillips 66 Limited – Gigastack Project	The scoping report identifies the potential for effects upon statutory and non-statutory	N/A	Potential for cumulative effects on birds using functionally linked land from	Potential for cumulative effects. However, given the mitigation included in the Proposed Development for

ID	Application Reference	Development Name and Details	Reported Effects of Other Development	Mitigation proposed to address effects of Other Development	Potential for Cumulative Effects with Proposed Development and Potential Additional Mitigation	Likelihood and Significance of Cumulative Effects
		EIA Scoping request for a 100MV hydrogen electrolyser together with an underground electrical cable connection to the Hornsea Two onshore substation, water discharge and a hydrogen export pipeline to the Humber Refinery.	designated sites and protected / notable species.		noise and visual disturbance.	those impacts identified as being significant (such as noise impacts on Rosper Road Pools) and that any loss of functionally linked land due to the Gigastack project will be strategically mitigated by the South Humber Gateway strategic mitigation project, no cumulative effect is anticipated. Not significant (negligible)
#NLC CULM-12	PA/2023/422	Phillips 66 Limited - Humber Zero Project Planning permission for the construction and operation of a post-combustion carbon capture plant, including carbon dioxide compression and metering, cooling equipment, stacks, substations, new and modified services, connections, internal roads, new access onto Eastfield Road, and maintenance and laydown areas (EIA development)	The ecology chapter of the ES identifies the potential for significant adverse effects on open mosaic habitat and associated small heath butterfly. The report to inform HRA considered noise and visual disturbance of SPA / Ramsar birds using functionally linked land near Rosper Road Pools during construction and operation. It also considered changes in surface water quality during construction and operation and changes in air quality. Noise and visual disturbance were screened out at Stage 1 of the HRA process. Changes in water quality during operation was taken to Appropriate Assessment.	Mitigation is proposed to achieve BNG and prevent adverse effects upon small heath butterfly.	Potential for cumulative loss of open mosaic habitat on previously developed land. Also potential for noise and visual disturbance of birds using Rosper Road Pools.	As the proportion of open mosaic habitat to be lost as a result of the Proposed Development is relatively small, and mitigation is proposed to minimise the impact of habitat loss as a result of the Humber Zero Project, no significant cumulative effects will occur. There will be no permanent losses of functionally linked land as a result of the Proposed Development, and any loss of functionally linked land due to the Humber Zero project will be strategically mitigated by the South Humber Gateway strategic mitigation project. Therefore, no cumulative effect is expected. Not significant (negligible)
#NLC CULM-13	PA/2023/421	Humber Zero – VPI Immingham Carbon Capture Plant Planning permission for the construction & operation of a post-combustion carbon capture plant, including carbon dioxide compressor & metering, cooling equipment, stacks, substations,	The ecology chapter of the ES identifies the loss of open mosaic habitat on previously developed land, loss of grassland and scrub and the	New habitat will be created to achieve a net gain in biodiversity. This is reported to change the moderate adverse (significant)	Potential for cumulative effects upon open mosaic habitat. However, as the other development anticipates a significant beneficial effect on open	Given that the proportion of open mosaic habitat to be lost as a result of the Proposed Development is relatively small, and that the Humber Zero project is

ID	Application Reference	Development Name and Details	Reported Effects of Other Development	Mitigation proposed to address effects of Other Development	Potential for Cumulative Effects with Proposed Development and Potential Additional Mitigation	Likelihood and Significance of Cumulative Effects
		internal roads, partial ditch realignment, new & modified services, connections, internal roads, accesses, maintenance & laydown areas.	loss of habitat for small heath butterfly. There is also the potential for changes in water quality. The report to inform HRA identifies the potential for noise and visual disturbance of birds at Rosper Road Pools during construction and operation. There is also the potential for operational changes in air quality.	effect to a moderate beneficial effect (significant) Desulphurisation of flue gasses to reduce effluent sulphate levels below 1,000 mg/l.	mosaic habitat, it is considered unlikely that there would be cumulative effects. Potential for noise and visual disturbance affecting birds at Rosper Road Pools during construction. Mitigation is proposed to reduce noise and visual disturbance from the proposed development to acceptable levels; as such no in combination effects are anticipated.	predicting a moderate beneficial effect on open mosaic habitats, through habitat creation, no significant adverse cumulative effects are considered likely. Not significant
#NLC CULM-14	PA/SCO/2023/1	Associated British Ports – Immingham Onshore Wind EIA Scoping request for Immingham onshore wind including up to three wind turbines (Immingham Dock Western Entrance, Humber Road, South Killingholme).	The scoping report identifies the potential for effects upon statutory and non-statutory designated sites and protected / notable species.	N/A	Potential for cumulative effects upon designated sites / birds. Effects upon designated sites will be assessed as part of the HRA process.	There is insufficient information in the Scoping Report for the other development to allow for cumulative assessment to be undertaken.
#NLC CULM-15	PA/SCO/2023/2	Associated British Ports – Immingham Onshore Wind EIA Scoping request for Immingham onshore wind including up to three wind turbines (Land Along Tracks, West Haven Way, South Killingholme).	The scoping report identifies the potential for effects upon statutory and non-statutory designated sites and protected / notable species.	N/A	Potential for cumulative effects upon designated sites / birds.	There is insufficient information in the Scoping Report for the other development to allow for cumulative assessment to be undertaken.
#NLC CULM-16	PA/2023/612	VEV Services Limited - Vitol (VPI Immingham) Planning permission for the installation of a 71.28 kwp solar carport and infrastructure for renewable energy generation.	No ecology information provided.	N/A	May be potential for cumulative effects upon designated sites / birds.	There is insufficient information in the Scoping Report for the other development to allow for cumulative assessment to be undertaken.
#NLC CULM-17	PA/2018/918	Planning permission to construct a new gas-fired power station with a gross electrical output of up to 49.9 megawatts.	Loss of brownfield habitat. In the absence of mitigation there is potential for effects on the Humber Estuary SAC / SPA / Ramsar and SSSI (changes in air and surface water pollution).	Industry best practice measures to prevent surface and ground water pollution. A CEMP will detail all requirements for environmental protection and legal	Potential for cumulative effects upon open mosaic habitat.	The proportion of open mosaic habitat to be lost as a result of the Proposed Development is minor, so no significant cumulative effects are anticipated.

ID	Application Reference	Development Name and Details	Reported Effects of Other Development	Mitigation proposed to address effects of Other Development	Potential for Cumulative Effects with Proposed Development and Potential Additional Mitigation	Likelihood and Significance of Cumulative Effects
				compliance. Pre-construction survey for protected species. Lighting impacts to be minimised. Noise and visual disturbance of birds was found to be not significant.		Not significant (minor adverse)
#NLC CULM-18	PA/SCO/2022/12	Uniper - Humber Hub Blue Project EIA scoping request for the Humber Hub Blue Project; a blue hydrogen production facility (HPF) on the south bank of the Humber to supply low-carbon hydrogen via a pipeline to industrial and power customers. Although the majority of the hydrogen produced is likely to be used for combustion following fuel switching by industrial processes within 3 km of the production site, there is also the potential for hydrogen blending into power generation facilities or the existing natural gas network and for supplying hydrogen to other regional hydrogen projects, including mobility.	The scoping report identifies the potential for effects upon statutory and non-statutory designated sites and protected / notable species.	N/A	There may be potential for cumulative effects upon designated sites / birds.	There is insufficient information in the Scoping Report for the other development to allow for cumulative assessment to be undertaken at this stage.
#NLC CULM-19	PA/2023/502	Able UK Limited – Site Enabling Works, Land East of Rosper Road, Killingholme. Full planning application for enabling works on land east of Rosper Road, Killingholme, The proposed development comprises: • regrading of land with general fill and raising site levels with imported fill, • installation of ground drainage as required, • installation of boundary fencing, • widening of Marsh Lane (vertical alignment to be retained) and construction of new footpath - hedge to be replaced north of road widening, • upgrades at junction of Marsh Lane with Rosper Road, including extending a drainage culvert, • diversion of a section of Station Road and construction of new road, • new ditch culvert under Marsh Lane,	Loss of terrestrial habitat during construction, lighting impacts and cumulative effects. Noise and visual disturbance of birds found to be not significant.	Embedded mitigation including ditch realignment and retention and enhancement of hedgerows. Mitigation for birds provided as part of the Halton Marshes Wet Grassland Scheme. Preconstruction checks for otter and water vole.	Potential for noise and visual disturbance of birds. Mitigation is proposed for the Proposed Development to reduce noise and visual disturbance to an acceptable level. As such, no additional mitigation is proposed.	As the development is providing mitigation as part of the Halton Marshes Wet Grassland Scheme it is not anticipated that there will be cumulative effects with the Proposed Development.

ID	Application Reference	Development Name and Details	Reported Effects of Other Development	Mitigation proposed to address effects of Other Development	Potential for Cumulative Effects with Proposed Development and Potential Additional Mitigation	Likelihood and Significance of Cumulative Effects
		• five new entrances to proposed sites to be created, • demolition of buildings, • construction of new 33kV substation, • new drainage ditch/diversion and new ditch crossings, • bridge crossings of existing over ground pipelines, • diversion to existing Exolum underground pipeline, and • construction of new rail sidings.				
#NLC CULM-27	PA/2021/1525	Able UK Limited - Monopole Manufacturing Facility at Land at Able Marine Energy Park, south of Station Road, South Humber Bank, South Killingholme Planning permission to erect a monopole manufacturing facility to provide an offshore wind turbine monopile foundation manufacturing facility ('the monopile factory'). The proposed development is a complex of large industrial steel-clad buildings used to manufacture monopiles for the offshore renewable energy sector. This development is approximately 25 ha in size.	Loss of grassland habitat used by foraging birds (curlew).	Loss of terrestrial habitat has been mitigated through the provision of habitat as part of the Halton Marshes Wet Grassland Scheme.	The potential for significant effects upon European designated sites will be assessed as part of the HRA process. If the competent authority confirms that the proposed mitigation is acceptable, there will be no adverse effects alone or in combination.	Given the mitigation included in the Proposed Development for those impacts that were identified as being significant (such as noise impacts on Rosper Road Pools) and that any loss of functionally linked land due to the project will be strategically mitigated by the Halton Marshes Wet Grassland Scheme, no cumulative effects are anticipated. Not significant (negligible)
East Lindsey District Council						
#ELDC CULM-1	N/085/00883/15	A hybrid application consisting of outline erection of up to 300 dwellings with means of access to be considered and full planning permission for change of use of land from agricultural land to a recreation ground.	Loss of terrestrial habitat within 500 m of GCN breeding ponds.	A mitigation licence from Natural England will be required.	The Proposed Development has the potential to affect GCN and strategic mitigation will be delivered under the DLL scheme to make sure there are no adverse effects on GCN populations. Therefore, no potential cumulative effects are identified and no additional mitigation will be required.	There is no potential for cumulative effects with the proposed development in relation to GCN, as the Proposed Development will have no adverse effects. Not significant

ID	Application Reference	Development Name and Details	Reported Effects of Other Development	Mitigation proposed to address effects of Other Development	Potential for Cumulative Effects with Proposed Development and Potential Additional Mitigation	Likelihood and Significance of Cumulative Effects
#ELDC CULM-2	N/133/01413/21	Cyden Homes – Residential development at Ludborough Road Application for the erection of 198no. dwellings with associated garages and construction of a vehicular and pedestrian access	No significant ecological effects identified in the ecology report.	Retention of hedgerows recommended. Site clearance to be completed outside of the nesting bird season.	No potential cumulative effects identified. No additional mitigation required.	As likely effects on the majority of species and habitats (including birds and hedgerows) assessed for the Proposed Development are considered to be negligible, and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant. Not significant (negligible)
#ELDC CULM-15	N/105/01055/22	Charterpoint (Louth) Limited – Daisy Way, Louth Outline erection of up to 90no. dwellings with garages with means of access to be considered. This development is approximately 6 ha in size.	No ecology reports available.	No mitigation recommended.	No potential cumulative effects identified. No additional mitigation required.	As there were no ecology reports submitted there is insufficient information for the other development to allow for cumulative assessment to be undertaken.
#ELDC CULM-18	N/019/01451/20	Brackenborough Ltd – Brackenborough Hotel Change of use of land for the siting of 114 no. holiday lodges and excavation of land to form 3 no. wildlife ponds.	Potential for dust during construction, noise and surface water drainage.	A CEMP has been prepared.	No potential cumulative effects identified. No additional mitigation required.	As likely effects on the majority of species and habitats assessed for the Proposed Development are considered to be negligible, and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant. Not significant (negligible)
#ELDC CULM-19	N/092/01017/20	Lovell – Residential Development Chestnut Drive Outline erection of up to 141no. dwellings (with means of access, landscaping and layout to be considered). This development is approximately 6ha in size.	Potential for effects upon bats and breeding birds.	Tress with roost suitability to be retained and protected, a sympathetic lighting scheme and site clearance outside of the nesting bird season.	No potential cumulative effects identified. No additional mitigation required.	As likely effects on the majority of species (including bats and breeding birds) and habitats assessed for the Proposed Development are considered to be negligible, and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant. Not significant (negligible)

ID	Application Reference	Development Name and Details	Reported Effects of Other Development	Mitigation proposed to address effects of Other Development	Potential for Cumulative Effects with Proposed Development and Potential Additional Mitigation	Likelihood and Significance of Cumulative Effects
#ELDC CULM-22	N/085/01215/21	Homes by Gleeson – Residential Development Louth Road, Holton Le Clay Application for approval of reserved matters (appearance, landscaping, layout and scale) for 233no. dwellings on part phase A and phases B and C pursuant to Outline planning permission ref. no. N/085/01207/20. This development is approximately 12 hectares in size.	No ecology reports provided.	No mitigation recommended.	No potential cumulative effects identified. No additional mitigation required.	As there were no ecology reports submitted there is insufficient information available for the other development to allow for cumulative assessment to be undertaken.
#ELDC CULM-31	N/105/01961/19	Gleeson - Proposed Residential Brackenborough Road, Louth Erection of 237no. dwellings, associated garages, provision of 3no. attenuation ponds, areas of open space and children's play areas, erection of a pumping station and a substation, construction of vehicular and pedestrian accesses and internal access roads.	No ecology reports provided.	No mitigation recommended.	No potential cumulative effects identified. No additional mitigation required.	As there were no ecology reports submitted there is insufficient information available for the other development to allow for cumulative assessment to be undertaken.
#ELDC CULM-32	N/105/00593/19	Cyden Homes – Proposed Residential Development at The Park, Eastfield Road, Louth. Erection of 2no. detached bungalows, 4no. pairs of semi-detached houses, 28no. detached houses, 1no. block of 6no. terraced houses, 3no. blocks of 4no. terraced houses, 1no. block of 4no. bungalows (60no. houses in total) and associated garage blocks, provision of an attenuation pond and play area and construction of internal access roads.	Potential for disturbance of breeding birds.	Site clearance to be completed outside of the nesting bird season.	No potential cumulative effects identified. No additional mitigation required.	As likely effects on the majority of species (including breeding birds) and habitats assessed for the Proposed Development are considered to be negligible, and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant. Not significant (negligible)
Lincolnshire County Council						
#LCC CULM -7	PL/0037/23	Manby BGE Ltd - Anaerobic Digestor and Fertiliser Production Plant For an anaerobic digestor and fertiliser production plant at Land at Manby Airfield, off Manby Middlegate, Manby.	No significant effects identified during construction or operation.	A CEMP will detail measures to prevent adverse effects during construction. Site clearance will be completed outside of the nesting bird season or under an ecological watching brief.	No potential cumulative effects identified. No additional mitigation required.	As likely effects on the majority of species and habitats assessed for the Proposed Development are considered to be negligible, and the effects of the other development are not significant, it is considered unlikely that cumulative effects could be significant. Not significant (negligible)

ID	Application Reference	Development Name and Details	Reported Effects of Other Development	Mitigation proposed to address effects of Other Development	Potential for Cumulative Effects with Proposed Development and Potential Additional Mitigation	Likelihood and Significance of Cumulative Effects
				Trees and vegetated corridors to be retained and protected. A sensitive lighting scheme will be implemented.		
Wider Viking CCS Project						
#OFF CULM-1	N/A	Wider Viking CCS Project – offshore elements including refurbishment of the existing offshore Lincolnshire Offshore Gas Gathering system (LOGGS) Pipeline and a newly installed spur pipeline, to the offshore injection facilities for permanent storage.	No ecology reports available.	No mitigation identified.	As this element of the project is within the marine environment, 120 km off shore, and the Proposed Development will have no effects on the marine environment, no cumulative effects are anticipated. No additional mitigation required.	No potential for cumulative effects. Not significant

6.12 Summary

6.12.1 In the absence of mitigation, the construction phase of the Proposed Development has the potential to have significant adverse effects upon ecological receptors include statutory and non-statutory designated sites, habitats, and protected and notable species.

6.12.2 Wherever possible, mitigation has been embedded to avoid sensitive ecological features, for example through careful routeing to avoid habitats such as woodland and veteran trees. Where it is not possible to avoid adverse effects, additional mitigation is proposed. A CEMP is provided as *ES Volume IV Appendix 3.1* (*Application Document 6.4.3.1*) which aims to address adverse effects upon designated sites and habitats. Where protected species will be affected, a licence from Natural England will be sought, and mitigation will be secured as part of the licensing process. Measures to avoid significant adverse effects upon European designated sites are detailed within the report to inform HRA. These include measures to prevent dust and particulates, pollution of aquatic environments and noise and visual disturbance and these measures are secured through the CEMP and LEMP.

6.12.3 With the application of the committed mitigation measures, no significant adverse residual effects are anticipated during construction relating to ecology and biodiversity.

6.12.4 There will be no significant residual effects during the Operation of the Proposed Development.

6.12.5 The decommissioning phase would apply similar design and mitigation measures as the construction phase. Standard pollution prevention and construction best practices would be adopted to mitigate potential impacts upon the water environment, where required and reasonably practicable, and will be detailed within the decommissioning plan. Any necessary surveys to confirm the presence / likely absence of protected or notable species would be completed approximately 1 year prior to decommissioning to inform the decommissioning plan.

6.12.6 With the application of mitigation, there will be no significant residual effects during decommissioning.

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