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13.0 ORNITHOLOGY

13.1 Introduction

13.1.1 This chapter of the Preliminary Environmental Information (PEI) Report identifies the potential impacts and effects on ornithological receptors (breeding and wintering birds) as associated with the Proposed Development.

13.1.2 This chapter is supported by the following figures (PEI Report, Volume II) and technical appendix (PEI Report, Volume III):

- Figure 13-1: Study Areas;
- Figure 13-2: Survey Areas;
- Figure 13-3: Net Zero Teesside Breeding Bird Survey Areas;
- Figure 13-4: Statutory Designated Sites with Ornithology Features;
- Figure 13-5: Non-Statutory Designated Sites with Ornithology Features; and
- Appendix 13A: Ornithology Baseline Report.

13.1.3 This chapter provides a preliminary evaluation of relevant ornithological receptors (including nature conservation designations, habitats and protected or notable bird species) associated with the Proposed Development, with each being assigned a preliminary nature conservation value (sensitivity/value). The Proposed Development's potential direct and indirect impacts and effects on ornithological receptors and their conservation status, interrelationships and their value as a contributor to local (and if appropriate regional and national) biodiversity are identified. This preliminary assessment considers impact avoidance design measures and management activities (embedded mitigation) when determining the potential for significant effects. The requirement for potential further mitigation measures is then described and these mitigation measures then considered in the assessment of potential residual effects.

13.1.4 This preliminary assessment reports on the ornithology baseline available at the time of writing (August 2023). A final assessment of the potential impacts of the Proposed Development on ornithological receptors including updates to the baseline will be undertaken as part of the Environmental Impact Assessment (EIA) and reported in the Environmental Statement (ES) that will be submitted with the DCO Application.

13.2 Legislation, Planning Policy and Guidance

13.2.1 A summary of the international, national and local legislation, planning policy and guidance relevant to this assessment is set out below.

<u>Legislative Background</u>

13.2.2 The following legislation is relevant to the ornithological assessment for the Proposed Development

- Environment Act 2021;
- Countryside and Rights of Way (CRoW) Act 2000;

- The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations)[1];
- The Wildlife and Countryside Act 1981 (as amended) (WCA); and
- The Natural Environment and Rural Communities (NERC) Act 2006.

13.2.3 Prior to 31 December 2020, Annex 1 of the European Council (EC) Birds Directive listed rare and vulnerable species of regularly occurring or migratory wild birds that were subject to special conservation measures. The Directive also provided for the designation of Special Protection Areas (SPAs) for the protection of these species, which formed part of the Natura 2000 network of sites protected by European wildlife legislation. European Union (EU) legislation as it applied to the UK on 31 December 2020 is now a part of UK domestic legislation as 'retained EU legislation'. Changes have been made to parts of the Habitats Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017 so that they effectively continue the legislation which implemented the EU Habitats and Species Directive and parts of the Wild Birds Directive through the provisions of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Most of these changes involve transferring functions from the European Commission to the appropriate authorities in England. All other processes or terms of the 2017 Regulations remain unchanged. Internationally designated wetlands 'Ramsar Sites' are protected under the CRoW Act 2000 and are not affected by the UK's exit from the EU.

13.2.4 Part 1 of the WCA affords general protection to all species of wild bird, and specific protection to certain species of bird listed in Schedule 1 (birds protected by special penalties). It is an offence (subject to exceptions) to:

- kill, injure, or take any wild bird;
- take, damage, or destroy the nest of any wild bird while that nest is in use or being built;
- take or destroy an egg of any wild bird; and
- disturb any wild bird listed on Schedule 1 of the WCA while nesting or disturb the dependent young of such a bird.

13.2.5 The WCA requires the prosecuting authority to prove that an offence was intentional, however, the CRoW Act 2000 strengthens the provisions of the WCA by introducing an additional offence of "reckless" disturbance, which means that ignorance of the presence of a protected species cannot be used as a reliable defence should a breach of the WCA be committed. The NERC Act 2006 strengthens the WCA further with respect to the protection of the nests of certain birds listed on Schedule Z1A, even when they are not in use.

[1] This transposes into UK law, post-Brexit, the provisions of the European Habitats and Wild Birds Directives and their respective Annexes of species and habitats that are qualifying features of the European network of Special Areas of Conservation (SAC) and Special Protection Areas (SPA). The EU Directives are directly incorporated into Regulation 9 of the domestic legislation.

Planning Policy Context

National Planning Policy

13.2.6 The overarching National Planning Policy Statement (NPS) for Energy (EN-1) (Department for Energy and Climate Change, 2011a) sets out national policy for energy infrastructure and is part of a suite of NPSs issued by the Secretary of State (SoS) for Energy and Climate Change.

Overarching National Planning Policy Statement for Energy EN-1 (2011)

13.2.7 Paragraph 5.3.3 states that *"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 IPC consider thoroughly the potential effects of a proposed project."*

13.2.8 Paragraph 5.3.4 states that "*The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests".*

National Policy Statement for Gas Supply and Infrastructure and Gas and Oil Pipelines (EN-4) 2011

13.2.9 NPS EN-4 (Department for Energy and Climate Change, 2011b) is relevant for this 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.

13.2.10 Paragraph 2.21.3 states that "*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."*

13.2.11 Paragraph 2.21.5 states: *"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."*

13.2.12 Paragraph 2.21.6 states: *"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 IPC should consider requiring this, where not included in the proposal."

National Policy Statement (NPS) for Electrical Networks Infrastructure (EN-5) (2011)

13.2.13 Paragraph 2.7.1 states: "Generic biodiversity effects are covered in Section 5.3 of EN-1. However, large birds such as swans and geese may collide with overhead lines associated with power infrastructure, particularly in poor visibility. Large birds in particular may also be electrocuted when landing or taking off by completing an electric circuit between live and ground wires. Even perching birds can be killed as soon as their wings touch energised parts."

13.2.14 Paragraph 2.7.2 states: "The applicant will need to consider whether the proposed line will cause such problems at any point along its length and take this into consideration in the preparation of the Environmental Impact Assessment (EIA) and ES (see Section 4.2 of EN-1). Particular consideration should be given to feeding and hunting grounds, migration corridors and breeding grounds."

13.2.15 The UK Government is currently reviewing and updating the energy NPSs. It is doing this to reflect its policies and strategic approach for the energy system that is set out in the Energy White Paper (December 2020), and to ensure that the planning policy framework enables the delivery of the infrastructure required for the country's transition to net zero carbon emissions. As part of the NPS review process, the government published a suite of revised draft NPSs for new energy infrastructure on 6 September 2021. A further update was published in March 2023 by the Department for Energy Security & Net Zero (DESNZ). Draft NPSs of relevance include:

Draft Overarching National Policy Statement for Energy (EN-1) (DESNZ, 2023)

13.2.16 Section 5.4 of Draft EN-1 relates to biodiversity and geological conservation. Relevant extracts from Draft NPSs EN-1 and EN-4 are provided in Table 13-1. The detail of these provisions are however, subject to consultation and thereafter implementation. The timetable for adoption of the updated NPSs is not known, however it is expected that these will be finalised and shall replace the current NPSs by the time the DCO Application for the Proposed Development is submitted.

13.2.17 Paragraph 5.4.3 states *"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."*

13.2.18 Paragraph 5.4.4 states that *"The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests. As set out in Section 4.6, the design process should embed opportunities for nature inclusive design. The applicant is encouraged to consider how their proposal can contribute towards Biodiversity Net Gain in line with the ambition set out in the 25 Year Environment Plan. Energy infrastructure projects have*

the potential to deliver significant benefits and enhancements beyond Biodiversity Net Gain, which result in wider environmental gains. The scope of potential gains will be dependent on the type, scale, and location of each project."

Draft NPS for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (DESNZ, 2023)

13.2.19 Paragraph 2.21.1 states: *"Sections 4.3 and 5.9 of EN-1 sets out the general principles that should be applied in the assessment of biodiversity and landscape and visual impacts. Additional considerations apply during the construction of a pipeline (which, without mitigation, can affect both landscape and ecology). These comprise the effect upon specific landscape elements within and adjacent to the pipeline route, such as grasslands, field boundaries (hedgerows, hedgebanks, drystone walls, fences), trees, woodlands, and watercourses. There will also be temporary visual 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."*

13.2.20 Paragraph 2.21.2 states that "*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."*

13.2.21 Paragraph 2.21.1 states that "*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 5.10 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."*

Draft National Policy Statement for Electricity Networks Infrastructure (EN-5) (DESNZ, 2023)

13.2.22 Paragraph 1.7.1 states: "All the NPSs have been subject to an Appraisal of Sustainability (AoS) required by the 2008 Act and the Environmental Assessment of Plans and Programmes Regulations 2004. A Habitats Regulations Assessment (HRA) has also been prepared in accordance with the Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017."

13.2.23 Paragraph 2.51 states: "When planning and evaluating the proposed development's contribution to environmental and biodiversity net gain, it will be important – for

both the applicant and the Secretary of State – to supplement the generic guidance set out in EN-1 (Section 4.5) with recognition that the linear nature of electricity networks infrastructure can allow for excellent opportunities to:

i. reconnect important habitats via green corridors, biodiversity stepping zones, and reestablishment of appropriate hedgerows; and/or

ii. connect people to the environment, for instance via footpaths and cycleways constructed in tandem with environmental enhancements."

National Planning Policy Framework

13.2.24 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government (MHCLG), 2021) sets out the UK Government's 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. The policies as outlined in Chapter 15 and relevant to this assessment are outlined below.

"To protect and enhance biodiversity and geodiversity, plans should:

a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and steppingstones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and,

b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

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 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 Policy

The Redcar and Cleveland Local Plan

13.2.25 The Redcar and Cleveland Local Plan (Redcar and Cleveland Borough Council (RCBC), 2018) was adopted in 2018 and sets out the vision and overall development strategy for the council's area and how it will be achieved for the period until 2032. Policies relevant to the Proposed Development are outlined below.

Policy N4 – Biodiversity and Geological Conservation

"We will protect and enhance the borough's biodiversity and geological resources. Support will be given to high quality schemes that enhance nature conservation and management, preserve the character of the natural environment and maximise opportunities for biodiversity and geological conservation, particularly in or adjacent to, Biodiversity Opportunity Areas in the wider Tees Corridor, Teesmouth, East Cleveland and Middlesbrough Beck Valleys areas. We will protect and preserve local, national and international priority species and habitats and promote their restoration, re-creation and recovery.

Biodiversity and geodiversity should be considered at an early stage in the development process, with appropriate protection and enhancement measures incorporated into the design of development proposals, recognising wider ecosystem services and providing net gains wherever possible. Detrimental impacts of development on biodiversity and geodiversity, whether individual or cumulative, should be avoided. Where this is not possible mitigation, or lastly compensation, must be provided as appropriate. Proposals will be considered in accordance with the status of biodiversity and geodiversity sites within the hierarchy.

Internationally important sites

Priority will be given to protecting our internationally important sites, including the Teesmouth and Cleveland Coast Special Protection Area/Ramsar and European

Marine Site, and the North York Moors Special Protection Area and Special Area of Conservation. Development that is not directly related to the management of the site, but which is likely to have a significant effect on any internationally designated site, irrespective of its location and when considered both alone and in combination with other plans and projects, will be subject to an Appropriate Assessment.

Development requiring Appropriate Assessment will only be allowed where:

a. it can be determined through Appropriate Assessment at the design stage that, taking into account mitigation, the proposal would not result in adverse effects on the site's integrity, either alone or in combination with other plans or projects. Within 6 km of the Teesmouth and Cleveland Coast SPA and Ramsar Site, as illustrated on the Policies Map, proposals that would result in a net increase in residential units, or other development that would lead to increased recreational disturbance of the site's interest features, will be expected to contribute towards strategic mitigation measures identified in the Recreation Management Plan. This is to ensure that adverse effects on the site's integrity can be avoided. Any alternative suitable mitigation would need to be proven effective and agreed with the Council, in consultation with relevant statutory consultees or

b. as a last resort, Appropriate Assessment proves that there are no alternatives and that the development is of overriding public interest and appropriate compensatory measures are provided.

Nationally important sites

Development that is likely to have an adverse impact on nationally important SSSI sites, including broader impacts on the national network and combined effects with other development, will not normally be allowed. Where an adverse effect on the site's notified interest features is likely, an exception will only be made where:

c. the benefits of the development, at this site, clearly outweigh both any adverse impact on the features of the site that makes it of special scientific interest, and any broader impacts on the network of SSSIs;

d. no reasonable alternatives are available; and e. mitigation, or where necessary compensation, is provided for the impact.

Locally important sites

Development that is likely to have an adverse impact on Local Sites (Local Wildlife Sites and Local Geological Sites) or Local Nature Reserves will only be approved where:

f. the benefits clearly outweigh any adverse impact on the site;

g. no reasonable alternatives are available; and h. mitigation, or where necessary compensation, is provided for the impact. Wildlife corridors and other habitat networks will be protected and enhanced, particularly hedgerows, watercourses and linking habitat features. Opportunities to deculvert watercourses will be encouraged.

We will continue to protect our ancient woodland and ancient and veteran trees, including our tree-lined becks. Development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and aged or veteran trees, will only be allowed in very exceptional circumstances where the need for, and benefits of, the development in that location clearly outweigh the loss and the development cannot be located elsewhere."

The Stockton-on-Tees Local Plan

13.2.26 The Stockton on Tees Local Plan (Stockton on Tees Borough Council (STBC), 2019) was adopted in 2019 and sets out policies and proposals to guide planning decisions and establishes a framework for sustainable economic growth and development in the borough up until 2032. Policies relevant to the Proposed Development are summarised below.

SD8 - Sustainable Design Principles

"1. The Council will seek new development to be designed to the highest possible standard, taking into consideration the context of the surrounding area and the need to respond positively to the:

a. Quality, character and sensitivity of the surrounding public realm, heritage assets, and nearby buildings, in particular at prominent junctions, main roads and town centre gateways;

b. Landscape character of the area, including the contribution made by existing trees and landscaping;

c. Need to protect and enhance ecological and green infrastructure networks and assets…

Policy EG4 – Seal Sands, North Tees and Billingham

"Development proposals for hazardous installations, uses related to the process industries, or emerging specialist sectors will be directed to available sites and expansion land in the following locations:

a. Billingham Chemical Complex including 45 ha of available land.

b. North Tees including 46 ha of available land. c. Seal Sands including 144 ha of available land.

2. Development proposals in the North Tees and Seal Sands area will recognise the cumulative importance for bird species associated with the Teesmouth and Cleveland Coast SPA and Ramsar site. Appropriate development proposals will be encouraged at locations within the limits to development where:

a. If necessary, land has been identified to provide appropriate strategic mitigation; or

b. The applicant can demonstrate that the proposed development, in-combination with other proposals, will not adversely impact the Teesmouth & Cleveland Coast SPA and Ramsar site.

3. Should it become apparent that proposals for strategic mitigation cannot be identified, the Council will work with the Tees Estuary Partnership and relevant stakeholders to take appropriate action."

ENV5 - Preserve, Protect and Enhance Ecological Networks, Biodiversity and Geodiversity

"1. The Council will protect and enhance the biodiversity and geological resources within the Borough. Development proposals will be supported where they enhance nature conservation and management, preserve the character of the natural environment and maximise opportunities for biodiversity and geological conservation particularly in or adjacent to Biodiversity Opportunity Areas in the River Tees Corridor, Teesmouth and Central Farmland Landscape Areas.

2. The Council will preserve, restore and re-create priority habitats alongside the protection and recovery of priority species.

3. Ecological networks and wildlife corridors will be protected, enhanced and extended. A principal aim will be to link sites of biodiversity importance by avoiding or repairing the fragmentation and isolation of natural habitats.

4. Sites designated for nature or geological conservation will be protected and, where appropriate enhanced, taking into account the following hierarchy and considerations:

a. Internationally designated sites – Development that is not directly connected with or necessary to the management of the site, but which is likely to have a significant effect on any internationally designated site, irrespective of its location and when considered both alone and in combination with other plans and projects, will be subject to an Appropriate Assessment. Development requiring Appropriate Assessment will only be allowed where:

i. It can be determined through Appropriate Assessment, taking into account mitigation, the proposal would not result in adverse effects on the site's integrity, either alone or in combination with other plans or projects; or

ii. as a last resort, where, in light of negative Appropriate Assessment there are no alternatives and the development is of overriding public interest, appropriate compensatory measures must be secured.

b. Nationally designated sites - Development that is likely to have an adverse effect on a site, including broader impacts on the national network of Sites of Special Scientific Interest (SSSI) and combined effects with other development, will not normally be allowed. Where an adverse effect on the site's notified interest features is likely, a development will only be allowed where:

i. the benefits of the development, at this site, clearly outweigh both any adverse impact on the sites notified interest features, and any broader impacts on the national network of SSSI's;

ii. no reasonable alternatives are available; and iii. mitigation, or where necessary compensation, is provided for the impact. c. Locally designated

sites: Development that would have an adverse effect on a site(s) will not be permitted unless the benefits of the development clearly outweigh the harm to the conservation interest of the site and no reasonable alternatives are available.

All options should be explored for retaining the most valuable parts of the sites interest as part of the development proposal with particular consideration given to conserving irreplaceable features or habitats, and those that cannot readily be recreated within a reasonably short timescale, for example ancient woodland and geological formations. Where development on a site is approved, mitigation or where necessary, compensatory measures, will be required in order to make development acceptable in planning terms.

5. Development proposals should seek to achieve net gains in biodiversity wherever possible. It will be important for biodiversity and geodiversity to be considered at an early stage in the design process so that harm can be avoided and wherever possible enhancement achieved (this will be of particular importance in the redevelopment of previously developed land where areas of biodiversity should be retained and recreated alongside any remediation of any identified contamination). Detrimental impacts of development on biodiversity and geodiversity, whether individual or cumulative should be avoided. Where this is not possible, mitigation and lastly compensation, must be provided as appropriate. The Council will consider the potential for a strategic approach to biodiversity offsetting in conjunction with the Tees Valley Local Nature Partnership and in line with the above hierarchy.

6. When proposing habitat creation, it will be important to consider existing habitats and species as well as opportunities identified in the relevant Biodiversity Opportunity Areas. This will assist in ensuring proposals accord with the 'landscape scale' approach and support ecological networks.

7. Existing trees, woodlands and hedgerows which are important to the character and appearance of the local area or are of nature conservation value will be protected wherever possible. Where loss is unavoidable, replacement of appropriate scale and species will be sought on site, where practicable."

Policy ENV6 - Green Infrastructure, Open Space, Green Wedges and Agricultural Land

"1. Through partnership working, the Council will protect and support the enhancement, creation and management of all green infrastructure to improve its quality, value, multi-functionality and accessibility in accordance with the Stockton-on-Tees Green Infrastructure Strategy and Delivery Plan.

2. Where appropriate, development proposals will be required to make contributions towards green infrastructure having regard to standards and guidance provided within the Open Space, Recreation and Landscaping SPD or any successor. Green infrastructure should be integrated, where practicable, into new developments. This includes new hard and soft landscaping, and other types

of green infrastructure. Proposals should illustrate how the proposed development will be satisfactorily integrated into the surrounding area in a manner appropriate to the surrounding townscape and landscape setting and enhances the wider green infrastructure network.

3. The Council will protect and enhance open space throughout the Borough to meet community needs and enable healthy lifestyles. The loss of open space as shown on the Policies Map, and any amenity open space, will not be supported unless:

a. it has been demonstrated to be surplus to requirements; or

b. the loss would be replaced by equivalent or better provision in terms of quantity and quality in a suitable location; or

c. the proposal is for another sports or recreational provision, the needs for which, clearly outweigh the loss; or d. the proposal is ancillary to the use of the open space; and e. in all cases there would be no significant harm to the character and appearance of the area or nature conservation interests.

4. Development within green wedges will only be supported where:

a. it would not result in physical or visual coalescence of built-up areas;

b. it would not adversely impact on local character or the separate identity of communities;

c. it would not adversely impact on recreational opportunities; and

d. it would not adversely impact on biodiversity.

5. Development proposals will be expected to demonstrate that they avoid the 'best and most versatile' agricultural land unless the benefits of the proposal outweigh the need to protect such land for agricultural purposes. Where significant development of agricultural land is demonstrated to be necessary, proposals will be expected to demonstrate that they have sought to use areas of lower quality land in preference to that of a higher quality."

Policy ENV7 – Ground, Air, Water, Noise and Light Pollution

"1. All development proposals that may cause groundwater, surface water, air (including odour), noise or light pollution either individually or cumulatively will be required to incorporate measures as appropriate to prevent or reduce their pollution so as not to cause unacceptable impacts on the living conditions of all existing and potential future occupants of land and buildings, the character and appearance of the surrounding area and the environment.

2. Development that may be sensitive to existing or potentially polluting sources will not be sited in proximity to such sources. Potentially polluting development will not be sited near to sensitive developments or areas unless satisfactory mitigation measures can be demonstrated.

3. Where development has the potential to lead to significant pollution either individually or cumulatively, proposals should be accompanied by a full and

detailed assessment of the likely impacts. Development will not be permitted when it is considered that unacceptable effects will be imposed on human health, or the environment, taking into account the cumulative effects of other proposed or existing sources of pollution in the vicinity. Development will only be approved where suitable mitigation can be achieved that would bring pollution within acceptable levels.

4. Where future users or occupiers of a development would be affected by contamination or stability issues, or where contamination may present a risk to the water environment, proposals must demonstrate via site investigation/assessment that:

a. Any issues will be satisfactorily addressed by appropriate mitigation measures to ensure that the site is suitable for the proposed use, and does not result in unacceptable risks which would adversely impact upon human health and the environment; and

b. Demonstrate that development will not cause the site or the surrounding environment to become contaminated and/or unstable.

5. Groundwater and surface water quality will be improved in line with the requirements of the European Water Framework Directive and its associated legislation and the Northumbria River Basin Management Plan. Development that would adversely affect the quality or quantity of surface or groundwater, flow of groundwater or ability to abstract water will not be permitted unless it can be demonstrated that no significant adverse impact would occur, or mitigation can be put in place to minimise this impact within acceptable levels.

To improve the quality of the water environment the Council will:

a. Support ecological improvements along riparian corridors including the retention and creation of river frontage habitats;

b. Avoid net loss of sensitive inter-tidal or sub-tidal habitats and support the creation of new habitats; and

c. Protect natural water bodies from modification and support the improvement and naturalisation of heavily modified water bodies (including de-culverting and the removal of barriers to fish migration).”

The Hartlepool Local Plan.

13.2.27 The Hartlepool Local Plan (Hartlepool Borough Council (HBC), 2018) was adopted in May 2018. Policies relevant to the Proposed Development are outlined below.

Policy NE1- Natural Environment

“The Borough Council will protect, manage and enhance Hartlepool’s natural environment and will ensure that:

1) Development proposals are in accordance with the locational strategy outlined in policy LS1.

2) Sites designated for nature conservation as shown on the Policies Map will be protected and, where appropriate, enhanced, taking into account the following hierarchy:

a) Internationally designated sites: these sites receive statutory protection. Development not connected to or necessary for the enhancement and/or management of the site will not be permitted unless it meets relevant legal requirements; A precautionary approach will be taken towards developments that may have indirect impacts on internationally designated sites and appropriate mitigation measures or contributions to avoid detrimental impacts will be sought and delivered via the Hartlepool Mitigation Strategy and Delivery Plan and other mechanisms.

b) Nationally designated sites: these sites also receive statutory protection. Development that would have an adverse aeffect on these sites will not be permitted unless it meets the relevant legal requirements; A precautionary approach will be taken towards developments that may have indirect impacts on nationally designated sites and appropriate mitigation measures or contributions to avoid detrimental impacts will be sought.

c) Locally designated sites: development which would adversely affect a locally designated site, which is not also allocated for another use in the Local Plan, will not be permitted unless the reasons for the development clearly outweigh the harm to the conservation interest of the site. Where development on a locally designated site is approved, including sites that are also allocated for other uses, compensatory measures may be required in order to make development acceptable in planning terms and to mitigate against potential loss of interest.

Biodiversity accounting/offsetting may be considered as part of compensatory measures where on-site compensation is not possible.

3) Designated Local Nature Reserves are protected, managed and enhanced as sites with geological and/or wildlife features that are of special local interest. Where appropriate the Borough Council will support the designation of further sites as Local Nature Reserves.

4) Where appropriate an ecosystems services approach will be used to assess the impact of development proposals on the natural environment and the benefits it provides, including resource use, health and well-being, protection from the affects of climate change, economic growth, and culture

5) Ecological networks are enhanced and green infrastructure is protected and enhanced

6) Development avoids harm to and, where appropriate, enhances the natural environment. This could include, for example, creating and/or enhancing habitats to meet the objectives of the Tees Valley Biodiversity Action Plan. In seeking to avoid harm, development should follow the sequence of avoidance, mitigation, compensation. Where sufficient on-site mitigation and/or compensation are demonstrably not possible, then off-site compensation will be considered. Where significant harm from a development cannot be avoided (through locating on an

alternative site), adequately mitigated or, as a last resort compensated for, the Borough Council will refuse planning permission. The Borough Council will consider the potential for a strategic approach to biodiversity accounting in conjunction with the Tees Valley Local Nature Partnership and in line with the above hierarchy.

7) Existing woodland and trees of amenity value and nature conservation value are protected, and an increase in tree cover will be sought in appropriate locations in line with the Borough Council's Tree Strategy. Areas of ancient woodland, including ancient semi-natural woodland (ASNW), plantations on ancient woodland sites (PAWS), and ancient or veteran trees outside ancient woodland, will be protected unless there are exceptional circumstances. The Borough Council will also ensure that development does not result in the loss of or damage to ancient woodland (including ASNW and PAWS) by requiring the implementation of a buffer of at least 15 metres between development and the ancient woodland site (depending on the size of the site). For ancient or veteran trees, a buffer 15 times the stem diameter or 5 metres beyond the drip line of the leaf canopy should be maintained, whichever is the greater.

8) Where appropriate Tree Preservation Orders will be used to protect trees under threat from development proposals. Where the loss of significant trees/hedgerows cannot be avoided their replacement by trees/shrubs/hedgerows of an appropriate scale and species for the area will be sought where practical.

9) Development avoids the best and most versatile agricultural land – identified as grades 1, 2 and 3a in the National Agricultural Land Classification – unless it can be demonstrated that there will be no impact on the agricultural land and its quality and there are no material consideration that outweigh the loss of such land.

10) In prioritising the re-development of brownfield land, areas that are important for biodiversity will be retained or recreated within the site, and remediation of contaminated land will be pursued.

11) The major/principal aquifers underlying Hartlepool along with watercourses and other surface and coastal waters will be protected from over abstraction and contamination from pollutants and saline intrusion resulting from development. Developments will be required to demonstrate that they do not impact on the major/principal aquifer underlying Hartlepool, along with watercourses and other surface and coastal waters and they can achieve access to a sustainable water supply prior to approval.

12) Opportunities are taken to retain, restore and de-culvert watercourses to improve their role and value as wildlife corridors and habitats.

13) All development proposals, through the careful, sensitive management and design of development will ensure that the character, distinctiveness and quality of the Borough's landscape is protected and, where appropriate, enhanced. Any development within the Special Landscape Areas as defined on the Policies Map or which will have a visual impact on those areas will be required to demonstrate that they are in keeping with the area and will not have an adverse impact on the area's landscape character.

14) Development has regard to coastal change, bathing water quality, and coastal processes over time, and in particular the need to avoid exacerbating coastal squeeze and incorporate measures to mitigate this where appropriate.

Where appropriate Supplementary Planning Documents will be prepared to provide more detailed guidance on safeguarding and enhancing Hartlepool's natural environment and biodiversity."

Policy NE4 – Ecological Networks

"The Borough Council will seek to maintain and enhance ecological networks throughout the Borough. Priority sections of the network are:

1) Coastal fringe

2) Tees Road/Brenda Road brownfield land

3) Dalton Beck/Greatham Beck riparian corridor

4) Rural west from Wynyard to Thorpe Bulmer and Crimdon Denes

The Borough Council will also work with the Tees Valley Local Nature Partnership and adjoining Local Nature Partnerships to maintain and enhance ecological networks at a landscape scale across the Borough boundary. Where appropriate all developments will be required to maintain and enhance ecological networks in the vicinity of the proposal, complying with policy QP5. Where enhancements cannot be incorporated within the site then an off-site contribution may be sought, in accordance with policy NE2 and policy QP1."

Local Biodiversity Action Plans

13.2.28 The UK Biodiversity Action Plan (BAP) was withdrawn in March 2011 with the lists of Priority Species and Habitats being superseded by those within Section 41 of the NERC Act (2006). 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.

13.2.29 The Tees Valley Biodiversity Action Plan (Tees Valley Nature Partnership, 2012) is the relevant LBAP for the defined Study Area (refer to Section 13.3) and was updated in 2012. The LBAP outlines biodiversity conservation objectives within the region and identifies priorities for action for priority habitats, species, locally important wildlife, and sites.

13.2.30 Tees Valley Biodiversity Partnership (2012) identify 10 bird species that can be regarded as LBAP Priority Species on this basis. These are: barn owl (*Tyto alba*), ringed plover (*Charadrius hiaticula*), grey partridge (*Perdix perdix*), tree sparrow (*Passer montanus*), corn bunting (*Emberiza calandra*), shelduck (*Tadorna tadorna*), little tern (*Sternula albifrons*), bittern (*Botaurus stellaris*), swift (*Apus apus*) and yellow wagtail (*Motacilla flava*).

Guidance

13.2.31 This preliminary ornithological assessment 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 (CIEEM, 2022).

13.2.32 Specific guidance used to inform this ornithological assessment is referenced throughout the chapter and includes:

- The CIEEM guidelines for Preliminary Ecological Appraisal (CIEEM, 2017);
- Natural England's Standing Advice for Protected Species (Natural England, 2023a); and
- Bird Survey Guidance published in Marchant (1983), Bibby *et al.* (2000) Gilbert *et al.* (1998).

13.2.33 Stanbury *et al*. (2021) 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.

13.3 Assessment Methodology and Significance Criteria

Study Area

13.3.1 The Study Areas used in this assessment have been defined with reference to the likely Zone of Influence (ZoI) over which the Proposed Development may have potential to result in significant effects on relevant ornithological features.

13.3.2 The potential ZoI of the Proposed Development may vary over time (e.g., the construction ZoI may differ from the operational ZoI) and/or depending on the individual sensitivities of different ornithological features.

13.3.3 The extents of the Study Areas applied during the desk study and field surveys are detailed within Table 13-1 and Table 13-2 and illustrated in Figure 13-1: Study Areas and Figure 13-2: Survey Areas (PEI Report, Volume II). The Study Areas and Survey Areas are considered sufficient to address the potential worst-case ZoI of the Proposed Development on the relevant ornithological features concerned.

13.4 Impact Assessment Methodology

Sources of Information

13.4.1 The ornithological baseline has been determined through a combination of desk study and field survey, as summarised below.

Desk Study

13.4.2 A desk study was undertaken to identify ecological designations specifically for their ornithological interest, as well as contemporary records of protected and notable species of potential relevance to the Proposed Development and locations of ornithological interest or sensitivity (such as habitats regularly used by roosting birds for which designated sites are notified).

13.4.3 The desk study was carried out using the data sources detailed in Table 13-1. Protected and notable habitats and species include those listed under Schedules 1, 5, and 8 of the WCA; Schedules 2 and 4 of The Habitats Regulations; qualifying species listed on SPA/Special Area of Conservation (SAC)/ Site of Special Scientific Interest (SSSI) citations; and species and habitats of principal importance for nature conservation in England listed under Section 41 of the NERC Act, 2006.

13.4.4 The majority of bird data acquired from third parties is spatially relevant to the Proposed Development design. Further third-party data will be acquired to update the baseline that will be presented in the ES. British Trust for Ornithology (BTO) Wetland Birds Survey (WeBS) core count data are updated on a rolling basis in July each year – therefore, these data will be acquired for all spatially relevant count sectors after July 2023 to ensure that the data are as contemporary as possible. Data from other sources listed in Table 13-1 will be updated as required to meet the conditions of use stipulated by suppliers and to ensure the data are contemporary and spatially relevant.

13.4.5 In addition to the area-specific requests for data as set out in Table 13-1, Natural England has been consulted on the scope of the initial surveys and assessment, at which time they supplied some additional information.

13.4.6 Other notable habitats and species have also been considered and assessed on a case-by-case basis (e.g., those within the LBAP and/or those listed on BoCC red/amber lists, but not protected by legislation). This is consistent with the requirements of relevant planning policy.

13.4.7 Baseline data gathered for the Net Zero Teesside (NZT) project has been utilised to inform the baseline. Relevant baseline data gathered by AECOM and reported for NZT is included in Table 13-1. The NZT data include locations at which breeding bird surveys were undertaken and breeding bird assemblages were identified, as well as a number of species-specific records that are not currently provided by the data gathered specifically for the Proposed Development. The NZT survey locations are shown in Figure 13-3 (PEI Report, Volume II).

Table 13-1: Desk Study Area and Data Sources

ORNITHOLOGICAL FEATURE	STUDY AREA	DATA SOURCES	DATE ACCESSED
International statutory nature conservation designations e.g., Special Protection Area (SPA), Ramsar site	Up to 15 km	Multi-Agency Geographic Information for the Countryside (MAGIC) website. (DEFRA, 2023) Joint Nature Conservation Committee website (JNCC, 2023)	November 2022
National statutory nature conservation designations e.g. SSSI, National Nature Reserve (NNR) Local Nature Reserve (LNR)	Up to 15 km	MAGIC website (DEFRA, 2023) Natural England, Designated Sites view (Natural England, 2023b)	November 2022
Local non-statutory nature conservation designations e.g. Local Wildlife Sites (LWS)	2 km	The Environmental Records Information Centre for the North East (ERIC NE)	November 2022
Protected and Notable Species	2 km	ERIC NE Industry Nature Conservation Association (INCA) Ecology surveys completed to inform the Net Zero Teesside project (AECOM, 2021)	August 2021/ November 2022
Roost and breeding site locations	Data specific	INCA	March 2022
Count data for wetland birds in selected habitats across Teesside[2]	Data specific	British Trust for Ornithology (BTO) Wetland Bird Surveys (WeBS)	May 2022

[2] Data were obtained to inform early design-phase baseline gathering and will be updated to include all habitats and areas within the ZoI of the current Proposed Development. The updated data set will be included in the baseline underpinning the assessments presented in the final DCO application.

ORNITHOLOGICAL FEATURE	STUDY AREA	DATA SOURCES	DATE ACCESSED
Species records including breeding and non-breeding birds, gathered between 2018 and 2022.	Data Specific	Net Zero Teesside baseline reports and Environmental Statement Report (AECOM, 2021)	May 2023

Field Surveys

13.4.1 The scope of ornithological survey work considered necessary to inform the assessment is summarised in Table 13-2.

Table 13-2: Scope and Methods of Ornithological Surveys

SURVEY	SCOPE OF SURVEY	SURVEY PERIOD	SURVEY AREA EXTENT	JUSTIFICATION
Wetland Bird Survey (WeBS) Counts	Counts of wetland bird species (cormorants and shags, waders, terns, skuas, auks, gulls, sawbills, grebes, divers, herons, wildfowl (including all ducks, geese, and swans), and kingfisher) at high and low tide each month across multiple pre-defined sectors at three discrete sites (The Foundry, Seal Sands and North Tees Marshes). Survey method derived from BTO standards (BTO, n.d) utilised 'look-see' methodology where the whole of a pre-defined area was surveyed. Disturbance and general behaviour for each species also recorded. Assessment of peak and, where possible, mean counts[3] of species by site and count sector to determine presence of protected, priority[4] or	Initial surveys commenced at two broad survey areas (The Foundry and Seal Sands) in January 2022, continuing to March 2022. Surveys at The Foundry and Seal Sands recommenced September 2022 and are ongoing.[5] Surveys across an additional broad survey area (the North Tees Marshes) commenced September 2022 and are ongoing. Surveys are expected to continue from September 2023 to March 2024 in certain areas where	The Foundry: 24 count sectors extending from the Tees Estuary and the coast to the north to Dabholm Gut and Coatham Marshes in the south and east. Seal Sands: 43 count sectors covering the Seal Sands industrial area, the intertidal habitat to the north and extending west to the A178. North Tees Marshes: 37 count sectors bordered to the east by the A178 and extending west to Cowpen Bewley Road and north to Greatham. Some individual count sectors were excluded from further surveys due to disturbance levels, topographical and habitat conditions unsuitable for wetland birds, access constraints or distance to the Proposed Development[6].	The count data suggests usage of the habitats within and adjacent to the Proposed Development Site by waterbirds and indicates the level of importance of certain spatial zones by different species, which in turn allows the relevant importance to be ascertained. The recording of behaviour and locations of flocks suggests habituation of different species to disturbance in those areas and provided spatial context to the counts such that habitats/locations visited regularly by waterbirds could be identified.

[3] Mean counts are usually only possible for surveys spanning multiple years because bird presence is seasonal for most species, therefore it may not be possible to provide this metric for the first hand survey data collected over approximately one calendar year. Mean counts are provided as part of the package of survey data supplied by BTO WeBS.
[4] These are also referred to as "protected and notable species/habitats".
[5] Data up to and including the end of March 2023 are included in the baseline presented herein. This excludes any breeding bird field surveys commissioned for the Proposed Development which will be reported in the ES.
[6] The count sectors excluded are highlighted on Figure 13-2 (PEI Report, Volume II).

SURVEY	SCOPE OF SURVEY	SURVEY PERIOD	SURVEY AREA EXTENT	JUSTIFICATION
	otherwise notable species and to identify the location and likely importance of habitat features for such species.	access was late to be approved.	All count sectors and sites are shown on Figure 13A-2 (refer to Appendix 13A: Ornithology Baseline, PEI Report, Volume III).	
Common Bird Census (CBC) surveys	Mapping of sightings of bird species and recording of their breeding status at five sites (Cowpen Bewley Wood, Navigator, The Foundry North-west, The Foundry and The Foundry East) relevant to the Proposed Development. Assessment of number of breeding pairs and breeding status of species by site to determine presence of protected, priority or otherwise notable species and to identify the location of breeding territories and likely importance of habitat features for such species. Surveys follow the accepted methodology (Marchant, 1983; Bibby *et al.*, 2000)[7].	One visit to each site a minimum of three times and a maximum of five times between late March[8] and July 2023.	The sites are focussed on those areas of the Proposed Development which offer the most suitable habitat for breeding bird species, including The Foundry and Cowpen Bewley Wood, and or those where potential long term or permanent habitat losses might occur. The surveys are ongoing, and the results are not presented herein. A figure showing survey locations will be provided with the DCO Application.	Information collated on the location of breeding individuals for each species and site will allow territories to be mapped and therefore will inform design and offset buffers to avoid direct effects upon suitable habitat within territories and prevent severance of these territories. Furthermore, the information will form the basis of mitigation recommendations to minimise loss of suitable habitats within each territory.

[7] The CBC was originally developed for the long-term monitoring of bird populations in the UK, from which an annual index of breeding bird abundance was derived. For this purpose 10 repeat survey visits are required to provide sufficient temporal and spatial resolution to the data for the indices to be accurate enough to detect even subtle population changes from year to year. However, in order to quantify a breeding bird assemblage for the purposes of assessment, 5-6 repeat visits are regarded as sufficient, in accordance with the recommendations of the Bird Survey and Assessment Steering Group (2022).
[8] The commencement date of these surveys is dependent to a large extent on the availability of access to private land. Surveys might start later than March in some cases. A reduced number of survey visits may be considered appropriate for sites in suboptimal locations, or that support suboptimal habitats, or where ongoing project design changes result in requirement for surveys that are not aligned to the bird breeding season. Breeding bird surveys are ongoing and are not included in this PEI Report.

Value/Importance of Ornithological Features

13.4.2 To support focussed assessment, there is a need to determine the scale at which the ornithological features identified through the desk studies and field surveys are of value. The value of each ornithological feature has been defined with reference to the geographical level at which it matters, and the results of this assessment are used to identify the relevant features requiring impact assessment. The frames of reference that 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 ornithological features to be more notable (of higher value) in an England context relative to Great Britain as a whole);
- Regional (e.g. north-east);
- District (Hartlepool, Stockton-on-Tees or Redcar and Cleveland);
- Local (ornithological 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 ornithological 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).

13.4.3 All ornithological features of Local value and above, where there is the potential for the Proposed Development to impact them directly or indirectly, will be taken forward to impact assessment and will be the 'relevant ornithological features' for the purposes of ecological impact assessment. In line with the CIEEM guidelines, the terminology used within the assessment will draw a clear distinction between the terms 'impact' and 'effect'. For the purposes of the assessment, these terms are defined as follows:

- impact – actions resulting in changes to an ornithological feature; for example, site clearance activities leading to the loss of foraging habitat for a particular bird species; and
- effect - outcome resulting from an impact, acting upon the conservation status or structure and function of an ornithological feature; for example, reducing the availability of suitable foraging habitat and therefore increasing feeding pressures may lead to an adverse effect on the conservation status of the population concerned.

Assessment of Significance

13.4.4 Potential impacts on important ornithological features have been assessed in accordance with CIEEM best practice guidance (CIEEM, 2021). As bird surveys were ongoing at the time of writing, this preliminary assessment follows the precautionary principle and will be reassessed within the ES when full datasets are available.

13.4.5 Magnitude refers to size, amount, intensity and volume. It should be quantified if possible and expressed in absolute or relative terms, for example, the amount of habitat lost, percentage change to habitat area, percentage decline in a species population. However, at this stage of the design of the Proposed Development and with the existing gaps in the baseline ecological data (due to ongoing ecological surveys), quantifying the magnitude of impact at this stage is indicative only.

13.4.6 The potential magnitude of change on an ecological feature arising from activities occurring as part of the Proposed Development is determined in consideration of their beneficial or adverse nature; extent; duration; timing; frequency; and reversibility of the impact.

13.4.7 It is not necessary in the assessment to address all habitats and species with potential to occur in the zone of influence of a project. Instead, the focus has been on those that are 'relevant'. CIEEM guidance makes it clear that there is no need to "*carry out detailed assessment of ornithological features that are sufficiently widespread, unthreatened and resilient to Proposed Development 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. National policy documents emphasise the need to achieve no net loss of biodiversity and enhancement of biodiversity.

Significance Criteria

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

- Not significant – no, negligible or minor effect on structure and function, or conservation status; and
- Significan*t* - structure and function, or conservation status subject to a major or moderate effect.

13.4.9 For significant effects (both adverse and beneficial) this 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).

13.4.10 The CIEEM approach described above broadly accords with the EIA methodology described in Chapter 2: Assessment Methodology (PEI Report, Volume I). However, a matrix approach will not be used to classify effects, as this deviates from CIEEM guidance. To provide consistency of terminology in the final assessment with other chapters of the PEI Report, the findings of the CIEEM assessment have been translated into the classification of effects scale as outlined in Table 13-3.

Table 13-3: Relationship Between CIEEM Assessment Terms and those used in other PEI Report Chapters

EFFECT CLASSIFICATION	TERMINOLOGY USED IN OTHER PEI REPORT 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 Site or Local level.
	Negligible	No effect on structure/function or conservation status.
Significant (adverse)	Moderate Adverse	Adverse effect on structure/function or conservation status at District or County level.
	Major Adverse	Adverse effect on structure/function or conservation status at Regional, National or International level.

13.4.11 Any significant adverse effects should be mitigated or compensated for, whilst further ecological enhancements may be recommended where appropriate to help meet planning policy objectives. Following the implementation of any mitigation and compensation measures, as appropriate, residual effects on ornithological features have been identified.

Rochdale Envelope

13.4.12 To ensure a robust assessment of the likely significance of the environmental effects of the Proposed Development, the EIA is being undertaken adopting the principles of the 'Rochdale Envelope' approach where appropriate in line with the Inspectorate's Advice Note 9 (The Planning Inspectorate, 2018). This involves assessing the maximum (or where relevant, minimum)/worst case parameters for the elements where flexibility needs to be retained (for example, building footprints/dimensions and/or associated activities during their operation).

Consultation

13.4.13 An EIA Scoping Opinion was requested from the Planning Inspectorate (the Inspectorate) in April 2023. A response was received on 17th May 2023. A high-level summary of responses to the Scoping Opinion relevant to ornithology are outlined in Table 13-4.

Table 13-4: Responses to Scoping Comments

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/ HOW COMMENTS HAVE BEEN ADDRESSED
The Inspectorate	Scoping Opinion 17th May 2023	The ES should give a full description of how areas of Functionally Linked Land have been identified for survey, 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.	Justification for the areas surveyed will be set out in the ES and supporting appendices. A selection of shortlisted sites for the proposed hydrogen generating infrastructure was identified in 2021. Based on the Proposed Development design iterations at that time, and ongoing design development since then, three broad survey areas were identified. These survey areas are functionally linked to sites designated for their ornithological interest.
The Inspectorate	Scoping Opinion 17th May 2023	In addition to the impact pathways identified in the Scoping Report, the Inspectorate advises that consideration should be given to the potential for operational discharges to water to result in likely significant effects to bird qualifying features of the Teesmouth and Cleveland Coast Special Protection Area and Ramsar. The ES should include an assessment of these matters where significant effects are likely, or otherwise provide evidence to demonstrate why significant effects are not likely.	This recommendation will be followed for the ES, which will include a full assessment of the potential effects on birds due to operational discharges to water.
The Inspectorate	Scoping Opinion 17th May 2023	Public bodies have a responsibility to avoid releasing environmental information that could bring about harm to sensitive or vulnerable ornithological features. Specific survey and assessment data relating to the presence and locations of	Information on sensitive ornithological features will be provided in a confidential annex to the ES as requested.

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/ HOW COMMENTS HAVE BEEN ADDRESSED
		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 the 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.	
Natural England	Scoping Opinion 17th May 2023	Cumulative and in-combination effects. Natural England acknowledges the applicant's description of projects needing to be assessed for cumulative and in combination effects alongside the proposal. We are not aware of additional projects needing assessment. We draw the examining authority's attention to the need for and benefits of an early consideration of the proposal's relationship with wider environmental issues in the Tees estuary e.g. the nutrient neutrality theme and the wider need to restore water quality in the Tees catchment to achieve favourable condition of relevant water dependent designated sites such as the Teesmouth & Cleveland Coast Special Protection Area (SPA). For further information please see our comments under Section 9 Water Quality. Further relevant references are made within section 4 (Biodiversity & Geodiversity), with respect to ecological impact pathways for	The potential for cumulative and in-combination effects will be assessed. Nutrient neutrality is currently screened in for likely significant effects and will be considered within the ES and AA. Further information is provided in the Appendix 9B: Nutrient Neutrality Screening Assessment (PEI Report, Volume III).

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/ HOW COMMENTS HAVE BEEN ADDRESSED
		designated sites and Section 10 Climate Change – delivering mitigation and building resilience.	
Natural England	Scoping Opinion 17th May 2023	Environmental Data. At the time of writing Natural England is arranging to provide the applicant with wild bird survey data for the 'Seal Sands' part of the Teesmouth & Cleveland Coast Special Protection Area (SPA).	Survey data was received from Natural England on 7th September 2023 and will be used in the assessments of effects on birds to be reported in the ES.
Natural England	Scoping Opinion 17th May 2023	The assessment will need to include potential impacts of the proposal upon sites and features of nature conservation interest. We welcome the applicant's approach to gathering relevant data so far and for their reference to including opportunities for nature recovery through biodiversity net gain (BNG).	Potential impacts on sites and features or ornithological importance will be identified and assessed within the ES. Opportunities for habitat enhancement to benefit ornithological features will be explored and presented in the ES. A BNG assessment will be completed to supplement the ES and the DCO Application.
Natural England	Scoping Opinion 17th May 2023	The development site is within or may impact on European/internationally designated nature conservation sites. Aside from the Teesmouth & Cleveland Coast SPA and Ramsar Site the proposal would not appear likely to cause direct impacts upon Habitats Sites within 15km of the application site. Nevertheless, based on the information available so far uncertainty exists over the scope for impacts on sites within this distance threshold. The Habitats Sites listed below fall	The ES will assess the potential for the Proposed Development to affect internationally designated sites of nature conservation importance/ European sites, including marine sites where relevant. A HRA screening report prepared to inform the Appropriate Assessment (Stage 2 of the HRA) has been prepared to assess the potential for likely significant effects both

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/ HOW COMMENTS HAVE BEEN ADDRESSED
		within 15km of the proposal and have been listed accordingly to allow consideration of indirect effects from the proposal. We welcome inclusion of the listed Habitats Sites within paragraph 6.6.6 accordingly. Figure 13 of EIA scoping report shows these sites' geographical distribution. The ES should thoroughly assess the potential for the proposal to affect internationally designated sites of nature conservation importance / European sites, including marine sites where relevant. This includes Special Protection Areas (SPA), Special Areas of Conservation (SAC), listed Ramsar sites, candidate SAC and proposed SPA. Article 6 (3) of the Habitats Directive requires an appropriate assessment where a plan or project is likely to have a significant effect upon a European Site, either individually or in combination with other plans or projects.	alone and in-combination with other plans or projects.
Natural England	Scoping Opinion 17th May 2023	Natural England welcomes the applicant's approach to scoping whereby the hierarchy of designated and local wildlife sites has been considered holistically using a 15Km area of search. The Environmental Statement should include a full assessment of the direct and indirect effects of the development on the features of special interest within the SSSIs and identify appropriate mitigation measures to avoid, minimise or reduce any adverse significant effects.	Comments noted. The ES will include an assessment of direct and indirect effects upon statutory designated sites.

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/ HOW COMMENTS HAVE BEEN ADDRESSED
		We welcome the applicant's proposal to include consideration of these effects within the Ecological impact assessment (EcIA).	
Natural England	Scoping Opinion 17th May 2023	The ES should assess the impact of all phases of the proposal on protected species (including, for example, great crested newt, reptiles, birds, otter, water vole, badger and bats - paragraph 6.6.14 refers). Natural England does not hold comprehensive information regarding the locations of species protected by law. Records of protected species should be obtained from appropriate local biological record centres, nature conservation organisations and local groups. The applicant should consider the wider context of the site, for example in terms of habitat linkages and protected species populations in the wider area. The area likely to be affected by the development should be thoroughly surveyed by competent ecologists at appropriate times of year for relevant species and the survey results, impact assessments and appropriate accompanying mitigation strategies included as part of the ES. Surveys should always be carried out in optimal survey time periods and to current guidance by suitably qualified and, where necessary, licensed, consultants.	Comments noted. The ES will assess the potential impacts of all phases of the project. Surveys are being undertaken and have been done at an appropriate time by experienced and appropriately licensed ecologists (where relevant).
Natural England	Scoping Opinion 17th May 2023	Priority Habitats and Species are of particular importance for nature conservation and included in the England Biodiversity List published under section 41 of the Natural Environment	Potential effects upon bird Species of Principal Importance will be considered in the ES.

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/ HOW COMMENTS HAVE BEEN ADDRESSED
		and Rural Communities Act 2006. Consideration should also be given to the potential environmental value of brownfield sites, often found in urban areas and former industrial land. This is of special relevance to the application site, whose red line boundary contains a significant resource of 'open mosaic habitat' associated with the area's industrial land use.	
Natural England	Scoping Opinion 17th May 2023	We welcome detailed assessment of road traffic emissions and refer the applicant to our guidance for public bodies to help assess the impacts of road traffic emissions to air quality capable of affecting European Sites.	The potential for changes in air quality to affect European designated sites will be assessed in the ES.
Natural England	Scoping Opinion 17th May 2023	The Teesmouth & Cleveland Coast SPA and Ramsar site includes areas of the River Tees channel, the Tees Estuary, and the Tees Bay. Natural England's advice is that qualifying bird species are being negatively affected by the growth of algal mats on their key foraging habitats within the Tees Estuary, particularly at Seal Sands. As such, Natural England's Nutrient Neutrality advice is that new developments should not result in additional nitrogen entering the catchment of the River Tees upstream of the SPA and Ramsar site (i.e. they are nutrient neutral). The Habitats Regulations Assessment (HRA) process provides the means to assess the proposal and we acknowledge paragraphs 6.6.27-31 accordingly. Natural England looks forward to continued dialogue with the applicant to progress this element of the proposal.	A preliminary Nutrient Neutrality Screening has been prepared to accompany this PEI Report for likely significant effects and will be revised to inform the Appropriate Assessment (Stage 2 of the HRA) and submitted with the DCO Application.

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/ HOW COMMENTS HAVE BEEN ADDRESSED
Natural England	Scoping Opinion 17th May 2023	Natural England notes and acknowledges the proposal's primary purpose i.e., to produce low carbon hydrogen and capture and store carbon. In terms of climate change mitigation over and above the scheme's primary purpose the proposal also offers scope to: (i) Deliver nature recovery/enhancement (ii) Build ecosystem resilience through careful planning and implementation e.g., with reference to consideration of ongoing wider efforts to restore water quality in the Tees estuary. These include but are not restricted to the provisions of the Levelling up and Regeneration Bill which requires relevant water companies to upgrade the performance of wastewater treatment works to 'technically achievable limits' by 2030. The applicant should explore opportunities to achieve a design solution that optimises the scope to deliver relevant technological advances and land management in the local area over the development's lifetime.	The potential to deliver wider ecological and environmental benefits will be sought through ongoing consultation and through the iterative design process. This will be demonstrated through the Landscape and Biodiversity Management Plan (LBMP) to be submitted with the DCO Application.

13.5 Baseline Conditions

Existing Baseline

13.5.1 The ornithological features relevant to the Proposed Development are summarised in this section, in Tables 13-5 and 13-6 which, respectively, summarise the sites designated specifically for qualifying ornithological features or that are described as supporting bird populations, and the relevant ornithological species.

13.5.2 A precautionary approach has been taken when defining the baseline conditions, given not all surveys have been completed. The baseline will be subject to review and update as further information becomes available. Full baseline details will be presented in the ES.

Designated Sites

13.5.3 Table 13 summarises the reasons for notification of the designated sites within the Study Area (see Table 13-1 for the search areas applied to different designations) and their spatial relationship to the Proposed Development Site. The designated sites are shown on Figure 13-4 and Figure 13-5 (PEI Report, Volume II).

13.5.4 There are three SPAs, two Ramsar sites, three Sites of Special Scientific Interest (SSSIs) and two National Nature Reserves (NNRs) within 15 km of the Proposed Development Site which are of importance to birds. There are four Local Nature Reserves (LNRs), 11 Local Wildlife Sites (LWSs) and one Royal Society for the Protection of Birds (RSPB) Reserve within 2 km of the Proposed Development Site which also are of importance to birds.

Table 13-5: Designated Sites (Notified for Ornithological Features) Within the Study Area

DESIGNATED SITE	INTEREST FEATURES(S)/REASON(S) FOR NOTIFICATION	ECOLOGICAL VALUE	PROXIMITY TO MAIN SITE	PROXIMITY TO PROPOSED DEVELOPMENT SITE
Statutory				
Teesmouth and Cleveland Coast SPA	Internationally important numbers of marine and shore birds, including: • Avocet (*Recurvirostra avosetta*) (Breeding); • Knot (*Calidris canutus*)(Non-breeding); • Ruff (*Calidris pugnax*) (Non-breeding); • Redshank (*Tringa totanus*) (Non-breeding); • Sandwich tern (*Thalasseus sandvicensis*) (Non-breeding); • Common tern (*Sterna hirundo*) (Breeding); • little tern (*Sternula albifrons*) (Breeding); • Waterbird assemblage of 26,014 individual waterfowl including sanderling (*Calidris alba*), knot, shelduck, cormorant (*Phalacrocorax carbo*), shoveler (*Spatula clypeata*), and teal (*Anas crecca*). Other major components of the assemblage feature include wigeon (*Mareca penelope*), lapwing (*Vanellus vanellus*), herring gull (*Larus argentatus*) and black-headed gull (*Chroicocephalus ridibundus*). In addition to breeding sites, the SPA includes areas designated for marine foraging habitats for little tern and common tern that extend several kilometres out to sea and along the tidal River Tees; and terrestrial and intertidal foraging areas for avocet and ruff.	International	10 m north at closest point	Overlapping

DESIGNATED SITE	INTEREST FEATURES(S)/REASON(S) FOR NOTIFICATION	ECOLOGICAL VALUE	PROXIMITY TO MAIN SITE	PROXIMITY TO PROPOSED DEVELOPMENT SITE
	common tern that extend several kilometres out to sea and along the tidal River Tees; and terrestrial and intertidal foraging areas for avocet and ruff.			
North York Moors SPA	Designated for internationally important numbers of breeding birds including: • Golden plover (*Pluvialis apricaria*); and • Merlin (*Falco columbarius*).	International	12.1 km south-east at closest point	8 km south-east at closest point
Northumbria Coast SPA	Designated for internationally important numbers of marine and shorebirds including: • Turnstone (*Arenaria interpres*); • Purple sandpiper(Calidris maritima) (wintering); • Little tern (breeding); and • Arctic tern (*Sterna paradisaea*) (breeding).	International	13.7 km north at closest point	11 km north at closest point
Teesmouth and Cleveland Coast Ramsar	The site qualifies as a Ramsar for the following Ramsar criteria (Natural England, 2020): • Criterion 5 - Assemblages of international importance; • Species with peak counts in winter; – 26,786 waterfowl (5 year peak mean 2011/12-2015/16).	International	173 m at closest point	Overlapping

DESIGNATED SITE	INTEREST FEATURES(S)/REASON(S) FOR NOTIFICATION	ECOLOGICAL VALUE	PROXIMITY TO MAIN SITE	PROXIMITY TO PROPOSED DEVELOPMENT SITE
	• Criterion 6 - Species/populations occurring at levels of international importance; • Qualifying Species/populations (as identified at designation): – Species with peak counts in spring/autumn: ▪ Redshank; 1,648 individuals representing an average of 1.1% of the East Atlantic population (1987-91). – Species with peak counts in winter: ▪ Knot; 5,509 individuals representing an average of 1.6% of the NE Canada/Greenland/Iceland/UK population (5 year peak mean 1991/92-1995/96); Sandwich tern 1,900 individuals representing an average of 4.3% of the GB population (1988-1992).			
Northumbria Coast Ramsar	The site qualifies as a Ramsar for the following Ramsar criteria (JNCC, 2000): Criterion 6 – Species/populations occurring at levels of international importance:	International	13.7 km north at closest point	10.97 km north at closest point

DESIGNATED SITE	INTEREST FEATURES(S)/REASON(S) FOR NOTIFICATION	ECOLOGICAL VALUE	PROXIMITY TO MAIN SITE	PROXIMITY TO PROPOSED DEVELOPMENT SITE
	• Qualifying Species/populations (as identified at designation): – Species with peak counts in winter: ▪ Purple sandpiper 787 individuals representing an average of 1.6% of the population (5 year peak mean for 1992/93 to 1996/97); ▪ Turnstone; 1,739 individuals representing an average of 2.6% of the population (5 year peak mean for 1992/93 to 1996/97); - Species with peak counts during the breeding season; Little tern; 40 pairs representing an average of 1.7% of the GB population (5 year mean for 1993 to 1997).			
Teesmouth and Cleveland Coast SSSI	Nationally important features supported by a mosaic of coastal and freshwater habitats: • >20,000 non-breeding waterbirds; • Aggregations of breeding birds – avocet, common tern, little tern.	National	5 m west at closest point	Overlapping

DESIGNATED SITE	INTEREST FEATURES(S)/REASON(S) FOR NOTIFICATION	ECOLOGICAL VALUE	PROXIMITY TO MAIN SITE	PROXIMITY TO PROPOSED DEVELOPMENT SITE
	plover (*Charadrius hiaticula*), ruff, sanderling, Sandwich tern, shelduck, shoveler; and • Assemblages of breeding birds - Mixed: sand-dunes and saltmarsh, lowland open waters and their margins.			
Durham Coast SSSI	Designated for: • Aggregations of breeding birds – cormorant, fulmar (*Fulmarus glacialis*), kittiwake (*Rissa tridactyla*), little tern; and • Aggregations of non-breeding birds – purple sandpiper, sanderling.	National	11.2 km north at closest point	9.4 km north at closest point
North York Moors SSSI	Designated for: • Aggregations of breeding birds – golden plover and merlin.	National	12.1 km south-east at closest point	8 km south-east at closest point
Teesmouth NNR	Designated for the following ornithological interest features: • >20,000 waterbird assemblage; • BAP breeding birds; waders, grey partridge, skylark (*Alauda arvensis*), linnet (*Linaria cannabina*), reed bunting (*Emberiza schoeniclus*); • Knot, redshank and shelduck (non-breeding); • Little tern (breeding); • Ringed plover (in spring); and • Sandwich tern (post-breeding).	National	1.8 km west at closest point	Overlapping

DESIGNATED SITE	INTEREST FEATURES(S)/REASON(S) FOR NOTIFICATION	ECOLOGICAL VALUE	PROXIMITY TO MAIN SITE	PROXIMITY TO PROPOSED DEVELOPMENT SITE
	• Sandwich tern (post-breeding).			
Castle Eden Dene NNR	The NNR is Designated for habitats and species groups including birds[9].	National	>15 km north-west	14.4 km north-west at closest point
Seaton Dunes and Common LNR	Aggregations of non-breeding birds - knot, ringed plover, sanderling and turnstone.	District	2.9 km at closest point	1.3 km at closest point
Cowpen Bewley Woodland Country Park LNR	Variety of habitats and 80 species of bird.	District	7.5 km west at closest point	Overlapping
Charlton's Pond LNR	Charlton's Pond consists of wetlands, amenity grassland and woodland with suitable habitat for wildfowl.	District	8.9 km south at closest point	513 m west at closest point
Billingham Beck Valley Country Park LNR	Colourful meadows, ponds, marsh and woodland. This wetland provides a home for plants and animals, including bird species[10].	District	10.5 km south-west at closest point	1.4 km west at closest point
Non-Statutory				

[9] There is no formal list of species for which the site is notified.
[10] No specific details are provided for this site regarding species of bird present.

DESIGNATED SITE	INTEREST FEATURES(S)/REASON(S) FOR NOTIFICATION	ECOLOGICAL VALUE	PROXIMITY TO MAIN SITE		PROXIMITY TO PROPOSED DEVELOPMENT SITE
	Regularly holds more than 0.1% of the national population of any wintering or passage species and the site regularly holds more than 5% of the cited bird interest of the Teesmouth and Cleveland Coast SPA (this to include 5% of a cited individual bird population or of the combined water bird population, currently stated as 21,406).			closest point	
Saltholme RSPB reserve	The site is one of the largest breeding colonies of common terns in the UK and breeding lapwing are present, as well as being used by foraging peregrine (*Falco peregrinus*) and breeding species such as marsh harrier (*Circus aeruginosus*), Cetti's warbler (*Cettia cetti*) and little ringed plover (*Charadrius dubius*). Much of the reserve lies within the Teesmouth and Cleveland Coast SPA and SSSI.	District	5.3 km south-west at closest point	Overlapping	
Greenabella Marsh LWS	Rough grassland with wetland areas. Significant bird populations.	District		3.5 km west at closest point	Overlapping
Greatham Creek North Bank Saltmarsh LWS	Designated mainly for saltmarsh vegetation. Some ornithological interest but not sufficient to merit LWS status on its own.	District	4 km west at closest point		Overlapping
Cowpen Bewley Woodland	Variety of habitats and 80 species of bird.	District		6.8 km west at closest point	Overlapping

DESIGNATED SITE	INTEREST FEATURES(S)/REASON(S) FOR NOTIFICATION	ECOLOGICAL VALUE	PROXIMITY TO MAIN SITE	PROXIMITY TO PROPOSED DEVELOPMENT SITE
Cowpen Bewley Woodland Country Park LWS	Variety of habitats and 80 species of bird.	District	6.8 km west at closest point	Overlapping
Coatham Marsh LWS	Designated for a range of wetland habitats, and of interest for a range of breeding and non-breeding birds.	District	1.3 km east at closest point	Adjacent
Saltern Saltmarsh LWS	The area supports c3.7% of total SPA bird numbers and important site for breeding lapwing.	Regional	4.7 km west at closest point	78 m north-west at closest point
Power Station Grassland and Wetland LWS	Ungrazed grassland with pools and large areas of scrub. The breeding bird community includes stonechat (*Saxicola rubicola*), sedge warbler (*Acrocephalus schoenobaenus*), and grasshopper warbler (*Locustella naevia*).	District	3.3 km north-west at closest point	877 m north at closest point
Seaton Common LWS	The site is a wet grassland which attracts large numbers of passage migrants over winter and is a breeding ground for birds in the summer months. Please refer to the Teesmouth and Cleveland Coast SPA for cited birds of interest.	District	2.5 km north-west at closest point	1.3 km north at closest point
Portrack Marsh LWS	The site regularly holds more than 0.1% of the national population of any wintering or passage species of the cited bird interest of the Teesmouth and Cleveland Coast SPA and the site regularly holds more than 5% of the cited gadwall, shoveler, and redshank population.	District	10.3 km south-west at closest point	1.9 km south-west at closest point

DESIGNATED SITE	INTEREST FEATURES(S)/REASON(S) FOR NOTIFICATION	ECOLOGICAL VALUE	PROXIMITY TO MAIN SITE	PROXIMITY TO PROPOSED DEVELOPMENT SITE
Billingham Beck Valley LWS	Wetland providing es a home for plants and animals, including bird species[11].	District	10.5 km south-west at closest point	1.4 km west at closest point

[11] The site description does not specify species of birds present or their numbers.

Species Records

13.5.5 This section summarises the relevant species identified to date. Detailed descriptions of the species records from the sources listed are provided in Appendix 13A: Ornithology Baseline Report (PEI Report, Volume III). Baseline data gathering is ongoing, and baseline established after publication of this PEI Report will be included in an updated baseline report and the ornithology chapter of the ES.

13.5.6 A description of the key areas or locations for birds is provided below followed by Table 136, which summarises the relevant bird species features identified to date and their spatial relationship to the Proposed Development Site.

Summary of Key Locations for Birds

13.5.7 Irrespective of the presence of any designated sites, the entirety of the Teesside coast can be considered to support significant populations of non-breeding birds during the autumn and spring migratory periods and over winter. The baseline data presented in Appendix 13A: Ornithology Baseline Report (PEI Report, Volume III) identifies some locations or broad areas that are of potentially greater sensitivity due to their proximity to the Proposed Development Site and reliance on habitats close to it by feeding and/or roosting birds either during potentially adverse tide and/or weather conditions, or on a regular basis irrespective of the conditions. Appendix 13A: Ornithology Baseline Report (PEI Report, Volume III) also defines the three survey areas.

13.5.8 Within the Foundry Survey Area these include:

- Dabholm Gut;
- Bran Sands Lagoon;
- Bran Sands Bay; and,
- the northern edge of Coatham Dunes and the wider coastline of Coatham Sands.

13.5.9 Within the Seal Sands survey area these include:

- the entirety of Seal Sands Bay and its periphery, including the sea wall and the promontory/spit of land at its eastern extent;
- Greenabella Marsh;
- Greatham Creek channel; and,
- the Brinefields, channels and saline lagoons south of Greatham Creek channel and east of the A178.

13.5.10 Within and adjacent to the North Tees Marshes survey area these include:

- all the saltmarsh and inundated/wet grassland between the A178 to the east and the railway line to the north-west and either side of the A1185 to the south; and,
- the ponds and lagoons at Cowpen Landfill.

13.5.11 The terrestrial habitats within the industrialised land around Wilton International, around Teesport estate and North Tees, through which various Connection Corridors

are proposed, are of relatively low risk in terms of the potential for wetland birds associated with the various designated sites across Teesside, and for other species at any time of year by virtue of the relatively high disturbance levels, the presence of active industry, and the limited availability of suitable habitats in these areas.

Summary of Species Receptors

13.5.12 Table 136 summarises the species identified to date, including records obtained specifically through baseline gathering activities completed to inform the baseline for the Proposed Development and, where appropriate, baseline gathered for the NZT project. The list is subject to ongoing refinement and will be confirmed in the ES as part of the DCO Application (i.e., it may include more (or less) ornithological features as more baseline data are gathered and the Proposed Development design is refined alongside ongoing consultation with key stakeholders[12]).

13.5.13 All relevant species and species assemblages are included. Species that are qualifying features of a designated site are considered separately from the designations only where there is merit in doing this. An example of this would be breeding avocet, which in addition to being a qualifying feature of Teesmouth and Cleveland Coast SPA, is also a rare breeding species in the UK[13] and is offered enhanced protection under Schedule 1 of the WCA regardless of the reasons for inclusion as a qualifying feature of the designated site.

Based on data gathered to date, a provisional ecological value of the ornithological features identified is provided in Table 13 in accordance with CIEEM guidance. Further assessment of this value will be included in the ES, after completion of baseline surveys (Rare Breeding Birds Panel (RBBP), 2023).

[12] Including but not necessarily limited to Natural England, RSPB and Local Planning Authorities
[13] Avocet are included on the list of native species monitored and reported on by the Rare Breeding Birds Panel (RBBP)

Table 13-6: Relevant Ornithological Species Receptors Identified to Date[14]

ORNITHOLOGICAL FEATURES	DETAILS AND APPROXIMATE LOCATION(S)	SOURCE	ECOLOGICAL VALUE	PROXIMITY TO MAIN SITE	PROXIMITY TO PROPOSED DEVELOPMENT SITE
Little tern (breeding)	Crimdon Dene and Seaton Carew. Forages over coastal near-shore waters predominantly north of the River Tees and occasionally present at Coatham Sands.	Desk study NZT[15]	National	4.5 km north-west	2.8 km north
Avocet (breeding)	Several locations across the North Tees Marshes.	Field surveys Desk study	National	4.8 km west	27 m west
Little ringed plover (breeding)	Within Teesworks. Has bred at Saltholme RSPB reserve. Regular breeding at locations across the North Tees Marshes and North Gare.	Desk Study NZT	District	211 m east	112 m east
Ringed plover (breeding)	Seaton Carew and former breeding within Teesworks.	Desk Study NZT	District	172 m east	68 m east
Common tern (breeding)	Saltholme RSPB reserve, Cowpen Marsh, Portrack Marsh, Brinefields Saline Lagoon	Desk Study NZT	District	4.8 km west	27 m west
Lapwing (breeding)	North Tees Marshes including Saltholme RSPB reserve. Formerly bred within Teesworks and Coatham Dunes.	NZT	Local	174 m east	65 m east

[14] Multiple locations and/or multiple years of occurrence are available for some species, in which case the distance is measured to the closest last known or last recorded occupied location. Breeding locations used are those where breeding was confirmed. Approximate distances are provided for receptors represented only by third party records that do not confirm precise locations.
[15] "NZT" indicates use of baseline gathered for the Net Zero Teesside project. All other data sources are those specific to baseline data gathering for H2 Teesside from desk study and field surveys.

ORNITHOLOGICAL FEATURES	DETAILS AND APPROXIMATE LOCATION(S)	SOURCE	ECOLOGICAL VALUE	PROXIMITY TO MAIN SITE	PROXIMITY TO PROPOSED DEVELOPMENT SITE
Cetti's warbler (breeding)	Has bred at Saltholme RSPB reserve.	NZT	District	Approx. 6.9 km south-west	Approx. 460 m south
Barn owl (breeding)	One breeding and roosting location within Teesworks. Pole mounted barn owl boxes at Saltholme RSPB and Greenabella Marsh. Two roosts within the North Tees Marshes survey area. Forages over Coatham Dunes, adjacent grasslands and Coatham Marsh and likely to forage widely across the North Tees Marshes.	Field surveys Desk Study NZT	District	840 m south-east	Overlapping
Marsh harrier (breeding)	Has bred within Saltholme RSPB reserve.	NZT	National	Approx. 6.6 km south-west	Approx. 125 m south
Bittern (breeding)	Has bred at Saltholme RSPB reserve.	Desk Study	National	Approx. 6.5 km south-west	Approx. 125 m south
Non-breeding water bird assemblage (across the entire Teesside area)	Including at least 57 water bird species (other than qualifying features of designated sites[16]).	Field surveys, desk study	Regional	Overlapping	Overlapping

[16] Qualifying features of designated sites are excluded from the wider water bird assemblage features as they are assessed separately as part of the relevant designated site(s).

ORNITHOLOGICAL FEATURES	DETAILS AND APPROXIMATE LOCATION(S)	SOURCE	ECOLOGICAL VALUE	PROXIMITY TO MAIN SITE	PROXIMITY TO PROPOSED DEVELOPMENT SITE
Breeding bird assemblage (Teesworks)	Teesworks: breeding on open and sparsely vegetated ground, ephemeral/short perennial vegetation, in scrub and on/close to water courses. Nine non-breeding species. Fourteen breeding species including two Red List, eight Amber List and four S41 species.	NZT[17]	Local	Immediately east	Overlapping
Breeding bird assemblage (Coatham Dunes)	Predominantly ground- nesting birds breeding among the dunes, dune slacks and ponds. Twenty breeding species including three Red List, six Amber List and one Tees BAP and NERC S41 species. Includes 17 pairs of skylark and a range of dabbling ducks and passerines.	NZT (2018 surveys)	District	Immediately north	Immediately north
Breeding bird assemblage (Navigator Terminals)	Birds breeding within open rank grassland and small areas of scrub. Twenty non-breeding species. Five breeding species including three Red List species, one Amber List species and four NERC Section 41 species.	NZT (2022 surveys)	Local	1.2 km west	Overlapping

[17] Multiple surveys were carried out across different overlapping areas between 2018 and 2022. The summary results provided are from the most recent survey in 2022.

ORNITHOLOGICAL FEATURES	DETAILS AND APPROXIMATE LOCATION(S)	SOURCE	ECOLOGICAL VALUE	PROXIMITY TO MAIN SITE	PROXIMITY TO PROPOSED DEVELOPMENT SITE
Breeding bird assemblage (Saltholme laydown)	Birds breeding within open grassland and broadleaved woodland adjacent to Saltholme Substation: Eight breeding species recorded (one Red List).	NZT (2022 surveys)	Local	6.2 km south-west	Overlapping
Breeding bird assemblage (Saltholme substation)	Birds breeding within open grassland, broadleaved plantation woodland and scattered scrub. Six non-breeding species. 17 breeding species including two Red List species, six Amber List species and five NERC Section 41 species	NZT (2018 surveys)	Local	6.3 km south-west	Overlapping
Breeding bird assemblage (compounds and laydown around Haverton Hill)	Birds nesting on ground, in trees/scrub and in wet ditches. Nine breeding species including two Amber List species.	NZT (2020 surveys)	Local	7.4 km south-west	Overlapping
Breeding bird assemblage (Haverton Hill laydown)	Birds nesting in trees, scrub, and hedgerows on periphery of laydown area. 15 non-breeding species. 15 breeding species including six Amber List species and two NERC Section 41 species.	NZT (2022 surveys)	Local	7.8 km south-west	Overlapping

Scoping of Ornithological Receptors

13.5.14 The design of the Proposed Development is subject to ongoing refinement and thus the spatial scale and severity of the potential impacts arising from the construction, operation and decommissioning of the Proposed Development is subject to change. Furthermore, the baseline presented in this chapter and associated appendices is incomplete. Therefore, all the designated sites and species receptors identified in Tables 13-5 and 13-6 (respectively) are taken forward for assessment in Section 13.6.

Future Baseline

Construction

13.5.15 Demolition and site remediation works are taking place within the footprint of the Main Site. Bare ground is present where buildings and structures have been removed, and in the absence of development, these areas would become colonised with vegetation. During this period such areas will be characterised by a combination of bare ground and short vegetation that will be expected to attract ground-nesting birds, including some waders, potentially including species that are qualifying features of designated sites. Such areas might also attract non-breeding SPA and SSSI birds to roost or feed.

13.5.16 Semi-natural habitats within the Proposed Development Site are unlikely to change over the short term. All existing habitats are likely to remain, although some minor changes in habitat extent, composition and structure are expected to occur as a result of ecological succession e.g., the gradual establishment of tree and shrub seedlings within open habitats, and minor changes in the extent and distribution of ruderal vegetation as natural processes move towards grassland. Therefore, the habitats and species present are considered very unlikely to undergo significant change prior to construction of the Proposed Development.

13.5.17 It is anticipated that managed habitats within the Proposed Development Site will continue to be subject to management and there will be no significant changes in habitat extent, type or species composition. Semi-natural and natural habitats are also unlikely to change significantly. Changes in the distribution of some species will likely occur as habitats develop in line with changes in habitats as a result of ecological succession or other natural processes, but over the short term any such changes will be relatively minor.

Operation

13.5.18 The future ecological baseline at the start of operation of the Proposed Development will not differ substantively from that described above for construction, but change is possible over the anticipated operational life of the Proposed Development to decommissioning.

13.5.19 Based on the available information and existing land uses, there are no grounds to expect that there will have been any marked change in local land management practices and the habitats by the time of the commencement of operations. The short-term baseline described above for construction is equally applicable to the start of Proposed Development operation.

13.5.20 There is a variety of nature conservation designations in the vicinity of the Proposed Development Site. It is difficult to state with certainty how the nature conservation value of these designations might change over the medium to long term operational period, and this will ultimately depend on long-term management regimes. However, for the purposes of this assessment, it has been assumed that the type, condition and ecological value of the designations will be broadly similar throughout the operational lifetime of the Proposed Development. Further assessment of the condition and ecological value of the designations will be made prior to the Proposed Development decommissioning phase.

13.5.21 The Teesmouth and Cleveland Coast SSSI is comprised of 33 units. The condition of 31 of those units has not been assessed by Natural England. Units 26 and 8 are assessed as unfavourable recovering (Natural England, 2023c). The condition of 23 features is monitored by Natural England, of which 15 are ornithology features. Of these, the condition of only one feature (>20,000 non-breeding waterbirds) is recorded as favourable; the condition of all other ornithology features is not recorded (Natural England, 2023c).

13.5.22 It is likely that current and former industrial land within Teesworks and the surrounding area will be released for new development e.g., in accordance with existing local plans and policies for the regeneration of the South Tees Area. The extent of ecologically valuable open mosaic habitat and grassland habitats may decrease as a result of such development and therefore the relative nature conservation value of remaining areas of semi-natural habitat may as a result increase over time.

13.5.23 Counter to this, implementation of planning policy and legal requirements (including anticipated legal requirements to deliver substantive biodiversity enhancement) may mean that future adjacent developments incorporate features of value for biodiversity, resulting in small to moderate improvements in the future baseline over the operational life of the Proposed Development e.g., certain species may colonise or increase in number as a result of such enhancements.

13.5.24 Changes in the distribution of some species will be likely to occur as habitats develop in line with changes expected as a result of ecological succession or other natural processes, but over the short term any such changes will be relatively minor.

Decommissioning

13.5.25 It is noted that sea level rise may have an influence on the sensitivity of habitat and species features present at Proposed Development decommissioning. For example, some coastal features may be adversely affected by increased inundation or erosion, which may increase the significance of any impacts and effects arising from decommissioning on ornithological ecological receptors. Implications for terrestrial ecology are considered minor given the scale of predicted sea level rise as outlined in Appendix 9A: Preliminary Flood Risk Assessment (PEI Report, Volume III) and within the context of other likely changes in the future baseline.

13.5.26 The decommissioning baseline will be strongly influenced by future land-use and nature conservation regimes affecting adjacent land. The balance between adverse

effects and beneficial habitat improvements is unknown. This limits the assumptions that can be made for the purposes of this assessment. However, it should also be noted that the likely zone of influence of decommissioning will be much smaller than operation and likely construction also. It is assumed that decommissioning activities will involve the removal of above ground infrastructure only and will primarily be located within the built footprint of the Proposed Development rather than within areas of vegetation. Relevant ornithological features will therefore be much reduced relative to those relevant at construction and operation.

13.5.27 As outlined in Chapter 4: Proposed Development (PEI Report, Volume I) decommissioning activities will be conducted in accordance with the appropriate guidance and legislation at the time of the Proposed Developments closure. Ecological surveys will be commissioned as appropriate to inform the scope of the decommissioning works.

13.6 Design and Impact Avoidance

13.6.1 The EIA process aims to avoid, prevent, reduce or offset potential environmental effects through design and/or management measures. These are measures that are inherent in the design and construction of the Proposed Development (also known as 'embedded measures').

13.6.2 The following impact avoidance measures have either been incorporated into the design or are standard construction or operational practices. These measures have, therefore, been taken into account during the impact assessment. Similarly, it has been assumed that all relevant protected species legislation will be complied with. As the ornithological assessment is ongoing, and surveys are continuing, further assessment will be carried out and defined mitigation measures presented within the ES.

Construction Phase

13.6.3 A Framework Construction Environmental Management Plan (CEMP) will be included within the ES which will accompany the DCO Application which will set out the key measures to be employed during the Proposed Development construction phase to control and minimise the impacts on the environment – including the minimisation of impacts upon ecology and nature conservation. A Final CEMP will be prepared by the construction contractor in accordance with the Framework CEMP prior to construction. The submission, approval, and implementation of the Final CEMP will be secured by a Requirement of the draft DCO.

13.6.4 Where possible, routing of connection corridors will utilise existing infrastructure and established pipeline corridors north and south of the River Tees, to minimise excavations and construction activities required and therefore minimise disturbance to species and habitats present.

13.6.5 Where the Hydrogen Pipeline crosses major watercourses such as the River Tees and Greatham Creek, trenchless construction methods as outlined in Chapter 5: Construction Programme and Management (PEI Report, Volume I) will be used to avoid disturbance within the channel and harm to bankside habitats. Design work is

currently ongoing to further refine the design and identify the most appropriate methods for each crossing point - further details for all crossing options will be included within the ES.

13.6.6 Where the other Connection Corridors require crossings or new infrastructure the same approach will be applied. Trenchless technologies will be utilised where possible to minimise effects on habitats and species. Where trenchless technologies are not feasible, mitigation measures will be put in place to ensure to identity an appropriate habitat mitigation plan. Further information is provided in Chapter 4: Proposed Development; Chapter 5: Construction Programme and Management and Chapter 6: Need, Alternatives and Design Evolution (PEI Report, Volume I). Any details in relation to this will be included in the ES. Permanent habitat losses associated with pipelines will be minimised through compliance with the requirements of the NPS EN-4. This requires post-construction reinstatement of pipeline routes as close to its original state as possible. While this does not remove the construction impact, it does provide (except for irreplaceable habitats) certainty of reinstatement of habitats back to an appropriate end condition, as a well as a beneficial reduction in the duration and magnitude of the construction effect on habitats and species. The Framework CEMP will set out mitigation proposals required for relevant locations/habitats which will be included in the ES.

13.6.7 An Environmental or Ecological Clerk of Works (ECoW) will be present during Proposed Development construction as appropriate to supervise and instruct implementation of impact avoidance commitments as detailed in the Final CEMP.

Operational Phase

13.6.8 The Production Facility will require an Environmental Permit and will comply with this under the Environmental Permitting (England and Wales) Regulations 2016. In addition, the Proposed Development will be operated in line with appropriate standards, whilst the operator will implement and maintain an Environment Management System (EMS) which will be certified to International Standards Organisation (ISO) 14001. The EMS will outline requirements and procedures required to ensure that the Proposed Development Site is operating to the appropriate standard.

13.6.9 A number of mitigation features will be incorporated into the design of the Proposed Development design in order to avoid, minimise and reduce potential adverse impacts on ornithology.

13.6.10 As the Proposed Development design has progressed, the Applicant has sought to avoid nature conservation designations as far as reasonably practicable and will continue to do so. Further information is provided in Chapter 4: Proposed Development and Chapter 5: Construction Programme and Management (PEI Report, Volume I), where route options have been refined since the scoping stage to avoid or minimise adverse environmental effects, including those on ornithology features of importance including the areas within and around Greatham Creek. These areas include statutory and non-statutory designated sites and Habitats of Principal

Importance (HPI) that support birds. Habitats such as woodland and ponds have been avoided where possible to minimise ecological effects.

13.6.11 The final stack height for the Proposed Development will be determined at the detailed design stage and will be optimised with consideration given to the minimisation of ground-level air quality impacts on relevant ornithological features. This will be dependent on the final stack location and building heights for the Proposed Development. Preliminary dispersion modelling of emissions to air will help to determine the design of the Proposed Development, including stack heights accounting for other environmental considerations, through comparison of the maximum impacts at human health and relevant ornithological features. This will be done during the EIA and reported in the ES to ensure that potential impacts are minimised and avoided where feasible.

An Indicative Lighting Strategy will be prepared to accompany the DCO Application to demonstrate how lighting impacts on sensitive ornithological features, including birds, have been considered and addressed in the development design.

Decommissioning Phase

13.6.12 At the end of its design life decommissioning of the Proposed Development will see the removal of all above ground equipment down to ground level and the ground remediated to enable future re-use. It is assumed that all underground infrastructure will remain in-situ; however, all connection and access points will be sealed or grouted to ensure disconnection. At this stage it is assumed that decommissioning impacts are expected to be limited and will be the same/similar to the construction impacts, as discussed above.

13.6.13 A Decommissioning Environmental Management Plan (DEMP) will be produced pursuant to a DCO Requirement. The DEMP will consider in detail all potential environmental risks and contain guidance on how risks can be removed, mitigated or managed. This will include details of how ecology should be managed at the Proposed Development Site during decommissioning and demolition works.

13.7 Likely Impacts and Effects

13.7.1 This section describes the potential impacts and likely significant effects of the Proposed Development on relevant ornithology features in the absence of mitigation over and above that which is embedded in the design, or otherwise required for purposes of legislative compliance (as detailed in Section 13.5).

13.7.2 The potential impacts of the construction, operation and decommissioning of the Proposed Development are summarised in Tables 13-7, 13-8 and 13-9 respectively. Without mitigation these potential impacts are likely to result in significant effects. This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

Table 13-7: Summary of Potential Impacts and Effects During Construction

ORNITHOLOGICAL FEATURE	POTENTIAL IMPACTS	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Statutory designated sites (SPA, Ramsar, SSSI, NNR, LNR). The following statutory designated sites are located closest to the Proposed Development Site are: Teesmouth and Cleveland Coast SPA; Teesmouth and Cleveland Coast Ramsar site; Teesmouth and Cleveland Coast SSSI; Teesmouth NNR; and, Cowpen Bewley Woodland Country Park LNR.	• Temporary habitat losses within designated sites and functionally linked land resulting in losses of breeding, roosting and/or feeding habitats. • Noise and visual disturbance of breeding birds. • Noise and visual disturbance of non-breeding birds. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 13.5 will be provided within the ES and the AA. Mitigation to be confirmed following completion of ecology/ornithology surveys and development the Proposed Development design. Further assessment work is required in relation to water quality, noise and air quality which will be provided in the ES.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required. Mitigation measures will be provided in the ES.

ORNITHOLOGICAL FEATURE	POTENTIAL IMPACTS	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	• Morphological and hydrological effects on surface waters resulting in dewatering of wetland habitats used by birds.			
Non-statutory designated sites (LWS and RSPB Reserve). The following non-statutory designated sites that are located closest to the Proposed Development Site are: Saltholme RSPB reserve; Phillips Tank Farm Grassland LWS; Greenabella Marsh LWS; Greatham Creek North Bank Saltmarsh LWS; Cowpen Bewley Woodland Country Park LWS; Coatham Marsh LWS; and,	• Temporary habitat losses resulting in losses of breeding, roosting and/or feeding habitats. • Noise and visual disturbance of breeding birds. • Noise and visual disturbance of non-breeding birds. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 13.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design. Further assessment work is required in relation to water quality, noise and air quality which will be provided in the ES.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required. Mitigation measures will be provided in the ES.

ORNITHOLOGICAL FEATURE	POTENTIAL IMPACTS	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Saltern Saltmarsh LWS.	• Morphological and hydrological effects on surface waters resulting in dewatering of wetland habitats used by birds.			
Little tern (breeding)	• Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding and breeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 13.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design. Further assessment work is required in relation to water quality, noise and air quality which will be provided in the ES.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach atthis stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required. Mitigation measures will be provided in the ES.
Avocet (breeding)	• Temporary loss of nesting habitat.	Short or medium term	Details of committed mitigation measures over and above those outlined in	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into

ORNITHOLOGICAL FEATURE	POTENTIAL IMPACTS	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	• Destruction of nests, eggs and young. • Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding and breeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests. • Morphological and hydrological effects on surface waters resulting in dewatering of wetland habitats used for feeding.		Section 13.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of full Proposed Development Project design.	consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

ORNITHOLOGICAL FEATURE	POTENTIAL IMPACTS	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Little ringed plover (breeding)	• Temporary loss of nesting habitat. • Destruction of nests, eggs and young. • Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding and breeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests. • Morphological and hydrological effects on surface waters resulting in dewatering of wetland habitats used for feeding.	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 13.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of full Proposed Development Project design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

ORNITHOLOGICAL FEATURE	POTENTIAL IMPACTS	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Ringed plover (breeding)	• Temporary loss of nesting habitat. • Destruction of nests, eggs and young. • Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding and breeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests. • Morphological and hydrological effects on surface waters resulting in dewatering of wetland habitats used for feeding.	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 13.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of full Proposed Development Project design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

ORNITHOLOGICAL FEATURE	POTENTIAL IMPACTS	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Lapwing (breeding)	• Temporary loss of nesting habitat. • Destruction of nests, eggs and young. • Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding and breeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests. • Morphological and hydrological effects on surface waters resulting in dewatering of wetland habitats used for feeding.	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 13.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of full Proposed Development Project design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

ORNITHOLOGICAL FEATURE	POTENTIAL IMPACTS	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Cetti's warbler (breeding)	• Noise and visual disturbance of breeding birds and their dependent young. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding and breeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 13.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of full Proposed Development Project design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Barn owl	• Temporary loss of nesting and foraging habitat. • Destruction of nests, eggs and young. • Noise and visual disturbance of foraging during the breeding season.	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 13.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of full	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural

ORNITHOLOGICAL FEATURE	POTENTIAL IMPACTS	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	• Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding and breeding birds. • Increased surface water runoff and flood risk resulting in degradation of feeding habitats.		Proposed Development Project design.	England and other stakeholders, as required.
Marsh harrier (breeding)	• Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding and breeding birds. • Increased surface water runoff and flood risk resulting	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 13.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of full Proposed Development Project design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

ORNITHOLOGICAL FEATURE	POTENTIAL IMPACTS	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	in degradation of nesting and feeding habitats and/or loss of nests.			
Bittern (breeding)	• Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding and breeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 13.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of full Proposed Development Project design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Non-breeding water bird assemblage (across the entire Teesside area)	• Temporary habitat losses within designated sites and functionally linked land resulting in losses of roosting and/or feeding habitats.	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 13.5 will be provided within the ES.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures

ORNITHOLOGICAL FEATURE	POTENTIAL IMPACTS	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	• Noise and visual disturbance of roosting and feeding birds. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of feeding habitats and/or roosts. • Morphological and hydrological effects on surface waters resulting in dewatering of wetland habitats used by birds.		Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of full Proposed Development Project design.	(an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Breeding bird assemblage (Teesworks)	• Temporary loss of nesting habitat. • Destruction of nests, eggs and young.	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 13.5 will be provided within the ES. Mitigation to be confirmed following completion of all	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this

ORNITHOLOGICAL FEATURE	POTENTIAL IMPACTS	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	• Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding and breeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.		ecology/ornithology surveys and development of full Proposed Development Project design.	stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Breeding bird assemblage (Coatham Dunes)	• Noise and visual disturbance of foraging birds during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 13.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of full	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural

ORNITHOLOGICAL FEATURE	POTENTIAL IMPACTS	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	by feeding and breeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.		Proposed Development Project design.	England and other stakeholders, as required.
Breeding bird assemblage (Navigator Terminals)	• Temporary loss of nesting habitat. • Destruction of nests, eggs and young. • Noise and visual disturbance of foraging birds during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds. • Changes in air quality resulting in changes to habitat structure, with	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 13.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of full Proposed Development Project design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at the PEI stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

ORNITHOLOGICAL FEATURE	POTENTIAL IMPACTS	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	resulting effects on nesting and feeding habitats. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.			
Breeding bird assemblage (Saltholme laydown)	• Temporary loss of nesting habitat. • Destruction of nests, eggs and young. • Noise and visual disturbance of foraging birds during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding and breeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 13.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of full Proposed Development Project design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

ORNITHOLOGICAL FEATURE	POTENTIAL IMPACTS	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	feeding habitats and/or loss of nests			
Breeding bird assemblage (Saltholme substation)	• Temporary loss of nesting habitat. • Destruction of nests, eggs and young. • Noise and visual disturbance of foraging birds during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding and breeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 13.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of full Proposed Development Project design.	Potentially significant (adverse) without mitigation (adverse) This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

ORNITHOLOGICAL FEATURE	POTENTIAL IMPACTS	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Breeding bird assemblage (Compounds and laydown around Haverton Hill)	• Temporary loss of nesting habitat. • Destruction of nests, eggs and young. • Noise and visual disturbance of foraging birds during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding and breeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 13.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of full Proposed Development Project design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at the PEI stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Breeding bird assemblage (Haverton Hill laydown)	• Temporary loss of nesting habitat. • Destruction of nests, eggs and young.	Short or medium term	Details of committed mitigation measures over and above those outlined in	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into

ORNITHOLOGICAL FEATURE	POTENTIAL IMPACTS	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	• Noise and visual disturbance of foraging birds during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding and breeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.		Section 13.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of full Proposed Development Project design.	consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

Table 13-8: Summary of Potential Impacts and Effects During Operation

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Statutory designated sites (SPA, Ramsar, SSSI, NNR, LNR). Statutory designated sites (SPA, Ramsar, SSSI, NNR, LNR). The following statutory designated sites are located closest to the Proposed Development Site are: Teesmouth and Cleveland Coast SPA; Teesmouth and Cleveland Coast Ramsar site; Teesmouth and Cleveland Coast SSSI; Teesmouth NNR; and,	• Permanent habitat losses within the designated site adversely affecting breeding, roosting and feeding species. • Permanent losses of functionally linked land adversely affecting breeding, roosting and feeding species. • Noise and visual disturbance of qualifying species causing displacement of birds. • Changes in air quality as a result of point source process emissions and vehicular traffic to and from the proposed H2 generating infrastructure causing degradation of habitats relied upon by breeding, feeding and roosting birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Long term	Details of committed mitigation will be provided within the ES and the report to inform an HRA. Mitigation to be confirmed following completion of bird surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Cowpen Bewley Woodland Country Park LNR.	• Chemical contamination of Tees Bay marine waters resulting from process wastewater discharges and effects on fish and other prey stocks used as a foraging resource by birds.			
Non-statutory designated sites (LWS and RSPB reserve). Non-statutory designated sites (LWS and RSPB Reserve). The following non-statutory designated sites that are located closest to the Proposed Development Site are: Saltholme RSPB reserve; Phillips Tank Farm Grassland LWS;	• Permanent habitat losses within the designated site adversely affecting breeding, roosting and feeding species. • Permanent losses of functionally linked land adversely affecting breeding, roosting and feeding species. • Noise and visual disturbance of qualifying species causing displacement of birds • Changes in air quality as a result of point source process emissions and vehicular traffic to and from the proposed hydrogen generating infrastructure causing degradation of habitats relied upon by breeding, feeding and roosting birds.	Long term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Greenabella Marsh LWS; Greatham Creek North Bank Saltmarsh LWS; Cowpen Bewley Woodland Country Park LWS; Coatham Marsh LWS; and, Saltern Saltmarsh LWS.	• Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests. • Chemical contamination of Tees Bay marine waters resulting from process wastewater discharges and effects on fish and other prey stocks used as a foraging resource by birds.			
Little tern (breeding)	• Noise and visual disturbance of foraging birds causing displacement from feeding areas. • Changes in air quality as a result of point source process emissions and vehicular traffic to and from the proposed H2 generating infrastructure causing degradation of habitats relied upon by breeding, feeding and roosting birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and	Long term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	feeding habitats and/or loss of nests. • Chemical contamination of Tees Bay marine waters resulting from process wastewater discharges and effects on fish and other prey stocks used as a foraging resource by birds.			
Avocet (breeding)	• Noise and visual disturbance causing displacement of breeding and foraging birds and brood failures. • Changes in air quality as a result of point source process emissions and vehicular traffic to and from the proposed H2 generating infrastructure causing degradation of habitats relied upon by breeding, feeding and roosting birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Long term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Little ringed plover (breeding)	• Permanent habitat losses resulting in loss of breeding sites. • Noise and visual disturbance causing displacement of birds from feeding and breeding sites. • Changes in air quality as a result of point source process emissions and vehicular traffic to and from the proposed H2 generating infrastructure causing degradation of habitats relied upon by breeding and feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Long term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Ringed plover (breeding)	• Permanent habitat losses resulting in loss of breeding sites. • Noise and visual disturbance causing displacement of birds from feeding and breeding sites. • Changes in air quality as a result of point source process emissions and vehicular traffic to and from	Long term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	the proposed H2 generating infrastructure causing degradation of habitats relied upon by breeding and feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.		and development of Proposed Development design.	developed in consultation with Natural England and other stakeholders, as required.
Lapwing (breeding)	• Permanent habitat losses resulting in loss of breeding sites. • Noise and visual disturbance causing displacement of birds from feeding and breeding sites. • Changes in air quality as a result of point source process emissions and vehicular traffic to and from the proposed H2 generating infrastructure causing degradation of habitats relied upon by breeding and feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Long term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Cetti's warbler (breeding)	• Noise and visual disturbance causing displacement of birds from feeding and breeding sites. • Changes in air quality as a result of point source process emissions and vehicular traffic to and from the proposed H2 generating infrastructure causing degradation of habitats relied upon by breeding and feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Long term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Barn owl	• Noise and visual disturbance causing displacement of birds from feeding and breeding sites. • Changes in air quality as a result of point source process emissions and vehicular traffic to and from the proposed H2 generating infrastructure causing degradation of habitats relied upon by feeding birds.	Long term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	• Increased surface water runoff and flood risk resulting in degradation of feeding habitats and.			England and other stakeholders, as required.
Marsh harrier (breeding)	• Noise and visual disturbance causing displacement of birds from feeding and breeding sites. • Changes in air quality as a result of point source process emissions and vehicular traffic to and from the proposed H2 generating infrastructure causing degradation of habitats relied upon by breeding and feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Long term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Bittern (breeding)	• Noise and visual disturbance causing displacement of birds from feeding and breeding sites. • Changes in air quality as a result of point source process emissions and vehicular traffic to and from	Long term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	the proposed H2 generating infrastructure causing degradation of habitats relied upon by breeding and feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.		ecology/ornithology surveys and development of Proposed Development design.	appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Non-breeding water bird assemblage (across the entire Teesside area)	• Temporary habitat losses within designated sites and functionally linked land resulting in losses of roosting and/or feeding habitats. • Chemical contamination of Tees Bay marine waters resulting from process wastewater discharges and effects on fish and other prey stocks used as a foraging resource by birds. • Noise and visual disturbance of roosting and feeding birds from operational H2 generating plant. • Changes in air quality as a result of point source process emissions and vehicular traffic to and from the proposed H2 generating	Long term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development_Project design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	infrastructure causing degradation of habitats relied upon by feeding birds. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of feeding habitats and/or roosts. • Morphological and hydrological effects on surface waters resulting in dewatering of wetland habitats used by birds.			
Breeding bird assemblage (Teesworks)	• Permanent habitat losses resulting in loss of breeding sites. • Noise and visual disturbance causing displacement of birds from feeding and breeding sites. • Changes in air quality as a result of point source process emissions and vehicular traffic to and from the proposed H2 generating	Long term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this). Site-specific mitigation will be developed in

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	infrastructure causing degradation of habitats relied upon by breeding and feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.		and development of Proposed Development design.	consultation with Natural England and other stakeholders, as required.
Breeding bird assemblage (Coatham Dunes)	• Permanent habitat losses resulting in loss of breeding sites. • Noise and visual disturbance causing displacement of birds from feeding and breeding sites. • Changes in air quality as a result of point source process emissions and vehicular traffic to and from the proposed H2 generating infrastructure causing degradation of habitats relied upon by breeding and feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Long term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of full Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Breeding bird assemblage (Navigator Terminals)	• Permanent habitat losses resulting in loss of breeding sites. • Noise and visual disturbance causing displacement of birds from feeding and breeding sites. • Changes in air quality as a result of point source process emissions and vehicular traffic to and from the proposed H2 generating infrastructure causing degradation of habitats relied upon by breeding and feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Long term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Breeding bird assemblage (Saltholme laydown)	• Permanent habitat losses resulting in loss of breeding sites. • Noise and visual disturbance causing displacement of birds from feeding and breeding sites. • Changes in air quality as a result of point source process emissions and vehicular traffic to and from	Long term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	the proposed H2 generating infrastructure causing degradation of habitats relied upon by breeding and feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.		and development of Proposed Development design.	developed in consultation with Natural England and other stakeholders, as required.
Breeding bird assemblage (Saltholme substation)	• Permanent habitat losses resulting in loss of breeding sites. • Noise and visual disturbance causing displacement of birds from feeding and breeding sites. • Changes in air quality as a result of point source process emissions and vehicular traffic to and from the proposed H2 generating infrastructure causing degradation of habitats relied upon by breeding and feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Long term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Breeding bird assemblage (Compounds and laydown around Haverton Hill)	• Permanent habitat losses resulting in loss of breeding sites. • Noise and visual disturbance causing displacement of birds from feeding and breeding sites. • Changes in air quality as a result of point source process emissions and vehicular traffic to and from the proposed H2 generating infrastructure causing degradation of habitats relied upon by breeding and feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Long term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Breeding bird assemblage (Haverton Hill laydown)	• Permanent habitat losses resulting in loss of breeding sites. • Noise and visual disturbance causing displacement of birds from feeding and breeding sites. • Changes in air quality as a result of point source process emissions and vehicular traffic to and from	Long term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	the proposed H2 generating infrastructure causing degradation of habitats relied upon by breeding and feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.		and development of Proposed Development design.	developed in consultation with Natural England and other stakeholders, as required.

Table 13-9: Summary of Potential Impacts and Effects During Decommissioning

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Statutory designated sites (SPA, Ramsar, SSSI, NNR, LNR). Statutory designated sites (SPA, Ramsar, SSSI, NNR, LNR). The following statutory designated sites are located closest to the Proposed Development Site are: Teesmouth and Cleveland Coast SPA; Teesmouth and Cleveland Coast Ramsar site; Teesmouth and Cleveland Coast SSSI; Teesmouth NNR; and,	• Temporary habitat losses within designated sites and functionally linked land resulting in losses of breeding, roosting and/or feeding habitats. • Noise and visual disturbance of breeding birds. • Noise and visual disturbance of non-breeding birds. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water, resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests. • Morphological and hydrological effects on surface waters resulting in dewatering of wetland habitats used by birds.	Short or medium term	Details of committed mitigation will be provided within the ES and the report to inform an HRA. Mitigation to be confirmed following completion of bird surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Cowpen Bewley Woodland Country Park LNR.				
Non-statutory designated sites (LWS and RSPB reserve). Non-statutory designated sites (LWS and RSPB Reserve). The following non-statutory designated sites that are located closest to the Proposed Development Site are: Saltholme RSPB reserve; Phillips Tank Farm Grassland LWS; Greenabella Marsh LWS; Greatham Creek North Bank Saltmarsh	• Temporary habitat losses resulting in losses of breeding, roosting and/or feeding habitats. • Noise and visual disturbance of breeding birds • Noise and visual disturbance of non-breeding birds. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water, resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests • Morphological and hydrological effects on surface waters resulting in dewatering of wetland habitats used by birds.	Short or medium term.	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
LWS; Cowpen Bewley Woodland Country Park LWS; Coatham Marsh LWS; and, Saltern Saltmarsh LWS.				
Little tern (breeding)	• Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Short or medium term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Avocet (breeding)	• Loss of nesting habitat. • Destruction of nests, eggs and young.	Short or medium term	Details of committed mitigation measures will be	Potentially significant (adverse) without mitigation

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	• Noise and visual disturbance of foraging during the breeding season • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests. • Morphological and hydrological effects on surface waters resulting in dewatering of wetland habitats used for feeding.		provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Little ringed plover (breeding)	• Loss of nesting habitat. • Destruction of nests, eggs and young. • Noise and visual disturbance of foraging during the breeding season • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds.	Short or medium term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	• Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests. • Morphological and hydrological effects on surface waters resulting in dewatering of wetland habitats used for feeding.			England and other stakeholders, as required.
Ringed plover (breeding)	• Loss of nesting habitat. • Destruction of nests, eggs and young. • Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests. • Morphological and hydrological effects on surface waters resulting in dewatering of wetland habitats used for feeding.	Short or medium term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Lapwing (breeding)	• Loss of nesting habitat. • Destruction of nests, eggs and young.	Short or medium term	Details of committed mitigation measures will be	Potentially significant (adverse) without mitigation

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	• Noise and visual disturbance of foraging during the breeding season • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests. • Morphological and hydrological effects on surface waters resulting in dewatering of wetland habitats used for feeding.		provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of full Proposed Development design.	This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Cetti's warbler (breeding)	• Noise and visual disturbance of breeding birds and their dependent young. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Short or medium term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
				England and other stakeholders, as required.
Barn owl	• Loss of foraging habitat. • Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of feeding habitats.	Short or medium term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Marsh harrier (harrier)	• Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds.	Short or medium term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	• Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.		and development of Proposed Development design.	stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Bittern (breeding)	• Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Short or medium term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Non-breeding water bird assemblage (across the entire Teesside area)	• Temporary habitat losses within designated sites and functionally linked land resulting in losses of roosting and/or feeding habitats.	Short or medium term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	• Noise and visual disturbance of roosting and feeding birds. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of feeding habitats and/or roosts. • Morphological and hydrological effects on surface waters resulting in dewatering of wetland habitats used by birds.		Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of full Proposed Development design.	specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Breeding bird assemblage (Teesworks)	• Loss of nesting habitat. • Destruction of nests, eggs and young. • Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds.	Short or medium term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	• Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.			England and other stakeholders, as required.
Breeding bird assemblage (Coatham Dunes)	• Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.	Short or medium term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ ornithology surveys and development of full Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Breeding bird assemblage (Navigator Terminals)	• Loss of nesting habitat. • Destruction of nests, eggs and young. • Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water	Short or medium term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests.		and development of Proposed Development design.	appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Breeding bird assemblage (Saltholme laydown)	• Loss of nesting habitat. • Destruction of nests, eggs and young. • Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests	Short or medium term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Breeding bird assemblage (Saltholme substation)	• Loss of nesting habitat. • Destruction of nests, eggs and young. • Noise and visual disturbance of foraging during the breeding season.	Short or medium term.	Details of committed mitigation measures will be provided within the ES and the report to inform HRA.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	• Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests		Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.
Breeding bird assemblage (Compounds and laydown around Haverton Hill)	• Loss of nesting habitat. • Destruction of nests, eggs and young. • Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests	Short or medium term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

RECEPTOR	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Breeding bird assemblage (Haverton Hill laydown)	• Loss of nesting habitat. • Destruction of nests, eggs and young. • Noise and visual disturbance of foraging during the breeding season. • Physical or chemical pollution from emissions of dust and/or particulates and chemical spills to ground and/or water resulting in degradation of habitats used by feeding birds. • Increased surface water runoff and flood risk resulting in degradation of nesting and feeding habitats and/or loss of nests	Short or medium term	Details of committed mitigation measures will be provided within the ES and the report to inform HRA. Mitigation to be confirmed following completion of all ecology/ornithology surveys and development of Proposed Development design.	Potentially significant (adverse) without mitigation This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures (an appropriate approach at this stage). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required.

13.8 Residual Effects and Conclusions

13.8.1 The preliminary ornithological assessment has identified that in the absence of additional mitigation the Proposed Development has the potential to result in a number of potentially significant adverse effects on ornithological features during construction, operation and decommissioning (refer to Table 13 to Table 13).

13.8.2 Potential significant effects upon international statutory designated sites will be assessed as part of the assessment and through the Habitats Regulations Assessment (HRA) process as detailed below.

13.8.3 There are potential impact pathways between the Proposed Development and designated sites. The potential for direct and indirect impacts on relevant designated sites will be considered further in the assessment. Where possible any secondary or indirect impacts upon qualifying features of the site will be avoided through the design development and, where required, the adoption of appropriate mitigation measures.

13.8.4 Where statutory or non-statutory designated sites will be affected by the Proposed Development, the ornithological assessment will examine whether there will be direct or indirect effects during construction or operation and confirm relevant avoidance/mitigation requirements. It is anticipated that predicted effects to be reported in the ES will be less than as presented within this preliminary assessment.

13.8.5 The Proposed Development will, wherever possible, seek to avoid direct impacts upon ponds and other waterbodies and, as such, the predicted effects upon birds that rely on such features will be limited to a level that is not significant at these locations.

13.8.6 Only minor watercourses and drains will be crossed using open cut techniques to reduce the potential direct impacts upon aquatic habitats and potential effects upon the birds that rely on them, to levels that are not significant. Similarly, woodland, trees, grasslands, reedbeds and saltmarsh with potential to support nesting, roosting and feeding birds will also be avoided as far as possible.

13.8.7 The Proposed Development has the potential to have significant adverse effects upon birds. Surveys to inform the ornithological baseline are ongoing and avoidance and mitigation measures will be developed as the Proposed Development design is further progressed. As such, it is anticipated that predicted effects to be reported in the ES will be less than as presented within this preliminary ornithological assessment.

13.9 Limitations and Difficulties

13.9.1 Baseline ecology surveys were in progress at the time of writing. All habitats and species have been valued in accordance with the precautionary principle i.e., the maximum likely nature conservation value has been applied based on the information available to inform decision-making.

13.9.2 This assessment has been undertaken using available data and Proposed Development design details at the time of writing (August 2023). However, at this

stage some details of the Proposed Development remain under development. As such, the assessment herein is a worst-case scenario, and actual effects may be less than those presented herein. Effects will be re-evaluated at the ES stage.

13.10 Information to Inform a Habitats Regulations Assessment

13.10.1 It is necessary to consider whether the Proposed Development is likely to have a significant effect on areas that have been designated for their international nature conservation value in respect of ornithology. Known as European sites, these include SACs, SPAs and, as a matter of government policy, Ramsar sites.

13.10.2 European sites are protected under the Conservation of Habitats and Species Regulations 2017. The UK left the EU on 31 January 2020 under the terms set out in the European Union (Withdrawal Agreement) Act 2020 ("the Withdrawal Act"). However, the most recent amendments to the Habitats Regulations – the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 – make it clear that the need for HRA continues to apply.

13.10.3 The Proposed Development is located within 15 km of the following international sites with qualifying ornithological interest features:

- Teesmouth and Cleveland Coast SPA;
- Teesmouth and Cleveland Coast Ramsar;
- North York Moors SPA;
- Northumbria Coast SPA; and
- Northumbria Coast Ramsar

13.10.4 Stage 1 of the HRA process (Test of Likely Significant Effects) will consider the potential pathways of effect between the Proposed Development and the European designated sites within 15 km of the Proposed Development Site, and whether there is potential to have a significant adverse effect on the integrity of the European designated sites, either alone or in-combination with other plans or projects.

13.10.5 Potential pathways of impact currently include habitat loss, noise and visual disturbance during construction, pollution (via hydrological links to the designated sites) and dust emissions and loss/disturbance of functionally linked land used by qualifying species. Information used to support the HRA process will include desk study data and the suite of bird surveys outlined in Table 13-2Error! Reference source not found..

13.10.6 The North York Moors SPA and Northumbria Coast SPA/Ramsar will be considered in the context of any operational stack emissions from Proposed Development, which have the potential to affect European sites that lie relatively far from industrial developments.

13.10.7 Where there is potential for the Proposed Development to have Likely Significant Effects upon the qualifying features of the European designated sites, the pathway will be taken forward to Stage 2 - Appropriate Assessment. Baseline surveys are ongoing at the time of writing; however, it is anticipated that Appropriate Assessment

will be required for the Proposed Development. At Appropriate Assessment, the measures that will be implemented to either avoid the impact in the first place, or to mitigate the ecological effect to such an extent that it is no longer significant, will be set out.

13.10.8 The HRA will be prepared in line with the Inspectorate's Advice Note 10 (Planning Inspectorate, 2022) (Habitats Regulations Assessment). A version of the HRA Screening Report has been submitted with the PEIR, which will be developed further at DCO application stage.

13.11 References

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