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12 ECOLOGY AND NATURE CONSERVATION (INCLUDING AQUATIC ECOLOGY)

12.1 Introduction

12.1.1 This chapter of the Preliminary Environmental Information (PEI) Report identifies the potential impacts and effects on terrestrial and aquatic (freshwater, i.e., above Mean High Water Springs (MHWS)) ecology and nature conservation associated with the Proposed Development.

12.1.2 This chapter is supported by the following figures (PEI Report, Volume II) and appendices (PEI Report, Volume III):

- Figure 12-1: Statutory Designated Sites within 15 km;
- Figure 12-2: Non-statutory Designated Sites within 2 km;
- Figure 12-3: Potential Habitats of Principal Importance within 2 km; and
- Figure 12-4: Phase 1 Habitat Survey Results (draft based on data available to date).
- Appendix 8A: Habitat Regulation Assessment Screening
- Appendix 8B: Figure B1 6.4.28 NZT ES Vol III Appendix 13A Aquatic Ecology Supplementary Desk Study and Field Study Report

12.1.3 This chapter provides a preliminary evaluation of relevant ecological receptors (including nature conservation designations, priority habitats, protected species and invasive non-native species (INNS) scheduled under the Wildlife and Countryside Act 1981 (as amended)) 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 ecological receptors and their conservation status, interrelationships, and their contribution 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 are then considered in the assessment of potential residual effects.

12.1.4 This preliminary assessment reports on the ecology baseline available at the time of writing (August 2023). A final assessment of the potential impacts of the Proposed Development on ecological features including updates to the baseline will be undertaken and reported in the Environmental Statement (ES) that will be submitted with the DCO Application.

12.2 Legislation, Planning Policy and Guidance

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

Legislative Background

12.2.2 The following legislation is relevant to this chapter of the PEI Report for the Proposed Development:

- Countryside and Rights of Way Act 2000 (CRoW);
- Salmon and Freshwater Fisheries Act 1975; and
- The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations)[1];
- The Eels (England and Wales) Regulations 2009;
- The Hedgerows Regulations 1997;
- Natural Environment and Rural Communities Act 2006 (NERC);
- Protection of Badgers Act 1992;
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (2000/60/EC) (WFD);
- Wild Mammals (Protection) Act 1996; and
- Wildlife and Countryside Act 1981 (as amended).

12.2.3 The Habitats Regulations 2017 (as amended) and WCA 1981 (as amended) are domestic legislation that transpose the land and marine aspects of the Habitats Directive (Council Directive 92/43/EEC) and certain elements of the Birds Directive (Council Directive 2009/147/EC) (known as the Nature Directives). Species of European (International) conservation importance are listed on Annexes II, IV and V of the Habitats Directive and Annex I of the Birds Directive.

12.2.4 Several national and local policies are relevant to biodiversity and developments. With regards to national policies these include, the NPS for Energy (Department of Energy and Climate Change, 2011), and the National Planning Policy Framework (NPPF), 2021(Ministry of Housing, Communities and Local Government [MHCLG], 2021).

Planning Policy Context

National Planning Policy

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

12.2.5 The Overarching National Planning Policy Statement (NPS) for Energy (EN-1) (Department of 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.

[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.

12.2.6 Paragraph 5.3.3 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 IPC consider thoroughly the potential effects of a proposed project."

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

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

12.2.7 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.

12.2.8 Paragraph 2.21.3 states: *"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."*

12.2.9 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."*

12.2.10 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)

12.2.11 EN-5 (Department for Energy and Climate Change, 2011c) provides guidance for electricity generation, storage and interconnection infrastructure required to enable the transition to net zero.

12.2.12 Paragraph 1.8.1 states: "Habitats Regulation Assessments (HRA) have also been carried out and published for the non-locationally specific NPSs EN-1 to EN-5. As EN-1 to EN-5 do not specify locations for energy infrastructure, the HRA is a high-level

strategic overview. Although the lack of spatial information within the EN-1 to EN-5 made it impossible to reach certainty on the effect of the plan on the integrity of any HRA site, the potential for proposed energy infrastructure projects of the kind contemplated by EN-1 to EN-5 to have adverse effects on the integrity of such sites cannot be ruled out, based on following the precautionary principle. The HRA explains why the government considers that EN-1 to EN-5 are nevertheless, justified by imperative reasons of overriding public interest, while noting that its conclusions are only applicable at the NPS level and are without prejudice to any project-level HRA, which may result in the refusal of consent for a particular application."

12.2.13 Paragraph 2.8.1 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 allows 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 biodiversity enhancements."

Draft Overarching NPS for Energy (EN-1) (2023)

12.2.14 The UK Government is currently reviewing and updating the energy NPSs. It is doing this in order 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). Section 5.4 of Draft EN-1 (DESNZ, 2023a) relates to biodiversity and geological conservation as follows:

- 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."*
- Paragraph 5.4.4 states: *"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 National Policy Statement (NPS) for Natural Gas Supply Infrastructure and Gas and Oil Pipelines *(EN-4) (2023)*

12.2.15 Paragraph 2.21.1 of Draft EN-4 (DESNZ, 2023b) *"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."*

12.2.16 Paragraph 2.21.2 states: *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.*

12.2.17 Paragraph 2.21.3 states: 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 (NPS) for electricity Networks Infrastructure (EN-5) (2023)

12.2.18 Paragraph 1.7.1 of Draft EN-5 (DESNZ, 2023c) 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."*

12.2.19 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."

The National Planning Policy Framework (2021)

12.2.20 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 as follows:

- 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 stepping-stones 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."*

Planning Practice Guidance (PPG)

12.2.21 The Government's planning practice guidance website (Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities and Local Government, 2021) provides detailed advice regarding the natural environment. This includes detailed guidance regarding biodiversity, ecosystems, and green infrastructure.

Local Planning Policy

Redcar and Cleveland Borough Council

12.2.22 The Redcar and Cleveland Local Plan (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 ecology/biodiversity are included in Policy N4 – Biodiversity and Geological Conservation which states:

"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 6km 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."

Stockton-on-Tees Borough Council (STBC)

12.2.23 The Stockton- on- Tees Local Plan (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 ecology/biodiversity are included in SD8 - Sustainable Design Principles which states:

"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;

d. Need to ensure that new development is appropriately laid out to ensure adequate separation between buildings and an attractive environment;

e. Privacy and amenity of all existing and future occupants of land and buildings;

f. Existing transport network and the need to provide safe and satisfactory access and parking for all modes of transport;

g. Need to reinforce local distinctiveness and provide high quality and inclusive design solutions, and

h. Need for all development to be designed inclusively to ensure that buildings and spaces are accessible for all, including people with disabilities.

2. New development should contribute positively to making places better for people. They should be inclusive and establish a strong sense of place, using streetscapes and buildings to create attractive and comfortable places to live, work and visit.

3. All proposals will be designed with public safety and the desire to reduce crime in mind, incorporating, where appropriate, advice from the Health and Safety Executive, Secured by Design, or any other appropriate design standards.

4. New development will seek provision of adequate waste recycling, storage and collection facilities, which are appropriately sited and designed.

5. New commercial development will be expected to provide appropriately designed signage and shop fronts."

Policy EG4 – Seal Sands, North Tees and Billingham states: *"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 SSSIs;

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.

"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 SSSIs;

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."

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."

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.

6. 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).”

Hartlepool Borough Council (HBC)

12.2.24 The Hartlepool Local Plan (HBC, 2018) was adopted in May 2018. Policies relevant to ecology/biodiversity 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, affect 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.

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.

Policy NE4 - Ecological Networks: *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.

12.2.25 In addition to the above local plans, the South Tees Area Supplementary Planning Document (SPD) (Redcar and Cleveland Borough Council, 2018) has been prepared to support adopted planning policies to guide and inform future planning applications. The SPD has been informed by a number of other supporting documents, including a Strategic Environmental Assessment and Habitats Regulations Assessment. The Development Principles of relevance to the Proposed Development are outlined below:

STDC6 – Energy Innovation

All energy generation development should be appropriately sited and designed in order to avoid unacceptable adverse environmental or amenity effects.

STDC7 – Natural Environment al Protection and Enhancement

The Council will, in partnership with the STDC and investment partners and other key stakeholders, protect and, where appropriate, enhance designated and non-designated sites of biodiversity and geodiversity value and interest within the South Tees Area. The need to remediate known contamination, including to reduce environmental harm, and to redevelop the South Tees Area for productive uses is fully recognised and supported by the Council. In doing so it will be important for all development proposals to be in accordance with the requirements of STDC7 and to respond to their environmental setting, in particular to protect and, where possible enhance, biodiversity and geodiversity interests.

All proposals will be required to comply with Local Plan Policy N4 Biodiversity and Geological Conservation. Proposals with the potential to affect the Teesmouth and Cleveland Coast SPA should undergo a Habitat Regulations Assessment (HRA) with regard to the conservation objectives of the designation.

The Council will support the delivery of a strategy for the regeneration area which promotes the provision of green infrastructure, in accordance with Local Plan Policy N2, including a series of connected open, private and public spaces, using open space as connectors not barriers to development.

All proposals will be required to have regard to the forthcoming Environment and Biodiversity and Open Space Strategies and, where appropriate, the Redcar & Cleveland Teesmouth and Cleveland Coast SPA Recreation Management Plan, including in the mitigation of likely cumulative impacts on the natural environment. Net environmental gains should be provided where appropriate and viable, in accordance with Policies N2 and N4.

Local Biodiversity Action Plans

12.2.26 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.

12.2.27 The Tees Valley Biodiversity Action Plan (Tees Valley Nature Partnership, 2012) is the relevant LBAP for the defined Study Area (refer to Section 12.3) and was updated in 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.

Guidance

12.2.28 This chapter of the PEI Report 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).

12.2.29 Species specific guidance used to inform this PEI Report chapter 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, 2022);
- The Joint Nature Conservation Committee's (JNCC) published *Herpetofauna Workers' Manual* (JNCC, 2003) and the *Great Crested Newt Conservation Handbook* (Froglife, 2001);
- The Bat Conservation Trust's *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Collins, 2016) and interim guidance on the use of night vision aids for bat emergence surveys (Bat Conservation Trust, 2022);
- Otter (*Lutra lutra*) survey guidance outlined in *Monitoring the Otter* (Chanin, 2003);
- Water vole (*Arvicola amphibius*) survey guidance outlined in the *Water Vole Mitigation Handbook* (Strachan *et al*. 2016);
- Badger (*Meles meles*) survey guidance outlined in *Surveying Badgers* (Harris *et al.*, 1989); and
- Biodiversity Net Gain (BNG): good practice principles for development (CIRIA, CIEEM and IEMA, 2016).

12.3 Assessment Methodology and Significance Criteria

Study Area

12.3.1 The Study Areas used in this assessment have been defined with reference to the likely zone of influence where there is the potential for significant effects on relevant ecological features to occur, through the construction, operation and decommissioning of the Proposed Development. The study area boundaries include the likely maximum extent of the construction footprint of the Proposed Development that will be considered during further assessments (which includes any

potential ancillary works, compounds, haul routes, borrow pits and temporary land take).

12.3.2 The spatial scope was informed by professional judgment in line with good practice guidance and standards including British Standard 42020:2013 (British Standards Institution, 2013), and Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal version 1.1 (Chartered Institute of Ecology and Environmental Management [CIEEM], 2018).

12.3.3 The spatial scope also takes account of the potential Zone of Influence (ZoI) of the Proposed Development by extending the desk-based exercise to outside the boundary where required. The ZoI is the area over which biodiversity resources may be subject to likely significant effects as a result of the design proposals and associated activities. These effects (and therefore the distance and area of the ZoI) vary for each biodiversity resource and are dependent on several factors including the presence of connective pathways and sensitivity or importance of the biodiversity resource.

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

12.3.5 The study areas are as follows:

- 15 km for all statutory designated sites for nature conservation at a European or international level or functionally linked land.
- 15 km for statutory designated sites for nature conservation at a national to local authority level e.g., Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), and Local Nature Reserves (LNR).
- 2 km for non-statutory designated sites for nature conservation such as Sites of Biological Importance (SBI).
- 2 km for Habitats of Principal Importance
- 500 m based upon Natural England's standing advice for assessing potential effects upon great crested newt (GCN).
- Up to 5 km for fish, aquatic macroinvertebrates, macrophytes, invasive species and crayfish
- 2 km for protected and notable habitats and species; for example, European Protected Species EPS); irreplaceable habitats included in The Biodiversity Metric 4.0 User Guide (Natural England Joint Publication 2023) as habitats where bespoke compensation is required for impacts, such as ancient woodland, Lowland fen, Lowland raised bog and; species and habitats listed in accordance with Section 41 of the Natural Environment and Rural Communities (NERC Act) 2006 (Habitats and Species of Principal Importance); birds that are Red Listed as Birds of Conservation Concern (Stanbury *et al*., 2021) or species and habitats with Local Biodiversity Action Plans (LBAP).

- Relevant Water Framework Directive (WFD) waterbodies data for waterbodies at or within proximity to the Proposed Development
- UK Habitat broad habitat type classification of land parcels up to 500 m from the boundary of the Proposed Development using aerial imagery and previously collected targeted field survey data. These surveys were undertaken as part of the baseline assessments for the NZT development. The surveys were undertaken to ground-truth key areas to confirm that correct broad habitat types had been assigned and to further explore areas that may support notable habitats.

Impact Assessment Methodology

Sources of Information

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

12.3.7 A desk study was carried out to identify nature conservation designations and protected and notable habitats and species potentially relevant to the Proposed Development.

12.3.8 As part of the desk study the following sources were accessed for ecological data:

- The Multi Agency Geographic Information for the Countryside (MAGIC) online database to search for statutory designated sites, Natural England's Impact Risk Zones (IRZ); priority habitats (as listed in Section 41 of the NERC Act 2006), and European Protected Species (EPS) mitigation licences. Typically, EPS mitigation licenses are granted for development works affecting protected species such as bats and great crested newt (*Triturus cristatus*).
- Joint Nature Conservation Committee online database for information on international statutory nature conservation designations
- Natural England website provided information for national statutory nature conservation designations.
- Aerial imagery and 1:25,000 Ordnance Survey maps to aid identification of the broad habitat types present within the study area in accordance with the UK Habitat Classification user manual (UK Habitat Classification Working Group, 2018). The aerial imagery was also used to identify potential for protected/notable species, for example:
  - Waterbodies and watercourses with potential to support protected and notable species including great crested newt; otter (*Lutra lutra*); water vole (*Arvicola amphibius*); fish, white-clawed crayfish (*Austropotamobius pallipes*), and other notable aquatic invertebrates
  - Habitats with potential to support nesting birds (including open ground nesting birds)

  - Habitats and features of potential to support bats, badger (*Meles meles*) and other notable mammals (including habitats such as dense scrub, hedgerows, woodland)
  - Habitats with potential to support reptiles (such as dense scrub, tussocky grassland and woodland edges)
  - Habitats with potential to support notable invertebrates (such as botanical rich grasslands and hedgerows, and mature woodlands)

- The Environmental Records Information Centre for the North East (ERIC NE) was contacted for records of protected and notable species as well as non-statutory designated sites within the 2 km study area.
- Environment Agency (EA) Catchment Explorer for information on Water Framework Directive (WFD) waterbodies and supporting data.
- A search of the Environment Agency Ecology and Fish Data Explorer and National Biodiversity Network (NBN) Atlas for fish, aquatic macroinvertebrates, macrophytes, invasive species and crayfish in the area of the Proposed Development.
- ERIC, NE Industry Nature Conservation Association (INCA) and Ecology surveys completed to inform the Net Zero Teesside for data on protected and notable species.
- The targeted field survey data was obtained in June 2023 as part of baseline assessments relating to the Proposed Development. The surveys were undertaken to ground-truth key areas to confirm broad habitat types and to aid in the assessment of potential suitability for protected / notable species. Dominant and notable plant species were recorded. Botanical taxonomic nomenclature followed that of the New Flora of the British Isles, Fourth Edition (Stace, 2019). Any evidence of, or potential for, protected / notable species was recorded.
- The scope of habitat and species survey work considered necessary to inform this PEI Report chapter is summarised in Table 12-1. Ornithology survey information is provided in Chapter 13: Ornithology (PEI, Report Volume I).
- This level of desk-based review and field data collection is sufficient to establish a preliminary ecological baseline; to inform an initial assessment of likely significant effects and to achieve the purpose of this assessment.

12.3.9 Protected and notable habitats and species include those listed under Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981 (as amended), Schedules 2 and 4 of The Habitats Regulations, and species and habitats of principal importance for nature conservation in England listed under Section 41 of the NERC Act 2006.

12.3.10 Other notable habitats and species have also been considered and assessed on a case-by-case basis (e.g., those included in national Red Data Books and Lists, those within the Local Biodiversity Action Plan (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.

12.3.11 The extent of field surveys is detailed within Table 12-1, and in Figure 12-4: Phase 1 Habitat Survey Plan (PEI Report, Volume II). The Study Areas are considered sufficient to address the potential worst-case zone of influence of the Proposed Development on the relevant ecological features concerned.

Table 12-1: Scope and Methods of Ecological Field Surveys

SURVEY	SCOPE OF SURVEY	SURVEY DATES (INCLUDING REPORT ON STATUS OF SURVEYS)	SURVEY AREA EXTENT	JUSTIFICATION
Phase 1 Habitat Survey and Habitat Assessment Condition to inform BNG Assessment	Phase 1 Habitat Survey in accordance with the published method (JNCC, 2016 and CIEEM, 2017). The Phase 1 habitat survey will be supplemented by UK Habitat Classification (UKHab) and condition assessment in accordance with Natural England's Biodiversity Metric 4.0 (Natural England, 2023). Assessment of possible presence of protected, priority[2] or otherwise notable species and, where relevant, the likely importance of habitat features for such species. Record of INNS of plants. Incidental records of protected or priority species or their field signs. The Phase 1 Habitat and UKHab	October 2022 – September 2023	Habitats within the Proposed Development Site. This has been extended further where deemed appropriate.	The information will form the basis of the calculation of potential permanent and temporary habitat effects within the EcIA to be presented in the ES. Habitat condition assessments are required to support a BNG assessment for the Proposed Development.

[2] These are also referred to as "protected and notable species/habitats" a definition of which is provided in paragraph 12.2.13

SURVEY	SCOPE OF SURVEY	SURVEY DATES (INCLUDING REPORT ON STATUS OF SURVEYS)	SURVEY AREA EXTENT	JUSTIFICATION
	surveys will also be supplemented by aerial habitat mapping.			
Detailed Botanical Survey	National Vegetation Classification (NVC) surveys completed where areas of potential botanical importance will be affected by the Proposed Development.	June 2023	Areas identified during Phase 1 habitat surveys.	To assess the ecological baseline and determine appropriate mitigation where habitats cannot be avoided.
Great Crested Newt (GCN) (*Triturus cristatus)*	Natural England have been consulted to confirm if (District Level Licencing) DLL will be available for the Proposed Development. eDNA surveys have been completed to confirm presence / likely absence of GCN within 250 m of the Proposed Development.	eDNA surveys were completed between 15th April and 30th June 2023.	Waterbodies within 250 m of the Proposed Development Site have been identified based on OS mapping and aerial photography.	GCN surveys are required to establish the ecological baseline for the Proposed Development. Additionally, further consultation with Natural England is required to confirm if DLL can be used to avoid significant effects upon GCN populations.
Bats - Preliminary Roost Features (PRF) assessment	Permanent impacts on trees, buildings or structures will be avoided where possible. Trees, buildings or structures which directly impacted subject to a PRF assessment survey in accordance	October 2022 – September 2023	As per the Phase 1 Habitat Survey results.	Information collated on the location of trees/buildings/ structures that are suitable for roosting bats used to inform design and offset buffers to avoid direct effects upon potential roost sites (and avoidance of trees and woodland with higher ecological value

SURVEY	SCOPE OF SURVEY	SURVEY DATES (INCLUDING REPORT ON STATUS OF SURVEYS)	SURVEY AREA EXTENT	JUSTIFICATION
	with The Bat Conservation Trust guidance (Collins, 2016).			irrespective of bats which should be avoided). Furthermore, the PRF assessment information used as basis of the scope for roost surveys (as detailed below).
Bats – Foraging/ Commuting	Activity surveys undertaken based upon published guidance (Collins, 2016 and BCT, 2022) where potential effects upon foraging and commuting routes are identified. An appropriate level of survey effort comprising walked transects and periods of remote static detector deployment across the activity season will be undertaken based on the suitability of the habitats for foraging/commuting bats, in accordance with standard survey guidance. Activity transect routes planned to provide representative coverage of all habitats of potential value to foraging/commuting bats within	May to September (surveys ongoing). Surveys commence at dusk for up to 3-4 hours and/or dawn for 3-4 hours.	Limited to areas of suitable habitat which will be permanently lost to facilitate the Proposed Development or areas where changes in lighting are proposed.	Bat activity surveys focussed on areas where suitable habitat may be lost (for example trees, woodland and hedgerows). Where linear habitat features e.g., watercourses/hedgerows are affected by the Proposed Development, which may provide commuting routes or a foraging resource for bats, appropriate robust and precedented mitigation measures can be secured via adoption of construction methods that seek to avoid these features and reduce the temporary effects to a level that would not be significant.

SURVEY	SCOPE OF SURVEY	SURVEY DATES (INCLUDING REPORT ON STATUS OF SURVEYS)	SURVEY AREA EXTENT	JUSTIFICATION
	proximity to the areas of permanent land take (although the requirements for this will be reviewed dependent on the suitability of the habitat for bats within areas where permanent facilities are proposed).			
Badger	Presence/absence survey for setts and field signs completed in combination with Phase 1 habitat survey. The survey will focus on habitat suitable to support setts and will note any observed field signs such as setts, trails and/or latrines. Incidental records obtained through desk study data in combination with the completion of other surveys will also supplement the baseline assessment.	Badger surveys can be undertaken year-round. This survey has been combined with the Phase 1 Habitat survey which took place between October 2022 and September 2023.	The Proposed Development Site plus a 50 m buffer.	To establish the ecological baseline for the Proposed Development and to determine appropriate mitigation (if required) either through avoidance of impacts on setts, or Natural England licensing for sett closures where direct impacts cannot be avoided.
Otter and water vole	Presence/absence survey looking for field signs along watercourses	Otter – surveys ongoing. Survey can be completed at any time of year –	Up to 500 m length of the watercourse – 250 m up and down	To establish the ecological baseline for the Proposed Development and to determine appropriate mitigation (if

SURVEY	SCOPE OF SURVEY	SURVEY DATES (INCLUDING REPORT ON STATUS OF SURVEYS)	SURVEY AREA EXTENT	JUSTIFICATION
	and ditches where open cut crossing techniques will be used. Presence/absence survey based on Monitoring the Otter (Chanin, 2003) and the Water Vole Mitigation Guidelines. (Dean *et al.*, 2016).	though not after heavy rainfall. Water Vole – surveys ongoing. Spring survey was completed between April and end of June 2023; with a second survey before end September 2023.	stream of crossing point.	required) either through avoidance of impacts on water vole/otter habitat, or Natural England licensing where direct impacts cannot be avoided.
Reptiles	Habitats assessed for their potential to support reptiles as part of the Phase 1 Habitat Survey based on technical guidance by Amphibian and Reptile Conservation (ARC) Trust (ARC, 2021). Where habitats appear suitable for reptile populations and are to be permanently affected by the Proposed Development, presence/absence surveys will be undertaken following guidance provided by in Froglife Advice Sheet 10: Reptile Surveys (Froglife, 1999). Survey involves laying	Reptile surveys are ongoing. Surveys completed between May 2023 and September 2023.	Areas of suitable habitat as identified during Phase 1 habitat surveys.	The reptile survey data will inform the EcIA and mitigation strategy to be presented in the ES.

SURVEY	SCOPE OF SURVEY	SURVEY DATES (INCLUDING REPORT ON STATUS OF SURVEYS)	SURVEY AREA EXTENT	JUSTIFICATION
	refugia (carpet tiles/roof felts) and leaving them in situ for up to 1-3 months. They will be checked 7 times and then removed after the last survey.			
Terrestrial Invertebrates	Terrestrial invertebrate surveys are being completed where habitats have suitability to support protected or notable invertebrate species. A focus will be on a broad but relevant selection of taxonomic groups including Coleoptera (beetles), Diptera (flies), Hemiptera (Heteroptera and Auchenorrhyncha (e.g., bugs & plant-hoppers)), aculeate Hymenoptera (e.g. solitary bees & wasps), and Arachnida (spiders and harvestmen). Other groups, which are readily identifiable in the field, such as butterflies and moths (Lepidoptera), will be recorded.	Surveys of suitable habitat were completed in May, June, July and August 2023.	Potentially important terrestrial invertebrate habitat has been identified during the Phase 1 Habitat survey and desk study.	Terrestrial invertebrate surveys are ongoing, and it is anticipated the results of these surveys will be available in November 2023 and will be included in the ES.

SURVEY	SCOPE OF SURVEY	SURVEY DATES (INCLUDING REPORT ON STATUS OF SURVEYS)	SURVEY AREA EXTENT	JUSTIFICATION
Aquatic macroinvertebrates	Surveys carried out on waterbodies within the Proposed Development Site that are potentially to be crossed using open-cut techniques.	For running watercourses; two seasons – Spring (March-May) and Autumn (September-November). Autumn aquatic macroinvertebrate surveys were completed from accessible sites in November 2022. Spring 2023 surveys were completed in March 2023. For standing water bodies (pond PSYM[3]) – surveys were completed in June and July 2023.	Waterbodies within the Proposed Development Site, with particular focus on those that are currently proposed to be crossed using open-cut techniques.	To assess the ecological baseline and to determine appropriate mitigation, if necessary, should notable and/or invasive species be present and to prevent the deterioration of water quality and WFD status.
Aquatic macrophytes	Surveys carried out on waterbodies within the Proposed Development Site that are potentially to be crossed using open-cut techniques.	The aquatic macrophytes surveys were completed in June 2023.	Minor watercourses and ditches within the Proposed Development Site, with particular focus on those that are currently proposed to	To assess the ecological baseline and to determine appropriate mitigation, if necessary, should notable and/or invasive species be present.

[3] Predictive System of Multimetrics (PSYM). Freshwater Habitats Trust (2023). PSYM Method - Freshwater Habitats TrustFreshwater Habitats Trust.

SURVEY	SCOPE OF SURVEY	SURVEY DATES (INCLUDING REPORT ON STATUS OF SURVEYS)	SURVEY AREA EXTENT	JUSTIFICATION
			be crossed using open-cut techniques.	
Fish	eDNA surveys for standing water bodies.	The fish eDNA surveys were completed in June 2023.	Waterbodies within the Proposed Development Site, with particular focus on those that are currently proposed to be crossed using open-cut technology or where suitable habitat could potentially be lost.	To assess the ecological baseline and to determine appropriate mitigation, if necessary, should notable and/or invasive species be present.
Invasive and Non-native species (INNS)	The presence of INNS recorded during baseline ecological surveys of all aquatic surveys and through the desk study.	The survey for invasive non-native species was undertaken during the Phase 1 habitat surveys and botanical and aquatic surveys.	As per the Phase 1 habitat survey.	To assess the ecological baseline and to determine appropriate mitigation, if necessary, should invasive species be present.

Value/Importance of Ecological Features

12.3.12 The value of sites, habitats and potential for protected and notable species are evaluated with reference to both their importance in terms of 'biodiversity conservation' value (which relates to the need to conserve representative areas of different habitats and the genetic diversity of species populations) and their legal status.

12.3.13 The importance of biodiversity resources/ecological features within the study areas is assessed according to a defined geographical framework with reference to Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018).

12.3.14 Current CIEEM guidance have deliberately moved away from the term “receptor” and have adopted the term “Ecological Feature”.

12.3.15 CIEEM Ecological Impact Assessment guidelines recommends that the value/importance of a biodiversity resource/ecological feature be considered within a defined geographical context. The value of each ecological 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 were used for this assessment, based on CIEEM guidance, are:

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

12.3.16 All ecological features of Local value and above, where there is the potential for direct and indirect impacts due to the Proposed Development have been taken forward to impact assessment and as such considered to be the ‘Important Ecological Features’ for the purposes of this PEI Report chapter. In line with the CIEEM guidelines, the terminology used draws a clear distinction between the terms ‘impact’ and ‘effect’. These terms are defined as follows:

- impact – actions resulting in changes to an ecological feature; for example, site clearance activities leading to the felling of a tree utilised as a bat roost; and
- effect - outcome resulting from an impact, acting upon the conservation status or structure and function of an ecological feature; for example, killing/injury of bats

and reducing the availability of breeding habitat because of the loss of a bat roost may lead to an adverse effect on the conservation status of the population concerned.

Assessment of Significance

12.3.17 Potential impacts on important ecological features have been assessed in accordance with CIEEM best practice guidance (CIEEM, 2022).

12.3.18 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.

12.3.19 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.

12.3.20 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 ecological features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable". This does not mean that efforts should not be made to safeguard wider biodiversity, and requirements for this have been considered. National policy documents emphasise the need to achieve no net loss of biodiversity and enhancement of biodiversity.

Significance Criteria

12.3.21 For each ecological 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 ecological features, as follows:

- Not Significant - no, negligible or minor effect on structure and function, or conservation status; and
- Significant - structure and function, or conservation status is subject to a major or moderate effect.

12.3.22 For significant effects (both adverse and beneficial) this is qualified with reference to the geographic scale at which the effect is significant (e.g., an adverse effect significant at a National level).

12.3.23 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 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 12-2.

Table 12-2: 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.
	Minor adverse	Adverse effect on structure/function or conservation status at a local level.
Significant (adverse)	Moderate adverse	Adverse effect on structure/function or conservation status at District or County level. Contravention of wildlife legislation.
	Major adverse	Adverse effect on structure/function or conservation status at Regional, National or International level. Contravention of wildlife legislation.

12.3.24 Significant adverse effects will be mitigated or compensated whilst further ecological enhancements will be recommended where appropriate to help meet planning policy objectives. Following the implementation of mitigation and compensation measures, as appropriate, residual effects on ecological features have been identified.

Consultation

12.3.25 An EIA Scoping Opinion was requested from 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 ecology and nature conservation are outlined in Table 12-3.

Table 12-3: 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	Great Crested Newt (GCN) Surveys. The Scoping Report seeks to scope out surveys on land located to the south of the River Tees on the basis that the Industry Nature Conservation Association (INCA) (a membership organisation including the Tees Valley Wildlife Trust) confirmed for the NZT project that there are known occurrences of GCN in this area. Table 6-3 of the Scoping Report states that land to the north of the River Tees would be surveyed if a District Level Licensing (DLL) approach is not agreed with Natural England. The Inspectorate agrees that surveys on land to the south of the River Tees can be scoped out of the ES.	eDNA surveys have been completed to confirm GCN presence/likely absence within suitable waterbodies north of the River Tees. Natural England were contacted on the 10th March 2023 to confirm if DLL for GCN will be available for the Proposed Development. In their response dated 27th April 2023 (reference DLL-ENQ-NEYK-00025) Natural England provided best and worst-case scenario costs, noting that the scope of the development was yet to be refined and the Main Site location was unconfirmed. Natural England advised that once the scope of the development had been finalised, the Main Site location determined and the number of waterbodies to be impacted known, they could run a final impact assessment to provide the conservation costs of obtaining a DLL. Effects upon GCN will be avoided where possible, and if not possible, a suitable mitigation strategy will be implemented. This may involve a DLL or a mitigation licence from Natural England.

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	Effects on relevant habitats and species from water quality changes during operation. The Scoping Report states that temporary effects to water quality during construction would be considered but does not reference potential effects during operation, for example from spillages or discharges, extraction of water and/or effluent discharge. The ES should include an assessment of this matter or otherwise demonstrate why significant effects are not likely to occur. Cross-reference should be made to the assessment in the Surface Water, Flood Risk and Water Resources ES Chapter.	Effects upon relevant habitats and species from water quality changes are considered for all phases of the Proposed Development – refer to Chapter 9: Surface Water, Flood Risk and Water Resources (PEI Report, Volume I).
The Inspectorate	Scoping opinion 17th May 2023	Bat activity surveys along the Connection Corridors. The Scoping Report identifies the intention to limit surveys to areas of suitable habitat where permanent effects e.g., loss are predicted. The Inspectorate accepts, as stated in Table 6-3 of the Scoping Report, that such surveys may not be warranted in relation to temporary habitat loss. However, the Inspectorate considers that they may be required to inform the assessment of likely significant effects and the design of appropriate mitigation in relation to the effects of construction lighting and effects resulting from impacts to linear habitat features.	Bat activity surveys are ongoing and are being undertaken within areas of suitable habitat to inform the ecological baseline.

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/HOW COMMENTS HAVE BEEN ADDRESSED
		These matters should be considered in the ES where likely significant effects could occur, supported by appropriate evidence such as bat activity survey data. The Applicant should seek agreement from relevant consultees and provide a description of the approach taken in the ES, incorporating any relevant advice.	
The Inspectorate	Scoping Opinion 17th May 2023	Air quality effects on sensitive ecological receptors. The Scoping Report states that air quality impacts from construction traffic emissions and operational emissions will be considered but does not specify for which pollutants. Section 6.2 (air quality) of the Scoping Report identifies which pollutants are proposed to be assessed but does not reference nitrogen deposition or acid deposition as potential impacts which could affect sensitive ecological receptors. For the avoidance of doubt, the potential for nitrogen deposition and/or acid deposition to arise and result in effects on ecological receptors should be considered in the ES, and subject to assessment where a pathway for significant effects is identified.	Air quality effects including nitrogen deposition will be considered within the ecology chapter of the ES and the report to inform Habitats Regulations Assessment (HRA).
The Inspectorate	Scoping Opinion 17th May 2023	GCN – information to support of assessment of effects. With regard to the Proposed Development site to the north of the River Tees, the Scoping Report states it is proposed to consult NE about whether a District Level	As discussed above, Natural England have been consulted to confirm if DLL will be available.

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/HOW COMMENTS HAVE BEEN ADDRESSED
		Licensing (DLL) approach would be available for this project. If not, it is proposed to undertake habitat suitability assessment surveys to inform the assessment in the ES, in addition to eDNA and/or presence/absence surveys. It also sets out the circumstances where population size class assessment surveys may be undertaken to inform the assessment of effects. The Inspectorate is content with this approach to GCN. The Applicant's attention is drawn to Natural England's comments in Appendix 2 and the Inspectorate's Advice Note 11, Annex C.	
The Inspectorate	Scoping Opinion 17th May 2023	Otter and water vole surveys. The Scoping Report states that presence/absence surveys will be undertaken in locations where open cut crossings of watercourses and ditches will be required. The Inspectorate notes that trenchless crossings are proposed at several locations, but no information is presented as to whether otter or water vole are likely to be present here and/or whether crossing installation would generate potential impact pathways. The survey area should include trenchless crossing locations, or the ES should otherwise demonstrate why a significant effect is not likely to occur in these locations.	Otter and water vole surveys are being completed to inform the ecological baseline. Potential effects on otter and water vole will be considered within the ES, including consideration of locations where trenchless crossings are proposed.

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	Detailed surveys for reptiles, freshwater species, terrestrial vertebrates and plants. The Scoping Report states that the requirement for species' surveys will be informed by further desk-based assessment and the findings of the Phase 1 Habitat survey. The Inspectorate agrees with the approach set out. Effort should be made to agree the survey scope and methodology with the relevant consultation bodies.	Where possible the survey scope and methodology for these species will be agreed with the relevant consultation bodies.
The Inspectorate	Scoping Opinion 17th May 2023	Biodiversity net gain (BNG). The Scoping Report states that the project will aspire to achieve net gain and that a BNG assessment will be undertaken. The ES should clearly distinguish between mitigation for significant adverse effects on biodiversity from wider enhancement measures. The Applicant's attention is drawn to Natural England's comments in Appendix 2 regarding the latest Biodiversity Metric 4.0.	A BNG assessment will be completed using the relevant metric available at the time of DCO submission. The BNG assessment will be completed once the DCO design is fixed and will quantify the impacts on habitats. Where habitats will be lost, proportionate enhancement and mitigation measures will be proposed to ensure delivery of the BNG target.
The Inspectorate	Scoping Opinion 17th May 2023	Scope of assessment. The assessment of temporary disturbance impacts to habitats should include consideration of likely significant effects arising from the construction of the hydrogen pipeline in proximity to Greatham Creek and Saltern Wetlands. The Applicant's attention is drawn to the EA's comments in Appendix 2 in this regard.	The potential for effects upon wetland habitats will be considered within the ES.

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	Confidential annexes. Public bodies have a responsibility to avoid releasing environmental information that could bring about harm to sensitive or vulnerable ecological features. Specific survey and assessment data relating to the presence and locations of species such as badgers, rare birds and plants that could be subject to disturbance, damage, persecution, or commercial exploitation resulting from publication of the information, should be provided in the ES as a confidential annex. All other assessment information should be included in an ES chapter, as normal, with a placeholder explaining that a confidential annex has been submitted to the Inspectorate and may be made available subject to request.	Information on sensitive ecological receptors will be provided in a confidential annex as requested.
The Inspectorate	Scoping Opinion 17th May 2023	The Scoping Report states that temporary effects to water quality during construction would be considered but does not reference potential effects during operation, for example from spillages or discharges, extraction of water and/ or effluent discharge. The ES should include an assessment of this matter or otherwise demonstrate why significant effects are not likely to occur. Cross reference should be made to the assessment in the Surface Water, Flood Risk and Water Resources ES Chapter.	Preliminary effects upon water quality are considered in Chapter 9: Surface Water, Flood Risk and Water Resources (PEI Report, Volume I). The ES will consider the operational effects on water quality.

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 Scoping Report states that the requirement for species' surveys will be informed by further desk-based assessment and the findings of the Phase 1 Habitat survey. The Inspectorate agrees with the approach set out. Effort should be made to agree the survey scope and methodology with the relevant consultation bodies. The ES should include an assessment of likely significant effects to these receptors where these could occur, or information demonstrating absence of a likely significant effect and where agreement has been reached with relevant consultation bodies.	Phase 1 habitat surveys and protected and notable species surveys are ongoing, and this information will inform the ecological baseline. The results of these surveys will be taken into consideration in the assessment to be presented in the ES.
The Inspectorate	Scoping Opinion 17th May 2023	Consider potential effects from noise and vibration on migratory fish.	The impact of Noise and vibration on migratory fish will be considered in the ES.
The Inspectorate	Scoping Opinion 17th May 2023	The assessment of temporary disturbance impacts to habitats should include consideration of likely significant effects arising from the construction of the hydrogen pipeline in proximity to Greatham Creek and Saltern Wetlands. The Applicant's attention is drawn to the EA's comments in Appendix 2 in this regard.	The ES will consider temporary disturbance impacts to habitats arising from the construction of the hydrogen pipeline in proximity to Greatham Creek and Saltern Wetlands.
Natural England	Scoping Opinion 9th May 2023	Cumulative and in-combination effects. Natural England acknowledges the applicant's description of projects needing to be assessed for cumulative and in	The potential for in combination effects will be considered within the ES. Nutrient neutrality will be considered within the ES and Stage 2 of the HRA

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/HOW COMMENTS HAVE BEEN ADDRESSED
		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 designated sites and Section 10 Climate Change – delivering mitigation and building resilience.	process (Appropriate Assessment), if required. A Nutrient Neutrality Screening assessment is included in Appendix 9B of Chapter 9: Surface Water, Flood Risk and Water Resources (PEI Report, Volume III).
Natural England	Scoping response 9th 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). Similarly we are checking the scope for use of the GCN District Level Licensing scheme in relation to land within	Natural England were contacted on the 10th March 2023 to confirm if DLL for GCN will be available for the Proposed Development. In their response dated 27th April 2023 (reference DLL-ENQ-NEYK-00025) Natural England provided best and worst-case scenario costs, noting that the scope of the development was yet to be refined and the Main Site location was unconfirmed. Natural England advised that once the scope of the development had been

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/HOW COMMENTS HAVE BEEN ADDRESSED
		(or up to 250m from) the red line boundary lying north of the River Tees.	finalised, the Main Site location determined and the number of waterbodies to be impacted known, they could run a final impact assessment to provide the conservation costs of obtaining a DLL.
Natural England	Scoping response 9th 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).	A BNG assessment will be completed during the EIA and submitted with the DCO Application.
Natural England	Scoping response 9th 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 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.	A HRA screening report has been prepared during this preliminary stage to determine the potential impacts on the integrity of the internationally designated/protected sites or their qualifying features as a result of the Proposed Development. The HRA Screening identifies likely significant effects of these potential impacts. Further assessment will be undertaken during the EIA to prepare a report to inform Stage 2 of the HRA will be prepared to assess the potential for likely significant effects both alone and in combination with other plans or projects.

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/HOW COMMENTS HAVE BEEN ADDRESSED
		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.	
Natural England	Scoping response 9th 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 15 km 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 response 9th May 2023	The ES should assess the impact of all phases of the proposal on protected species (including, for example, GCN 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 impact of all phases of the Proposed Development on protected species. The suite of ecological surveys that have been scoped in for the assessment is provided in Table 12-1. It is important to note that at the time of writing (August 2023), some protected species surveys are still ongoing.

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/HOW COMMENTS HAVE BEEN ADDRESSED
Natural England	Scoping response 9th May 2023	Natural England is aware that the applicant is interested in district level licensing for relevant land (within the red line boundary or relevant distance threshold for GCN waterbodies). We will continue in dialogue with the applicant accordingly. For reference, where strategic approaches such as district level licensing (DLL) for GCN are used, a letter of no impediment (LONI) will not be required. Instead, the developer will need to provide evidence to the Examining Authority (ExA) on how and where this approach has been used in relation to the proposal, which must include a counter-signed Impact Assessment and Conservation Payment Certificate (IACPC) from Natural England. The DLL approach is underpinned by a strategic area assessment which includes the identification of risk zones, strategic opportunity area maps and a mechanism to ensure adequate compensation is provided regardless of the level of impact. In addition, Natural England will undertake an impact assessment, the outcome of which will be documented in the IACPC. If no GCN surveys have been undertaken, Natural England's risk zone modelling may be relied upon. During the impact assessment, Natural England will	Natural England was contacted on the 10th March 2023 to confirm if DLL for GCN will be available for the Proposed Development. In their response dated 27th April 2023 (reference DLL-ENQ-NEYK-00025) Natural England provided best and worst-case scenario costs, noting that the scope of the development was yet to be refined and the Main Site location was unconfirmed. Natural England advised that once the scope of the development had been finalised, the Main Site location determined and the number of waterbodies to be impacted known, they could run a final impact assessment to provide the conservation costs of obtaining a DLL.

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/HOW COMMENTS HAVE BEEN ADDRESSED
		inform the Applicant whether their scheme is within one of the amber risk zones and therefore whether the Proposed Development is likely to have a significant effect on GCN. The IACPC will also provide additional detail including information on the Proposed Development's impact on GCN and the appropriate compensation required.	
Natural England	Scoping response 9th 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 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.	Potential effects upon Habitats of Principal Importance will be considered in the ES including open mosaic habitat on previously developed land; a habitat present due to the brownfield nature of the site.
Natural England	Scoping response 9th May 2023	The ES should use an appropriate biodiversity metric such as Biodiversity Metric 4.0 together with ecological advice to calculate the change in biodiversity resulting from proposed development and demonstrate how proposals can achieve a net gain.	A BNG assessment will be completed during the EIA 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 response 9th 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 and will include an assessment of potential road traffic emissions.
Natural England	Scoping response 9th 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.	Nutrient neutrality will be considered within the ES and Stage 2 of the HRA process (Appropriate Assessment). A Nutrient Neutrality Screening assessment is included in Appendix 9B of Chapter 9: Surface Water, Flood Risk and Water Resources (PEI Report, Volume III).

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/HOW COMMENTS HAVE BEEN ADDRESSED
Natural England	Scoping response 9th 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.
Environment Agency	Scoping response 9th May 2023	R1 crosses the no. 4 brinefield (owned by Sabic and used for hydrocarbon storage), and under the flood embankment on the south bank of Greatham Creek (Sabic Embankment). It also lies under the flood embankment on the north bank of Greatham Creek, which is to be significantly repaired as part of EA's	Ongoing consultation with the Environment Agency will seek to identify opportunities to deliver wider ecological and environmental benefits as a result of the Proposed Development.

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/HOW COMMENTS HAVE BEEN ADDRESSED
		Greatham North East Flood Alleviation Scheme (FAS). This route also crosses the redundant no. 5 brinefield (owned by Inovyn Chlorvinyl Ltd) and the ConocoPhillips oil pipeline corridor and Seal Sands Emergency Access Road. The EA is also developing a scheme (Greatham North East FAS) to improve the defences to the south of the Venator Plant. We expect to submit an application for planning permission in Spring 2024 and hope to start construction of the scheme in summer 2024. We are currently seeking contributions from beneficiaries of the scheme. As the proposed pipeline could benefit from our works, we would welcome discussions with the applicant on the potential for financial contributions from DCO, if R1 is chosen as the preferred route.	

Use of the Rochdale Envelope

12.3.26 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.

12.3.27 As ecological surveys are ongoing and the design of the Proposed Development is not finalised at the time that this assessment was prepared, this preliminary ecological impact assessment follows the precautionary principle.

12.4 Baseline Conditions

Existing Baseline

12.4.1 The terrestrial and aquatic ecology features (excluding birds and ornithological designations which are presented in Chapter 13: Ornithology (PEI Report, Volume I)) relevant to the Proposed Development are summarised in this section and summarised within Table 12-4. A precautionary approach has been taken when defining the baseline conditions, given not all surveys have been completed. This will be subject to review and update as further information becomes available.

Designated Sites

Statutory Designated Sites

12.4.2 There are three Special Protection Areas (SPAs), three Special Areas of Conservation (SACs) and two Ramsar sites within 15 km of the Proposed Development Site.

12.4.3 There are 20 Sites of Special Scientific Interest (SSSIs) and three National Nature Reserves (NNR) within 15 km of the Proposed Development Site Details are provided in Table 12-4.

12.4.4 Figure 12-1 shows the locations of the statutory designated sites in relation to the Proposed Development Site.

Non-statutory Designated Sites

12.4.5 There are 20 non-statutory designated sites of ecological importance (Local Wildlife Sites (LWS)) within 2 km of the Proposed Development Site – refer to Table 12-5. Figure 12-2 (PEI Report, Volume II) shows the locations of non-statutory designated sites in relation to the Proposed Development Site.

Table 12-4: Statutory Designated Sites within 15 km of the Proposed Development Site

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO MAIN SITE (APPROX.)	PROXIMITY TO CONNECTION CORRIDORS (APPROX.)
Teesmouth and Cleveland Coast SPA	Qualifying features (Natural England, 2020a): • Pied avocet (*Recurvirostra avosetta)* (breeding); • Red knot (*Calidris canutus)* (non-breeding); • Ruff (*Calidris pugnax)* (non-breeding); • Common redshank (*Tringa totanus)* (non-breeding); • Sandwich tern (*Thalasseus sandvicensis)* (non-breeding); • Common tern (*Sterna hirundo)* (breeding); • Little tern (*Sternula albifrons)* (breeding); and • Waterbird assemblage.	10 m north	Adjacent to/overlapping
Teesmouth and Cleveland Coast Ramsar	The site qualifies as a Ramsar for the following Ramsar criteria (Natural England, 2020b): Criterion 5 - Assemblages of international importance: • Species with peak counts in winter: – 26,786 waterfowl (5-year peak mean 2011/12-2015/16). Criterion 6 – Species/populations occurring at levels of international importance: • Qualifying Species/populations (as identified at designation): – Species with peak counts in spring/autumn: ▪ Common redshank; 1,648 individuals representing an average of 1.1% of the East Atlantic population (1987-91).	173 m at closest point	Adjacent to/overlapping

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO MAIN SITE (APPROX.)	PROXIMITY TO CONNECTION CORRIDORS (APPROX.)
	– Species with peak counts in winter: ▪ Red 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).		
North York Moors SPA	Qualifying Features (Natural England 2019a): • Merlin (*Falco columbarius*)*;* • European golden plover (*Pluvialis apricaria*).	12.1 km south-east	8.0 km south-east
North York Moors SAC	Qualifying features (Natural England, 2014a): Annex I habitats that are a primary reason for selection of this site: • Northern Atlantic wet heaths with cross-leaved heath (*Erica tetralix)*; and • European dry heaths. Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: • Blanket bogs.	12.1 km south-east	8.0 km south-east
Northumbria Coast SPA	Qualifying features (Natural England, 2013): • Arctic tern (*Sterna paradisaea)*; • Little tern; • Turnstone (*Arenaria interpres*)*;*	13.7 km north	11.0 km north

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO MAIN SITE (APPROX.)	PROXIMITY TO CONNECTION CORRIDORS (APPROX.)
	• Purple sandpiper (*Calidris maritima*).		
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: • 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).	13.7 km north	11.0 km north
Durham Coast SAC	Qualifying features (Natural England, 2014b): • Vegetated sea cliffs of the Atlantic and Baltic Coasts.	13.7 km north-west	11.0 km north-west
Castle Eden Dene SAC	Qualifying features (Natural England, 2014c): • Yew (*Taxus baccata*) dominated woodland.	Over 15 km	14.3 km north-west
Teesmouth and Cleveland Coast SSSI	The site is of special interest for the following nationally important ecological features (Natural England, 2018): • sand dunes; • saltmarshes;	5 m west	Adjacent to/overlapping

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO MAIN SITE (APPROX.)	PROXIMITY TO CONNECTION CORRIDORS (APPROX.)
	• breeding harbour seals (*Phoca vitulina)*; • breeding avocet, little tern, common tern; • a diverse assemblage of breeding birds of sand dunes, saltmarsh and lowland open waters and their margins; • non-breeding shelduck (*Tadorna tadorna)*, shoveler (*Spatula clypeata)*, gadwall (*Mareca strepera)*, ringed plover (*Charadrius hiacula)*, knot, ruff, sanderling (*Calidris alba)*, purple sandpiper, redshank and sandwich tern; • an assemblage of more than 20,000 waterbirds during the non-breeding season; and • a diverse assemblage of invertebrates associated with sand dunes.		
Lovell Hill Pools SSSI	Habitats includes open water and canals. The SSSI supports nationally rare and scarce dragonfly species including the variable damselfly (*Coenagrion pulchellum*). The pools and surrounding habitats support populations of both GCN and smooth newt (*Triturus vulgaris)*.	6.6 km south-east	2.4 km south-east
Briarcroft pasture SSSI	Species rich unimproved neutral grassland. The relevant NVC community is MG5 crested dog's tail (*Cynosurus cristatus)* – common knapweed (*Centaurea nigra)* grassland.	Over 15 km	7.7 km west
Roseberry topping SSSI	Designated for its geological interest.	12.2 km south	8.0 km south
North York Moors SSSI	Vegetation communities transition between blanket bog and dry heath land and support diverse and extensive upland plant communities. The moorland is dominated by dry heath on the central and western moors and wet heath and mire	12.1 km south-east	8.0 km south-east

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO MAIN SITE (APPROX.)	PROXIMITY TO CONNECTION CORRIDORS (APPROX.)
	communities on the northern and eastern moors. The plateaux are defined by several valleys, the sides of which support extensive strands of bracken (*Pteridium aquilinum)* and small areas of native woodland. Acid grasslands occur along some of the moorland edges. The habitats support breeding birds including golden plover and merlin.		
Saltburn Gill SSSI	A steep sided coastal dene designated for its woodland habitat. Coppiced pedunculate oak (*Quercus robur)* with standards dominate the canopy with ash (*Fraxinus excelsior)* and small pockets of wych elm (*Ulmus glabra)* and wild cherry (*Prunus avium)*. The shrub layer is composed of hazel (*Corylus avellana)*, scattered hawthorn (*Crataegus monogyna)* and blackthorn (*Prunus spinosa)*, with occasional (*holly Ilex aquifolium)*, gooseberry (*Ribes uva-crispa)*, guelder rose (*Viburnum opulus)* and spindle (*Euonymus europaeus)*. Dense patches of regenerating sycamore *Acer pseudoplatanus* are also present.	11.2 km south-east	8.2 km east
Whitton Bridge Pasture SSSI	The site is of national importance for its areas of species-rich unimproved neutral grassland. The relevant NVC community is MG5 crested dog's tail – common knapweed grassland.	Over 15 km	8.3 km west
Langbaurgh Ridge SSSI	A disused quarry designated for its geological interest.	12.5 km south	8.4 km south
Cliff Ridge SSSI	Quarries designated for geological interest.	13.2 km south	9.0 km south
Durham Coast SSSI	Contains magnesian limestone vegetation as well as a species-rich dune system. The site supports breeding cormorant Phalacrocorax carbo, fulmar (*Fulmarus*	12.0 km north-west	9.4 km north-west

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO MAIN SITE (APPROX.)	PROXIMITY TO CONNECTION CORRIDORS (APPROX.)
	glacialis), kittiwake (*Rissa tridactyla)* and little tern. The SSSI also supports non-breeding purple sandpiper and sanderling.		
Hart Bog SSSI	Hart Bog is a small topogenous mire within a steep-sided hollow. The NVC communities present are M19 common heather (*Calluna vulgaris)* - hare's-tail cottongrass (*Eriophorum vaginatum)* blanket mire, M4 – bottle sedge (*Carex rostrata)* - (*Sphagnum recurvum (fallax))* mire, M5 - (*Carex rostrata - Sphagnum squarrosum)* mire and S27 – bottle sedge – marsh cinquefoil (*Potentilla palustris)* swamp.	14.1 km north-west	10.4 km north-west
Pike Whin Bog SSSI	The bog lies in a natural basin, in which the water level is at or above the ground surface for most of the year. The NVC communities present are M23 – soft rush (*Juncus effusus)*/sharp flowered rush (*Juncus acutiflorus)* – marsh bedstraw (*Galium palustre)* rush pasture, M27 – meadowsweet (*Filipendula ulmaria)* – wild angelica (*Angelica sylvestris)* mire and S27 – bottle sedge – marsh cinquefoil swamp.	Over 15 km	10.4 km north-west
Kildale Hall SSSI	Designated for its geological interest.	Over 15 km	11.7 km south-east
Hulam Fen SSSI	The fen supports a supports a range of wetland and grassland vegetation developed over and around a hydrostatic spring-head, fed from the underlying Magnesian Limestone aquifer in an otherwise arable landscape.	Over 15 km	12.9 km north-west
Castle Eden Dene SSSI	The largest and biologically the richest of a series of steep-sided wooded denes, formed as deep ravines in the Magnesian Limestone and boulder clay of the Durham Coast. Designated for woodland and grassland habitats.	Over 15 km	14.3 km north-west

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO MAIN SITE (APPROX.)	PROXIMITY TO CONNECTION CORRIDORS (APPROX.)
Pinkney and Gerrick Woods SSSI	An area of deciduous woodland on the steep slopes of Kilton Beck. It is of importance as one of the few ancient woodland sites in Cleveland which remains in a largely semi-natural condition.	Over 15 km	13.6 km south-east
Fishburn Grassland SSSI	Fishburn Grassland comprises species-rich calcareous grassland developed over magnesian limestone. The grassland is composed of two distinct communities, the first dominated by blue moor-grass (*Sesleria albicans)* and small scabious (*Scabiosa columbaria)* and the second by upright brome (*Bromus erectus)*. Scrub communities form the remainder of the site.	Over 15 km	13.9 km north-west
Charity Land SSSI	This site, situated to the north of Trimdon beside the upper River Skerne comprises a group of fields with species-rich unimproved neutral grassland.	Over 15 km	13.9 km north-west
Newton Ketton Meadow SSSI	Newton Ketton Meadow is important as one of the very few surviving unimproved hay meadows in the coastal plain between the Rivers Tyne and Tees. A small area of fen vegetation adds diversity to the site.	Over 15 km	14.6 km west
Boulby Quarries SSSI	Designated for its geological interest.	Over 15 km	14.9 km east
Teesmouth NNR	The reserve covers 350 ha in two sections separated by Hartlepool PowerStation. North Gare lies to the north, and Seal Sands to the south. North Gare comprises of sand dunes and areas of saltmarsh. The dunes and saltmarsh support a wide variety of plants, and in winter large flocks of birds roost at Seaton Snook. Seal Sands comprises of mudflats and are home to the common and grey seals (*Halichoerus grypus)* and the winter home for hundreds of shelduck. More than	1.77 km west	Within/overlapping

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO MAIN SITE (APPROX.)	PROXIMITY TO CONNECTION CORRIDORS (APPROX.)
	20,000 individual waterfowl visit Teesmouth during the year. The reserve supports four different species of marsh orchid and two nationally scarce species of grass.		
Durham Coast NNR	Designated for vegetated sea cliffs of the Atlantic and Baltic Coasts.	12.7 km north-west	10.0 km north-west
Castle Eden Dene NNR	The NNR is Designated for habitats and species groups including: • amphibians and reptiles; • ash, elm and sycamore dominated woodland and alder (*Alnus glutinosa*); • birds; • calcareous grassland (neutral and wet grassland); • invertebrate assemblage; • mammals; • plants and fungi; • streams and springs; and • woodland (yew and broadleaf).	Over 15 km	14.3 km north-west

Table 12-5: Non-statutory designated sites within 2 km of the Proposed Development Site

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO THE MAIN SITE	PROXIMITY TO CONNECTION CORRIDORS
Phillips Tank Farm Grassland LWS	The site comprises urban grassland which has developed on site that supports at least 10 herb species required for LWS selection in the Tees Valley. The site supports breeding populations of GCN, and the site boundaries encompass both aquatic and terrestrial habitats used by GCN. The site regularly supports green hairstreak (*Callophrys rubi)* or white-letter hairstreak (*Satyrium w-album*) or a significant population (i.e. 10 individuals) of dingy skipper (*Erynnis tages)*. The site supports a good population of water vole, including areas of suitable habitat that link good populations even when the area is not currently occupied.	4.4 km west	Within/overlapping
Saltern Saltmarsh LWS	The site supports a saltmarsh habitat and was created as an inter-tidal habitat of 20 ha in 2014 by the Environment Agency.	4.7 km west	78.3 m north-west
Greenabella Marsh LWS	The site makes up the NVC community MG1 False-oat grass (*Arrhenatherum elatius*) grassland. There are several large pools and ditches and areas of swamp and fen communities. Open mosaic habitat is present on the sea wall and around pathways. The site supports a good population of water vole, including areas of suitable habitat that link good populations even when the area is not currently occupied. The site supports native reptile species where more than one individual has been recorded over a period of more than one year.	3.5 km west	Within/overlapping
Greatham Creek North Bank Saltmarsh LWS	The site supports a saltmarsh habitat, dominated by saltmarsh grass (*Puccinellia* spp.)	4.0 km west	Within/overlapping
Coatham Marsh LWS	The site supports a saltmarsh, coastal grasslands, flushes, seepages, springs, neutral and urban grassland habitats and vascular plants.	1.3 km east	Within/overlapping

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO THE MAIN SITE	PROXIMITY TO CONNECTION CORRIDORS
Eston Pumping Station LWS	The site supports a mosaic of habitats and borderline neutral urban grasslands.	1.1 km south	Within/overlapping
Cowpen Bewley Woodland Park LWS	The site is a former brickworks, landfill and agricultural land that is now a country park comprising new woodland, grassland, ponds and lakes. The site supports GCN.	6.9 km west	Within/overlapping
Queen's Meadow Wetland LWS	The site supports a good population of three or more amphibian species required for Tees Valley LWS Selection.	Over 2 km	1.2 km north-west
Tot Fenny's Meadow LWS	The site supports neutral grassland, fen and/or flushes. The neutral grassland supports at least three grass and three herb species required for Tees Valley LWS selection. There is also an area of marsh habitat.	Over 2 km	599 m west
Billingham Norton Bottoms Reedbed Treatment System LWS	A large reedbed.	Over 2 km	715 m south-west
Norton Bottoms LWS	The site supports neutral grassland with grassland species including common bent (*Agrostis capillaris*), crested dog's-tail, yellow oat-grass (*Trisetum flavescens*), yarrow (*Achillea millefolium*), cat's-ear (*Hypochaeris radicata*), common bird's-foot-trefoil (Lotus corniculatus), selfheal (Prunella vulgaris), salad burnet (Sanguisorba minor) and red clover (Trifolium pratense). The site could also support urban grassland, but all species have not been recorded to confirm. Species recorded include silver hair-grass (*Aira caryophyllea*), soft brome (*Bromus hordeaceus*), viper's-bugloss (*Echium vulgare*) and fairy flax.	Over 2 km	760 m west

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO THE MAIN SITE	PROXIMITY TO CONNECTION CORRIDORS
Power Station Grassland and Wetland LWS	The site is a large area of mainly rank grassland and scrub but also some small areas of wetland and open mosaic habitat. The site supports native reptile species where more than one individual has been recorded over a period of more than one year.	Over 2 km	877 m north-west
Brenda Road Brownfield LWS	The site includes early successional brown field habitat which supports dingy skipper butterfly.	Over 2 km	1.1 km north-west
Teesaurus Park LWS	The site is an urban park and has areas of mown amenity grassland and areas of varied grass and herb mix. The herb species include kidney vetch (*Anthyllis vulneraria*), viper's-bugloss, great lettuce (*Lactuca virosa*) and tansy (*Tanacetum vulgare*).	Over 2 km	890.8 m west
Zinc Works Bird Field LWS	The site is a large flat area of grassland which 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).	Over 2 km	1.3 km north
Wilton Woods Complex LWS	The site supports a broad-leaved, mixed and yew woodland and is an ancient woodland.	Over 2 km	1.2 km south-east
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. The site also has an exceptional number of common toad (*Bufo bufo*); measured in the 1000s in 2012 and 2015.	Over 2 km	1.3 km north

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO THE MAIN SITE	PROXIMITY TO CONNECTION CORRIDORS
Portrack Meadows LWS	The site is a former industrial site on the north bank of the river Tees. The site comprises a central area of urban grassland with surrounding scrub, an area of reedbed, and a brackish pool with remnant saltmarsh. The neutral grassland on site supports sweet vernal-grass (*Anthoxanthum odoratum*), crested dog's-tail, common knapweed, cat's-ear, meadow vetchling (*Lathyrus pratensis*), common bird's-foot-trefoil, cowslip (*Primula veris*), selfheal and yellow-rattle (*Rhinanthus minor*). The urban grassland supports kidney vetch, mugwort (*Artemisia vulgaris*), yellow wort (*Blackstonia perfoliata*), common centaury (*Centaurium erythraea*), wild carrot (*Daucus carota*), hedgerow crane's-bill (*Geranium pyrenaicum*), common toadflax (*Linaria vulgaris*), tall melilot (*Melilotus latissimus*), wild mignonette (*Reseda lutea*), hedge mustard (*Sisymbrium officinale*) and tansy.	Over 2 km	1.6 km south-west
Billingham Beck Valley Country Park LWS	The site is a large area of neutral grassland, wetland, scrub and woodland in the valley of Billingham Beck, that forms the country park. The site supports dingy skipper, has areas of reedbed. The wetland species on site include sneezewort (*Achillea ptarmica*), marsh marigold, (*Caltha palustris*), yellow Iris (*Iris pseudacorus*), meadow vetchling, ragged robin (Lychnis flos-cuculi), amphibious bistort (*Persicaria amphibia*), great burnet (*Sanguisorba officinalis*). The neutral grassland species include common bent, meadow foxtail (*Alopecurus pratensis*), sweet vernal-grass, crested dog's-tail, yellow oat-grass, yarrow, harebell (*Campanula rotundifolia*), common knapweed, meadow vetchling, autumn hawkbit (*Scorzoneroides autumnalis*), common bird's-foot-trefoil, selfheal, yellow-rattle, common sorrel (*Rumex ace*tosa), great burnet, betony (*Betonica officinali*s), devil's-bit scabious (*Succisa pratensis*), zigzag clover (*Trifolium medium*) and red clover.	Over 2 km	1.4 km west

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO THE MAIN SITE	PROXIMITY TO CONNECTION CORRIDORS
Portrack Marsh LWS	The site is a wetland nature reserve with pools and reed/swamp vegetation. The site supports dingy skipper. 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.	Over 2 km	1.9 km south-west

Habitats of Principal Importance

12.4.6 The following potential Habitats of Principal Importance (HPI) have been identified within the Proposed Development Site:

- coastal and floodplain grazing marsh;
- coastal saltmarsh;
- coastal sand dunes;
- deciduous woodland;
- mudflats;
- saline lagoons;
- open mosaic habitat on previously developed land;
- ponds; and
- hedgerows.

12.4.7 The locations of potential HPI in relation to the Proposed Development Site are provided in Figure 12-3: Potential Habitats of Principal Importance (PEI Report, Volume II). The presence of HPI will be confirmed on completion of the Phase 1 habitat survey and any detailed botanical surveys considered necessary.

Extended Phase 1 Habitat Survey

12.4.8 The habitats present within the Proposed Development Site are summarised below and shown in draft in Figure 12-4: Phase 1 Habitat Survey Results (PEI Report, Volume II) based on data in the MAGiC website. An updated version of this Figure, including the Phase 1 Habitat Survey results will be included in the ES.

12.4.9 Habitats have been identified through a combination of desk-based surveys and field surveys. Habitat surveys were ongoing at the time of writing. Full details of the habitats present, including detailed target notes, will be available within an Extended Phase 1 Habitat Survey Report which will be provided as an appendix to the ES.

Main Site

12.4.10 The following habitats have been identified within the Main Site.

Bare Ground

12.4.11 The majority of the Main Site comprises bare ground, although there are some structures remaining within inaccessible areas.

Ephemeral/Short Perennial Vegetation

12.4.12 Areas which were formerly base ground are becoming colonised by short growing perennial herbaceous and graminoid species. Species include ribwort plantain (*Plantago lanceolata)*, cock's foot (*Dactylis glomerata*), Yorkshire fog (*Holcus lanata*) and red fescue (*Festuca rubra*).

Dense Scrub

12.4.13 A small area of dense bramble (*Rubus fruticosus* agg.) scrub is present within the north of the Main Site.

Amenity Grassland

12.4.14 A small area of amenity grassland is present in the south-west of the Main Site. Species present include white clover (*Trifolium repens*), ribwort plantain, yarrow, bent (*Agrostis* sp.), cranesbill (*Geranium* sp.), Dandelion (*Taraxacum* sp.), Yorkshire fog, cock's foot and creeping buttercup (*Ranunculus repens*).

Hardstanding

12.4.15 Hardstanding is present in the south-east of the Main Site.

Buildings

12.4.16 Buildings are present in the north-east of the Main Site.

Connection Corridors

12.4.17 The following habitats have been identified within the Connection Corridors.

Broadleaved Plantation Woodland

12.4.18 Most of the woodland areas identified during the Phase 1 surveys are of screening plantation around the industrial sites of Teesside. These woodlands comprise of sycamore and ash with sections around the Wilton Complex being willow (*Salix* sp.) plantations. A larger area of broadleaved plantation woodland is located at Cowpen Bewley with species such as pedunculate oak, ash, willow species and field maple (*Acer campestre*). Another smaller area of broadleaved plantation woodland was identified at the Saltholme National Grid Substation site with species such as ash, oak, sycamore, hawthorn, blackthorn and white poplar (*Populus alba*) recorded.

Dense and Scattered Scrub

12.4.19 Scrub habitat was found in various locations within the Connection Corridors. It is typically comprised of bramble, hawthorn, gorse (*Ulex europaeus*) and sea-buckthorn (*Hippophae rhamnoides*). Dense scrub was present around Dorman's Pool and at Cowpen Bewley.

Hedgerows

12.4.20 Native hedgerows are largely restricted to the farmed landscape, disused rail/road and within Cowpen Bewley. These hedgerows are of variable condition with some intact and well-maintained, and others defunct. The hedgerows surveyed during the Phase 1 Habitat surveys comprised mainly of hawthorn, dog rose (*Rosa canina* agg.) and elder (*Sambucus nigra*).

Semi-improved Neutral Grassland

12.4.21 Semi-improved grassland is widespread within the Connection Corridors. These grasslands being neutral, generally unmanaged and therefore relatively rank and often species poor.

12.4.22 These grasslands when found within industrial areas generally forms mosaics with other habitat types contributing to a wider resource of open mosaic habitat on previously developed land (an HPI).

12.4.23 The species composition varies, with the more species-diverse grasslands supporting herb species such as common bird's-foot trefoil, kidney vetch, wild carrot, yarrow and common knapweed. The most species-poor grasslands are generally dominated by false-oat grass. A linear stretch of semi-improved grassland was identified around the Seal Sands industrial complex which was flower-rich secondary grassland developed on previously developed and made ground with potential calcareous influence.

Poor Semi-improved Neutral Grassland

12.4.24 The most species-poor grasslands are generally dominated by false-oat grass. Poor semi-improved grassland grazed by cattle was identified to the east of Seaton Carew Road. This grassland is considered to be floodplain grazing marsh which is a HPI.

Improved Grassland

12.4.25 Fields of improved grassland are mostly grazed and dominated by perennial rye grass (*Lolium perenne*).

Amenity Grassland

12.4.26 Amenity grassland was identified in small areas around buildings and within landscaped areas.

Ephemeral/Short Perennial

12.4.27 Ephemeral/short perennial vegetation is of scattered occurrence within the Connection Corridors. It is recorded colonising bare ground and formed part of a mosaic of habitats at Eston Pumping Station LWS, within the Wilton International Complex and on CF Fertiliser land.

Arable

12.4.28 Arable habitats used for crop production were identified to the east of the Wilton International Complex, to the west of the A185, and to the north of Cowpen Bewley/Greatham Creek.

Running Water

12.4.29 Watercourses within the Connection Corridors include the River Tees, Greatham Creek and Dabholm Gut. There are numerous small watercourses and ditches which flow through areas of saltmarsh and floodplain grazing marsh. Standing Water

12.4.30 Both brackish and freshwater water bodies are present within the Connection Corridors. Ponds and saline lagoons are HPI.

Marshy Grassland

12.4.31 One area of marshy grassland was identified at the North Tees Landfill next to Greatham Creek. Dominant species include sea club-rush (*Bolboschoenus maritimus*) and common reed (*Phragmites australis*).

Swamp

12.4.32 Areas of swamp habitat dominated by common reed were identified in small areas within the South Tees Development corporation land, at Eston Pumping Station LWS and within Cowpen Bewley. Larger areas of swamp habitat outside of the Connection Corridors occur at the RSPB Saltholme Reserve and connected reserves such as Dorman's Pool.

Saltmarsh

12.4.33 Saltmarsh habitat is primarily located in the North Tees area at Seal Sands and Greatham Creek. The saltmarsh habitat located around Greatham Creek is comprised of species such as annual sea-blite (*Suaeda maritima*), common saltmarsh-grass (*Puccinellia maritima*), sea plantain (*Plantagon maritima*), greater sea-spurrey (*Spergularia media*), sea lavender (*Limonium vulgare*), long-spiked glasswort (*Salicornia dolichostacha*), yellow glasswort (*Salicornia fragilis*), sea aster (*Aster tripolium*), sea arrowgrass (*Triglochin maritima*) and saltmarsh rush (*Juncus gerardii*. Saltmarsh habitat within Seal Sands was assessed from viewpoints and public footpaths due to the sensitivity of the area of breeding birds and seals.

Buildings

12.4.34 Buildings are present within the Connection Corridors associated with the various offtakers and industries within Teesside.

Hardstanding

12.4.35 Hardstanding is present around buildings and roads. In some locations the hardstanding contributes to open mosaic habitat on previously developed land.

Protected and Notable Species

12.4.36 The following protected and notable faunal species have been identified through the desk study or Phase 1 habitat survey as present within the Proposed Development Site, or potentially within the zone of influence of the Proposed Development Site.

Invertebrates

12.4.37 The desk study identified records for protected and notable invertebrate species within the Proposed Development Site. These include records for the butterflies, dingy skipper and grayling, both Species of Principal Importance under S41 of the NERC Act. The desk study indicates that colonies of dingy skipper and grayling are focussed on brownfield sites within Teesside, including Seal Sands, South Gare and Coatham Dunes.

12.4.38 Invertebrate surveys were completed to inform the Net Zero Teesside (NZT) application at land within the former Redcar Steelworks (Teesworks). 318 invertebrate species were identified during the surveys and the invertebrate assemblage was assessed to be of County importance (AECOM, 2021a).

12.4.39 Invertebrate surveys are being completed in areas of suitable habitat within the Proposed Development Site and the results will be presented within the ES.

Amphibians

12.4.40 The desk study identified records of GCN within 2 km of the Proposed Development Site. The closest records were within Cowpen Bewley and Philips Tank Farm LWS.

12.4.41 Habitats were assessed for their suitability to support GCN to inform the NZT DCO application. Two potential waterbodies with suitability to support GCN were identified and eDNA surveys were completed to confirm presence/likely absence. The results of these survey were indeterminate, however working methods were designed to avoid potential impacts should GCN be present (AECOM, 2021b).

12.4.42 Habitats will be assessed for their suitability to support amphibians (including GCN) during the ongoing Phase 1 habitat surveys and the results will be presented within the ES.

Reptiles

12.4.43 The desk study identified records of common lizard (*Zootoca vivipara*) along the coast at South Gare. In addition, the Industry Nature Conservation Association (INCA) provided records of common lizard near Dorman's pool. Reptile surveys were completed to inform the NZT DCO in 2018 and 2020 and identified a 'good' population size class of common lizard at Coatham Sands and assessed the population to be of County importance (AECOM, 2021c).

12.4.44 Habitats will be assessed for their suitability to support reptiles during the ongoing Phase 1 habitat surveys and presence/likely absence surveys are being completed where there is potential to the Proposed Development to have an impact upon reptile populations. The results of the surveys will be presented within the ES.

Fish

12.4.45 Several notable fish species were identified within 2 km of the Study Area during the desk study using Environment Agency data, NBN Atlas data, survey results for other developments in the area (e.g., the NZT project) and academically published material. These are summarised in Table 12-6 and include Annex II species Bullhead *Cottus gobio*, the UK BAP Priority species Brown/sea Trout (*Salmo trutta*), in addition to the European eel (*Anguilla Anguilla*), which is covered by both previously mentioned legislations and is classified as 'Critically Endangered' in the International Union for Conservation of Nature (IUCN) and afforded further protection under the Eel Regulations 2009.

Table 12-6: Protected Fish Species Identified within 2 km of the Study Area and Within Relevant Catchment Monitoring Site Records

FISH SPECIES	INCLUDED IN HABITATS DIRECTIVE	SPECIES OF PRINCIPAL IMPORTANCE	LOCATIONS (AND EA MONITORING SITES RECORDED AT IF APPLICABLE)	NUMBER OF RECORDS	MOST RECENT YEAR
Bullhead *Cottus gobio*	Annex II	N	Claxton Beck (Sun *et al.*, 2021)	5	2019
Brown/Sea trout *Salmo trutta*	No	Y	20271 (Environment Agency Location) Claxton Beck (Sun *et al.* 2021)	4 4	2015 2019
European eel *Anguilla anguilla*	Annex II	Y	1350 (Environment Agency) 51509 (Environment Agency) Claxton Beck (Sun *et al.* 2021) NZT Pond 3 Foundry North eDNA) The Mill Race	N/A 1 5 1 1	2019 2015 2019 2020 2020

Bats

12.4.46 The desk study identified records of common pipistrelle (*Pipistrellus pipistrellus*), noctule (*Nyctalus noctula*), soprano pipistrelle (*Pipistrellus pygmaeus*) and whiskered bat (*Myotis mystacinus*) within 2 km of the Proposed Development Site. Bat surveys were completed to inform the NZT DCO and recorded common pipistrelle, noctule and a *Myotis* genus bat. The overall levels of bat activity recorded through walked transect and static survey was very low to moderate and mainly attributable to common pipistrelle (AECOM, 2021d).

12.4.47 The Proposed Development Site includes woodland, hedgerows and trees which have potential to be used by roosting bats. Ground level tree assessments were undertaken on the 9th April 2023 at Cowpen Bewley Woodland Country Park and three trees were identified as having features suitable for roosting bats.

12.4.48 Bat emergence surveys will be completed to confirm presence or likely absence of roosting bats where trees with bat roost suitability will be affected by the Proposed Development. Bat activity surveys are ongoing and will be completed to inform the subsequent EcIA to be presented in the ES where habitats suitable for foraging and commuting bats will be affected. The full results of the bat surveys will be provided within the ES.

Hedgehog (Erinaceus europaeus)

12.4.49 The desk study identified records of hedgehog within 2 km of the Proposed Development Site. Habitats with suitability to support hedgehog include woodland, hedgerows and grassland.

Water Vole

12.4.50 The desk study identified records of water vole within 2 km of the Proposed Development Site. Water vole surveys were completed to inform the NZT DCO in 2018. The surveys covered five waterbodies to the north-east of Dormanstown Industrial Estate:

- The fleet;
- Power station pond;
- Steel House Pond;
- The Mill Race; and
- Railway Channel.

12.4.51 The Fleet, Mill Race and Railway Channel were considered to be of low potential value for water voles, primarily due to the bank substrate which comprised industrial ballasts and hardcore and was unsuitable for burrowing. Power Station Pond was considered to be of low potential value for water voles as the bank profile was gently sloping (5 - 15 degree slope) and the depth of the channel was less than 1 m with extensive very shallow (<0.05 m) margins. Steel House Pond was considered to be of medium potential value for water voles with a greater sustained depth of water and

more optimal bank profile in places. No evidence of water voles was found within or adjacent to any of the waterbodies surveyed (Quants Environmental, 2018).

12.4.52 Habitats within the Proposed Development Site will be assessed for their suitability to support water vole during the ongoing extended Phase 1 habitat surveys. Water vole surveys are being completed where habitats are suitable to support water vole and will potentially be affected by the Proposed Development – survey results will be provided within the ES.

Otter

12.4.53 The desk study identified records of otter within 2 km of the Proposed Development Site. Water vole surveys were completed to inform the NZT DCO in 2018. The surveys covered five waterbodies to the north-east of Dormanstown Industrial Estate as described in the water vole section above.

12.4.54 The habitats within The Fleet, Power Station Pond, Mill Race and Railway Channel respectively were considered to be of low potential value for otters, primarily due to the bank substrate which comprised industrial ballasts and hardcore. The rank grass and tall herb bank-side communities observed in these locations are less favourable as lie up areas and for holt protection than banks featuring wooded habitats. Steel House Pond was considered to be of medium potential value for otters with substantial areas of bankside vegetation cover in places. No evidence of otters was found within or adjacent to any of the waterbodies surveyed (AECOM, 2021e; Quants Environmental, 2018).

12.4.55 Habitats within the Proposed Development Site will be assessed for their suitability to support otter during the ongoing extended Phase 1 habitat surveys. Surveys are being completed where habitats are suitable to support otter and will potentially be affected by the Proposed Development – survey results will be provided within the ES.

Brown Hare (Lepus europaeus)

12.4.56 The desk study identified records of brown hare within the 2 km of the Proposed Development Site. Habitats will be assessed for their suitability to support brown hare during the ongoing Phase 1 habitat survey, with the results presented in the ES.

Badger

12.4.57 The desk study identified records of badger within 2 km of the Proposed Development Site. A survey for badger will be completed concurrently with the ongoing Phase 1 habitat surveys, with the results presented as a confidential appendix to the ES.

Marine Mammals

12.4.58 Information on marine mammals is provided within Chapter 14: Marine Ecology (PEI Report, Volume I).

Aquatic Macroinvertebrates

12.4.59 There were no specific records of protected macroinvertebrate species identified in the desk study data. However, some notable taxa were identified, including the beetle (*Helochares obscurus)* (Vulnerable), the beetle (*Ilybius subaeneus)* (nationally scarce), the beetle (*Noterus crassicornis)* (nationally scarce) and the caddisfly *Oxyethira simplex* (nationally scarce). These were found in and around the Swallow and Mucky Fleet area, which is outside the Proposed Development Site boundary, but within the Study Area.

12.4.60 Previous surveys for other developments within the Study Area found pygmy backswimmer (*Plea minutissima)* and the beetle (*Haliplus obliquus)*, to be present in The Mill Race at NZ 57823 23277. The pygmy backswimmer was also present in samples collected from The Fleet. Both these species have a Conservation Score 4 and are considered 'Occasional' under the CCI index (Chadd and Extence 2014). Pond 3 from the NZT surveys contained the mayfly (*Caenis robusta*), caddisfly (*Agraylea sexmaculata*) and lesser water boatman (*Micronecta scholzi*). All three of these species are classified as "Local" or locally important under the CCI index (all had CCI score 5). Pond 9 NZT (NZ 56710 26133) contained the horse leech (*Haemopis sanguisuga*) which is considered 'Occasional' (Conservation Score 4) under the CCI index. Pond 14 from NZT contained a beetle *Hydroglyphus geminus* which is classified as "Local" or locally important under the CCI index (CCI 5). However, none of the species identified are listed under statutory or non-statutory designations.

12.4.61 The autumn 2023 aquatic macroinvertebrate survey for the Proposed Development recorded the locally notable bladder snail *Aplexa hypnorum* in Holme Fleet (NZ 49387 23931) and the locally notable Dytiscidae beetle (*Hygrotus confluens)* in a ditch at NZ 49735 24400 (Site 3).

12.4.62 There were no records of the white-clawed crayfish (*Austropotamobius pallipes*) within 2 km of the Proposed Development Site boundary within the last ten years, nor within 10 km of the Study Area, and there is no mention of presence within the Tees Valley BAP. However, there are recent records of American signal crayfish (*Pacifastacus leniusculus*) in the Study Area, which being an invasive species, reduces the likelihood of native white-clawed being present. White-clawed crayfish is therefore considered absent from the Study Area.

Aquatic Macrophytes

12.4.63 The desk identified no records of protected aquatic macrophyte species within 2 km of the Study Area in the last ten years. However, several macrophyte species are included in the Tees Valley BAP. These include the water violet (*Hottonia palustris*) and the tufted sedge *Carex elata.*

12.4.64 Previous surveys for other developments within the Study Area found the 'Near Threatened' (based on IUCN criteria) ragged robin in a pond within Foundry North (referred to as pond 3 in the NZT Aquatic Ecology Assessment AECOM (2021f)) at NZ 56506 25742. In the same pond, uncommon species recorded included spiked water milfoil (*Myriophyllum spicatum*), hornwort (*Ceratophyllum demersum*) and lesser bulrush (*Typha angustifolia*). Pond 9 within the same report (at NZ 56710 26133)

contained uncommon species including small pondweed (*Potamogeton berchtoldii*), water crowfoot (*Ranunculus aquatilis*) and horned pondweed (*Zannichellia palustris*). An additional pond as part of those surveys, Pond 14 (at NZ56986 25902) had five uncommon species recorded within the pond including sea club-rush, spiked water milfoil and horned pondweed.

Notable Plant Species

12.4.65 HPI were identified during the desk study. Detailed botanical surveys will be completed where habitats of botanical importance will be potentially impacted by the Proposed Development, with the results presented within the ES.

Invasive Non-native Species

12.4.66 Several INNS species were identified in the desk study, from Environment Agency data (EA Ecology & Fish Data Explorer) and data from previous NZT surveys). Species identified on the Wildlife and Countryside Act 1981 (Schedule 9) include Floating Pennywort (*Hydrocotyle ranunculoides*), Giant Hogweed (*Heracleum mantegazzianum*), New Zealand pigmyweed (*Crassula helmsii*), Parrot feather (*Myriophyllum aquaticum*), Japanese knotweed (*Reynoutria japonica*) and Himalayan balsam (*Impatiens glandulifera*). There are statutory constraints to limit their potential spread, and therefore mitigation will be required during Proposed Development construction to prevent their spread and where possible locally eradicate these species within the construction boundary. Nuttall's waterweed (*Elodea nuttallii*) was also recorded, which is no longer listed in Schedule 9 of the Wildlife and Countryside Act 1981 but is listed in the Invasive Alien Species (Enforcement and Permitting) Order 2019.

12.4.67 The non-native but non-invasive New Zealand mud snail (*Potamopyrgus antipodarum*) and common bladder snails (*Physellsa gyrina* and *Physa fontinalis*) were found at numerous sites within the Study Area, with the most recent records during 2016. Though these species are not listed in UK legislation, biosecurity measures to prevent their spread are recommended.

12.4.68 Similarly, surveys from NZT recorded the New Zealand mud snail *P. antipodarium* in Pond 14, The Mill Race, Dabholm Gut and The Fleet with the freshwater amphipod *Crangonyx sp*. present in Pond 3 (Appendix 12B: Figure B1 6.4.28 NZT ES Vol III Appendix 13A Aquatic Ecology Supplementary Desk Study and Field Study Report, PEI Report Volume II).

12.4.69 Autumn 2022 surveys for the Proposed Development found *P. antipodarium* at Holme Fleet, Site 2 and Site 6 (Appendix 12B: Figure B1 6.4.28 NZT ES Vol III Appendix 13A Aquatic Ecology Supplementary Desk Study and Field Study Report, PEI Report Volume II). Holme Fleet and Site 6 also contained *Physella acuta* and Site 6 also had *Crangonyx sp.* present.

Summary of Baseline

12.4.70 A summary of the baseline ecology conditions within the Proposed Development Site is provided in Table 12-7. As discussed in Section 12.3, all ecology features valued at Local level or above, and with the potential to be affected by the Proposed

Development will be taken forward for impact assessment. Legally controlled species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) are also taken forward for assessment.

Table 12-7: Summary of the Baseline Ecology Conditions

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
Teesmouth and Cleveland Coast SPA	International	Sites support qualifying features under relevant EC Directives that are of International importance.	Yes – there is potential for direct and indirect habitat loss, loss of functionally linked land, noise and visual disturbance of qualifying bird species, atmospheric pollution, and changes in water quality to affect the designated site.
Teesmouth and Cleveland Coast Ramsar	International	Sites support qualifying features under relevant EC Directives that are of International importance.	Yes – there is potential for direct and indirect habitat loss, loss of functionally linked land, noise and visual disturbance of qualifying bird species, atmospheric pollution, and changes in water quality to affect the designated site.
North York Moors SPA	International	Sites support qualifying features under relevant EC Directives that are of International importance.	No – the North York Moors SPA is considered in the context of air quality effects only. Preliminary modelling indicates no adverse effects upon habitats used by SPA birds.
North York Moors SAC	International	Sites support qualifying features under relevant EC Directives that are of International importance.	No – the North York Moors SAC is considered in the context of air quality effects only. Preliminary modelling indicates no adverse effects on SAC habitats.
Northumbria Coast SPA	International	Sites support qualifying features under relevant EC Directives that are of International importance.	No – the Northumbria Coast SPA is located 10.1 km north of the Proposed Development Site. According to unpublished Natural England guidance on functionally linked land Impact Risk Zones for sites designated for birds (Knight, 2019), significant impacts on functionally- linked habitats from this type of development will not arise more than 10 km at most

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
			from the designated site. There will thus be no significant effects and this pathway can be screened out.
Northumbria Coast Ramsar	International	Sites support qualifying features under relevant EC Directives that are of International importance.	No – the Northumbria Coast Ramsar is located 10.1 km north of the Proposed Development Site. According to unpublished Natural England guidance on functionally linked land Impact Risk Zones for sites designated for birds (Knight, 2019), significant impacts on functionally- linked habitats from this type of development will not arise more than 10 km at most from the designated site. There will thus be no significant effects and this site is not considered further in this assessment.
Durham Coast SAC	International	Sites support qualifying features under relevant EC Directives that are of International importance.	No – the Durham Coast SAC is 13.7 km from the Main Site. The Durham Coast SAC is not identified on the Air Pollution Information System (APIS) as being sensitive to nitrogen or acid deposition and no Critical Loads are available for this site on which to base any assessment. Therefore, there will be no significant effects and this site is not considered any further in this assessment.
Castle Eden Dene SAC	International	Sites support qualifying features under relevant EC Directives that are of International importance.	No - Castle Eden Dene is considered in the context of air quality effects only. As the Main Site is over 15 km from the SAC, there will be no significant effects and this site is not considered further in this assessment.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
Teesmouth and Cleveland Coast SSSI	National	Supports habitats and species of National importance.	Yes – the SSSI is within / overlapping the Connection Corridors and 5 m west of the Main Site. There is potential for direct and indirect effects upon habitats, noise and visual disturbance of SPA birds, atmospheric pollution, and changes in water quality to affect the SSSI.
Lovell Hill Pools SSSI	National	Supports habitats and species of National importance.	No – site is 6.6 km from the Main Site and 2.4 km from the Connection Corridors. The SSSI is not hydrologically linked to the Proposed Development and is considered in the context of air quality only. Preliminary air quality modelling indicates no significant effects, and this site is not considered any further in this assessment.
Briarcrost Pasture SSSI	National	Supports habitats and species of National importance.	No – the SSSI is over 15 km from the Main Site and 7.7 km from the Connection Corridors. The SSSI is not hydrologically linked to the Proposed Development and is considered in the context of air quality only. Preliminary modelling indicates no significant effects, and this site is not considered any further in this assessment.
Roseberry Topping SSSI	National	Designated for its geological interest.	No – site is 12.2 km from the Main Site and there are no pathways of effect. This site is not considered any further in this assessment.
North York Moors SSSI	National	Supports habitats and species of National importance.	No – the site is 12.1 km from the Main Site and not hydrologically linked. This site is considered in the context of air quality only. Preliminary modelling indicates no significant

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
			effects, and this site is not considered any further in this assessment.
Saltburn Gill SSSI	National	Supports woodland habitats of National importance.	No – the site is 11.2 km from the Main Site. This site is considered in the context of air quality only. Preliminary modelling indicates no significant effects, and this site is not considered any further in this assessment.
Whitton Bridge Pasture SSSI	National	Supports grassland habitats of National importance.	No – the site is over 15 km from the Main Site. This site is considered in the context of air quality only. Preliminary modelling indicates no significant effects, and this site is not considered any further in this assessment.
Langbaurgh Ridge SSSI	National	A disused quarry designated for its geological interest.	No – no pathways of effect. Designated for geological rather than ecological interest.
Cliff Ridge SSSI	National	A disused quarry designated for its geological interest.	No – no pathways of effect. Designated for geological rather than ecological importance.
Durham Coast SSSI	National	Supports habitats and species of National importance.	No – the site is 12.0 km from the Main Site. Air quality modelling indicates no significant effects on habitats. Potential effects on SSSI birds considered in Chapter 13: Ornithology (PEI Report, Volume I).
Hart Bog SSSI	National	Supports habitats of National importance.	No – the site is 14.1 km from the Main Site. This site is considered in the context of air quality only. Modelling indicates no significant effects, and this site is not considered any further in this assessment.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
Pike Whin Bog SSSI	National	Supports habitats of National importance.	No – the site is over 15 km from the Main Site. This site is considered in the context of air quality only. Modelling indicates no significant effects, and this site is not considered any further in this assessment.
Kildale Hall SSSI	National	Designated for its geological interest.	No - no pathways of effect. Designated for geological rather than ecological interest.
Hulam Fen SSSI	National	Supports habitats of National importance.	No – the site is over 15 km from the Main Site. This site is considered in the context of air quality only. Modelling indicates no significant effects, and this site is not considered any further in this assessment.
Castle Eden Dene SSSI	National	Supports habitats of National importance.	No – the site is over 15 km from the Main Site. This site is considered in the context of air quality only. Modelling indicates no significant effects, and this site is not considered any further in this assessment.
Pinkney and Gerrick Woods SSSI	National	Supports habitats of National importance.	No – the site is over 15 km from the Main Site. This site is considered in the context of air quality only. Modelling indicates no significant effects, and this site is not considered any further in this assessment.
Fishburn Grassland SSSI	National	Supports habitats of National importance	No – the site is over 15 km from the Main Site. This site is considered in the context of air quality only. Modelling indicates no significant effects, and this site is not considered any further in this assessment.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
Charity Land SSSI	National	Supports habitats of National importance	No – the site is over 15 km from the Main Site. This site is considered in the context of air quality only. Modelling indicates no significant effects, and this site is not considered any further in this assessment.
Newton Ketton Meadow SSSI	National	Supports habitats of National importance	No – the site is over 15 km from the Main Site. This site is considered in the context of air quality only. Modelling indicates no significant effects, and this site is not considered any further in this assessment.
Boulby Quarries SSSI	National	Designated for its geological interest.	No – no pathways of effect. Designated for geological rather than ecological interest.
Teesmouth NNR	National	Designated for habitats and species of National importance.	Yes – within / overlapping the Main Site. There is potential for direct and indirect effects on habitats, noise and visual disturbance of birds / seals, atmospheric pollution, and changes in water quality to affect the designated site.
Durham Coast NNR	National	Designated for habitats of National importance.	No - the site is 12.7 km from the Main Site. This site is considered in the context of air quality only. Modelling indicates no significant effects, and this site is not considered any further in this assessment.
Castle Eden Dene NNR	National	Designated for habitats and species of National importance.	No – the site is over 15 km from the Main Site and is considered in the context of air quality only. Modelling indicates no significant effects, and this site is not considered any further in this assessment.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
Philips Tank Farm Grassland LWS	District	Designated for grassland habitat, GCN, invertebrates and water vole.	Yes – within / overlapping with the Connection Corridors. Potential for direct / indirect habitat loss and effects on species.
Saltern grassland LWS	District	Designated for saltmarsh habitat	Yes - 78.3 m from Connection Corridors. Potential for indirect effects.
Greatham Creek North Bank Saltmarsh LWS	District	The site supports a saltmarsh habitat, dominated by saltmarsh grass.	Yes – within / overlapping with the Connection Corridors. Potential for direct and indirect effects.
Coatham Marsh LWS	District	Designated for saltmarsh, coastal grasslands, flushes, seepages, springs, neutral and urban grassland habitats and vascular plants.	Yes – Within / overlapping with the Connection Corridors. Potential for direct and indirect effects.
Eston Pumping Station LWS	District	The site supports a mosaic of habitats and borderline neutral urban grasslands.	Yes – within / overlapping the Connection Corridors. Potential for direct and indirect effects.
Cowpen Bewley Woodland Park LWS	District	The site is a former brickworks, landfill and agricultural land that is now a country park comprising new woodland, grassland, ponds and lakes. The site supports GCN.	Yes - within / overlapping the Connection Corridors. Potential for direct and indirect effects.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
Queen's Meadow Wetland LWS	District	Designated for its amphibian species.	No – the LWS is 1.2 km from the Connection Corridors and there are no hydrological links to the Proposed Development. The LWS is separated from the Proposed Development by an existing railway line and Philips Tank Farm LWS. As the site is over 2 km from the Main Site, air quality effects can be screened out.
Tot Fenny's Meadow LWS	District	Designated for grassland, fen and marsh habitat.	No – the LWS is 599 m from the Connection Corridors and there are no hydrological links to the Proposed Development. The LWS is separated from the Proposed Development by Cowpen Bewley Woodland Park, an existing railway line and the A1185. As the LWS is over 2 km from the Main Site, air quality effects can be screened out.
Billingham Norton Bottoms Reedbed Treatment System LWS	District	Designated for reedbed habitat	No – The LWS is 715 m from the Connection Corridors and there are no hydrological links to the Proposed Development. As the LWS is over 2 km from the Main Site, air quality effects can be screened out.
Norton Bottoms LWS	District	Designated for grassland habitats.	No – the LWS is 760 m from the Connection Corridors and there are no hydrological links to the Proposed Development. As the LWS is over 2 km from the Main Site, air quality effects can be screened out.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
Power Station Grassland and Wetland LWS	District	Designated for grassland, wetland and open mosaic habitats.	No – the LWS is 877 m from the Connection Corridors and there are no hydrological links to the Proposed Development. As the LWS is over 2 km from the Main Site, air quality effects can be screened out.
Brenda Road Brownfield LWS	District	Designated for brownfield habitat and notable invertebrates.	No – the LWS is 1.1 km from the Connection Corridors and there are no hydrological links. As the LWS is over 2 km from the Main Site, air quality effects can be screened out.
Teesaurus Park LWS	District	An urban park designated for grassland habitats.	No- the LWS is 890 m from the Connection Corridors and there are no hydrological links. As the site is over 2 km from the Main Site, air quality effects can be screened out.
Zinc Works Bird Field LWS	District	Designated for grassland habitats and its bird assemblage.	No – effects upon birds considered within Chapter 13: Ornithology (PEI Report, Volume II).
Wilton Woods Complex LWS	District	Designated for woodland habitats including ancient woodland.	No – the LWS is 1.2 km from the Connection Corridors and there are no hydrological links. The LWS is over 2 km from the Main Site and initial air quality modelling indicates no significant effects.
Seaton Common LWS	District	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.	No – effects on birds considered within Chapter 13: Ornithology (PEI Report, Volume II).

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
Portrack Meadows LWS	District	Designated for habitats and botanical interest.	No – the LWS is 1.6 km from the Connection Corridors. As the LWS is over 2 km from the Main Site, air quality effects can be screened out.
Billingham Beck Valley Country Park LWS	District	Designated for habitats and its botanical interest.	No – the LWS is 1.4 km from the Connection Corridors. As the LWS is over 2 km from the Main Site, air quality effects can be screened out.
Portrack Marsh LWS	District	Designated for habitats, invertebrates and its bird assemblage.	No – effects upon birds considered within Chapter 13: Ornithology (PEI Report, Volume II).
Coastal and floodplain grazing marsh	National	Coastal and floodplain grazing marsh is a HPI under S41 of the NERC Act.	Yes – potential for direct habitat loss and indirect effects from dust and changes in hydrology.
Coastal saltmarsh	National	Habitat forms part of the Teesmouth and Cleveland Coast SSSI. Coastal salt marsh is also a Habitat of Principal Importance under S41 of the NERC Act.	Yes – potential for direct and indirect effects.
Coastal sand dunes	National	Habitat form part of the Teesmouth and Cleveland Coast SSSI. Coastal sand dunes are HPI.	Yes – potential for indirect effects.
Mudflats	National	Habitat form part of the Teesmouth and Cleveland Coast SSSI.	Yes – potential for direct and indirect effects.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
		Mud flats are HPI.	
Saline lagoons	National	Habitat form part of the Teesmouth and Cleveland Coast SSSI. Saline lagoons are HPI.	Yes – potential for direct and indirect effects.
Open mosaic habitat on previously developed land	To be confirmed following survey	Open mosaic habitat on previously developed land is a HPI.	Yes – potential for direct and indirect effects.
Ponds	To be confirmed following survey	Ponds are HPI.	Yes – potential for direct and indirect effects.
Watercourses	International	The River Tees and Greatham Creek form part of the Teesmouth and Cleveland Coast Ramsar.	Yes – potential for direct and indirect effects.
Hedgerows	District	A HPI. Provides habitat for invertebrates, foraging and nesting birds, foraging and commuting bats and small mammals.	Yes – potential for direct and indirect effects.
Broad-leaved plantation woodland	District and Local	Woodland supports invertebrates, nesting birds, foraging and commuting bats and small mammals.	Yes – potential for direct and indirect effects.
Other habitats	To be confirmed following surveys	To be confirmed following surveys.	Yes – potential for direct and indirect effects. To be confirmed and included within the ES.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
Invertebrates (including aquatic macroinvertebrates)	To be confirmed following surveys	Phase 1 habitat and aquatic walkover surveys are ongoing. Invertebrate surveys will be completed where habitats are suitable and where they are deemed necessary to inform the impact assessment.	Yes - To be confirmed and included within the ES.
GCN	To be confirmed through consultation with Natural England.	DLL approach sought for this Proposed Development.	Yes - Natural England will undertake an impact assessment, the outcome of which will be documented in an Impact Assessment and Conservation Payment Certificate. This document will also provide additional detail to inform the findings in the ES, including information on the impact of the Proposed Development on GCN and the appropriate compensation required.
Reptiles	To be confirmed	Phase 1 habitat surveys are ongoing. Reptile surveys will be completed where habitats are suitable, and it is deemed necessary to inform the impact assessment.	Yes – surveys are currently ongoing; however, reptiles are confirmed to be present at South Gare.
Fish	To be confirmed	Aquatic walkover survey completed to identify fish habitats at potential impact locations and identify any requirements for targeted aquatic surveys.	To be confirmed and included in the ES if required.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
Roosting bats	To be confirmed	Bats are European protected species. Bat emergence surveys and/or aerial climb and inspect surveys will be completed where trees with moderate or high suitability for roosting bats will be directly affected by the Proposed Development. Bat roost assessments of buildings/structures will be completed where these will be directly impacted. Nocturnal surveys will be completed to inform presence/likely absence where necessary.	To be confirmed and included in the ES if required.
Foraging and commuting bats	To be confirmed	Bat activity surveys will be completed where habitats with suitability for foraging and commuting bats will be affected.	Yes – potential for direct loss/disturbance of trees and woodland.
Water vole	To be confirmed	Water vole surveys will be completed where suitable habitats will be affected.	Yes – potential for direct and indirect effects.
Otter	To be confirmed	Otter surveys will be completed where suitable habitats will be affected.	Yes – potential for direct and indirect effects.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
Brown hare	Local	Brown hare are a SPI.	Yes – potential for disturbance/temporary displacement of brown hare during the construction phase.
Hedgehog	Local	Hedgehog are a SPI.	Yes – potential for harm to hedgehog during the construction phase.
Badger	To be confirmed	Protected under the Badgers Act 1992.	To be confirmed and included in the ES if required.
Aquatic macrophytes	To be confirmed	Aquatic walkover survey to be completed to identify aquatic habitats at potential impact locations and recommend targeted aquatic surveys where required.	To be confirmed and included in the ES if required.
INNS	N/A	Legal offence to plant or otherwise spread in the wild.	Yes

Future Baseline

Construction

12.4.71 Demolition and site remediation works are taking place within the Main Site. Bare ground is present where buildings and structures have been removed, and in the absence of development, these areas may become colonised with vegetation.

12.4.72 Semi-natural habitats surrounding the Main Site, within the Proposed Development Site are unlikely to change over the short term. All existing habitats are likely to largely continue as present, 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 unlikely to undergo significant change prior to Proposed Development construction.

12.4.73 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 be likely to occur as habitats develop as a result of ecological succession or other natural processes, but over the short term any such changes will be relatively minor.

12.4.74 The potential for any local strategies or other developments that have the potential to affect the future aquatic baseline will be reviewed and assessed during the EIA and reported in the ES.

Operation

12.4.75 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.

12.4.76 Based on the available information and the current uses of the Proposed Development Site, there are no grounds to expect that there will have been any marked change in local land management practice 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.

12.4.77 There are 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.

12.4.78 It is likely that current and former industrial land within Teesworks and surrounding area (e.g., Wilton) will be released for new development e.g., in accordance with existing local plans and policy for regeneration of the South Tees Area. The extent of ecologically valuable open mosaic habitat and grassland habitats in these areas 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.

12.4.79 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.

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

Decommissioning

12.4.81 It is noted that sea level rise in response to climate change may have an influence on the sensitivity of habitat and species features present during the post-closure decommissioning of the Proposed Development. 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. This is most likely to be relevant to marine ecology receptors and ornithological ecological features. 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 (e.g., extreme weather events).

12.4.82 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 ecological features will therefore be much reduced relative to those relevant at construction and operation.

12.4.83 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.

12.5 Development Design and Impact Avoidance

12.5.1 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’).

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

Construction Phase

12.5.3 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.

12.5.4 Where possible, routing of the Connection Corridors will utilise existing infrastructure and established pipeline corridors north and south of the River Tees, including the extensive existing network of pipeline racks, to minimise excavations and construction activities required and therefore minimise disturbance to species and habitats present.

12.5.5 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.

12.5.6 Where the other Connection Corridors require crossings or new infrastructure the same approach will be applied. The use of trenchless technologies where possible will 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. Any details in relation to this will be included in the ES. Permanent habitat losses associated with pipelines will be minimised through 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.

12.5.7 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

12.5.8 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.

12.5.9 A number of mitigation features will be incorporated into the design of the Proposed Development, to avoid, minimise, reduce and possibly compensate potential adverse impacts on ecology during operation.

12.5.10 As the Proposed Development design continue to progress, the Applicant has sought to avoid nature conservation designations as far as reasonably practicable and will continue to do so. As outlined in Chapter 4: Proposed Development and Chapter 5: Construction Programme and Management (PEI Report, Volume I) route options have been refined since the scoping stage to avoid or minimise adverse environmental effects, including those on receptors of ecological importance including the areas within and around Greatham Creek. These areas include statutory and non-statutory designated sites and HPI. Habitats such as woodland and ponds have been avoided where possible to minimise ecological effects.

12.5.11 The final stack height for the Proposed Development will be determined at the detailed design stage and will be optimised with consideration given to minimisation of ground-level air quality impacts on relevant ecological features. This will be dependent upon the final stack location and building heights for the Proposed Development. Dispersion modelling of emissions to air will inform the optimum design of the facilities (including matters such as stack height, taking account of other environmental considerations) through comparison of the maximum impacts at human health and relevant ecological features. This will be done during the EIA to ensure that potential impacts are minimised and avoided where practicable.

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

Decommissioning Phase

12.5.13 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 industrial 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.

12.5.14 A Decommissioning Environmental Management Plan (DEMP) will be produced and agreed 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.

12.6 Likely Impacts and Effects

12.6.1 Tables 12-8 to 12-10 present a preliminary assessment of the likely impacts and effects of the Proposed Development during construction, operation and decommissioning respectively on relevant ecological features. The preliminary assessment is based on standard construction/operational mitigation, and mitigation embedded in the design, or otherwise required for purposes of legislative compliance (as required by CIEEM and detailed in Section 12.5). An updated assessment including further mitigation will be identified and presented in the ES.

Table 12-8: Preliminary Assessment of Ecological Features during the Proposed Development Construction Phase I

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Teesmouth and Cleveland Coast SPA	Potential for direct and indirect habitat loss, loss of functionally linked land for birds, noise and visual disturbance of qualifying bird species, atmospheric pollution, and changes in water quality to affect the designated site.	Short or medium term	Although the Teesmouth and Cleveland Coast SPA overlaps with the Proposed Development, the design will seek to avoid any direct habitat losses. Mitigation will be confirmed following completion of ecology/ornithology surveys and in addition to minimising direct habitat loss, may include timing of works to avoid sensitive periods, the use of screening to prevent visual disturbance or acoustic barriers to minimise noise. A CEMP will detail measures to control and minimise the impacts on the environment during construction.	Potentially significant (adverse). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders. Mitigation measures will be provided in the report to inform the HRA and the ES.
Teesmouth and Cleveland Coast Ramsar	Potential for direct and indirect habitat loss, loss of functionally linked land, noise and visual disturbance of	Short or medium term	Although the Teesmouth and Cleveland Coast Ramsar overlaps with the Proposed Development, the design will	Potentially significant (adverse). Site-specific mitigation will be developed in consultation with Natural England and other

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	qualifying bird species, atmospheric pollution, and changes in water quality to affect the designated site.		seek to avoid any direct habitat losses. Mitigation will be confirmed following completion of ecology/ornithology surveys and in addition to minimising direct habitat loss may include timing of works to avoid sensitive periods, the use of screening to prevent visual disturbance or acoustic barriers to minimise noise. A CEMP will detail measures to control and minimise the impacts on the environment during construction.	stakeholders. Mitigation measures will be provided in the report to inform the HRA and the ES.
Teesmouth and Cleveland Coast SSSI	Potential for direct and indirect effects upon habitats, noise and visual disturbance of SPA birds, atmospheric pollution, and changes in water quality to affect the SSSI.	Short or medium term	Although the Teesmouth and Cleveland Coast SSSI overlaps with the Proposed Development, the design will seek to avoid any direct habitat losses. Mitigation will be confirmed following completion of ecology/ornithology surveys and in addition to minimising direct	Potentially significant (adverse). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders.

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
			habitat loss may include timing of works to avoid sensitive periods, the use of screening to prevent visual disturbance or acoustic barriers to minimise noise. A CEMP will detail measures to control to and minimise the impacts on the environment during construction.	
Teesmouth and Cleveland Coast NNR	There is potential for direct and indirect effects on habitats, noise and visual disturbance of birds / seals, atmospheric pollution, and changes in water quality to affect the designated site.	Short or medium term	The Teesmouth and Cleveland Coast NNR overlaps with the Proposed Development, the design will seek to avoid any direct habitat losses. Mitigation will be confirmed following completion of ecology/ornithology surveys and in addition to minimising direct habitat loss may include timing of works to avoid sensitive periods, the use of screening to prevent visual disturbance or acoustic barriers to minimise noise.	Potentially significant (adverse). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders.

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
			A CEMP will detail measures to control to and minimise the impacts on the environment during construction	
Philips Tank Farm Grassland LWS	Potential for direct habitat loss and effects on the species which the site supports.	Short or medium term	Direct habitat loss will be avoided where possible. Where it is not possible to avoid habitat loss, habitats will be reinstated following construction. A CEMP will detail measures to control to and minimise the impacts on the environment during construction. If protected species are to be affected, licenses from Natural England will be sought and mitigation to prevent adverse effects on populations detailed within the licence documents.	Potentially significant (adverse). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders.
Saltern Grassland LWS	Potential for direct habitat loss and effects on the species which the site supports.	Short or medium term	Direct habitat loss will be avoided where possible. Where it is not possible to avoid habitat loss, habitats will be reinstated following construction. A CEMP will detail measures to control to and minimise the	Potentially significant (adverse). Site-specific mitigation will be developed in consultation with Natural England and other stakeholders.

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
			impacts on the environment during construction. If protected species are to be affected, licenses from Natural England will be sought and mitigation to prevent adverse effects on populations detailed within the licence documents.	
Greatham Creek North Bank LWS	Potential for direct habitat loss.	Long term	Habitat loss will be avoided through the use of HDD.	Not significant (negligible)
Coatham Marsh LWS	Potential for direct and indirect effects	Short or medium term	Direct habitat loss will be avoided where possible. Where it is not possible to avoid habitat loss, habitats will be reinstated following construction. A CEMP will detail measures to control to and minimise the impacts on the environment during construction.	Potentially Significant (adverse)
Eston Pumping Station LWS	Potential for direct and indirect effects	Short, medium or long term	Direct habitat loss will be avoided where possible. Where it is not possible to avoid habitat loss, habitats will be reinstated following construction. A CEMP will detail measures to control to and minimise the	Potentially Significant (adverse)

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
			impacts on the environment during construction.	
Cowpen Bewley Woodland Park LWS	Direct loss of woodland habitat.	Medium or long term	Direct habitat loss will be avoided where possible. Where it is not possible to avoid habitat loss, habitats will be reinstated following construction. A CEMP will detail measures to control to and minimise the impacts on the environment during construction	Potentially Significant (adverse)
Coastal and floodplain grazing marsh	Direct and indirect habitat loss. Physical or chemical pollution resulting in degradation of habitats. Changes in hydrology.	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 12.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology 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. Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required. Mitigation measures will be provided in the ES.
Coastal saltmarsh	Indirect habitat loss/ modification.	Short, medium or long term	Details of committed mitigation measures over and above those	Potentially significant (adverse) without mitigation.

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	Physical or chemical pollution resulting in degradation of habitats. Changes in hydrology.		outlined in Section 12.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology surveys and development of design of the Proposed Development. Further assessment work is required which will be provided in the ES.	This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures. Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required. Mitigation measures will be provided in the ES.
Coastal sand-dunes	Physical or chemical pollution resulting in degradation of habitats. Changes in hydrology.	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 12.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology surveys and development of the Proposed Development design. Further assessment work is required which will be provided in the ES.	Not significant
Mudflats	Physical or chemical pollution resulting in degradation of habitats.	Short or medium term	Details of committed mitigation measures over and above those	Potentially significant (adverse) without mitigation.

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
			outlined in Section 12.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology surveys and development of Proposed Development design. Further assessment work is required which will be provided in the ES.	This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures. Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required. Mitigation measures will be provided in the ES.
Saline lagoons	Physical or chemical pollution resulting in degradation of habitats. Changes in hydrology.	Short, medium or long term	Details of committed mitigation measures over and above those outlined in Section 12.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology surveys and development of design of the Proposed Development. Further assessment work is required 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. Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required. Mitigation measures will be provided in the ES.

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Open mosaic habitat on previously developed land	Direct habitat loss within the Proposed Development Site. Physical or chemical pollution resulting in degradation of habitats.	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 12.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology surveys and development of design of the Proposed Development. Further assessment work is required 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. Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required. Mitigation measures will be provided in the ES.
Ponds	Direct loss of pond habitat. Physical or chemical pollution resulting in degradation of habitats. Changes in hydrology.	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 12.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology surveys and development of design of the Proposed Development. Further assessment work is required 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. Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required. Mitigation measures will be provided in the ES.

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Watercourses	Changes in water quality (chemical or physical) resulting from watercourse crossings (open-cut or otherwise) or a pollution event, or mobilisation of sediment during HDD. Crossing or culverting of watercourses – temporary during construction or permanent.	Short – long term	All WFD main rivers will be crossed by non-intrusive methods. Details of committed mitigation measures will be provided within the ES. Further assessment work is required 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. Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required. Mitigation measures will be provided in the ES.
Hedgerows	Direct loss of hedgerows. Damage to retained hedgerows due to encroachment of machinery, compaction of soil or a pollution event.	Short or medium term	Where sections of vegetation or hedgerows are lost, these will be reinstated post-construction. Retained sections of hedgerow will be protected in accordance with BS 5837 (2012). Further assessment work is required 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. Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required. Mitigation measures will be provided in the ES.

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Broadleaved plantation woodland	Direct loss of woodland habitat within the Proposed Development Site. Damage to retained trees due to encroachment of machinery, compaction of soil or a pollution event.	Medium or long term	Woodland habitats will be avoided where possible. Where trees are to be retained, they will be protected in accordance with BS 5837 (2012). Further assessment work is required 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 (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.
Other habitats of Local or above importance	Direct and indirect habitat loss. Habitat degradation from encroachment of machinery, compaction of soil or a pollution event.	Short or medium term	Details of committed mitigation measures over and above those outlined in Section 12.5 will be provided within the ES. Mitigation to be confirmed following completion of all ecology surveys and development of design of the Proposed Development.	Potentially significant (adverse) without mitigation. This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures. Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required. Mitigation measures will be provided in the ES.

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Invertebrates	Habitat loss.	Long term	To be confirmed following necessary surveys.	Not significant
Aquatic macroinvertebrates	Crossings of main watercourses will utilise non-intrusive methods where possible. There may be the requirement for be open-cut trench crossings of minor watercourses. Open-cut trenching has the potential to directly impact macroinvertebrates through disturbance, mortality, and pollution, light and noise impacts during construction, with no mitigation in place. During construction, there is potential for pollutant spills and surface runoff into watercourses which could adversely affect habitats and species.	Short term	Open-cut trench crossings should be clear-cut and wide-span, and utilise existing culverts and crossings where possible, to maintain connectivity of watercourses. Mitigation to be confirmed following completion of all ecology surveys and development of full Proposed Development design. Further assessment work is required which will be provided in the ES.	Not significant
GCN	Habitat loss. Killing, injury or disturbance.	Short or medium term	Natural England will be consulted to confirm if strategic	Not significant

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
			options are available for this Proposed Development. Surveys to inform EcIA to be presented in the ES are ongoing.	
Reptiles	Habitat loss. Killing or injury of reptile species.	Short or medium term	To be confirmed following necessary surveys.	Not Significant
Fish	There is potential for disturbance to notable fish species during construction e.g., pollution impacts from surface water run-off, sedimentation, artificial light impacts, noise and vibration, indirect impacts through disturbance of prey species and reduced connectivity of watercourses. Crossings of main watercourses should utilise non-intrusive methods such as HDD. Open-cut crossings may result in direct impacts to fish and fish habitats.	Short or medium term	The construction of the Proposed Development will avoid the migration and spawning periods of fish shown to be present: April to June for European eel; June to October for sea trout. Open-trench crossings will be followed with reinstatement of habitats. Crossings will be clear-cut and wide span to maintain connectivity. Construction should be undertaken during daylight hours to avoid the need for artificial light, and percussive works should be minimised where possible.	Not Significant

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Roosting bats	Direct loss of roosts, killing, injury or disturbance of roosting bats.	Short or medium term	To be confirmed following necessary surveys.	Not Significant
Foraging and commuting bats.	Cowpen Bewley has been identified as an area for high bat foraging and commuting activity. The Proposed Development would potentially result in loss or severance of commuting habitats. Disturbance through noise or changes in lighting.	Short or medium term	The selection and use of low noise and vibration machinery. Avoidance of operations likely to cause significant disturbance during the most sensitive periods. Managing noise, vibration and lighting levels in accordance with industry guidance. Bunding, or screening of noisy activities. Use of directional low light-spill equipment to avoid illumination of woodland, trees, hedgerows and watercourses avoided where possible.	Not Significant
Water vole	Harm or disturbance of water vole. Damage or destruction to water vole burrows. Pollution (physical or chemical) of watercourses.	Short or medium term	Avoidance of watercourses will be considered where water voles are confirmed present, or an appropriate buffer applied to prevent damage or disturbance to burrows.	Not Significant

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
			A licence from Natural England will be required if water vole is to be disturbed (for translocation to an alternative site for example).	
Otter	Loss or disturbance of resting places. Pollution (physical or chemical) or watercourses. Disturbance through noise or changes in lighting.	Short or medium term	Avoidance of lighting adjacent to watercourses. A licence from Natural England will be required if otter will be disturbed. .	Not Significant
Brown hare	Disturbance or displacement of brown hare.	Short or medium term	None required – there is sufficient alternative suitable habitat within the wider area.	Not Significant
Hedgehog	Harm to hedgehog during site clearance.	Short term	Any potential hibernacula to be dismantled outside of the hibernation period (November to February).	Not Significant
Badger	Harm to badger or disturbance of setts.	Short or medium	A licence from Natural England will be required if badgers are to be disturbed.	Not Significant
Aquatic macrophytes	There is potential for disturbance to macrophyte species during construction resulting from pollution impacts from surface water	Short-term	These measures will include dust suppression, silt fencing and pollution prevention. Restoration of habitats following open-trench crossings.	Not Significant

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	run-off and sedimentation. Where minor watercourses are to be crossed by open-trench methods, macrophytes may be directly impacted.			
INNS	Spread of INNS resulting in a legal offence.	Short, medium or long term	A contractor will be required to prepare an INNS method statement. This will set out the measures which will be implemented to avoid the spread of INNS during construction and ensure legal compliance.	Not Significant

Table 12-9: Preliminary Assessment of Ecological Features during the Proposed Development Operational Phase

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Teesmouth and Cleveland Coast SPA	Noise and visual disturbance of SPA birds, changes in lighting, air quality effects.	Long term	Lighting will be designed to avoid light spill outside of the Main Site boundaries. Noise and air quality assessments were ongoing at the time of writing. Initial air quality modelling indicates that several of the modelled locations within Teesmouth & Cleveland Coast SPA will be subject to nitrogen deposition as a result of the Proposed Development which	Potentially Significant (adverse)

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
			exceeds 1% of the minimum part of the critical load range (reaching 2.7% of the critical load). In line with Natural England guidance this means that likely significant effects cannot be dismissed on purely mathematical grounds. Further consideration will be required of the areas affected and the extent to which this will affect those SPA and Ramsar birds (terns and avocets) that are sensitive to nitrogen deposition.	
Teesmouth and Cleveland Coast Ramsar	Noise and visual disturbance of SPA birds, changes in lighting, air quality effects.	Long term	Lighting will be designed to avoid light spill outside of the Main Site boundaries. Noise and air quality assessments were ongoing at the time of writing. Initial air quality modelling indicates that several of the modelled locations within Teesmouth & Cleveland Coast Ramsar will be subject to nitrogen deposition as a result of the Proposed Development which exceeds 1% of the minimum part of the critical load range (reaching 2.7% of the critical load). In line with Natural England guidance this means that likely significant effects cannot be dismissed on purely mathematical grounds. Further consideration will be required of the areas affected and the extent to which this will affect	Potentially Significant (adverse)

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
			those SPA and Ramsar birds (terns and avocets) that are sensitive to nitrogen deposition.	
Teesmouth and Cleveland Coast SSSI	Noise and visual disturbance of birds, changes in lighting, air quality effects	Long term	Lighting will be designed to avoid light spill outside of the Main Site boundaries. Noise and air quality assessments were ongoing at the time of writing. Initial air quality modelling indicates that several of the modelled locations within Teesmouth & Cleveland Coast SSSI will be subject to nitrogen deposition as a result of the scheme which exceeds 1% of the minimum part of the critical load range (reaching 2.7% of the critical load). In line with Natural England guidance this means that likely significant effects cannot be dismissed on purely mathematical grounds. Further consideration will be required of the areas affected and the extent to which this will affect those SPA and Ramsar birds (terns and avocets) that are sensitive to nitrogen deposition.	Potentially significant (adverse)
Teesmouth NNR	Noise and visual disturbance of birds, changes in lighting, air quality effects.	Long term	Lighting will be designed to avoid light spill outside of the Main Site boundaries. Noise and air quality assessments were ongoing at the time of writing.	Potentially significant (adverse)
Philips Tank Farm Grassland LWS	No effects anticipated	N/A	N/A	Not significant

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Saltern Grassland LWS	No effects anticipated	N/A	N/A	Not significant
Greatham Creek North Bank LWS	No effects anticipated	N/A	N/A	Not significant
Coatham Marsh LWS	Potential air quality effects	Long term	Air quality effects will be considered in greater detail and reported in the ES.	Potentially significant (adverse)
Eston Pumping Station LWS	Potential air quality effects	Long term	Air quality effects will be considered in greater detail and reported in the ES.	Potentially significant (adverse)
Cowpen Bewley Woodland Park LWS	No effects anticipated	Long term	N/A	Not significant
Coastal and floodplain grazing marsh	No effects anticipated.	N/A	N/A	Not Significant
Coastal sand dunes	No effects anticipated.	N/A	N/A	Not Significant
Mudflats	No effects anticipated.	N/A	N/A	Not Significant
Saline lagoons	No effects anticipated.	N/A	N/A	Not Significant
Open mosaic habitat on previously developed land	Habitat creation/ management to increase biodiversity.	Long term	Details of committed mitigation will be provided within the ES following completing of necessary species surveys.	Significant (beneficial)
Ponds	Habitat creation/ management to increase biodiversity. New ponds will be created as compensation if the Proposed Development is	Long term	Creation of new ponds or aquatic habitat.	Significant (beneficial)

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
	eligible to join the GCN DLL scheme.			
Broad-leaved plantation woodland Hedgerows	Habitat creation/ management to increase biodiversity.	Long-term	New habitats will be created. A Landscape and Biodiversity Management Plan (LBMP) will be implemented to monitor habitat creation to make sure BNG condition targets are met.	Not significant
Other habitats of Local or above importance	Habitat creation/ management to increase biodiversity.	Long-term	New habitats will be created. A LBMP will be implemented to monitor habitat creation to make sure BNG condition targets are met.	Significant (beneficial)
Invertebrates	Habitat creation/ management.	Long term	To be confirmed following necessary surveys.	Not Significant
Aquatic macroinvertebrates	Impacts to water quality and hydrological regime.	Long term	To be confirmed following necessary surveys.	Not Significant
GCN	Habitat creation/ management.	Long term	Details of committed (embedded) mitigation measures to ensure legal compliance will be provided within the ES following completing of necessary species surveys. This may include creation of new waterbodies as part of the DLL scheme.	Not Significant
Reptiles	No effects anticipated.	N/A	Update to surveys will be completed as necessary to inform mitigation and to ensure legal compliance.	Not Significant
Fish	No effects anticipated	Long term	Avoidance of lighting adjacent to watercourses.	Not Significant

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Roosting bats	No effects anticipated.	N/A	Update to surveys will be completed as necessary to inform mitigation and to ensure legal compliance.	Not Significant
Foraging and commuting bats	No effects anticipated.	N/A	There will be no additional lighting within suitable habitats during the operational phase. Habitats will be reinstated post construction to maintain habitat connectivity.	Not Significant
Water vole	No effects anticipated.	N/A	Update to surveys will be completed as necessary to inform mitigation and to ensure legal compliance.	Not Significant
Otter	No effects anticipated.	N/A	Update to surveys will be completed as necessary to inform mitigation and to ensure legal compliance. There will be no additional lighting within suitable habitats during the operational phase.	Not Significant
Brown hare	No effects anticipated.	N/A	Habitats within pipeline corridors will be reinstated post construction.	Not Significant
Hedgehog	No effects anticipated.	N/A	Habitats will be reinstated post construction to maintain connectivity.	Not Significant
Badger	No effects anticipated.	N/A	Habitats within the Main Site are not suitable for badger. Habitats along the Connection Corridors will be reinstated post construction and will be available to foraging badger.	Not Significant

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Aquatic macrophytes	Impacts to water quality and hydrological regime.	Long term	To be confirmed following necessary surveys.	Not Significant
INNS	Management of INNS.	Long term	A LBMP will be implemented for the operational phase of the Proposed Development and any INNS removed.	Not Significant

Table 12-10: Preliminary Assessment of Ecological Features during the Proposed Development Decommissioning Phase

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Teesmouth and Cleveland Coast SPA	Noise and visual disturbance of breeding and non-breeding birds. Physical or chemical pollution resulting in degradation of habitats.	Short or medium term	Mitigation will be confirmed following completion of ecology/ornithology surveys and in addition to minimising direct habitat loss, may include timing of works to avoid sensitive periods, the use of screening to prevent visual disturbance or acoustic barriers to minimise noise. A DEMP will detail measures to control and minimise the impacts on the environment during Decommissioning.	Not Significant

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Teesmouth and Cleveland Coast Ramsar	Noise and visual disturbance of breeding and non-breeding birds. Physical or chemical pollution resulting in degradation of habitats.	Short or medium term	Mitigation will be confirmed following completion of ecology/ornithology surveys and in addition to minimising direct habitat loss may include timing of works to avoid sensitive periods, the use of screening to prevent visual disturbance or acoustic barriers to minimise noise. A DEMP will detail measures to control and minimise the impacts on the environment during Decommissioning.	Not Significant
Teesmouth and Cleveland Coast SSSI	Noise and visual disturbance of breeding and non-breeding birds. Physical or chemical pollution resulting in degradation of habitats	Short or medium term	Mitigation will be confirmed following completion of ecology/ornithology surveys and in addition to minimising direct habitat loss may include timing of works to avoid sensitive periods, the use of screening to prevent visual disturbance or acoustic barriers to minimise noise. A DEMP will detail measures to control and minimise the impacts	Not Significant

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
			on the environment during Decommissioning.	
Teesmouth NNR	Noise and visual disturbance of breeding and non-breeding birds. Physical or chemical pollution resulting in degradation of habitats	Short or medium term	Mitigation will be confirmed following completion of ecology/ornithology surveys and in addition to minimising direct habitat loss may include timing of works to avoid sensitive periods, the use of screening to prevent visual disturbance or acoustic barriers to minimise noise. A Decommissioning Management Plan will detail measures to control and minimise the impacts on the environment during Decommissioning.	Not Significant
Philips Tank Farm Grassland LWS	No effects anticipated	N/A	N/A	Not Significant
Saltern Grassland LWS	No effects anticipated	N/A	N/A	Not Significant
Greatham Creek North Bank LWS	No effects anticipated	N/A	N/A	Not Significant
Coatham Marsh LWS	No effects anticipated	N/A	N/A	Not Significant

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Eston Pumping Station LWS	No effects anticipated	N/A	N/A	Not Significant
Cowpen Bewley Woodland Park LWS	No effect anticipated	N/A	N/A	Not significant
Coastal and floodplain grazing marsh	Direct or indirect habitat loss. Damage to habitats through encroachment of machinery. Physical or chemical pollution resulting in degradation of habitats. Changes in hydrology affecting habitats.	Short or medium term	Details of committed mitigation measures 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. Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required. Mitigation measures will be provided in the ES.

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Coastal saltmarsh	Direct or indirect habitat loss. Damage to habitats through encroachment of machinery. Physical or chemical pollution resulting in degradation of habitats. Changes in hydrology affecting habitats.	Short, medium or long term	Details of committed mitigation measures 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. Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required. Mitigation measures will be provided in the ES.
Coastal sand dunes	Physical or chemical pollution resulting in degradation of habitats.	Short or medium term	Details of committed mitigation measures will be provided within the ES.	Potentially significant (adverse) without mitigation. This initial precautionary conclusion is reached before taking into

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
				consideration site-specific mitigation and habitat management measures. Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required. Mitigation measures will be provided in the ES.
Mudflats	Physical or chemical pollution resulting in degradation of habitats.	Short or medium term	Details of committed mitigation measures will be provided within the ES.	Potentially significant (adverse) with mitigation. This initial precautionary conclusion is reached before taking into consideration site-specific mitigation and habitat management measures. Site-specific mitigation will be developed in

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
				consultation with Natural England and other stakeholders, as required. Mitigation measures will be provided in the ES.
Saline lagoons	Physical or chemical pollution resulting in degradation of habitats. Changes in hydrology affecting habitats.	Short, medium or long term	Details of committed mitigation measures 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. Site-specific mitigation will be developed in consultation with Natural England and other stakeholders, as required. Mitigation measures will be provided in the ES.

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
Open mosaic habitat	Habitat loss or degradation.	Short term	Details of committed mitigation measures will be provided within the ES.	Not significant
Ponds	Physical or chemical pollution resulting in degradation of habitats. Changes in hydrology affecting habitats.	Short or medium term	Details of committed mitigation measures will be provided within the ES.	Not Significant
Running water	Physical or chemical pollution.	Short, medium or long term	Details of committed mitigation measures will be provided within the ES.	Not Significant
Broad-leaved plantation woodland Hedgerows Other habitats of Local or above importance	No effects anticipated.	N/A	To be confirmed following completion of habitat surveys.	Not Significant
Invertebrates	No effects anticipated.	N/A	N/A	Not Significant
Aquatic macroinvertebrates	Impacts to water quality and hydrological regime.	Long term	Details of committed mitigation measures will be provided within the ES.	Not Significant

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
GCN	Habitat loss. Killing, injury or disturbance of GCN.	Short or medium term	Update to surveys will be completed as necessary to inform mitigation and to ensure legal compliance.	Not Significant
Reptiles	Killing or injury.	Short or medium term	Update to surveys will be completed as necessary to inform mitigation and to ensure legal compliance.	Not Significant
Fish	Impacts to water quality and hydrological regime.	Long term	Details of committed mitigation measures will be provided within the ES.	Not Significant
Roosting bats	No effects anticipated.	N/A	N/A	Not Significant
Foraging and commuting bats	No effects anticipated.	N/A	N/A	Not Significant
Water vole	Disturbance or destruction of water vole burrows. Killing or injury of water voles. Pollution (physical or chemical) of watercourses.	Short, medium term or long term	Update to surveys will be completed as necessary to inform mitigation and to ensure legal compliance.	Not Significant
Otter	Disturbance of otter resting places. Pollution (physical or chemical) of watercourses.	Short, medium or long term	Update to surveys will be completed as necessary to inform	Not Significant

ECOLOGICAL FEATURE	POTENTIAL IMPACT	DURATION	EXAMPLE MITIGATION	LIKELY SIGNIFICANCE OF EFFECT
			mitigation and to ensure legal compliance.	
Brown hare	No effects anticipated.	N/A	N/A	Not Significant
Hedgehog	No effects anticipated.	N/A	Measures to prevent harm to mammals	Not Significant
Badger	Disturbance of a badger.	Short or medium term	Update to surveys will be completed as necessary to inform mitigation and to ensure legal compliance.	Not Significant
Aquatic macrophytes	Impacts to water quality and hydrological regime.	Long term	To be confirmed following necessary surveys.	Not Significant
INNS	Spread of INNS resulting in a legal offence.	Short, medium or long term	Update surveys will be completed as necessary to inform the decommissioning plan.	Not Significant

12.7 Residual Effects and Conclusions

12.7.1 The preliminary information presented in this PEI Report chapter has identified that in the absence of additional mitigation measures the Proposed Development has the potential to result in a number of potentially significant adverse effects on ecological features during construction, operation and decommissioning (refer to details presented in Table 12-8 to Table 12-10).

12.7.2 Potential significant effects upon international statutory designated sites will be assessed as part of the EcIA to be presented in the ES and through the HRA process as detailed below.

12.7.3 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 EcIA to be presented in the ES. Where possible 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.

12.7.4 Where statutory or non-statutory designated sites will be affected by the Proposed Development, the EcIA to be presented in the ES will examine whether there will be direct or indirect effects during construction, operation or decommissioning 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 PEI Report chapter.

12.7.5 The Proposed Development will, wherever possible, seek to avoid direct impacts upon ponds and other waterbodies and, as such, the predicted effects upon GCN are limited to effects upon potential terrestrial habitat within 250 m of ponds where GCN is confirmed.

12.7.6 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 associated protected fauna, such as water vole or otter. Similarly, woodland, trees and other features with potential to support roosting bats and nesting birds will also be avoided as far as possible.

12.7.7 The Proposed Development has the potential to have significant effects upon species/species groups, including invertebrates and macroinvertebrates, GCN, reptiles, fish, bats, water vole, otter, brown hare, badger and hedgehog. There is also the potential for the spread of INNS. Surveys to inform the ecological 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 PEI Report chapter.

12.8 Limitations and Difficulties

12.8.1 Baseline ecology surveys were in progress at the time of writing (August 2023). 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. Where access for surveys was not available, habitats have been assessed from adjacent parcels or aerial photography.

12.8.2 This assessment has been undertaken using available data and Proposed Development design details at the time of writing in 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. Effects will be re-evaluated during the EIA and reported in the ES.

12.9 Information to Inform a Habitats Regulations Assessment

12.9.1 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. Known as European sites, these include SACs, SPAs and, as a matter of government policy, Ramsar sites.

12.9.2 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.

12.9.3 The Proposed Development is located within 15 km of the following international sites:

- Teesmouth and Cleveland Coast SPA;
- Teesmouth and Cleveland Coast Ramsar;
- North York Moors SAC;
- North York Moors SPA;
- Durham Coast SAC;
- Northumbria Coast SPA;
- Northumbria Coast Ramsar; and
- Castle Eden Dene SAC.

12.9.4 Stage 1 of the HRA process (Test of Likely Significant Effects) (See Appendix 12A: Report to inform Habitats Regulations Assessment Screening, PEI Report, Volume III) considers the potential pathways of impact 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.

12.9.5 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 Chapter 13: Ornithology (PEI Report, Volume I).

12.9.6 The North York Moors SAC/SPA, Northumbria Coast SPA/Ramsar and Castle Eden Dene SAC will be considered in the context of any operational aerial emissions (nutrient nitrogen deposition) from the Proposed Development, which have the potential to affect European sites that lie relatively far from industrial developments.

12.9.7 In addition to the above listed sites, the following European designated sites list marine mammals as qualifying species which range great distances and are therefore screened into the assessment of Test of Likely Significant Effects:

- The Wash and North Norfolk Coast SAC;
- Humber Estuary SAC;
- Southern North Sea SAC;
- River Tweed SAC; and
- Tweed Estuary SAC.

12.9.8 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, based on the potential pathways of effect between the Proposed Development and Habitats sites, it is anticipated that Appropriate Assessment will be required. Pathways of effect considered within the HRA will include habitat loss, loss of functionally linked land, noise, visual disturbance, atmospheric pollution, and nutrient neutrality. 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.

12.9.9 The HRA will be prepared in line with Planning Inspectorate Advice Note 10 (The Planning Inspectorate, 2022) (Habitats Regulations Assessment) and be submitted with the DCO Application.

12.10 Biodiversity Net Gain (BNG)

12.10.1 Schedule 15 of the Environment Act 2021 makes provision for BNG in relation to development consent for Nationally Significant Infrastructure Projects (NSIPs). The requirement for BNG for NSIPs will not become mandatory until 2025, however the Proposed Development will aspire to achieve a net gain in biodiversity. A BNG assessment will be undertaken for the Proposed Development in accordance with the latest published Natural England metric at the time of assessment.

12.10.2 A key aim of the mitigation and enhancement strategy is to achieve an overall net gain in biodiversity across the Proposed Development Site. The ecology and biodiversity assessment chapter in the ES will be supported by a BNG assessment. The Applicant is committed to making a positive contribution to biodiversity net gain and additional details will be included within the ES.

12.11 References

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