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Appendix 12A: Phase 1 Habitat and Botanical Survey Report

Appendix 12B: GCN Survey Report

Appendix 12C: Bat Survey Report

Appendix 12D: Reptile Survey Report

Appendix 12E: Invertebrate Survey Report

Appendix 12F: Water vole and Otter Survey Report

Appendix 12G: Aquatic Ecology Survey Report

Rev: 0

12.0 ECOLOGY AND NATURE CONSERVATION (INCLUDING AQUATIC ECOLOGY)

12.1 Introduction

12.1.1 This chapter of the Environmental Statement (ES) identifies the potential impacts and effects on terrestrial and aquatic (freshwater, i.e. above Mean High Water Springs (MHWS)) ecology that are to be considered as part of the Environmental Impact Assessment (EIA) of the Proposed Development.

12.1.2 Ecology and Nature Conservation is interrelated with other environmental effects and so this chapter should be read in conjunction with the other ES Volume I chapters including:

- Chapter 4: Proposed Development (ES Volume I, EN070009/APP/6.2);
- Chapter 5: Construction Programme and Management (ES Volume I, EN070009/APP/6.2)
- Chapter 8: Air Quality (ES Volume I, EN070009/APP/6.2);
- Chapter 9: Surface Water, Flood Risk and Water Resources (ES Volume I, EN070009/APP/6.2);
- Chapter 11: Noise and Vibration (ES Volume I, EN070009/APP/6.2);
- Chapter 13: Ornithology (ES Volume I, EN070009/APP/6.2);
- Chapter 14: Marine Ecology (ES Volume I, EN070009/APP/6.2);
- Chapter 16: Landscape and Visual Amenity (ES Volume I, EN070009/APP/6.2); and
- Chapter 23: Cumulative and Combined Effects (ES Volume I, EN070009/APP/6.2).

12.1.3 This chapter is supported by Figures 12-1 to 12-4 (ES Volume II) and additional information is contained in the following appendices:

- Appendix 12A: Phase 1 Habitat and Botanical Survey Report (ES Volume III, EN070009/APP/6.4);
- Appendix 12B: GCN Survey Report (ES Volume III, EN070009/APP/6.4);
- Appendix 12C: Bat Survey Report (ES Volume III, EN070009/APP/6.4);
- Appendix 12D: Reptile Survey Report (ES Volume III, EN070009/APP/6.4);
- Appendix 12E: Invertebrate Survey Report (ES Volume III, EN070009/APP/6.4);
- Appendix 12F: Water Vole and Otter Survey Report (ES Volume III, EN070009/APP/6.4); and
- Appendix 12G: Aquatic Ecology survey Report (ES Volume III, EN070009/APP/6.4).

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- 12.1.4 In addition to the above documents, this Chapter should be read with reference to the Report to inform Habitats Regulations Assessment (HRA) (EN070009/APP/5.10) and the Outline Landscape and Biodiversity Management Plan (EN070009/APP/5.9).

The Proposed Development is described in Chapter 4: Proposed Development (ES Volume I, EN070009/APP/6.2). Unless specifically noted assessment text relates to the whole Proposed Development Site. Where the assessment relates to only Options A or B for the Hydrogen Pipeline Corridor, this is clearly noted. This optionality is described in the section titled 'Hydrogen Pipeline Corridor' and illustrated in Figure 4-4: Hydrogen Pipeline Corridor within Chapter 4: Proposed Development (ES Volume I, EN070009/APP/6.2). It is also referenced in the corresponding section of Chapter 5: Construction Programme and Management (ES Volume I, EN070009/APP/6.2).

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 Ecological Impact Assessment (EclA) is set out below.

Legislative Background

- 12.2.2 The following legislation is relevant to this EclA for the Proposed Development.

The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations) (as amended)

- 12.2.3 The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations) consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments (HM Government, 2017). The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive), into national law. They also transpose elements of Directive 2009/147/EC on the conservation of wild birds (the Birds Directive) in England and Wales.
- 12.2.4 All species listed under Annex IV of the Habitats Directive require strict protection and are known as European Protected Species (EPS). Under Regulation 42 of the Habitats Regulations, it is unlawful to: Deliberately kill, capture or disturb; Deliberately take or destroy the eggs of; and Damage or destroy the breeding site/resting place of any species protected under this legislation.
- 12.2.5 If it is determined that impacts to an EPS are unavoidable then the works may need to be carried out under a site-specific mitigation licence from the relevant statutory body, in this case, Natural England.
- 12.2.6 Certain EPS are also listed under Annex II of the Habitats Directive and are afforded protection by the establishment of core areas of habitat known as Special Areas of Conservation (SACs). This means these species are a relevant consideration in a HRA process and are considered in the Report to Inform Habitats Regulations Assessment (EN070009/APP/5.10).

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

The Wildlife and Countryside Act 1981 (as amended)

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

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

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

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

12.2.12 Invasive species listed under Schedule 9 are prohibited from release into the wild and the Act prohibits planting or “causing to grow” in the wild of any plant species listed in Schedule 9. It should be noted that certain bird species listed on Schedule 1 of the WCA are also listed on Schedule 9 to prevent release of non-native and captive individuals, this includes barn owl (*Tyto alba*), red kite (*Milvus milvus*), goshawk (*Accipiter gentilis*) and corncrake (*Crex crex*).

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

Countryside Rights of Way Act 2000

12.2.14 The Countryside and Rights of Way (CRoW) Act (HM Government, 2000) has amended the WCA in England and Wales strengthening the protection afforded to Sites of Special Scientific Interest (SSSI) and the legal protection for threatened species. It adds the word ‘reckless’ to the wording of the offences listed under Section 9(4) of the WCA. This alteration makes it an offence to recklessly commit an offence, where previously an offence had to be intentional to result in a breach of legislation.

The Natural Environment and Rural Communities Act 2006

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

The Protection of Badgers Act 1992

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

The Hedgerows Regulations 1997

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

The Wild Mammals (Protection) Act 1996

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

Salmon and Freshwater Fisheries Act 1975

- 12.2.19 This Act (HM Government, 1975) covers regulation of fisheries in England and Wales and includes legislation that covers the introduction of polluting effluents, the obstruction of fish passage (screens, dams, weirs, culverts etc) illegal means of fishing, permitted times of legal fishing and fishing licencing (which covers electric fishing).

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- 12.2.20 Under this act any person who causes or knowingly permits to flow, or puts or knowingly permits to be put, into any waters containing fish or into any tributaries of waters containing fish, any liquid or solid matter to such an extent as to cause the waters to be poisonous or injurious to fish or the spawning grounds, spawn, or food of fish, shall be guilty of an offence.
- 12.2.21 The act also requires that fish passes are installed on new and rebuilt barriers that affect waters frequented by salmon or migratory trout. In the future, it is likely that fish passage facilities will need to be designed to accommodate all fish species and life stages, with nature-like bypass channels being the most appropriate solution currently available.

The Eels (England and Wales) Regulations 2009

- 12.2.22 The Eels (England and Wales) Regulations 2009 (HM Government, 2009) implement Council Regulation (EC) No 1100/2007 of the Council of the European Union, which required Member States to establish measures for the recovery of the stock of European eel. The regulations apply to England and Wales.
- 12.2.23 They give powers to the regulators (the Environment Agency in respect of the Proposed Development) to implement recovery measures in all freshwater and estuarine waters in England and Wales. The aim of the regulations is to achieve 40 per cent escapement of adult eels relative to escapement levels under pristine conditions. The measures, as set out in the legislation, by which this is to be achieved are to reduce fishing pressures, improve access and habitat quality and reduce the impact of impingement and entrainment.
- 12.2.24 Under the Regulations, the Environment Agency can serve notice to companies detailing their legal obligation to screen intakes and outfalls for eel and/or to remove or modify obstructions to eel migration. However, it is possible for companies to be granted with exemptions if the costs of works greatly exceeds the benefits. In such a situation it is likely the regulator will seek a package of more cost-effective, “alternative measures”.

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (2000/60/EC)

- 12.2.25 The Water Environment (Water Framework Directive – ‘WFD’) (England and Wales) Regulations 2017 (HM Government, 2017) transpose for England and Wales Directive 2000/60/EC establishing a framework for Community action in the field of water policy (the Water Framework Directive).
- 12.2.26 They also transpose aspects of Directive 2008/105/EC on environmental quality standards in the field of water policy (the Environmental Quality Standards Directive). The Regulations impose duties on the Secretary of State and the Environment Agency to carry out certain functions to ensure compliance with the EU directives, in particular when deciding whether to grant, vary or revoke certain permits and licences which affect water quality.
- 12.2.27 The purpose of the Water Framework Directive (WFD) is to establish a framework for the protection of inland surface waters (rivers and lakes), transitional waters

(estuaries), coastal waters and groundwater and for all water bodies (unless artificial or heavily modified) to achieve “good” ecological status.

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

Environment Act 2021

- 12.2.29 The Environment Act 2021 (HM Government, 2021) has two main functions:
- to give a legal framework for environmental governance in the UK; and
 - to bring in measures for improvement of the environment in relation to waste, resource efficiency, air quality, water, nature and biodiversity, and conservation.
- 12.2.30 Schedule 15 of the Environment Act makes provisions for the interaction of BNG and the Planning Act 2008 process. Mandatory requirements for DCO projects are anticipated to come into force (in November 2025 for).
- 12.2.31 The Applicant has explained its position in respect of BNG and the Proposed Development in the Planning Statement.

Planning Policy Context

National Planning Policy

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

- 12.2.32 The Overarching National Planning Policy Statement (NPS) for Energy (EN-1) (Department for Energy Security and Net Zero (DESNZ), 2023a) 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. Section 5.4 of EN-1 (DESNZ, 2023a) relates to biodiversity and geological conservation as follows:
- Paragraphs 5.4.4 to 5.4.5 states "*The highest level of biodiversity protection is afforded to sites identified through international conventions. The Habitats Regulations set out sites for which an HRA will assess the implications of a plan or project, including Special Areas of Conservation and Special Protection Areas. As a matter of policy, the following should be given the same protection as sites covered by the Habitats Regulations and an HRA will also be required:*
- (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 any of the other sites covered by this paragraph."*
- Paragraph 5.4.7 to 5.4.8 state: "*Many SSSIs are also designated as sites of international importance and will be protected accordingly. Those that are not, or those features of SSSIs not covered by an international designation, should*

be given a high degree of protection. Most National Nature Reserves are notified as SSSIs.

Development on land within or outside a SSSI, 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 (including need) 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 SSSIs."

- Paragraph 5.4.17 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 (including those outside England), on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity, including irreplaceable habitats."*

National Policy Statement (NPS) for Natural Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (2023)

- 12.2.33 With reference to biodiversity, Paragraph 2.23.3 of EN-4 (DESNZ, 2023b) states "*The Secretary of State should follow the principles for decision making set out in Sections 5.4 and 5.10 of EN-1."*

National Policy Statement (NPS) for Electricity Networks Infrastructure (EN-5) (2023)

- 12.2.34 Paragraph 1.7.1 of 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."*
- 12.2.35 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:*
- reconnect important habitats via green corridors, biodiversity stepping zones, and reestablishment of appropriate hedgerows; and/or*
 - connect people to the environment, for instance via footpaths and cycleways constructed in tandem with environmental enhancements."*

The National Planning Policy Framework (2023)

- 12.2.36 The National Planning Policy Framework (NPPF) (Department for Levelling Up, Housing and Communities, 2023) 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.

12.2.37 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 SSSI;
- 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.

12.2.38 The following should be given the same protection as habitats sites:

- a) potential SPAs and possible SACs;
- b) listed or proposed Ramsar sites; and
- c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential SPAs, possible SACs and listed or proposed Ramsar sites.

12.2.39 Paragraph 188 of the NPPF states that: "*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.*"

25 Year Environment Plan

12.2.40 The 25 Year Environment Plan (HM Government, 2018) outlines the government action to help the natural world regain and retain good health. It aims to deliver cleaner air and water in our cities and rural landscapes, protect threatened species and provide richer wildlife habitats. It calls for an approach to agriculture, forestry, land use and fishing that puts the environment first. Six key areas of action are identified:

- Using and managing land sustainably;
- Recovering nature and enhancing the beauty of landscapes;
- Connecting people with the environment to improve health and wellbeing;
- Increasing resource efficiency, and reducing pollution waste;
- Securing clean, productive and biologically diverse seas and oceans;
- Protecting and improving the global environment.

Planning Practice Guidance (PPG)

12.2.41 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

12.2.42 Due to its location, three local plans are relevant to the Proposed Development:

- the Redcar and Cleveland Local Plan (Redcar and Cleveland Borough Council, 2018);
- the Stockton-on-Tees Local Plan (Stockton-on-Tees Borough Council, 2019); and
- the Hartlepool Local Plan (Hartlepool Borough Council, 2018).

Redcar and Cleveland Borough Council (RCBC)

12.2.43 The Redcar and Cleveland Local Plan (Redcar and Cleveland Borough Council, 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 6 km of the Teesmouth and Cleveland Coast SPA and Ramsar Site, as illustrated on the Policies Map, proposals that would result in a net increase in residential units, or other development that would lead to increased recreational disturbance of the site's interest features, will be expected to contribute towards strategic mitigation measures identified in the Recreation Management Plan. This is to ensure that adverse effects on the site's integrity can be avoided. Any alternative suitable mitigation would need to be proven effective and agreed with the Council, in consultation with relevant statutory consultees or

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

Nationally important sites

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

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

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

Locally important sites

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

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

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

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

Stockton-on-Tees Borough Council (STBC)

12.2.44 The Stockton-on-Tees Local Plan (Stockton-on-Tees Borough Council, 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;

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- 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."*

12.2.45 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."*

12.2.46 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."

12.2.47 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:

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- 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."*

12.2.48 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)

12.2.49 The Hartlepool Local Plan (Hartlepool Borough Council, 2018) was adopted in May 2018. Policies relevant to ecology/biodiversity are outlined below.

12.2.50 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 considerations 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."

12.2.51 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 HRA. 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 Environmental 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

- 12.2.52 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.
- 12.2.53 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

- 12.2.54 This EclA 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).
- 12.2.55 Species specific guidance used to inform this EclA 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, 2023);
 - 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 2023) 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 (Dean *et al.* 2016);
 - Badger (*Meles meles*) survey guidance outlined in Surveying Badgers (Harris *et al.* 1989); and
 - 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 for each habitat/species have been defined with reference to the likely Zone of Influence (Zol) 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 authorised by the DCO.
- 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 1.2 (CIEEM, 2022).
- 12.3.3 The spatial scope also takes account the potential Zol of the Proposed Development by extending the desk-based exercise to outside the Proposed Development Site where required. The Zol is the area over which biodiversity resources may be subject to likely significant effects as a result of the Proposed Development. These effects (and therefore the distance and area of the Zol) 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 Zol of the Proposed Development may vary over time (e.g., the construction Zol may differ from the operational Zol) and/or depending on the individual sensitivities of different ecological features.
- 12.3.5 In light of this, 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., 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;
 - Waterbodies within 500 m of the Main Site and 250 m from pipeline and connection corridors 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, 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 NERC Act 2006 (Habitats and Species of Principal Importance) or species and habitats with LBAP; and

- Relevant WFD waterbodies data for waterbodies at or within proximity to the Proposed Development.

Sources of Information

12.3.6 The ecological baseline has been determined through a combination of desk study and field surveys. The full results of the desk studies and field surveys are detailed within the following technical appendices:

- Appendix 12A: Phase 1 Habitat and Botanical Survey Report (ES Volume III, EN070009/APP/6.4);
- Appendix 12B: GCN Survey Report (ES Volume III, EN070009/APP/6.4);
- Appendix 12C: Bat Survey Report (ES Volume III, EN070009/APP/6.4);
- Appendix 12D: Reptile Survey Report (ES Volume III, EN070009/APP/6.4);
- Appendix 12E: Invertebrate Survey Report (ES Volume III, EN070009/APP/6.4);
- Appendix 12F: Water vole and Otter Survey Report (ES Volume III, EN070009/APP/6.4); and
- Appendix 12G: Aquatic Ecology survey Report (ES Volume III, EN070009/APP/6.4).

Impact Assessment Methodology

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

12.3.8 It is not necessary in the assessment to address all habitats and species with potential to occur in the Zol 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. The development has been designed to avoid designated sites and habitats of principal importance wherever possible. Impacts upon watercourses and sensitive habitats have been avoided where possible through use of trenchless crossing techniques.

Cumulative Ecology and Nature Conservation Effects

12.3.9 An assessment of cumulative ecology and nature conservation effects has been undertaken and is detailed within Chapter 23: Cumulative and Combined Effects (ES Volume I, EN070009/APP/6.2).

12.3.10 The assessment of cumulative effects follows the methodology described in Advice Note Seventeen (The Inspectorate, 2019a), for more information refer to Chapter 23: Cumulative and Combined Effects (ES Volume I, EN070009/APP/6.2).

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- 12.3.11 It is important to note that cumulative effects may vary from the effects of the Proposed Development considered in isolation. For example, it is possible for the Proposed Development to have greater effects cumulatively with other planned developments than if it is considered in isolation against the existing baseline reported in Section 12.4.
- 12.3.12 To support focussed EclA, there is a need to determine the scale at which the ecological features identified through the desk studies and field surveys are of value. The value of each ecological feature 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 (United Kingdom, but considering the potential for certain ecological features to be more notable (of higher value) in an England context relative to the United Kingdom 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).
- 12.3.13 All ecological features of Local importance and above, where there is the potential for the Proposed Development to directly or indirectly impact them, have been taken forward to impact assessment and as such considered to be the 'Important Ecological Features' for the purposes of EclA.
- 12.3.14 In line with the CIEEM guidelines, the terminology used within the EclA draws a clear distinction between the terms 'impact' and 'effect'. For the purposes of the EclA, 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.
- 12.3.15 With reference to the CIEEM Guidelines, the following parameters have been considered when assessing effects on ecological features:
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- Positive or negative; Whether the impact will have a positive (beneficial) or negative (adverse) change on the quality of the ecological feature;
 - Extent / complexity: The geographical area over which the effect occurs, whether Direct, Indirect or Cumulative;
 - Magnitude: The 'size' or 'amount' of an effect determined on a quantitative basis e.g., total or partial;
 - Duration: The period over which the effect is expected to last prior to recovery or replacement of the resource or feature, for example, short-term (up to 3 months), medium term (between 3 months and 2 years) or long-term (greater than 2 years);
 - Reversibility: Whether recovery from the effect is possible or not, e.g., irreversible (permanent) effects or reversible (temporary) effects; and
 - Frequency and timing: The number of times an activity occurs will influence the resulting effect. The timing of an activity or change may alter the impact.

Significance Criteria

- 12.3.16 For each ecological feature only those characteristics relevant to understanding the ecological effect and determining the effect's 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.
- 12.3.17 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).
- 12.3.18 The CIEEM approach described above broadly accords with the EIA methodology described in Chapter 2: Assessment Methodology (ES Volume 1, EN070009/APP/6.2). However, a matrix approach will not be used to classify effects, as this deviates from CIEEM guidance. To provide consistency of terminology in the final EclA with other chapters of the ES, the findings of the CIEEM assessment have been translated into the classification of effects scale as outlined in Table 12-1 below.

Table 12-1: Classification of Effects

EFFECT CLASSIFICATION	TERMINOLOGY USED IN OTHER 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.

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

Biodiversity Net Gain Assessment

12.3.20 For the reasons given in the Planning Statement (EN070009/APP/5.2), the Applicant has not submitted a Biodiversity Net Gain Report/Assessment based on the BNG Metric as part of its DCO Application for the Proposed Development However, the Applicant’s proposals for gains/enhancements are set out in the Outline Landscape and Biodiversity Management Plan (LBMP) (EN070009/APP/5.9). The measures in the latter will be developed into a Full LBMP to reflect the detailed design (and impacts) of the Proposed Scheme, in substantial accordance with that outline. This is secured through a Requirement of the Draft DCO (EN070009/APP/4.1). Through these measures, the Applicant will be able to deliver a commitment to no net loss, as a minimum.

12.3.21 Furthermore, the Applicant is keen to secure enhancements in the wider Teesside area off-site from the Order limits and is working with stakeholders such as the EA, Natural England and RPSB to develop proposals in this regard. Whilst the Applicant does not propose to quantify these in BNG metric terms at this point in time, it is hoped that such measures, to be secured through a section 106 Agreement, will be able to demonstrate a wider qualitative net gain overall as a result of the Proposed Development. .

Use of the Rochdale Envelope

12.3.22 To ensure a robust assessment of the likely significance of the environmental effects of the Proposed Development, the EclA is being undertaken adopting the principles of the 'Rochdale Envelope' approach where appropriate in line with The Planning Inspectorate's Advice Note 9 (The Planning Inspectorate, 2018). This is explained further in Chapter 2: Assessment Methodology (ES Volume I, EN070009/APP/6.2).

12.3.23 Due to construction phasing, there may be a period following opening of Phase 1 where Phase 1 will be operational and Phase 2 in construction. Within the framework of this EclA, the worst-case scenario for construction and operation concurrently has been defined and assessed, resulting in Phase 1 being considered a more robust (worst-case) construction stage evaluation. This conclusion is drawn from the increased construction activity in Phase 1 compared to a combined assessment involving Phase 1 operational and Phase 2 construction. The operational stage worst case commences on completion of Phase 2. Operational effects from Phase 1 and Phase 2 combined have been assessed as a worst-case scenario for air quality and noise effects on designated sites and protected or notable species.

Consultation

Scoping Opinion

12.3.24 An EIA Scoping Opinion was requested from the Inspectorate on 6 April 2023. A response was received on 17 May 2023. For the Scoping Opinion and the Applicant's responses to them, refer to Appendix 1E (ES Volume III, EN070009/APP/6.4).

Statutory Consultation

12.3.25 The PEI Report was published for statutory consultation on 14 September 2023 and the consultation period ended on 26 October 2023. A second statutory consultation was held between 13 December 2023 and 23 January 2024, and additional targeted consultation was held between 9 February 2024 and 10 March 2024. The matters raised have been reviewed and an explanation of how the Applicant has had regard to them is set out in the Consultation Report (EN070009/APP/5.1).

12.3.26 Refer to Table 12-2 for a detailed summary of the Statutory Consultation feedback relevant to this chapter from Statutory Environmental Bodies, and the Applicant's responses.

Table 12-2: Responses to the Statutory Consultation Feedback

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/HOW COMMENTS HAVE BEEN ADDRESSED
Natural England	20/10/23	<p>Natural England's comments relating to the Public Consultation and the Preliminary Environmental Information Report (PEIR) are given below:</p> <p>Nationally and Internationally Designated Sites The proposal is likely to impact directly and indirectly upon the Teesmouth and Cleveland Coast Special Protection Area (SPA), Ramsar Site and Site of Special Scientific Interest (SSSI) during construction and operation and has the potential to indirectly impact several other internationally designated sites during operation. Natural England notes that a 'Report to Inform Habitats Regulations Assessment Screening' has been submitted in line with the requirements of the Habitats Regulations, and that these assessments have been made taking account of the Rochdale Envelope approach (worst-case scenarios) in the absence of detailed design information. Natural England acknowledges the intention to carry out an assessment of cumulative and in combination effects as part of the forthcoming Environmental Statement and as option selection proceeds.</p>	<p>Nationally and Internationally Designated Sites The Applicant can confirm a Report to Inform Habitats Regulations Assessment (EN070009/APP/5.10) and a Cumulative and In-Combination Effects Assessment (Chapter 23: Cumulative and Combined Effects (ES Volume I, EN070009/APP/6.2)) have been undertaken and submitted as part of the DCO Application. The Applicant can confirm a Nutrient Neutrality Assessment has been undertaken and is submitted as part of the DCO Application (EN070009/APP/5.13)</p> <p>Protected species The Applicant has reviewed the Natural England standing advice for protected species. The results of species-specific surveys are reported in the Environmental Statement (EN070009/APP/6.4).</p> <p>Habitat Enhancement The Applicant's biodiversity assessment is ongoing and includes assessment of priority habitat layers from the MAGIC database and the ecology surveys. The Applicant</p>

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/HOW COMMENTS HAVE BEEN ADDRESSED
		<p>We also note the Nutrient Neutrality Screening Assessment in recognition of the Tees catchment’s current nutrient neutral status. With regard to the restoration of the SPA as distinct from nutrient neutrality the SPA’s conservation objectives include the ‘restore’ objective. Natural England welcomes the statement regarding further consideration of the nutrient neutrality theme during the appropriate assessment stage of the project’s Habitats Regulations Assessment.</p> <p>Based on the information available to date Natural England agrees with the conclusions of the assessments presented in the PEIR as a whole.</p> <p>Protected Species</p> <p>Based on the information provided Natural England advises that the proposal has the potential to impact species protected by UK and EU legislation. We note that further species-specific surveys are being undertaken, and will be used to inform the Environmental Statement, as well as any required protected species licence applications. Natural England has published Standing Advice on protected species. Whilst this advice has been primarily designed to assist Local Planning Authorities</p>	<p>is happy to discuss opportunities with Natural England as the biodiversity assessment progresses.</p>

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/HOW COMMENTS HAVE BEEN ADDRESSED
		<p>better understand the information required when assessing the impacts of developments on protected species, it also contains a wealth of information to help applicants ensure their proposals comply with best practice guidelines and contribute to sustainable development. Notwithstanding our pre-application discussions on suitable ecological survey we would refer you to our standing advice for further guidance on information that may be required in terms of survey and mitigation requirements.</p> <p>The Standing Advice should not, however, be treated as giving any indication or providing any assurance that the proposed development will be unlikely to affect European Protected Species within the scheme's zone of influence, nor should it be interpreted as meaning that Natural England has reached any views as to whether a licence (or licences) will be required.</p> <p>Habitat Enhancement</p> <p>The development site includes and adjoins land supporting a range of priority habitats. We welcome the statement regarding consideration of these in the Environmental Statement, including open mosaic habitat on previously developed land. With regard to Biodiversity</p>	

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/HOW COMMENTS HAVE BEEN ADDRESSED
		<p>Net Gain (BNG) Natural England notes the statement within the PEIR regarding BNG being likely to achieve mandatory status for NSIPs in 2025. We welcome the commitment to a suitable BNG assessment at the relevant time in order to inform the stated objective of an overall net gain across the development site. We would be happy to work with the applicants to develop this.</p>	
Environment Agency	26/10/23	<p>Terrestrial Ecology</p> <p>We are generally satisfied with the PEIR approach and are in agreement with its conclusions of the receptors to be taken forward for assessment.</p> <p>The PEIR provides examples of mitigation for species and features for which the EA plays a lead role in protecting. Whilst we agree with the example mitigation measures provided for otter and water vole, these measures alone are not considered to be sufficient. Further species protection plans and/or precautionary method statements for otter and water vole should be provided within the Environmental Statement (ES) and Construction Environmental Management Plan (CEMP) and cover areas of the proposed development site that have potential to support these species. Additional mitigation measures could include mammal ramps in excavations, pre-construction surveys and the presence</p>	<p>Terrestrial Ecology</p> <p>Where possible, the Proposed Development Site boundary has been designed to avoid effects upon protected and notable species, for example by using existing access roads, HDD and use of existing infrastructure. The Framework CEMP (EN070009/APP/5.12) details measures to avoid potential effects on habitats and species during construction and outlines precautionary working methods to avoid harm to ecology receptors including nesting birds, otter, water vole and reptiles. A draft mitigation licence will be prepared for water vole where potential effects cannot be avoided.</p> <p>Ecology surveys to inform the ecological baseline have been completed in the 18 months prior to the application submission. Any requirements for update surveys or</p>

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/HOW COMMENTS HAVE BEEN ADDRESSED
		<p>of an ECoW (Ecological Clerk of Works) on site during construction.</p> <p>Should the proposed additional survey work be completed and incorporated into the ES, we do not consider any further assessments are required at this stage. Given that ecological survey data generally has a shelf-life of 18 months (depending on species and circumstance), the applicant should ensure that updated surveys for each receptor that are taken forward for assessment are completed. This will ensure that any further assessment work to inform the ES is informed by up-to-date and relevant information.</p> <p>The approach outlined in the PEIR with regards to the CEMP is acceptable. The CEMP should also incorporate any mitigation measures identified in the ES.</p> <p>Biodiversity Net Gain (BNG)</p> <p>Whilst not mandatory for Nationally Significant Infrastructure Projects, we welcome that the PEIR states a key aim of the mitigation and enhancement strategy is to achieve an overall net gain in biodiversity across the proposed development site. It is noted that BNG is concerned with habitats only, and that simply providing a net gain in biodiversity units may not be sufficient to</p>	<p>precautionary working methods have been outlined within the Framework CEMP (EN070009/APP/5.12). We welcome agreement on the approach outlined within the CEMP. All measures identified during the specialist assessments undertaken to inform the Environmental Statement have been incorporated into the Framework CEMP (EN070009/APP/5.12).</p> <p>Biodiversity</p> <p>An Indicative Landscape and Biodiversity Management Plan is included as part of the DCO Application (EN070009/APP/5.10).</p> <p>Where possible, the Proposed Development has been designed to avoid adverse effects upon designated sites, habitats of principal importance and protected and notable species. The Main Site is located on an area of low ecological value. Within the connection corridors, existing infrastructure will be used to minimise effects on biodiversity wherever possible. In areas where there is no existing infrastructure, it is proposed to restore habitats post-construction. BNG in relation to Town and Country Planning Act 1990 applications have now come into force. However, provisions relating to Planning Act</p>

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/HOW COMMENTS HAVE BEEN ADDRESSED
		<p>mitigate impacts to protected species such as otter and/or water vole. It is expected that any strategy to deliver net gain will be developed alongside a landscape and environment management plan, which should also take into account species-specific mitigation and/or enhancement measures for the wider site during operation.</p> <p>Paragraph 7.6.3 of the Non-Technical Summary (NTS) refers to direct or indirect habitat loss / modification. No habitat loss should be permitted as a result of this project.</p>	<p>2008 projects have not yet come into force and are not expected to until at least November 2025.</p> <p>At a national level, this delay reflects the need for the complexities of infrastructure projects and its interaction with the BNG metric to be fully understood by Natural England and project promoters, acknowledging that they are not the same as blocks of land lost to housing developments.</p> <p>This is particularly true for a project such as the Proposed Development, with its numerous corridors involving a mix of above and underground land requirements for different types of pipelines, but which are also surrounded by a number of existing assets, necessitating differing limits of deviation. Infrastructure also have a range of 'temporary' land requirements that are shown in the application boundary but may not in face involve habitat loss. As such, the true 'loss' of habitats to the Proposed Scheme are much less than would actually be the case than simply assuming that the loss includes the entirety of the Order limits. Natural England is therefore working with the energy and infrastructure industry to consider how best the metric can apply to projects such as this.</p>

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			<p>A specific additional complexity for the Proposed Development is the Main Site. At the moment the Main Site is the subject of extensive demolition works of the former Redcar steelworks and infrastructure; and it is anticipated it will also shortly be subject to extensive remediation activities. The former steelworks site are subject to restoration and habitat establishment requirements, and it is considered likely that this will apply to the remediation works. As such, the ecological baseline position of the site now would, for BNG purposes, be unrealistic in terms of establishing what the 'pre-development' habitat condition should be considered to be for the Main Site.</p> <p>For these reasons, the Applicant has not submitted a BNG Report/Assessment as part of its DCO Application for the Proposed Development. Notwithstanding this, and mindful of the policy imperatives of the NPS, the Applicant is committed to ensuring that the ecological impacts of the Proposed Development are fully mitigated, and where possible given the constraints of the Order limits and the Teesworks site more generally, deliver enhancements. The Applicant's proposals in this regard are set out in Chapter 12: Terrestrial Ecology (ES Volume I, EN070009/APP/6.2) and in the Outline Landscape and Biodiversity Management Plan</p>

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			<p>(EN070009/APP/5.9). The measures in the latter will be developed into a Full BLMP to reflect the detailed design (and impacts) of the Proposed Scheme, in substantial accordance with that outline. This is secured through the DCO. Through these measures, the Applicant will be able to deliver a commitment to no net loss, as a minimum. Furthermore, the Applicant is keen to secure enhancements in the wider Teesside area off-site from the Order limits and is working with stakeholders such as the EA, Natural England and RPSB to develop proposals in this regard. Whilst the Applicant does not propose to quantify these in BNG metric terms at this point in time, it is hoped that such measures, to be secured through a section 106 Agreement, will be able to demonstrate a wider qualitative net gain overall as a result of the Proposed Development.</p>
Environment Agency	23/01/24	<p>Flood Defences</p> <p>The changes to the Project Site Boundary in the area at the Venator Site, outlined by Change 1 within the December Update Brochure, may have an impact on our flood defence improvement works.</p> <p>The Environment Agency's Greatham North East Flood Alleviation Scheme aims to improve the defences to the south of the Venator Plant. As part of our improvement</p>	<p>Flood Defences</p> <p>The yellow shaded area for Change 1 will be for the construction of a connection from Venator to the Greatham branch of the Hydrogen Pipeline Network which may overlap with the EA's proposed construction compound. The routing of the hydrogen pipeline in the Greatham area is designed to avoid impacts on the SPA/Ramsar. When selecting the routing early</p>

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		<p>works, we will be creating a site compound to support construction on Venator’s land for the duration of the works. Our site compound location has been agreed with Venator and is located in the hashed yellow area shown here in the increased red line boundary for H2 Teesside. We expect to submit an application for planning permission in summer 2024 and have construction programmed to start in spring 2025.</p> <p>The additional area added to the H2 Teesside Project Site Boundary may have an impact on our Scheme if works at this location are to begin before our Flood Alleviation Scheme has been completed. To ensure the two projects do not coincide and impact each other, we ask for confirmation of the dates when construction for your project is expected to commence in this area. We also request clarity on what works are proposed in this area to ensure there will be no impacts on our flood defence improvement works.</p> <p>Ecology</p> <p>The updated redline boundary introduces new ditches and a minor watercourse in the north-western area (change number 6 within the December Update Brochure). These ditches should be subject to a water</p>	<p>engagement with the Environment agency identified the need to avoid impacts on flood alleviation schemes. Consequently, HDD techniques will be used to cross the creek to avoid the flood alleviation scheme The exact timing of works in the venator area is yet to be defined but the Applicant and Venator will work with the EA to avoid conflicts in this area and will provide further information in due course to allow Protective Provisions to be agreed.</p> <p>Ecology</p> <p>The new yellow hashed area brought into the redline boundary for Change 6 was subject to a Phase One Habitat Survey in November 2023. During this survey it was identified the minor watercourse was suitable for water voles and so their presence has been assumed for the purposes of this assessment. However, the survey season for water vole had passed by the time this new area was brought into the redline boundary, and as such a water vole survey is yet to be conducted to cover this new area. The water vole survey window opens again in April, at which point a survey of this area will be conducted and discussed with the Environment</p>

CONSULTEE	DATE AND METHOD OF CONSULTATION	SUMMARY OF CONSULTEE COMMENTS	SUMMARY OF RESPONSE/HOW COMMENTS HAVE BEEN ADDRESSED
		vole survey due to the presence of records in the area around Cowpen Bewley Woodland Park. All newly added areas to the Project Boundary should be subject to a habitat survey, if they have not already been surveyed.	Agency.EN070009/APP/6.4) during pre-examinationdiscussed with the Environment Agency.

Assumptions and Limitations

- 12.3.27 There are no significant overall limitations that are considered to compromise the validity of this chapter, although details of any qualifications or limitations that are specifically relevant to a particular floral or faunal survey, are provided in the relevant appendices (Appendices 12-A to 12-G (ES Volume III, EN070009/APP/6.4)). Where update surveys are required to inform mitigation licence requirements, this is specified within the Framework Construction Environmental Management Plan (CEMP) (EN070009/APP/5.12) and Outline Landscape and Biodiversity Management Plan (Outline LBMP) (EN070009/APP/5.9).
- 12.3.28 It is assumed that 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. It has been assumed that trenchless crossing methods will be used to cross the River Tees and Greatham Creek. There will be no direct loss of saltmarsh habitat within the Proposed Development Site. Areas of saltmarsh will be avoided by use of trenchless crossing techniques.
- 12.3.29 With the exception of Cowpen Bewley Woodland Park LWS, there will be no direct habitat loss within statutory or non-statutory designated sites. Any habitat loss associated with connection corridors (open cut, launch pits for trenchless crossings, temporary storage areas and access points) will be outside of designated sites.
- 12.3.30 It is assumed that no buildings or structures will be lost to facilitate the construction of the Proposed Development on the Proposed Development Site. Buildings within the Main Site are undergoing demolition by South Tees Development Corporation (STDC) under an existing consent and do not form part of the Proposed Development.
- 12.3.31 The exact route of the Proposed Development within the Proposed Development Site will be determined at Detailed Design. For the purposes of the EclIA, a reasonable worst-case scenario has been assumed to inform this impact assessment and mitigation requirements. All temporary construction compounds set out as part of Work No. 9 of the DCO will be removed at the end of the construction period and restored.
- 12.3.32 It is assumed that eventual 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.

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 (ES Volume I, EN070009/APP/6.2)) relevant to the Proposed Development are summarised in this section for completeness.

Designated Sites

Statutory Designated Sites

- 12.4.2 There are three SPAs, three SACs and two Ramsar sites within 15 km of the Proposed Development Site.
- 12.4.3 There are 20 SSSIs within 15 km of the Proposed Development, three NNR and four LNR within 2 km of the development.
- 12.4.4 Details of statutory designated sites are summarised in Table 12-3 and the locations in relation to the Proposed Development Site are shown in Figure 12-1.
- 12.4.5 All designated sites of ecological importance are included in the tables below, however effects upon ornithology and marine ecology are considered within Chapters 13: Ornithology (ES Volume I, EN070009/APP/6.2) and Chapter 14: Marine Ecology (ES Volume I, EN070009/APP/6.2) respectively.

Table 12-3: Statutory Designated Sites within the Zol of the Proposed Development Site

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO MAIN SITE (APPROX.)	PROXIMITY TO CONNECTION CORRIDORS (APPROX.)	IMPORTANCE
Teessmouth and Cleveland Coast SPA	Qualifying features (Natural England, 2020): Pied avocet (<i>Recurvirostra avosetta</i>) (breeding); Red knot (<i>Calidris canutus</i>) (non-breeding); Ruff (<i>Calidris pugnax</i>) (non-breeding); Common redshank (<i>Tringa 42octule</i>) (non-breeding); Sandwich tern (<i>Thalasseus sandvicensis</i>) (non-breeding); Common tern (<i>Sterna hirundo</i>) (breeding); Little tern (<i>Sternula albifrons</i>) (breeding); and Waterbird assemblage.	Adjacent	Overlapping ¹	International
Teessmouth and Cleveland Coast Ramsar	The site qualifies as a Ramsar for the following Ramsar criteria (Natural England, 2020): Criterion 5 – Assemblages of international importance: Species with peak counts in winter: 26,786 waterfowl (5 year peak mean 2011/12-2015/16). Criterion 6 – Species/populations occurring at levels of international importance: Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn:	Adjacent	Overlapping	International

¹ Trenchless crossings proposed to avoid direct impact on designated sites. Where in this table there is reference to overlapping national and international designated sites this applies.

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO MAIN SITE (APPROX.)	PROXIMITY TO CONNECTION CORRIDORS (APPROX.)	IMPORTANCE
	<p>Common redshank; 1,648 individuals representing an average of 1.1% of the East Atlantic population (1987-91).</p> <p>Species with peak counts in winter:</p> <p>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);</p> <p>Sandwich tern ; 1,900 individuals representing an average of 4.3% of the GB population (1988-1992).</p>			
North York Moors SPA	<p>Qualifying Features (Natural England 2019):</p> <p>Merlin <i>Falco columbarius</i>;</p> <p>European golden plover <i>Pluvialis apricaria</i>.</p>	12.1 km south-east	8 km south-east	International
North York Moors SAC	<p>Qualifying features (Natural England, 2014):</p> <p>Annex I habitats that are a primary reason for selection of this site:</p> <p>Northern Atlantic wet heaths with cross-leaved heath (<i>Erica tetralix</i>); and</p> <p>European dry heaths.</p> <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:</p> <p>Blanket bogs.</p>	12.1 km south-east	8 km south-east	International
Northumbria Coast SPA	<p>Qualifying features (Natural England, 2013):</p> <p>Arctic tern (<i>Sterna paradisaea</i>);</p>	13.7 km north	11.3 km north-west	International

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO MAIN SITE (APPROX.)	PROXIMITY TO CONNECTION CORRIDORS (APPROX.)	IMPORTANCE
	Little tern; Turnstone (<i>Arenaria interpres</i>); Purple sandpiper (<i>Calidris maritima</i>).			
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	11.3 km north-west	International
Durham Coast SAC	Qualifying features (Natural England, 2014): Vegetated sea cliffs of the Atlantic and Baltic Coasts.	13.7 km north-west	11.4 km north-west	International
Castle Eden Dene SAC	Qualifying features (Natural England, 2014b): Yew (<i>Taxus baccata</i>) dominated woodland	Over 15 km	14.2 km north-west	International

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO MAIN SITE (APPROX.)	PROXIMITY TO CONNECTION CORRIDORS (APPROX.)	IMPORTANCE
Teesmouth and Cleveland Coast SSSI	<p>The site is of special interest for the following nationally important ecological features (Natural England, 2018):</p> <ul style="list-style-type: none"> sand dunes; saltmarshes; breeding harbour seals (<i>Phoca vitulina</i>); 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 (<i>Tadorna tadorna</i>), shoveler (<i>Spatula clypeata</i>), gadwall (<i>Mareca strepera</i>), ringed plover (<i>Charadrius hiacula</i>), knot, ruff, sanderling (<i>Calidris alba</i>), 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. 	Overlapping	Overlapping	International
Lovell Hill Pools SSSI	<p>Habitats includes open water and canals. The SSSI supports nationally rare and scarce dragonfly species including the variable damselfly <i>Coenagrion pulchellum</i>. The pools and surrounding habitats support populations of both GCN and smooth newt (<i>Triturus vulgaris</i>).</p>	6.6 km south-east	2.5 km south-east	National

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO MAIN SITE (APPROX.)	PROXIMITY TO CONNECTION CORRIDORS (APPROX.)	IMPORTANCE
Briarcroft pasture SSSI	Species rich unimproved neutral grassland. The relevant National Vegetation Classification (NVC) community is MG5 crested dog's tail (<i>Cynosurus cristatus</i>) – common knapweed (<i>Centaurea nigra</i>) grassland.	Over 15 km	7.7 km west	National
Roseberry topping SSSI	Designated for its geological interest.	12.2 km south	8 km south	National
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 communities on the northern and eastern moors. The plateaux are defined by several valleys, the sides of which support extensive strands of bracken (<i>Pteridium aquilinum</i>) 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.	12.1 km south-east	8 km south-east	National
Saltburn Gill SSSI	A steep sided coastal dene designated for its woodland habitat. Coppiced pedunculate oak (<i>Quercus robur</i>) with standards dominate the canopy with ash (<i>Fraxinus excelsior</i>) and small pockets of wych elm (<i>Ulmus glabra</i>) and wild cherry (<i>Prunus avium</i>). The shrub layer is composed of hazel (<i>Corylus avellana</i>), scattered hawthorn (<i>Crataegus monogyna</i>) and	11.1 km south-east	8.2 km east	National

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO MAIN SITE (APPROX.)	PROXIMITY TO CONNECTION CORRIDORS (APPROX.)	IMPORTANCE
	blackthorn (<i>Prunus spinosa</i>), with occasional (<i>holly Ilex aquifolium</i>), gooseberry (<i>Ribes uva-crispa</i>), guelder rose (<i>Viburnum opulus</i>) and spindle (<i>Euonymus europaeus</i>). Dense patches of regenerating sycamore <i>Acer pseudoplatanus</i> are also present.			
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	National
Langbaugh Ridge SSSI	A disused quarry designated for its geological interest.	12.5 km south	8.5 km south	National
Cliff Ridge SSSI	Quarries designated for geological interest.	13.2 km south	9 km south	National
Durham Coast SSSI	Contains magnesian limestone vegetation as well as a species-rich dune system. The site supports breeding cormorant <i>Phalacrocorax carbo</i> , fulmar (<i>Fulmarus glacialis</i>), kittiwake (<i>Rissa tridactyla</i>) and little tern. The SSSI also supports non-breeding purple sandpiper and sanderling.	11.9 km north-west	9.9 km north-west	National
Hart Bog SSSI	Hart Bog is a small topogenous mire within a steep-sided hollow. The NVC communities present are M19 common heather (<i>Calluna vulgaris</i>) – hare's-tail cottongrass (<i>Eriophorum vaginatum</i>) blanket mire, M4 – bottle sedge (<i>Carex rostrata</i>) – (<i>Sphagnum recurvum (fallax)</i>) mire, M5 –	14.1 km north-west	10.5 km north-west	National

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO MAIN SITE (APPROX.)	PROXIMITY TO CONNECTION CORRIDORS (APPROX.)	IMPORTANCE
	<i>(Carex rostrata – Sphagnum squarrosum)</i> mire and S27 – bottle sedge – marsh cinquefoil (<i>Potentilla palustris</i>) swamp.			
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 (<i>Juncus effusus</i>)/sharp flowered rush (<i>Juncus acutiflorus</i>) – marsh bedstraw (<i>Galium palustre</i>) rush pasture, M27 – meadowsweet (<i>Filipendula ulmaria</i>) – wild angelica (<i>Angelica sylvestris</i>) mire and S27 – bottle sedge – marsh cinquefoil swamp.	Over 15 km	10.3 km north-west	National
Kildale Hall SSSI	Designated for its geological interest.	Over 15 km	11.7 km south-east	National
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	12.8 km north-west	National
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	14.2 km north-west	National
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	Over 15 km	13.6 km south-east	National

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO MAIN SITE (APPROX.)	PROXIMITY TO CONNECTION CORRIDORS (APPROX.)	IMPORTANCE
	sites in Cleveland which remains in a largely semi-natural condition.			
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 (<i>Sesleria albicans</i>) and small scabious (<i>Scabiosa columbaria</i>) and the second by upright brome (<i>Bromus erectus</i>). Scrub communities form the remainder of the site.	Over 15 km	13.8 km north-west	National
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	13.8 km north-west	National
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	National
Boulby Quarries SSSI	Designated for its geological interest.	Over 15 km	14.9 km east	National
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	1.8 km west	30 m west	National

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO MAIN SITE (APPROX.)	PROXIMITY TO CONNECTION CORRIDORS (APPROX.)	IMPORTANCE
	at Seaton Snook. Seal Sands comprises of mudflats and are home to the common and grey seals (<i>Halichoerus grypus</i>) and the winter home for hundreds of shelduck. More than 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.	12.6 km north-west	10.4 km north-west	National
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 (<i>Alnus glutinosa</i>); birds; calcareous grassland (neutral and wet grassland); invertebrate assemblage; mammals; plants and fungi; streams and springs; and woodland (yew and broadleaf).	Over 15 km	14.2 km north-west	National

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO MAIN SITE (APPROX.)	PROXIMITY TO CONNECTION CORRIDORS (APPROX.)	IMPORTANCE
Cowpen Bewley Woodland Country Park LNR	Former agricultural, landfill and brickworks land now supporting grassland and freshwater habitats which support a good population of GCN.	Over 2 km	Overlapping	District
Charlton's Pond LNR	The site supports a wetland, amenity grassland and woodland habitats.	Over 2 km	490 m west	District
Billingham Beck Valley LNR	The site comprises of meadows, ponds, marsh and a woodland. The wetland provides a home for flora and fauna.	Over 2 km	1.4 km west	County
Seaton Dunes and Common LNR	The site covers approximately 75 ha and it is a wet grassland which attracts vast numbers of over wintering migrant birds and as a breeding ground for birds in the summer months.	Over 2 km	1.7 km north-west	District

Non-statutory Designated Sites

12.4.6 There are 20 non-statutory designated sites of ecological importance within 2 km of the Proposed Development Site – refer to Table 12-4.

Table 12-4: 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	IMPORTANCE
Eston Pumping Station LWS	The site supports a mosaic of habitats and borderline neutral urban grasslands.	1.1 km south	Overlapping	District

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO THE MAIN SITE	PROXIMITY TO CONNECTION CORRIDORS	IMPORTANCE
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	Overlapping	District
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	1.4 km north-west	District
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	600 m west	District
Billingham Norton Bottoms Reedbed Treatment System LWS	A large reedbed.	Over 2 km	720 m south-west	District
Norton Bottoms LWS	The site supports neutral grassland with grassland species including common bent (<i>Agrostis capillaris</i>), crested dog's-tail, yellow oat-grass (<i>Trisetum flavescens</i>), yarrow (<i>Achillea millefolium</i>), cat's-ear (<i>Hypochaeris radicata</i>), common bird's-foot-trefoil (<i>Lotus corniculatus</i>), selfheal (<i>Prunella vulgaris</i>), salad burnet (<i>Sanguisorba minor</i>) and red clover (<i>Trifolium pratense</i>). The site could also support urban grassland, but all species have not been recorded to confirm. Species recorded include silver hair-grass (<i>Aira caryophylla</i>),	Over 2 km	760 m west	District

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO THE MAIN SITE	PROXIMITY TO CONNECTION CORRIDORS	IMPORTANCE
	soft brome (<i>Bromus hordeaceus</i>), viper's-bugloss (<i>Echium vulgare</i>) and fairy flax.			
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	1.3 km north-west	District
Brenda Road Brownfield LWS	The site includes early successional brown field habitat which supports dingy skipper butterfly.	Over 2 km	1.4 km north-west	District
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 (<i>Anthyllis vulneraria</i>), viper's-bugloss, great lettuce (<i>Lactuca virosa</i>) and tansy (<i>Tanacetum vulgare</i>).	Over 2 km	980 m west	District
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	1.5 km north-west	District
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	District

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO THE MAIN SITE	PROXIMITY TO CONNECTION CORRIDORS	IMPORTANCE
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 (<i>Bufo bufo</i>); measured in the 1000s in 2012 and 2015.	Over 2 km	1.8 km north-west	District
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 (<i>Anthoxanthum odoratum</i>), crested dog's-tail, common knapweed, cat's-ear, meadow vetchling (<i>Lathyrus pratensis</i>), common bird's-foot-trefoil, cowslip (<i>Primula veris</i>), selfheal and yellow-rattle (<i>Rhinanthus minor</i>). The urban grassland supports kidney vetch, mugwort (<i>Artemisia vulgaris</i>), yellow wort (<i>Blackstonia 54octule5454e</i>), common centaury (<i>Centaureum erythraea</i>), wild carrot (<i>Daucus carota</i>), hedgerow crane's-bill (<i>Geranium pyrenaicum</i>), common toadflax (<i>Linaria vulgaris</i>), tall melilot (<i>Melilotus latissimus</i>), wild mignonette (<i>Reseda lutea</i>), hedge mustard (<i>Sisymbrium officinale</i>) and tansy.	Over 2 km	1.7 km south-west	District

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO THE MAIN SITE	PROXIMITY TO CONNECTION CORRIDORS	IMPORTANCE
Billingham Beck Valley Country Park LWS	<p>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 (<i>Achillea ptarmica</i>), marsh marigold, (<i>Caltha palustris</i>), yellow Iris (<i>Iris pseudacorus</i>), meadow vetchling, ragged robin (<i>Lychnis flos-cuculi</i>), amphibious bistort (<i>Persicaria amphibia</i>), great burnet (<i>Sanguisorba officinalis</i>). The neutral grassland species include common bent, meadow foxtail (<i>Alopecurus pratensis</i>), sweet vernal-grass, crested dog's-tail, yellow oat-grass, yarrow, harebell (<i>Campanula rotundifolia</i>), common knapweed, meadow vetchling, autumn hawkbit (<i>Scorzoneroides autumnalis</i>), common bird's-foot-trefoil, selfheal, yellow-rattle, common sorrel (<i>Rumex acetosa</i>), great burnet, betony (<i>Betonica officinalis</i>), devil's-bit scabious (<i>Succisa pratensis</i>), zigzag clover (<i>Trifolium medium</i>) and red clover.</p>	Over 2 km	1.4 km west	District
Portrack Marsh LWS	<p>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.</p>	Over 2 km	1.9 km south-west	District

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO THE MAIN SITE	PROXIMITY TO CONNECTION CORRIDORS	IMPORTANCE
Greenabella Marsh LWS	The site makes up the NVC community MG1 False-oat grass (<i>Arrhenatherum elatius</i>) 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.	3.7 km west	Overlapping	District
Greatham Creek North Bank Saltmarsh LWS	The site supports a saltmarsh habitat, dominated by saltmarsh grass (<i>Puccinellia</i> spp.)	4.1 km west	Overlapping	District
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 (<i>Callophrys rubi</i>) or white-letter hairstreak (<i>Satyrrium w-album</i>) or a significant population (i.e. 10 individuals) of dingy skipper (<i>Erynnis tages</i>). 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.	4.5 km west	73 m north-west	District

SITE	SUMMARY OF REASONS FOR DESIGNATION	PROXIMITY TO THE MAIN SITE	PROXIMITY TO CONNECTION CORRIDORS	IMPORTANCE
Saltern Saltmarsh LWS	The site supports saltmarsh habitat and was created as an inter-tidal habitat of 20 ha in 2014 by the Environment Agency.	4.8 km west	95 m west	District
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	Overlapping	District

Habitats

- 12.4.7 An Extended Phase 1 Habitat Survey of all land within the Proposed Development Site, was undertaken between October 2022 and December 2023. Full methodology and results are presented within Appendix 12A: Extended Phase 1 Habitat and Botanical Survey Report (ES Volume III, EN070009/APP/6.4). The vegetation and broad habitat types within the Proposed Development Site were recorded in accordance with the categories specified for a Phase 1 Vegetation and Habitat Survey (JNCC, 2010). Dominant plant species were recorded for each habitat present using nomenclature according to Stace (2010).
- 12.4.8 Habitats of Principal Importance (HPI) or those listed within LBAP for relevant local authorities were identified during the desk study. The site was also appraised for its suitability to support protected and notable species with reference to the CIEEM Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017). The locations of any invasive non-native plant species were also recorded during the survey.
- 12.4.9 The habitats within the Proposed Development Site are summarised below and shown in Figures 3 and 4 within Appendix 12A: Phase 1 Habitat and Botanical Survey Report (ES Volume III, EN070009/APP/6.4).

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 industrial structures remaining within areas inaccessible during survey. Bare ground within the main site does not meet the criteria for open mosaic habitat on previously developed land and is of negligible importance.

Ephemeral/Short Perennial Vegetation

- 12.4.12 Areas which were formerly bare 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 lanatus*) and red fescue (*Festuca rubra*). Ephemeral/short perennial habitats within the main site are of negligible importance.

Dense Scrub

- 12.4.13 A small area of dense bramble (*Rubus fruticosus* agg.) scrub is present within the north of the Main Site. Although dense scrub is common and widespread, however in some area of the site forms a mosaic of habitats, and is considered to be of local importance.

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*). Amenity grassland has limited ecological value and is of negligible importance.

Hardstanding

12.4.15 Hardstanding is present in the south-east of the Main Site. Hardstanding is of limited ecological value and is of negligible importance.

Buildings

12.4.16 Buildings are present in the north-east of the Main Site. Buildings and structures within the site have limited ecological value and are of negligible importance.

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 and are of local importance.

12.4.19 A larger area of broadleaved plantation woodland is located at Cowpen Bewley Woodland Park with species such as pedunculate oak, ash, willow species and field maple (*Acer campestre*). This area of woodland forms part of Cowpen Bewley Woodland Park LWS and is of district importance.

12.4.20 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. This area of woodland is of local importance.

Dense and Scattered Scrub

12.4.21 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 Woodland Park. Scrub habitat can form a mosaic with other habitats and is of local importance.

Hedgerows

12.4.22 Native hedgerows are largely restricted to the farmed landscape, disused rail/road and within Cowpen Bewley Woodland Park. 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*). Hedgerows are a HPI and are of local importance.

Semi-improved Neutral Grassland

12.4.23 Semi-improved grassland is widespread within the Connection Corridors. These grasslands are neutral, generally unmanaged and therefore relatively rank and

often species poor. The species composition varies, with the more species-diverse grasslands supporting herb species such as common bird's-foot trefoil (*Lotus corniculatus*), kidney vetch (*Anthyllis vulneraria*), wild carrot (*Daucus carota*), yarrow and common knapweed (*Centaurea nigra*). The most species-poor grasslands are generally dominated by false-oat grass (*Arrhenatherum elatius*).

- 12.4.24 Most areas of semi-improved grassland within the Proposed Development Site are of local importance, however grasslands when found within industrial areas generally form mosaics with other habitat types contributing to a wider resource of open mosaic habitat on previously developed land (an HPI). Where the habitats within the Proposed Development Site also meet the criteria for open mosaic habitat on previously developed land, or for floodplain grazing marsh, they are of district importance.

Poor Semi-improved Neutral Grassland

- 12.4.25 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. Poor semi-improved neutral grassland is common and widespread, and is generally considered to be of negligible importance, to the east of Seaton Carew Road, the grassland is considered to be floodplain grazing marsh, which is a HPI and as such, this area is of district importance.

Improved Grassland

- 12.4.26 Fields of improved grassland are mostly grazed and dominated by perennial rye grass (*Lolium perenne*). Improved grasslands are common and widespread and are of negligible importance.

Amenity Grassland

- 12.4.27 Amenity grassland was identified in small areas around buildings and within landscaped areas. Amenity grassland has limited ecological value and is of negligible importance.

Ephemeral/Short Perennial

- 12.4.28 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. Ephemeral / short perennial habitats on their own are of negligible importance, however, where they form part of a mosaic of habitats, they contribute to the HPI open mosaic habitat on previously developed land which is of district level importance.

Arable

- 12.4.29 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 Woodland Park / Greatham Creek. Arable habitats are common and widespread and are of negligible importance.

Running Water

- 12.4.30 Watercourses (constituting both 'rivers/streams' and 'ditches', as per BNG definitions) 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. Watercourses range from local to international importance (refer to Chapter 9: Surface Water, Flood Risk and Water Resources (ES Volume I, EN070009/APP/6.2) for further information on water courses).
- 12.4.31 Both brackish and freshwater water bodies are present within the Connection Corridors. Ponds and saline lagoons are HPI and are of district importance.

Standing Water

- 12.4.32 There are a large number of still water features across the Proposed Development, a lot of which are artificial standing waterbodies and ponds related to the surrounding industrial waterbodies. Standing waterbodies are of local importance (refer to Chapter 9: Surface Water, Flood Risk and Water Resources (ES Volume I, EN070009/APP/6.2) for further information on standing waterbodies in the area).

Marshy Grassland

- 12.4.33 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*). Marshy grassland is of local importance.

Swamp

- 12.4.34 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, to the south of Venetor and within Cowpen Bewley Woodland Park. Larger areas of swamp habitat outside of the Connection Corridors occur at the RSPB Saltholme Reserve and connected reserves such as Dorman's Pool. Small areas of swamp habitat are of local importance, however where swamp habitat meets the criteria for reedbed, it is a HPI and of district importance.

Saltmarsh

- 12.4.35 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. Coastal saltmarsh is of national importance.

Mudflats

- 12.4.36 There are mud flats either side of Greatham creek. Intertidal mudflats are a HPI and are of district importance.

Buildings

- 12.4.37 Buildings are present within the Connection Corridors associated with the various offtakers and industries within Teesside. Buildings are of negligible importance.

Hardstanding

- 12.4.38 Hardstanding is present around buildings and roads. In some locations the hardstanding contributes to open mosaic habitat on previously developed land. Hardstanding is of negligible importance.

Protected and Notable Species

- 12.4.39 Species-specific surveys were completed to obtain baseline information to determine the presence, or otherwise, of protected and notable species within the Proposed Development Site. Full methodologies and results of each ecological feature surveyed are detailed within Appendices 12-A to 12-G (ES Volume III, EN070009/APP/6.4) and have been summarised below.

Terrestrial Invertebrates

- 12.4.40 Terrestrial invertebrate surveys were completed to inform the Net Zero Teesside (NZT) application (bp, 2021h) at land within the former Redcar Steelworks (South Tees Development Corporation (STDC)). In total, 318 invertebrate species were identified during the surveys and the invertebrate assemblage was assessed to be of County importance (bp, 2021a).
- 12.4.41 A further suite of terrestrial invertebrate surveys was completed to inform the Proposed Development in 2023. A total of seven study sites (areas A-G) were selected for survey within the Proposed Development Site in Spring 2023. Survey areas C, D, E and F were removed later in the season as optionality was reduced. The areas surveyed are considered to be representative of habitats likely to support invertebrates within the Proposed Development Site.
- 12.4.42 The purpose of the 2023 survey work was to undertake an appraisal of the study area's nature conservation value for terrestrial invertebrate rather than to provide an exhaustive list of invertebrate taxa present. Amongst the species identified, a total of 64 (5.1%) could be described as Key Species (refer to Appendix 12E: Invertebrate Survey Report (ES Volume III, EN070009/APP/6.4)). Furthermore, a total of 12 species (1.0 %) could be described as Rare Key Species. Four butterfly species recorded within the study areas: small heath (*Coenonympha pamphilus*), dingy skipper (*Erynnis tages*), grayling (*Hipparchia62octule*), and wall (*Lasiommata megera*) are listed as species of principal importance (SPI) under Section 41 of the NERC Act 2006. Overall, the invertebrate assemblage within the study sites was of up to national importance.
- 12.4.43 During ornithology surveys, small blue butterfly (*Cupido minimus*) was recorded incidentally to the south of Bran Sands Bay, Seal Sands Bay and Greatham Creek.

Small blue butterfly is a SPI and the species has re-colonised areas of Teesside following a re-introduction project (Butterfly Conservation, 2024).

Amphibians

- 12.4.44 The desk study identified records of GCN and common toad (*Bufo bufo*) within 2 km of the Proposed Development Site. The closest records for GCN were within Cowpen Bewley Woodland Park and Philips Tank Farm LWS.
- 12.4.45 Habitats were assessed for their suitability to support GCN to inform the NZT DCO application (bp, 2021h). 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 (bp, 2021b).
- 12.4.46 Waterbodies within 500 m of the Main Site and 250 m of the Proposed Development Site were assessed for their suitability to support GCN (refer to Appendix 12B (ES Volume III, EN070009/APP/6.4)). Where habitats were suitable, eDNA surveys were completed to confirm presence/likely absence. GCN were confirmed present within three waterbodies within 250 m of the Proposed Development Site. Population assessment surveys have not been completed as a district level licensing approach is sought for this project, however based upon a precautionary approach, the GCN population is assessed to be of district importance.

Reptiles

- 12.4.47 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 (bp, 2021c).
- 12.4.48 Reptile surveys were completed between August and October 2023 and the results are presented within Appendix 12D: Reptile Survey Report (ES Volume III, EN070009/APP/6.4). Small populations of common lizard were recorded on the northern boundary of the Main Site, and within land at South Tees Development Corporation (STDC) to the south-east of the Main Site. The common lizard population is considered to be of district importance.

Fish

- 12.4.49 Fish species in the River Tees and estuary are assessed in Chapter 14: Marine Ecology (ES Volume I, EN070009/APP/6.2).
- 12.4.50 Several notable fish species were identified within the Study Area in the desk study using Environment Agency data, NBN Atlas data (National Biodiversity Network, 2022), survey results for other developments in the area (bp 2021g) and academically published material. These include Annex II species bullhead *Cottus gobio*, species of principal importance brown/sea trout *Salmo trutta*, in addition to

the European eel *Anguilla anguilla*, which is covered by both previously mentioned legislation and is classified as 'Critically Endangered' in the International Union for Conservation of Nature (IUCN) and afforded further protection under the Eel Regulations 2009.

- 12.4.51 Field surveys for fish species were not undertaken as the desk study provided sufficient information to inform the assessment. However, fish eDNA (environmental DNA) survey was undertaken for three ponds within the Study Area. These were a pond adjacent to the Mill Race waterbody (Pond WBID 34) pond WBID 1 and a pond within the saltmarsh area adjacent to Greatham Creek (Pond P). The only fish species recorded in the pond adjacent to the Mill Race was three-spined stickleback *Gasterosteus aculeatus*, a widespread and common species, this was the same for Pond P. Pond WBID 1 did not contain any eDNA for fish species.
- 12.4.52 European eel is considered of district importance; the remaining assemblage of fish, including brown trout and bullhead, are considered to be of local importance.

Bats

- 12.4.53 The desk study identified records of common pipistrelle (*Pipistrellus pipistrellus*), noctule (*Nyctalus noctule*), soprano pipistrelle (*Pipistrellus pygmaeus*) and whiskered bat (*Myotis mystacinus*) within 2 km of the Proposed Development Site. Bat surveys completed to inform the NZT DCO application (bp, 2021d) 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 (bp, 2021d).
- 12.4.54 The Proposed Development Site includes woodland, hedgerows and trees which have potential to be used by bats. Ground level tree assessments were undertaken on 9 April 2023 at Cowpen Bewley Woodland Park and trees were identified as having low and negligible suitability for roosting bats (refer to Appendix 12C: Bat Survey Report (ES Volume III, EN070009/APP/6.4)).
- 12.4.55 Bat activity surveys were completed at three locations (Survey Areas A to C) to inform the Proposed Development. The activity surveys at Survey Areas A and B found very low levels of overall activity for all bats recorded, with the noctule the most abundant at Survey Area B and the common pipistrelle at Survey Area A. The bat activity surveys at Survey Area C found only low levels of activity overall for all bats recorded, with the common pipistrelle the most abundant species. The full results of the bat activity surveys are provided in Appendix 12C: Bat Survey Report (ES Volume III, EN070009/APP/6.4) and overall, foraging and commuting bats are of local importance.

Water Vole

- 12.4.56 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 (Quants Environmental, 2018) and 2021 (bp, 2021e).
- 12.4.57 Evidence of water vole was recorded on Belasis Beck:

- Between NZ 48080 23105 and NZ 48289 523178 (approximately 225 m total length) 18 latrines and numerous feeding remains were found;
- a single latrine was found at NZ 48587 23481; and
- from NZ 48774 23586 to NZ 48791 23590 (approximately 25 m total length) two latrines and two feeding remains were found.

12.4.58 Water vole surveys were completed between June and September 2023 and supplemented by raft surveys in October and November 2023. The full results of the surveys are presented in Appendix 12F: Water Vole and Otter Survey Report (ES Volume III, EN070009/APP/6.4). Water vole were confirmed present on the following watercourses:

- Cowpen Marsh;
- Holme Fleet;
- Belasis beck;
- Greenabella Marsh;
- The floodplain grazing marsh within the 'brinefields'.

12.4.59 The locations where evidence of water vole was recorded are shown in Figure 12-F-3 within Appendix 12F (ES Volume III, EN070009/APP/6.4). The water vole population within the Proposed Development Site is considered to be of district importance.

Otter

12.4.60 The desk study identified records of otter within 2 km of the Proposed Development Site. Otter surveys were completed to inform The NZT DCO in 2018 (Quants Environmental, 2018) and 2022 (NZT, 2022).

12.4.61 The habitats within The Fleet, Power Station Pond, Mill Race and Railway Channel respectively were considered to be of low suitability 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 were less favourable for resting places compared to 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 (bp, 2021; Quants Environmental, 2018, NZT, 2022).

12.4.62 Otter surveys were completed between June and September to inform the Proposed Development and the results are presented in Appendix 12F (ES Volume III, EN070009/APP/6.4). No otter resting places (holts or couches) were identified within the Proposed Development Site or 200 m buffer, however habitats are highly suitable for otter, and they are likely to use the area for foraging and commuting. Otters are an EPS and considered to be of district importance.

Badger

- 12.4.63 The desk study identified records of badger within 2 km of the Proposed Development Site (refer to Appendix 12A: Phase 1 Habitat and Botanical Survey Report Survey (ES Volume III, EN070009/APP/6.4)). No badger setts or signs were identified within the Proposed Development Site or 50 m buffer. Badgers are unlikely to be present and are not discussed further in this chapter.

Brown Hare

- 12.4.64 The desk study returned records of brown hare within the 2 km of the Proposed Development Site. Brown hares were observed within the Proposed Development Site during the Phase 1 habitat surveys (refer to Appendix 12A (ES Volume III, EN070009/APP/6.4), Phase 1 Habitat Survey Report, Target Notes 17, 51 and 57). Brown hares are a SPI and of local importance.

Hedgehog

- 12.4.66 The desk study returned records of hedgehog within 2 km of the Proposed Development Site. Woodland, hedgerows and areas of grassland have suitability to support hedgehog. Hedgehog are a SPI and are of local importance.

Aquatic Macroinvertebrates

- 12.4.67 No protected macroinvertebrate species were identified in the desk study. Only locally 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, but within the Study Area.
- 12.4.68 Previous surveys within the Study Area only identified locally notable species. (bp 2021g). None of the species identified are listed under statutory or non-statutory designations.
- 12.4.69 The only notable species recorded in surveys was the beetle (*Hydraena rufipes*), which is 'notable but not red book status', present in WBID 8 during the May 2023 surveys. Only locally notable species were recorded.
- 12.4.70 There were no records of the white-clawed crayfish (*Austropotamobius pallipes*) within the Proposed Development Study Area 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. 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 crayfish being present. White-clawed crayfish is therefore considered absent from the study area.
- 12.4.71 The aquatic macroinvertebrate assemblage is considered of local importance.

Aquatic Macrophytes

- 12.4.72 The desk study identified no records of protected aquatic macrophyte species within the Study Area in the last ten years. However, several macrophyte species

are included in the Tees Valley BAP. These include water violet (*Hottonia palustris*) and tufted sedge (*Carex elata*).

- 12.4.73 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 bp (2021f)) at NZ 56506 25742. In the same pond, uncommon species (according to pond survey methodology) 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*). Pond 14 (at NZ 56986 25902) had five uncommon species recorded within the pond including sea club-rush, spiked water milfoil and horned pondweed.
- 12.4.74 The 2023 field surveys recorded no protected or notable aquatic macrophyte species.
- 12.4.75 Aquatic macrophytes are assessed to be of negligible importance.

Invasive Non-Native Species

- 12.4.76 Several Invasive Non-Native Species (INNS) were identified in the desk study, from Environment Agency data (EA Ecology & Fish Data Explorer 2023) and data from previous NZT surveys (bp, 2021g). Species identified on the WCA 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*). Nuttall's waterweed (*Elodea nuttallii*) was also recorded, which is listed in the Invasive Alien Species (Enforcement and Permitting) Order 2019. Most of these species are outside the Study Area of the Proposed Development but floating pennywort has been found in The Fleet waterbody (bp, 2021g). During the summer macrophyte field surveys, Himalayan balsam was recorded along the margins of Kinkerdale Beck, and giant hogweed was observed along the banks of Dabholm Gut.
- 12.4.77 Aquatic ecology field surveys identified the non-native but non-invasive New Zealand mud snail (*Potamopyrgus antipodarum*), the freshwater amphipod (*Crangonyx* sp.), and common bladder snails (*Physella gyrina* and *Physa fontinalis*) at numerous sites within the Study Area. Though these species are not listed in the UK legislation, biosecurity measures to prevent their spread are recommended.
- 12.4.78 The Proposed Development extended Phase 1 habitat surveys recorded Himalayan balsam, (*Impatiens glandulifera*), Japanese rose (*Rosa rugosa*), and floating pennywort (*Montbretia crocosmia* x) within the Proposed Development Site (Appendix 12A: Extended Phase 1 Habitat and Botanical Survey Report (ES Volume III, EN070009/APP/6.4)).
- 12.4.79 A summary of the baseline ecology conditions and the potential for to be affected by the Proposed Development in the absence of embedded and additional mitigation is provided in Table 12-5. 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 WCA 1981 (as amended) are also taken forward for assessment.

Table 12-5: Summary of the Baseline Ecology Conditions

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
Teemouth and Cleveland Coast SPA	International	Sites support qualifying features under relevant EC Directives that are of international importance.	Yes – there is potential for loss of functionally linked land, noise and visual disturbance of qualifying bird species, atmospheric pollution (dust and nitrogen), and changes in water quality to affect the designated site.
Teemouth and Cleveland Coast Ramsar	International	Sites support qualifying features under relevant EC Directives that are of international importance.	Yes – there is potential for direct habitat loss (in the event of HDD collapse only) and indirect habitat loss, loss of functionally linked land, noise and visual disturbance of qualifying bird species, atmospheric pollution (dust and nutrient nitrogen), 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. Air quality modelling indicates no adverse effects upon habitats used by SPA birds (refer to ES Chapter 8: Air Quality (ES Volume I, EN070009/APP/6.2). There will thus be no significant effects and this pathway can be screened out.
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. Air quality modelling indicates no adverse effects on SAC habitats (refer to Chapter 8: Air Quality (ES Volume I, EN070009/APP/6.2). There will thus be no significant effects and this pathway can be screened out.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
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 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.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR 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 it can be scoped out of the assessment; there will be no significant effects and this site is not considered further.
Teemouth and Cleveland Coast SSSI	National	Supports habitats and species of national importance.	Yes – the SSSI is adjacent to the Connection Corridors and 5 m west of the Main Site. There is potential for 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. Air quality modelling (Appendix 8A: Air Quality – Construction Phase (ES Volume III, EN070009/APP/6.4) and Appendix 8B: Air Quality – Operational Phase (ES Volume III, EN070009/APP/6.4)) 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 no significant effects are anticipated.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR 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. Modelling indicates no significant 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. 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. There are no pathways of effect, 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 are considered in ES Chapter 13: Ornithology (ES Volume I, EN070009/APP/6.2).

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
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.
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.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR 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.
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.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR 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.
Cowpen Bewley Woodland Country Park LNR	District	Designated for grassland, freshwater habitats and GCN.	Yes – Overlapping with the Proposed Development Site and potential for direct habitat loss if the Option A hydrogen pipeline routeing is progressed.
Charlton's Pond LNR	District	The site supports a wetland, amenity grassland and woodland habitats	Yes – potential air quality effects considered.
Billingham Beck Valley LNR	District	The site comprises of meadows, ponds, marsh and a woodland.	Yes – potential air quality effects considered.
Seaton Dunes and Common LNR	District	The site covers approximately 75 ha and it is a wet grassland which attracts vast numbers of over wintering migrant birds and as a breeding ground for birds in the summer months.	Yes – potential air quality effects considered.
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.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
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 if Option A is progressed.
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

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
			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.
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.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
Zinc Works Bird Field LWS	District	Designated for grassland habitats and its bird assemblage.	No – effects upon birds considered within Chapter 13: Ornithology (ES Volume I, EN070009/APP/6.2).
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 upon birds are considered in Chapter 13: Ornithology (ES Volume I, EN070009/APP/6.2).
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 (ES Volume I, EN070009/APP/6.2).
Coastal saltmarsh	National	Habitat forms part of the Teesmouth and Cleveland Coast SSSI.	Yes – indirect effects (dust, pollution).

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
		Coastal salt marsh is also a Habitat of Principal Importance under S41 of the NERC Act.	
Saline lagoons	National	Habitat form part of the Teesmouth and Cleveland Coast SSSI. Saline lagoons are HPI.	Yes – potential for indirect effects (dust, pollution, changes in hydrology).
Open mosaic habitat on previously developed land	District	Open mosaic habitat on previously developed land is a HPI.	Yes – potential for habitat loss, disturbance, dust, pollution effects.
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.
Mudflats	National	Habitat form part of the Teesmouth and Cleveland Coast SSSI. Mud flats are HPI.	Yes – potential for indirect effects from dust, pollution and changes in hydrology.
Coastal sand dunes	National	Habitat form part of the Teesmouth and Cleveland Coast SSSI. Coastal sand dunes are HPI.	Yes – potential for indirect effects (dust, pollution).
Broad-leaved plantation woodland	Local	Woodland supports invertebrates, nesting birds, foraging and commuting bats and small mammals.	Yes – potential for direct and indirect effects. Habitat loss, damage, dust, pollution.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
Hedgerows	Local	A HPI. Provides habitat for invertebrates, foraging and nesting birds, foraging and commuting bats and small mammals.	Yes – potential for direct and indirect effects. Habitat loss, damage, dust, pollution.
Semi-improved grassland	Local and District	Often found as part of a mosaic forming Open Mosaic Habitat on previously developed land, a HPI. Also found within areas of floodplain grazing marsh, a HPI.	Yes – potential for direct and indirect effects. Habitat loss, dust, changes in hydrology, pollution effects.
Marshy grassland	Local	Of value to invertebrates and birds.	Yes – habitat loss, damage, changes in hydrology, pollution.
Ponds	Local	Ponds are HPI and support amphibians and invertebrates.	Yes – potential for direct and indirect effects.
Watercourses	International, National, District and Local Importance	The River Tees and Greatham Creek form part of the Teesmouth and Cleveland Coast Ramsar.	Yes – potential for direct and indirect effects.
Swamp	Local and District	Reedbed is a HPI. Habitat is of value to invertebrates, amphibians and birds.	Yes-- potential for direct and indirect effects.
Terrestrial Invertebrates	National	Habitats within the Proposed Development Site support SPI, rare and key species.	Yes – temporary loss of open mosaic habitat.
Aquatic Macroinvertebrates	Local	Aquatic (freshwater) habitats within the Proposed Development Site	Yes – potential for direct and indirect effects.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
		support macroinvertebrate assemblage.	
GCN	District	GCN are an EPS and a SPI.	Yes – potential for habitat loss within 500 m of waterbodies where GCN are confirmed present.
Common toad	Local	Common toad is a SPI.	Yes – potential for habitat loss, killing or injury.
Reptiles	District	Common lizard is a SPI and protected from killing or injury under the WCA.	Yes – potential for killing or injury during construction.
Fish	European eel – District Other fish-- Local	Habitats within the Proposed Development Site support European eel and other fish species.	Yes – potential for direct and indirect effects.
Foraging and commuting bats	Local	Habitats within the Proposed Development Site support foraging and commuting bats.	Yes – potential for direct loss of woodland and changes in lighting.
Water vole	District	Water vole is a SPI and protected under the WCA.	Yes – damage to habitats and resting places. Risk of killing or injury.
Otter	District	Otter are an EPS and a SPI.	Yes – potential for disturbance and pollution of habitats during construction.
Brown hare	Local	Brown hare is an SPI.	Yes – potential for disturbance/temporary displacement of brown hare during the construction phase.
Hedgehog	Local	Hedgehog is an SPI.	Yes – potential for harm to hedgehog during the construction phase.

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	TAKEN FORWARD FOR ASSESSMENT?
Aquatic macrophytes	Negligible	Aquatic (freshwater) habitats within the Proposed Development Site support macrophyte assemblage.	Yes – potential for direct and indirect effects.
INNS	N/A	Legal offence to plant or otherwise spread in the wild.	Yes – potential for INNS to be spread during construction in the absence of mitigation.

12.5 Future Baseline

Construction

- 12.5.1 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.
- 12.5.2 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.
- 12.5.3 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.
- 12.5.4 The Teesworks Environment and Biodiversity Strategy (Lichfields, 2021) identifies potential opportunities for enhancement schemes to be created that could ensure habitat impacts arising from development at South Tees Development Corporation (STDC) are mitigated and / or compensated. It is likely that strategic enhancements will be delivered by STDC in accordance with this strategy once approved by RCBC.

Operation

- 12.5.5 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.
- 12.5.6 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.
- 12.5.7 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.

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- 12.5.8 It is likely that current and former industrial land within Teesworks and surrounding area (e.g., Wilton International) 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.
- 12.5.9 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.
- 12.5.10 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

- 12.5.11 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 Chapter 9: Surface Water, Flood Risk and Water Resources (ES Volume I, EN070009/APP/6.2) and within the context of other likely changes in the future baseline (e.g., extreme weather events).
- 12.5.12 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 Zol of decommissioning will be much smaller than operation and likely construction. 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.
- 12.5.13 As outlined in Chapter 4: Proposed Development (ES Volume I, EN070009/APP/6.2) 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.

12.6 Proposed Development Design and Impact Avoidance

- 12.6.1 The EIA process aims to avoid, prevent, reduce, or offset potential environmental effects through design and/or management measures. These are measures that are inherent in the design and construction of the Proposed Development (also known as embedded mitigation).
- 12.6.2 The following impact avoidance measures have either been incorporated into the design as described in Chapter 4: Proposed Development (ES Volume I, EN070009/APP/6.2) 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 EclA.

Construction

- 12.6.3 The Applicant has sought to avoid nature conservation designations as far as reasonably practicable in the design of the proposed development. As outlined in Chapter 6: Need, Alternatives and Design Evolution (ES Volume I, EN070009/APP/6.2) route options have been refined since the scoping stage to avoid or minimise adverse environmental effects, including those on features of ecological importance within and around Greatham Creek. These areas include statutory and non-statutory designated sites and HPI. Habitats such as mudflats and saltmarsh have been avoided to minimise ecological effects.
- 12.6.4 Where possible, routeing 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.
- 12.6.5 Where the Hydrogen Pipeline crosses watercourses such as the River Tees and Greatham Creek (both defined by the Environment Agency as Main Rivers), trenchless construction methods as outlined in Chapter 5: Construction Programme and Management (ES Volume I, EN070009/APP/6.2) will be used to avoid disturbance within the channel and harm to bankside habitats.
- 12.6.6 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.
- 12.6.7 A Framework CEMP (EN070009/APP/5.12) sets out the key embedded measures to be employed during the Proposed Development construction phase (including PPW). For the purpose of embedded mitigation this assessment accounts for good practice pollution prevention measures within the Framework CEMP. A Final CEMP(s) 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(s) will be secured by a Requirement of the draft DCO. All other biodiversity measures included in the Framework CEMP are presented in the essential mitigation section.

12.6.8 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 Outline LBMP (EN070009/APP/5.9).

Operation

12.6.9 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 attested to International Standards Organisation (ISO) 14001 (International Organisation for Standardization, 2015). The EMS will outline requirements and procedures required to ensure that the Proposed Development Site is operating to the appropriate standard.

12.6.10 The Applicant has also begun engagement with the Environment Agency under the enhanced pre-application scheme and is finalising an application for an Environmental Permit anticipated to be submitted in 2024.

12.6.11 Air quality impacts on designated sites were modelled from the Production Facility alone, and in combination with other known cumulative plans and projects. The modelling is presented in Chapter 8 (Air Quality) and the impacts on international wildlife sites are presented in the Report to Inform Appropriate Assessment. In summary, no significant air quality effects are expected on any international wildlife site.

12.6.12 Impacts on Teesmouth & Cleveland Coast SSSI is designated for its calcareous dune habitats in addition to its bird interest. The assessment of impacts on bird interest is identical to that for the Teesmouth & Cleveland Coast SPA and Ramsar site and reaches a conclusion of no likely significant effect for the same reasons.

12.6.13 Impacts on the SSSI dune habitat at Coatham Dunes have been modelled both alone and in combination with other projects and plans. Although the '1% of the critical level' screening threshold for nOx is exceeded, the Predicted Environmental Concentration (PEC) is not forecast to exceed the critical level for nOx even when the proposed development is considered 'in combination' with other projects and plans.

12.6.14 A critical load of 10 kgN/ha/yr has been used as the dunes at Teesmouth & Cleveland Coast are calcareous dunes. APIS states 'for calcareous dunes use the 10-15 kgN/ha/yr range'. The modelling shows that nitrogen deposition from the Proposed Development does not exceed 1% of the critical load at any location. The maximum Process Contribution of the Proposed Development is 0.06 kgN/ha/yr at Coatham Dunes/Sands (receptors OE_1, OE_2 and OE_6) which is 0.6% of the critical load of 10 kgN/ha/yr.

12.6.15 At receptors OE_1, OE_2, OE_3, OE_6 (Coatham Sands/Dunes) and OE_5 (North Gare Sands) the 'in combination' nitrogen deposition will exceed 1% of the 10 kgN/ha/yr critical load for calcareous dunes, being a maximum of 3.3% of the critical load at receptor OE_1. The PEC will also exceed the critical load at all five locations

being a maximum of 12.99 kgN/ha/yr at Coatham Sands/Dunes and 13.89 kgN/ha/yr at North Gare Sands. This is due to the fact that current nitrogen deposition exceeds the critical load.

- 12.6.16 The SSSI was designated in 2015 when the background nitrogen dose to short vegetation according to APIS was 13.07 to 13.53 kgN/ha/yr at Coatham Sands/Dunes and North Gare Sands. Moreover, APIS shows that in the years prior to 2015 (prior to designation) the background nitrogen deposition dose to short vegetation was higher; for example being 14.69 to 14.77 kgN/ha/yr in 2003 at Coatham Sands/Dunes and North Gare Sands. The calcareous dune habitat has thus developed and persisted in close proximity to an operational steel works and other industrial facilities when nitrogen deposition rates were considerably higher than the lower critical load of 10 kgN/ha/yr, or than is forecast to be the case under the 'in combination' assessment (13.89 kgN/ha/yr maximum). Since total nitrogen deposition is forecast to remain on an improving trend even when growth is considered 'in combination' and would therefore remain below historic nitrogen deposition rates under which the habitat in question developed, no significant effect on the SSSI is expected.
- 12.6.17 Nitrogen deposition impacts were also modelled for Hart Bog SSSI, Lovell Hill Pools SSSI and Saltburn Gill SSSI. In all cases the effect of the proposed development was imperceptible with nitrogen deposition due to the facility forecast to be below 0.00 kgN/ha/yr. Impacts on Eston Pumping Station Local Wildlife Site were also modelled but could be considered not significant as they fell well below the 1% of the critical load criterion being a maximum of 0.01 kgN/ha/yr (0.1% of the critical load).

Decommissioning

- 12.6.18 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.
- 12.6.19 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.

12.7 Likely Impacts and Effects

- 12.7.1 Tables 12-6 to 12-8 present an assessment of the likely impacts and effects of the Proposed Development during construction, operation and decommissioning respectively on relevant ecological features in the absence of embedded and additional mitigation. The assessment is based on standard construction/operational mitigation, and mitigation embedded in the design.

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

ECOLOGICAL FEATURE	IMPORTANCE	POTENTIAL IMPACTS	DURATION	LIKELY SIGNIFICANCE OF EFFECT
Teemouth and Cleveland Coast SPA	International	Potential for loss of functionally linked land for birds, noise and visual disturbance of qualifying bird species, and changes in lighting and changes in water quality have the potential to affect the designated site.	Short or medium term	Significant (Major Adverse)
Teemouth and Cleveland Coast Ramsar	International	Potential for loss of functionally linked land, noise and visual disturbance of qualifying bird species, and changes in water quality and changes in lighting to affect the designated site.	Short or medium term	Significant (Major Adverse)
Teemouth and Cleveland Coast SSSI	National	Potential for direct and indirect effects upon habitats, noise and visual disturbance of the SPA birds, atmospheric pollution, changes in lighting and changes in water quality to affect the SSSI.	Short or medium term	Significant (Major Adverse)
Teemouth and Cleveland Coast NNR	National	Potential for effects on habitats, noise and visual disturbance of birds / seals, changes in lighting and changes in water quality to affect the designated site.	Short or medium term	Significant (Major Adverse)
Philips Tank Farm Grassland LWS	District	All works will be located outside of the LWS. Mitigation secured by the Framework CEMP will prevent indirect effects from dust / pollution.	Short or medium term	Not Significant (Negligible)
Saltern Grassland LWS	District	All works will be located outside of the LWS. Mitigation secured by the Framework CEMP will prevent indirect effects from dust / pollution in the absence of mitigation.	Short or medium term	Not Significant (Negligible)

ECOLOGICAL FEATURE	IMPORTANCE	POTENTIAL IMPACTS	DURATION	LIKELY SIGNIFICANCE OF EFFECT
Greatham Creek North Bank LWS	District	Impacts upon habitats will be avoided through the use of HDD. Mitigation secured by the Framework CEMP will prevent indirect effects from dust / pollution in the absence of mitigation.	Short or medium term	Not Significant (Negligible)
Coatham Marsh LWS	District	All works will be located outside of the LWS. Mitigation secured by the Framework CEMP will prevent indirect effects from dust / pollution.	Short or medium term	Not Significant (Negligible)
Eston Pumping Station LWS	District	All works will be located outside of the LWS. Mitigation secured by the Framework CEMP will prevent indirect effects from dust / pollution.	Short, medium or long term	Not Significant (Negligible)
Cowpen Bewley Woodland Park LWS / LNR	District	Direct loss of woodland habitat. Impaction of soil / root damage to retained trees. Indirect effects from dust / pollution in the absence of mitigation.	Medium or long term	Significant (Major Adverse) (Option A only)
Charlton's Pond LNR	District	Air quality effects (nitrogen deposition)	Short or medium term	Not significant (Negligible)
Billingham Beck Valley LNR	District	Air quality effects (nitrogen deposition)	Short or medium term	Not Significant (Negligible)
Seaton Dunes and Common LNR	District	Air quality effects (nitrogen deposition)	Short or medium term	Not Significant (Negligible)
Coastal and floodplain grazing marsh	District	Temporary habitat loss where connection corridors are proposed. Potential for dust and physical or chemical pollution resulting in degradation of habitats.	Short or medium term	Significant (Major Adverse)

ECOLOGICAL FEATURE	IMPORTANCE	POTENTIAL IMPACTS	DURATION	LIKELY SIGNIFICANCE OF EFFECT
		Changes in hydrology.		
Coastal saltmarsh	District	There will be no direct loss of coastal saltmarsh habitat. Mitigation secured by the Framework CEMP will avoid dust and physical or chemical pollution which could result in degradation of habitats or changes in hydrology.	Short, medium or long term	Not Significant (Negligible)
Coastal sand-dunes	National	There will be no direct loss of coastal sand dunes. Mitigation secured by the Framework CEMP will avoid dust and physical or chemical pollution resulting in degradation of habitats or changes in hydrology.	Short or medium term	Not Significant (Negligible)
Mudflats	National	There will be no direct loss of mudflat habitats. Mitigation secured by the Framework CEMP will avoid dust and physical or chemical pollution resulting in degradation of habitats.	Short or medium term	Not Significant (Negligible)
Saline lagoons	National	There will be no direct loss of saline lagoons. Mitigation secured by the Framework CEMP will avoid dust and physical or chemical pollution resulting in degradation of habitats or changes in hydrology.	Short, medium or long term	Not Significant (Negligible).

ECOLOGICAL FEATURE	IMPORTANCE	POTENTIAL IMPACTS	DURATION	LIKELY SIGNIFICANCE OF EFFECT
Open mosaic habitat on previously developed land	District	There will be some temporary loss of open mosaic habitat within the connection corridors. In the absence of mitigation dust and physical or chemical pollution could result in degradation of habitats.	Short or medium term	Significant (Major Adverse).
Ponds	Local	No direct loss of pond habitat is predicted as a result of the scheme. Mitigation secured by the Framework CEMP will avoid physical or chemical pollution resulting in degradation of habitats or changes in hydrology.	Short or medium term	Not Significant (Negligible)
Watercourses	International (River Tees and Greatham Creek), National, District and Local (refer to ES Chapter 9: Surface Water, Flood Risk and Water Resources (ES Volume I, EN070009/APP/6.2))	Changes in water quality (chemical or physical) resulting from watercourse crossings (open-cut or otherwise) or a pollution event, or mobilisation of sediment or drilling fluid escape during HDD operations. Crossing or culverting of watercourses – temporary during construction or permanent.	Short – long term	River Tees and Greatham Creek – Significant (Moderate Adverse) Other watercourses – Not Significant (Negligible / Minor Adverse)
Hedgerows	Local	Direct loss of hedgerows. Damage to retained hedgerows due to encroachment of machinery, compaction of soil or a pollution event.	Short or medium term	Significant (Moderate Adverse)

ECOLOGICAL FEATURE	IMPORTANCE	POTENTIAL IMPACTS	DURATION	LIKELY SIGNIFICANCE OF EFFECT
Broadleaved plantation woodland	Local	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	Not Significant (Minor Adverse)
Semi-improved grassland	Local and District	Temporary loss of semi-improved grassland along connection corridors.	Medium term	Significant (Moderate Adverse)
Marshy Grassland	Local	Temporary loss of marshy grassland within connection corridors (Option A hydrogen pipeline routeing).	Medium term	Not Significant (Minor Adverse)
Swamp	Local and District	Temporary loss of swamp habitat within connection corridors. Physical or chemical pollution resulting in degradation of habitats. Changes in hydrology.	Medium Term	Significant (Moderate Adverse)
Terrestrial Invertebrates	National	Habitat loss.	Long term	Significant (Moderate Adverse)
Aquatic macroinvertebrates	Local	Habitat degradation. Direct impact on species assemblage through disturbance and mortality during open-cut trenching.	Short term	Not Significant (Minor Adverse)
GCN	District	Habitat loss. Killing, injury or disturbance.	Short or medium term	Significant (Major Adverse)
Common toad	Local	Habitat loss, killing or injury.	Short or medium term	Not Significant (Minor Adverse)
Reptiles	District	Habitat loss. Killing or injury of reptile species.	Short or medium term	Significant (Major Adverse)

ECOLOGICAL FEATURE	IMPORTANCE	POTENTIAL IMPACTS	DURATION	LIKELY SIGNIFICANCE OF EFFECT
Fish	District	Killing or injury of fish species. Harm or disturbance to notable fish species 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.	Short or medium term	Significant (Moderate Adverse)
Foraging and commuting bats.	Local	Cowpen Bewley Woodland Park 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	Not Significant (Minor Adverse)
Water vole	District	Harm or disturbance of water vole. Damage or destruction to water vole burrows. Pollution (physical or chemical) of watercourses.	Short or medium term	Significant (Major Adverse)
Otter	District	Pollution (physical or chemical) of watercourses. Disturbance to foraging / commuting otter through noise or changes in lighting.	Short or medium term	Significant (Major Adverse)
Brown hare	Local	Disturbance or displacement of brown hare.	Short or medium term	Not Significant (Minor Adverse)
Hedgehog	Local	Harm to hedgehog during site clearance.	Short term	Not Significant (Minor Adverse)
Aquatic macrophytes	Negligible	Direct impact on species assemblage through removal. Indirect impacts from pollution run-off and sedimentation.	Short-term	Not Significant (Minor Adverse)

ECOLOGICAL FEATURE	IMPORTANCE	POTENTIAL IMPACTS	DURATION	LIKELY SIGNIFICANCE OF EFFECT
INNS	Negligible	Spread of INNS resulting in a legal offence.	Short, medium or long term	Significant (Moderate Adverse)

Table 12-7: Summary of Potential Impacts – Operational Phase

ECOLOGICAL FEATURE	IMPORTANCE	POTENTIAL IMPACTS	DURATION	LIKELY SIGNIFICANCE OF EFFECT
Teesmouth and Cleveland Coast SPA	International	Noise and visual disturbance of SPA birds, changes in lighting	Long term	Not Significant (Negligible)
Teesmouth and Cleveland Coast Ramsar	International	Noise and visual disturbance of Ramsar birds, changes in lighting	Long term	Not Significant (Negligible)
Teesmouth and Cleveland Coast SSSI	International	Noise and visual disturbance of birds, changes in lighting,	Long term	Not Significant (Negligible)
Teesmouth NNR	National	Noise and visual disturbance of birds, changes in lighting	Long term	Not Significant (Negligible)
Philips Tank Farm Grassland LWS	District	No effects anticipated	N/A	Not Significant (Negligible)
Saltern Grassland LWS	District	No effects anticipated	N/A	Not Significant (Negligible)
Greatham Creek North Bank LWS	District	No effects anticipated	N/A	Not Significant (Negligible)

ECOLOGICAL FEATURE	IMPORTANCE	POTENTIAL IMPACTS	DURATION	LIKELY SIGNIFICANCE OF EFFECT
Coatham Marsh LWS	District	Changes in air quality affecting habitats	Long term	Not Significant (Minor Adverse from air quality only)
Eston Pumping Station LWS	District	Changes in air quality affecting habitats	Long term	Not Significant (Minor Adverse from air quality only)
Cowpen Bewley Woodland Park LWS / LNR	District	No effects anticipated	Long term	Not Significant (Negligible)
Charlton's Pond LNR	District	No effects anticipated	Long term	Not Significant (Negligible)
Billingham Beck Valley LNR	District	No effects anticipated	Long term	Not Significant (Negligible)
Seaton Dunes and Common LNR	District	No effects anticipated	Long term	Not Significant (Negligible)
Coastal and floodplain grazing marsh	District	No effects anticipated	N/A	Not Significant (Negligible)
Coastal saltmarsh	District	No effects anticipated	N/A	Not Significant (Negligible)
Coastal sand dunes	District	No effects anticipated	N/A	Not Significant (Negligible)
Mudflats	District	No effects anticipated	N/A	Not Significant (Negligible)

ECOLOGICAL FEATURE	IMPORTANCE	POTENTIAL IMPACTS	DURATION	LIKELY SIGNIFICANCE OF EFFECT
Saline lagoons	District	No effects anticipated	N/A	Not Significant (Negligible)
Open mosaic habitat on previously developed land	District	No effects anticipated	N/A	Not Significant (Negligible)
Ponds	District	Habitat creation/ management to increase biodiversity. New ponds will be created as compensation if the Proposed Development is eligible to join the GCN DLL scheme.	Long-term	Significant (Beneficial)
Watercourses	International to Local	No effects anticipated	Long term	Not Significant (Negligible)
Hedgerows	Local	No effects anticipated	Long-term	Not Significant (Negligible)
Broad-leaved plantation woodland	Local	No effects anticipated	Long-term	Not Significant (Negligible)
Semi-improved neutral grassland	Local	No effects anticipated	Long-term	Not Significant (Negligible)
Marshy grassland	Local	No effects anticipated	Long-term	Not Significant (Negligible)
Swamp	Local	No effects anticipated	Long-term	Not Significant (Negligible)
Terrestrial Invertebrates	National	No effects anticipated	Long term	Not Significant (Negligible)

ECOLOGICAL FEATURE	IMPORTANCE	POTENTIAL IMPACTS	DURATION	LIKELY SIGNIFICANCE OF EFFECT
Aquatic macroinvertebrates	Local	No effects anticipated	N/A	Not Significant (Negligible)
GCN	District	Habitat creation/ management	Long term	Not Significant (Negligible)
Common toad	Local	No effects anticipated	N/A	Not Significant (Negligible)
Reptiles	District	No effects anticipated	N/A	Not Significant (Negligible)
Fish	District to Local	No effects anticipated	N/A	Not Significant (Negligible)
Foraging and commuting bats	Local	No effects anticipated	N/A	Not Significant (Negligible)
Water vole	District	No effects anticipated	N/A	Not Significant (Negligible)
Otter	District	No effects anticipated	N/A	Not Significant (Negligible)
Brown hare	District	No effects anticipated	N/A	Not Significant (Negligible)
Hedgehog	District	No effects anticipated	N/A	Not Significant (Negligible)
Aquatic macrophytes	Negligible	No effects anticipated	N/A	Not Significant (Negligible)

ECOLOGICAL FEATURE	IMPORTANCE	POTENTIAL IMPACTS	DURATION	LIKELY SIGNIFICANCE OF EFFECT
INNS	Negligible	Management of INNS	Long term	Not Significant (Negligible)

Table 12-8: Summary of Impacts – Decommissioning Phase

ECOLOGICAL FEATURE	IMPORTANCE	POTENTIAL IMPACTS	DURATION	LIKELY SIGNIFICANCE OF EFFECT
Teesmouth and Cleveland Coast SPA	International	Noise and visual disturbance of breeding and non-breeding birds. Physical or chemical pollution resulting in degradation of habitats.	Short or medium term	Significant (Major Adverse)
Teesmouth and Cleveland Coast Ramsar	International	Noise and visual disturbance of breeding and non-breeding birds. Pollution resulting in degradation of habitats.	Short or medium term	Significant (Major Adverse)
Teesmouth and Cleveland Coast SSSI	National	Noise and visual disturbance of breeding and non-breeding birds. Pollution resulting in degradation of habitats	Short or medium term	Significant (Major Adverse)
Teesmouth NNR	National	Noise and visual disturbance of breeding and non-breeding birds. Chemical pollution resulting in degradation of habitats	Short or medium term	Significant (Major Adverse)
Phillips Tank Farm Grassland LWS	District	Pipeline to be left in situ. No effects anticipated	Long term	Not Significant (Negligible)

ECOLOGICAL FEATURE	IMPORTANCE	POTENTIAL IMPACTS	DURATION	LIKELY SIGNIFICANCE OF EFFECT
Saltern Grassland LWS	District	Pipeline to be left in situ. No effects anticipated	Long term	Not Significant (Negligible)
Greatham Creek North Bank LWS	District	Pipeline to be left in situ. No effects anticipated	Long term	Not Significant (Negligible)
Coatham Marsh LWS	District	Pipeline to be left in situ. No effects anticipated	Long term	Not Significant (Negligible)
Eston Pumping Station LWS	District	Pipeline to be left in situ. No effects anticipated	Long term	Not Significant (Negligible)
Cowpen Bewley Woodland Park LWS / LNR	District	Pipeline to be left in situ. No effect anticipated	Long term	Not Significant (Negligible)
Charlton's Pond LNR	District	No effects anticipated	Long term	Not Significant (Negligible)
Billingham Beck Valley LNR	District	No effects anticipated	Long Term	Not Significant (Negligible)
Seaton Dunes and Common LNR	District	No effects anticipated	Long term	Not Significant (Negligible)
Coastal and floodplain grazing marsh	District	Pipeline to be left in situ. No effect anticipated.	Long term	Not Significant (Negligible)
Coastal saltmarsh	District	Pipeline to be left in situ. No effect anticipated.	Long term	Not Significant (Negligible)

ECOLOGICAL FEATURE	IMPORTANCE	POTENTIAL IMPACTS	DURATION	LIKELY SIGNIFICANCE OF EFFECT
Coastal sand dunes	District	Dust and/or physical or chemical pollution resulting in degradation of habitats.	Short or medium term	Significant (Major Adverse)
Mudflats	District	Pipeline to be left in situ. No effect anticipated.	Long term	Not Significant (Negligible)
Saline lagoons	District	Pipeline to be left in situ. No effect anticipated.	Long term	Not Significant (Negligible)
Open mosaic habitat	District	Potential for open mosaic habitat to be created following decommissioning of the Main Site.	Long term	Not Significant (Minor positive)
Ponds	District	Pipelines to be left in situ. No effects anticipated.	Long term	Not Significant (Negligible)
Running water	National to Local	Pipelines to be left in situ. No effects anticipated.	Long term	Not Significant (Negligible)
Broad-leaved plantation woodland	Local	Pipelines to be left in situ. No effects anticipated.	Long term	Not Significant (Negligible)
Semi-improved neutral grassland	Local	Pipelines to be left in situ. No effects anticipated.	Long term	Not Significant (Negligible)
Hedgerows	Local	Pipelines to be left in situ. No effects anticipated.	Long term	Not Significant (Negligible)
Marshy grassland	Local	Pipelines to be left in situ. No effects anticipated.	Long term	Not significant (Negligible)
Swamp	Local	Pipelines to be left in situ. No effects anticipated.	Long term	Not significant (Negligible)

ECOLOGICAL FEATURE	IMPORTANCE	POTENTIAL IMPACTS	DURATION	LIKELY SIGNIFICANCE OF EFFECT
Terrestrial Invertebrates	National	Pipeline connections to be left in situ. No effects anticipated.	N/A	Not Significant (Negligible)
Aquatic macroinvertebrates	Local	Pipelines to be left in situ. No effects anticipated. Potential effects to water quality during decommissioning.	Short term	Not Significant (Minor Adverse)
GCN	District	Pipeline connection to be left in situ. No effects anticipated.	N/A	Not Significant (Negligible)
Common toad	Local	Pipeline connection to be left in situ. No effects anticipated.	N/A	Not Significant (Negligible)
Reptiles	District	Killing or injury.	Short or medium term	Significant (Major Adverse)
Fish	District	Pipelines to be left in situ. No effects anticipated. Potential effects to water quality during decommissioning.	Short term	Not Significant (Minor Adverse)
Foraging and commuting bats	Local	No effects anticipated.	N/A	Not Significant (Negligible)
Water vole	Regional	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	Significant (Major Adverse)
Otter	District	Disturbance of otter resting places. Pollution (physical or chemical) of watercourses.	Short, medium or long term	Significant (Major Adverse)

ECOLOGICAL FEATURE	IMPORTANCE	POTENTIAL IMPACTS	DURATION	LIKELY SIGNIFICANCE OF EFFECT
Brown hare	Local	No effects anticipated.	N/A	Not Significant (Negligible)
Hedgehog	Local	No effects anticipated.	N/A	Not Significant (Negligible)
Aquatic macrophytes	Negligible	Pipelines to be left in situ. No effects anticipated. Potential effects to water quality during decommissioning.	N/A	Not Significant (Negligible)
INNS	Negligible	Spread of INNS resulting in a legal offence.	Short, medium or long term	Significant (Major Adverse)

12.8 Essential Mitigation and Enhancement Measures

Construction Phase

Essential Mitigation

12.8.1 The Framework CEMP (EN070009/APP/5.12) sets out the key embedded measures to be employed during the construction of the Proposed Development, to control and minimise the impacts on the environment. The Framework CEMP will set out how impacts upon biodiversity will be managed during construction and will include the essential measures set out in this section. A Final CEMP(s) 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(s) will be secured by a Requirement of the draft DCO.

12.8.2 Essential mitigation for ornithology and marine ecology is included within ES Chapter 13: Ornithology (ES Volume I, EN070009/APP/6.2) and ES Chapter 14: Marine Ecology (ES Volume I, EN070009/APP/6.2) respectively.

Designated Sites

12.8.3 The following measures are required to protect European designated sites and are detailed within the Report to Inform HRA (EN070009/APP/5.10) and Framework CEMP (EN070009/APP/5.12).

12.8.4 Where HDD is used to cross watercourses, risk of escape of drilling fluid arising from hydrofracturing to the surface will be minimised by the following:

- Undertaking a ground investigation;
- Detailed design of the launch point or landfill of the HDD, showing geological layers and intended drill path which has sufficient depth below surface for the expected ground conditions to minimise risk of failure/collapse;
- Undertaking a hydraulic fracture analysis.

During drilling the following measures are proposed:

- Ensure drilling fluid is of sufficient viscosity and properties for the ground being drilled;
- Have lost circulation materials on site to seal any breakout;
- Use casing through weaker cohesive layers near the ground surface if necessary;
- Removal of poor ground / ground stabilisation prior to drilling;
- Monitoring of drilling fluid returns and volumes during drilling to warn of inadequate hole cleaning; and,
- Monitoring downhole annular pressure (set by fracture calculations) in real time to warn of over pressurising by drilling fluid.

12.8.5 The Framework CEMP for the Proposed Development includes the following commitments:

- A commitment to producing a Code of Construction Practice which would specify measures designed to minimise the risk of collapse of any HDD crossing;
 - A requirement for the contractor's drilling method statement to form the basis of contingency plans which provide details of specific clean-up and pollution control measures which would be used in the event of an accidental spillage.
 - Natural England would be consulted on the effectiveness of the proposed measures in reducing effects on designated sites; and
 - A requirement for the contractor's drilling method statement to include pollution prevention measures that would be used to minimise the risk of accidental spillage.
- 12.8.6 HDD of Greatham Creek is proposed to be completed between September and November to avoid the most sensitive periods for breeding and wintering birds. Noise abatement measures and visual screening are also proposed at this location.
- 12.8.7 Noise abatement measures and visual screening are proposed to protect Bran Sands Bay and habitats to the west from noise and visual disturbance. Buildings or structures within the compound will be a maximum of 3.5 m in height to avoid visual disturbance.
- 12.8.8 Construction of Option A will be completed between March and September (outside of the wintering bird period). Construction within the Brinefields will also be completed outside of the wintering bird period.
- 12.8.9 360° noise and visual screening of the River Tees HDD location is proposed to prevent noise and visual disturbance of Dabholm Gut and Bran Sands Lagoon. Noise and visual screening is also proposed to avoid disturbance of birds using the mudflats on the north bank of the of the River Tees;
- 12.8.10 Figures 14a and 14b within the report to inform HRA show the locations where mitigation is proposed.

Habitats

- 12.8.11 Reinstatement of habitats subject to temporary disturbances during construction will be provided, as required by planning policy, in accordance with the approach set out in Chapter 5: Construction Programme and Management (ES Volume I, EN070009/APP/6.2). The high-level measures likely to be required are also described in the Outline LBMP (EN070009/APP/5.9).
- 12.8.12 In specifying final requirements for re-instatement of land, consideration would be given to requirements of landowners, the baseline habitat conditions, and priorities for nature conservation on a location-by-location basis (including opportunities to secure enhancement). For example, grassland and scrub habitats may not need to be sown or planted if this can be left to natural processes and if it would provide a beneficial opportunity to re-establish OMH in the interim.

Invertebrates

12.8.13 The landscaping and habitat restoration post construction will avoid the introduction of nutrient-rich substrates / soils. The current substrates act as a growth inhibitor, slowing the succession from bare ground to complete vegetation cover. Whilst ground remediation works may be required, for example to remove contaminants, areas identified for biodiversity will aim to retain the biochemical and physical nature of the existing baseline substrate, i.e. low nutrient, free-draining and uneven topography.

Amphibians

12.8.14 A district level licence will be used to avoid significant effects upon GCN. The Applicant submitted the application for the DLL to Natural England on 22 January 2024, all requests for additional information have been responded to and agreement is expected to be concluded prior to examination. Although the district level licence will provide strategic mitigation for GCN, reasonable avoidance measures are also proposed to avoid harm to GCN or other amphibians which may be present during site clearance and construction.

12.8.15 Where habitats are suitable, sensitive and phased vegetation clearance will be undertaken to make habitats less suitable for newts / amphibians within areas which are soon to be cleared/soil stripped. Best practice is to do this in phases: first cut any scrub and other tall vegetation to a height of c.250 mm with all arisings removed; 48 hrs later cut remaining vegetation to a height of c.150 mm. The second phase should be undertaken in a directional manner, moving towards suitable areas of retained habitat, with arisings removed from the site. Soil strip can progress 48 hrs after the second phase of vegetation clearance, again working towards retained habitat areas (Natural England, 2019). This is set out in the Framework CEMP and will be included in the Final CEMP(s).

Reptiles

12.8.16 Prior to works commencing, habitats within working areas will be appraised by an ECoW for their potential to support common lizard. Advice on suitable working requirements will be advised on a case-by-case basis. Details are included in the Framework CEMP.

12.8.17 The following measures are proposed to prevent harm to reptiles:

- Vegetation disturbance and removal will be undertaken from mid-April to October to coincide with the period when common lizard is likely to be active and able to disperse away from works areas;
- Removal of areas of suitable dense vegetation will involve incremental strimming to allow opportunity to find and displace/capture any common lizards present;
- Any common lizards found within construction areas will be removed by an ecologist to a nearby place of safety outside construction areas (the dunes to the north and east of the Proposed Development Site). The ECoW will attend

site prepared for the potential for these species to occur, and will have a suitable means to transport any reptiles found (e.g. bucket with sealable lid);

- A record will be kept on the numbers and locations of reptiles found during the restoration works; and,
- Arisings from vegetation clearance and construction material will not be stored in a manner that might risk them being used as a place of refuge by common lizard during the construction period.

Fish and Aquatic (Freshwater) Species

12.8.18 The following measures are proposed to prevent impacts to fish and other aquatic (freshwater) species:

- Develop a method statement to ensure works within watercourse crossings include suitable measures to allow the passage of fish where necessary, such as a flume, throughout construction (i.e., during fluctuating water levels);
- Water quality monitoring will be undertaken pre, during and post-construction on all watercourses alongside daily inspections. Where effects are identified through monitoring then additional mitigation should be identified;
- Watercourse crossing locations will be micro-sited to make the crossing as close to perpendicular to the watercourse as reasonably practicable, ensuring the crossing is as short as possible and for open cut / temporary access crossings reducing the risk of localised scour at the embankments;
- Surface water runoff from the pipeline spread will be managed to prevent discharge of silted or contaminated water into any surface water feature or land drain. Details to be included in the Water Management Plan;
- Watercourses near work sites would be inspected daily when work activity is being carried out. Inspections will need to consider locations upstream (control) and downstream of the working area so comparisons can be made. The Contractor should familiarise themselves with any other potential sources of contamination in advance of the works starting. During inspections any signs of pollution should be considered using visual and olfactory observations and in-situ water quality testing using hand-held water quality meters (that may include temperature, dissolved oxygen, pH, turbidity, and electrical conductivity). Evidence of water pollution may include, but not be limited to, siltation, deposits of aggregates and other materials or litter, turbidity, oil sheens, odours, dis-colourisation, surface foam and scum. Monitoring should continue daily for the duration of the works affecting each watercourse;
- For water features that are being flumed, a phased approach of flume removal should be undertaken to remove the risk of large sediment plumes. There are multiple watercourses which drain into sensitive receptors which have the potential to increase the cumulative effects on the water features, particularly through sediment inputs. A phased approach of removal would ensure that

water features would not be impacted by multiple sources of sediment from upstream receptors simultaneously;

- Careful consideration of placement of lighting column and luminaire positioning so that lighting is aimed away from waterbodies;
- In the event that construction activities, including watercourse crossings, result in deposition of sediment within watercourses resulting in siltation of riverbeds, changes to morphology or result in loss of channel capacity, post-works restoration will be applied.

Foraging and Commuting Bats

- 12.8.19 Sensitive lighting is proposed during the construction phase to avoid disturbance of nocturnal wildlife including foraging and commuting bats. The Framework CEMP Appendix C: Indicative Lighting Strategy (Construction) (EN070009/APP/5.12) details the measures proposed to protect biodiversity. Light at ecological receptors will be limited to at most a zone E1 or lower.

Water Vole

- 12.8.20 Watercourse crossing locations will be micro-sited to make the crossing as close to perpendicular to the watercourse as reasonably practicable, ensuring the crossing is as short as possible and for open cut / temporary access crossings reducing the risk of localised scour at the embankments.
- 12.8.21 The temporary watercourse crossings will be designed to maintain downstream flows and to allow continued and unobstructed passage for mammals using river corridors. Current survey data shows no water vole burrows present at proposed crossing points and therefore a licence is not required. However update surveys will need to be completed once design is fixed to confirm continued absence or to inform licence requirements if present. At watercourses where water vole burrows are present (refer to Appendix 12F: Water vole and Otter Survey Report (ES Volume III, EN070009/APP/6.4)), a mitigation licence from Natural England will be required where water vole will be affected. The licence will detail the appropriate timing and ecological watching brief of construction to permit the temporary dispersal of water vole from the working area. Habitat will be reinstated / enhanced following completion of the works. The Framework CEMP (ES Volume III, EN070009/APP/6.4) details measures to prevent and control pollution during construction.

Otter

- 12.8.22 A precautionary pre-construction check will be completed to confirm there are no new otter holts or couches within 200 m of the proposed works. If a new holt or couch is identified, micro-siting of works will be considered to avoid effects. If this is not possible, a mitigation licence from Natural England will be required.
- 12.8.23 Illumination of watercourses will be avoided during construction following the principles set out above. The Framework CEMP (ES Volume III, EN070009/APP/6.4) details measures to prevent and control pollution during construction.

Other Mammals

12.8.24 The following good practice working measures will be followed to prevent adverse effects on mammals during the construction phase:

- Excavated holes, pits or trenches will be temporarily fenced off to deter large mammals and / or a shallow ramp provided as a means of escape should they fall in;
- Excavations will be checked each morning for trapped animals prior to the start of any works;
- No harmful substances to be left uncovered; and,
- Site fencing will be used to prevent access to sensitive areas outside working areas where sensitive species may be disturbed / harmed.

Invasive Non-Native Species

12.8.25 An Invasive Plant Species Management Plan will be developed (this will form part of the Final CEMP(s)), identifying relevant invasive non-native species within the area to ensure that all necessary precautions are taken to prevent their spread.

Enhancement Measures

12.8.26 The Outline LBMP (EN070009/APP/5.9) outlines the enhancement measures which are proposed to enhance biodiversity within the Proposed Development. Enhancement measures proposed for water vole will be detailed within the mitigation licence application.

Operational Phase

Essential Mitigation

12.8.27 The Indicative Lighting Strategy (Operation) (EN070009/APP/5.12) details the measures proposed to control lighting during the operational phase of the Proposed Development. Any monitoring of habitats required for water vole will be detailed within the mitigation licence.

Decommissioning

Essential Mitigation

12.8.28 A DEMP would be produced pursuant to a DCO Requirement. The DEMP would consider in detail all potential environmental risks on the Proposed Development Site and contain guidance on how risks can be removed or mitigated. The DEMP would be secured by a Requirement on the draft DCO, if granted. A DEMP would also include an outline programme of works.

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

12.8.30 Any necessary surveys to confirm the presence / likely absence of protected or notable species would be completed approximately 1 year prior to

decommissioning to inform the Decommissioning Environmental Management Plan.

12.9 Residual Effects and Conclusions

12.9.1 This section summarises the residual effects of the Proposed Development on Ecology and Biodiversity following the implementation of essential mitigation outlined in Section 12.8.

12.9.2 The majority of residual effects are categorised as Not Significant (Negligible), indicating that the proposed mitigation measures are expected to address and minimise adverse impacts..

Table 12-9: Summary of Residual Effects during Construction

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
CONSTRUCTION PHASE					
Teessmouth and Cleveland Coast SPA	International	<p>Although the Teessmouth and Cleveland Coast SPA overlaps with the Proposed Development, direct habitat loss within the designated site will be avoided through the use of HDD i.e. the Hydrogen Distribution Network will pass underneath the SPA and not intersect this directly. Launch pits and working areas will be located outside of the SPA site boundary.</p> <p>There will be temporary loss of functionally linked land for birds, and noise and visual disturbance of qualifying bird species where works are required in proximity to the SPA. Mitigation embedded within the Framework CEMP will prevent dust, pollution and changes in water quality.</p>	Significant (Major Adverse)	<p>Works in proximity to the SPA at Greatham Creek will be completed between September and November to avoid the most sensitive periods for breeding and wintering birds.</p> <p>The Report to Inform Habitats Regulations Assessment (EN070009/APP/5.10) and Framework CEMP (EN070009/APP/5.12) include details of visual screening of works and the use of noise abatement/reduction measures (such as close-board acoustic fencing or other barriers).</p>	Not Significant (Minor Adverse)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
Teesmouth and Cleveland Coast Ramsar	International	<p>Although the Teesmouth and Cleveland Coast Ramsar overlaps with the Proposed Development, direct habitat loss within the designated site will be avoided through the use of HDD. Launch pits and working areas will be located outside of the Ramsar site boundary.</p> <p>There will be temporary loss of functionally linked land for birds, and noise and visual disturbance of qualifying bird species where works are required in proximity to the Ramsar. Mitigation embedded within the Framework CEMP will prevent dust, pollution and changes in water quality.</p>	Significant (Major Adverse)	<p>Works in proximity to the Ramsar at Greatham Creek will be completed between September and November to avoid the most sensitive periods for breeding and wintering birds.</p> <p>The Report to Inform Habitats Regulations Assessment (EN070009/APP/5.10) includes details of visual screening of works and the use of noise abatement/reduction measures (such as close-board acoustic fencing or other barriers).</p>	Not Significant (Minor Adverse)
Teesmouth and Cleveland Coast SSSI	National	<p>Although the Teesmouth and Cleveland Coast SSSI overlaps with the Proposed Development, direct habitat loss within the designated site will be avoided through the use of HDD. Launch pits and working areas will be located</p>	Significant (Major Adverse)	<p>Works in proximity to the SSSI at Greatham Creek will be completed between September and November to avoid the most sensitive periods for breeding and wintering birds.</p>	Not Significant (Minor Adverse)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
		<p>outside of the SSSI site boundary. There will be no direct effects upon sand dunes or salt marsh habitats.</p> <p>There is potential for noise and visual disturbance of the bird assemblage or harbour seal where works are required in proximity to the SSSI. Mitigation embedded within the Framework CEMP will prevent dust, pollution and changes in water quality.</p>		<p>The Report to Inform Habitats Regulations Assessment (EN070009/APP/5.10) (includes details of visual screening of works and the use of noise abatement/reduction measures (such as close-board acoustic fencing or other barriers).</p>	
Teesmouth and Cleveland Coast NNR	National	There is potential for noise and visual disturbance of birds / seals, to affect the designated site.	Significant (Major Adverse)	<p>Works in proximity to the NNR at Greatham Creek will be completed between September and November to avoid the most sensitive periods for breeding and wintering birds</p> <p>The Report to Inform Habitats Regulations Assessment (EN070009/APP/5.10) includes details of visual screening of works and the</p>	Not Significant (Minor Adverse)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
				use of noise abatement/reduction measures (such as close-board acoustic fencing or other barriers).	
Philips Tank Farm Grassland LWS	District	All works will be located outside of the LWS. Mitigation embedded within the Framework CEMP will prevent dust, pollution and changes in water quality.	Not Significant (Negligible)	Not required .	Not Significant (Negligible)
Saltern Grassland LWS	District	All works will be located outside of the LWS. Mitigation embedded within the Framework CEMP will prevent dust, pollution and changes in water quality.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Greatham North Bank LWS	District	Direct impacts upon habitats will be avoided through the use of HDD. Mitigation embedded within the Framework CEMP will prevent dust, pollution and changes in water quality..	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Coatham Marsh LWS	District	All works will be located outside of the LWS. Mitigation embedded within the Framework CEMP will	Not Significant (Negligible)	Not required.	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
		prevent dust, pollution and changes in water quality..			
Eston Pumping Station LWS	District	All works will be located outside of the LWS. Mitigation embedded within the Framework CEMP will prevent dust, pollution and changes in water quality.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Cowpen Bewley Woodland Park LWS / LNR	District	Direct loss of woodland habitat (Option A only). Impaction of soil / root damage to retained trees. Mitigation embedded within the Framework CEMP will prevent dust, pollution and changes in water quality. The Appendix C: Indicative Lighting Strategy (Construction) (EN070009/APP/5.12) outlines measures to control lighting during construction.	Significant (Major Adverse)	Retained trees will be protected in accordance with BS 5837 (2012). Measures to prevent harm to retained habitats will be detailed within a CEMP. Where possible habitat lost will be reinstated post construction as detailed within the Outline LBMP (EN070009/APP/5.9). Compensation in the form of woodland planting will be provided Cowpen Bewley Open Space Replacement Land	Significant (Moderate Adverse) Woodland loss with Cowpen Bewley Woodland Park LWS cannot be avoided. Chapter 6: Need, Alternatives and Design Evolution (ES Volume I, EN070009/APP/6.2) describes why this land is required.
Charlton's Pond LNR	District	Air quality effects	Not Significant (Negligible)	Not required	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
Billingham Beck Valley LNR	District	Air quality effects	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Seaton Dunes and Common LNR	District	Air quality effects	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Coastal and Floodplain Grazing Marsh	District	There will be direct loss of floodplain grazing marsh where connection corridors are proposed. This loss will be temporary. Mitigation embedded within the Framework CEMP will prevent dust, pollution and changes in water quality and hydrology.	Significant (Major Adverse)	An Ecological Clerk of Works (ECoW) will be appointed to oversee works required adjacent to sensitive habitats. Floodplain grazing marsh will be restored post construction as detailed within the Outline LBMP (EN070009/APP/5.9).	Not Significant (Minor Adverse)
Coastal Saltmarsh	District	There will be no direct loss of saltmarsh habitat. Mitigation embedded within the Framework CEMP will prevent dust, pollution, changes in water quality or hydrology.	Not Significant (Negligible)	An Ecological Clerk of Works (ECoW) will be appointed to oversee works required adjacent to sensitive habitats.	Not Significant (Negligible)
Coastal Sand Dunes	National	There will be no direct loss of coastal sand dunes. Mitigation embedded within the Framework	Not Significant (Negligible)	An Ecological Clerk of Works (ECoW) will be appointed to oversee works required	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
		CEMP will prevent dust, pollution and changes in water quality..		adjacent to sensitive habitats.	
Mudflats	National	There will be no direct loss of mudflat habitats as HDD will be used to cross major watercourses. Mitigation embedded within the Framework CEMP will prevent dust, pollution and changes in water quality.	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Saline Lagoons	National	There will be no direct loss of saline lagoons. Mitigation embedded within the Framework CEMP will prevent dust, pollution and changes in water quality.	Not Significant (Negligible)	An Ecological Clerk of Works (ECoW) will be appointed to oversee works required adjacent to sensitive habitats.	Not Significant (Negligible)
Open Mosaic Habitat on Previously Developed Land	District	There will be some temporary loss of open mosaic habitat within the connection corridors. Mitigation embedded within the Framework CEMP will prevent dust, pollution and changes in water quality.	Significant (Major Adverse)	Open mosaic habitat will be allowed to re-establish following construction (refer to the OHBMP). The re-establishment of vegetation consistent with OMH is likely to be well advanced within two to three growing seasons of the original construction disturbance.	Not Significant (Minor Adverse)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
Ponds	Local	No direct loss of pond habitat is predicted as a result of the scheme. Mitigation embedded within the Framework CEMP will prevent dust, pollution and changes in water quality.	Not Significant (Negligible)	An Ecological Clerk of Works (ECoW) will be appointed to oversee works required adjacent to sensitive habitats.	Not Significant (Negligible)
Watercourses	Local to International (River Tees and Greatham Creek)	Changes in water quality (chemical or physical) resulting from watercourse crossings or a pollution event. The River Tees and Greatham Creek will be crossed by non-intrusive methods. The Framework CEMP details measures to prevent and control pollution of aquatic habitats during construction.	Effects range from: Not Significant (Negligible / Minor Adverse) to Significant (Moderate Adverse) Refer to Chapter 9: Surface Water, Flood Risk and Water Resources (ES Volume I, EN070009/APP/6.2).	Where minor watercourses and ditches are crossed, they will be reinstated, and bankside vegetation restored.	Not Significant (Negligible)
Hedgerows	Local	Direct loss of hedgerows. The Framework CEMP details measures to prevent and control damage to retained hedgerows due to soil impacts or pollution during construction.	Not Significant (minor adverse – temporary reversible damage to hedgerows in the long term).	Where sections of hedgerow are to be lost, these will be reinstated post construction.	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
		Retained sections of hedgerow will be protected in accordance with BS 5837 (2012).			
Broadleaved Plantation Woodland	Local	Direct loss of woodland habitat. The Framework CEMP details measures to prevent and control damage to retained woodland due to soil impacts or pollution during construction. Retained woodland will be protected in accordance with BS 5837 (2012).	Not Significant (Minor Adverse)	Woodland habitat will be reinstated post construction and managed in accordance with a LBMP.	Not Significant (Minor Adverse)
Semi-improved grassland	Local	Direct loss of habitat.	Not Significant (Minor Adverse – temporary reversible damage to semi-improved grassland in the medium term).	Semi-improved grassland will be reinstated post construction.	Not Significant (Negligible)
Marshy Grassland	Local	Direct loss of habitat. The Framework CEMP details measures to prevent and control pollution during construction.	Not Significant (Minor Adverse – temporary reversible damage to marshy grassland in the medium term)	Where habitats cannot be avoided, such as North of Greatham Creek and at Cowpen Bewley Woodland Park, they will be reinstated post construction.	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
Swamp	Local and District	Direct loss of habitat. The Framework CEMP details measures to prevent and control pollution during construction.	Significant (up to Moderate Adverse – temporary reversible damage to swamp in the medium term)	Areas of swamp will be avoided where possible. Where habitats cannot be avoided, such as North of Greatham Creek and at Cowpen Bewley Woodland Park, they will be reinstated post construction. A CEMP will detail measures to prevent and control pollution during construction.	Significant (up to Moderate Adverse).
Terrestrial Invertebrates	National	Direct loss of habitat (temporary and permanent).	Not Significant (minor adverse – temporary reversible damage to open mosaic habitat in the short term).	The landscaping and habitat restoration post construction will avoid the introduction of nutrient-rich substrates/ soils. The re-establishment of vegetation consistent with OMH is likely to be well advanced within two to three growing seasons of the original construction disturbance	Not Significant (Minor Adverse)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
Aquatic Macroinvertebrates	Local	Habitat loss. The Framework CEMP details measures to prevent and control pollution during construction.	Not Significant (Minor Adverse)-temporary loss of habitat, of which the extent, duration and magnitude is not considered to affect the integrity of aquatic macroinvertebrates as the community should recover.	Not required pollution during construction.	Not Significant (Negligible)
Great Crested Newt	District	Habitat loss. Killing, injury or disturbance of GCN.	Significant (Moderate Adverse)	Strategic mitigation to be implemented under the DLL scheme.	Not Significant (Negligible)
Common Toad	Local	Habitat loss, killing or injury.	Not Significant (Minor Adverse – temporary and permanent loss of habitat of which the extent, duration and magnitude does not affect the integrity of the toad population).	Not required.	Not Significant (Minor Adverse)
Reptiles	District	Killing or injury of common reptile species (common lizard).	Significant (Major Adverse – injury or direct mortality)	An ECoW will be appointed to oversee works required within or adjacent to	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
		The Framework CEMP outlines precautionary working methods to prevent harm to reptiles during construction.		suitable habitats (North Gare and within Teesworks). Precautionary pre-works check to be completed prior to works commencing. A method statement detail will detail the working methods required to prevent harm to reptiles during construction. Any reptiles found during works will be moved to the adjacent dunes.	
Fish	Up to District	Death or injury to fish or degradation of their habitats. The River Tees and Greatham Creek will be crossed by non-intrusive methods. The Framework CEMP details measures to prevent and control pollution to watercourses during construction.	Significant (Moderate Adverse)	Where minor watercourses and ditches are crossed, they will be reinstated, and bankside vegetation restored.	Not Significant (Negligible)
Foraging and Commuting Bats	Local	Loss of foraging and commuting habitat (woodland).	Not Significant (Minor Adverse – permanent and temporary habitat	Any trees or hedgerows lost during the construction phase will be replaced.	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
		The Appendix C: Indicative Lighting Strategy (Construction) (EN070009/APP/5.12) outlines measures to avoid disturbance of foraging and commuting habitat from lighting.	loss of which the extent, duration and magnitude does not affect the integrity of the bat population).	Illumination of woodland, trees, hedgerows and watercourses will be avoided where practicable.	
Water Vole	District	<p>Harm to or disturbance of water vole.</p> <p>Damage or destruction of water vole burrows.</p> <p>The Framework CEMP details measures to prevent and control pollution to watercourses during construction.</p> <p>The Appendix C: Indicative Lighting Strategy (Construction) (EN070009/APP/5.12) outlines measures to avoid disturbance watercourses from lighting.</p>	Significant (Major Adverse)	Current survey data shows no water vole burrows present at proposed crossing points and therefore a licence is not required. However update surveys will need to be completed once design is fixed to confirm continued absence or to inform licence requirements if present. If burrows are present, a mitigation licence from Natural England will be sought to permit derogation from legislation. The licence will detail the appropriate timing and supervision of construction to permit the temporary dispersal of	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
				water vole from the working area. Habitat will be reinstated following the completion of the works.	
Otter	District	<p>Temporary disturbance of otter resting places.</p> <p>The Framework CEMP details measures to prevent and control pollution to watercourses during construction.</p> <p>The Appendix C: Indicative Lighting Strategy (Construction) (EN070009/APP/5.12) outlines measures to avoid disturbance watercourses from lighting.</p>	Significant (Moderate Adverse)	<p>No otter holts have been identified within 200 m of the Proposed Development Site, however habitats are suitable, and a precautionary pre-construction check will be completed to make sure there are no new otter holts or couches present prior to construction.</p> <p>The Framework CEMP (EN070009/APP/5.12) details measures to prevent and control pollution during construction.</p>	Not Significant (Negligible)
Brown Hare	Local	Disturbance or displacement of brown hare (arable / grassland habitats and within Wilton International).	Not Significant (Minor Adverse temporary loss of habitat, of which the extent, duration and magnitude does not	None required – suitable alternative habitat available in the wider area.	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
			affect the integrity of the brown hare population).		
Hedgehog	Local	Harm to hedgehog during site clearance.	Not Significant (Minor Adverse - temporary loss of habitat, of which the extent, duration and magnitude does not affect the integrity of the hedgehog population).	Any potential hibernacula to be dismantled outside of the hibernation period (November to February). If hedgehogs are found during works, they will be moved to a safe area away from construction. Habitat will be reinstated post construction.	Not Significant (Negligible)
Aquatic Macrophytes	Negligible	Removal of or damage to species The Framework CEMP details measures to prevent and control pollution to watercourses during construction.	Not Significant (Minor Adverse)-temporary loss of habitat, of which the extent, duration and magnitude is not considered to affect the integrity of aquatic macrophytes as the community should recover.	Not required	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
INNS	Negligible	Spread of INNS resulting in a legal offence.	Significant (Moderate Adverse (temporary or permanent effect)).	An INNS method statement will be confirmed in final CEMP(s). This plan will set out the measures which will be implemented to avoid the spread of INNS during construction and ensure legal compliance.	Not Significant (Negligible)

Table 12-10: Summary of Residual Effects during Operation

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
OPERATIONAL PHASE					
Teesmouth and Cleveland Coast SPA	International	Noise and visual disturbance of SPA birds changes in lighting, air quality effects.	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Teesmouth and Cleveland Coast Ramsar	International	Noise and visual disturbance of SPA birds, changes in lighting, air quality effects.	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Teesmouth and Cleveland Coast SSSI	National	Noise and visual disturbance of SPA birds, changes in lighting, air quality effects.	Not Significant (Negligible)	Not required	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
Teemouth and Cleveland Coast NNR	National	Noise and visual disturbance of SPA birds, changes in lighting, air quality effects.	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Philips Tank Farm Grassland LWS	District	No effects.	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Saltern Grassland LWS	District	No effects.	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Greatham North Bank LWS	District	No effects.	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Coatham Marsh LWS	District	Air quality effects.	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Eston Pumping Station LWS	District	Air quality effects	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Cowpen Bewley Woodland Park LWS / LNR	District	No effects.	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Charlton's Pond LNR	District	Air quality effects.	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Billingham Beck Valley LNR	District	Air quality effects.	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Seaton Dunes and Common LNR	District	Air quality effects.	Not Significant (Negligible)	Not required	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
Coastal and Floodplain Grazing Marsh	District	No effects upon retained habitats. Management of restored habitat.	Not Significant (Negligible)	Habitat management and monitoring provided in Outline LBMP (EN070009/APP/5.9)	Not Significant (Negligible)
Coastal Saltmarsh	District	No effects.	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Coastal Sand Dunes	National	No effects.	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Mudflats	National	No effects.	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Saline Lagoons	National	No effects.	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Open Mosaic Habitat on Previously Developed Land	District	No effects upon retained habitats.	Not Significant (Negligible)	Habitat management and monitoring provided in Outline LBMP (EN070009/APP/5.9)	Not Significant (Negligible)
Ponds	Local	No effects anticipated.	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Watercourses	Local to National	No effects anticipated.	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Hedgerows	Local	No effects upon retained habitats. New habitats created to offset any losses.	Not Significant (Negligible)	Habitat management and monitoring provided in	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
				Outline LBMP (EN070009/APP/5.9).	
Broadleaved Plantation Woodland	Local	No effects upon retained habitats.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Semi-improved grassland	Local	No effects upon retained habitats. New habitats created to offset any losses.	Not Significant (Negligible)	Habitat management and monitoring provided in Outline LBMP (EN070009/APP/5.9).	Not Significant (Negligible)
Marshy Grassland	Local	No effects upon retained habitats. New habitats created to offset any losses.	Not Significant (Negligible)	Habitat management and monitoring provided in Outline LBMP (EN070009/APP/5.9).	Not Significant (Negligible)
Swamp	Local	No effects upon retained habitats. New habitats created to offset any losses.	Not Significant (Negligible)	Habitat management and monitoring provided in Outline LBMP (EN070009/APP/5.9).	Not Significant (Negligible)
Terrestrial Invertebrates	Regional	No effects upon retained habitats. New habitats created to offset any losses.	Not Significant (Negligible)	Habitat management and monitoring provided in Outline LBMP (EN070009/APP/5.9).	Not Significant (Negligible)
Aquatic Macroinvertebrates	Local	No effects.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
Great Crested Newt	District	No effects.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Common Toad	Local	No effects.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Reptiles	District	No effects	Not Significant (Negligible)	Tool box talk to include information on common lizard, their habitat requirements and protection, to be given to all site staff as part of the induction process.	Not Significant (Negligible)
Fish	Up to District	No effects.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Foraging and Commuting Bats	Local	Lighting to be directed away from site boundaries to maintain dark corridors. No lighting proposed within connection corridors.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Water Vole	District	Habitats restored and enhanced to offset any losses.	Not Significant (Negligible)	Monitoring of mitigation will be completed as specified within the mitigation licence.	Not Significant (Minor Beneficial)
Otter	District	No effects.	Not Significant (Negligible)	There will be no additional lighting within suitable habitats during the operational phase.	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
Brown Hare	Local	No effects.	Not Significant (Negligible)	Habitats within connection corridors will be restored post construction.	Not Significant (Negligible)
Hedgehog	Local	No effects.	Not Significant (Negligible)	Habitats within connection corridors will be reinstated post construction to maintain connectivity.	Not Significant (Negligible)
Aquatic Macrophytes	Negligible	No effects.	Not Significant (Negligible)	Not required	Not Significant (Negligible)
INNS	Negligible	As INNS will be removed during the construction phase it is unlikely that INNS will spread.	Not Significant (Negligible)	Not required	Not Significant (Negligible)

Table 12-11: Summary of Residual Effects during Decommissioning

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
DECOMMISSIONING PHASE					
Teesmouth and Cleveland Coast SPA	International	Noise and visual disturbance of breeding and non-breeding birds. Physical or chemical pollution resulting in degradation of habitats.	Significant (Major Adverse)	Mitigation measures to prevent and control pollution, noise and visual disturbance will be detailed within the DEMP.	Not Significant (Minor Adverse)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
				This will include the use of noise abatement/reduction measures (such as close-board acoustic fencing or other barriers) to reduce noise to an acceptable level.	
Teemouth and Cleveland Coast Ramsar	International	Noise and visual disturbance of breeding and non-breeding birds. Physical or chemical pollution resulting in degradation of habitats.	Significant (Major Adverse)	Mitigation measures to prevent and control pollution, noise and visual disturbance will be detailed within the DEMP. This will include the use of noise abatement/reduction measures (such as close-board acoustic fencing or other barriers) to reduce noise to an acceptable level.	Not Significant (Minor Adverse)
Teemouth and Cleveland Coast SSSI	National	Noise and visual disturbance of breeding and non-breeding birds. Physical or chemical pollution resulting in degradation of habitats.	Significant (Major Adverse)	Mitigation measures to prevent and control pollution, noise and visual disturbance will be detailed within the DEMP. This will include the use of noise abatement/reduction measures (such as close-	Not Significant (Minor Adverse)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
				board acoustic fencing or other barriers) to reduce noise to an acceptable level.	
Teemouth and Cleveland Coast NNR	National	Noise and visual disturbance of breeding and non-breeding birds. Physical or chemical pollution resulting in degradation of habitats.	Significant (Major Adverse)	Mitigation measures to prevent and control pollution, noise and visual disturbance will be detailed within the DEMP. This will include the use of noise abatement/reduction measures (such as close-board acoustic fencing or other barriers) to reduce noise to an acceptable level.	Not Significant (Minor Adverse)
Philips Tank Farm Grassland LWS	District	Pipeline to be left in situ. No effects anticipated	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Saltern Grassland LWS	District	Pipeline to be left in situ. No effects anticipated	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Greatham North Bank LWS	District	Pipeline to be left in situ. No effects anticipated	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Coatham Marsh LWS	District	Pipeline to be left in situ. No effects anticipated	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Eston Pumping Station LWS	District	Pipeline to be left in situ. No effects anticipated	Not Significant (Negligible)	Not required.	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
Cowpen Bewley Woodland Park / LNR	District	Pipeline to be left in situ. No effects anticipated	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Charlton's Pond LNR	District	No effects anticipated	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Billingham Beck Valley LNR	District	No effects anticipated	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Seaton Dunes and Common LNR	District	No effects anticipated	Not Significant (Negligible)	Not required	Not Significant (Negligible)
Coastal and Floodplain Grazing Marsh	District	Pipeline to be left in situ. No effects anticipated	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Coastal Saltmarsh	District	Pipeline to be left in situ. No effects anticipated	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Coastal Sand Dunes	National	Dust and/or physical or chemical pollution resulting in degradation of habitats.	Significant (Moderate Adverse)	Mitigation measures to prevent and control dust and pollution will be detailed within the DEMP.	Not Significant (Negligible)
Mudflats	National	Pipeline to be left in situ. No effects anticipated	Not Significant (negligible)	Not required.	Not Significant (Negligible)
Saline Lagoons	National	Pipeline to be left in situ. No effects anticipated	Not Significant (Negligible)	Not required.	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
Open Mosaic Habitat on Previously Developed Land	District	Potential for open mosaic habitat to be created following decommissioning of the Main Site.	Not Significant (Minor Beneficial)	Not required.	Not Significant (Minor Beneficial)
Ponds	Local	Physical or chemical pollution resulting in degradation of habitats. Changes in hydrology affecting habitats.	Significant (Moderate Adverse)	The DEMP will detail measures to prevent and control pollution.	Not Significant (Negligible)
Watercourses	Local to National	Physical or chemical pollution.	Significant (Moderate Adverse)	The DEMP will detail measures to prevent and control pollution.	Not Significant (Negligible)
Hedgerows	Local	Pipelines to be left in situ. No effects anticipated.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Broadleaved Plantation Woodland	Local	Pipelines to be left in situ. No effects anticipated.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Semi-improved grassland	Local	Pipelines to be left in situ. No effects anticipated.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Marshy Grassland	Local	Pipelines to be left in situ. No effects anticipated.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Swamp	Local	Pipelines to be left in situ. No effects anticipated.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
Terrestrial Invertebrates	Regional	Pipelines to be left in situ. No effects anticipated.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Aquatic Macroinvertebrates	Local	Impacts to water quality and hydrological regime.	Not Significant (Minor Adverse)	The DEMP will detail measures to prevent and control pollution.	Not Significant (Negligible)
Great Crested Newt	District	Pipelines to be left in situ. No effects anticipated.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Common Toad	Local	Pipelines to be left in situ. No effects anticipated.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Reptiles	District	Killing or injury of common reptile species (common lizard).	Significant (Moderate Adverse)	Update surveys will be completed as necessary to inform the DEMP.	Not Significant (Negligible)
Fish	Up to District	Impacts to water quality and hydrological regime.	Not Significant (Minor Adverse – temporary impact on water quality)	The DEMP will detail measures to prevent and control pollution.	Not Significant (Negligible)
Foraging and Commuting Bats	Local	Pipelines to be left in situ. No effects anticipated.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Water Vole	District	Pipelines to be left in situ. No effects anticipated.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Otter	District	Pipelines to be left in situ. No effects anticipated.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)

RECEPTOR	IMPORTANCE	DESCRIPTION OF POTENTIAL IMPACT	POTENTIAL EFFECT / SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL EFFECTS / SIGNIFICANCE
Brown Hare	Local	Pipelines to be left in situ. No effects anticipated.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Hedgehog	Local	Pipelines to be left in situ. No effects anticipated.	Not Significant (Negligible)	Not required.	Not Significant (Negligible)
Aquatic Macrophytes	Negligible	Impacts to water quality and hydrological regime.	Not Significant (Minor Adverse)	The DEMP will detail measures to prevent and control pollution.	Not Significant (Negligible)
INNS	Negligible	Spread of INNS resulting in a legal offence.	Significant (Moderate Adverse)	Update surveys will be completed as necessary to inform the DEMP. The DEMP will include measures to avoid the spread of INNS (if present).	Not Significant (Negligible)

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