The Great Grid Upgrade

Sea Link

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Volume 6: Environmental Statement

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Part 2 Suffolk
Chapter 2
Ecology and Biodiversity

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Version History

Date	Issue	Status	Description / Changes
March 2025	A	Final	For DCO submission
October 2025	B	Final	Update following Rule 6 Errata List
November 2025	C	Final	Updated for Deadline 1
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2. Ecology and Biodiversity

2.1 Introduction

2.1.1 This chapter of the Environmental Statement (ES) presents the assessment of the likely significant ecology and biodiversity effects that could result from the Proposed Project (as described in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**).

2.1.2 This chapter highlights the ecological baseline in respect of the Suffolk Onshore Scheme and how this may be impacted by the Proposed Project. It describes the results of surveys undertaken, the legislative context and the potential impact on habitats and species in relation to this part of the Proposed Project. The impacts on ecology and biodiversity of the Kent Onshore Scheme are addressed in **Application Document 6.2.3.2 Part 3 Kent Chapter 2 Ecology and Biodiversity**. The impacts on ecology and biodiversity of the Offshore Scheme are addressed in **Application Document 6.2.4.2 Part 4 Marine Chapter 2 Benthic Ecology**, **Application Document 6.2.4.3 Part 4 Marine Chapter 3 Fish and Shellfish**, **Application Document 6.2.4.4 Part 4 Marine Chapter 4 Marine Mammals** and **Application Document 6.2.4.5 Part 4 Marine Chapter 5 Marine Ornithology**.

2.1.3 The Order Limits, which illustrate the boundary of the Proposed Project, are illustrated on **Application Document 2.2.1 Overall Location Plan** and the Suffolk Onshore Scheme Boundary is illustrated on **Application Document 2.2.2 Suffolk Location Plan**.

2.1.4 This chapter should be read in conjunction with:

- **Application Document 6.2.1.3 Part 1 Introduction Chapter 3 Main Alternatives Considered**;
- **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**;
- **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology**;
- **Application Document 6.2.1.6 Part 1 Introduction Chapter 6 Scoping Opinion and EIA Consultation**;
- **Application Document 6.6 Habitats Regulations Assessment Report**; and
- **Application Document 6.10 Arboricultural Impact Assessment**.

2.1.5 This chapter is supported by the following figures:

- **Application Document 6.4.2.2.A Extended Phase 1 Habitat Survey Report**; and
- **Application Document 6.4.2.2.H Bat Tree Survey Report**.

2.1.6 This chapter is supported by the following appendices:

- **Application Document 6.3.2.2.A Appendix 2.2.A Phase 1 Habitat Survey Report (including Badgers and Important Hedgerows)**;

- **Application Document 6.3.2.2.B Appendix 2.2.B Suffolk Wintering Bird Report**;
- **Application Document 6.3.2.2.C Appendix 2.2.C Suffolk Breeding Bird Report**;
- **Application Document 6.3.2.2.D Appendix 2.2.D Riparian Mammals Survey Report**;
- **Application Document 6.3.2.2.E Appendix 2.2.E Reptile Survey Report**;
- **Application Document 6.3.2.2.F Appendix 2.2.F Aquatic Ecology Survey Report**;
- **Application Document 6.3.2.2.G Appendix 2.2.G Terrestrial Invertebrate Survey Report**;
- **Application Document 6.3.2.2.H Appendix 2.2.H Bat Tree Survey Report**;
- **Application Document 6.3.2.2.I Appendix 2.2.I Nighttime Bat Walkover and Static Detector Survey Report**; and
- **Application Document 6.3.2.2.J Appendix 2.2.J Hazel Dormouse Survey Report**.

2.1.7 This chapter is supported by the following application documents:

- **Application Document 7.5.3 Outline Onshore Construction Environmental Management Plan (CEMP)**;
- **Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice**;
- **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**;
- **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan - Suffolk**; and
- **Application Document 6.12 Biodiversity Net Gain Feasibility Report**.

2.2 Regulatory and Planning Context

2.2.1 This section sets out the legislation and planning policy that is relevant to the ecology and biodiversity effects assessment. A full review of compliance with relevant national and local planning policy is provided within the **Application Document 7.1 Planning Statement** submitted as part of the application for Development Consent.

2.2.2 Policy generally seeks to minimize ecology and biodiversity effects from development and to avoid significant adverse effects. This applies particularly to internationally protected sites, European protected species and the need to maintain or improve biodiversity within the natural environment.

Legislation

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

2.2.3 The Conservation of Habitats and Species Regulations 2017 (as amended) transposed the requirements of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora ('the Habitats Directive') into domestic legislation.

2.2.4 The Regulations identify European Protected Species (EPS) and various habitats of importance within Europe, with important sites for these habitats/species or both being designated as Special Areas of Conservation (SAC) and important sites for birds being designated as Special Protection Areas (SPAs). Any Proposed Project that may have a significant effect on a SAC or SPA should be assessed in relation to the site's 'conservation objectives' (i.e., the reasons for which the site is designated). The Regulations also implement the species protection regime set out within the Habitats Directive, providing a clear legal basis for surveillance and monitoring of European Protected Species.

The Natural Environment and Rural Communities Act 2006 (HM Government, 2006)

2.2.5 Section 41 of the Natural Environment and Rural Communities Act 2006 ('the NERC Act') requires the listing of habitats and species that are of principal importance for the conservation of biodiversity, including those that have been identified as priorities within the UK Biodiversity Action Plan (UK BAP).

2.2.6 The NERC Act requires that the Section 41 list be used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act 'to have due regard' to the conservation of biodiversity when carrying out their normal functions.

Wildlife and Countryside Act 1981 (as amended) (HM Government, 1981)

2.2.7 The Wildlife and Countryside Act 1981 (as amended) ('the WCA') is the major domestic legal instrument for wildlife protection in the UK and is the primary means by which the following are implemented:

- The Convention on the Conservation of European Wildlife and Natural Habitats ('the Bern Convention'); and
- The Council Directive 79/409/EEC on the Conservation of Wild Birds ('the Bird Directive').

2.2.8 The main relevant provisions of the WCA are the allowance for the protection of the most important habitats and species by designating Sites of Special Scientific Interest (SSSIs), providing a level of protection to all nesting wild birds (with protection from disturbance to some bird species), and providing similar protection to some other species (such as water voles (Arvicola amphibius) and beavers (Castor fiber). It also lists some invasive non-native species that should not be allowed to spread.

The Countryside and Rights of Way Act 2000 (HM Government, 2000)

2.2.9 Part III of the Countryside and Rights of Way Act 2000 ('the CRoW Act') deals specifically with wildlife protection and nature conservation in England and Wales. The

CroW Act strengthened the safeguards afforded to Sites of Special Scientific Interest (SSSIs) and adds to the protection of wild animals designated under the WCA 1981 by making it an offence to "*recklessly disturb*" the sheltering places of wild animals designated under Schedule 5 of the WCA.

Environment Act 2021 (HM Government, 2021)

2.2.10 The Environment Act 2021 includes proposals to make biodiversity net gain (BNG) a mandatory requirement within the planning system in England. The biodiversity elements of the Act include:

- strengthened biodiversity duty;
- biodiversity net gain to ensure developments deliver at least 10% increase in biodiversity;
- Local Nature Recovery Strategies to support a Nature Recovery Network;
- duty upon Local Authorities to consult on street tree felling;
- strengthen woodland protection enforcement measures;
- Conservation Covenants;
- Protected Site Strategies and Species Conservation Strategies to support the design and delivery of strategic approaches to deliver better outcomes for nature;
- prohibit larger UK businesses from using commodities associated with wide-scale deforestation; and
- requires regulated businesses to establish a system of due diligence for each regulated commodity used in their supply chain.

Animal Welfare Act 2006 (HM Government, 2006)

2.2.11 This Act sets out the ways in which animals should be treated, considered and cared for throughout Britain. It applies primarily to domestic animals but some broad provisions, such as the potential for the government to introduce codes of conduct, could apply to wild animals.

Protection of Badgers Act 1992 (HM Government, 1992)

2.2.12 This Act protects Badgers (*Meles meles*) and their setts. In England and Wales, this makes it an offence to:

- wilfully kill, injure or take a badger (or attempt to do so);
- cruelly ill-treat a badger;
- dig for a badger, intentionally or recklessly damage or destroy a badger sett, or obstruct access to it; cause a dog to enter a badger sett; and
- disturb a badger while it is occupying a sett.

Wild Mammals (Protection) Act 1996 (HM Government, 1996)

2.2.13 This Act makes it an offence to intentionally cause all wild mammals unnecessary suffering by certain methods (e.g. crushing, suffocation).

The Hedgerow Regulations 1997 (HM Government, 1997)

2.2.14 These regulations prevent the removal of most countryside hedgerows without first submitting a hedgerow removal notice to the local planning authority. This is not required if the removal is part of a planning application or Development Consent Order (as in this case). However, the Regulations still have value in these circumstances because the prescribed survey methods result in detailed contextual information to inform ecological impact assessment.

2.2.15 Part II of Schedule 1 of the regulations specify the criteria to be used to determine which hedgerows are important. The criteria relate to the value of the hedgerows from an archaeological, historical, landscape or ecological perspective. Hedgerows that are younger than 30 years old are excluded if supportive evidence of age can be provided, as are any hedgerows that mark the boundary of a house.

2.2.16 In addition, the regulations only apply to hedgerows that are of a certain length. The regulations apply to any stretch of hedgerow that is:

- 20 metres or more long; or
- less than 20 metres long, if they are connected at each end to another hedgerow – thereby forming a continuous network of hedgerows. The length of the adjoining hedgerows is immaterial, the significant factor being the connection.

2.2.17 The regulations also apply to any hedgerows that are over 30 years old and qualify under any one of the criteria would be termed 'important'.

Invasive Alien Species (Enforcement and Permitting) Order 2019 (as amended) (HM Government, 2019)

2.2.18 These regulations set out to address the problems concerned with invasive alien species (IASs) in order to protect native biodiversity and ecosystem services and minimize and mitigate the human health and/or economic impacts that IASs can have. It sets out rules to prevent and manage the introduction and spread of IASs through prevention, early detection and rapid eradication, and management.

National Policy

National Policy Statements

2.2.19 National Policy Statements (NPS) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Proposed Project would be considered. Table 2.1 and Table 2.2 below provides details of the elements of NPS for Energy (EN-1) (HM Government, 2023) and NPS for Electricity Networks Infrastructure (EN-5) (HM Government, 2023) that are relevant to this chapter. NPS EN-3 Renewable Energy Infrastructure has relevance to the Proposed Project, but only in respect of the offshore elements. As such it has no relevance to the assessment presented in this chapter.

Table 2.1 NPS EN-1 requirements relevant to ecology and biodiversity

NPS EN-1 section	Where this is covered in the ES
Part 5.4.8 *"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."*	Careful attention has been paid to this requirement in the design (trenchless construction) and timing of works close to and within Leiston-Aldeburgh SSSI in particular. The application of the mitigation hierarchy enables a conclusion of no likely significant effects on SSSIs once mitigation is taken into account. Details of the mitigation measures proposed and assessment of effects are provided in Section 2.9 of this chapter.
Part 5.4.17 *"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."*	Effects on internationally, nationally and locally designated sites, protected species and habitats and species of principal importance, are reported in Section 2.9 of this chapter. Impacts on sites of geological importance are covered in **Application Document 6.2.2.5 Part 2 Suffolk Chapter 5 Geology and Hydrogeology** of the Environmental Statement.
Part 5.6.13 *"The applicant should be particularly careful to identify any effects of physical changes on the integrity and special features of Marine Protected Areas (MPAs). These could include MCZs, habitat sites including Special Areas of Conservation and Special Protection Areas with marine features, Ramsar Sites, Sites of Community Importance, and SSSIs with marine features. Applicants should also identify any effects on the special character of Heritage Coasts."*	Assessment of marine impacts and likely significant effects are covered in: • Section 1.9, **Application Document 6.2.4.1 Part 4 Marine Chapter 1 Physical Environment**; • Section 2.9, **Application Document 6.2.4.2 Part 4 Marine Chapter 2 Benthic Ecology**; • Section 3.9, **Application Document 6.2.4.3 Part 4 Marine Chapter 3 Fish and Shellfish**; • Section 4.9, **Application Document 6.2.4.4 Part 4 Marine Chapter 4 Marine Mammals**; and • Section 5.9, **Application Document 6.2.4.5 Part 4**

NPS EN-1 section	Where this is covered in the ES
	Marine Chapter 5 Marine Ornithology. Assessments of the integrity of designated sites with marine features are covered in: • **Application Document 6.6 Habitats Regulations Assessment Report**; and • **Application Document 6.11 Marine Conservation Zone Assessment**.
Part 5.4.19 *"The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests."*	Commitments to conserve biodiversity interests taken advantage of for the Proposed Project are set out in Sections 2.8 and 2.9 of this chapter. Opportunities to enhance biodiversity interests are contained in a separate Biodiversity Net Gain assessment detailed in **Application Document 6.12 Biodiversity Net Gain Feasibility Report**. Opportunities to enhance geodiversity are covered in **Application Document 6.2.2.5 Part 2 Suffolk Chapter 5 Geology and Hydrogeology** of the Environmental Statement.
Part 5.4.21 *"As set out in Section 4.6, the design process should embed opportunities for nature inclusive design. Energy infrastructure projects have the potential to deliver significant benefits and enhancements beyond Biodiversity Net Gain, which result in wider environmental gains (see Section 4.5 on Environmental and Biodiversity Net Gain). The scope of potential gains would be dependent on the type, scale, and location of each project."*	See above
Part 5.4.22 *"The design of Energy NSIP proposals would need to consider the movement of mobile / migratory species such as birds, fish and marine and terrestrial mammals and their potential to interact with infrastructure. As energy infrastructure could occur anywhere within England and Wales, both inland and onshore and offshore, the potential to affect mobile and migratory species across the UK and more widely*	Impacts on mobile and migratory species from the Suffolk Onshore Scheme are covered in paragraphs 2.9.5 to 2.9.248 of this chapter. Impacts on mobile and migratory species from the Offshore Scheme are covered in **Application Document 6.2.4.3 Part 4 Marine Chapter 3 Fish and Shellfish**, **Application Document 6.2.4.4 Part 4**

NPS EN-1 section	Where this is covered in the ES
across Europe (transboundary effects) requires consideration, depending on the location of development."	**Marine Chapter 4 Marine Mammals** and **Application Document 6.2.4.5 Part 4 Marine Chapter 5 Marine Ornithology**.
Part 5.4.25 *"The applicant should seek the advice of the appropriate Statutory Nature Conservation Body (SNCB) and provide the Secretary of State with such information as the Secretary of State may reasonably require, to determine whether an Appropriate Assessment (AA) is required. Applicants can request and agree 'Evidence Plans' with SNCBs, which is a way to agree and record upfront the information the applicant needs to supply with its application, so that the HRA can be efficiently carried out. If an AA is required, the applicant must provide the Secretary of State with such information as may reasonably be required to enable the Secretary of State to conduct the AA. This should include information on any mitigation measures that are proposed to minimise or avoid likely significant effects."*	Information to inform the Secretary of State's decision over Habitat Regulations Assessment (HRA) matters including Appropriate Assessment (AA) are set out in **Application Document 6.6 Habitats Regulations Assessment Report**.
Part 5.4.32 *"Applicants should include measures to mitigate fully the direct and indirect effects of development on ancient woodland, ancient and veteran trees or other irreplaceable habitats during both construction and operational phases."*	There are no losses from the Suffolk Onshore Scheme on ancient woodland, ancient and veteran trees or other irreplaceable habitats. Following mitigation to protect trees from encroachment into the root protection zone of some veteran/ancient trees, there will be no likely significant effects. These measures are documented in **Application Document 6.10 Arboricultural Impact Assessment**.
Part 5.4.33 *"Applicants should consider any reasonable opportunities to maximise the restoration, creation, and enhancement of wider biodiversity, and the protection and restoration of the ability of habitats to store or sequester carbon as set out under Section 4.6."*	Opportunities to maximise the restoration, creation and enhancement of wider biodiversity are set out in **Application Document 6.12 Biodiversity Net Gain Feasibility Report**. Opportunities to restore the ability of habitats to sequester carbon are set out in **Application Document 6.2.5.1 Part 5 Combined Chapter 1 Climate Change** of this ES.
Part 5.4.34 *"Consideration should be given to improvements to, and impacts on, habitats and species in, around and beyond developments, for wider ecosystem services and natural capital benefits, beyond those under protection and identified as being of principal importance. This may include considerations and opportunities*	Impacts on habitats and species in around and beyond the Suffolk Onshore Scheme are discussed in paragraphs 2.9.5 to 2.9.248 of this Chapter.

NPS EN-1 section	Where this is covered in the ES
identified through Local Nature Recovery Strategies, and national goals and targets set through the Environment Act 2021 and the Environmental Improvement Plan 2023."	Opportunities to enhance habitats beyond the Proposed Project are documented in the Biodiversity Net Gain assessment in **Application Document 6.12 Biodiversity Net Gain Feasibility Report**. **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan – Suffolk**, sets out opportunities regarding habitat enhancements delivered around the Saxmundham Converter Station and Friston Substation. Ecosystem services and natural capital benefits of the Proposed Project are discussed in **Application Document 6.12 Biodiversity Net Gain Feasibility Report**.
Part 5.4.35 *"Applicants should include appropriate avoidance, mitigation, compensation and enhancement measures as an integral part of the proposed development. In particular, the applicant should demonstrate that:* *• during construction, they would seek to ensure that activities would be confined to the minimum areas required for the works* *• the timing of construction has been planned to avoid or limit disturbance* *• during construction and operation best practice would be followed to ensure that risk of disturbance or damage to species or habitats is minimised, including as a consequence of transport access arrangements* *• habitats will, where practicable, be restored after construction works have finished* *• opportunities would be taken to enhance existing habitats rather than replace them, and where practicable, create new habitats of value within the site landscaping proposals. Where habitat creation is required as mitigation, compensation, or enhancement the location and quality would be of key importance. In this regard habitat creation should be focused on areas where the most ecological and ecosystems benefits can be realised."*	Avoidance, mitigation and compensation requirements are set out in Section 2.8 of this Chapter. Attention has been given to the timing of works to avoid or limit disturbance. Other than timing of works best practice measures to avoid disturbance have been taken into account, and modelling to inform those measures has been undertaken. See paragraphs 2.9.1 and 2.9.52. Habitat creation proposed around the Saxmundham Converter Station and Friston Substation is being delivered for reasons of landscaping and drainage and is focussed on areas where ecological benefit is greatest. These proposals are detailed in **Application Document 7.5.7.1 Landscape and Ecological Management Plan – Suffolk**, as are restoration proposals for habitats.
Part 5.4.36 *"Applicants should produce and implement a Biodiversity Management Strategy as part of their development proposals. This could*	National Grid Electricity Transmission plc (National Grid) has not produced a document called a Biodiversity

NPS EN-1 section	Where this is covered in the ES
include provision for biodiversity awareness training to employees and contractors so as to avoid unnecessary adverse impacts on biodiversity during the construction and operation stages."	Management Strategy but the requirements identified in 5.4.36 are addressed in **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan - Suffolk**, **Application Document 7.5.3 Outline Onshore Construction Environmental Management Plan (CEMP)**, **Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice**, or **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**. The oLEMP effectively constitutes the Biodiversity Management Strategy for the DCO and among other provisions sets out biodiversity awareness training (using the standard term 'toolbox talks').
Part 4.6.6 *"Energy NSIP proposals, whether onshore or offshore, should seek opportunities to contribute to and enhance the natural environment by providing net gains for biodiversity, or the wider environment where possible."*	Enhancement of biodiversity and Environmental Net Gain more broadly are covered by **Application Document 6.12 Biodiversity Net Gain Feasibility Report**.
Part 5.12.10 *"Some noise impacts would be controlled through environmental permits and parallel tracking is encouraged where noise impacts determined by an environmental permit interface with planning issues (i.e. physical design and location of development). The applicant should consult the EA and/or the SNCB, and other relevant bodies, such the MMO or NRW, as necessary, and in particular regarding assessment of noise on protected species or other wildlife. The results of any noise surveys and predictions may inform the ecological assessment. The seasonality of potentially affected species in nearby sites may also need to be considered."*	Natural England were consulted over the assessment of noise impacts on wildlife as set out in the section on Further Engagement and in paragraphs 2.9.38 to 2.9.84 of this Chapter. The seasonality of interest features was taken into account in this assessment as discussed earlier in this table regarding NPS paragraph 5.4.8 and Leiston-Aldeburgh SSSI. There would be no need for any permits to cover noise impacts on wildlife as mitigation measures that do not require a permit will be deployed to address this - see paragraphs 2.10.1 and 2.10.2.

Table 2.2 NPS EN-5 requirements relevant to ecology and biodiversity

NPS EN-5 section	Where this is covered in the ES
Part 2.9.3 *"Electricity networks infrastructure pose a particular potential risk to birdlife including large birds, such as swans and geese, and perching birds. These may collide with overhead lines and*	No new section of overhead line is being delivered as part of the Suffolk Onshore Scheme. The only overhead line works involved are modifications to an existing

NPS EN-5 section	Where this is covered in the ES
risk being electrocuted. Large birds may also be electrocuted when landing or taking off by completing an electric circuit between live and ground wires. Even perching birds can be killed as soon as their wings touch energised parts of the infrastructure."	overhead line. Therefore, no new collision risk is introduced by the Suffolk Onshore Scheme.
Part 2.9.4 "*Applicants should consider measures to make lines more visible such as bird flappers and diverters which are covered in more detail in paragraphs 2.10.3 and 2.10.4."*	
Part 2.9.5 *"The applicant would need to consider whether the proposed line would cause such problems at any point along its length and take this into consideration in the preparation of the ES (see Section 4.3 of EN-1)."*	
Part 2.9.6 *"Particular consideration should be given to feeding and hunting grounds, migration corridors and breeding grounds, where they are functionally linked to sites designated or allocated under the 'national site network' provisions of the Conservation of Habitats and Species Regulations"*	
Part 2.10.2 *"Careful siting of a line away from, or parallel to, but not across, known flight paths can reduce the numbers of birds colliding with overhead lines considerably."*	
Part 2.10.3 *"Making lines more visible by methods such as the fitting of bird flappers and diverters to the earth wire, which swivel in the wind, glow in the dark and use fluorescent colours designed specifically for bird vision can also reduce the number of deaths. The design and colour of the diverters would be specific to the conditions – the line and pylon/transmission tower specifications and the species at risk."*	
Part 2.10.4 "*Electrocution risks can be reduced through the design of lattice steel tower crossarms, insulators and the construction of other parts of high voltage power lines so that birds find no opportunity to perch near energised power lines on which they might electrocute themselves."*	

National Planning Policy Framework

2.2.20 The National Planning Policy Framework (NPPF) as revised in December 2024 (Ministry of Housing, Communities, and Local Government, 2024) sets out national planning policies that reflect priorities of the Government for operation of the planning system and the economic, social, and environmental aspects of the development and

use of land. The NPPF has a strong emphasis on sustainable development, with a presumption in favour of such development. The NPPF has the potential to be considered important and relevant to the Secretary of State (SoS) consideration of the Proposed Project.

2.2.21 Table 2.3 below provides details of the elements of the NPPF that are relevant to this chapter, and how and where they are covered in the ES.

Table 2.3 NPPF requirements relevant to ecology and biodiversity

NPPF section	Where this is covered in the ES
Paragraph 182 "*Applications which could affect drainage on or around the site should incorporate sustainable drainage systems to control flow rates and reduce volumes of runoff, and which are proportionate to the nature and scale of the proposal. These should provide multifunctional benefits wherever possible, through facilitating improvements in water quality and biodiversity, as well as benefits for amenity…*"	Commitment to design measures to function for both ecology and drainage are reflected in this Chapter and in **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan- Suffolk**.
Paragraph 187 *"Planning policies and decisions should contribute to and enhance the natural and local environment by [inter alia] … protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan); … [and] recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland; … [and] maintaining the character of the undeveloped coast, while improving public access to it where appropriate;… [and] minimising impacts on and providing net gains for biodiversity; …[and] preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability"; … [and] remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.*	Commitments to conserve biodiversity interests taken advantage of for the Proposed Project are reported in Sections 2.8 and 2.9 of this chapter. Enhancement of biodiversity and Environmental Net Gain more broadly are covered by **Application Document 6.12 Biodiversity Net Gain Feasibility Report**. Opportunities for biodiversity enhancement on-site are also contained in this document.
Paragraph 188 "*Plans should: distinguish between the hierarchy of international, national and locally designated sites; … [and] take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment*	**Application Document 6.6 Habitats Regulations Assessment Report** covers internationally designated sites where applicable. This Chapter has specific sections on designated sites covering all tiers of designation.

NPPF section	Where this is covered in the ES
or landscape scale across local authority boundaries"	
Paragraph 192 "*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.*"	Measures to protect these features are covered in this Chapter. Enhancement of biodiversity and environmental net gain more broadly are covered by **Application Document 6.12 Biodiversity Net Gain Feasibility Report**.
Paragraph 193 "When determining planning applications, local planning authorities should apply the following principles: 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; Development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest; 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 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."	Details of proposed mitigation, and the assessment of potential effects on protected habitats and species are provided in Section 2.8 and 2.9 of this chapter. No likely significant adverse effects on any of these designations have been identified. **Application Document 6.2.1.3 Part 1 Introduction Chapter 3 Main Alternatives Considered** sets out the main alternatives considered in relation to the Suffolk Onshore Scheme and the reasons behind the decision to cross Leiston-Aldeburgh SSSI by trenchless technique. Opportunities to enhance habitats beyond the Suffolk Onshore Scheme are documented in **Application Document 6.12 Biodiversity Net Gain Feasibility Report** and **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan-Suffolk**.

NPPF section	Where this is covered in the ES
Paragraph 194 *"The following should be given the same protection as habitats sites: Potential Special Protection Areas and possible Special Areas of Conservation; Listed or proposed Ramsar sites ; and Sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites."*	**Application Document 6.6 Habitats Regulations Assessment Report** covers these sites where applicable. Other than Ramsar sites there are no other sites in the list which need considering in addition to Habitats Sites.

National Planning Practice Guidance

2.2.22 Most planning practice guidance for biodiversity is associated with strategic planning rather than planning applications. Guidance available on planning applications covers biodiversity net gain[1], protection of trees and woodlands[2] and the appropriate assessment process[3]. The guidance is high-level and not prescriptive.

Local Planning Policy

2.2.23 The Suffolk Onshore Scheme (refer to **Application Document 2.2.2 Suffolk Location Plan**) lies within the jurisdiction of Suffolk County Council and East Suffolk District Council. There is no planning policy established at a county level that is relevant to the Suffolk Onshore Scheme.

2.2.24 Although not specifically mentioned in Local Plan policy, pre-application engagement with Suffolk County Council and East Suffolk District Council has identified locally specific criteria to add to the legally established criteria for determining an Important Hedgerow as follows:

- If bat surveys identify 200 or more passes by bats the hedgerow should be considered important as a bat corridor.
- All the hedgerows where five or more passes of a barbastelle (*Barbastella barbastellus*) have been recorded - due to the rarity of the species and margin for error in recording.
- Those that perform an important visual function.

2.2.25 That guidance has therefore been taken into account in identifying Important Hedgerows within this Chapter.

Local Plans

2.2.26 The Suffolk Onshore Scheme (refer to **Application Document 2.2.2 Suffolk Location Plan**) lies within the jurisdiction of East Suffolk Council. Local planning policy for East Suffolk Council consists of two parts; the Suffolk Coastal Local Plan (East Suffolk Council, 2020) and the Waveney Local Plan (East Suffolk Council, 2019).

[1] https://www.gov.uk/government/collections/biodiversity-net-gain

[2] https://www.gov.uk/guidance/tree-preservation-orders-and-trees-in-conservation-areas

[3] https://www.gov.uk/guidance/appropriate-assessment

2.2.27 The Suffolk Onshore Scheme lies within the boundary of the Suffolk Coastal Local Plan (adopted September 2020) (East Suffolk Council, 2020). Local Plan policies which are relevant to ecology and biodiversity assessment matters and have informed the ecology and biodiversity assessment are detailed in Table 2.4.

Table 2.4 Local planning policies relevant to ecology and biodiversity – Suffolk Coastal Local Plan

Suffolk Coastal Local Plan - Policy	Where this is covered in the ES
Policy SCLP10.1: Biodiversity and Geodiversity *This policy sets out a requirement for all development to achieve a net gain for biodiversity, identifies that development which would harm a local wildlife site would not be supported unless the benefits of the project outweigh the harm caused, identifies the need for surveys if protected or Suffolk priority species are present, identifies the need for Habitats Regulations Assessment where SACs and SPAs are involved, and sets out the mitigation hierarchy of avoid-mitigate-compensate.*	Section 2.7 of this chapter sets out the ecological baseline, which has been informed, where applicable, by surveys. Impacts on habitats and species in around and beyond the Suffolk Onshore Scheme, including protected species and designated sites, are discussed in Section 2.9 of this Chapter. This include discussion of measures taken to avoid (where possible) or mitigate or compensate for potential effects on biodiversity. Opportunities to enhance habitats beyond the Suffolk Onshore Scheme are documented in **Application Document 6.12 Biodiversity Net Gain Feasibility Report** and **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan-Suffolk**. A Habitats Regulations Assessment constitutes **Application Document 6.6 Habitat Regulations Assessment Report**. Protection of geodiversity is covered in **Application Document 6.2.2.5 Part 2 Suffolk Chapter 5 Geology and Hydrogeology**.
Policy SCLP10.3: Environmental Quality *Policy requires development proposals to minimise all forms of pollution. Specific pathways relevant to ecological receptors are air quality, water quality and noise and light pollution.*	All of these impact pathways are discussed under specific headings in the impact assessment section of this chapter.

2.2.28 Additional planning guidance documents relevant to ecology and biodiversity matters are as follows:

- Suffolk Biodiversity Action Plan (Suffolk Biodiversity Planning Group, 2012) – comprises a list of priority species and habitats in the county, which are material considerations in the planning process. Relevant habitats for the Suffolk Onshore Scheme include common lizard (*Zootoca vivipara*), slow worm (*Anguis fragilis*), adder (*Vipera berus*), all of which are found in RSPB North Warren Reserve), great crested newt, dormouse, coastal saltmarsh & intertidal mudflats, arable field margins, acid grassland, hedgerows, lowland mixed deciduous woodland, and rivers and streams. This Chapter has considered all of these where relevant.
- Suffolk Nature Strategy (Suffolk County Council and Partners, 2015) – the Strategy advocates that new energy infrastructure should be sensitive to place and that relevant policies as well as national and local guidance, appropriate biological data and Suffolk's Landscape Character Assessment should be used to assess suitability of new energy infrastructures, and other developments, to particular places. It also advocates the achievement of biodiversity net gain for development, in line with national guidance. National Grid has committed to achieving a 10% biodiversity net gain for new major projects and for selected primary and grid substation sites, and policy and guidance has been used to inform the impact assessment. This is documented in **Application Document 6.12 Biodiversity Net Gain Feasibility Report**. Ecological sensitivity to place has been taken into account in the impact assessment through, for example, the decision to use trenchless technique to traverse Leiston to Aldeburgh SSSI and to time the most potentially disturbing works in that location to occur outside the nightjar (*Caprimulgus europaeus*) and woodlark (*Lullula arborea*) nesting season.

2.3 Scoping Opinion and Consultation

Scoping

2.3.1 A Scoping Report for the Proposed Project was issued to the Planning Inspectorate (PINS) on 24 October 2022 (**Application Document 6.14 Environmental Scoping Report 2022**) and a Scoping Opinion was received from the SoS on 1 December 2022 (**Application Document 6.15 Scoping Opinion 2022**). Table 2.5 sets out the comments raised in the Scoping Opinion and how these have been addressed in this ES. The Scoping Opinion takes account of responses from prescribed consultees as appropriate. **Application Document 6.3.1.6.A Appendix 1.6.A Response to Scoping Opinion** provides responses to the comments made by the prescribed consultees at scoping stage and how each comment has been considered.

Table 2.5 Comments raised in the Scoping Opinion

ID	Inspectorate's comments	Response
3.2.1	This matter [impacts on terrestrial invertebrates] is scoped out on the basis that it is unlikely that notable population assemblages would be significantly affected by direct mortality once mitigation measures are in	Terrestrial invertebrates have been considered in this chapter. The impact assessment is provided in paragraphs 2.9.139 and 2.9.142, while a survey

ID	Inspectorate's comments	Response
	place, as such populations would be linked to habitat. The Scoping Report notes the possible presence of notable invertebrate assemblages within designated sites potentially affected by the Proposed Project, including Leiston-Aldeburgh Site of Special Scientific Interest (SSSI). Furthermore, the Scoping Report states that the likely presence of notable invertebrate assemblages would be determined through the Phase 1 Habitat Surveys to be undertaken. Natural England in its response at Appendix 2 to this Opinion also identify that further SSSIs and the Sandlings Special Protection Area (SPA) support invertebrate assemblages and may require further invertebrate surveys. In the absence of baseline information on notable invertebrate assemblages, the Inspectorate is not in a position to agree to scope this matter from the assessment. The ES should include an assessment of this matters, or the information referred to demonstrating agreement with the relevant consultation bodies and the absence of a likely significant effect.	report constitutes **Application Document 6.3.2.2.I Appendix 2.2.I Nighttime Bat Walkover and Static Detector Report** of this Environmental Statement. The terrestrial invertebrate survey has focussed on those habitats that would be directly affected by the Suffolk Onshore Scheme, and which are most likely to support notable invertebrate populations i.e. areas of acid grassland. Surveys of Sandlings SPA and Leiston-Aldeburgh SSSI have not been required since neither of these sites are being directly affected by the Suffolk Onshore Scheme.
3.2.2	The location and extent of Sandlings SPA is not clear from Figure 2.3.1. Figures accompanying ES should clearly show and label the location and extent of designated sites.	This has been addressed in **Application Document 6.4.2.2.A.5 Suffolk Designated Sites**.
3.2.3	The description of the Outer Thames Estuary SPA does not reference the little tern and common tern qualifying features. The ES should include reference to all relevant ecological receptors.	Outer Thames Estuary is not relevant to the Suffolk Onshore Scheme but is discussed in **Application Document 6.6 Habitats Regulations Assessment Report** and **Application Document 6.2.4.5 Part 4 Marine Chapter 5 Marine Ornithology**. Those documents discuss impact on foraging terns.
3.2.4	The ES should clearly define and justify the study area, based on the Zone of Influence (ZOI) from the Proposed Project and the potential effect pathways to designated sites, particularly the use of the 10km zone and in light of comments received by Natural England in this regard.	The Environmental Statement has used an initial scoping distance of 10 km to identify designated sites that could potentially be affected. However, the assessment has then refined that in the impact assessment to consider the zones of influence from each impact and the

ID	Inspectorate's comments	Response
		distance at which they may impact designated sites. For air quality it is 200 m (up to 250 m for dust), for noise it is determined by the 60 dB contour, for functionally-linked land it uses the unpublished guidance from Natural England (which varies depending on the birds in question), for hydrological impacts no distance is used but rather hydrological connections are used.
3.2.5	The Scoping Report does not at this stage provide an indication of the likely spatial extent of the potential suite of bird surveys. The ES should confirm the extent of bird surveys undertaken, supported by clear figures. The ES should also consider whether any areas of functionally linked land would be affected by the Proposed Project.	The spatial extent of the bird surveys is set out in **Application Document 6.3.2.2.B Appendix 2.2.B Wintering Bird Survey Report** and **Application Document 6.3.2.2.C Breeding Bird Survey Report** covering the breeding and wintering bird surveys. These each include a Figure 1 which shows the survey area (walked transects) and the results of the surveys. The ES chapter includes consideration of impacts on functionally-linked land, as does **Application Document 6.6 Habitats Regulations Assessment**.
3.2.6	Surveys are proposed for riparian mammals (otter (*Lutra* lutra) and water vole); however, impacts to fish and other freshwater species have not been considered in the Biodiversity aspect chapter of the Scoping Report. The ES should state whether fish and other freshwater species are present as important ecological receptors and include an assessment of effects on fish and other freshwater species, where likely significant effects could occur. This should be supported by desk study information and surveys as necessary. Effort should be made to agree the methodology with the relevant consultation bodies.	This Chapter includes a summary of the baseline regarding fish, aquatic macrophytes and aquatic invertebrates in paragraphs 2.9.146 to 2.9.169. This has been informed by a combination of survey and desk study as set out in **Application Document 6.3.2.2.F Appendix 2.2.F Aquatic Ecology Survey Report**. Impacts on non-freshwater fish are presented in **Application Document 6.2.4.3 Part 4 Marine Chapter 3 Fish and Shellfish**. An impact assessment of each aquatic ecology receptor is provided in paragraphs 2.9.146 to 2.9.169.

ID	Inspectorate's comments	Response
3.2.7	The Scoping Report does not identify Snape Warren SSSI as a receptor although it is located within 10km of the red line boundary and also located on Figure 2.3.1. The ES should assess significant effects to this receptor where they are likely to occur.	**Application Document 6.4.2.2.A.5 Suffolk Designated Sites** has been updated to show Snape Warren SSSI and an assessment of impacts on the SSSI has been provided in paragraph 2.9.10 of this chapter. No impacts on Snape Warren SSSI would arise due to distance from the Suffolk Onshore Scheme and lack of connecting impact pathways.
3.2.8	Public bodies have a responsibility to avoid releasing environmental information that could bring about harm to sensitive or vulnerable ecological features. Specific survey and assessment data relating to the presence and locations of species such as badgers, rare birds and plants that could be subject to disturbance, damage, persecution, or commercial exploitation resulting from publication of the information, should be provided in the ES as a confidential annex. All other assessment information should be included in an ES chapter, as normal, with a placeholder explaining that a confidential annex has been submitted to the Inspectorate and may be made available subject to request.	A confidential annex has been prepared for **Application Document 6.3.2.2.A Appendix 2.2.A Extended Phase 1 Habitat Survey Report**, showing the location of badger setts identified as part of the surveys for the Proposed Project.

Statutory Consultation

2.3.2 Statutory Consultation for the Proposed Project took place between 24 October and 18 December 2023. A further Targeted Consultation exercise on the main changes to the Proposed Project introduced after the 2023 statutory consultation, was undertaken between 8 July and 11 August 2023. In addition, localised engagement took place between 22 November 2024 and 12 January 2025, focusing on design amendments made following Targeted Consultation. A summary of relevant feedback received during consultation relating to ecology and biodiversity is provided below. Further details on how National Grid have had regard to the consultation responses can be found in **Application Document 5.1 Consultation Report** and **Application Document 5.1.9 Appendix H Summary 2023 Response**.

2.3.3 The ecological responses to the consultation mainly reflected the fact that at the time the consultation was undertaken considerable further ecological survey remained to be undertaken and therefore the impact assessment was limited. The consultation comments were therefore mainly recommendations for detailed survey and impact assessment work, which have now been undertaken and have informed the development of this chapter.

2.3.4 Other key feedback related to concerns over impacts on the designated sites east of Leiston Road (Sandlings SPA, Leiston-Aldeburgh SSSI and RSPB North Warren

Reserve), particularly due to uncertainty at the time the consultation was undertaken as to whether open cut trenching would be required within the SSSI and RSPB Reserve to deliver the Suffolk Onshore Scheme. Concern was also expressed regarding risk of frac out[4] and impacts on surface hydrology in RSPB North Warren if a trenchless option was chosen. Concern was also expressed as to whether all alternatives to avoiding traversing the SSSI at all had been explored. **Application Document 6.2.1.3 Part 1 Introduction Chapter 3 Main Alternatives Considered** sets out the main alternatives considered in relation to the Suffolk Onshore Scheme including the reasons behind the decision to cross Leiston-Aldeburgh SSSI using a trenchless technique. Concern was also raised about the original location proposed for the River Fromus Bridge, which on its original alignment would have resulted in the loss of a veteran tree. Concern was also expressed about the potential effect of construction compounds S04/S05 on the adjacent Important Hedgerow.

2.3.5 These matters were discussed further with key consultees during further engagement on the Proposed Project.

Further Engagement

2.3.6 A total of seven terrestrial and aquatic ecology thematic meetings were held with officers from Natural England, Suffolk County Council and East Suffolk District Council between February 2024 and January 2025. Two ecology-specific meetings were held with RSPB, and one meeting with Suffolk Wildlife Trust (other meetings were held by National Grid with both organizations but were not restricted to terrestrial ecology). A separate meeting was also held with Natural England concerning Biodiversity Net Gain.

2.3.7 The above thematic meetings included discussion and progress updates on ecological survey and assessment work being undertaken. The HRA was discussed at these meetings in addition to the key results from the ecological impact assessment and proposed mitigation. Noise impacts on Leiston-Aldeburgh SSSI and Sandlings SPA were discussed, along with appropriate thresholds for noise assessment and suitable mitigation measures such as noise fencing and seasonal avoidance. The noise thresholds agreed with Natural England in thematic meetings in June 2024 are used in this impact assessment. RSPB also agreed in a thematic meeting with the use of a 60 dB LAmax threshold for noise disturbance. Trenchless proposals for traversing Leiston-Aldeburgh SSSI were discussed, including feasibility and depth of the trenchless method and risk of 'frac out'. These issues were all requested for inclusion in the assessment by consultees and are therefore covered in the impact assessment section of this chapter.

2.3.8 Impacts on other protected species were also discussed in the later thematic meetings with Natural England and the Suffolk Planning Authorities, particularly that on 17 September 2024 where an outline impact assessment for each key ecological receptor and the proposed approach to mitigation was presented and mechanisms for ensuring hedgerows remain passable by bats during construction (such as use of hurdles or similar) were suggested for consideration by the Suffolk Councils. These methods have been explored and are discussed in this impact assessment and are more fully detailed in **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan- Suffolk**. It was also at that the 17 September 2024 meeting that the Councils requested consideration of the realignment of the proposed bridge over the River

[4] Frac out is where drilling fluids may reach the surface due to fissures in the geology while undertaking trenchless bores .

Fromus further north, in order to preserve a veteran tree. The alignment of the bridge over the River Fromus was amended in response to this feedback.

2.3.9 At the ecology thematic meeting on 10 December 2024, a plan of Important Hedgerows (as identified in this impact assessment) as shared with Natural England and the Suffolk Councils, and implications of construction compound options on those Important Hedgerows was discussed. A complete draft Habitats Regulations Assessment was shared with Natural England, and with the Suffolk Councils by request, in December 2024 and comments received were taken into account in the submitted HRA and in this Chapter where relevant. All thematic meetings including main issues discussed are detailed in the Statements of Common Ground between National Grid and Natural England, and between National Grid and the Suffolk Councils.

Summary of Scope of Assessment

2.3.10 This section details what aspects have been scoped in and scoped out of the assessment through the scoping process and consultation with stakeholders.

Aspects scoped into the assessment

2.3.11 The scope of this assessment covers temporary and permanent impacts on terrestrial and freshwater aquatic biodiversity, including designated sites (statutory and non-statutory), protected species, and other rare and notable species and habitats. It includes the effects of land take, disturbance, killing and injury, disruption of habitat connectivity (where relevant), and pollution (both to air and via water). It covers the construction, operation and maintenance, and decommissioning stages.

Aspects scoped out of the assessment

2.3.12 The only aspects that have been scoped out of the assessment are the potential for further temporary habitat loss due to the operation of the Suffolk Onshore Scheme, and impacts on great crested newt, as this latter impact is to be addressed through the District Level Licensing process, an approach that has been agreed with Natural England.

2.4 Approach and Methodology

2.4.1 **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology** sets out the overarching approach which has been used in developing the ES. This section describes the technical methods used to determine the baseline conditions, importance of the receptors and magnitude of effects and sets out the significance criteria that have been used for the ecology and biodiversity assessment.

Guidance Specific to the Ecology and Biodiversity Assessment

2.4.2 The ecology and biodiversity assessment has been carried out in accordance with the following good practice guidance documents:

- Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017);
- Guidelines for Ecological Impact Assessment in the UK and Ireland. (CIEEM, 2018);
- The Dormouse Conservation Handbook (Bright P, 2006);

- Hazel dormice: advice for making planning decisions. (HM Government, 2022);
- Herpetological Workers' Manual (Gent A. &., 1998);
- Reptile Survey: An introduction to planning, conducting and interpreting surveys for snake and lizard conservation (Froglife, 1999);
- English Nature Research Report (Chanin, 2003);
- Bat Surveys for Professional Ecologists: Good Practice Guidelines (Bat Conservation Trust, 2023);
- Surveying for bats in trees and woodland (British Standards Institute , 2015);
- Surveying freshwater and terrestrial invertebrates for conservation evaluation (Harris, Cresswell, & Jefferies, 1989);
- Surveying Badgers (Drake, Lott, Alexander, & Webb, 2007);
- Handbook for Phase 1 Habitat Survey – a technique for environmental audit. (JNCC, 2010);
- Freshwater macro-invertebrate analysis of riverine samples Operational Instruction 024_08 (Environment Agency, 2014);
- Freshwater macro-invertebrate sampling in rivers Operational Instruction 018_08 (Environment Agency, 2017);
- UKTAG River Assessment Method Macrophytes (WFD-UKTAG, 2024);
- UKTAG River Assessment Method Macrophytes and Phytobenthos: Macrophytes (River LEAFPACS2) (WFD-UKTAG, 2014);
- UKTAG River Assessment Method Benthic Invertebrate Fauna: Invertebrates (General Degradation): Whalley, Hawkes, Paisley & Trigg (WHPT) metric in River Invertebrate Classification Tool (RICT) (WFD-UKTAG, 2023);
- Seine Netting for Monitoring Fish (Environment Agency, 2008);
- Guidelines for Electric Fishing Best Practice (Beaumont W. R., Taylor, Lee, & Welston, 2002);
- Monitoring the Otter (ON112) (Natural England, 2007);
- Water Vole Conservation Handbook (Strachan, Moorhouse, & Gelling, 2011);
- Bird Census Techniques (Bibby, Burgess, Hill, & Mustoe, 2000);
- Bird Survey Guidelines for assessing ecological impacts (Bird Survey & Assessment Steering Group, 2024); and
- Hedgerow Survey Handbook (DEFRA, 2007).

Baseline Data Gathering and Forecasting Methods

Desk Study

2.4.3 The desk study included a search for:

- International statutory nature conservation sites (e.g., SAC, SPA and Ramsar sites) within 10 km of the proposed Suffolk Onshore Scheme Order Limits and 30 km for

SACs designated for bats. Note that there are no SACs designated for bats within 30 km of the Suffolk Onshore Scheme Order Limits, the nearest being Paston Great Barn SAC over 70 km from the Suffolk Onshore Scheme Order Limits;

- National statutory nature conservation designations (e.g. SSSI, excluding geological SSSIs, National Nature Reserve (NNRs) and Local Nature Reserves (LNRs)) within 5 km, also referencing Natural England Impact Risk Zones for SSSIs on the Multi-Agency Geographic Information for the Countryside (MAGIC) website (DEFRA, 2024);
- Non-statutory nature conservation designations (e.g. Local Wildlife Sites (LWS) and Roadside Nature Reserves (RNR)) within 2 km; and
- Records of protected and notable species and notable habitats (e.g. Habitats of Principal Importance Section 41 of the Natural Environment and Rural Communities (NERC) Act) have also been identified up to 1 km (for most species) and 500 m (for habitats and great crested newt (*Triturus cristatus*)) from the proposed Suffolk Onshore Scheme Order Limits.

Survey Summary

2.4.4 The table below denotes the surveys undertaken, the spatial extent and the survey period for each of the surveys. Great crested newt surveys have not been undertaken as it was agreed with Natural England that any impacts on that species could be addressed through the District Licensing Scheme which essentially involves enhancing great crested newt habitat at a strategic scale rather than for individual schemes. If a developer proposing to develop land where great crested newts may live pays to join the relevant district level licensing scheme there is no requirement to carry out surveys of great crested newts or to plan and carry out mitigation work to move the newts to safety[5]. The payment must be secured by Natural England before construction commences on the Suffolk Onshore Scheme.

Table 2.6 Survey summary (Type, Extent and Timing)

Survey Type	Spatial Extent	Survey Period
Extended Phase 1 Habitat Survey	All habitats within proposed Suffolk Onshore Scheme Order Limits.	Throughout 2022 and 2023 updated by further surveys, 12-16 February 2024, 26-29 February 2024, 7-10 May 2024, and 17-20 September 2024
Detailed (Phase 2) botanical survey	Notable habitats identified within the proposed Suffolk Onshore Scheme by extended Phase 1 Habitat Survey.	28 June 2023, 10-11 June 2023, 22 May 2024
Hedgerow	Hedgerows identified within the proposed Suffolk Onshore	22-29 April 2024

[5] https://www.gov.uk/government/publications/great-crested-newts-district-level-licensing-schemes-for-developers/developers-how-to-join-the-great-crested-newt-district-level-licensing-scheme

Survey Type	Spatial Extent	Survey Period
	Scheme by extended Phase 1.	
Invasive non-native species	All habitats within the proposed Suffolk Onshore Scheme Order Limits.	As for Extended Phase 1 Habitat Surveys
Terrestrial invertebrates	Key habitats within the proposed Suffolk Onshore Scheme identified by extended Phase 1.	10 May 2024, 14 June 2024 and 4 September 2024
Common reptiles (presence/absence and population)	Suitable habitat within the proposed Suffolk Onshore Scheme.	April to May 2024 and September 2024
Intertidal birds (Low/High Tide Counts)	Tidal counts at landfall locations.	Tidal counts throughout year 2022 to 2024
Wintering birds (Field counts / inland walkovers)	Winter walkovers targeting temporary and permanent infrastructure.	Dec 2021 to April 2022, October 2022 to March 2023, October 2023 to March 2024
Breeding birds (common bird census (CBC)) in addition to specific surveys for hobby (*Falco subbuteo*), barn owl (*Tyto alba*) and nightjar (*Caprimulgus europaeus*)	Common bird census targeting permanent infrastructure.	Breeding bird: May 2022 to July 2022, April 2023 to June 2023, Aug 2023, March 2024 to June 2024 Hobby: Aug to September 2023, Aug 2024 Barn owl: July 2024 Nightjar: June 2022, May to June 2023, May 2024 Woodlark: March to April 2024
Bats (ground level tree assessment)	Trees within the proposed Suffolk Onshore Scheme.	12-29 February 2024, 7-10 May 2024, and 17-20 September 2024
Bats (presence/absence emergence/re-entry)	Trees suitable for roosting bats to be unavoidably impacted by the proposed Suffolk Onshore Scheme.	29 July 2024
Bats (tree climbing inspection)	Trees suitable for roosting bats to be unavoidably impacted by the proposed Suffolk Onshore Scheme.	16-19 July 2024
Bats (activity and statics surveys)	Transects to target permanent and temporary infrastructure, and identify impacts to rarer species.	Walkover surveys: August 2023, October 2023, May 2024, June 2024, September 2024

Survey Type	Spatial Extent	Survey Period
		Statics surveys: Aug 2023 to September 2023, May 2024 to October 2024
Hazel dormouse	Suitable hedgerows to be intersected by the proposed Suffolk Onshore Scheme and adjacent woodlands.	September 2023 to November 2023, May 2024 to October 2024
Water vole	Where watercourses are to be crossed or adjacent to the proposed Suffolk Onshore Scheme Order Limits.	June 2024, September 2024
Otter	Where watercourses are to be crossed or adjacent to the proposed Suffolk Onshore Scheme Order Limits.	June 2024, September 2024
Badger (presence/absence)	All habitats within the proposed Suffolk Onshore Scheme Order Limits and adjacent.	As for Extended Phase 1 Habitat Surveys
Aquatic macrophytes	The Main River water bodies that could be impacted within the Suffolk Onshore Scheme Order Limits.	22-23 July 2024
Aquatic invertebrates	Where watercourses are to be crossed or adjacent to the proposed Suffolk Onshore Scheme Order Limits.	21 November 2023, Spring 2024 and Autumn 2024
Fish	Where watercourses are to be crossed or adjacent to the proposed Suffolk Onshore Scheme Order Limits.	22-23 July 2024

2.4.5 A brief descriptive summary of the methodology for surveys outlined in Table 2.6 is provided below.

Extended Phase 1 Habitat Survey

2.4.6 An extended Phase 1 habitat survey has been undertaken to provide an environmental baseline for the Suffolk Onshore Scheme, identify any areas that are of potential importance for nature conservation and assist with assessing which Phase 2 surveys (see Table 3.6) would be deemed necessary to further evaluate the potential impact of the proposed Suffolk Onshore Scheme on biodiversity. Due to the size of the area requiring survey, an aerial overflight was undertaken which produced high-resolution photography. This was used to create initial habitat maps. These were then refined and ground-truthed through walkovers.

2.4.7 The walkovers involved teams of suitably qualified ecologists, who mapped the habitats based on Phase 1 classifications as described in the Handbook for Phase 1 Habitat Survey (JNCC, 2016). While on site any incidental features highlighted as being of ecological interest and are suitable for protected species were also target noted, particularly regarding trees with bat roost potential and locations of badger setts and activity.

2.4.8 The survey covered the entirety of the proposed Suffolk Onshore Scheme Order Limits and occurred throughout 2022 and 2023 with further detailed surveys and updates undertaken during 12-16 February 2024, 26-29 February 2024, 7-10 May 2024, and 17-20 September 2024. This is outside the optimal season, but was considered sufficient to classify them to habitat type. The survey is documented in **Application Document 6.3.2.2.A Appendix 2.2.A Phase 1 Habitat Survey Report** (including Badgers and Important Hedgerows).

Phase 2 Botanical Survey (Arable Plants)

2.4.9 Following the extended Phase 1 habitat surveys a detailed botanical survey was identified to be necessary, specifically for areas of arable land where uncommon arable plants were identified in field margins. This survey was undertaken on 28 June 2023 and 10-11 June 2023 and updated on 22 May 2024, as arable plants can be more difficult to identify after this time. The survey is documented in **Application Document 6.3.2.2.A Appendix 2.2.A Phase 1 Habitat Survey Report** (including Badgers and Important Hedgerows).

2.4.10 All suitable and accessible arable fields within the Suffolk Onshore Scheme were assessed for their potential to support arable flora. Given that the distribution of scarce arable plant species in the modern agricultural landscape is largely confined to arable field margins and similar areas of less intensive management, the survey only involved walking field boundaries and comparable areas of marginal habitat.

2.4.11 Lists of rare or scarce arable plant species were recorded for each field surveyed based on Criterion B of the Plantlife Important Arable Plant Areas (Plantlife, 2024). Criterion B for outstanding assemblages utilises the same methodology for identifying sites of County, National and European Importance. This scoring system tallies the weighted individual score for each species present according to their rarity and decline across Britain.

2.4.12 Leiston-Aldeburgh SSSI/North Warren RSPB Reserve is a botanically diverse site. However, as it would be traversed by a trenchless technique (drilling beneath the reserve), it was not deemed necessary to survey the vegetation on the surface in any detail.

Hedgerow Survey

2.4.13 As part of the extended Phase 1 habitat survey all hedgerows within the proposed Suffolk Onshore Scheme were noted and flagged for further survey. Detailed hedgerow surveys were used to establish the state of hedgerows, in terms of length and condition, and character of species present within the hedgerows. These were assessed against criteria detailed in The Hedgerow Regulations (HM Government, 1997)to identify which hedgerows are of particular importance for wildlife and landscape and so worthy of protection and conservation. The broad definition of a hedgerow as defined in The Hedgerow Regulations is "*Any boundary line of trees or shrubs over 20 m long and less than 5m wide, provided that at one time the trees or shrubs were more or less*

continuous. It includes an earth bank or wall only where such a feature occurs in association with a line of trees or shrubs."

2.4.14 Suitably qualified ecologists walked the lengths of hedgerows identified within the Suffolk Onshore Scheme, and surveyed sections of the hedge noting the woody species, ground flora and standard trees present, as well as any breaks in the hedge, or connectivity to other hedgerows. This species list was then be used as a condition assessment and the hedgerow was assigned a richness value. The timing of these surveys was 22-29 April, updated 17-20 September when deciduous and annual plant species are identifiable. The classification of Important Hedgerows also took account of historical criteria and criteria regarding bats specifically identified for Suffolk County (see above section on Local Planning Policy). The survey is documented in **Application Document 6.3.2.2.A Appendix 2.2.A Phase 1 Habitat Survey Report** (including Badgers and Important Hedgerows).

Invasive non-native species

2.4.15 Any invasive non-native plant species were identified as part of the extended Phase 1 habitat survey, and the location of all species, density of the stand and any other identifying features was noted. The survey is documented in **Application Document 6.3.2.2.A Appendix 2.2.A Phase 1 Habitat Survey Report** (including Badgers and Important Hedgerows).

Terrestrial invertebrates

2.4.16 Sub-sites suitable for terrestrial invertebrate surveys were selected based on their nature conservation value and on the presence of semi-natural habitats such as unimproved and semi-improved grassland, woodland and wetland vegetation. Recording of the species used various methods, such as sweep netting, sieving dead wood/leaf litter and pitfall traps as per published guidelines and identification, where possible, took place in the field, however, if this was not possible, microscopes were used within a lab.

2.4.17 The field survey aimed to sample as wide a range of invertebrates as possible, which involved the use of the following standard equipment and recommended methods:

- fine-meshed and calico sweep nets were used to sample flower-rich and other grassland and tall herb/ruderal vegetation;
- hand collection of specimens on the ground and from various types of vegetation was undertaken as the opportunity arose; and
- beating of scrub, climbers and young trees with beating tray and beater at various points within the study area was also undertaken.

2.4.18 The surveys followed sampling protocols suitable for capturing ground dwelling invertebrates. Three survey visits were undertaken on 10 May 2024, 14 June 2024 and 4 September 2024, as is suitable when Surveying Terrestrial and Freshwater Invertebrates for Conservation Evaluation (Drake, Lott, Alexander, & Webb, 2007) by experienced entomologists. The sampling protocols consisted of grubbing or hand searching refugia, sweep netting, and visual checks (spot observations). The survey is reported in **Application Document 6.3.2.2.G Appendix 2.2.G Terrestrial Invertebrates Report**.

Common reptiles

2.4.19 Reptile surveys were undertaken to determine the presence/absence of reptiles in suitable habitat including as rough grassland, verges, and scrub through the deployment of artificial refugia. The use of artificial refugia is the most commonly used method for locating reptiles. All reptiles tend to use certain materials that warm up in the sun and the use of artificial refugia exploits this tendency by providing a suitable basking site, as well as an area to avoid predation (Gent & Gibson, 2003).

2.4.20 The refugia was deployed and allowed at least two weeks for the reptiles to become used to them. They were distributed across the proposed Suffolk Onshore Scheme where suitable habitat was present in a suitable density (10 per hectare as a minimum). The refugia was a combination of corrugated metal-based roofing material sheets and roofing felt (measuring approximately 0.5 m by 0.5 m). These were placed in sunny locations near to cover, such as the edge of scrub and woodland patches, grassy banks and south facing areas. Suitable habitat was visually inspected for evidence of reptile activity, including dead/alive reptiles and shed skins. Potential basking spots were targeted, including the edge of hardstanding areas, pathways, short grassland habitats and drain sides (Froglife, 1999).

2.4.21 To establish presence or absence of reptiles, seven visits in suitable weather conditions (within a constant temperature range of between 10 – 20°C) took place between April and May 2024 and then in September 2024. Appropriate weather is typically encountered in the spring and late summer/autumn. All refugia were checked and any reptile species was recorded (Sewell, Griffiths, Beebee, Foster, & Wilkinson, 2013). Since reptiles sometimes use different habitats at different times of day, the survey visits were undertaken at different times of day. The survey is reported in **Application Document 6.3.2.2.E Appendix 2.2.E Reptiles Survey Report**.

Wintering Birds

2.4.22 The field surveys for wintering birds are based on the transect methodologies detailed by Bird Census Techniques (Bibby, Burgess, Hill, & Mustoe, 2000) and Bird Monitoring Methods (Gilbert, Gibbons, & Evans, Bird Monitoring Methods: A Manual of Techniques for Key UK Species., 1998). During each survey visit, a suitably experienced ornithologist walked a transect route through the survey area using the Public Rights of Way (PRoW) and the best possible route accessible to capture the proposed Suffolk Onshore Scheme. For the 2022-2023 season these generally involved surveys from PRoW, although given the number of PRoW in the area this still enabled good coverage. Survey access during the 2023-2024 season was more comprehensive. Transect routes were interspersed with stops at viewing points during which the survey area was scanned for birds using binoculars. Visual counts of all bird species encountered were made, with birds that could not be located visually identified through vocalizations. The species present and their behaviours are recorded on field maps using standard British Trust for Ornithology (BTO) species codes and behaviour notation. The survey is reported in **Application Document 6.3.2.2.B Appendix 2.2.B Suffolk Wintering Birds Report**.

Waterbirds at landfall locations

2.4.23 At the Suffolk landfall there are no intertidal habitats present, with the coastal zone comprising a narrow shingle beach with a very small littoral zone of mobile shingle, approximately 10 m wide between high water and low water. The beach area is also

subject to heavy disturbance and so is of limited value to waterbirds. Surveys at the Suffolk landfall therefore, focussed on the grazing marsh and habitats inland from this.

2.4.24 The habitats inland of the landfall/beach area (i.e. the North Warren RSPB reserve) comprise grazing marshes with embedded freshwater wetlands, including lagoons and reed beds which are all bisected by several ditches.

2.4.25 A transect route was walked at high and low tides, in line with the Wetland Bird Survey (WeBS) methodology, by two suitably qualified ecologists (one of which was a highly experienced ornithologist). Counts were conducted during the day within two hours either side of high tide or low tide, to understand whether tidal state may have an influence on bird occurrence, i.e. whether bird numbers would fluctuate due to birds moving onto the Count Site primarily from the Alde and Ore Estuary SPA, SAC and Ramsar. The primary objective was to record wetland bird species, including birds of prey, but also any notable passerine species, such as woodlark and Dartford warbler (*Sylvia undata*), for which suitable habitat was present adjacent to the landfall/beach area within and along the periphery of the North Warren RSPB reserve.

Breeding birds

2.4.26 Breeding bird survey uses a territory-mapping approach to estimate the number and positions of territories of each species present in a survey area during the breeding season. This method followed the standard territory mapping methodology as detailed in '*Bird Monitoring Methods*' (Gilbert, Gibbons, & Evans, Bird Monitoring Methods: A manual of techniques for key UK species., 1998) and '*Bird Census Techniques*' (Bibby, Burgess, Hill, & Mustoe, 2000). Survey areas were used to target areas where there would be new permanent infrastructure, although as for wintering birds all suitable habitat within the proposed Suffolk Onshore Scheme was covered as temporary works can also have significant effects. Survey routes were mapped, and the direction walked alternated on each visit, to ensure that all areas were covered at various times of day across the duration of the survey. Two suitably qualified ecologists undertook a walkover of the survey area and recorded all species of breeding birds present, and detailed bird behaviour, including singing, calling, flights and movements between areas, carrying food, nest building, aggressive encounters, and other bird behaviour. Although all species were recorded, the survey paid particular focus to 'target species', including woodlark, nightjar and wetland birds associated with the statutorily designated sites (SSSIs, SPAs, SACs and Ramsar sites). Other 'target species' included raptors (e.g. hobby (Schedule 1)), Schedule 1 species, SPI and BoCC Red and Amber status species (Stanbury, et al., 2021) Six survey visits, approximately two weeks apart, were undertaken between May and July 2022, April and June 2023 and March and June 2024. For part of the 2023 breeding bird survey this was done from PRoW, but as with the wintering bird surveys provided good coverage. Access for the remainder of the 2023 season and 2024 season was comprehensive.

2.4.27 The 2023 breeding bird surveys also included a targeted hobby survey, which involved two survey visits, between late August to early September and covered the same areas as the breeding bird surveys. During the hobby surveys, the buffer zones were extended by up to 1 km over the majority of the Survey Area due to the conspicuousness of family parties of this species. Particular attention was paid to locations where hobbies had been seen during the breeding bird surveys in Spring/early Summer of each survey year.

2.4.28 Separate woodlark surveys took place from March to April in 2023 and 2024. The surveys followed similar routes to those of the breeding bird surveys but utilised the transects, or parts of the transects, that covered suitable woodlark nesting/breeding

habitat. These included arable fields with scattered woodland and hedges and areas of acid grassland/heathland along the landfall/beach area, just west of the NWRSPB Reserve. The wintering 2023 and 2024 bird survey records of woodlark were combined with the Spring/Summer data to supplement the territory mapping.

2.4.29 Targeted nightjar surveys were conducted during evening visits commencing 30 minutes prior to sunset from June 2022, May to June in 2023 and May 2024. The surveys involved a moderately slow walk with frequent stops to scan and listen for singing and calling nightjars. The survey locations were the North Warren RSPB reserve and Aldeburgh golf course, as no other land was deemed as suitable breeding habitat for this species.

2.4.30 Barn owl surveys were also conducted in July 2024 over three weeks by surveying potential nesting/roosting sites (where access was possible) such as farm buildings and trees, from predetermined vantage points. Each potential nesting site was visited at least once to establish the presence of nesting barn owls. The aim of these surveys was to establish the presence of nests where possible. However, because access was a limiting factor, the surveys could only prove presence and not absence.

2.4.31 Breeding bird surveys are reported in **Application Document 6.3.2.2.C Appendix 2.2.C Suffolk Breeding Bird Report**.

Bat roost survey

2.4.32 An initial Daytime Bat Walkover (DBW) was undertaken as part of the extended Phase 1 habitat survey to identify trees with potential for bat roosts. Suitability was assigned and categorised as 'none' (i.e. no potential roost features (PRF) or highly unlikely to be any), 'FAR' (further assessment required) or 'PRF' (at least one PRF present). For those with PRF, a Ground Level Tree Assessment (GLTA) was completed. This was undertaken in accordance with the current Bat Conservation Trust (BCT) survey guidelines (Collins, 2023) and BS 8596:2015 Surveying for bats in trees and woodland. Trees were examined from the ground using close focusing binoculars for features such as loose bark, cavities and ivy that could be utilised by bats. Trees were also checked for any signs of bats such as droppings, scratch marks, staining and feeding remains. Based on this inspection, each tree was then classified using a scale of likely none (no potential roost features (PRF)), likely PRF-I (i.e. suitable for individual or small numbers of bats), or likely PRF-M (i.e. suitable for multiple bats, so could potentially support a maternity roost). The survey is reported in **Application Document 6.3.2.2.H Appendix 2.2.H Bat Tree Survey Report**.

Bat activity transect survey

2.4.33 Bat activity transects were undertaken within suitable habitats within the proposed Suffolk Onshore Scheme. These are focused on areas where permanent infrastructure would be built along the route but also cover areas of temporary habitat loss. The proposed Suffolk Onshore Scheme was divided into nine transects designed to include potential flight paths or foraging areas within the proposed Suffolk Onshore Scheme. Two surveyors walked a transect route which included a series of 'spot counts' at pre-determined points along the transects, located at potentially important features with regards to foraging or commuting bats.

2.4.34 Three surveys were undertaken during summer (August 2023) and autumn (October 2023) and spring (May/June/September 2024). This is the necessary level of survey effort for low suitability habitat, but also reflects the fact that the vast majority of habitat

impacts would be temporary, with relatively little permanent habitat loss from habitats suitable for bats.

2.4.35 The time, location, number, species (where possible) and direction of flight was recorded for each bat pass (discrete burst of echolocation heard or bat activity observed) encountered during the survey.

2.4.36 Static bat detectors were used to supplement the transect survey and were placed in representative habitats to record bat activity over a longer period of time. Static devices were mounted within hedgerows at least 1 m above ground level and with the detection zone in front of the microphone free of any obstructions (e.g. branches, leaves). Static detectors were generally deployed for at least five consecutive nights in tandem with activity transect surveys. Recordings were analysed to determine species present and activity with an estimate of relative bat activity, known as a 'bat activity index'. The survey is reported in **Application Document 6.3.2.2.I Appendix 2.2.I Nighttime Bat Walkover and Static Detector Survey Report**.

Hazel dormouse

2.4.37 Survey methodology for dormice reflects the life-cycle of this species and requires the installation of artificial nest boxes or tubes in suitable woodland and hedgerows, which are checked on a bi-monthly basis by a suitably qualified ecologist for the presence of dormouse (*Muscardinus avellanarius*) nests and individuals.

2.4.38 At least 50 nest tubes per-zone were deployed at a spacing of 15-20 m intervals. They were kept in place for the majority of the active season (April to November) and checked once every other month to maximise the chance of detecting any dormice present (Bright, Morris, & Mitchell-Jones, 2006). In this case, nest tubes were installed from July 2023 and remained in situ until October 2024. The survey is reported in **Application Document 6.3.2.2.J Appendix 2.2.J Hazel Dormouse Survey Report**.

Water vole

2.4.39 Water vole surveys were undertaken on aquatic habitats that are to be crossed by the proposed Suffolk Onshore Scheme or lie directly adjacent to the proposed Suffolk Onshore Scheme. The survey not only covered the crossing point but a stretch of watercourse 100 m either side of the crossing point where possible. These were subject to a detailed search for water vole field signs including latrine sites, feeding stations, burrows, paths and runs, sightings and sounds of individuals entering the water.

2.4.40 Two surveys were undertaken to determine water vole presence/likely absence. One during June 2024, and the second during September 2024. Surveys were not undertaken following periods of heavy rain (taken to be >0.3 inches of rain falling in one hour) and/or high-water levels, or after bankside or in-channel management had taken place. These factors can obscure/remove signs of water vole presence and result in false negative survey results (Strachan, Moorhouse, & Gelling, 2011). The survey is reported in **Application Document 6.3.2.2.D Appendix 2.2.D Riparian Mammals Survey Report**.

Otter

2.4.41 Otter surveys were undertaken on aquatic habitats that are to be crossed by the proposed Suffolk Onshore Scheme or lie directly adjacent to the proposed Suffolk Onshore Scheme simultaneously with the water vole surveys. At least 100 m upstream and downstream of the watercourse from the footprint of the potential impact (direct or

indirect) was surveyed. These locations were subject to detailed searched for field signs of otters indicating presence/absence. These field signs include spraints, footprints, feeding remains, slides and haul-outs, couches and hovers, and holts.

2.4.42 Otter surveys were carried out June 2024 and during September 2024. Surveys were not undertaken following periods of heavy rain and/or high-water levels as these factors can obscure/remove signs of otter presence and result in false negative survey results. A minimum of one survey visit is required for each suitable aquatic or terrestrial habitat feature. The survey is reported in **Application Document 6.3.2.2.D Appendix 2.2.D Riparian Mammals Survey Report**.

Badger

2.4.43 Badger surveys included an initial habitats assessment undertaken within the footprint of the proposed Suffolk Onshore Scheme (including all temporary and permanent works) and all suitable habitat within 50 m to 100 m of the proposed Suffolk Onshore Scheme Order Limits for badger field signs. This was undertaken as part of the extended Phase 1 habitat survey.

2.4.44 Signs of badgers' presence were recorded including setts (categorised as main, annexe, subsidiary or outlier), latrines (dung pits), tracks, hairs caught on fences and vegetation, footprints, distinctive pathways through vegetation, scratching posts, feeding signs, snuffle holes in grassland and day laydowns (Harris, Cresswell, & Jefferies, 1989). The survey is reported in **Application Document 6.3.2.2.A Appendix 2.2.A Phase 1 Habitat Survey Report** (including Badgers and Important Hedgerows).

Aquatic macrophytes

2.4.45 Aquatic macrophyte (plant) surveys were undertaken in July 2024 at three survey locations along the River Fromus and the Hundred River. These were led by a suitably qualified ecologist. The Hundred River was originally to be surveyed centered on National Grid Reference (NGR) TM 42764 61351, however at the time of the survey this reach was found to be dry and entirely colonised by a terrestrial macrophyte community. Consequently, the survey was undertaken downstream where the Hundred River was consistently wet and possessed an aquatic macrophyte community.

2.4.46 The aquatic macrophyte surveys followed guidance set out in the UKTAG River Assessment Method (Macrophytes and Phytobenthos) for use with LEAFPACS2 (WFD-UKTAG, 2014), which conforms to BS EN 14184:2014 Water quality - Guidance for the surveying of aquatic macrophytes in running waters. The survey was carried out by walking within the channel of each watercourse along a 100m transect, where safely accessible. Any inaccessible areas were bypassed as necessary before re-entering the channel at the next available access point. A list of all macrophytes encountered was collated and their relative abundance was recorded using Taxon Cover Values (TCV). The survey is reported in **Application Document 6.3.2.2.F Appendix 2.2.F Aquatic Ecology Survey Report**.

Aquatic macroinvertebrates

2.4.47 The aquatic macroinvertebrate surveys were undertaken in November 2023 and May and November 2024 by suitably qualified and experienced aquatic ecologists. Sampling procedures followed those standardized by the Environment Agency (Environment Agency, 2017), which conforms to BS EN ISO 10870:2012 Water Quality – Guidelines for the selection of sampling methods and devices for benthic macroinvertebrates in

fresh waters. These methods allow the characterization of aquatic macroinvertebrate communities and can be used to determine whether rare or notable species or communities are present.

2.4.48 All collected samples were sorted and analysed in a laboratory setting by suitably trained and experienced aquatic ecologists. Lists of the aquatic macroinvertebrate taxa present were produced in line with Environment Agency guidance (Environment Agency, 2014). The survey is reported in **Application Document 6.3.2.2.F Appendix 2.2.F Aquatic Ecology Survey Report**.

Fish

2.4.49 Fish surveys were undertaken in July 2024 at the River Fromus by a team of four experienced aquatic ecologists.

2.4.50 A semi-quantitative electric fishing survey was completed at the River Fromus where safely accessible. Sampling procedure followed standard Environment Agency guidelines ((Beaumont W. , Taylor, Lee, & Welston, 2002). The survey was completed in an upstream direction using a bankside electrofishing kit consisting of an Electracatch WFC4 control box with Pramac 4000 generator and single anode. This equipment was chosen after careful consideration of water depth and stream width (i.e., depth <0.8m and stream width being an average of 4 m). The river reach surveyed was approximately 60 m in length. The length was limited due to obstructions of fallen trees and debris within the watercourse. Caught fish were placed in well aerated holding buckets on the river margins and identified to species level. Their fork length was measured to the nearest mm before being released safely and unharmed back into the watercourse. The survey is reported in **Application Document 6.3.2.2.F Appendix 2.2.F Aquatic Ecology Survey Report**.

Assessment Criteria

2.4.51 The adopted assessment methodology has been created with reference to the CIEEM guidelines (CIEEM, 2018). It has been adapted as necessary to ensure that it is also in alignment with the assessment approach in other ES chapters, but the use of the CIEEM approach means that the assessment diverts from some of the terminology used in **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology** to describe value/importance, magnitude (notably by including ‘very low’ and ‘negligible’ to define value or importance of receptors).

Importance of ecology receptors

2.4.52 CIEEM guidelines are not prescriptive about how to assign value to particular ecological features or receptors. For the purposes of this assessment, importance of sites uses established value systems (e.g., SSSIs are all of national importance and thus are classified as being sensitive at that scale) and reflects the geographical context of the valuation. In assessing the value or importance of the Order Limits for a particular ecological feature or receptor, consideration is given to the role of the Order Limits in ecological structure and function. The categories shown in Table 2.7 are applied to give geographic context.

Table 2.7 Examples of criteria used to evaluate important ecological features in a defined geographical context

Geographical level at which ecological feature is important	Example of criteria
International (Very High)	An internationally important site, e.g. SPA, SAC or Ramsar; a regularly occurring population of an internationally important species (listed on Annex IV of the Habitats Directive).
National (High)	A nationally designated site, e.g. SSSI, or a site considered worthy of such designation; a large regularly occurring population of a nationally important species.
Regional (Medium)	For the purposes of this assessment the region is typically synonymous with importance at the Suffolk level. An ecological feature identified in the local BAP of which there is a significant resource in the survey area. A smaller area of local BAP habitat essential to maintain the viability of a larger whole; non-statutory designated sites; a regularly occurring, locally significant number of a nationally important species. An ecological feature identified as of priority within Section 41 of the NERC Act 2006.
District (Low)	An ecological feature that is scarce within the district or borough (in this case East Suffolk District) or which appreciably enriches the district or borough habitat resource.
Local (Very Low)	A good example of a common or widespread ecological feature in the local area.
Negligible	No or very limited ecological value.

2.4.53 The District criterion adds a level of detail that is not present in the sensitivity scale described in **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology**. It reflects the fact that in ecological terms there is a tier of ecological importance between Regional and Local.

Magnitude of ecology impacts

2.4.54 In line with section 1.2 in the CIEEM guidelines (CIEEM, 2018), the terminology used within this chapter draws a clear distinction between the terms ‘impact’ and ‘effect’. For the purposes of this Chapter these terms are defined as follows:

- Impact – actions resulting in changes to an ecological feature. For example, construction or decommissioning activities of a development removing a hedgerow.
- Effect – outcome resulting from impact acting upon the conservation status or structure and function of an ecological feature. For example, the effects on a population of bats as a result of the loss of a bat roost.

2.4.55 The CIEEM guidelines are not prescriptive about how to define the magnitude of an impact, but when describing potential impacts, consideration has been given to the following characteristics likely to influence this (Sections 5.11-5.18 in the CIEEM guidelines (CIEEM, 2018)):

- Positive / Negative – i.e. is the change likely to be in accordance with nature conservation objectives and policy:
  - Positive – a change that improves the quality of the environment or halts or slows an existing decline in quality e.g. increasing the extent of a habitat of conservation value.
  - Negative – a change that reduces the quality of the environment, e.g. destruction of habitat.
- Extent – the spatial or geographical area or distance over which the impact/effect occurs;
- Magnitude – the 'size', 'amount' or 'intensity' and 'volume' of an impact - this is described on a quantitative basis where possible. For the purposes of this assessment the impact magnitude has then been classified as negligible, minor, moderate or major (either positive of negative);
- Duration – the time over which an impact is expected to last prior to recovery or replacement of the resource or feature. Consideration has been given to how this duration relates to relevant ecological characteristics such as a species' lifecycle. However, it is not always appropriate to report the duration of impacts in these terms. The duration of an effect may be longer than the duration of an activity or impact. For the purposes of this assessment short-term has generally been defined as less than two years, medium term as 2-10 years and long-term as 10 years and upwards;
- Timing and frequency – i.e. consideration of the point at which the impact occurs in relation to critical life-stages or seasons; and
- Reversibility – i.e. is the impact temporary or permanent. A temporary impact is one from which recovery is possible or for which effective mitigation is both possible and enforceable. A permanent effect is one from which recovery is either not possible or cannot be achieved within a reasonable timescale (in the context of the feature being assessed).

2.4.56 Cumulative effects have been assessed and are those occurring from several sources (also known as inter-relationships) and/or the combined effects of other developments in the area. These are reported within **Application Document 6.2.2.13 Part 2 Suffolk Chapter 13 Suffolk Onshore Scheme Inter-Project Cumulative Effects**.

Significance of effects

2.4.57 The CIEEM guidance does not prescribe a rigid matrix approach to relating impacts magnitude of a receptor of a given value/importance to a magnitude of effect (what other topics may refer to as 'significance level' in relation to the assessment of effects). Rather it is arrived at based on professional judgment. That is how the assessment has been undertaken in this chapter. The basis for the decision in each case is explained in each section of the impact assessment. In general, a given magnitude of impact has been translated to the same magnitude of effect.

2.4.58 The potential magnitude of effect is discussed in Table 2.8. This is then related to an overall conclusion of significant or not significant. This is a matter for judgment but in general minor positive or adverse effects are not significant, while moderate beneficial or adverse effects may be significant. Major beneficial or adverse effects would normally be significant.

Table 2.8 Relating CIEEM assessment terms to those used in other chapters

Effect classification terminology used in other chapters	Equivalent CIEEM assessment
Major beneficial (positive)	1) Permanent addition of, improvement to, or restoration of a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact positively affects the integrity or key characteristics of the resource.
Moderate beneficial (positive)	1) Permanent or temporary (depending on magnitude and duration) addition of, improvement to, or restoration of a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact positively affects the integrity or key characteristics of the resource.
Minor beneficial (positive)	1) Permanent addition of, improvement to, or restoration of a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Negligible	1) Effective absence of damage to or enhancement of a biodiversity resource, either because there is no meaningful impact pathway ; and/or 2) the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Minor adverse (negative)	1) Temporary/reversible damage to a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Moderate adverse (negative)	1) Permanent/irreversible or temporary (depending on magnitude and duration) damage to a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact negatively affects the integrity or key characteristics of the resource.
Major adverse (negative)	1) Permanent/irreversible damage to a biodiversity resource; and

Effect classification terminology used in other chapters	Equivalent CIEEM assessment
	2) the extent, magnitude, frequency, and/or timing of an impact negatively affects the integrity or key characteristics of the resource.

2.4.59 Despite the definitions of 'moderate adverse' and 'major adverse' being identical, professional judgment has been used to distinguish between moderate and major impacts, taking account of the scale, duration, or reversibility. According to CIEEM guidance, a significant effect is simply an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project.

Assumptions and Limitations

2.4.60 Any limitations relevant to particular surveys are identified in the relevant survey report appendices. Information obtained during the course of a desk study is dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for particular habitats or species does not necessarily mean that the habitats or species do not occur in the area for which data was reviewed. Likewise, the presence of records for particular habitats and species does not automatically mean that these still occur within the area of interest. Desk top studies and surveys are a snapshot in time and have a limited longevity (2 years).

2.5 Basis of Assessment

2.5.1 This section sets out the assumptions that have been made in respect of design flexibility maintained within the Proposed Project and the consideration that has been given to alternative scenarios and the sensitivity of the assessment to changes in the construction commencement year.

2.5.2 Details of the available flexibility and assessment scenarios are presented in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project** and **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology**.

Flexibility Assumptions

2.5.3 The environmental assessments have been undertaken based on the description of the Proposed Project provided in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**. To take account of the flexibility allowed in the Proposed Project, consideration has been given to the potential for effects to be of greater or different significance should any of the permanent or temporary infrastructure elements be moved within the Limits of Deviation (LoD) or Order Limits.

2.5.4 The assumptions made regarding the use of flexibility for the main assessment, and any alternatives assumptions are set out in Table 2.9.

Table 2.9 Flexibility assumptions

Element of flexibility	How it has been considered within the assessment
Lateral LoD HVDC/HVAC cables	For the HVDC and HVAC cables the indicative alignments have been used as a reference but the assessment has assumed that in practice the cable could be laid anywhere within the lateral limit of deviation.
Lateral LoD Saxmundham Converter Station and Friston Substation	For the Saxmundham Converter Station and Friston ~~Susbtation~~Sub station the indicative location has been used as a reference but the assessment has assumed that in practice the Saxmundham Converter Station and Friston Substation could be laid anywhere within the lateral limit of deviation. Since the LoD covers a single large arable field this does not materially affect the ecological assessment.
Vertical LoD Saxmundham Converter Station and Friston Substation	Not relevant to ecological assessment.
Lateral and Vertical LoD overhead line (where Friston Substation is built as part of the Proposed Project).	For the proposed overhead line works the indicative alignment has been used as a reference but the assessment has assumed that in practice any new pylons could be installed anywhere within the lateral limit of deviation. The vertical LoD has been assumed for any new pylons.
Order Limits – temporary construction works	The assessment has considered the possibility of construction impacts happening anywhere within the Order Limits. Where the construction compounds and other features (e.g. culverts on ditches or the bridge over the River Fromus) have been given indicative locations, those have been the main basis of assessment. These are considered representative of the worst-case impacts within the Order Limits.

Consideration of Scenarios

2.5.5 The following scenarios with regards to Friston Substation have been considered in the assessment as explained in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**:

- Friston Substation is constructed under the development consent granted to Scottish Power Renewable (SPR), pursuant to 'The East Anglia ONE North (EA1N) Offshore Wind Farm Order 2022' and 'The East Anglia TWO (EA2) Offshore Wind Farm Order 2022'; or
- Friston Substation is built as part of the Proposed Project.

2.5.6 As a worst-case scenario it has been assumed Friston Substation is built as part of the Proposed Project. If the substation is delivered by SPR the temporary and permanent habitat loss impacts (reported in paragraphs 2.9.53 to 2.9.71 and 2.9.189 to 2.9.193) as a result of the Proposed Project would be reduced from those reported in those sections, although the cumulative impact of Proposed Project and SPR's Substation would be the same. This would therefore also reduce the scale of land take in the sections on protected or notable species. However, the change is unlikely to alter the judgments of magnitude (given that this are not precisely tied to particular quantities) or significance.

2.5.7 The following options with regards to the proposed bridge over the River Fromus have been considered in the assessment as described **in Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**:

- Option 1 - A bridge height of up to 6 m from the ground level at the abutment to the top of the parapet (which is also 6 m from the Q95 flow level to the bridge soffit) with 62 m long approach ramps; or
- Option 2 - A bridge height of up to 4 m from the ground level at the abutment to the top of the parapet (which is also 4 m from the Q95 flow level to the bridge soffit) with 42 m long approach ramps.

2.5.8 Where this makes a difference to the impact assessment (e.g. extent of habitat loss) the difference between the two alternative sizes of bridge is distinguished within the assessment.

2.5.9 It has also been assumed that any of the three alternative construction compounds included in the Order Limits could be the chosen compound for construction of the Saxmundham Converter Station.

Sensitivity Test

2.5.10 It is likely that under the terms of the DCO, construction could commence in any year up to five years from the granting of the DCO, which is assumed to be 2026. Overall construction duration has been assumed to be approximately five years. Consideration has been given to whether the effects reported would be any different if the works were to commence in any year up to year five. Where there is a difference, this is reported in Section 2.12.

2.6 Study Area

2.6.1 The study area for ecological surveys includes the land within the proposed Suffolk Onshore Scheme Order Limits and appropriate ZOI, as described in the following sections.

2.6.2 The Zones of Influence for the ecology and biodiversity study area reflect standard industry good practice and the distances that statutory consultees would typically expect to be considered for identification of features external to the Suffolk Onshore Scheme

that could be affected. This is informed by published guidance and professional judgement. The Zones of Influence vary for each receptor and impact pathway but are discussed, where relevant, in the impact assessment reported in Section 2.9.

2.6.3 The nature of the Suffolk Onshore Scheme influences the study area as it determines the likely impact pathways and their zones of influence. As a precaution, all statutory national designated sites up to 5 km and non-statutory designated sites up to 2 km from the proposed Suffolk Onshore Scheme Order Limits were identified and considered, along with all internationally important sites up to 10 km distant. These are shown on **Application Document 6.4.2.2.A.5 Suffolk Designated Sites.**

2.6.4 However, most impacts would be restricted to the area within the proposed Suffolk Onshore Scheme itself, particularly due to habitat loss from the footprint of the temporary and permanent works. Some construction or decommissioning-period impacts from within the Order Limits can affect receptors a small distance beyond the Order Limits, notably noise (which could affect receptors up to 200 m from the source or beyond), and dust (which according to Institute of Air Quality Management guidance (Institute of Air Quality Management, 2024) can significantly affect receptors up to 50 m from the source). Feedback from Natural England in relation to the air quality assessment recommended a similar distance to that used for human health impacts (i.e. 250 m) specifically for dust. Therefore, in this chapter 250 m is used for dust impacts as a worst-case. Due to the distances between the Proposed Development and designated sites, no new designated sites are introduced by using a 250 m distance and the assessment of impacts on habitats does not change using a 250 m rather than 200 m distance.

2.7 Baseline Conditions

Designated Sites

2.7.1 The information to inform Habitats Regulations Screening that constitutes **Application Document 6.6 Habitats Regulations Assessment Report** identifies that there are five SPAs, SACs or Ramsar sites within 10 km of the proposed Suffolk Onshore Scheme Order Limits. These are Sandlings SPA, 20 m from the trenchless drive compound (S10) and with a monitoring access within the boundary on an existing track; Outer Thames Estuary SPA, 860 m east of the landfall; Alde-Ore Estuary SAC/SPA/Ramsar site, 700 m south of the engineering works in the proposed Suffolk Onshore Scheme Order Limits (and approximately 100m from an area of habitat enhancement); Minsmere-Walberswick SAC/SPA/Ramsar, 5.5 km north of the proposed Suffolk Onshore Scheme Order Limits; Outer Thames Estuary SPA, 800 m east of the landfall; and Southern North Sea SAC, 1.5 km east of the landfall. **Application Document 6.6 Habitat Regulations Assessment Report** contains full descriptions of the interest features of these sites, but in summary:

- Sandling SPA – designated for its population of nesting nightjar and woodlark;
- Outer Thames Estuary SPA – designated for its population of non-breeding red-throated diver (Gavia stellata) and to protect foraging waters for tern species that nest elsewhere along the coast;
- Alde-Ore Estuary SPA - The site is designated for its breeding and wintering birds, including shelduck (*Tadorna tadorna*), wigeon (*Anas penelope*), teal (*Anas crecca*), gadwall (*Anas strepera*), shoveler (*Anas clypeata*) and herring gull (*Larus argentatus*);

- Alde-Ore Estuary Ramsar - The site is designated as a Ramsar site for its nationally-scarce plant species, assemblages of breeding and wintering wetland birds, and internationally important numbers of breeding lesser black-backed gull (Larus fuscus), and wintering avocet (*Recurvirostra avosetta*) and common redshank (*Tringa totanus*);
- Alde-Ore & Butley Estuaries SAC - The site is designated as an SAC for its coastal lagoons, perennial and annual shingle vegetation features.
- Minsmere-Walberswick Heaths & Marshes SAC – The site is designated for its heathland, its annual vegetation of drift-lines and its perennial vegetation of stony banks;
- Minsmere-Walberswick SPA - The site is designated for its breeding and wintering birds, including bittern (*Botaurus stellaris*), teal, marsh harrier (Circus aeruginosus), nightjar and greater white-fronted goose (Anser albifrons);
- Minsmere-Walberswick Ramsar site – The site is designated for its mosaic of marine, freshwater, marshland and associated habitats and for supporting nine nationally scarce plants and at least 26 red data book invertebrates; and
- Southern North Sea SAC – designated for its population of harbour porpoise (*Phocoena phocoena*).

2.7.2 There are seven ecological SSSIs within 5 km of the proposed Suffolk Onshore Scheme Order Limits, the closest of which is Leiston-Aldeburgh SSSI located adjacent to the surface works for the proposed Suffolk Onshore Scheme, with a trenchless cable crossing beneath the site, and covering the same area as Sandlings SPA. These are:

- Leiston-Aldeburgh SSSI – Designated for a variety of breeding and non-breeding birds including nightjar, woodlark, and white-fronted goose, as well as for coastal vegetated shingle, ditches, acid grassland, heathland, fens, wet woodland and outstanding dragonfly and vascular plant assemblages. It overlaps with Sandlings SPA and is 20 m from the trenchless drive compound (S10) and has a monitoring access using an existing track within it;
- Alde-Ore Estuary SSSI - Designated for a wide range of breeding and non-breeding birds as well as its invertebrate assemblage, littoral sediment, starlet sea anemone (*Nematostella vectensis*), lagoons, saltmarsh and vascular plant assemblage. It overlaps with Alde-Ore Estuary SPA and is 700 m south of the proposed Suffolk Onshore Scheme Order Limits;
- Gromford Meadow SSSI - designated for its lowland mire and rush pasture located 2 km from the proposed Suffolk Onshore Scheme Order Limits;
- Sizewell Marshes SSSI – designated for its breeding birds of damp grasslands, mire, fen, ditches and rush pasture, its invertebrate assemblage and its vascular plant assemblage. It overlaps with Minsmere-Walberswick SPA and is located 3.4 km north of proposed Suffolk Onshore Scheme Order Limits;
- Iken Wood SSSI - designated for its lowland mixed deciduous woodland, located 3.6 km from the proposed Suffolk Onshore Scheme Order Limits;
- Sandlings Forest SSSI – designated for its breeding nightjar and woodlark and overlapping with Sandlings SPA; and

- Snape Warren SSSI – designated for its floodplain fen, lowland dry acid grassland and lowland dry heath. Located 1.3 km south of the proposed Suffolk Onshore Scheme Order Limits.

2.7.3 The Haven, Aldeburgh Local Nature Reserve lies on the coast approximately 600 m east of the closest surface construction works (the landfall and associated construction compound S10). RSPB North Warren Reserve is located adjacent to the landfall and associated construction compound S10. It supports a wide range of breeding and non-breeding birds as well as other wildlife.

2.7.4 There are 17 non-statutory County Wildlife Sites (CWS) or roadside nature reserves within 2 km of the proposed Suffolk Onshore Scheme Order Limits. These do not have specific citations or designated features but are Roadside Nature Reserve (RNR) 216, Tiggins Lane RNR, Lonely Wood CWS, Benhall Churchyard CWS, Manor Farm Meadows CWS, Aldeburgh Golf Course CWS, Grove Wood CWS, Knodishall Common CWS, Buckles Wood CWS, Kelsale Morio Meadow CWS, Benhall Green Meadows CWS, Church Common CWS, Disused Railway Line (Aldringham – Aldeburgh) CWS, Suffolk Shingle Beaches CWS, Knodishall Whin CWS, Aldeburgh Old Allotments CWS, and Great Wood CWS.

2.7.5 Great Wood CWS, Grove Wood CWS, and Disused Railway Line CWS are the closest of these to the Proposed Project and are located adjacent to the proposed Suffolk Onshore Scheme.

2.7.6 The SPAs, SACs and Ramsar sites are all of **International** importance. The SSSIs are of **National** importance, while the county wildlife sites are of **Regional** importance.

Habitats

2.7.7 This survey is reported in **Application Document 6.3.2.2.A Appendix 2.2.A Phase 1 Habitat Survey Report (including Badgers and Important Hedgerows)** and **Application Document 6.4.2.2.A.1 Suffolk Phase 1 Survey Results** identifies the locations of habitats discussed in this chapter. The majority of the proposed Suffolk Onshore Scheme, west of Aldeburgh golf course, consists of arable crops. Crops recorded as being present included barley (*Hordeum vulgare*). Fields of amenity grassland grown for turf were also present within and adjacent to the proposed Suffolk Onshore Scheme.

2.7.8 There are multiple small woodland blocks across the survey area, the majority of which are outside of the Suffolk Onshore Scheme Order Limits. This includes Great Wood (DEFRA, 2024) which is approximately 100 m north of the Suffolk Onshore Scheme Order Limits (a monitoring access) and 200 m north of the cable route. It also includes Grove Wood, which is a minimum of 25 m south of the Suffolk Onshore Scheme cable route (although a monitoring access would lie on an existing track immediately north of the wood). These are both considered Ancient Woodland. Woodlands in the survey area include a mix of species including oak (*Quercus robur*), ash (*Fraxinus excelsior*), field maple (*Acer campestre*), sycamore (*Acer pseudoplatanus*), horse chestnut (*Aesculus hippocastanum*), wych elm (*Ulmus glabra*), hazel (*Corylus avellana*) and lime (*Tilia x europaea*) with a ground flora dominated by bracken (*Pteridium aquilinum*). There are also areas of mixed woodland with a similar canopy composition but including Scot's pine (*Pinus sylvestris*). There are also numerous areas of oak, silver birch, willow and field maple plantation woodland, and large areas of coniferous plantation.

2.7.9 Numerous scattered mature broadleaved and coniferous trees are present within the survey area including within the proposed Suffolk Onshore Scheme, including field

maple, dog rose, oak, lime, turkey oak (*Quercus cerris*), sycamore, beech (*Fagus sylvatica*), cherry (*Prunus sp*.) and Corsican pine (*Pinus nigra subsp. laricio*). There are areas of neutral grassland across the survey area within the Suffolk Onshore Scheme, particularly in field margins. Most of these contain typical species assemblages of species-poor unmanaged neutral grassland, but one area (TN 468-1 on **Application Document 6.4.2.2.A.1 Suffolk Phase 1 Survey Results**) has better species diversity including pyramidal orchids (*Anacamptis pyramidalis*) and southern marsh orchids (*Dactylorhiza pratermissa*).

2.7.10 There are large areas of semi-improved acid grassland in the east of the proposed Suffolk Onshore Scheme along the coastline and west to the Aldeburgh golf course. These habitats were found over the sandier soils present in this area. Areas of semi-improved acid grassland included land north of Aldeburgh golf course, land south of Sandlings SPA and land within the North Warren RSPB Reserve and SSSI. See **Application Document 6.4.2.2.A.1 Suffolk Phase 1 Survey Results**. Species found within these areas are typical of acid grassland including common bent, early hair-grass (*Aira praecox*), sweet vernal-grass (*Anthoxanthum odoratum*), sheep's sorrel (*Rumex acetosella*), broom (*Cytisus scoparius*), bastard toadflax (*Rapistrum rugosum*), sand sedge (*Carex arenaria*), as well as some small stands of dense common gorse scrub (*Ulex europaeus*). A further 6 ha of semi-improved acid grassland is located in the mitigation area to the south of Parcel 66. This is species poor acid grassland U1b *Festuca ovina-Agrostis capillaris-Rumex acetosella* grassland, more improved to the east and north-east with invading bracken. It is included in the Order Limits for purposes of ecological enhancement.

2.7.11 Areas of the North Warren RSPB Reserve/Leiston-Aldeburgh SSSI were recorded as marsh/marshy grassland and swamp and include extensive reedbeds (*Phragmites australis*). A small area of ephemeral/short perennial was located within the east of the North Warren RSPB reserve/SSSI bordering the road. The ephemeral/short perennial habitat contained a large area of mossy stonecrop (*Crassula tilleae*) which is a national scarce plant. Various important coastal/shingle vegetation communities including dune heath, coastal grassland and strandline shingle with notable species (sea sandwort (*Honckenya peploides*), sea bindweed (*Calystegia soldanella*), yellow-horned poppy (*Glaucium flavum*), sea pea (Lathyrus japonicus), sea campion (*Silene uniflora)*, common restharrow (*Ononis repens*), mouse-ear hawkweed (*Pilosella officinarium*), biting stonecrop (*Sedum acre*), curled dock (*rumex crispus*), false oat grass (*Arrhenatherum elatius*), crested hair-grass (*Koleria macrantha*), sea beet (*Beta vulgaris subsp. maritima*), sea kale (*Crambe maritima*), bittersweet (*Solanum dulcamara*), sheep's sorrel (*rumex acetosella)*, annual meadow-grass (*Poa annua*), yarrow (*Achillea millefolium*), lesser hawkbit (*Leontodon saxatilis*), Buck's-horn plantain (*Plantago coronopus*), and sea fern grass (*Catapodium marinum*), were present along the beach at the eastern extent of the proposed Suffolk Onshore Scheme.

2.7.12 Multiple intact and defunct hedgerows are recorded within the proposed Suffolk Onshore Scheme, although only one (in land parcel 421) was recorded as being species-rich. The River Fromus runs north-south through land parcel 468 in the west of the proposed Suffolk Onshore Scheme. A small section (<100 m) of the Hundred River is present within the proposed Suffolk Onshore Scheme and is located adjacent to the boundary of land parcel 28.

2.7.13 Himalayan balsam (*Impatiens glandulifera*) was recorded along the River Fromus. This is a WCA Schedule 9 invasive species and measures would be introduced to eradicate it, or at least prevent its spread. Improved and semi-improved neutral grassland was found across the Suffolk Onshore Scheme particularly in the form of field margins and

headlands. Some of this was of moderate species diversity and contained pyramidal orchids (*Anacamptis pyramidalis*) and southern marsh orchids (*Dactylorhiza pratermissa*).

2.7.14 The margins of all accessible arable fields within the Suffolk Onshore Scheme were subject to a walkover assessment for species of important arable plants. Thirty-three arable fields in the survey area were noted to contain instances of scarce arable flora in their margins such as *Filago germanica, Lycopsis arvensis, Papaver rhoeas, Spergula arvensis* and *Glebionis segetum*. There was a particular concentration in fields north of the cable corridor north of the golf course, but outside the Order Limits where the concentration of rare arable plants is of **National** importance. Otherwise the assemblage is considered to be of **Regional** importance.

2.7.15 Great Wood and Grove Wood ancient woodlands and the Rivers Fromus and Hundred River are considered of **National** importance, given ancient woodlands are considered irreplaceable habitat under the National Planning Policy Framework, and the River Fromus and Hundred River are strategically important main rivers. The semi-natural broad-leaved woodland, hedgerows, acid grassland, marsh/marshy grassland, dune heath, coastal grassland and strandline shingle are considered of **Regional** importance, given their status as habitats of principal importance under Section 41 of the Natural Environment and Rural Communities Act 2006, and Suffolk Biodiversity Action Plan priority habitats. The short ephemeral vegetation within the RSPB reserve is also considered of **Regional** importance, due to the areas of mossy stonecrop (*Crassula tillaea*). The plantation woodland, semi-improved neutral grassland and ditches on site are accorded **Local** importance.

Ornithology

2.7.16 For the purposes of this summary, ornithological interest has been broadly divided into two distinct areas reflecting two very different broad habitat groupings. The first of these is the bird interest of the marshes and heathland east of Leiston Road (and particularly east of the old railway line), including the beach. This area is coincident with Leiston-Aldeburgh SSSI and RSPB North Warren Reserve. Part of it (the heathlands) also falls within Sandlings SPA. All these sites as designations have already been discussed.

2.7.17 The second area is the remainder of the Suffolk Onshore Scheme to the west of Leiston Road. That part of the survey area is dominated by arable farmland but also includes Aldeburgh golf-course and associated land and other habitats such as plantation woodland and horse paddocks. The surveys of both these areas are reported in **Application Document 6.3.2.2.B Appendix 2.2.B Suffolk Wintering Bird Report** and **Application Document 6.3.2.2.C Appendix 2.2.C Suffolk Breeding Bird Report**.

2.7.18 National Grid recognises the importance of the English East Coast and its coastal wetlands as being globally important for migratory waterbirds using the East Atlantic Flyway (EAF) which extends from the Arctic to South Africa, as reflected in its potential for future designation as a UNESCO World Heritage Site. The importance of the English East Coast and these wetland sites is reflected by a series of existing protected nature conservation areas, designated for their international importance, including Special Protection Areas (SPAs) and Ramsar Convention Wetlands of International Importance and underpinned by other national designations such as Sites of Special Scientific Interest (SSSIs). Detailed assessments of the relevant components which contribute to the East Atlantic Flyway are considered in this Chapter and in **Application Document 6.6 Habitats Regulations Assessment Report**.

East of Leiston Road

Wintering birds

2.7.19 Large numbers of non-breeding waterfowl were recorded in the marshes east of the old railway line east of Leiston Road during the overwintering period. These included peaks of:

- European white-fronted goose – four of the counts reached over 100 individuals in the winter period, with the peak count being 190.
- Pintail – over 200 individuals were recorded on four surveys in December 2021 to February 2022.
- Teal – 1,885 individuals during February 2022.
- Shoveler – 160 individuals during February 2022.

2.7.20 Other notable species recorded in smaller numbers included bittern, gadwall, marsh harrier, common redshank, shelduck, wigeon and lapwing, the latter with a peak count of 350. Overall, the area east of Leiston Road is considered to be of **National** importance for non-breeding birds.

Breeding birds

2.7.21 Notable breeding birds recorded in the marshland east of the old railway line to the east of Leiston Road include bittern and marsh harrier nesting in the fens north of the Suffolk Onshore Scheme Order Limits but utilizing the grazing marshes within the Suffolk Onshore Scheme Order Limits as feeding and hunting locations. Gadwall, shelduck, teal and common redshank were recorded as likely breeding within these marshes.

2.7.22 A pair of nightjars were recorded nesting in the heathlands east of Leiston Road approximately 300 m north of the Suffolk Onshore Scheme Order Limits within Sandlings SPA and another single male was recorded churring suggesting a second breeding pair. In addition, four woodlark territories were located in 2022, three in 2023 and two in 2024. Other birds of particular conservation interest recorded breeding include pairs of Dartford warbler, bearded tit (*Panurus biarmicus*), Cetti's warbler (*Cettia cetti*), hobby, linnet (*Linaria cannabina*), skylark (*Alauda arvensis*), yellow wagtail (*Motacilla flava*), grey partridge (*Perdix perdix*), lesser redpoll (*Acanthis cabaret*), and water rail (*Rallus aquaticus*). The reserve supports several Schedule 1 species, including woodlark, Dartford warbler, bittern, hobby and marsh harrier and Cetti's warbler.

2.7.23 The area east of Leiston Road supports a diverse assemblage of wetland and heathland breeding species. Several of these are species which are likely to be shared with the nearby designated sites (Alde-Ore Estuary SPA, SAC and Ramsar and the Minsmere to Walberswick Heaths and Marshes SPA, SAC and Ramsar). Overall, this part of the survey area is accorded **National** importance for breeding birds, with its SPA elements being of **International** importance.

West of Leiston Road

Wintering

2.7.24 Woodlarks were recorded during the wintering bird transects in both winter surveys (maximum count of seven).

2.7.25 Notable species recorded wintering west of Leiston Road included golden plover (*Pluvialis apricaria*), curlew (*Numenius arquata*) and lapwing (*Vanellus armatus*) in localized areas. A flock of 30 curlew was recorded in the field where compounds S02 and S03 would be located in October 2022, with other flocks at TM 42961 59355 (near to compound S09) and at TM 42163 59838. Lapwings and skylarks (*Alauda arvensis*) were widely distributed across the farmland parts of the Suffolk Onshore Scheme. A flock of linnet (*Linaria cannabina*) were recorded at TM 42490 59816 in 2023.

2.7.26 A regular group of golden plovers were repeatedly recorded on large open fields just east of Saxmundham in 2022/23 but were absent in 2023/24, potentially due to disturbance. No European white-fronted geese (*Anser albifrons*) were recorded in the inland cable route fields during any of the winter surveys. However, it is known that up to 167 were recorded feeding on an Autumn sown cereal crop from at least the 1 to 16 February 2021, between Aldringham and Thorpeness (TM 452 608).

2.7.27 Overall the non-breeding bird interest of the Suffolk Onshore Scheme west of Leiston Road is considered of **Regional** importance.

Breeding

2.7.28 There were eight woodlark territories located west of Leiston in 2023 along the cable route but outside of the Suffolk Onshore Scheme Order Limits. Additionally, 10 territories were recorded 2024 and were close to the boundary of the Suffolk Onshore Order Limits a number of which were on fallow arable farmland. Three breeding pairs of shelduck (*Tadorna tadorna*) were located within the Suffolk Onshore Scheme Order Limits in 2023 and a single pair in 2024.

2.7.29 Other species of conservation interest breed within and close to the Suffolk Onshore Scheme Order Limits in both the 2023 and 2024 seasons, including two hobby (Schedule 1 species) nests, including one directly adjacent to the cable route. Two pairs of barn owls breed within 20 m of the Suffolk Onshore Scheme Order Limits. Other territories within close proximity of the Suffolk Onshore Scheme Order Limits included cuckoo (*Cuculus canorus*) (peaks of 1), firecrest (*Regulus ignicapilla*) (2), grey partridge (3), linnet (16), nightingale (3), yellowhammer (20), yellow wagtail (6), turtle dove (*Streptopelia turtur*) (3), Cetti's warbler (1) and approximately 70 skylark territories.

2.7.30 Given the species and numbers the Suffolk Onshore Scheme west of Leiston Road is considered to be of **Regional** importance for nesting birds.

Hazel Dormouse

2.7.31 This survey is reported in **Application Document 6.3.2.2.J Appendix 2.2.J Hazel Dormouse Survey Report**. No dormice were recorded within or near to the Suffolk Onshore Scheme Order Limits during the surveys undertaken between September 2023 and November 2024. Blue tit (*Cyanistes caeruleus*) nests, eggs and chicks were found in a number of tubes during the checks through the summer of 2024. Wood mouse (*Apodemus sylvaticus*) nests were also recorded in several tubes within 2023 and 2024 as well as wood mouse adults and a nest of four young in 2024. A single harvest mouse (*Micromys minutus*) was recorded within a tube in July 2024. Harvest mice are not legally protected in Britain but they are recognised as a Species of Principal Importance for the purpose of conserving biodiversity under the Natural Environment and Rural Communities (NERC) Act 2006. Although there were no confirmed dormouse records, a potential hazel dormouse nest comprising one green leaf nest with a partially woven

structure was recorded within the Order Limits during the October 2024 survey visit, indicating the possible presence of hazel dormouse within this part of the Site.

2.7.32 The overall value for the Suffolk Onshore Scheme for dormouse is considered to be of **negligible** importance as none have been identified to be present; however, given the presence of a possible dormouse nest and the presence of harvest mice, a precautionary method of working would be followed.

Badger and other mammals

2.7.33 The badger survey is reported in **Application Document 6.3.2.2.A Appendix 2.2.A Phase 1 Habitat Survey Report** (including Badgers and Important Hedgerows). There is extensive suitable habitat for badger throughout the survey area with habitat suitable for both foraging and excavation of setts and sufficient to support a number of social groups. Suitable habitats include woodlands and hedgerows, grasslands and arable margins.

2.7.34 Signs of badger were present in the majority of accessible areas of the Suffolk Onshore Scheme. Nineteen setts (main, outlier, active and disused) were identified during the walk over surveys between 2023 and 2024 as well as other signs including latrines, push-unders, hair and footprints. Two main setts are located within or adjacent to the [redacted]. The overall value for the Suffolk Onshore Scheme for badger is considered to be of **Local** importance given the widespread abundance of badgers in this part of Suffolk.

2.7.35 It is understood from local feedback that large herds of red deer sometimes congregate in the field where the trenchless launch pit would be located. Red deer are a common and widespread game species in the UK and are expanding in both geographic range and abundance. They are therefore low conservation priority and receive no legal protection other than through the Deer Act 1991 which governs when and how they can be hunted. They are therefore accorded **Local** importance.

2.7.36 Hedgehogs are a declining species in the UK[6]. While the reason for this decline is unclear, it is likely permanent hedgerow loss is a significant contributing factor in rural environments. It is difficult to survey for hedgehogs and there is no agreed standard methodology. However, given the prevalence of hedgehogs in the east of England compared to other parts of the UK, and the physical extent of the Suffolk Onshore Scheme, it is likely that the hedgehog population is of **District** importance.

Bats

2.7.37 The Suffolk Onshore Scheme was surveyed both for presence of bat roosts within trees and buildings and for activity (foraging/commuting) via walked activity surveys supplemented by static detector surveys.

2.7.38 A total of 179 trees and two structures were assessed to have either FAR or PRF within the survey area. Not all trees assessed as having FAR or PRF were within the proposed Suffolk Onshore Scheme Order Limits but were assessed due to having potential for disturbance to roosting bats from construction activities. Two structures (buildings) within the proposed Suffolk Onshore Scheme Order Limits were also identified to have PRF.

[6] SoBH-2022-Final.pdf

2.7.39 A total of nine trees with either FAR or PRF recorded for the GLTA were then identified as likely to be removed during the construction of the Proposed Project. Further surveys of these trees were conducted in the form of climbing tree survey or emergence surveys where it was not safe to climb. Seven trees were climbed, and a single emergence survey undertaken on one tree.

2.7.40 No roosts or signs of bats were found during the climbing surveys. Six of the trees were downgraded from PRF to 'no potential' after the surveys due to features not being suitable for roosting bats. Two were assessed to be PRF-I, which only require a single survey. No bat emergences were recorded during the emergence survey on the single tree. However, it is considered possible that a barbastelle bat roost is present within Bloomfield's Covert woodland, located outside of, but adjacent to the Suffolk Onshore Scheme.

2.7.41 Based on professional judgement, activity levels of all species recorded during the walked transects were considered to generally be low across the Suffolk Onshore Scheme, but with more activity concentrated along woodland edges particularly at the south of Transect 2, between two woodlands at the south of Transect 2 and the north-east of Transect 1, and at the east of Transect 11, as shown in Figure 6.4.2.2.I.8 of **Application Document 6.3.2.2.I Appendix 2.2.I Nighttime Bat Walkover and Static Detector Survey Report**. Activity was also recorded along hedgerows throughout all transect routes, particularly within the west of Transect 3, throughout Transect 4 and the east of Transect 8.

2.7.42 In the majority of the locations surveyed using static automated detectors, common pipistrelle (*Pipistrellus pipistrellus*) was the most frequently recorded species; however, on 20 monitoring occasions soprano pipistrelle (*Pipistrellus pygmaeus*) was the most frequently recorded species and on another monitoring occasion serotine (*Eptesicus serotinus*) was most frequently recorded. The number of registrations per hour for each surveyed location and month are contained within **Annex 2.I.4** of **Application Document 6.3.2.2.I Appendix 2.2.I Nighttime Bat Walkover and Static Detector Survey Report**.

2.7.43 The highest levels of overall bat activity recorded within the Suffolk Onshore Scheme from the automated detector surveys were at Transect 2, followed by Transect 7 and Transect 4.

2.7.44 *Myotis* bats were recorded on 27 occasions during the walked transect surveys with the highest number of registrations recorded at the Transect 2 automated detector location.

2.7.45 Barbastelle was recorded on 26 occasions during the walked transect and had confirmed or possible registrations made at all automated static detector locations, although not during every monitoring occasion. Registrations of barbastelle and possible barbastelle were highest at Transect 4 followed by Transect 2. The single monitoring occasion peak for barbastelle was at Transect 2 in May 2024 with a peak count of 80 confirmed registrations during a single night. This was likely due to sustained activity from a small number of bats, rather than a large number of bats.

2.7.46 Based on the bat activity walked transect surveys and the static automated detector surveys undertaken between August 2023 and October 2024, the Suffolk Onshore Scheme is considered to support an assemblage of at least nine species comprising common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle (*Pipistrellus nathusii*), noctule (*Nyctalus noctula*), Leisler's bat (*Nyctalus leisleri*), serotine, brown long-eared bat (*Plecotus auritus*), barbastelle, and *Myotis* species that could not be identified to species level. This is not unexpected given the geographic area covered by the Suffolk Onshore Scheme

2.7.47 Table 3.3 ‘Assessing the importance of a bat assemblage’ within the Bat Mitigation Guidelines (Reason & Wray, 2023) has been used to provide an assessment of the importance of the bat assemblage present. The Suffolk Onshore Scheme is within the ‘South-eastern/East Anglia to The Wash’ geographic category.

2.7.48 Using a combination of both survey and desk study data for the Suffolk Onshore Scheme, common pipistrelle, soprano pipistrelle and brown long-eared bat have been assigned a score of one, noctule, Daubenton’s (*Myotis daubentonii*) and Natterer’s bats (*Myotis nattereri*) have been assigned a score of two, serotine, Leisler’s bat and Nathusius’ pipistrelle have been assigned a score of three, and barbastelle bat has been assigned a score of four. In total, the bat assemblage has a score of 22. Therefore, Table 2.3 of the Bat Mitigation Guidelines (Reason & Wray, 2023) returns a result of National importance for the bat assemblage present.

2.7.49 However, that does not take account of the levels of use by particular species identified. Based on professional judgement, activity levels of all species recorded during the walked transects were considered to generally be low across the Suffolk Onshore Scheme. Taking into account the synthesis of survey results and using a precautionary approach due to a potential barbastelle roost in woodland outside of, but within 50m from the Suffolk Onshore Scheme, the mosaic of habitats within the Survey Area is considered to be of **Regional** importance for bats.

Reptiles

2.7.50 Two areas potentially suitable for common reptiles were identified within the extended Phase 1 habitat survey. Area A constituted semi-improved grassland margins around arable fields in land parcel 91 to the north-east of the Saxmundham Converter Station. The second area (Area B) was located in acid grassland to the west of the North Warren RSPB reserve (land parcel 193) and north of the Aldeburgh golf-course (land parcel 152). No reptiles were recorded within Area A (land parcel 91) on any of the seven visits.

2.7.51 However, in Area B, all four common reptile species were recorded. Peak counts were recorded of six adult slow worms nine adult common lizards and three adult adders. No adult grass snakes (*Natrix natrix*) were recorded during the surveys; however, a single dead adult grass snake was observed in the plantation woodland north of the acid grassland surveyed in 2023.

2.7.52 Potential suitability of the acid grassland west of the railway line for natterjack toad was considered. However, according to the desk study data for Suffolk there are no records of natterjack toad in the vicinity of the Suffolk Onshore Scheme.

2.7.53 The overall value of the Suffolk Onshore Scheme for reptiles is considered to be of **District** importance, with interest being focused on the acid grassland around Leiston Road.

Riparian Mammals

2.7.54 During the first riparian mammal survey conducted in June 2024 seven locations were surveyed for signs of both otter and water voles. An otter resting place was observed located on the banks of the River Fromus within the Suffolk Onshore Order Limits, south of the proposed bridge location in the base of a tree. No footprints, spraints or slides were observed at this location. However, otter spraints were recorded during a breeding bird survey in 2024, under the existing bridge approximately 500 m south of the Suffolk Onshore Scheme Order Limits where the River Fromus crosses the B1121. No other

otter signs were recorded during the June 2024 survey. Two records of potential water vole signs were observed within a ditch to the west of the River Fromus during the same survey; these consisted of feeding remains.

2.7.55 The overall value for the Suffolk Onshore Scheme for otter and water vole is considered to be of **Local** importance.

Terrestrial Invertebrates

2.7.56 Three survey areas were identified for targeted invertebrate assessment.

- East of Leiston Road. TM458585. Two fields of improved acid grassland, used for hay or silage to the east of Leiston Road.
- South Warren (East). TM450585. An area of rough scrub and a field of improved acid grassland used for hay or silage north of the Aldeburgh golf course.
- South Warren (West). TM444586. Two fields used for hay or silage, with scattered scrub, north of the Aldeburgh golf course.

2.7.57 Survey visits were undertaken on 10 May 2024, 14 June 2024 and 4 September 2024. The collection of specimens complemented a walk-over assessment of the sites.

2.7.58 A total of 154 species were observed or collected during the three surveys. The vast majority of the scarcer species named within are associated with rough, dry, flowery grassland of the type found in Suffolk.

2.7.59 These species fit the type of fauna to be expected in the survey areas, and they likely occur widely across neighbouring areas.

2.7.60 A total of eleven species of national or local scarcity were identified in the surveys east of Leiston Road, most of which were locally scarce. There was also a nationally notable beetle, *Crypticus quisquilius,* and a nationally notable weevil *Protapion dissimile*. West of Leiston Road a smaller number of notable species were recorded (three), one of which was a Red Data Book species (the ground bug *Pyrrhocoris apterus*). In the final survey area West of Leiston Road seven uncommon species were recorded, including three nationally notable species: the spider *Argiope bruennichi*, the bee *Lasioglossum puncticolle*, and the ground bug *Megalonotus praetextatus*. The lower number of species west of Leiston Road partly reflects habitat management and partly would reflect reduced access to that area.

2.7.61 It should be noted that the classification of species as being ‘nationally notable’ can partly reflect under-recording, as invertebrates (other than charismatic species such as butterflies and dragonflies) are frequently under-recorded. The judgment of overall assemblage value has thus been made by the entomologist from a combination of published data books on scarcity, and his own experience of encountering these species on other surveys nationally.

2.7.62 The land in the survey areas has some invertebrate interest because of its situation on sandy soils near the coast. The coast of East Anglia and the Breck are important areas for nature conservation in Britain. The survey areas have some unusual and scarce insects which are likely to be widespread in the general area. In the entomologist’s judgement, the survey areas have a limited selection of interesting species and are collectively ranked as being of medium invertebrate interest.

2.7.63 The overall value for the Suffolk Onshore Scheme for terrestrial invertebrates is considered to be of **District** importance, given that the habitat in which these species

are found (acid grassland) is itself localized, but also taking account of the relatively low number of notable invertebrates recorded.

Aquatic Macrophytes

2.7.64 Aquatic macrophyte surveys were undertaken in July 2024 on the River Fromus, River Fromus tributaries and Hundred River. Both the River Fromus tributaries and Hundred River were dry at the time of survey. None of the macrophyte taxa identified during the surveys were protected and/or notable. The invasive non-native species (INNS) Himalayan balsam was recorded within the Hundred River and River Fromus survey reaches.

2.7.65 Although the original survey location on the Hundred River was dry, a survey was completed 1 km downstream. The macrophyte assemblage present indicated that the river is minimally or un-impacted by eutrophication and/or modification to morphological conditions at the surveyed reach, demonstrated by the High WFD macrophyte status attained for the surveyed reach.

2.7.66 In contrast, the Moderate WFD macrophyte status attained for the reach of the River Fromus surveyed in 2024, based on three scoring macrophyte taxa, indicates the site is subject to moderate impact by eutrophication and/or modification to morphological conditions.

2.7.67 As no notable or protected aquatic macrophyte species were identified, the overall value for the Suffolk Onshore Scheme for the aquatic macrophytes is considered to be of **District** importance.

Aquatic Macroinvertebrates

2.7.68 Aquatic macroinvertebrate surveys were undertaken at 10 sites in autumn 2023, five sites in spring 2024 and a further three sites in Autumn 2024 (on the River Fromus only) (see **Application Document 6.3.2.2.F Appendix 2.2.F Aquatic Ecology Survey Report**). The surveys found that all survey sites contained a macroinvertebrate community adapted to tolerate sedimented/heavily sedimented habitats and low flow-velocity conditions. The survey results indicated good water quality at all locations, but that habitat quality was likely restricting the quality of the residing macroinvertebrate community.

2.7.69 Two notable macroinvertebrate species were recorded; the Nationally Scarce beetles (*Peltodytes caesus*) and (*Enochrus quadripunctatus*). Neither beetle is considered sufficiently rare to qualify for an IUCN Red List status, and both are likely to occur in the local landscape where suitable habitat is present.

2.7.70 No macroinvertebrate INNS were recorded. However, several non-native and non-invasive species were found; namely the flatworm (*Girardia tigrine*) the New Zealand mud snail, the bladder snail (*Physella* sp.), and the freshwater amphipod C. (*pseudogracilis/floridanus*).

2.7.71 As two notable Nationally Scarce beetle species were recorded the, overall value for the Suffolk Onshore Scheme for aquatic macroinvertebrates is considered to be of **District** importance.

Fish

2.7.72 Three sites were identified for fish surveys in July 2024; River Fromus, River Fromus tributaries, and New Hundred River. The River Fromus tributaries and Hundred River were dry on arrival so a fish survey could not be completed at these sites.

2.7.73 A fish survey was completed on the River Fromus. Three-spined stickleback was the only species found, which aligns with historical EA data for the area (**Application Document 6.3.2.2.F Appendix 2.2.F Aquatic Ecology Survey Report**). No notable or protected species were found during the survey, but the desk study showed that European eel (*Anguilla anguilla*) has previously been found on the River Fromus in 2012, as well as brook lamprey (*Lampetra planeri*) and brown trout (*Salmo trutta*); however, the last record for these species was 2011 and 2007 respectively.

2.7.74 Brown trout, brook lamprey and European eel are protected species. However, it is likely that only European eel is present in the area. As this species is protected and included within the local BAP, the overall value of fish in the study area is considered to be of **Regional** importance.

Future Baseline

2.7.75 Relative to the current baseline, the value of ecological features present is not expected to change significantly by the end of the construction period in 2031 (subject to gaining development consent, construction works would be expected to start in 2026 and be functionally completed by the end of 2031, with reinstatement potentially continuing into 2032). Management of the habitats is unlikely to change over this period, and consequently no significant degradation or improvement of habitat condition (and therefore its value for fauna) is expected. However, areas of plantation within the Order Limits, such as the plantation woodland to the west of the River Fromus, would be felled in the normal course of maturity, and either replanted or put down to other habitats. The plantation west of the River Fromus would be felled prior to construction of the Suffolk Onshore Scheme. Due to development pressure year on year within the wider landscape, protected and notable species and habitats are likely to remain priorities for conservation within future baseline scenarios.

2.8 Proposed Project Design and Embedded Mitigation

2.8.1 The Proposed Project has been designed following the mitigation hierarchy, as defined in NPS EN-1: avoid, reduce, mitigate and compensate. In the first instances the potential to avoid or reduce ecology and biodiversity impacts and effects has been taken through the process of design development, and by embedding measures into the design of the Proposed Project. Where this is not possible, mitigation measures have been identified, and if mitigation is not possible then compensation has been explored.

2.8.2 As set out in **Application Document 6.2.1.5 Part 1 Introduction Chapter 5 EIA Approach and Methodology**, mitigation and compensation measures typically fall into one of three categories: embedded measures; control and management measures; and mitigation measures. Embedded, and control and management measures are set out below. Additional mitigation measures (including compensation measures where required) are discussed in Section 2.10.

2.8.3 In this ecology chapter the proposed landscape planting around the Saxmundham Converter Station, Friston Substation and at the crossing of the River Fromus, is considered embedded measures, the extent and location of which has been developed

in response to the design of the Proposed Project and determined by the visual screening and land drainage requirements.

2.8.4 In this ecology assessment, 'additional mitigation' has been considered to be measures that are not built into the design and/or construction methodology (the latter including culvert design or landscape planting around the converter station) or are not standard mitigation measures (standard mitigation includes avoiding vegetation clearance in nesting season where possible, and using noise fencing) or are not required by law (those required by law include the exclusion season for water voles or measures to avoid disturbance of woodlark). Additional mitigation includes compensation measures (i.e. habitat creation specifically required to address habitat losses).

Embedded Measures

2.8.5 Embedded measures have been integral in reducing, and where possible avoiding, the ecology and biodiversity effects of the Proposed Project. Measures that have been incorporated are:

- Sensitive routeing and siting of infrastructure and temporary works;
- Commitments made within **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**. These are:
  - Light-coloured rough textured surface to the proposed crossing of the River Fromus will be considered as part of the crossing design/specification in order to mitigate reflected polarised light pollution (B19).
  - Creation of 21 ha of woodland, 6.9 ha species rich neutral grassland, 1.5ha of native hedgerow and 0.8 ha of balancing pond habitat around the Saxmundham Converter Station and Friston Substation (for the scenario where the substation is built as part of the Proposed Project) (B20), as presented in **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan-Suffolk**. The final habitat creation proposals will be developed through the final Landscape and Ecological Management Plan so may deviate from areas/habitats presented here.
  - HVDC cables would be installed using a trenchless technique at the landfall to avoid direct impacts on Sandlings SPA or Leiston-Aldeburgh SSSI (B21).
  - Measures to avoid the trenchless drilling equipment getting stuck (B22).
  - Best practical means such as noise fencing or similar effective noise reduction methods around works areas where required to avoid significant disturbance and also prevent visual disturbance. Noise monitoring would be included adjacent to Sandlings SPA and Leiston-Aldeburgh SSSI to confirm the mitigation measures met the required noise thresholds (B23).
  - Seasonal restrictions on some works:
    - Where the proposed works are to take place within arable fields or acid grassland, one of two approaches would be applied to the Suffolk Onshore Scheme to ensure no likely significant effects. First would be to clear crops from the fields between October and February before works commence and then ensure that vegetation is kept clear from those areas until construction starts in that area as any regrowth of vegetation could attract ground-nesting birds such as skylark and woodlark. The second approach is to

agree with the landowner and/or tenant to leave the previous crop in the ground so that there is already a tall, dense crop in spring, which would deter ground-nesting birds from utilising that field (B24). Where works are to take place in areas of acid grassland, the first of the two approaches would be utilised.

  - A watching brief would be introduced during vegetation clearance in the ditch west of the River Fromus. Displacement of water voles if any are encountered would occur under a Class Licence. This would restrict clearance of any locations where water voles are present to either 15 February to 15 April or 15 September to 31 October (B25).

- Minimising the width of the cable corridor at ditch and hedgerow crossings to 20 m where possible (between the Saxmundham Converter Station and Friston Substation the HVAC and HVDC cables will both be in trench resulting in a minimum gap of 39 m) (B11).
- Mature vegetation removed from hedgerows and ditches would be retained as close to the area of removal as possible, retaining intact root balls, where feasible and desirable, such that it can be re-used (B12). See **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan-Suffolk**.
- Hedgerow gaps would be planted once works are complete with 'light standards' or feathered trees, while gaps in ditch marginal vegetation would either be planted with mature emergent vegetation purchased from nurseries or left to recolonise naturally from the adjacent ditch vegetation (B13). See **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan-Suffolk**.
- A precautionary method would be followed when undertaking vegetation clearance potentially suitable for dormice which would be undertaken in two stages under supervision of a suitably qualified ecologist (B14).
- While the haul road would be fenced this fence would not go entirely to ground level so mammals such as badger would be able to pass (B15).
- There would be no lighting near any badger setts and a 40 m setback between the identified badger sett and [redacted]
- If the culverts mentioned in Commitment W03 (see control and management measures below) can avoid specific vole burrow locations through micro-siting while still meeting the needs of the Proposed Project, this will be implemented (B16).
- The culverts would also avoid narrowing of natural channel width. Where bank material cannot be preserved within the culvert (due to the weight or levels) they would also include a minimum 150 mm wide mammal ledge (with 600 mm headroom where ditch depth allows) to ensure continued accessibility by water voles (B17).
- Drainage outfalls would be designed to exclude eels from accessing Sustainable Drainage Systems (SuDS), for example by having outfall pipes situated above the receiving water level (B18).

Control and Management Measures

2.8.6 Measures relevant to the control and management of impacts during construction have been included within **Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice**. The following measures have been taken into account in assessing the ecology and biodiversity effects of the Proposed Project:

- Biodiversity protection through CoCP measures B01 to B10:
  - B01: The contractor(s) will comply with relevant protected species legislation. Appropriate licences will be obtained where necessary from Natural England for all works affecting protected species as identified by the ES and through pre-construction surveys. All applicable works will be undertaken in accordance with the relevant requirements and conditions set out in those licences.
  - B02: The assumption will be that vegetation with the potential to support breeding birds will not be removed during the breeding bird season (March to August inclusive). If any works become necessary during the breeding bird season, works will be supervised by an ECoW. Appropriate protection measures will be put in place should active nests be found. These will include exclusion zones around active nests until chicks fledge or nests become inactive as determined by monitoring by the ECoW.
  - B03: As far as possible, trenches and excavations should not be left open overnight. Where there will be a risk of animal entrapment, a means of escape (such as a plank that can be used as a ladder) will be installed into all excavations that are left open overnight.
  - B04: To control the spread of invasive weeds in accordance with the Wildlife and Countryside Act 1981, any plant or machinery that has been used in areas infested with invasive species (both terrestrial and aquatic), such as Japanese knotweed and Himalayan balsam, will be thoroughly cleaned. Water used to clean vehicles will be controlled to prevent the spread of the plant (through seeds, rhizomes, fragments, etc.). The area will be cordoned off to prevent any inadvertent spreading.
  - B05: All habitats suitable for common reptiles will be subject to two-stage habitat manipulation that will take place between mid-March and mid-October. Firstly, vegetation will be cut to approximately 150 mm (with the arisings removed) under the supervision of an ECoW and the site left for a minimum of two days to allow reptiles to naturally disperse from the area. Secondly, vegetation will be cleared down to ground level under the supervision of an ECoW. Vegetation will be cleared using appropriate equipment based on the type of vegetation to be removed, the area affected, and the risk of mortality or injuring reptiles. Construction works could commence immediately after completion of the second stage. Reptile hibernacula will be retained and protected during construction where practicable. If unavoidable, the removal of vegetation and groundworks at hibernacula will be timed to avoid the hibernation season (late October to early March). Replacement hibernacula and refugia will be provided.
  - B06: Where necessary, alternative roost structures (bat boxes) will be provided (with landowner consent) on retained trees within the Order Limits or areas outside of the Order Limits agreed with relevant landowners. Three boxes will be provided for each tree with moderate bat roost potential to be felled. Five boxes will be provided for each tree with high bat roost potential to be felled.

- B07: Where the works require the crossing or removal of hedgerows, the gap will be reduced to a width required for safe working. Where hedge removals are necessary, ‘dead hedging’ should be used, where practicable, in the interim periods to retain connectivity during construction. Dead hedging can comprise vegetation arisings or artificial provision, such as willow screening panels or Heras fencing covered in camouflage netting. New hedgerow planting will contain native, woody species of local provenance.
- B08: During culvert installation there would be a watching brief and fish rescue where required. Where over pumping is required, pumps would be fitted with 2 mm screens to prevent injury to fish or eels.
- B09: Measures to manage risk of frac out: Ensuring sufficient surveys have been undertaken to understand the ground conditions to inform the final design; Design a profile sufficiently deep for the methodology and conditions, with hydrofracture modelling used to check that there is sufficient factor of safety; Use of a drilling fluids engineer to design and monitor the fluid properties; Ensure that the trenchless bore is sufficiently clean of cuttings during drilling; Monitoring fluid pressures in the bore, and returns to the entry pit during drilling; The use of “spotters”, personnel stationed above the onshore drill line to look for any frac out or break out; and if drilling fluid losses occur, lost circulation material (LCM) may be added to seal the ground. As a last resort, cementitious grout may be used to seal fractures.
- B10: The foundations of the bridge across the River Fromus would use soft-start non-percussive piling techniques to limit disturbance, which would assist in allowing sounds to increase gradually allowing fish in the immediate vicinity to swim away.

- Control of dust generation through CoCP measures GG17, GG18, GG19, GG20, AQ02, AQ03, AQ05 and AQ08;
- Water quality controls through CoCP measures W02, GH05, GG14, GG15, GG16, W06, W11; and
- Riverbank and in-channel vegetation will be retained where not directly affected by installation works. Where ditches retaining seasonal flows are crossed, culverts in waterbodies will either preserve the natural bed or be box culverts with inverts sunk a minimum of 300 mm below the hard bed of the watercourse and natural / existing bed material placed across the inside of the culvert, to maintain existing channel gradients and habitat for aquatic invertebrates, as well as to ensure continued passage for in channel species (W03).

2.9 Assessment of Impacts and Likely Significant Effects

2.9.1 The assessment of the effects of the Proposed Project on ecology and biodiversity receptors described in this section considers the embedded, control and management measures described in Section 2.8 as well as additional mitigation measures described in Section 2.10. Where additional mitigation measures are required, the effect prior to additional mitigation is stated, followed by the 'residual' effect after additional mitigation. In all other cases, where no additional mitigation is required, the original effect and residual effect are identical.

2.9.2 None of the Public Right of Way (PROW) diversions proposed as part of the Suffolk Onshore Scheme will impact protected sites or protected species compared to the original PROW routes. Therefore, these are not discussed further in this Chapter.

2.9.3 There is no discussion below of great crested newt because it has been agreed with Natural England that the Proposed Project would use the Suffolk District Licensing Scheme for this species. As such, there has been no need to undertake surveys, impact assessment or delivery of specific mitigation. District level licensing is an alternative approach to mitigation licensing for planning applications to develop sites which could affect great crested newts. District level licensing aims to increase the number of great crested newts by providing new or better habitats in targeted areas to benefit their wider population. It is a simpler, quicker process than mitigation licensing because planning applications do not need to include surveys of great crested newts or plans to carry out mitigation work to move newts to safety. The financial contribution to the licensing scheme ensures delivery of measures as a strategic level to support a conclusion of no likely significant effect.

Construction Phase

2.9.4 The impact pathways scoped into the assessment of the construction phase are habitat loss, air quality, pollution (dust), pollution (spillages and frac out), loss of functionally-linked land, disturbance (noise and lighting), disruption of connectivity, shading of riparian habitats, and inadvertent killing and injury.

Designated Sites

Habitat loss

2.9.5 No habitat loss would arise within internationally, nationally or locally designated sites due to the Suffolk Onshore Scheme. Great Wood County Wildlife Site (an area of ancient woodland outside the Order Limits) is located approximately 100 m north of a proposed monitoring access within the Suffolk Onshore Scheme and 200 m north of the cable route. Grove Wood County Wildlife Site and ancient woodland is a minimum of 25 m south of the proposed Suffolk Onshore Scheme cable route, although a proposed monitoring access would lie on an existing track immediately north of the wood.

2.9.6 North Warren RSPB Reserve, Leiston-Aldeburgh SSSI and the Disused Railway Line (Aldringham-Aldeburgh) CWS all lie within the proposed Suffolk Onshore Scheme, but these would be traversed using trenchless methods such as Horizontal Direct Drilling (HDD). Sandlings SPA lies within the Suffolk Onshore Scheme (since an existing track to be used for monitoring traverses it) and is approximately 20 m north of a proposed construction compound (S10).

2.9.7 The trenchless bore would be approximately 8 m below the RSPB Reserve/ SSSI/CWS at the boundary (the old railway line) and would get deeper from there, as identified in **Appendix A** of **Application Document 7.3 Design Development Report**. There is thus negligible risk to surface habitats and hydrology. No dewatering is required for the trenchless installation and therefore there is no risk of dewatering affecting water levels in the adjacent Leiston-Aldeburgh SSSI wetlands. The trenchless bore is expected to be at 16-18 m depth beneath the wetlands, drilling though the dense to very dense gravelly sand of the Crag formation. Geophysical surveys have confirmed the geology for the entire onshore route and combined with boreholes either side of the wetlands they show

a consistent geology beneath the wetlands. Key points in terms of the hydrogeology are:

- The trenchless bore depth has been designed to drill in ground with a high factor of safety against the risk of hydrofracture of the ground to avoid the risk of loss of drilling fluid into the ground or to the surface.
- The section of bore beneath the wetlands is 15 m beneath mean sea level, so there is no risk that it would ever drain to the sea.
- In-Situ borehole Permeability testing in the Crag indicate the Crag has moderate permeability equivalent to clean sands. The drilling fluid is designed to seal the perimeter of the bore, lining it with a thin layer (filter cake) of clay platelets. The filter cake prevents drilling fluid losses into the surrounding ground, and prevents ingress of groundwater into the bore, so the bore is effectively isolated from the ground water regime.
- After installation of the duct the drilling fluid would congeal to the strength of a soft to firm clay, sealing the annular space between the outside of the duct and the wall of the bore. This plugs the annular space and prevents it from becoming a potential pathway for groundwater flow in the long term.

2.9.8 There is a very low risk of drilling equipment getting stuck and there would thus be no requirement for surface works in the SSSI or RSPB Reserve. If drilling equipment becomes stuck it would be freed by additional tooling and works at the entry or exit (B22). The drill within the SSSI is too deep to consider excavating down to the equipment. Retrieval of stuck equipment, in the very unlikely event it arises, will depend on the location of the equipment and the cause of the sticking. The most common retrieval method is to use a second drilling string to follow the stuck string and clean the bore with a "donut" until frictional forces along the stuck drilling string are lowered sufficiently to allow the drilling equipment to be pulled out by the HDD rig. In the extremely unlikely event that a drilling string cannot be recovered it will be left in situ, having no ecological implications given the depth below ground and thus lack of connection to surface features, and a new HDD will be drilled on a parallel alignment within the consenting boundary.

2.9.9 Since the potential for habitat loss is so low, this is considered a negligible impact on receptors of international and national importance. Since the impact is negligible the effect would also be **negligible** and thus not significant.

2.9.10 No impact pathways linking to other designated sites, including Snape Warren SSSI, are identified.

Air quality

2.9.11 All designated sites discussed in this chapter are potentially vulnerable to vehicle exhaust emissions and other combustion emissions such as from non-road mobile machinery. Traffic exhaust emissions contribute oxides of nitrogen and (from petrol exhausts) ammonia. These are pollutants but also contribute to nitrogen deposition (and thus acid deposition). Nitrogen deposition is a form of fertilization that can change vegetation structure and species composition. The Institute of Air Quality Management (Institute of Air Quality Management, 2017) and Natural England (Natural England, 2018) identify that traffic exhaust emissions can affect ecological sites within 200 m of

the source. These emissions are relevant where they materially affect the annual average pollution levels or deposition rates.

2.9.12 Approximately 12 ha of Sandlings SPA would be located within 200 m of a construction compound (S10), the haul road, and the launch pit for trenchless techniques, as these would be located directly south of the boundary of the SPA, which would collectively result in traffic exhaust emissions. The potentially affected area amounts to 0.3 % of the 3,406 ha SPA. The main source (since vehicles on the compound or cable route would be present for short periods or not sitting with their engine running for long periods) is the annual average daily traffic driving past the SAC along the B1122 Leiston Road, adjacent to the SPA. According to the modelling undertaken, construction traffic within 200 m of Sandlings SPA would result in a net increase of 8 Annual Average Daily Traffic (AADT) on the section of the road past the SPA. This is a very small increase, well below the Institute of Air Quality Management thresholds for triggering air quality modelling. Moreover, this would be a temporary increase in traffic flows rather than a permanent increase.

2.9.13 The trenchless compound (S10) is 20 m from Sandlings SPA, adjacent to Disused Railway Line (Aldringham-Aldeburgh) CWS, and on the opposite side of the CWS from RSPB North Warren and Leiston-Aldeburgh SSSI. While there would be vehicles and non-road motorized machinery (NRMM) operating on site, only small numbers would be operating at one time, the locations of these sources would vary around the site, and the duration of emission would be brief at a given time, as vehicles and NRMM would not be sitting with their engines running unnecessarily. A construction site is therefore a much smaller source of emissions than a main road, which has a constant flow of traffic. No material impact on annual average pollution levels would therefore arise.

2.9.14 Additionally, over the short term, an elevation in acid deposition is unlikely to result in changes in vegetation communities over the temporary period the generators are proposed to be operational (approximately six months at the Suffolk landfall), considering the considerable variation in background acid deposition that is likely to occur normally over short time periods.

2.9.15 Atmospheric pollution results in a negligible impact on receptors of international (the SPA/SAC/Ramsar) and national (the SSSI) importance leading to an effect that is **negligible** and thus not significant.

Pollution (dust)

2.9.16 Besides traffic exhaust emissions, guidance from the Institute of Air Quality Management (Institute of Air Quality Management, 2014) identifies that significant dust soiling can arise on ecological receptors within 50 m of construction sites. Natural England feedback during statutory consultation on the Habitats Regulations Assessment (HRA) suggested that a more precautionary zone of 200 m should be used for HRA purposes. However, feedback from Natural England in relation to the air quality assessment recommended a similar distance to that used for human health impacts (i.e. 250 m). Therefore, in this chapter 250 m is used for dust impacts as a worst-case. A small part of Sandlings SPA (8.9 ha or 0.3 %) is located within 250 m of the easternmost construction compound (S10), and parts of Disused Railway Line (Aldringham-Aldeburgh) CWS, Leiston-Aldeburgh SSSI and RSPB North Warren also lie well within 250 m of compound.

2.9.17 It can be stated that for any deposited dust to have a likely significant effect on designated sites, it would need to be sufficiently thick in the depth of the layer coating

the leaves and long in duration (i.e., not being washed off by rainfall) to interfere with photosynthesis materially. Even then major botanical effects would need to arise to change the habitat structure sufficiently to affect its nesting value for nesting or wintering birds.

2.9.18 Nonetheless, it is considered necessary to implement dust control measures, as are implemented as standard on construction sites, to ensure dust deposition is sufficiently insignificant and no material dust build-up would occur on SPA vegetation. **Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice** forms an appendix to the **Outline Onshore Construction Environmental Management Plan (CEMP)** (**Application Document 7.5.3**). The Onshore CEMP is secured through Requirement 6 of the draft DCO (**Application Document 3.1**). The standard dust control measures included in **Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice** are:

- GG17: Where required, wheel washing would be provided at each main construction works compound access point on to the highway. An adequate water supply would always be made available at these locations. Road sweepers would be deployed on public roads where necessary to prevent excessive dust or mud deposits.
- GG18: Use water-assisted dust sweeper(s) on the access and local roads to remove, as necessary, any material tracked out of the site. Avoid dry sweeping of large areas.
- GG19: Earthworks and stockpiled soil would be protected by covering, seeding or using water suppression where appropriate.
- GG20: Bonfires and the burning of waste material would be prohibited.
- AQ02: Carry out regular site inspections to monitor compliance with the Air Quality Management Plan (AQMP), record inspection results, and make an inspection log available to the local authority when asked.
- AQ02: Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- AQ03: Erect solid screens or barriers around dusty activities or the site boundary so that they are at least as high as any stockpiles on site, or fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
- AQ03: Keep site fencing, barriers and scaffolding clean using wet methods.
- AQ03: Remove materials that have a potential to produce dust from the site as soon as possible unless they are being reused on site.
- AQ04: Impose and signpost a maximum speed limit on unsurfaced haul roads and work areas.
- AQ05: Use enclosed chutes and conveyors and covered skips.
- AQ05: Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment, and use fine water sprays on such equipment wherever appropriate.
- AQ08: Inspect on-site haul routes for integrity and investigate necessary repairs to the surface as soon as reasonably practicable.

- AQ08: Record all inspections of haul routes and any subsequent action in a site logbook.
- AQ08: Ensure vehicles entering and leaving sites are covered to prevent the escape of materials during transport.

2.9.19 With these measures in place, dust deposition is considered a negligible impact on receptors of international (the SPA/SAC/Ramsar) and national (the SSSI) importance leading to an effect that is **negligible** and thus not significant.

Pollution (spillages and frac out)

2.9.20 Construction compound S10 is adjacent to Sandlings SPA, North Warren RSPB Reserve, Leiston-Aldeburgh SSSI and the Disused Railway Line (Aldringham-Aldeburgh) CWS. There is potential for spillages, especially fuel spills from vehicles and plant percolating into the groundwater of these designated sites. Similarly, the construction of the bridge across the River Fromus has a distant hydrological connection to Alde-Ore Estuary SPA/Ramsar site and Alde-Ore & Butley Estuaries SAC, being 6 km upstream.

2.9.21 Under the Environmental Damage (Prevention and Remediation) (England) Regulations 2015 and the Environmental Permitting (England and Wales) Regulations 2016 it is an offence to pollute watercourses, irrespective of whether they are designated European Sites or connect to designated European Sites.

2.9.22 Therefore, the construction period on every project must have a duty of care to the water environment and produce and implement plans and procedures to prevent discharge from works entering surface, groundwater, wetlands or coastal waters. This is usually undertaken in the form of a Construction Environment Management Plan (CEMP) which includes measures for the protection of ground and surface waters, pollution prevention measures and an emergency response plan for pollution events.

2.9.23 **Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice** forms an appendix to the Outline Onshore Construction Environmental Management Plan (CEMP) (**Application Document 7.5.3**). The Onshore CEMP is secured through Requirement 6 of the draft DCO **(Application Document 3.1). Application Document 7.5.3.1 Appendix A Outline Code of Construction Practice** sets out a number of control and management measures to be implemented for the protection of water quality that are relevant to this assessment, including:

- W02: Have spill kits and straw bales readily available at all crossing points for downstream emergency use in the event of a pollution incident.
- W02: The use of all static plant such as pumps in appropriately sized spill trays.
- W02: Prevent refuelling of any plant or vehicle within 15 m of a watercourse.
- W02: Prevent storing of soil stockpiles within 15 m of a main river (16m where river is tidal).
- W02: Inspect all plant prior to work adjacent to watercourses for leaks of fuel or hydraulic fluids.
- W26: specifically identifies monitoring of the River Fromus (and Hundred River) during construction (and for 6 months post-construction) for signs of pollution and a requirement to introduce further mitigation measures if any pollution is detected.

- GH05: All materials that could be hazardous to water quality will be stored in suitable areas, more than 8 m away from a watercourse, away from site traffic and in containers which are fit for purpose, meeting the requirements of the Control of Pollution (Oil Storage) Regulations.
- GG14: Fuels, oils and chemicals will be clearly marked as to their contents and stored responsibly, in a secure, bunded area with an impervious base, away from sensitive water receptors.
- GG14: All refuelling, oiling and greasing of construction plant and equipment will take place in an appropriate bunded area that includes an impervious base and where possible interceptor drains. All pumps, generators and similarly fuelled equipment are to be placed on drip trays or in a bunded area and all valves, hoses and associated re-fuelling equipment will be regularly inspected and turned off and securely locked when not in use. Vehicles and plant will not be left unattended during refuelling. Appropriate spill kits will be made easily accessible for these activities. Potentially hazardous materials used during construction will be safely and securely stored including use of secondary containment where appropriate. Stored flammable liquids such as diesel will be protected either by double walled tanks or stored in a bunded area with a capacity of 110% of the maximum stored volume. Spill kits will be located nearby.
- GG15: Runoff across the site would be controlled through various methods, including header drains, buffer zones around watercourses, on-site ditches, silt traps and bunding. There would be no intentional discharge of site runoff to ditches, watercourses, drains or sewers without appropriate treatment and agreement of the appropriate authority (except in the case of an emergency).
- GG16: Where required, washdown of vehicles and equipment would take place in designated areas within construction compounds. Wash water would be prevented from passing untreated into watercourses and groundwater. Appropriate measures would include the use of sediment traps.
- GG16: Ensure there is an adequate area of hard-surfaced road between the wash facility and the site exit, wherever site size and layout permits.
- W06: Where new or additional impermeable surfacing is required on any access tracks, bellmouths and in compound areas e.g. for parking provision, site offices, SuDS would be incorporated, appropriate to the existing ground conditions.
- W11: Surface water drainage from permanent above ground infrastructure would be managed and treated using SuDS in accordance with policy and guidance requirements of the relevant Lead Local Flood Authorities.

2.9.24 As such, it is considered that the proposed Suffolk Onshore Scheme could be constructed in a way that would prevent pollution to the water environment. Since the risk of pollution with these measures in place is very low, this is considered a negligible impact resulting in a **negligible** effect that is not significant.

2.9.25 The risk of frac out, where drilling fluids may reach the surface due to fissures in the geology while undertaking trenchless bores beneath the Suffolk coast has been considered~~.~~, as this could affect the surface features of North Warren RSPB Reserve if it occurred, including both habitats and species such as water vole. The measures to minimise and address the risk of surface frac out or break out are contained in **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)** measure B09.

2.9.26 Given the above measures, pollution (spillages and frac out) is considered a negligible impact on receptors of international and national importance leading to an effect that is **negligible** and thus not significant.

Loss of functionally linked land for Sandlings SPA

2.9.27 ~~Surveys in 2023~~There would be loss of nightjar and ~~2024 identified woodlarks nesting outside of the SPA, though not within~~ woodlark foraging habitat through temporary removal of acid grassland to facilitate the trenchless construction compound and the ~~Suffolk Onshore Scheme Boundary.~~ sections of cable trench and haul road east of Leiston Road and north of the golf course. These areas show no evidence of nightjar or woodlark nesting (despite two seasons of breeding bird survey including a dedicated nightjar survey) but are within 1 km of the nearest woodlark and nightjar territories in the SPA (the nearest territories of both species within the SPA having been recorded approximately 600 m from the Order Limits). These areas are also adjacent to a field where the nearest woodlark territory outside the SPA was recorded in surveys for the Proposed Project.

2.9.28 The ~~surveys~~ loss of this habitat will be temporary and entirely contained within a single nesting season. Trenchless installation will last a maximum of six months including compound set up, drilling and compound demobilisation. Given the speed with which the trench would be installed (approximately 100 m to 300 m a week), any temporary loss due to trenching will be of even shorter duration Once that is complete the habitat will be restored and once again available for nightjar and woodlark. Evidence from surveys for the project indicates that neither species is likely to require significant vegetation development before using the restored areas.

~~2.9.27~~ For example, arable land is abundant in the area, and surveys in 2024 indicate that arable ~~and~~land on sandy soils in this area very quickly ~~become~~becomes suitable for ~~woodlarks, particularly~~woodlark. This occurs in particular when it is left fallow~~. Fields~~; fields that were not fallow in 2023 did not support ~~woodlarks~~woodlark, while those same fields left fallow in 2024 did support ~~woodlarks~~woodlark due to the sandy ~~soil~~soils and sparse vegetation. This illustrates that arable land in the area routinely moves in and out of suitability for woodlark (and foraging nightjar) as part of normal farming practice, and this will not be changed by the Suffolk Onshore Scheme ~~would not change this.~~

~~2.9.28 Approximately 3.5 ha of acid grassland would be temporarily lost adjacent to Sandlings SPA due to~~. Indeed, the ~~trenchless construction compound (S10) (2 ha) and associated section of cable trench east of Leiston Road. This field showed no evidence of nightjar/woodlark nesting (during the two seasons of breeding bird survey undertaken) but is well within 1 km of the nearest woodlark territories in the SPA and adjacent to a field where the nearest woodlark territory outside the SPA was recorded in surveys for the proposed Suffolk Onshore Scheme. Therefore, it is considered very likely to be functionally-linked to the SPA. This loss of foraging habitat would last for a single nesting season.~~

~~2.9.29 There was a further area (totalling approximately 4 ha) of acid grassland north of the golf course that would be temporarily removed while it is traversed by the cable trench, although given the speed with which the trench could be installed (approximately 100 m to 300 m a week) any~~ areas of temporary ~~loss at a given time would be minimal other than from the 7 m wide haul route. Moreover, that area became less suitable for nightjars and woodlarks in late summer 2024 due to planting works undertaken~~bare ground left on sandy soils by the ~~golf course~~ project after completion of construction will

be of value as ~~part of their overall plans~~foraging (and possibly nesting) areas for ~~golf course expansion.~~

2.9.29 ~~Breeding bird surveys~~ woodlark and foraging habitat for ~~the Proposed Project in 2023 and 2024 have shown that woodlark use land outside the SPA opportunistically. In 2024 surveys arable land on sandy soils that has been left fallow have been used for nesting by woodlarks.~~nightjar. This shows that habitat structure (i.e. short vegetation on sandy soils) ~~are~~is more important ~~that~~than actual botanical species composition. Therefore, the trenchless compound field is very likely to come back into use as foraging habitat in the next nesting season ~~once~~after works have ceased, without any lag time for acid grassland to re-establish.

2.9.30 Therefore, the loss of foraging habitat for both species will last a single nesting season. This is relevant because foraging habitat for both species is abundant in the local landscape. There is over 100 ha of acid grassland and semi-improved acid grassland within 2 km of the SPA (approximately half within the SPA itself), in addition to arable fields left fallow which are also of value for foraging (and nesting) woodlarks as already discussed. Therefore, the area affected area comprises less than 5% of available foraging and nesting habitat for this species. Nightjars will also forage in this habitat but will also forage in other habitats such as woodland and scrub (which is also abundant within 2 km of the SPA) and therefore the temporary loss of habitat for the trenchless compound and section of trenched installation will represent considerably less than 5% of available foraging habitat for this species. While the haul road will be retained throughout construction this is a maximum 10 m wide feature and will thus represent well below 1% of the total available foraging habitat for both species within 2 km of the SPA.

2.9.31 In summary:

- The affected habitat is functionally-linked for purposes of foraging for nightjar and woodlark, not nesting.
- Evidence including from local surveys of woodlark habitat use indicates that habitat structure (short vegetation on sandy soils with patches of bare ground) is more important for both bird species than botanical composition.
- Maximum duration of works in the relevant habitat is 6 months, and the affected areas will come back into use as foraging habitat in the next nesting season once works have ceased.
- There is over 100 ha of acid grassland within 2 km of the SPA in addition to a network of arable fields left fallow, so the area affected constitutes less than 5% of available foraging and nesting habitat.

2.9.32 There will be no permanent loss of habitat of foraging or nesting value for woodlark or nightjar from Sandlings SPA, as the only significant areas of permanent land take would be for the Saxmundham Converter Station and Friston Substation, which are well over 2 km from the SPA and are not on shallow sandy soils.

~~2.9.30~~2.9.33 Therefore, it is considered that no significant effects on the qualifying features of Sandlings SPA would arise from this impact pathway.

~~2.9.31~~ Given the short duration of loss (compound H10 would be removed after a single nesting season) and the fact that the amount of habitat loss is a relatively small amount of the available foraging habitat in the area, it is considered that this is a minor adverse

impact on a receptor of international importance leading to an effect that is **minor adverse** and thus not significant.

2.9.32 However, aside from any value it may have for SPA birds, acid grassland is an important and scarce habitat in itself, even though all but 0.3 ha of the acid grassland is botanically degraded and does not meet the botanical criteria for classification as 'priority habitat'. Therefore as part of the broader habitat mitigation proposals to address the temporary loss of acid grassland during construction the Proposed Project would restore and enhance approximately 6 ha of acid grassland that would be managed in a favourable way for 10 years following creation, to offset the lag time in restoration of the existing acid grassland that can be expected once the compound and cable trench works are complete. This management will commence prior to loss of the acid grassland east of Leiston Road, and is described further in both **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)** and **Application Document 7.5.7.1 Outline Landscape and Ecology Management Plan- Suffolk**.

2.9.33 While not being specifically created for the purpose of providing foraging or nesting habitat for woodlark and nightjar associated with Sandlings SPA, the surveys undertaken for the Proposed Project, and published research[7] indicate that vegetation that is kept suitably short and open, particularly if bare areas are created within the sward, is likely to be used for foraging by both species and may be used by nesting by woodlark. This would be located within 2 km of the SPA and thus within the foraging range of SPA birds, and also within the foraging range of woodlark found outside the SPA boundary. This would therefore incidentally offset any effects from the temporary loss of acid grassland adjacent to Sandlings SPA.

2.9.34 The fact that habitat of foraging value to woodlark and nightjar will be created and enhanced during construction, and for a 10 year period following construction, further supports a conclusion of minor adverse impact on a receptor of international importance leading to an effect that is **minor adverse** and thus not significant.

Disturbance of Sandlings SPA, Leiston-Aldeburgh SSSI and RSPB North Warren

2.9.35 Numerous factors influence a species' response to a disturbance. Most relevant are species importance, the scale of the impact (e.g. the noise level), the proximity of disturbance sources and the timing/duration of the potentially disturbing activity. Some species of birds are also sensitive to other visual disturbances, such as human presence and movement of vehicles. The concern regarding the effects of visual disturbance on birds stems from the birds expending more energy than is necessary and spending more time responding to the disturbance rather than feeding (Riddington, Hassall, Lane, Turner, & Walter, 1996).

2.9.36 Disturbance, therefore, risks increasing energetic output while reducing energetic input, which can adversely affect the 'condition' and, ultimately, the survival of the birds. In addition, the displacement of birds from one feeding site to another can increase the pressure on the resources available within the remaining sites, as they have to sustain a greater number of birds (Gill, Sutherland, & Norris, 1998). Moreover, the more time a breeding bird spends disturbed from its nest, the more its eggs are likely to cool and the more vulnerable they, or any nestlings, are to predators.

[7] https://bou.org.uk/blog-hawkes-woodlark-ground-disturbance/

2.9.37 Sandlings SPA and Leiston-Aldeburgh SSSI both lie within North Warren RSPB Reserve in this area. These designated sites support internationally important numbers of nesting nightjar and woodlark and at least nationally important populations of other breeding and non-breeding birds. Therefore, these designations are sensitive to disturbance to varying degrees throughout the vast majority of the year.

2.9.38 During pre-application discussions with Natural England the following assumptions were agreed that have informed the assessment of noise impacts on ecological receptors

- Birds generally give no reaction to noise levels of 55 dB or below (Cutts & Allan, 1999); and
- A change above 3 dB is required to make the difference perceptible.

2.9.39 It was also agreed that there is a difference between being perceptible as a change and being disturbing. Therefore, while a 3 dB change is a suitable threshold for perceiving change, a greater change would likely be needed to cause disturbance.

2.9.40 If the threshold for no reaction is 55 dB, and any noise would need to be at least 58dB to be perceptibly louder (i.e. 3 dB greater than 55 dB), then it was agreed with Natural England that a reasonable precautionary threshold for significant disturbance would be 60 dB (i.e. 5 dB above 55 dB). The use of a 60 dB threshold has also been agreed with RSPB as part of the Proposed Project's ongoing engagement.

2.9.41 With this in mind, 60 dB Lamax contours were calculated for all phases of construction. For the purposes of this modelling and in line with guidance, a 10 dB reduction has been allowed due to best practicable noise reduction means. In some cases close-board noise fencing will be the most appropriate method to achieve this 10 dB reduction, but there is potentially a 10 dB to 20 dB reduction available through the use of quieter plant, alternative methods and suitable handling techniques. The use of standard noise control methods is set out in commitment B23 of **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**. The overall contour is presented in **Figure 3 Map of 60 dB average Lamax contour at Suffolk** within **Application Document 6.6 Habitat Regulations Assessment Report**, shows that with best practicable noise reduction methods such as noise fencing around the perimeter of the works area, the 60 dB contour would cover the southernmost part of the SPA but only during compound set-up, which would take approximately 1 month. The approximately 4-month trenchless bore itself does not result in the 60 dB contour straying into the SPA because of the distance from the SPA (approximately 40 m) and the use of standard noise control methods.

2.9.42 A noise fence would also act as a visual screen, thus protecting birds in the SPA from visual disturbance. The fencing in this location would not interfere materially with sightlines and openness due to the dense woody vegetation along the former railway line and the SPA boundary. All the open sightlines are generally north of the trenchless compound (S10) field. In two seasons of breeding bird survey, no SPA birds have been recorded nesting in the part of the SPA that would be subject to potentially disturbing noise levels during compound establishment. Moreover, Sandlings SPA is designated for its nesting nightjar and woodlark. These species are either absent (nightjar) or non-breeding (woodlark) from September to January inclusive.

2.9.43 However, as a precaution it is assumed that SPA birds could nest within the part of the SPA which may be affected by noise disturbance, before construction commences, and thus be present during the compound set up works. Without additional mitigation this would be a moderate adverse impact on a receptor of international importance, leading

to a **moderate adverse** effect that is significant. Additional mitigation beyond standard noise mitigation is therefore discussed below.

2.9.44 Works that can be scheduled to take place between September and January inclusive are, therefore, unlikely to result in disturbance of nesting nightjar or woodlark. Trenchless compound (S10) set-up is programmed to occur outside the nesting season (February to August). This is secured as provision B27 of **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**. With this additional mitigation included the noise impact on the SPA is a negligible impact on a receptor of international importance, which is a negligible residual effect that is not significant.

2.9.45 With regard to Leiston-Aldeburgh SSSI, the 60 dB contour overlaps with the SSSI outside the SPA slightly (just to the east of the railway line) and the bird surveys show that the very small part of the SSSI within the 60 dB contour supports ditch and reedbed breeding birds, e.g. reed warbler[8]. However, during pre-application discussion, Natural England has indicated that whilst these species are part of the 'lowland open waters and their margins' breeding bird assemblage feature of the SSSI, given the size of the area affected, LAmax noise levels over 60 dB in this small area are unlikely to significantly affect the SSSI[9]. It is also important to note that the 60 dB LAmax contour is the maximum noise level experienced during an activity, not the typical or average noise level, which is much lower, and would therefore not be experienced continuously. This would be a minor adverse impact on a receptor of national importance (since the internationally important features have been discussed already) resulting in a **minor adverse** effect that is not significant. Moreover, the additional mitigation discussed above for the SPA would also reduce the impact on the SSSI by timing the most disturbing element of works outside the nesting season.

2.9.46 Moving from noise to visual disturbance, there are several commitments that will ensure no lighting disturbance of the SPA arises:

- Commitment B38 states that '*Around construction compounds and the converter station and substation works areas, direct illumination of boundary features* (which for this compound would include the SPA) would be avoided'.
- Commitment B23 states that '… *At the trenchless compound, a noise barrier of a minimum height of 3m will be used … to prevent visual disturbance'* of the Sandlings SPA. This would include disturbance from lighting fixtures.
- Commitment GG21 states that '*Construction lighting will be of the lowest levels necessary to safely perform each task. It will be designed, positioned and directed to reduce the intrusion into adjacent properties, protected species and habitats (e.g. watercourses) and designated conservation sites'.*

2.9.47 The only features that would be above 3 m would be the top of the HDD rig, recycling system and excavator boom. These features are not considered to be visually disturbing and any lighting on these features would be targeted task lighting controlled by measures B38 and GG21. If the lighting columns themselves are required to be above 3 m in height, this would be captured by measure B23 which stipulates the barrier must

[8] The noise contour mapping shows the 60 dB line extending further into the SSSI, but this is because it has been applied to the monitoring access locations where in practice no construction works would occur

[9] Email from Natural England to AECOM 08 July 2024

be a minimum of 3 m height. Specific shields and additional barriers could therefore be added if needed.

2.9.462.9.48 With additional mitigation, noise and visual disturbance for Leiston-Aldeburgh SSSI/RSPB North Warren constitutes a minor adverse impact on a receptor of national importance, that results in a residual effect that is **negligible** and not significant.

2.9.49 There will also be a need for Unexploded Ordnance (UXO) investigation at the proposed trenchless launch pit and along the route of the trenchless installation. The route of the installation through the RSPB reserve is sufficiently deep that it will be below the maximum bomb penetration depth of 10-12 m. However, a survey is still required to ensure that all possible UXO close to the trenchless drill are identified. The trenchless launch pit and initial section of drill into the RSPB Reserve will both be above the bomb penetration depth. UXO surveys that may affect Leiston-Aldeburgh SSSI and Sandlings SPA (the RSPB Reserve) would be subject to SSSI Assent from Natural England and agreement with the landowner (RSPB). These surveys will either be undertaken by drone (and would thus be timed to a period, agreed with Natural England and RSPB, where significant disturbance would not arise i.e. autumn), or would be undertaken manually and in a non-invasive manner. No vegetation clearance will be undertaken for the surveys.

2.9.50 There is no recorded ordinance at the Suffolk trenchless drill site and the information contained with the UXO report for the DCO shows no evidence of bombs being dropped at the site; therefore, it is considered that the launch site is of lower risk of encountering UXOs than other areas. In practice, if a UXO is encountered at the drill site or within the survey area, a range of potential solutions are available: it may be confirmed as a dummy, drill depth or alignment could be amended within the Order Limits to avoid it, it may be able to be disposed of elsewhere, or it may need to be disposed of in situ by one of various methods. Some of these decisions will not be in the control of National Grid but the disposal body. Commitment GG39 of the REAC states that '*Where the Applicant has influence over the controlled explosion of terrestrial UXO they will inform Natural England and RSPB in advance to take measures to protect Sites of Specific Scientific Interest where practicable'.* Any detonation in place is likely to require SSSI Assent as a potentially damaging operation to the Leiston-Aldeburgh SSSI, which may involve timing disposal to a less sensitive seasonal window and, even then, would not necessarily result in significant disturbance (i.e. disturbance that is continuing or sustained).

2.9.51 Terrestrial UXO disposal is therefore expected to result in a residual disturbance effect that is **negligible and not significant**. This will be reviewed as part of the statutory SSSI Assent process in due course if any UXO is identified and cannot be avoided or disposed of by other means.

Habitats and Flora

2.9.472.9.52 Note that this section considers habitats for their intrinsic botanical value. The role of habitats in supporting particular faunal groups is discussed under each faunal group below.

Habitat loss

2.9.482.9.53 Instances of scarce arable flora in field margins were found across the Suffolk Onshore Scheme, such as *Filago germanica, Lycopsis arvensis, Papaver rhoeas, Spergula arvensis* and *Glebionis segetum*. In particular, a small population of *Spergula*

arvensis (approximately 15 plants) was recorded at TM42845981 where a utility diversion is proposed, and others have been recorded at TM44335876 where the cable corridor would pass between an area of semi-natural woodland and an area of plantation, and within the cable corridor at TM42146067. There is also a population of *Glebionis segetum* recorded at TM44025914, but this area would only be needed for monitoring access. Rare arable plants are generally annual species that germinate from the seedbank; in other words, each plant dies at the end of the growing season and new plants regrow from fallen seed. Therefore, provided the soil is stored and replaced in its correct order of removal this would ensure the preservation of the seedbank and the preservation of the population. This is therefore a minor adverse impact on a receptor of national importance which equates to a **minor adverse** effect that is not significant. No additional mitigation is therefore required for rare arable plants.

~~2.9.49~~2.9.54 A clear span bridge is proposed across the River Fromus, with a height of up to either 6 or 4 m (from the ground level at the abutment to the top of the parapet) and 62 m long approach ramps (for the 6m option) or 42 m long approach ramps (for the 4m option). With either bridge design option, the bridge abutments would be set back 8m from the bank top, and therefore no loss of emergent riparian vegetation is anticipated.

~~2.9.50~~2.9.55 An area of approximately 7.6 ha of acid grassland north of the golf course and east of the B1122 would be temporarily removed due to the trenchless compound (S10) and a section of buried cable and associated haul road during the construction phase. All but 0.3 ha of this acid grassland is botanically degraded and does not meet the botanical criteria for classification as 'priority habitat'. There are bands of semi-improved neutral grassland that form field margins (headlands) and which would be traversed by the cable route or proposed construction access. These total approximately 0.4 ha.

~~2.9.51~~2.9.56 For the 6m (from the ground level at the abutment to the top of the parapet) height bridge over the River Fromus, approximately 0.2 ha of semi-improved neutral grassland would be lost due to the construction footprint of the bridge and access ramps and the permanent access track either side. For the 4 m high bridge this would reduce to approximately 0.15 ha.

~~2.9.52~~2.9.57 There are four locations in which woodland or scrub would be removed. These are:

- a 0.3 ha block of dense scrub (predominantly bramble) west of Leiston Road (B1122)
- a 1.5 ha block of coniferous plantation and broadleaved plantation east of the proposed Saxmundham Converter Station. Orchids have been identified in this location and where possible the cable route would be micro-sited to avoid these using an ecologist providing guidance on the ground. This is measure B29 in **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**;
- an approximately 0.3 ha area of cricket bat willow plantation at the location of the River Fromus crossing if it is not already removed by the landowner in advance of the Suffolk Onshore Scheme; and
- an area north of the golf course at TM 44345 58758 where the cable must pass between semi-natural broadleaved woodland on one side and broadleaved plantation (maple and sessile oak) on the other side. In this location the gap has been narrowed to 20 m (the minimum corridor width) and losses would mainly be from the plantation rather than the semi-natural woodland. As such the total loss of semi-natural woodland would be approximately 100 m^2.

2.9.532.9.58 Four sections of Important Hedgerow identified as such for ecological reasons (as defined in The Hedgerow Regulations 1997 and in the additional guidance provided by Suffolk County Council and East Suffolk Council) and thirteen sections of Important Hedgerow identified as such for historical reasons, would also have sections temporarily removed for the haul route and buried cable. These are shown in **Application Document 6.4.2.2.A.7 Suffolk Important Hedgerows**. The ecologically Important Hedgerows are 11, 23, 31 and 56 on this Important Hedgerow figure. The gap within retained hedgerows would be shorter where HVDC only is being installed. This would limit the gap to 20 m; however, where HVDC and HVAC are installed (between the Saxmundham Converter Station and Friston Substation), the gap would increase to 39 m. Therefore, the temporary loss of ecologically Important Hedgerow comes to approximately 80 m while that of all Important Hedgerow (including those of historical importance) comes to 440 m. Moreover, due to proximity of possible compounds S04 and S05 to Important Hedgerows 3 and 5 there is the potential for other incidental damage during construction, as there is to the other Important Hedgerows to be traversed.

2.9.542.9.59 In addition to Important Hedgerows, sections of five other hedgerows would be temporarily removed to construct the HVDC and HVAC cables. This would amount to approximately 100 m of other hedgerows removed.

2.9.552.9.60 Finally, approximately 26 m of a wet ditch (dubbed the Western River Fromus tributary) with marginal and aquatic vegetation would be temporarily lost due to a temporary culvert (13 m in length) to be installed for a haul road and two temporary outfalls into ditches to discharge surface runoff from the haul road/construction sites. Each of these outfalls would have a diameter of approximately 2 m (there are other temporary outfalls, but these would all discharge to seasonally dry field drains with no emergent or aquatic vegetation). The losses although temporary may not be short term.

2.9.562.9.61 The option to lay the cables across ditches and under hedgerows using a method other than open cut trenching, such as horizontal directional drilling, has been explored as part of the design development. However, this is considered impractical due to the need for large construction compounds at either side of any ditch or hedge to send and receive the drill, and the fact that such crossing methods would take significantly longer (given the number of hedges to be traversed) than the open cut trenching method and therefore extend the overall construction programme and duration of disruption.

2.9.572.9.62 All of these temporary habitat losses would ultimately be reinstated as set out in **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan- Suffolk** and in GG07 of **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**. Most can be reinstated in the winter following cable installation in a given section, although a 7 m gap for the haul road (increasing to 13 m at ditch culverts) will have to be retained until the end of the construction programme. While it is not possible to plant trees over the cable route it is possible to plant shrubs, and to plant riparian vegetation in areas where the cable route or construction access has traversed ditches.

2.9.582.9.63 Hedgerows and lowland mixed deciduous woodland are also Suffolk Biodiversity Action Plan priority habitats. Although temporary gaps in hedgerows and woodland belts would be closed, the new planting would not be immediately mature, with shrub and tree growth potentially taking 10 years or longer to reach that state. As set out in **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan- Suffolk** vegetation removed from hedgerows and ditches would be retained as close to the area of removal as possible, retaining intact root balls, where feasible and

desirable, such that it can be re-used. Even if hedgerow material dies during this process, it can still be of value in quickly establishing a natural structure in the gap. Hedgerow gaps would be planted once works are complete with 'light standards' or feathered trees, while gaps in ditch marginal vegetation would either be planted with mature emergent vegetation purchased from nurseries or left to recolonize naturally from the adjacent ditch vegetation. Note that because of the linear nature of the vast majority of the temporary landtake outside arable land, the vast majority of the lengths or areas of hedges and ditches that would be traversed by the Suffolk Onshore Scheme would be retained during the construction period.

~~2.9.59~~2.9.64 As a result there would be a moderate adverse impact and thus **moderate adverse** effect on a receptor of up to Regional importance (this being the importance accorded to features such as Important Hedgerows) in the short to medium term, lasting for between 1-2 seasons (for easily restored habitats such as ditches) to 5-10 years or longer for sections of hedgerow and woodland, as the works are completed and vegetation recovers. This is considered significant in the short to medium term.

~~2.9.60~~2.9.65 However, the losses documented above are not permanent losses. This is because there would be extensive habitat creation as part of the Proposed Project, around the Saxmundham Converter Station and Friston Substation, along the permanent access road where hedgerows would be planted and around the permanent crossing of the River Fromus. This is being done for reasons of landscape design and to facilitate drainage. As part of the proposed landscape planting, 21 ha of woodland, 6.9 ha of species rich neutral grassland, 1.5 ha of native hedgerow and 0.8 ha of balancing pond would be created around the Saxmundham Converter Station and Friston Substation, and there would be riparian planting and enhancement along a 500 m stretch of the River Fromus corridor, which may include wet grassland. See **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan- Suffolk** for details.

~~2.9.61~~2.9.66 As a result there would be a long-term increase in woody and wetland habitats due to the Suffolk Onshore Scheme, increasing the ecological value of what is currently a predominantly arable landscape of relatively low botanical value or diversity, or diversity of habitat structure.

~~2.9.62~~2.9.67 Without additional mitigation there would still be a medium-term moderate adverse impact on a receptor of Regional importance due to the temporary loss of acid grassland, as there are no proposals for creating such habitat around the Saxmundham Converter Station or Friston Substation, as well as damage to orchids and potential damage to Important Hedgerows, This would be a moderate adverse effect that is significant. Therefore, additional mitigation is required.

~~2.9.63~~2.9.68 Since good quality acid grassland is a priority habitat under the NERC Act and the Suffolk Biodiversity Action Plan, and is nationally and regionally scarce, approximately 6 ha of acid grassland enhancement would be delivered as part of the Proposed Project. This habitat enhancement would be commenced prior to the loss of acid grassland east of Leiston Road and secured for 10 years to offset the lag time in restoration of the existing acid grassland that can be expected once the cable trench works are complete, and the trenchless compound (S10) and haul road are removed. The plot identified in the Order Limits for this enhancement is on suitable sandy soils and is close to existing areas of acid grassland. As none of the acid grassland is being lost permanently, this would result in a medium-term increase in the area of priority habitat, resulting in a positive impact.

2.9.642.9.69 For the orchids, during works in the broadleaved plantation east of the proposed Saxmundham Converter Station (TM 40017 62229) the cable route would be micro-sited to avoid the orchid population wherever possible, using an ecologist providing guidance on the ground (B29 of the **Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments**).

2.9.652.9.70 For Important Hedgerows (and particularly Hedgerows 3 and 5 if compound options S04 and S05 are selected, and Hedgerow 23 adjacent to Friston Substation) the hedgerows would need to be fenced to avoid incidental damage in line with commitment B31 of **Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments**).

2.9.662.9.71 With this additional mitigation included, temporary loss of habitats is considered a minor adverse impact on a receptor of up to Regional importance (this being the value accorded the acid grassland, hedgerows, and semi-natural broadleaved woodland), leading to a residual effect that is minor adverse in the medium term, becoming **moderate beneficial** in the long term. In the long-term this would be a positive significant effect.

Pollution (dust)

2.9.672.9.72 The assessment for dust applied to designated sites in paragraphs 2.9.16 to 2.9.19 also applies to habitats.

2.9.682.9.73 Dust pollution on habitats is considered a **negligible** effect on habitats of up to Regional importance, and thus is not significant.

Pollution (spillage)

2.9.692.9.74 The assessment for spillages applied to Designated Sites in paragraphs 2.9.20 to 2.9.26 also applies to habitats.

2.9.702.9.75 Pollution (spillage) on habitats is considered a **negligible** effect on habitats of up to Regional importance, and thus is not significant.

Ornithology

Habitat loss

2.9.712.9.76 The areas of temporary habitat loss discussed in the habitats section above are also of value to breeding and wintering birds. The acid grassland that would be unavailable during construction is of nesting value to skylark and, at least for foraging value, to woodlark (Schedule 1 species). The hedgerows, field margin neutral grassland, plantation and ditch habitats across the Suffolk Onshore Scheme are of value to nesting birds, which make up the breeding bird assemblage; both common species and species of conservation concern. Some of the hedgerows support pairs of nesting red list linnet.

2.9.722.9.77 In addition to the loss of semi-natural habitats for breeding birds approximately 20 ha of arable field would be temporarily lost during construction of the HVDC and HVAC cables and through construction compounds and associated haul roads and store areas (this does not include the arable land to be lost permanently which is discussed under operational impacts).

2.9.732.9.78 These areas of arable land are of value to nesting skylark and (in smaller numbers) yellowhammer, both red list species, particularly the fields in which the Saxmundham Converter Station and Friston Substation would be located, and the large arable field north of the proposed Converter Station in which construction compounds S2 or S3 would be situated. Note that only one of these potential construction compounds (S2, S3 or S4/5) would be required in practice, rather than all three. The arable land is also of value to wintering birds such as linnet and lapwing, in addition to some localised but regular use by golden plover and curlew. For example, a flock of 30 curlew was recorded in a field near the Saxmundham Converter Station in October 2022 where the proposed construction compound S2 or S3 would be located. Despite this a large area would be retained including the specific area where the birds were recorded.

2.9.742.9.79 Areas of temporary habitat loss other than at construction compounds (which is mainly loss of arable field) and under the haul routes, would be typically for one growing season (for example, cable installation by trenching can move at 100-300 m per week on average). Habitat creation around the Saxmundham Converter Station and Friston Substation, including extensive woody planting, balancing ponds, enhancements to the riparian zone around the crossing of the River Fromus, and hedgerow planting along the permanent access road, would ensure a long-term overall increase in woody and wetland habitats for nesting, offsetting shorter term habitat losses.

2.9.752.9.80 Mitigation for temporary habitat loss such as the planting around the Saxmundham Converter Station has been discussed under the section on habitats and also applies to the breeding ornithological interest.

2.9.762.9.81 Although there would be an overall reduction in arable land for nesting skylark and yellowhammer during construction, fields would be returned to arable farming as soon as works in those areas cease, so the impact would be temporary. Moreover, approximately 12 ha of land currently farmed under winter cereals, which is unsuitable for breeding skylarks, has been included within the Suffolk Onshore Scheme Order Limits as additional mitigation for the permanent loss of nesting skylark habitat (see operational effects below) and would be farmed in a manner that benefits breeding skylarks, providing some alternative nesting locations for displaced pairs and reducing the temporary impact. This would include retention of winter stubble when spring cereals are included in the rotation and incorporation of nesting skylark plots at a rate twice that required under Countryside Stewardship. These would be farmed in a suitable manner for the forty-year lifetime of the Suffolk Onshore Scheme. Winter stubble and fallow patches for skylark are also of value to the wintering bird assemblage, including golden plover and curlew. Moreover, for a 10-year period an area of acid grassland would be managed in a way which would also benefit nesting skylarks and other ground-nesting species.

2.9.772.9.82 As a result there would be a moderate adverse impact on a receptor of up to Regional importance (this being the importance accorded to the aggregation of breeding and wintering birds west of Leiston Road) in the short to medium term, which would be a **moderate adverse** effect. The effect would last for between 1-2 seasons (for easily restored habitats such as ditches) to 5-10 years or longer for sections of hedgerow and woodland, as the works are completed and vegetation recovers. This is a significant residual effect in the short to medium term. However, since these are temporary losses, this is reversible and there would be a moderate beneficial impact in the long-term due to habitat creation and enhancement. This is a long-term **moderate beneficial** effect which is significant.

Visual and noise disturbance

~~2.9.78~~2.9.83 This section discusses disturbance of nesting and non-breeding birds outside designated sites, as potential for disturbance within designated sites has already been discussed. In order to avoid direct disturbance to nesting birds, and to comply with the requirements of the Wildlife & Countryside Act 1981 (as amended), which makes it an offence to destroy active bird nests, vegetation removal has been programmed to take place during September to February inclusive and thus outside the nesting season. If any works become necessary during the breeding bird season, works will be supervised by an Environmental Clerk of Works. Appropriate protection measures will be put in place should active nests be found. These will include exclusion zones around active nests until chicks fledge or nests become inactive as determined by monitoring by the Environmental Clerk of Works (B02).

~~2.9.79~~2.9.84 In terms of disturbance of nesting birds outside the Order Limits and outside designated sites, a 60 dB LAmax potential noise disturbance zone has been identified for each phase and the overall contour is presented in **Figure 3 Map of 60dB average Lamax contour at Suffolk** within **Application Document 6.6 Habitat Regulations Assessment Report**; this threshold has been agreed with Natural England as the zone in which disturbance may arise as a general rule. There would inevitably be some disturbance and displacement of nesting birds, although some birds are more noise tolerant than others. However, disturbing works would not take place simultaneously across the entire Suffolk Onshore Scheme. Most works would move across the site quickly (cable/haul route/culvert installation at a rate of approximately 100-300 m per week on average based on programme), so it is only around construction compound S10, the Saxmundham Converter Station area, and other construction compounds where a lengthy period of continued exposure to a fixed noise source may arise. Moreover, due to the large geographic area covered by the Suffolk Onshore Scheme even these more fixed noise sources are widely dispersed across the landscape, such that large areas of arable land, woodland and hedgerow would remain unaffected.

~~2.9.80~~2.9.85 Under the Wildlife & Countryside Act 1981 (as amended) it is also an offence to disturb those bird species listed on Schedule 1 of the Act, while they are nesting. There are several Schedule 1 species that nest outside designated sites but within or close to the Order Limits. A pair of Schedule 1 hobby was recorded nesting in 2023 and 2024 approximately [redacted]. This nest fell out of the tree at the end of the 2024 breeding season but illustrates that hobby could nest within the vicinity of the Suffolk Onshore Scheme. A barn owl was recorded nesting within a tree within the Order Limits south of the River Fromus bridge crossing, and surveys in 2024 also indicated that the pair of barn owls were roosting in a tree further south. There are barn owl boxes situated in the woodland north of compound S08. Several pairs of woodlarks were recorded breeding across the Suffolk bird survey area outside of the SPA, although outside the Order Limits. Birds are highly mobile species, and some may change breeding locations yearly. For example, surveys for the Suffolk Onshore Scheme have shown that woodlarks would nest on fallow fields on sandy soils. Barn owls are likely to be loyal to the nest.

~~2.9.81~~2.9.86 Although there will be a temporary overhead line diversion with temporary pylons, there is an existing overhead line in Suffolk on an adjacent alignment to the temporary pylons. Therefore, there will be no material change in collision risk.

~~2.9.82~~2.9.87 Overall therefore, disturbance of birds outside designated sites is considered a moderate adverse impact on a receptor of up to Regional importance, which is a

moderate adverse effect that is significant without additional mitigation. Additional mitigation is discussed below.

2.9.832.9.88 To avoid disturbance of nesting hobby, three wicker baskets would be placed in trees at least 200 m from the Order Limits to provide undisturbed nest locations for hobby before the breeding season commences (B33). To avoid disturbance of nesting barn owls, the existing barn owl nest box near the River Fromus bridge would be removed during the winter and three replacement barn owl boxes would be installed in trees further south of the River Fromus bridge (B34). Similarly either the barn owl box north of compound S08 would be moved when it is not occupied to ensure it is located at least 100m from the compound, or additional barn owl boxes will be erected and the compound will be established when barn owls are not nesting. If barn owls commence nesting after the compound is established and operational it can be assumed they are not disturbed by the activity. To avoid disturbance of nesting woodlark, works close to known nesting areas would be commenced during the winter so there is already activity before the nesting season; the birds would then choose alternative nesting locations (B35). All these measures are contained within either **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan- Suffolk** or **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments)**.

2.9.842.9.89 Like woodlarks, skylarks nest on the ground. In the case of skylarks this is particularly the case in and around the Saxmundham Converter Station and Friston Substation fields and in areas of acid grassland to be affected (such as by the trenchless bore). Where areas of arable fields or acid grassland are located within the Order Limits, two approaches can be applied to the Suffolk Onshore Scheme. The first would be to clear crops from the fields between October and February before works commence and then ensure that vegetation is kept clear from those areas until construction starts in that area, as any regrowth of vegetation could attract ground-nesting birds such as skylark and woodlark. The second approach is to agree with the landowner and/or tenant farmer to leave the previous crop in the ground so that there is already a tall, dense crop in spring, which would deter ground-nesting birds from utilising that field. Where acid grassland is part of the works the first of the two approaches would be used.

2.9.852.9.90 Lighting for construction should only be needed around construction compounds and the trenchless compound (S10). This would be targeted directional lighting with cowling and other lighting controls to manage (and in the case of the trenchless compound avoid) incidental illumination (B38).

2.9.862.9.91 Following the additional mitigation identified above, noise and visual disturbance is considered a minor adverse impact on a receptor of up to Regional importance (this being the value accorded wintering and breeding birds west of Leiston Road), leading to a **minor adverse** residual effect on ornithology that is not significant.

Dormouse

Habitat loss

2.9.872.9.92 Based on the dormouse survey undertaken for the Suffolk Onshore Scheme, dormice are assumed to be absent from the Order Limits, since no confirmed records of dormouse were identified from the nest tubes placed on site. However, due to a record of ‘possible’ dormouse nests, and the presence of harvest mouse (a NERC Act

species), a precautionary approach to the removal of vegetation suitable for dormouse would be followed.

2.9.882.9.93 Vegetation clearance would be undertaken in two stages. The first stage would comprise an initial cut to 150-300 mm, with a second cut at least 24 hours later to ground level. Prior to each stage of clearance commencing, the Suitably Qualified Ecologist (SQE) would carry out a fingertip search of the area. The SQE would hold (or be accredited to work under) a WML-CL10a Natural England hazel dormouse class license (Class 1 survey license). They would check the area for signs of hazel dormice, including nests. Clearance would only proceed if hazel dormice are confirmed to be absent. The SQE would remain on site until the vegetation suitable for hazel dormouse is cleared. All clearance works of vegetation that is suitable for dormouse must be undertaken using hand-held tools such as strimmers and chainsaws. In the unlikely event that a hazel dormouse or signs of hazel dormice are encountered during the search it would be left in situ, works would cease, and a European Protected Species Mitigation License obtained from Natural England

2.9.892.9.94 Since dormice are assumed absent based on survey data for the Suffolk Onshore Scheme, habitat loss is considered a negligible impact leading to a **negligible** effect that is not significant.

Badger and other mammals

Habitat loss

2.9.902.9.95 Most of the areas of temporary habitat loss discussed for **Habitats** are also of value to badgers for foraging.

2.9.912.9.96 Badger signs have been recorded across the Suffolk Onshore Scheme within and outside of the Order Limits. Two main setts have been identified, both of which are [redacted]). These are shown in the unredacted version of **Application Document Figure 6.4.2.2.A.4 Suffolk Badger Evidence Locations**. However, in both cases there would be at least a 40 m set back between the sett and the construction compound and in neither case would the sett be isolated from the surrounding countryside. It would therefore not need closing. Although there would be temporary habitat loss, particularly due to the construction compounds, much of this would be short-term as the earth is backfilled into the trenches following cable installation. The compounds, haul road and cable trenches would be there for longer but would mainly be from arable fields and would result in a relatively small loss of overall habitat available for badgers in the landscape.

2.9.922.9.97 Temporary habitat loss is considered a minor adverse impact on badgers, a receptor of Local importance, leading to a minor adverse effect that is not significant. Moreover, in the long-term there would be an overall increase in habitat of value for badgers due to the extensive woodland planting around the Saxmundham Converter Station and Friston Substation which would be a **minor beneficial** effect on badgers in the long-term, which is not significant.

2.9.932.9.98 It is understood from local feedback that large herds of red deer sometimes congregate in the field where the trenchless launch pit would be located. Therefore, this field would be unavailable to red deer during a part of the construction period (approximately. 6 months). It would become available again once construction had ceased in that location. Red deer are a common and widespread game species in the

UK and are expanding in both geographic range and abundance[10]. They are therefore low conservation priority and receive no legal protection other than through the Deer Act 1991 which governs when and how they can be hunted. Being large animals they have a large home range (typically a minimum of 200 ha and often much larger) such that this field is likely to be a small part of a much larger area used by the deer. During works in this location there would therefore be a considerable area of remaining habitat available to their use. This is therefore a negligible impact on a receptor of Local importance resulting in a **negligible** effect that is not significant.

~~2.9.94~~2.9.99 Hedgehogs are a declining species in the UK[11]. While the reason for this decline is unclear, it is likely permanent hedgerow loss is a significant contributing factor in rural environments. There would be some temporary hedgerow loss as a result of the Suffolk Onshore Scheme, but the majority of these gaps would be restored following works, and the gaps created represent a relatively small amount of the overall hedgerow resource in the area. In the long-term the temporary gaps in hedgerows for construction would be more than offset by permanent gains in woodland and hedgerow planting around the Saxmundham Converter Station and Friston Substation and along the permanent access roads. This is therefore a negligible impact on a receptor of District importance resulting in a **negligible** effect that is not significant.

Connectivity

~~2.9.95~~2.9.100 Two main badger setts are located [redacted]); however, there would be 40 m set back from each sett and neither sett would be isolated from the surrounding countryside. The construction compounds would not be used before 07.00 hours or after 19.00 hours; any vehicles using the access in and out of the compounds and around the main sett would be made aware of the sett and be aware of the movement of badgers at dusk, overnight and at dawn. Signs of badger are present across the Suffolk Onshore Scheme within the Order Limits. Therefore, the area is suitable for several family groups of foraging badger. Badgers (and other mammals) can get trapped in deep excavations left open overnight and, without appropriate escape routes, could potentially be killed or injured.

~~2.9.96~~2.9.101 Passage of badgers (and other small to medium sized mammals such as hedgehogs) around the site would not be negatively affected because they can cross the haul road freely with low risk of killing and injury because of the low number and speed of vehicles and the general absence of vehicles at night. While the haul road would be fenced, this fence would not go entirely to ground level so mammals such as badger would be able to pass. There would be no lighting within 10 m of any badger setts based on current knowledge of sett distributions. If that changes it will be captured in update surveys prior to construction and lighting would only ever be used during construction hours as limited by Requirement 7 in the DCO and not in the direction of the sett entrances. Open trenches would need to be covered at night or 'mammal ladders' (e.g. planks of wood) placed in them to enable any badgers that fall in to escape. This is not only a requirement of the Protection of Badgers Act but also the Animal Welfare Act 2006.

[10] https://bds.org.uk/information-advice/about-deer/deer-species/red-deer/

[11] SoBH-2022-Final.pdf

2.9.972.9.102 Therefore, disruption of connectivity for badger is considered a negligible impact on a receptor of Local importance, leading to a **negligible** effect on badgers that is not significant.

Bats

Habitat loss

2.9.982.9.103 Some of the areas of temporary habitat loss discussed for habitats, notably areas of plantation, the River Fromus corridor around the proposed River Fromus crossing, and linear hedgerow features found across the Suffolk Onshore Scheme, are also of value to bats for commuting and foraging.

2.9.992.9.104 Key areas for bat activity with regards to foraging and commuting are:

- woodland edges, particularly at the south of Transect 2, between two woodlands at the south of Transect 2 and the north-east of Transect 1, and at the east of Transect 11; and
- hedgerows throughout all transect routes, and particularly within the west of Transect 3, throughout Transect 4 and the east of Transect 8.

2.9.1002.9.105 See maps for **Application Document 6.3.2.2.I Appendix 2.2.I Nighttime Bat Walkover and Static Detector Survey Report** for details.

2.9.1012.9.106 There is a probable barbastelle bat roost within [redacted] Given the requirement of barbastelles for dark woodland conditions for their roosts it is likely the roost is in the body of the wood rather than on the woodland edge. [redacted] would not be affected directly by the Suffolk Onshore Scheme but there would be a temporary and permanent access traversing the hedgerow with trees that runs north from Bloomfield's Covert which could affect habitat connectivity. Since this is only required for vehicular access, an existing gap would be used and the total gap created would be 10m maximum (B37 of **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments**) which is not considered wide enough to affect connectivity.

2.9.1022.9.107 Barbastelle connectivity at a landscape scale from this wood is mainly to the south and west rather than north and east and thus Important Hedgerow 3 (see **Application Document 6.4.2.2.A.7 Suffolk Important Hedgerows** for location) is less relevant for bat commuting; however, a hedge (which has fuller vegetation) connecting Important Hedgerow 3 and Important Hedgerow 5 is used by barbastelle. Based on indicative compound layouts that hedge would have a setback of 30 m from compound S03. If compounds S04/S05 were chosen as an alternative compound there would be a 20 m setback. To ensure this minimum setback it is discussed below as additional mitigation.

2.9.1032.9.108 Gaps in hedgerows would be restricted during construction of the buried cable route from 40 m (the typical working corridor for the HVDC cable) to 20 m wherever possible. Between the Saxmundham Converter Station and Friston Substation the HVAC and HVDC cables will both be in trench resulting in a minimum gap of 39 m. Minimising hedgerow gaps is part of general good practice and in line with commitment B11 of **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments**. Many gaps in hedgerows would be closed as soon as possible following cable installation by replacing existing mature material and 'light standards' or feathered trees (details in **Application Document 7.5.7.1 Outline**

Landscape and Ecological Management Plan- Suffolk). However, the gap for the 7 m haul road (10 m including drainage) would last through construction.

~~2.9.104~~2.9.109 Long-term habitat creation around the Saxmundham Converter Station, Friston Substation (for the scenario where the substation is built as part of the Proposed Project) and permanent access, such as new woodland, hedgerows and balancing ponds, would ultimately benefit foraging and commuting bats by increasing connectivity across the Suffolk Onshore Scheme and wider countryside in the long term and improving food sources.

~~2.9.105~~2.9.110 Nonetheless, gaps in hedgerows, or between blocks of woodland, of 20 m to 39 m width could result in habitat loss (or effective habitat loss) through disruption of connectivity for commuting and foraging bats. This would be a moderate adverse impact on a receptor (bat habitat) of up to Regional importance, which would be a moderate adverse effect which is significant. Therefore, additional mitigation is required.

~~2.9.106~~2.9.111 This would take the form of closing gaps (or at least reduced to 10 m maximum) in hedgerows at night using hurdles or similar. This and similar methods are set out in **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan- Suffolk**. It would also take the form of ensuring a fenced minimum 20 m setback of construction compounds from the hedgerow used by barbastelle which connects Important Hedgerows 3 and 5 as shown in **Application Document 6.4.2.2.A.7 Suffolk Important Hedgerows**. This is commitment B30 in **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments**.

~~2.9.107~~2.9.112 Given this additional mitigation, temporary habitat loss is a minor adverse reversible impact on a receptor of Regional importance, leading to a residual effect that is **minor adverse** and not significant.

Killing and injuring

~~2.9.108~~2.9.113 Three trees with PRF-I (potential for individual bats) would be removed to facilitate the construction of the proposed Suffolk Onshore Scheme: trees 1-2, 162-2 and 423-2. A fourth (468-1) was also deemed to have potential but lies within the footprint of the Fromus Bridge and will be removed through normal plantation management before start of construction on the Suffolk Onshore Scheme. No bats were recorded using these trees during the baseline surveys; therefore, there are no confirmed roosts. However, the potential remains for bats to colonise the trees before these are removed. Bats are protected from killing or injury under the Wildlife and Countryside Act 1981 (as amended) (HM Government, 1981). Therefore, these trees would be required to be removed under a precautionary working method prior to the start of construction works to ensure no bats are killed or injured. Three replacement bat boxes would be installed on trees nearby within the Order Limits for each tree with potential to support bats that is to be removed. This commitment is B06 within **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments**.

~~2.9.109~~2.9.114 Killing or injuring is considered a negligible impact on a receptor of Regional importance and is thus a **negligible** effect which is not significant.

Disturbance

~~2.9.110~~2.9.115 Woodland and hedgerows are of particular value to commuting and foraging bats. There are a significant number of trees with roost potential within the Suffolk Onshore Scheme and within 10 m of the Order Limits, although only three would be removed

during the proposed construction works. Artificial lighting at night can increase the chances of predation by avian predators, such as owls and hawks. It has been shown that bats in lit areas modify their usual behaviour, potentially in response to this threat. Several slower-flying, broad-winged species have been shown to avoid commuting and foraging in areas which are lit at night by artificial lights, including long-eared bats, *Myotis* bats, and barbastelle, all of which have been recorded within the Suffolk Onshore Scheme.

~~2.9.111~~2.9.116 This puts these species at a competitive disadvantage as they are less able to forage successfully and efficiently (Bat Conservation Trust and Institute of Lighting Professionals, 2023). In addition to foraging, illuminating bat roosts can result in bats' deserting or becoming entombed within the roost. At a minimum, it can mean that bats would delay leaving the roost, limiting the time available for foraging and potentially impacting the mortality of the bats themselves or their young. Therefore, lighting that may be required during construction works, can be considered an obstruction under the legislation protecting bats and their roosts. This would constitute a moderate adverse impact on a receptor of Regional importance which in the absence of additional mitigation would be a moderate adverse effect, which is significant.

~~2.9.112~~2.9.117 Therefore, to ensure bat roosts, foraging, and commuting routes are not disturbed, nighttime lighting would be limited to the minimum needed for safety at only the construction compounds, converter station and substation construction sites, and the trenchless compound (S10). This would be targeted directional lighting with cowling and other lighting controls to manage (and, in the case of the trenchless compound, avoid) incidental illumination. Around construction compounds and the converter station and substation construction site, direct illumination of boundary features would be avoided. Lighting would be designed to comply with published guidelines such as that from Bat Conservation Trust referenced above. There would also be no lighting required for the haul road, and no direct lighting of features of value for commuting bats during construction. These requirements are contained within commitment B38 in **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments**.

~~2.9.113~~2.9.118 With the additional mitigation, disturbance is considered a negligible impact on a receptor of Regional importance, resulting in a residual **negligible** effect on bats that is not significant.

Reptiles

Habitat loss

~~2.9.114~~2.9.119 Two areas of the most suitable habitat were surveyed for reptiles: the acid grasslands north of Aldeburgh golf course and west of the North Warren RSPB reserve, and areas of semi-improved grassland east of the Saxmundham Converter Station. This was on the basis that taking into account both habitat suitability and connectivity, these were the areas where significant reptile populations were most likely to be found. Reptiles were only recorded within the acid grasslands, and all four species were observed: common lizard, slow worm, grass snake and adder. Approximately 7.6 ha of this habitat would be removed for both the trenchless pit and associated compound (S10), haul road and cable trenches during construction and although temporary, the loss may not necessarily be short-term due to the reestablishment time of the habitat.

2.9.1152.9.120 The acid grassland where most of the temporary loss would occur is immediately adjacent to Leiston-Aldeburgh SSSI and the golf course and is therefore contiguous with much larger residual areas of acid grassland and heathland. There is thus no potential for reptile populations to be concentrated in small areas of habitat, although some increase in reptile density can be expected. Nonetheless, as part of the broader proposals to mitigate for the loss of acid grassland during construction, the Proposed Project would enhance approximately 6 ha of existing acid grassland. This will enhance the grassland and also render it more suitable for reptiles (such as by removing dense bracken and invasive species, and by providing a more varied vegetation structure). This management would be maintained as such for 10 years following introduction to offset the lag time in restoration of the existing acid grassland that can be expected once the compound and cable trench works are complete.

2.9.1162.9.121 Temporary loss of habitats is considered a minor adverse impact on a receptor of District importance which is a **minor adverse** effect that is not significant.

Connectivity

2.9.1172.9.122 The haul route would only be used by a low number of vehicles travelling at low speed and would therefore not constitute a barrier to reptile movement. There would therefore be negligible disruption to habitat connectivity for reptiles (District importance) leading to an effect that is negligible and not significant.

Killing and injury

2.9.1182.9.123 The acid grassland north of the Aldeburgh golf course and west of the North Warren RSPB reserve has a good population of common lizards and slow worms and a low population of grass snakes and adders. The acid grassland would be removed to facilitate the construction of the trenchless pit, compound S10, and cable trenches, so vegetation removal and potential natural refugia removal would be required.

2.9.1192.9.124 Since only part of the entire suitable areas of acid grassland would be temporarily lost, and they are surrounded by large areas of other acid grassland and heathland habitat (the SPA with regard to east of Leiston Road and the golf course with regard to west of Leiston Road) reptiles would be cleared from suitable habitat using a displacement method (i.e. strimming to approximately 150 mm and then again to ground level to drive reptiles into the surrounding habitat). This is measure B05 of **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments**.

2.9.1202.9.125 With these precautions in place, the risk of killing or injuring is considered a negligible impact on a receptor of District importance, resulting in a **negligible** effect that is not significant.

Riparian mammals

Temporary habitat loss

2.9.1212.9.126 Localized evidence of otter and water vole were recorded within the Suffolk Onshore Scheme. Feeding remains for water vole were recorded in a ditch to the west of the River Fromus which would be culverted to facilitate the haul road. The culvert would be approximately 13 m long and there would also be two surface water drainage outfalls, resulting in total landtake of approximately 20 m of ditch.

2.9.1222.9.127 A potential otter couch (consisting of fallen willows with hollows) was recorded along the River Fromus itself, south of the alignment of the proposed new bridge. An otter spraint was recorded approximately 500 m south of the Suffolk Onshore Scheme under the existing bridge over the B1121, indicating riparian mammal passage along the River Fromus. The proposed new bridge over the River Fromus would be clear span and the abutments would be set back 8 m from the bank top (for both of the alternative design bridge options), so no loss of riparian habitat for mammals is anticipated.

2.9.1232.9.128 The temporary habitat loss would ultimately be reinstated. Gaps in ditch marginal vegetation would either be planted with mature emergent vegetation purchased from nurseries or left to recolonize naturally from the adjacent ditch vegetation. Moreover, the losses documented above are not permanent losses. This is because there would be habitat creation as part of the Proposed Project for reasons of landscape and drainage, including balancing ponds around the Saxmundham Converter Station and Friston Substation, and in various locations including along the River Fromus. See **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan- Suffolk** for details.

2.9.1242.9.129 As a result, there would be a long-term increase in wetland habitats due to the Suffolk Onshore Scheme. For example, following construction of the Saxmundham Converter Station and Friston Substation there would be an overall increase in wetland perimeter of approximately 500 m due to the permanent attenuation and infiltration ponds. These ponds will be designed to be of value for riparian mammals by retaining an earth ledge and sloping bank above a shallow permanent water level. The ledge would be planted with emergent riparian vegetation. While the water voles on site are using linear ditches, there are many examples of water voles using pond and wetland margins, and even nesting in reedbeds with no standing water.

2.9.1252.9.130 Overall, therefore, the temporary loss of ditch habitat is considered a minor adverse short-term impact on a receptor of Local importance, and in the long-term due to habitat creation there would be a moderate beneficial impact. This is a long-term **Moderate beneficial** effect which is significant.

Killing and injury

2.9.1262.9.131 Vegetation removal would be required along the wet ditch to the west of the River Fromus and the River Fromus itself to facilitate the construction of the proposed new bridge and haul road, although the section of the River Fromus over which the bridge would be situated has little to no marginal emergent riparian vegetation, with the river typically having steep (almost vertical) exposed earth banks.

2.9.1272.9.132 Construction of the Suffolk Onshore Scheme would be undertaken in line with the measures identified in **Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice**, in order to ensure that ecological constraints such killing and injury of riparian mammals are accounted for. Appropriate mitigation, such as precautionary working methods around sequential vegetation clearance as well as covering of trenches or providing suitable escape routes, would be undertaken during the construction to ensure no riparian mammals are killed or injured. These are contained within **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments**.

2.9.1282.9.133 In order to avoid the nesting bird season and the water vole active season, vegetation clearance of sections of ditch would take place during 15 September to 31 October, this being within the period when vegetation can be cleared without an impact

on water voles, and outside the bird nesting season, while also being a time when reptiles are still active and can be displaced by strimming. This commitment is in B48 of **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments**.

~~2.9.129~~2.9.134 Killing or injuring is considered a **negligible** effect on riparian mammals (Local importance) and thus not significant.

Passage

~~2.9.130~~2.9.135 For the purposes of this impact assessment, the culvert across the ditch west of the River Fromus would follow recommended design guidelines for wildlife[12] and is likely to be a box culvert that would either preserve the natural bed of the ditch, or have the inverts sunk below the bed level of the watercourse with natural/existing bed material then placed across the inside of the culvert to lift the level up to meet that of the existing. This is secured in commitment W03 of **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments**.

~~2.9.131~~2.9.136 The culverts would also avoid narrowing of natural channel width. This ensures maximum passability for eels (see below for an assessment of impacts on fish). Where bank material cannot be preserved within the culvert (due to the weight or levels) they would also include a minimum 150 mm wide mammal ledge (with 600 mm headroom) to ensure continued passability by water voles.

~~2.9.132~~2.9.137 In order to avoid the nesting bird season and the water vole active season, vegetation clearance of sections of ditch and the River Fromus would take place during 15 September to 31 October, this being within the period when vegetation can be cleared without an impact on water voles, and outside the bird nesting season. The actual culverts would then be installed at the appropriate time as the haul road progresses across the site.

~~2.9.133~~2.9.138 Given these measures, there would be no disruption of water vole passage and connectivity. This is, therefore, a negligible impact on a receptor of Local importance, resulting in a negligible effect that is not significant.

Terrestrial invertebrates

Habitat loss

~~2.9.134~~2.9.139 The areas of temporary habitat loss discussed previously for habitats are also of value to rarer species of invertebrates.

~~2.9.135~~2.9.140 Key habitat with regards to terrestrial invertebrates are:

- East of Leiston Road. TM458585. Two fields of improved grassland, used for hay or silage to the east of Leiston Road.
- South Warren (East). TM450585. An area of rough scrub and a field used for hay or silage, north of the Aldeburgh golf course.
- South Warren (West). TM444586. Two fields used for hay or silage, with scattered scrub, north of the Aldeburgh golf course.

[12] Culvert Guidance - Flood Risk Management (devon.gov.uk)

~~2.9.136~~2.9.141 The acid grassland where most of the temporary loss documented in the bullets above would occur is immediately adjacent to Leiston-Aldeburgh SSSI and the golf course and is therefore contiguous with much larger residual areas of acid grassland and heathland. As part of the broader habitat mitigation proposals for the Proposed Project approximately 6 ha of existing acid grassland, which would be of value to terrestrial invertebrates as well as (mentioned previously) nesting birds and reptiles, would be enhanced (such as through removing dense stands of bracken and achieving a more diverse structure) and maintained as such for 10 years following creation to offset the lag time in restoration of the existing acid grassland that can be expected once the compound and cable trench works are complete.

~~2.9.137~~2.9.142 Temporary loss of habitats is considered a minor adverse impact on a receptor of District importance, leading to a **minor adverse** effect that is not significant.

Invasive species

Spreading of invasive non-native species

~~2.9.138~~2.9.143 Butterfly bush (Buddleia sp) was identified within a hedgerow bordering the Suffolk Onshore Scheme north of Aldeburgh golf course, and giant hogweed (*Heracleum mantagazzianum*) was identified at (TM461584) within the Disused Railway Line (Aldringham-Aldeburgh) CWS east of the proposed trenchless pit and west of North Warren RSPB reserve, and Himalayan balsam was identified within the Suffolk Onshore Scheme Order Limits along the River Fromus.

~~2.9.139~~2.9.144 It is an offence to allow invasive species on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (HM Government, 1981) to spread and therefore the measures included within **Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice** would be implemented during the construction of the Suffolk Onshore Scheme to ensure that ecological constraints such as the spread of invasive non-native species is controlled.

~~2.9.140~~2.9.145 Spread of invasive species is considered a minor beneficial impact on the receptor due to control measures, leading to a minor beneficial effect that is not significant (positive).

Aquatic macrophytes

Habitat loss

~~2.9.141~~2.9.146 There would likely be some habitat loss within the watercourses as a result of the proposed nine temporary culverts and 11 temporary outfalls (see **Application Document 6.4.1.4.4 Watercourse Crossings** and **Application Document 6.3.1.4.A Appendix 1.4.A Crossings Schedules**) where there would be some vegetation clearance.

~~2.9.142~~2.9.147 Therefore, as no notable or protected species of macrophytes were found the addition of outfalls and culverts would have a negligible impact on a receptor of District importance resulting in a **negligible** effect on aquatic macrophytes that is not significant.

Aquatic invertebrates

Pollution

~~2.9.143~~2.9.148 Eleven temporary outfalls are located within the Suffolk Onshore Boundary. High rainfall events could lead to high levels of flow at these outfalls resulting in washing out of the macroinvertebrate communities that are present. There is also a risk related to the control of any potential pollutants.

~~2.9.144~~2.9.149 This is mitigated by the implementation of attenuation or infiltration ponds situated before outfalls into the river, which would help ensure pollutants do not enter the river and help to reduce peak flows at outfalls a (**Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice; Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**).

~~2.9.145~~2.9.150 Therefore, the temporary outfalls are considered to have a negligible impact on a receptor of District importance resulting in a **negligible** effect on aquatic macroinvertebrates that is not significant.

Habitat loss

~~2.9.146~~2.9.151 There would be some limited temporary and permanent loss of habitat for macroinvertebrates at locations of temporary and permanent culverts and outfalls. Aquatic habitat creation will be delivered as part of the Proposed Project, including balancing ponds around the Saxmundham Converter Station and Friston Substation (see **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan- Suffolk** and **Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)** for details). As a result there would be a long-term overall increase in wetland habitats due to the Suffolk Onshore Scheme and therefore any permanent habitat losses from permanent culverts or outfalls would result in a negligible impact in the long term with appropriate mitigation in place.

~~2.9.147~~2.9.152 Temporary impacts of habitat loss as a result of temporary culverts and outfalls will have a negligible effect on aquatic invertebrates due to their limited number and extent, and the fact that they will be reinstated and recover in the short to medium term. The medium term impacts would also be offset by the permanent aquatic habitat creation, meaning the overall impact would be negligible.

~~2.9.148~~2.9.153 The inclusion of attenuation/infiltration ponds will avoid the potential for washout of habitat within the ditch and river networks during high rainfall events, and any associated effects on macroinvertebrate colonies.

~~2.9.149~~2.9.154 Notable beetle species *Peltodytes caesus, Enochrus quadripunctatus* and the great silver diving beetle (*Hydrophilus piceus*) were recorded or highlighted as present at DN4 and DN5 (see **Application Document 6.3.2.2 Appendix 2.2.F Aquatic Ecology Report – Annex 2.F.8**). As there will be trenchless crossings within the Suffolk Onshore Scheme Boundary in the coastal area here there will be minimal disturbance to the macroinvertebrate species.

~~2.9.150~~2.9.155 Due to the minimal disturbance to the notable species present and the habitat creation that will benefit macroinvertebrates habitat loss as a result of temporary culverts and outfalls will have a negligible effect on a receptor of district importance resulting in a **negligible** effect on aquatic macroinvertebrates that is not significant.

2.9.1512.9.156 It is anticipated that there will be no aquatic habitat loss as a result of the construction of the bridge across the River Fromus.

Fish

Passage

2.9.1522.9.157 Under The Eels Regulations 2009, it is an offense to impede the passage of eels. Due to historical EA records of European eel on the River Fromus, mitigation to protect this species is required.

2.9.1532.9.158 Proposed culverts would either preserve the natural bed of the ditch or consist of a box culvert where the inverts are sunk below the bed level of the water course and natural / existing bed material placed across the inside of the culvert to lift the level up to meet that of the existing. This is secured in commitment W03 of **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**.

2.9.1542.9.159 Given the relative short duration of the culvert installation on the Western River Fromus tributary (not on the River Fromus itself) and the ditches where a crossing would be implemented, they are unlikely to impact migratory species. In addition, during culvert installation there would be a watching brief and fish rescue where required. Where over pumping is required, pumps would be fitted with 2 mm screens to prevent injury to fish or eels (B08).

2.9.1552.9.160 The proposed culverts for temporary crossings are considered a minor adverse impact on a receptor of Regional importance resulting in a **minor adverse** effect on fish which is not significant.

Pollution

2.9.1562.9.161 Nine temporary outfalls are proposed within the Suffolk Onshore Scheme Boundary that pose a risk to fish species in the area during a high rainfall event. High rainfall events could cause a large number of pollutants from runoff to enter into the watercourse system which may affect macroinvertebrate communities downstream. The greatest cause for concern when surveyed was the Hundred River where a temporary outfall is located, as this appeared to be ephemeral in nature.

2.9.1572.9.162 However, as all outfalls have an attenuation pond associated with them, which will help to reduce pollutants entering the watercourse, the pollutants are likely to be diluted in high rainfall events or filtered out in the attenuation ponds. Therefore, pollution from temporary outfalls would result in a negligible impact on a receptor of Regional importance resulting in an overall negligible effect and thus not significant.

Noise & Vibration

2.9.1582.9.163 Three-spined stickleback were found in the River Fromus. However, there is suitable habitat present for European eel at the site of the proposed bridge and salmonids upstream and downstream of the proposed bridge, although no records of any salmonids have been found in either desk study or survey data snice 2007. As no recent records of salmonids in the River Fromus were identified and no suitable spawning habitat is present at the bridge location, it is considered that no mitigation is

required to avoid salmonid spawning seasons, and the assessment of impact of noise and vibration is therefore focused on European eel.

~~2.9.159~~2.9.164 The impact of piling on fish is linked to their ability to hear, which is determined by the physiology of the fish, particularly the presence of a swim bladder and its use in hearing. European eel is a medium hearing sensitivity fish species (Popper, et al., 2014) suggesting there is a moderate risk in the near and immediate distance from the sound source (approx. 10s-100s metres where the sound source is in the water). Piling can also cause behavioural responses such as disrupted feeding, changes in swimming patterns and orientation. However, the type of piling, how close the piling is to the bank and also how the piling regime is implemented are determining factors regarding the potential impact to fish. The risk of injury or mortality from piling is deemed low for moderate sensitivity fish, but there can be moderate behavioural changes (AECOM, 2021).

~~2.9.160~~2.9.165 With regard to the potential for piling noise to impact fish, determining factors include the fact that there will be no piling (or any other construction work) undertaken within the watercourse and that the piling will be 8 m back from the bank edge at its closest. This setback distance means the sound and pressure waves will likely dissipate through the geology of the bank, reducing their potential to impact fish. In addition there is a commitment to vibro-piling and the use of a soft start method (as detailed in commitment B10 in **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**). Vibro-piling is non-percussive, meaning it generates continuous, non-impulsive sound, which will further reduce the potential for propagation of noise within the watercourse. The soft start piling method will ensure that in the unlikely event that sound were to propagate into the watercourse, it will increase gradually allowing fish in the immediate vicinity to swim away. Therefore, it is unlikely that noise and vibration as a result of piling for the bridge would affect fish species present, including the three-spined stickleback recorded, or indeed migratory species such as European eel and salmonids.

~~2.9.161~~2.9.166 Therefore, impacts are considered to be minor adverse at most, on a receptor of Regional importance, which would be a **minor adverse** effect that is not significant.

Light

~~2.9.162~~2.9.167 The proposed construction compounds are close to watercourses including the River Fromus western and eastern tributaries. Light is known to affect species movement, particularly eels which will move away from light. Where compound lights are near watercourses they are considered a moderate adverse impact on a receptor of Regional importance resulting in a moderate adverse effect on fish that could be significant.

~~2.9.163~~2.9.168 However, lights will not be pointed towards the watercourses at any time when in use, particularly during eel migratory peak periods (May - July and October - November) and lights will not be used outside of construction working hours. This is to reduce diurnal and migratory issues as a result of the light intrusion. This is included within the **Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice** and commitment GG21 in **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments**.

~~2.9.164~~2.9.169 Construction compound lights with mitigation are considered a minor adverse impact on a receptor of Regional importance resulting in a residual **minor adverse** effect on fish that is not significant.

Operation and Maintenance Phase

~~2.9.165~~2.9.170 The impact pathways scoped into the assessment of the operation and maintenance phase are habitat loss, disturbance, pollution (spillages), air quality, disruption of connectivity, and shading of riparian habitats.

Designated Sites

Direct loss

~~2.9.166~~2.9.171 There is a permanent access route through the Sandlings SPA, Leiston-Aldeburgh SSSI and the North Warren RSPB Reserve northeast of the trenchless compound (S10). However, the access route would follow an established track, and no habitat would be removed to facilitate it. The route is primarily for inspection and maintenance via light vehicles and a few qualified personnel with very minor access needs at regular intervals.

~~2.9.167~~2.9.172 Although the marine HDVC cable would run through the Leiston-Aldeburgh SSSI and RSPB North Warren it would be entirely buried. Four ducts would be installed as part of the trenchless installation, one more duct would be installed than for the terrestrial HVDC underground cables to allow for a spare. Should a section of cable need to be replaced at the landfall, this spare duct would allow for a new section of cable to be pulled through rather than a repair to the existing or needing to re install ducts.

~~2.9.168~~2.9.173 Therefore, no habitat loss is expected to arise within the Sandlings SPA during operation of the Proposed Project. This is therefore a negligible impact on a receptor of international importance, resulting in a negligible effect that is not significant.

Disturbance

~~2.9.169~~2.9.174 Once the Proposed Project is operational there would be little requirement for day-to-day presence of people (typically two individuals at any time). Operational noise has been modelled and the overall contour is presented in **Figure 3 Map of 60dB average Lamax contour at Suffolk** within **Application Document 6.6 Habitat Regulations Assessment Report**. The disturbance threshold of 60 dB LAmax referenced earlier would only be exceeded 10 m from the Saxmundham Converter Station and Friston Substation. This does not intersect with any designated sites.

~~2.9.170~~2.9.175 The only potential for disturbance would therefore be during maintenance. It is impossible to forecast exactly when maintenance crews may need to visit parts of the Suffolk Onshore Scheme, or how often, although there would be a three-year maintenance cycle, and visual checks would be undertaken on a monthly inspection visit to the site. However, maintenance and monitoring visits are likely to be infrequent and for short periods and would be much smaller in scale than construction. Given the area is an active agricultural landscape, with tractors, agricultural workers and other mobile plant present as a matter of course, it is considered that maintenance crews and activities would not constitute a material change to this background level of activity.

~~2.9.171~~2.9.176 Four ducts would be installed for the marine HVDC cable as part of the trenchless installation, one more duct would be installed than for the terrestrial HVDC underground cables to allow for a spare. Should a section of cable need to be replaced at the landfall, this spare duct would allow for a new section of cable to be pulled through rather than a repair to the existing or needing to re install ducts.

~~2.9.172~~2.9.177 A proposed permanent access route would run through a small section of the SPA and SSSI, but this is just for monitoring the trenchless installation and would not require any work to be undertaken, as it is an existing track. The track would be used by a Land Rover or people on foot only. No heavy machinery would be utilised on this access route.

~~2.9.173~~2.9.178 No impact or likely significant effect would therefore arise on designated sites.

Pollution (Spillages)

~~2.9.174~~2.9.179 There is an outfall associated with the Saxmundham Converter Station which discharges to a tributary of the River Fromus and thus has a downstream connection to the Alde-Ore Estuary SPA/Ramsar site and thus the Alde-Ore & Butley Estuaries SAC and approximately 6 km downstream. This outfall will only carry surface water runoff, following attenuation, and it will not therefore be contaminated or contain pollutants. The Environmental Damage (Prevention and Remediation) (England) Regulations 2015 and the Environmental Permitting (England and Wales) Regulations 2016 make it an offence to pollute watercourses, irrespective of whether they are European Sites or connect to European Sites.

~~2.9.175~~2.9.180 Therefore, during operation, including any maintenance, National Grid has a duty of care to the water environment and produce and implement plans and procedures to prevent discharge from works entering surface, groundwater, wetlands or coastal waters. This is usually undertaken in the form of an environmental management plans which includes measures for the protection of ground and surface waters, pollution prevention measures and an emergency response plan for pollution events. A Construction Environmental Management Plan (CEMP) will be produced to cover all these aspects as committed in measure GG02 of **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**.

2.9.181 Specifically, surface water drainage from permanent access routes and the proposed Converter Station and Substation site will be served with drainage systems that embed SuDS for attenuation of runoff to green field runoff rates in line with the requirements of the receiving watercourse authorities (Internal Drainage Board, Environment Agency or Lead Local Flood Authority) and provide treatment of runoff. These are secured by commitment W11 in the **REAC**. This would pose a low risk of contamination given the SuDS treatment measures proposed in commitment W11 which is secured through Application Document 7.5.3 Outline Onshore Construction Environmental Management Plan and the drainage management plans through the draft DCO Schedule 3 Requirement 6.

~~2.9.176~~2.9.182 As such, it is considered that operation and maintenance of the new infrastructure (where required) and the discharges from the permanent outfalls can be designed in a way to prevent pollution to the water environment to ensure no adverse effects from water pollution on any European site.

~~2.9.177~~2.9.183 No impact or likely significant effect would therefore arise on designated sites.

Air quality

~~2.9.178~~2.9.184 The forecast number of operational vehicle movements during operation of the Suffolk Onshore Scheme is very low and well below the 200 AADT threshold at which it would materially affect annual average air quality. No impact or likely significant effect would therefore arise on designated sites.

~~2.9.179~~2.9.185 It is understood that the Saxmundham Converter Station and Friston Substation will be connected to the existing Distribution Network Operator system to provide an electricity supply to the sites. However, as described in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**, a back-up diesel generator is proposed at each of the Substation and Converter Station during the operational phase. For the purposes of the assessment in **Application Document 6.2.2.8 Part 2 Suffolk Chapter 8 Air Quality** a study area of up to 200 m from the Converter Station and Substation boundary is considered appropriate for exhaust emissions. Beyond this distance it is judged that the effect of any emissions on local air quality would have no potential to be significant. There are no designated sites within 200 m of either boundary.

2.9.186 The generators will be operated during routine maintenance activities, which is likely to be every 1 –3 months. They may also be required during emergency scenarios. These backup generators are rarely used and have less than a 1% chance of operating per year. As the back-up generators are likely to run just 1% of the time and emissions are likely to be lower, the maximum annual NOx process contribution is likely to be in the order of 0.05 µg/m³ from each generator. This would not be visible in modelling when translated to nitrogen deposition and will reduce with distance. Given the distance of these generators from Sandlings SPA and Leiston-Aldeburgh SSSI (at least 3km) NOx and nitrogen deposition within the designated sites will not be elevated. The nearest designated site is the non-statutory Grove Wood CWS. SPR's East Anglia One North and East Anglia Two sites are located approximately 140 m north west of Grove Wood at their closest point, while the Friston Substation LoD is located at a distance of greater than 300 m.

2.9.187 Even on a conservative basis, assuming that all emissions from the Proposed Project and the SPR sites were generated from their closest possible locations to Grove Wood, significant effects would not occur, for the following reasons:

- The combined generating capacity assumed for the cumulative assessment (1,500 kVA) is substantially lower than the 2,500 kVA capacity assessed as part of the Kent Onshore Scheme (see **Application Document 9.123.1 (B) Applicant's Responses to Second Written Questions – Appendices** submitted at Deadline 6). That assessment demonstrated that a separation distance of approximately 120 m from the SSSI boundary would be sufficient to avoid significant effects.
- Emissions would not, in practice, be released from the closest points to Grove Wood, and there would be a materially greater separation distance between the emission sources and the ecological receptor, particularly in the case of the Friston Substation.
- As a consequence of the lower generating capacity and increased distances, actual pollutant concentrations at Grove Wood would be appreciably lower than those predicted in the conservative Kent Onshore modelling scenario (see Application Document 9.123.1 (B) Applicant's Responses to Second Written Questions – Appendices submitted at Deadline 6).

~~2.9.180~~2.9.188 Therefore likely significant effects will not arise.

Habitats

Habitat loss

~~2.9.181~~2.9.189 There would be the following permanent habitat loss due to the presence of the Saxmundham Converter Station and Friston Substation or associated habitat creation, and the permanent access road including the bridge over the River Fromus and creation of necessary visibility splays and bellmouths:

- Approximately 200 m of hedgerow with trees (including an approximately 120 m section of Ecologically Important Hedgerow 23) primarily due to the footprint of the Friston Substation but also due to permanent gaps in other hedgerows for the permanent access.
- Approximately 0.2 ha of cricket bat willow plantation based on the larger River Fromus bridge footprint (reduced to 0.1ha for the alternative smaller footprint), if it were not to be felled prior to the Suffolk Onshore Scheme commencing construction.
- Approximately 0.1 ha of semi-improved neutral grassland due to the footprint of the permanent access road over the River Fromus, and an associated permanent attenuation pond and drains.
- Approximately 10.3 ha of arable land due in particular to the footprints of the Saxmundham Converter Station and Friston Substation (in the scenario where the substation of built as part of the Proposed Project) and permanent attenuation ponds, and the permanent access.
- Losses of ditch habitat due to permanent culvert on a ditch west of the River Fromus (the Western River Fromus tributary) for the permanent access, as well as three permanent outfalls, one on the Western River Fromus tributary, one on the Eastern River Fromus tributary, and one on the River Fromus.

~~2.9.182~~2.9.190 As a result there would be a moderate adverse impact and thus **moderate adverse** effect, on a receptor of up to Regional importance (this being the importance accorded to features such as Important Hedgerows) in the short to medium term, lasting for between 1-2 seasons (for easily maturing habitats such as balancing ponds and grassland) to 5-10 years or longer for sections of hedgerow and woodland, as the works are completed and new planting matures. This is a significant residual effect in the short to medium term.

~~2.9.183~~2.9.191 However, these losses (with the exception of the arable land) are not overall long-term losses. This is because there would be extensive habitat creation as part of the project, around the Saxmundham Converter Station and Friston Substation (in the scenario where the substation of built as part of the Proposed Project), along the permanent access road where new hedgerows would be planted and around the permanent bridge on the River Fromus, for reasons of landscaping and drainage. This includes 21 ha of woodland, 6.9 ha species rich neutral grassland, 1.5 ha of native hedgerow and 0.8 ha of balancing pond. The removed section of Important Hedgerow 23 will be translocated as part of the overall woodland planting. See **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan- Suffolk** for details. Figure 3 of **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan- Suffolk** illustrates how planting will be phased. As a result, there would be a long-term net increase in woody and wetland habitats due to the Suffolk Onshore Scheme, increasing the ecological value of what is currently (west of Leiston Road) a predominantly arable landscape of relatively low botanical value or

diversity, or diversity of habitat structure. There would also be 12 ha of off-site arable enhancement for ornithology mitigation, which is discussed in the section on ornithology below.

~~2.9.184~~2.9.192 There would thus be a moderate beneficial impact in the long-term due to habitat creation. This is a long-term **moderate beneficial** effect which is significant.

Pollution (Spillages)

~~2.9.185~~2.9.193 The assessment of pollution is identical to that provided for designated sites above.

Ornithology

Habitat loss

~~2.9.186~~2.9.194 As identified above for habitats, there would be some permanent loss of woody and nesting habitat and a small amount of loss of riparian habitat, for breeding birds, and a relatively large loss of arable habitat for breeding birds (particularly skylark) and for wintering birds.

~~2.9.187~~2.9.195 However, as already discussed under habitats, this does not constitute an overall long-term loss of habitat. This is because there would be extensive habitat creation as part of the Proposed Project, around the Saxmundham Converter Station and Friston Substation (in the scenario where the substation of built as part of the Proposed Project), along the permanent access road and along the River Fromus. As a result there would be a long-term overall increase in woody and wetland habitats due to the Suffolk Onshore Scheme, increasing the ecological value of what is currently a predominantly arable landscape. Habitat loss would therefore be a moderate adverse impact and thus moderate adverse effect on a receptor of up to Regional importance in the short to medium term, lasting up to 5-10 years as the new habitat matures. This would be a significant residual effect in the short to medium term.

~~2.9.188~~2.9.196 There would be an overall loss of arable land in quantitative terms, which for wintering birds and particularly some ground nesting farmland birds (notably red list skylark; a maximum of seven territories at Saxmundham Converter Station and six at Friston Substation have been recorded across the surveys) would be a moderate adverse impact on a receptor of Regional importance. In the absence of additional mitigation this would be a moderate adverse effect, which is significant. However, as already discussed for designated sites, there would be 12 ha of arable enhancement for ornithology mitigation, targeted to nesting farmland birds, through inclusion of skylark nesting plots at a rate of at least four plots per hectare (twice the density required by Countryside Stewardship). This favourable farming regime would occur throughout the operational life of the Saxmundham Converter Station and Friston Substation.

~~2.9.189~~2.9.197 There would be a moderate beneficial impact in the long-term on a receptor of Regional importance due to habitat creation. This is a long-term residual **moderate beneficial** effect which is significant.

Disturbance and displacement

~~2.9.190~~2.9.198 Operational disturbance would be negligible. Operational noise levels have been modelled to inform this Environmental Statement and have identified that the 60dB

LAmax contour already introduced in the assessment of construction effects would only extend approximately 10 m from the Saxmundham Converter Station and Friston Substation boundaries. There would also be little need for operational lighting at the Saxmundham Converter Station and Friston Substation, with lighting limited to security lighting and task lighting as needed during any maintenance works. Lighting contour plans indicate that light levels at both the Saxmundham Converter Station and Friston Substation would fall below 1 lux within approximately 13-15 m of the lighting fixtures and therefore within the boundary of both the substation and converter station. This is a sufficiently low light level that bird foraging and roosting around vegetation beyond the fenced areas will not be affected.

~~2.9.191~~2.9.199 There is therefore no disturbance impact during operation which is not significant.

Dormouse

~~2.9.192~~2.9.200 There is no evidence of dormouse within the operational footprint of the Suffolk Onshore Scheme. The landscape planting proposed around the Saxmundham Converter station and Friston Substation have the potential to be of benefit to dormouse in the long term. There would be a moderate beneficial impact in the long-term due to habitat creation. This is a long-term **moderate beneficial** effect which is significant.

Badger

Habitat loss

~~2.9.193~~2.9.201 As noted above, there would be a permanent loss of existing woody habitat and arable habitat for badger foraging. Habitat loss would therefore be a **minor adverse** impact and thus minor adverse effect on a receptor of up to Regional importance in the short to medium term, lasting up to 5-10 years as the new habitat matures. This is not significant. Moreover, this would not constitute a long-term overall loss. This is because there would be extensive habitat creation as part of the Proposed Project, around the Saxmundham Converter Station and Friston Substation, and along the permanent access road and in the vicinity of the River Fromus bridge. As a result, there would be a long-term overall increase in woody habitats due to the Suffolk Onshore Scheme, increasing the value for badger of what is currently a predominantly arable landscape. While there would be an overall loss of arable land due to the Suffolk Onshore Scheme woodland and semi-natural grassland are of significantly greater foraging value to badgers than arable fields.

~~2.9.194~~2.9.202 There would be a moderate beneficial impact in the long-term on a receptor of Local importance due to habitat creation. This is a long-term **moderate beneficial** effect which is significant.

Bats

Habitat loss

~~2.9.195~~2.9.203 There would be a permanent loss of existing woody habitat for bat foraging, due in particular to the removal of the hedgerow lengths that lie within the proposed Friston Substation footprint (in the scenario where the substation is built as part of the Proposed Project). Habitat loss would therefore be a minor adverse impact and thus

minor adverse effect on a receptor of up to Regional importance in the short to medium term, lasting up to 5-10 years as the new habitat matures. This is not significant.

~~2.9.196~~2.9.204 Moreover, this would not constitute a long-term overall loss. This is because there would be extensive habitat creation as part of the Proposed project, around the Saxmundham Converter Station and Friston Substation, and in terms of hedgerow planting along the permanent access road, as well as riparian enhancements on the River Fromus around the new bridge. As a result there would be a long-term overall increase in woody and grassland habitats due to the Suffolk Onshore Scheme, increasing the value for bats of what is currently a predominantly arable landscape.

~~2.9.197~~2.9.205 There would be a moderate beneficial impact in the long-term due to habitat creation on a receptor of Regional importance. This is a long-term **moderate beneficial** effect which is significant.

Disturbance

~~2.9.198~~2.9.206 As for ornithology, operational disturbance would be negligible. There would be little need for operational lighting for operational staff, with lighting limited to security lighting and task lighting as needed during any maintenance works. There would also be no lighting along the permanent access road.

~~2.9.199~~2.9.207 The Saxmundham Converter Station would be situated approximately 50m to the east of Bloomfield's Covert woodland and would require some lighting for security purposes. This could constitute a moderate adverse impact on a receptor of Regional importance which would be a moderate adverse effect that is significant. Therefore, additional mitigation is required.

~~2.9.200~~2.9.208 In line with best practice guidance from the BCT and Institute of Lighting Professionals (ILP) (Bat Conservation Trust and Institute of Lighting Professionals, 2023) lighting would be the minimum required for the safe working of the proposed Saxmudnham Converter Station. Lighting would be directed to the interior of the Converter Station, and on as low a column height as possible, with measures such as hoods or cowls implemented where required to avoid light spill onto Bloomfield's Covert woodland and immediately surrounding habitat. This is commitment B39 in **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments**. New planting would be implemented between the woodland and converter station. See **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan - Suffolk** for details. Lighting contour plans indicate that light levels at both the Saxmundham Converter Station and Friston Substation would fall below 1 lux within approximately 13-15 m of the lighting fixtures and therefore within the boundary of both the substation and converter station. This is a sufficiently low light level that bat commuting and foraging around vegetation beyond the fenced areas will not be affected.

~~2.9.201~~2.9.209 There would thus be a residual negligible impact on a receptor of Regional importance which is a residual **negligible** adverse effect which is not significant.

Reptiles

Habitat loss

~~2.9.202~~2.9.210 No reptile populations have been identified in areas to be subject to permanent landtake. Therefore, no likely significant effects have been identified. However, habitat

planting and grassland and wetland creation around the Saxmundham Converter Station and Friston Substation will result in a net increase in habitat for reptiles. This is a **moderate beneficial** effect and thus significant, in the long-term.

Riparian mammals

Habitat loss

~~2.9.203~~2.9.211 There would be some limited permanent loss of habitat for riparian mammals due to the presence of a permanent culvert on the ditch west of the River Fromus crossing (Western River Fromus tributary) for permanent access (essentially a culvert that is permanently retained following construction), as well as 3 permanent outfalls. This would include permanent loss of approximately 20 m of habitat. Most of this is on the Western River Fromus tributary on which water voles have been recorded (although not in the location where they have been recorded). However, this represents a small proportion (approximately 3 %) of the overall length of the watercourse, and these are not overall long-term losses. This is because there would be extensive habitat creation as part of the Proposed Project, including permanent attenuation ponds around the Saxmundham Converter Station and Friston Substation (in the scenario where the substation is built as part of the Proposed Project). See **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan - Suffolk** for details. As a result, there would be a long-term overall increase in wetland habitats due to the Suffolk Onshore Scheme.

~~2.9.204~~2.9.212 For example, there would be an overall increase in wetland perimeter of approximately 500 m due to the permanent attenuation ponds. These will be designed to be of value for riparian mammals by retaining an earth ledge and sloping bank above a shallow permanent water level. The ledge would be planted with emergent riparian vegetation. While the water voles on site are using linear ditches, there are many examples of water voles using pond and wetland margins, and even nesting in reedbeds with no standing water.

~~2.9.205~~2.9.213 There would thus be a small-scale minor adverse impact in the medium-term on a receptor of Local importance, due to the approximately five-year lag between habitat being lost and the new balancing ponds being created, which is a **minor adverse** effect that is not significant. There would be a moderate beneficial impact in the long-term due to habitat creation, on a receptor of Local importance. This is a long-term **moderate beneficial** effect which is significant.

Passage

~~2.9.206~~2.9.214 For the purposes of this impact assessment, the culvert required for the permanent access would follow recommended design guidelines for wildlife[13] and would either preserve the natural bed of the ditch, or have the invert sunk below the bed level of the watercourse with natural/existing bed material then placed across the inside of the culvert to lift the level up to meet that of the existing. This is secured in commitment W03 of **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments**.

~~2.9.207~~2.9.215 The culvert would also avoid narrowing of natural channel width. This is to ensure maximum accessibility for eels (see later for an assessment of impacts on fish). Where

[13] Culvert Guidance - Flood Risk Management (devon.gov.uk)

bank material cannot be preserved within the culvert (due to the weight or levels) they would also include a minimum 150 mm wide mammal ledge (with 600 mm headroom where ditch depth allows) to ensure continued accessibility by water voles (B17).

~~2.9.208~~2.9.216 Given these measures there would be no disruption of water vole passage and connectivity. This is therefore a negligible impact on a receptor of Local importance, resulting in a **negligible** effect that is not significant.

Terrestrial invertebrates

Habitat loss

~~2.9.209~~2.9.217 There is no permanent habitat loss from habitats of particular importance for terrestrial invertebrates. Moreover, there would be extensive habitat creation as part of the Proposed Project, including permanent attenuation ponds around the Saxmundham Converter Station and Friston Substation (in the scenario where the substation is built as part of the Proposed Project) and large areas of woodland and wetland creation. See **Application Document 7.5.7.1 Outline Landscape and Ecological Management Plan - Suffolk** for details. As a result, there would be a long-term overall increase in habitats for invertebrates (a receptor of District importance) due to the Suffolk Onshore Scheme, resulting in a moderate beneficial impact and a **moderate beneficial effect** that is significant.

Aquatic macrophytes

Shading

~~2.9.210~~2.9.218 There would likely be some aquatic macrophyte loss as a result of the proposed permanent culverts. There would be two permanent culverts located on the western ditch connecting to River Fromus (S/WA/0070) and at the River Fromus Eastern Tributary (S/WA/0086). The S/WA/0070 culvert would not affect shading in the area, as the location of the proposed bridge over the River Fromus is in a section of woodland, which provides shading for the entirety of the watercourse, particularly in summer months. It is also understood that the tree plantation at this location would likely be partially felled prior to the construction taking place, and completely felled by operation, increasing light penetration along the overall length of this ditch which will help to increase the number of macrophyte species present.

~~2.9.211~~2.9.219 The S/WA/0070 culvert is also unlikely to impact species present through shading. At the time of survey this watercourse was found to be dry with very few aquatic macrophyte species present. Therefore, a single culvert will not be detrimental to the number of species present within the area or the overall WFD status.

~~2.9.212~~2.9.220 Overall, the proposed culverts are considered a negligible impact on a receptor of district importance resulting in a **negligible** effect on aquatic macrophytes that is not significant.

~~2.9.213~~2.9.221 Both proposed bridge designs over the River Fromus are 6 m wide. This is in line with other vehicle bridges located on the River Fromus (see **Application Document 6.3.2.2.F Appendix 2.2.F Aquatic Ecology Survey Report**) allowing light to penetrate under the crossing. The soffit off the bridge will also be a light colour to help increase light refraction (B19). Therefore, either of the proposed bridge designs are considered to

have a minor adverse impact on a receptor of district importance resulting in a **minor adverse** effect which is not significant.

Habitat loss

~~2.9.214~~2.9.222 There would be limited permanent loss of aquatic habitat for macrophytes due to the installation of two permanent culverts (S/WA/0070 and S/WA/0086), five permanent outfalls and the proposed bridge over the River Fromus through shading and the removal of macrophytes present.

~~2.9.215~~2.9.223 The surveys showed a small number of in river macrophytes at both proposed culverts, three of the proposed outfall locations and the bridge location. This is in part due to the shading already present created by the current dense plantation woodland at the River Fromus ditch S/WA/0070 location where an outfall is present alongside one on the River Fromus itself, and the apparent ephemeral nature of the eastern tributary of the River Fromus on which S/WA/0086 will sit alongside a permanent outfall.

~~2.9.216~~2.9.224 Extensive habitat creation will be included as part of the Proposed Project, including attenuation ponds around the new River Fromus bridge, Saxmundham Converter Station and Friston Substation (in the scenario where the substation is built as part of the Proposed Project). As a result, there would be a long-term overall increase in wetland habitats due to the Suffolk Onshore Scheme. Therefore, any pressures in relation to habitat loss on the River Fromus and other culvert locations are understood to be negligible.

~~2.9.217~~2.9.225 Therefore, as there are limited species present within the vicinity of the proposed works and the species found are common within the catchment area, any impacts from habitat loss are deemed to be negligible. Habitat loss is therefore a negligible impact on a receptor of district importance, resulting in a **negligible** effect that is not significant.

Aquatic invertebrates

Habitat loss

~~2.9.218~~2.9.226 There would be limited loss of habitat for macroinvertebrates at locations of permanent culverts and outfalls particularly on the River Fromus. Extensive habitat creation would be included as part of the Proposed Project, including attenuation ponds around the new River Fromus bridge, Saxmundham Converter Station and Friston Substation (in the scenario where the substation is built as part of the Proposed Project). As a result there would be a long-term overall increase in wetland habitats due to the Suffolk Onshore Scheme. Therefore, any pressures in relation to habitat loss on the River Fromus and other culvert locations are understood to be negligible.

~~2.9.219~~2.9.227 Trenchless crossings are proposed at survey locations DN4 and DN5 (see **Application Document 6.3.2.2.F Appendix 2.2.F Aquatic Ecology Survey Report – Annex 2.F.8**) will cause minimal disturbance to the notable beetle species *Peltodytes caesus, Enochrus quadripunctatus* and the great silver diving beetle which were recorded or highlighted as present at these locations. Therefore, impacts to these species would be negligible, resulting in a negligible impact to a receptor of district importance resulting in a **negligible** effect that is not significant.

Pollution

2.9.2202.9.228 Five permanent outfalls are located within the Suffolk Onshore Boundary. The two on the River Fromus and adjacent western tributary appear to be permanently wet watercourses whereas the other three are seasonally dry. This was confirmed at the time of survey in July 2024 and by the macroinvertebrate assemblage taken from the eastern tributary of the River Fromus which showed species that thrive in areas of periods of dryness.

2.9.2212.9.229 Care would need to be taken as to how much runoff is likely to occur in high rainfall events so that the macroinvertebrate communities that are present are not washed out in addition to the control of any potential pollutants.

2.9.2222.9.230 This is mitigated by the implementation of attenuation or infiltration ponds situated near to the outfalls (see **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**) which would help ensure pollutants do not flood the river and reduce flooding of the area.

2.9.2232.9.231 Therefore, the outfalls are believed to have a negligible impact on a receptor of district importance resulting in a **negligible** effect on aquatic macroinvertebrates that is not significant.

Passage

2.9.2242.9.232 Two bridge designs have been proposed for the River Fromus. Option 1 has a clearance of 6 m above Q95 flow level to the bridge soffit, whereas Option 2 has a clearance of 4 m above Q95 flow level to the bridge soffit. During pre-application discussions, the EA has raised a concern that bridge Option 2 would create a barrier to migratory riverfly species.

2.9.2252.9.233 Alongside macroinvertebrate sampling upstream and downstream of the proposed bridge locations on the River Fromus, a literature review was completed as well as an aquatic and riparian habitat walkover survey including a bridge assessment between Saxmundham (TM 38651 63388) and Gromford (TM 38490 58708) in November 2024 to understand their effects on migratory riverfly species.

2.9.2262.9.234 The findings of the literature review (see **Application Document 6.3.2.2.F Appendix 2.2.F Aquatic Ecology Survey Report – Annex 2.F.9**) identified no scientific data pertaining to flight elevation of adult UK riverfly species during compensation flight[14] , and very limited information is available on the general flying ability of adult UK riverfly species. A study by Málnás et al. (2011) investigated the impact of a bridge on the mayfly species *Palingenia longicauda* in the river Tisza, Hungary. They found that the bridge acted as an optical barrier, disrupting the compensation flight patterns of this mayfly species. However, the species *P. longicauda,* is not considered to be an appropriate model species to represent UK riverfly species due to the substantial difference in size between this European (non-UK species) species - which is Europe's largest mayfly - and even the largest UK mayfly (*Ephemera danica)* and the likely differences in their flying ability and perceptual range. Málnás et al. (Málnás, et al., 2011) remains the single study of potential optical barrier effects that bridges may present to riverfly species. No other literature has been identified for other riverfly species, or other bridge types or heights, either from the UK

[14] Upstream migration of adult riverflies to compensate for the downstream drift experienced by the aquatic larvae.

or elsewhere, that defines the relationship between bridge design and the impact this may have on the compensation flight ability of other riverfly species.

~~2.9.227~~2.9.235 As there are several low bridges already present on the River Fromus, a search for scientific literature was undertaken to explore the potential cumulative effects of multiple bridges on riverfly species; however, no such research appears to have been published.

~~2.9.228~~2.9.236 At present, it is not possible to conclude, given the current body of scientific data, that any given bridge, or multiple bridges, could impact riverfly species found in the UK in the manner described by Málnás et al. (2011).

~~2.9.229~~2.9.237 The habitat appraisal revealed that habitat types, flow rate, vegetation, and substrate type between the three survey reaches (upstream, mid, and downstream) were fragmented. The substrate type and flow rate (<10 cm/s) in the mid survey reach (between TM 38810 62982 and TM 38779 61798), which encompasses the location of the proposed River Fromus bridge, was silty and slow moving respectively. This was significantly different from the upstream (between TM 38651 63388 and TM 38810 62982) and downstream (between TM 38779 61798 and TM 38490 58708) reaches which comprised primarily of gravel and a faster flow rate (10-25 cm/s). Downstream of Benhall Bridge (**Application Document 6.4.2.2.F.3 River Fromus Bridge Locations**) overall habitat quality and diversity improved with an increase in the abundance of in-channel macrophytes and differing flow rates (run, riffle, glide and pool).

~~2.9.230~~2.9.238 Twenty bridges were identified during a walkover survey and a further four were identified via a desk study all soffit heights of the bridges identified on the River Fromus are comparable with, or lower than, the Option 1 and Option 2 bridge designs.

~~2.9.231~~2.9.239 Riverfly species were recorded at all three macroinvertebrate samples taken in November 2024, despite the presence of these 24 bridges already present on the River Fromus. Although the riverfly communities of the three survey locations are clearly different, this is considered more likely to be a result of the differing river habitats at the survey locations than the presence of the bridges (see **Application Document 6.3.2.2.F Appendix 2.2.F Aquatic Ecology Survey Report**). The higher habitat diversity downstream of the proposed bridge location is considered more likely to be the determining factor in the composition of riverfly communities.

~~2.9.232~~2.9.240 As habitat seems to be the determining factor for riverfly species found, and both the Option 1 and Option 2 bridge designs are comparable in height or higher than existing bridges on the River Fromus, both bridge options (**Application Document 2.13.1 Design and Layout Plans: Indicative River Fromus Crossing Regulation 5(2)(o)**) are considered to have a negligible impact on a receptor or district importance resulting in a **negligible** effect which is not significant.

Fish

Pollution

~~2.9.233~~2.9.241 Permanent outfalls proposed on both the River Fromus and western tributary pose a risk to fish species in the area during a high rainfall event.

~~2.9.234~~2.9.242 Care would need to be taken as to how much runoff is likely to occur in high rainfall events so that fish communities present are not impacted by an influx of silt or soil from bare ground runoff which could impact their breathing by blocking their gills in addition to the control of any potential pollutants which could impact the water quality.

2.9.2352.9.243 This is addressed in the design of the Suffolk Onshore Scheme by the implementation of a variety of methods to control runoff (**Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice**) which would help ensure pollutants would not enter the river and reduce peak flows at outfalls.

2.9.2362.9.244 All permanent outfalls proposed have attenuation ponds associated with them. This will help minimise the effects of runoff from high rainfall events on the watercourses in the area and reduce flooding. Therefore, overall, the permanent outfalls are considered a negligible impact on a receptor of Regional importance resulting in a **negligible** effect on fish, which is not significant.

Passage

2.9.2372.9.245 A permanent culvert on the western tributary of the River Fromus could pose a risk to migratory fish species such as European eel, which are understood to be present within the River Fromus itself or connecting rivers. Under The Eels Regulations 2009, it is an offense to impede the passage of eels.

2.9.2382.9.246 The proposed culvert would either preserve the natural bed of the ditch or consist of a box culvert where the inverts are sunk below the bed level of the water course and natural / existing bed material placed across the inside of the culvert to lift the level up to meet that of the existing. This is secured in commitment W03 of **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments**. There is only one permanent culvert proposed on or near the River Fromus.

2.9.2392.9.247 During operation, the culvert is unlikely to pose a risk to migrating fish species. Therefore, the culvert is considered to present a minor adverse impact to a receptor of Regional importance resulting in a **minor adverse** effect on fish, which is not significant.

Decommissioning Phase

2.9.2402.9.248 Decommissioning impacts are considered largely similar to those identified during the assessment of construction phase impacts, except that it is assumed that the permanent access could be used for demolition access to the Saxmundham Converter Station and Friston Substation and that the cable and ducts may be left in situ and would not be removed by methods more damaging than their method of installation. For example, it is assumed they would not be removed by open excavation in Leiston-Aldeburgh SSSI, since it will be at a minimum depth of approximately 8 m at this location. Therefore, the decommissioning impacts would be materially less than the construction impacts except around the Saxmundham Converter Station and Friston Substation. There would be no overall habitat loss as a result of decommissioning because while there would be temporary habitat losses for compounds, the decommissioning would result in an overall increase in habitat by permanently removing above-ground built structures. Similarly, impacts on Sandlings SPA or Leiston-Aldeburgh SSSI would be similar to or less than those of installation because demolition would be focused on the areas with permanent infrastructure, that is the Saxmundham Converter Station and Friston Substation. This would all be controlled through the written scheme of decommissioning to be produced at the time of decommissioning (GG31).

2.10 Additional Mitigation

2.10.1 Additional topic and site-specific mitigation measures that have been applied to mitigate or offset any likely significant effects are included in **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**.

2.10.2 Mitigation measures included that are relevant to ecology and biodiversity receptors are:

- Seasonal restriction on compound set-up for the trenchless bore such that it occurs outside the nesting season (February to August). The most potentially disturbing elements of trenchless installation (set up of trenchless compound S10) will take place between September and January, to minimise disturbance of breeding nightjar and woodlark in the adjacent Sandlings SPA (B27).
- Enhancement of 6 ha of acid grassland to be managed in an enhanced manner for 10 years (B28).
- A REAC measure (B71) requested by the Environment Agency that states 'During meteorological winter, construction work within 10 m of any main river, or the Minster Stream (an ordinary watercourse), is only to be undertaken between 1-hour after sunrise and 1-hour before sunset, except for the use of construction access routes that cross said watercourses, trenchless construction beneath watercourses, and during emergencies, to avoid disturbing otter during periods of darkness'.
- During works in the broadleaved plantation east of the proposed Saxmundham Converter Station the cable route would be micro-sited to avoid the orchid population wherever possible, using an ecologist providing guidance on the ground. (B29).
- A minimum 20 m setback of construction compounds from the hedge used by barbastelle which connects Important Hedgerows 3 and 5 as shown in **Application Document 6.4.2.2.A.7 Suffolk Important Hedgerows** will be instituted (B30).
- For Important Hedgerows (and particularly Hedgerows 3 and 5 as shown in **Application Document 6.4.2.2.A.7 Suffolk Important Hedgerows** if compound options S04 and S05 are selected and Hedgerow 23 adjacent to Friston Substation) the hedgerows would need to be fenced to avoid incidental damage (B31).
- Riparian habitat improvement along River Fromus through riparian planting. Deliver enhancement of an approximately 500 m stretch of the riparian corridor along the River Fromus from approximate grid references TM 38806 62412 to TM 38825 61847. Within this stretch (although not for its entire length) there will be reprofiling of selected areas of the banks of the River Fromus at specific locations (where it would not, for example, require displacement of water voles) to create an approximately 50 cm wide berm just above the typical summer water level. This berm will be planted with riparian vegetation. This will enhance the value of the River Fromus since this stretch of the river has little riparian emergent vegetation. The replanting will be focused on the new bridge, partly in order to improve connectivity beneath the bridge structure; however, other stretches will also be diversified (B32).
- Three wicker baskets placed in trees ~~at least 200 m from~~ within the Order Limits ~~to provide undisturbed nest locations for hobby~~(or outside the Order limits if agreed with landowners) before the breeding season commences. These baskets would be at least 200 m from planned construction activity in that nesting season. (B33).
- Movement of barn owl nest box near the River Fromus bridge further south and two additional nest boxes added. The barn owl box north of compound S08 would either

be moved when it is not occupied to ensure it is located at least 100m from the compound, or additional barn owl boxes will be erected and the compound established when barn owls are not nesting (B34).

- To avoid disturbance of nesting woodlark outside the SPA works close to known nesting areas would be commenced during the winter so there is already activity before the nesting season; the birds would then choose alternative nesting locations. In addition, there will be appropriate monitoring for woodlark throughout the nesting season (February-August) by experienced ecologists. If singing males are present the site manager will be notified and steps taken to introduce construction works in the area prior to a nest being established (B35).
- Larger gaps in hedgerows or woodland belts would be reduced to 10 m maximum during the night by hurdles or similar (B36).
- The gap for access traversing the hedgerow that runs north from Bloomfield's Covert will be kept to 10 m maximum (B37).
- Around construction compounds and the converter station and substation works areas, direct illumination of boundary features would be avoided. Lighting would be designed to comply with published guidelines (B38).
- Permanent operational lighting would be directed to the interior of the Converter Station, and on as low a column height as possible, with measures such as hoods or cowls implemented where required to avoid light spill onto Bloomfield's Covert woodland and immediately surrounding habitat (B39).
- Management of 12 ha of arable land for ground nesting farmland birds, particularly skylark, maintained favourably for the lifetime of the Proposed Project (B40).

2.11 Residual Effects and Conclusions

2.11.1 Table 2.10 to Table 2.11 Summary of residual ecology and biodiversity effects (Operation and Maintenance)Table 2.11 summarise the residual effects of the Proposed Project on ecology and biodiversity receptors following the implementation of additional mitigation measures outlined in Section 2.10. As discussed in 2.9 above decommissioning effects are considered to be similar to or better than construction effects and therefore a separate table is not presented for decommissioning.

Table 2.10 Summary of residual ecology and biodiversity effects (Construction)

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
Sandlings SPA	International	Habitat loss	Negligible	Not Significant	None	Negligible	Not Significant
		Air Quality	Negligible	Not Significant	None	Negligible	Not Significant
		Pollution (Dust)	Negligible	Not Significant	None	Negligible	Not Significant
		Pollution (Spillages)	Negligible	Not Significant	None	Negligible	Not Significant
		Loss of Functionally Linked Land	Minor adverse, taking account of enhancement of 6 ha of acid grassland off-site to address construction period losses of acid grassland	Not Significant	None	Minor adverse, taking account of enhancement of 6ha of acid grassland off-site to address construction period losses of acid grassland	Not Significant
		Disturbance	Moderate adverse	Significant	Seasonal restriction on compound set-up for the trenchless bore such that it occurs outside the nesting	Negligible	Not Significant

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
					season (February to August).		
Leiston-Aldeburgh SSSI RSPB North Warren Reserve	National	Habitat loss	Negligible	Not Significant	None	Negligible	Not Significant
		Air Quality	Negligible	Not Significant	None	Negligible	Not Significant
		Pollution (Dust)	Negligible	Not Significant	None	Negligible	Not Significant
		Pollution (Spillages)	Negligible	Not Significant	None	Negligible	Not Significant
		Loss of Functionally Linked Land	Minor adverse, taking account of enhancement of 6ha of acid grassland off-site to address construction period losses of acid grassland	Not Significant	None	Minor adverse, taking account of enhancement of 6ha of acid grassland off-site to address construction period losses of acid grassland	Not Significant
		Disturbance	Minor adverse	Not Significant	Seasonal restriction on compound set-up for the trenchless bore such that it	Negligible	Not Significant

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
					occurs outside the nesting season (February to August).		
Disused Railway Line (Aldringham-Aldeburgh) County Wildlife Site	Regional	Habitat loss	Negligible	Not Significant	None	Negligible	Not Significant
Great Wood County Wildlife Site Grove Wood County Wildlife Site	Regional	Habitat loss	Negligible	Not Significant	None	Negligible	Not Significant
Habitats	Up to Regional	Habitat loss	Moderate adverse in the short to medium-term Moderate beneficial in the long-term due to habitat creation as part of Saxmundham Converter Station and Friston Substation proposals	Significant (Adverse in the short to medium term / Positive in the long term)	Enhancement of 6ha of acid grassland During works in the broadleaved plantation east of the proposed Saxmundham Converter Station the cable route would be micro-	Minor adverse in the medium-term Moderate beneficial in the long-term due to habitat creation as part of Saxmundham Converter	Not significant (in the medium term) Significant (Positive)

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
					sited to avoid the orchid population wherever possible, using an ecologist providing guidance on the ground. For Important Hedgerows (and particularly Hedgerows 3 and 5 if compound options S04 and S05 are selected) the hedgerows would need to be fenced to avoid incidental damage.	Station and Friston Substation proposals	
		Pollution (Dust)	Negligible	Not Significant	None	Negligible	Not Significant
		Pollution (Spillages)	Negligible	Not Significant	None	Negligible	Not Significant

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
Arable flora	National (beyond Order Limits) Regional (within Order Limits)	Habitat Loss	Minor adverse	Not significant	None	Minor adverse	Not Significant
Ornithology	Regional	Habitat loss	Moderate adverse in the short to medium-term, even taking account of enhancement of 6ha of acid grassland off-site to address construction period losses of acid grassland Moderate beneficial in the long-term due to habitat creation as part of Saxmundham Converter Station and Friston Substation proposals	Significant (Adverse in the short to medium term / Positive in the long term)	Enhancement of 12 ha of arable land for ground nesting farmland birds, particularly skylark, maintained favourably for the lifetime of the Proposed Project.	Moderate adverse in the medium-term, after taking account of enhancement of 6ha of acid grassland off-site to address construction period losses of acid grassland Moderate beneficial in the long-term due to habitat creation as part of Saxmundham Converter Station and Friston	Significant (Adverse in the medium term / Positive in the long term)

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
						Substation proposals	
		Disturbance	Moderate adverse	Significant	Seasonal restriction on compound set-up for the trenchless bore such that it occurs outside the nesting season (February to August) to protect the SPA and SSSI during the nesting season in addition to noise control methods. Three wicker baskets placed in trees at least 200 m from the Order Limits to provide undisturbed nest locations for hobby before the	Minor adverse	Not Significant

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
					breeding season commences. Movement of barn owl nest box near the River Fromus bridge further south and two additional next boxes added. To avoid disturbance of nesting woodlark outside the SPA works close to known nesting areas would be commenced during the winter so there is already activity before the nesting season; the birds would then choose alternative nesting locations.		

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
					Around construction compounds, direct illumination of boundary features would be avoided. Lighting would be designed to comply with published guidelines.		
Dormouse	N/A (likely absent based on survey)	Habitat loss	Negligible	Not Significant	None	Negligible	Not Significant
Badger and other mammals	Local (badger) District (hedgehog)	Habitat loss	Minor adverse due to loss of habitat for foraging. Minor beneficial due to habitat creation as part of Saxmundham Converter Station and Friston Substation proposals	Not Significant	None	Negligible	Not Significant
		Connectivity	Negligible	Not Significant	None	Negligible	Not Significant
Bats	Regional	Habitat loss	Moderate adverse	Significant	Larger gaps in hedgerows/woo	Minor adverse	Not Significant

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
					dland belts would be reduced to 10 m maximum during the night by hurdles or similar. A minimum 20 m setback of construction compounds from the hedge used by barbastelle which connects Important Hedgerows 3 and 5 will be instituted. The gap for access traversing the hedgerow that runs north from Bloomfield's Covert will be kept to 10 m maximum.		
		Killing and injuring	Negligible	Not Significant	None	Negligible	Not Significant

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
		Disturbance	Moderate adverse	Significant	Around construction compounds, direct illumination of boundary features would be avoided. Lighting would be designed to comply with published guidelines.	Negligible	Not Significant
Reptiles	District	Habitat loss	Minor adverse, taking account of enhancement of 6ha of acid grassland off-site to address construction period	Not Significant	None	Minor adverse, taking account of enhancement of 6ha of acid grassland off-site to address construction period	Not Significant
		Connectivity	Negligible	Not Significant	None	Negligible	Not Significant
		Killing and injury	Negligible	Not Significant	None	Negligible	Not Significant
Riparian mammals	Local	Habitat loss	Minor adverse in the short-term Moderate beneficial in the long-term due to wetland habitat	Significant (Positive)	None	Minor adverse in the short-term Moderate beneficial in the	Not significant (in the short term)

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
			creation as part of Saxmundham Converter Station and Friston Substation proposals			long-term due to wetland habitat creation as part of Saxmundham Converter Station and Friston Substation proposals	Significant (Positive in the long term)
		Killing and injury	Negligible	Not Significant	None	Negligible	Not Significant
		Passage	Negligible	Not Significant	None	Negligible	Not Significant
Terrestrial invertebrates	District	Habitat loss	Minor adverse, taking account of enhancement of 6ha of acid grassland off-site to address construction period	Not Significant	None	Minor adverse, taking account of enhancement of 6ha of acid grassland off-site to address construction period	Not Significant
Invasive species	N/A	Spread	Minor beneficial due to control measures	Not Significant (Positive)	None	Minor beneficial due to control measures	Not Significant (Positive)
Aquatic macrophytes	District	Habitat loss	Negligible	Not Significant	None	Negligible	Not Significant

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
Aquatic macroinvertebrates	District	Habitat loss	Negligible	Not Significant	None	Negligible	Not Significant
		Pollution	Negligible	Not Significant	None	Negligible	Not Significant
Fish	Regional	Light	Moderate adverse	Significant	Around construction compounds, direct illumination of boundary features would be avoided. Lighting would be designed to comply with published guidelines.	Minor adverse	Not Significant
		Passage	Minor adverse	Not Significant	None	Minor adverse	Not Significant
		Pollution	Negligible	Not Significant	None	Negligible	Not Significant
		Noise and vibration	Minor adverse	Not Significant	None	Minor adverse	Not Significant

Table 2.11 Summary of residual ecology and biodiversity effects (Operation and Maintenance)

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
Sandlings SPA	International	Habitat loss	Negligible	Not Significant	None	Negligible	Not Significant
		Disturbance	Negligible	Not Significant	None	Negligible	Not Significant
		Pollution (Spillages)	Negligible	Not Significant	None	Negligible	Not Significant
		Air Quality	Negligible	Not Significant	None	Negligible	Not Significant
Leiston-Aldeburgh SSSI RSPB North Warren	National	Habitat loss	Negligible	Not Significant	None	Negligible	Not Significant
		Disturbance	Negligible	Not Significant	None	Negligible	Not Significant
		Pollution (Spillages)	Negligible	Not Significant	None	Negligible	Not Significant
		Air Quality	Negligible	Not Significant	None	Negligible	Not Significant
Habitats	Up to Regional	Habitat loss	Moderate adverse (short to medium term). Moderate beneficial in	Significant (Adverse in the short to medium term then Positive in the long term)	None	Moderate adverse (short to medium term)	Significant (Adverse in the short to medium term / Positive in the long term)

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
			longer term due to habitat created for landscaping and drainage purposes as part of Saxmundham Converter Station and Friston Substation proposals			Moderate beneficial in the long-term due to habitat creation as part of Saxmundham Converter Station and Friston Substation proposals	
		Pollution (Spillages)	Negligible	Not Significant	None	Negligible	Not Significant
Ornithology	Regional	Habitat loss	Moderate adverse for ground nesting arable birds (particularly skylark) and wintering birds in the short to medium term Moderate beneficial in the long-term due to habitat creation as	Significant adverse in the short to medium term as habitat matures Significant (Beneficial in the long-term / Adverse for ground nesting birds)	Enhancement of 12 ha of arable land for ground nesting farmland birds, particularly skylark, maintained favourably for the lifetime of the Proposed Project	Moderate adverse in the short to medium term as habitat matures Moderate beneficial in the long term	Significant adverse in the short to medium term as habitat matures Significant beneficial in the long-term

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
			part of Saxmundham Converter Station and Friston Substation proposals				
		Disturbance and displacement	Negligible	Not Significant	None	Negligible	Not Significant
Dormouse	N/A (likely absent based on survey)	Habitat loss	Moderate beneficial due to habitat creation as part of Saxmundham Converter Station and Friston Substation proposals	Significant (Positive)	None	Moderate Beneficial	Significant (Positive)
Badger	Local	Habitat loss	Minor adverse due to loss of habitat for foraging in the	Not Significant in the short to medium term (for loss of	None	Minor adverse in the short to medium term due to loss of	Not significant in the short to medium term

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
			short to medium term.	foraging habitat)		habitat for foraging.	
			Moderate beneficial due to habitat creation as part of Saxmundham Converter Station and Friston Substation proposals in the long term	Significant in the long-term (Positive for habitat creation)		Moderate beneficial in the long-term due to habitat creation as part of Saxmundham Converter Station and Friston Substation proposals	Significant (Positive in the long term)
Bats	Regional	Habitat loss	Minor adverse in the short to medium-term due to loss of woody habitat for foraging.	Not Significant in the short to medium term (for loss of foraging habitat)	None	Minor adverse in the short to medium-term due to loss of woody habitat for foraging.	Not significant in the short to medium term
			Moderate beneficial in the long-term due to habitat creation as part of Saxmundham Converter Station and	Significant in the long term (Positive for habitat creation)		Moderate beneficial in the long-term due to habitat creation as part of Saxmundham	Significant (Positive in the long term)

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
			Friston Substation proposals			Converter Station and Friston Substation proposals	
		Disturbance (lighting)	Moderate adverse	Significant	Lighting would be designed to comply with published guidelines and would be the minimum required for the safe working of the proposed Saxmundham Converter Station. Lighting would be directed to the interior of the Converter Station, and on as low a column height as possible, with measures such as hoods or cowls implemented where required	Negligible	Not Significant

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
					to avoid light spill onto Bloomfield's Covert woodland and immediately surrounding habitat.		
Reptiles	Local	Habitat loss	Moderate beneficial due to habitat creation as part of Saxmundham Converter Station and Friston Substation proposals	Significant (Positive)	None	Moderate beneficial in the long-term due to habitat creation as part of Saxmundham Converter Station and Friston Substation proposals.	Significant (Positive)
Riparian mammals	Local	Habitat loss	Minor adverse in the medium-term due to loss of ditch habitat. Moderate beneficial in the long-term due to wetland	Not significant in the medium term	None	Minor adverse in the medium-term due to loss of ditch habitat. Moderate beneficial in the long-term	Not significant in the medium term

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
			habitat creation as part of Saxmundham Converter Station and Friston Substation proposals	Significant (Positive) in the long term		due to wetland habitat creation as part of Saxmundham Converter Station and Friston Substation proposals	Significant (Positive) in the long term
		Passage	Negligible	Not Significant	None	Negligible	Not Significant
Terrestrial invertebrates	District	Habitat loss	Moderate beneficial in the long-term due to habitat creation as part of Saxmundham Converter Station and Friston Substation proposals	Significant (Positive)	None	Moderate beneficial in the long-term due to habitat creation as part of Saxmundham Converter Station and Friston Substation proposals.	Significant (Positive)
Aquatic macrophytes	District	Habitat loss	Negligible	Not significant	None	Negligible	Not Significant
		Shading	Minor adverse	Not significant	None	Negligible	Not Significant

Receptor	Sensitivity	Description of impact	Likely significant effect		Additional mitigation measures	Residual effect	
			Magnitude	Significance		Magnitude	Significance
Aquatic macroinvertebrates	District	Habitat loss	Negligible	Not Significant	None	Negligible	Not Significant
		Pollution	Negligible	Not Significant	None	Negligible	Not Significant
		Passage	Negligible	Not Significant	None	Negligible	Not Significant
Fish	Regional	Passage	Minor adverse	Not Significant	None	Minor adverse	Not Significant
		Pollution	Negligible	Not Significant	None	Negligible	Not Significant

2.11.2 The assessment of impacts on ecological receptors has considered construction, operational and decommissioning phases including habitat loss, disturbance, and water and atmospheric pollution. Embedded measures and those set out in **Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice** have been considered in the assessment.

2.11.3 These include measures built into the design of the Proposed Project (e.g. culvert design or habitat creation around the converter station), standard mitigation measures (e.g. avoiding vegetation clearance in nesting season and using noise fencing), and those which are required by law (e.g. pollution control measures). Due to the time required for planting to mature (between 1-2 seasons for easily restored habitats such as ditches, to 5-10 years for sections of hedgerow and woodland), moderate adverse effects have been identified in the short to medium term for breeding and wintering birds and for habitats of up to regional importance. However, these are considered to be offset by the long-term (10 years and upwards) beneficial effect of the large amounts of landscape planting around the River Fromus bridge, the Saxmundum Converter Station, and the Friston Substation. This will result in a long-term increase in habitat.

2.11.4 Following the assessment taking into account those measures the need for additional mitigation has been identified in Section 2.10 (see also **Application Document 7.5.3.2 CEMP Appendix B Register of Environmental Actions and Commitments (REAC)**).

2.11.5 With these measures (embedded, control and management, habitat planting for landscape purposes and additional mitigation) taken into consideration, it is concluded that there would be no long-term significant adverse residual effects on ecological and biodiversity receptors as a result of the Proposed Project.

2.11.6 There would be a number of significant positive residual effects in the long-term for receptors such as bats, water voles and birds, due to the habitat creation around the Saxmundham Converter Station and Friston Substation (in the scenario where the substation is built as part of the Proposed Project).

2.12 Sensitivity Testing

2.12.1 Under the terms of the DCO, construction could commence in any year up to five years from the granting of the DCO, which is assumed to be in 2026. The effects reported above would not be any different if the works were to commence in any year up to year five, assuming the seasonal restrictions and other mitigation measures identified continued to be applied.

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