FIVE ESTUARIES OFFSHORE WIND FARM

ENVIRONMENTAL STATEMENT

VOLUME 6, PART 3, CHAPTER 4: ONSHORE BIODIVERSITY AND NATURE CONSERVATION – REVISION B (CLEAN)

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LIABILITY
In preparation of this document Five Estuaries Wind Farm Ltd has made reasonable efforts to ensure that the content is accurate, up to date and complete for the purpose.

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CONTENTS

4 Onshore biodiversity and nature conservation 11
4.1 Introduction 11
4.2 Statutory and policy context 13
National legislation 14
National planning policy 16
UK (England) government policy 16
Local planning policy 16
4.3 Guidance 17
4.4 Consultation and scoping 28
4.5 Scope and methodology 60
Study area 60
Baseline data collection 61
4.6 Assessment criteria and assignment of significance 68
Important ecological features 69
Impact assessment 70
4.7 Uncertainty and technical difficulties encountered 74
All surveys 74
All non-avian surveys 74
Habitat and hedgerow surveys 76
GCN surveys 76
Reptile survey 77
Wintering bird surveys 77
Breeding birds 78
Otter and water vole survey 79
Dormouse survey 79
Badger survey 79
Bat survey 80
Impact assessment 81
..... 86
4.8 Existing environment 87
General context 87
Designated sites 87
Habitats 99
Species 145
Summary of important ecological features 242

Evolution of the baseline 259
4.9 Key parameters for assessment 259
4.10 Mitigation 267
4.11 Environmental assessment: construction phase 275
Impacts to statutory designated sites 276
Impacts to local wildlife sites 294
Permanent and temporary loss of important habitat 294
Impacts upon protected or notable species or upon their resting or breeding sites, including habitat fragmentation and isolation 299
Spread of invasive non-native species 319
Accidental pollution 319
4.12 Environmental assessment: operational phase 319
Disturbance or damage to important ecological features via maintenance, noise and light at the OnSS 319
Disturbance or damage to important ecological features via maintenance 320
4.13 Environmental assessment: decommissioning phase 321
4.14 Environmental assessment: cumulative effects 321
4.15 Climate Change 335
Effect of climate change on the local environment 335
Effect of climate change and the project on the local environment 335
4.16 Inter-relationships 336
4.17 Transboundary effects 336
4.18 Summary of effects 336
4.19 References 353

TABLES

Table 4.1 Legislation and policy context 18
Table 4.3: Summary of consultation relating to onshore biodiversity and conservation 29
Table 4.4: Designated sites scoped into the assessment 95
Table 4.5: Designated sites scoped out of the assessment 97
Table 4.6: Habitats present within the survey area 99
Table 4.7: GCN Baseline data summary for ponds within 250 m of Order Limits 165
Table 4.8: Reptile baseline survey summary 180
Table 4.9: Peak counts of selected waterbird species within the Order Limits and 400 m buffer at the landfall and immediate surrounding area (Route Section 1) (all surveys combined) 184
Table 4.10: Peak counts of selected wintering waterbird species within the Order Limits and 400 m buffer along the onshore export cable corridor and at the substation (Route Sections 2-7) (2021-22 and 2022-23 surveys combined) 190

Table 4.11: Target bird species recorded breeding within the Order Limits and 100 m buffer at the landfall and surrounding area (Route Section 1) during the surveys undertaken in 2021 and 2022 194
Table 4.12: Specially protected bird species and bird species of high conservation concern confirmed or probably breeding within the Order Limits and 100 m buffer along the Onshore ECC and at the Substation area during the surveys undertaken in 2022 197
Table 4.13: Bat species synopsis 224
Table 4.14: Important ecological features that may be affected 243
Table 4.15: MDS key parameters for EcIA 260
Table 4.16: Mitigation relating to onshore biodiversity and nature conservation 268
Table 4.17: Habitats potentially subject to temporary loss based on the indicative onshore ECC 294
Table 4.18: Assessment of significance of important habitat loss 297
Table 4.19: Assessment of significance of effects on protected and notable species 300
Table 4.20: Description of Tiers of other developments considered for cumulative effect assessment. 322
Table 4.21: Projects considered within the onshore biodiversity and nature conservation cumulative effects assessment 323
Table 4.22: Cumulative MDS 329
Table 4.23: Inter-relationships between the EcIA and other chapters within the ES 336
Table 4.24: Summary of effects: construction stage 338
Table 4.25 Summary of effects: operation, decommissioning and cumulative 351

FIGURES

Figure 4.1 Areas with potential data gaps within the Order Limits 82
Figure 4.3: Bird survey areas 85
Figure 4.4: Statutory and non-statutory designated sites 88
Figure 4.5: Important hedgerows, S41 habitats and notable plant species recorded within the survey area 103
Figure 4.6: Important non-avian species (Essex Field Club records) 146
Figure 4.7: Potential impacts: Great crested newts 167
Figure 4.8: Potential impacts: reptiles 176
Figure 4.9: Potential Impacts: bats 201
Figure 4.10: CONFIDENTIAL Potential impacts: badgers 227
Figure 4.11: Potential impacts: otter and water vole 229
Figure 4.12: Potential impacts: dormice 234

DEFINITION OF ABBREVIATIONS AND ACRONYMS

Term	Definition
AIL	Abnormal Indivisible Load
AIS	Air insulated substation
ANG	Accessible Natural Greenspace
ARC	Amphibian and Reptile Conservation
ASNW	Ancient semi-natural woodland
BNG	Biodiversity Net Gain
BoCC	Birds of Conservation Concern
CEMP	Construction Environmental Management Plan
CEnv	Chartered Environmentalist
CFA	Climate Focus Area
CIEEM	Chartered Institute for Ecology and Environmental Management
CoCP	Code of Construction Practice
CC	County Council
CRoW Act	Countryside and Rights of Way Act 2000
CSZ	Core Sustenance Zone
EA	Environment Agency
EACN	East Anglian Connection Node
ECC	Export Cable Corridor
EcIA	Ecological Impact Assessment
ECOW	Ecological Clerk of Works
EFC	Essex Field Club
EIA	Environmental Impact Assessment.
EPSL	European protected species licence
ES	Environmental Statement
ETG	Expert Topic Group
EU	European Union
EWT	Essex Wildlife Trust
FLL	Functionally Linked Land
GCN	Great crested newt
HDD	Horizontal Directional Drilling

Term	Definition
HRA	Habitats Regulations Assessment.
INNS	Invasive non-native species
IUCN	International Union for the Conservation of Nature
LBAP	Local biodiversity action plan
LDP	Local development plan
LEDPP	Landscape and Ecology Design Principles Plan
LEMP	Landscape and Ecological Management Plan
LONI	Letter of No Impediment
LVIA	Landscape and Visual Impact Assessment
LoWS	Local Wildlife Site
MDS	Maximum Design Scenario
NE	Natural England
NERC Act	Natural Environment and Rural Communities Act 2006
NF OWF	North Falls Offshore Wind Farm
NG	National Grid
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
OLEMP	Outline Landscape and Ecological Mitigation Plan
OnSS	Onshore Substation
PAWS	Plantation on Ancient Woodland Site
PEA	Preliminary Ecological Appraisal
PEIR	Preliminary Environmental Information Report.
PINS	The Planning Inspectorate
PPEIRP	Pollution Prevention and Emergency Incident Response Plan
RLB	Red Line Boundary
RSPB	Royal Society for the Protection of Birds
S41	Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
SoS	Secretary of State

Term	Definition
SuDS	Sustainable Drainage Systems
TBC	To be confirmed
TCC	Temporary Construction Compound
TJB	Transition Joint Bay
TPC	Tendring Parish Council
TWT	The Wildlife Trusts
WeBS	Wetland Bird Survey
VE	The Project, Five Estuaries Offshore Wind Farm
VE OWFL	Five Estuaries Offshore Windfarm Limited.

GLOSSARY OF TERMS

Term	Definition
TCC	Temporary Construction Compounds (TCC) associated with onshore cable works.
Compensation	Compensation describes measures taken to offset residual effects resulting in the loss of, or permanent damage to, ecological features despite mitigation. For example, it may take the form of replacement habitat or improvements to existing habitats.
Construction Substation Access Zone	The area which will contain final OnSS access route during construction.
East Anglia Connection Node (EACN) Substation	The new NG substation. This will be subject to a DCO application submitted by NG.
Effect	Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of the impact in question with the sensitivity of the receptor in question, in accordance with defined significance criteria.
Expert Topic Group	Key stakeholders and consultees involved in the scoping and design process.
Impact	An impact to the receiving environment is defined as any change to its baseline condition, either adverse or beneficial, resulting from the activities associated with the construction, operation and maintenance, or decommissioning of the project.
Jointing pits	There will be jointing pits which will require separate, smaller cable-testing pits (known as link boxes) to allow for fault testing. These will consist of a manhole set in a concrete plinth at ground level. These link boxes will fit within the standard cable route width.
Maximum Design Scenario (MDS)	The maximum design parameters of the combined project assets that result in the greatest potential for change in relation to each impact assessed.
Mitigation	Mitigation measures are commitments made by the project to reduce and/ or eliminate the potential for significant effects to arise as a result of the project.
Onshore Export Cable Corridor (onshore ECC)	The Onshore ECC is the working area for the onshore cable construction.
Priority Habitat	Habitat listed under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006

Term	Definition
Priority Species	Species listed under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006
Red Line Boundary (RLB)	Presented at PEIR; the anticipated extent of development at that time.
Order Limits	The extent of development including all works, access routes, Temporary Construction Compounds (TCCs), visibility splays and discharge points.
Study area	This is the 2 km zone around the Order Limits.
Substation zone	The area in which the final onshore substation (OnSS) footprint will be located.
Survey area	Except where stated otherwise, this is the 100 m zone around the Proposed Order Limits in place at the time of survey.
Waterbirds	The definition of waterbirds follows that used by the Wetland Bird Survey (WeBS) and includes wildfowl (ducks, geese and swans), waders, rails, divers, grebes, cormorants and herons.

4 ONSHORE BIODIVERSITY AND NATURE CONSERVATION

4.1 INTRODUCTION

4.1.1 This chapter considers the likely significant effects associated with the onshore elements of the Five Estuaries Offshore Wind Farm (VE) on onshore biodiversity and nature conservation receptors (including intertidal birds). It considers the construction, operational and decommissioning onshore activities.

4.1.2 This chapter has been authored by Jess Colebrook, Principal Ecologist, Chartered Environmentalist (CEnv), Full Member of the Chartered Institute for Ecology and Environmental Management (MCIEEM) and subject to technical review by Duncan Watson, Technical Director, CEnv, MCIEEM. Both Jess and Duncan work for SLR Consulting Ltd and each have in excess of 20 years' professional ecological experience.

4.1.3 Relevant technical appendices attached to this ES that should be read alongside it include:

- Volume 6, Part 6, Annex 4.1: Great Crested Newt Survey Report: Additional Ponds;
- Volume 6, Part 6, Annex 4.2: Breeding Bird Survey Report: North of A120;
- Volume 6, Part 6, Annex 4.3: Breeding Bird Survey Report: South of A120;
- Volume 6, Part 6, Annex 4.4: North Falls Onshore Landfall Area Breeding Bird Surveys 2022 Report;
- Volume 6, Part 6, Annex 4.5 North Falls and Five Estuaries Offshore Wind Farms Onshore Cable Route: Non-Breeding Bird Surveys 2022-23 Report;
- Volume 6, Part 6, Annex 4.6: Wintering Bird Data Analysis in relation to Onshore Works;
- Volume 6, Part 6, Annex 4.7: Bat Survey Report: North of A120;
- Volume 6, Part 6, Annex 4.8: Roosting Bats Tree Survey Report: South of A120;
- Volume 6, Part 6, Annex 4.9: Bat Activity Survey Report: South of A120;
- Volume 6, Part 6, Annex 4.10: Bat Survey Report: Additional Tree Survey;
- Volume 6, Part 6, Annex 4.11: Badger Survey Report: North of A120 (Public);
- Volume 6, Part 6, Annex 4.12: Dormouse Survey Report: North of A120;
- Volume 6, Part 6, Annex 4.13: Dormouse Survey Report: South of A120;
- Volume 6, Part 6, Annex 4.14: Otter and Water Vole Survey Report: North of A120;
- Volume 6, Part 6, Annex 4.15: Otter and Water Vole Survey Report: South of A120;
- Volume 6, Part 6, Annex 4.16: Reptile Survey Report: North of A120;
- Volume 6, Part 6, Annex 4.17: Reptile Survey Report: South of A120;
- Volume 6, Part 6, Annex 4.18 Onshore Biodiversity Net Gain Indicative Design Stage Report;
- Volume 6, Part 6, Annex 4.19: Statutory Designated Sites Qualifying or Notified Features;

- Volume 6, Part 6, Annex 4.20: GCN District Level Licencing Impact Assessment and Conservation Payment Certificate and associated documents;
- Volume 6, Part 6, Annex 4.21: CONFIDENTIAL Protected Species Reports and Figures;
- Volume 9, Annex 9.21: Outline Code of Construction Practice; and
- Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan.

4.1.4 In addition to the Annexes provide to support this ES Chapter, the PEIR annexes have been republished in ES Volume 6, Part 6 as follows;

- Annex 4.22.1 Five Estuaries Preliminary_Ecological_Appraisal_Part 1;
- Annex 4.22.2 Five Estuaries Preliminary_Ecological_Appraisal_Part 2;
- Annex 4.22.3 Five Estuaries Preliminary_Ecological_Appraisal_Part 3;
- Annex 4.23: Five Estuaries Preliminary Environmental Information Report - Habitat and Hedgerow and Great Crested Newt Reports which includes;
  - VE PEIR Volume 5, Annex 4.2: Habitat and Hedgerow Survey Report, N of A120;
  - VE PEIR Volume 5, Annex 4.3: Habitat and Hedgerow Survey Report, S of A120;
  - VE PEIR Volume 5, Annex 4.4: Great Crested Newt Survey Report, N of A120; and
  - VE PEIR Volume 5, Annex 4.5: Great Crested Newt Survey Report, S of A120
- Annex 4.24: Five Estuaries Preliminary Environmental Information Report - Wintering Birds Landfall Report (previously submitted as VE PEIR Volume 5, Annex 4.6: Wintering Bird Survey (Landfall Locations) 2021/22) ; and
- Annex 4.25: North Falls Ecology Reports which includes;
  - VE PEIR Volume 5, Annex 4.7: North Falls Offshore Wind Farm Holland Haven Marshes SSSI and adjacent land NVC Survey 2021
  - VE PEIR Volume 5, Annex 4.8: North Falls Offshore Wind Farm Extended Phase 1 Habitat Survey 2021;
  - VE PEIR Volume 5, Annex 4.9: North Falls Offshore Wind Farm Holland Haven Marshes SSSI: Survey and Assessment of Aquatic and Terrestrial Invertebrates 2021;
  - VE PEIR Volume 5, Annex 4.10: North Falls Offshore Wind Farm Onshore Landfall Area: 2020/21 Non-breeding Bird Surveys;
  - VE PEIR Volume 5, Annex 4.11: North Falls Offshore Wind Farm Onshore Landfall Area: 2021/22 Non-breeding Bird Surveys;
  - VE PEIR Volume 5, Annex 4.12: North Falls Offshore Wind Farm Onshore Cable Route: Non-breeding Bird Surveys 2021-22;

- VE PEIR Volume 5, Annex 4.13: North Falls Offshore Wind Farm Onshore Landfall Area: Breeding Bird Surveys 2021;

4.1.5 It is noted that Annex 4.25: North Falls Ecology Reports and VE ES Annex 4.4 contain survey data collected on behalf of North Falls Offshore Wind Farm (NF OWF). However, the surveys are also relevant to VE and NF OWF has granted permission for the reports to be used to inform this assessment. The reader is also directed to the NF OWF PEIR specifically Chapters 23: Onshore Ecology and 24: Onshore Ornithology and the appendices associated with each.

4.1.6 The chapter has also been informed by the following other ES chapters:

- Volume 6, Part 3, Chapter 1: Onshore Project Description;
- Volume 6, Part 3, Chapter 2: Landscape and Visual Impact Assessment (LVIA);
- Volume 6, Part 3, Chapter 7: Hydrology, Hydrogeology and Flood Risk;
- Volume 6, Part 3, Chapter 10: Noise; and
- Volume 6, Part 3, Chapter 11 : Air Quality.

4.1.7 Other ecological receptors which are covered in separate chapters are as follows:

- Volume 6, Part 2, Chapter 4: Offshore Ornithology;
- Volume 6, Part 2, Chapter 5: Benthic and Intertidal Ecology;
- Volume 6, Part 2, Chapter 6: Fish and Shellfish; and
- Volume 6, Part 2, Chapter 7: Marine Mammals.

4.1.8 In addition, the screening of VE's potential to have a Likely Significant Effect (LSE) on European and Ramsar sites, both alone and in-combination with other plans or projects is detailed within Volume 5, Annex 5.4 Report to Inform Appropriate Assessment (RIAA).

4.1.9 This chapter specifically excludes matters related to lesser black backed gull compensatory measures, which are required for potential impacts related to offshore elements of VE OWF. This is covered in detail at Volume 6, Part 8, Chapter 1 Lesser black backed gull compensatory areas environmental assessment.

4.2 STATUTORY AND POLICY CONTEXT

4.2.1 This section identifies the legislation and policy that has informed the assessment of effects with respect to Onshore Biodiversity and Nature Conservation. A summary of the key provisions within the relevant legislation and policy is provided in Table 4.1.

4.2.2 Further information on policies relevant to the EIA and their status is provided in Volume 6, Part 1, Chapter 2: Policy and Legislation.

NATIONAL LEGISLATION

CONSERVATION OF HABITATS AND SPECIES REGULATIONS 2017 (AS AMENDED)

4.2.3 The Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitats Regulations) are one of the pieces of domestic law that transposed the land and marine aspects of the Habitats Directive (Council Directive 92/43/EEC) and certain elements of the Wild Birds Directive (Directive 2009/147/EC) (known as the Natura Directives) into English and Welsh law. These regulations were last amended in 2019 to make them operable from 1 January 2021 despite the UK's withdrawal from the European Union (EU).

4.2.4 The Habitats Regulations cover the requirements for protecting sites that are internationally important for threatened habitats and species and set out a legal framework for species requiring strict protection.

RAMSAR CONVENTION

4.2.5 The Convention on Wetlands of International Importance especially as Waterfowl Habitat ('Ramsar Convention' or 'Wetlands Convention') was adopted in Ramsar, Iran in February 1971 and came into force in December 1975. It provides the only international mechanism for protecting sites of global importance and is thus of key conservation significance.

4.2.6 The UK ratified the Ramsar Convention and designated its first Ramsar Sites in 1976. The designation of UK Ramsar Sites has generally been underpinned through prior notification of these areas as Sites of Special Scientific Interest (SSSI). The UK government and the devolved administrations have also issued policy statements relating to Ramsar Sites which extend to them the same protection at a policy level as Special Areas of Conservation (SAC) and Special Protection Areas (SPA).

WILDLIFE AND COUNTRYSIDE ACT 1981

4.2.7 The Wildlife and Countryside Act 1981 consolidated and amended existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Birds Directive. The Wildlife and Countryside Act is divided into four parts.

- Part I is concerned with the protection of wildlife;
- Part II relates to the countryside and national parks (and the designation of protected areas);
- Part III covers public rights of way; and
- Part IV deals with miscellaneous provisions of the Act.

PROTECTION OF BADGERS ACT 1992

4.2.8 The Protection of Badgers Act 1992 makes it illegal to kill, injure or take a badger (*Meles meles*) or to intentionally or recklessly interfere with a badger sett. Sett interference includes disturbing badgers whilst they are occupying a sett or obstructing access to it.

HEDGEROW REGULATIONS 1997

4.2.9 These regulations, which were made under the Environment Act 1995, restrict the removal of hedgerows. To be protected under the regulations, a hedgerow must be at least 30 years old and over 20 m long and in addition must fulfil one of a number of criteria set out in the legislation.

ENVIRONMENT ACT 2021

4.2.10 The Environment Act 2021 has wide ranging provisions including those around:

- Environmental governance;
- Environmental regulation;
- Waste and resource efficiency;
- Air quality and environmental recall;
- Water;
- Nature and biodiversity; and
- Conservation covenants.

4.2.11 Schedule 15 of the Act is of particular relevance,and introduces "biodiversity gain in nationally significant infrastructure projects (NSIP)". The part of the Environment Act relating to biodiversity net gain (and the associated amendments to the Planning Act) is not yet in force, with the parts relating to NSIPs unlikely to commence until November 2025.

THE WATER ENVIRONMENT (WATER FRAMEWORK DIRECTIVE) (ENGLAND AND WALES) REGULATIONS 2017

4.2.12 Part 3 of the regulations provides for the protection of areas of habitats or species where maintenance of the status of water is an important factor. Under the regulations, additional consideration may need to be given to sites in the form of a Water Framework Directive (WFD) assessment where a project lies in proximity to a water body or to linked water bodies which could be affected. This includes consideration of whether water bodies are WFD receptors, in particular those of high status or which have high status morphology.

NATURAL ENVIRONMENT & RURAL COMMUNITIES (NERC) ACT 2006

4.2.13 Section 40 of the NERC Act 2006 places a duty on public authorities to have regard to the purpose of conserving biodiversity in the exercise of their functions. Public authorities include government departments, local authorities and statutory undertakers.

4.2.14 Section 41 of the Act requires the publication of a list of habitats and species which are of principal importance for the purpose of conserving biodiversity. The Section 41 list is used to guide authorities in implementing their duty to have regard to the conservation of biodiversity.

NATIONAL PLANNING POLICY

NATIONAL POLICY STATEMENTS

4.2.15 The National Policy Statements (NPS) are a series of decision-making documents to guide decision making on Nationally Significant Infrastructure Projects (NSIP). Decisions under the Planning Act 2008 must be made in accordance with the relevant NPS where one is in force, and this assessment therefore makes explicit reference to the relevant NPS requirements.

4.2.16 Those relevant to this assessment are limited to Overarching National Policy Statement for Energy (EN-1).

4.2.17 Guidance specific to offshore wind farms is provided in the NPS for Renewable Energy Infrastructure (EN-3), however the guidance regarding biodiversity relates to offshore impacts; for more generic ecology and biodiversity effects EN-3 refers to the relevant sections of EN-1. Similarly, guidance in relation to electricity network projects is provided within NPS for Electricity Networks Infrastructure (EN-5), however, with regard to biodiversity considerations for non-overhead line projects, EN-5 refers to the relevant sections of EN-1.

UK (ENGLAND) GOVERNMENT POLICY

NATIONAL PLANNING POLICY (ENGLAND) 2023

4.2.18 The National Planning Policy Framework (NPPF) sets out guidance for local planning authorities and decision-makers in how to apply planning policies when drawing up plans and making decisions about planning applications. Along with Government Circular 06/05, the broad policy objectives in relation to the protection of biodiversity and geological conservation in England through the planning system are set out.

4.2.19 The planning practice guidance for the Natural Environment explains key issues in implementing policy to protect and enhance the natural environment, including local requirements.

GOVERNMENT CIRCULAR 06/05

4.2.20 This circular provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England. It complements the national planning policy in the National Planning Policy Framework and the relevant planning practice guidance.

LOCAL PLANNING POLICY

TENDING DISTRICT LOCAL PLAN 2013-2033 AND BEYOND – NORTH ESSEX AUTHORITIES SHARED STRATEGIC SECTION 1, ADOPTED IN JANUARY 2021 AND SECTION 2 ADOPTED IN JANUARY 2022

4.2.21 Tendring District Local Plan guides planning decisions in the Tendring district. Four policies within the plan are of particular relevance to biodiversity and nature conservation, see Table 4.1 for details.

TENDRING INFRASTRUCTURE DELIVERY PLAN 2017

4.2.22 Tendring Infrastructure Delivery Plan includes a section on green infrastructure which is of relevance to this chapter. Refer to Table 4.1 for details.

TENDRING OPEN SPACES STRATEGY 2009

4.2.23 Tendring Open Spaces Strategy includes recommendations for natural and semi-natural greenspace that are of relevance to this chapter, refer to Table 4.1 for details.

ESSEX GREEN INFRASTRUCTURE STRATEGY 2020

4.2.24 This document seeks to champion high quality green space and green infrastructure in Essex, via delivery of seven main objectives several of which are pertinent to this chapter. Refer to Table 4.1 for details.

ESSEX BIODIVERSITY ACTION PLAN 1999

4.2.25 Essex Biodiversity Action Plan appears not to have been updated since 1999. It includes actions for species and habitats of conservation concern within the county.

4.3 GUIDANCE

4.3.1 The Ecological Impact Assessment (EcIA) presented in this chapter has been carried out in accordance with the principles contained within:

- 'Guidelines for Preliminary Ecological Appraisal', 2nd edition, (CIEEM, 2017);
- 'Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2'. (CIEEM, 2022); and
- BS42020: Biodiversity – Code of Practice for Planning and Development.

4.3.2 Additional guidance in respect of the survey and/ or evaluation of habitats or species are referenced in the associated technical annexes and/ or the Method sections (Section 4.5 below and Annexes 4.1 – 4.21).

Table 4.1 Legislation and policy context

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
Legislation		
Conservation of Habitats and Species Regulations 2017 (as amended)	Protection of Special Protection Areas (SPAs) and Special Areas of Conservation (SAC). Protection of certain animal species and their places or rest or shelter. Protection of certain plant species.	The relevant provisions of the Habitats Regulations are addressed in Sections 4.5, 0, 4.10 and Sections 4.11-4.14.
Wildlife and Countryside Act 1981 (as amended)	Protection of Sites of Special Scientific Interest (SSSIs). Protection of certain animals and plant species and their place of shelter or protection. Prohibition of allowing certain plant species to grow or spread in the wild.	The relevant provisions of the Wildlife and Countryside Act are addressed in Sections 4.5, 0, 4.10 and Sections 4.11-4.14.
Protection of Badgers Act 1992	Protection of badgers from killing and injury, and badger setts from disturbance.	The relevant provisions of the Protection of Badgers Act are addressed in Sections 4.5, 0, 4.10 and Sections 4.11-4.14.
Hedgerow Regulations 1997	Protection of hedgerows deemed "important" under ecological or historical criteria set out in the Regulations.	The relevant provisions of the Hedgerow Regulations are addressed in Sections 4.5, 0, 4.10 and Sections 4.11-4.14.
Environment Act 2021	Schedule 15 of the Act introduces "biodiversity gain in nationally significant infrastructure projects". These changes will be enacted through subsequent secondary legislation or regulations.	The relevant provisions of the Environment Act are addressed in Sections 4.5, 4.6, 0, 4.10 and Sections 4.11-4.14. Further detail is included in Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report.
The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017	Part 3 of the Regulations provides for the protection of areas of habitats or species where maintenance of the status of water is an important factor.	The relevant provisions of the Water Framework Directive are addressed in Sections 4.5, 0, 4.10 and Sections 4.11-4.14. Please also refer to Volume 9, Report 9.6: WFD Assessment Onshore.

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
Natural Environment & Rural Communities (NERC) Act 2006	Section 40 of the NERC Act 2006 places a duty on public authorities to have regard to the purpose of conserving biodiversity in the exercise of their functions. Section 41 of the Act requires the publication of a list of habitats and species which are of principal importance for the purpose of conserving biodiversity. The Section 41 list is used to guide authorities in implementing their duty to have regard to the conservation of biodiversity.	The relevant provisions of the NERC Act are addressed in Sections 4.5, 0, 4.10 and Sections 4.11-4.14.
National Planning Policy		
NPS EN-1	NPS EN-1 notes in Paragraphs 5.4.25 to 5.4.31 that the applicant must submit sufficient information to enable an Appropriate Assessment to be undertaken if required. Paragraph 5.4.17 sets out that where the development is subject to EIA the applicant should ensure that the ES clearly sets out any effects on internationally, nationally, and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity, including irreplaceable habitats. NPS EN-1 encourages the applicant to consider how proposals can contribute to Biodiversity Net Gain (BNG) in Paragraphs 4.5.4 and 4.5.5, noting in Paragraph 4.5.11 that the scope of potential gains is dependent on the type, scale and location of each project.	Effects on internationally, nationally and locally designated sites, on protected species and on habitats and other species identified as being of importance for the conservation of biodiversity are assessed in Sections 4.11-4.14 and in Volume 5, Annex 5.4 Report to Inform Appropriate Assessment (RIAA). Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan). The VE approach to BNG is set out in Section 4.6 and in Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report.
UK (England) Government Policy		
NPPF	Specific policies relating to habitats and biodiversity are set out in Paragraphs 180, 181 and 185-188 of the NPPF. Paragraph 174 states that: *'Planning policies and decisions should contribute to and enhance the natural and local environment by:*	Designated sites, protected species, and habitats and other species identified as being of importance for the conservation of biodiversity, are identified in Section 0. Effects upon important ecological features are assessed in Sections 4.11-4.14.

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
	a) 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); *b) 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;* *c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;* *d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;* *e) 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. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and* *f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate'.* Paragraph 181 states that: *Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the*	Mitigation measures are set out in Section 4.10. Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Report 22 Outline Landscape and Ecological Management Plan (OLEMP)). These include woodland and hedgerow planting proposals that seek to address the requirement to promote coherent, resilient ecological networks. The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report.

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
	enhancement of natural capital at a catchment or landscape scale across local authority boundaries. Paragraph 185 states that: *'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.'* Paragraph 186 of the NPPF states that: *'When determining planning applications, local planning authorities should apply the following principles:* *a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;* *b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest,*	

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
	and any broader impacts on the national network of Sites of Special Scientific Interest; *c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and* *d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.'* Paragraphs 187-188 relate to European sites (referred to in the NPPF as habitats sites) and state: *'The following should be given the same protection as habitats sites:* *a) potential Special Protection Areas and possible Special Areas of Conservation;* *b) listed or proposed Ramsar sites; and* *c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.* *The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.'*	

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
Govt Circular 06/05	This circular provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England. It includes sections related to internationally designated sites, nationally designates sites, habitats and species as well as other duties by planning authorities. The circular makes clear that: *'4. Planning authorities should follow the procedures ….. for SPAs, cSACs, and SACs, and, more generally, should have regard to the [EC Birds and Habitats] Directives in the exercise of their planning functions in order to fulfil the requirements of the Directive in respect of the land use planning system.* *61. The Government expects all section 28G authorities, including planning authorities, to:* *a) apply strict tests when carrying out any functions within or affecting SSSIs, to ensure that they avoid or at least minimise adverse effects;* *b) adopt the highest standards of management in relation to SSSIs in their ownership, and to take appropriate action to prevent damage by third parties; and* *c) as owners or otherwise to take positive steps, wherever possible, to conserve and enhance the special interest features of a SSSI where their activities may be affecting it, or as opportunities arise in the exercise of their functions. English Nature will advise on a case by case basis as to opportunities for enhancement.* *99. It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision. The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that*	The relevant provisions of the Habitats Regulations (which implement the EC Directives in the UK) are addressed in Sections 4.5, 0, 4.10 and Sections 4.11-4.14 and in the RIAA at Volume 5 Annex 5.4. Designated sites, protected species, and habitats and other species identified as being of importance for the conservation of biodiversity, are identified in Section 0. Effects upon important ecological features are assessed in Sections 4.11-4.14.

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
	the surveys are carried out after planning permission has been granted. However, bearing in mind the delay and cost that may be involved, developers should not be required to undertake surveys for protected species unless there is a reasonable likelihood of the species being present and affected by the development.'	
Local Planning Policy		
Tending District Local Plan 2013-2033 and Beyond – North Essex Authorities' Shared Strategic Section 1, adopted in January 2021 and Section 2 adopted in January 2022	**Policy SP7 Place Shaping Principles** includes the following place shaping principles that relate to biodiversity, and that all new development should reflect: *'Incorporate biodiversity creation and enhancement measures;* *Provide an integrated and connected network of biodiverse public open space and green and blue infrastructure, thereby helping to alleviate recreational pressure on designated sites; and* *Include measures to promote environmental sustainability including addressing energy and water efficiency, and provision of appropriate water and wastewater and flood mitigation measures including the use of open space to provide flora and fauna rich sustainable drainage solutions.'* **Policy HP 3 Green Infrastructure**, states that all development must be designed to include and protect and enhance existing Green Infrastructure in the local area, as appropriate. It goes on to state that: *'Green Infrastructure as identified on the Policy Map, will be protected, managed and where necessary enhanced by:* *a) Managing development to secure a net gain in green infrastructure;* *b) Supporting investment priority projects set out in the Green Infrastructure Delivery Plan;*	Designated sites, protected species, and habitats and other species identified as being of importance for the conservation of biodiversity, are identified in Section 0. Effects upon important ecological features are assessed in Sections 4.11-4.14. Mitigation measures are set out in Section 4.10. Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Report 22: Outline Landscape and Ecological Management Plan). These include woodland and hedgerow planting proposals that seek to address the requirement to promote coherent, resilient ecological networks that form part of the wider green infrastructure network. The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6 Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report.

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
	c) Not permitting development that compromises the integrity of the overall Green Infrastructure networks; *d) Investing in enhancement and restoration where opportunities exist; and* *e) Using developer contributions to facilitate improvements to their quality and accessibility.'* And that: *New Green Infrastructure should incorporate semi-natural habitats and provide net gains in biodiversity wherever possible. The long-term management of assets should include biodiversity recording/ monitoring to verify/ ensure the ecological integrity of GI networks. Green Infrastructure should, where appropriate, include access for the widest range of user groups.'* **Policy PPL3 The Rural Landscape**, includes specific reference that the Council will protect the rural landscape and refuse planning permission for any proposed development which would cause overriding harm to its character or appearance, including (but not limited to) estuaries, rivers and undeveloped coast and native hedgerows, trees and woodlands. **PPL 4 Biodiversity and Geodiversity** is the most directly relevant policy to this chapter, and its entire content applies. To summarise, it requires that statutory designated sites be protected from development likely to have an adverse impact, that there should be no significant impacts on protected species and that schemes should consider the preservation, restoration or re-creation of priority habitats, ecological networks and the protection and recovery of protected species populations. Sites designated for their local importance to nature conservation, including Local Wildlife Sites (LoWS), Ancient	

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
	Woodlands, Protected Verges and aged or veteran trees will be protected from development likely to have an adverse impact on such sites or features. Proposals for enhancement of special interest and features will be supported, subject to other material planning considerations. Where new development would harm biodiversity or geodiversity, planning permission will only be granted in exceptional circumstances, where the benefits of the development demonstrably outweigh the harm caused and where adequate mitigation measures are included, to ensure no net loss, and preferably a net gain, in biodiversity. Proposals for new infrastructure and major development should consider the potential for enhanced biodiversity, appropriate to the site and its location, including, where appropriate, within Green Infrastructure. If protected species are present, a suitable mitigation plan will be required prior to planning permission being granted.	
Tendring Infrastructure Delivery Plan 2017	The delivery plan includes a chapter on Green Infrastructure and Open Space which notes that existing access to Accessible Natural Green Space (ANG) is poor in Tendring district, when compared against standards promoted by Natural England and Essex Wildlife Trust. It goes on to note that provision will come forward as part of the comprehensive master planning of development sites.	Effects upon important ecological features are assessed in Sections 4.11-4.14. Mitigation measures are set out in Section 4.10. Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Report 22: Outline Landscape and Ecological Management Plan). These include woodland and hedgerow planting proposals that seek to address the requirement to promote coherent, resilient ecological networks that form part of the wider green infrastructure network.
Tendring Open Spaces Strategy	The strategy identifies the deficiencies and surpluses in existing and future open space provision, with the aim of informing the Local Development Framework. For the Rural Analysis Area (within which most of the VE project is sited) several natural and semi-natural greenspaces sites are noted	Effects upon important ecological features are assessed in Sections 4.11-4.14. Mitigation measures are set out in Section 4.10. Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in

Legislation/ policy	Key provisions of relevance to this assessment	Section where key provisions addressed
	to be of low quality, with associated actions to include enhancements to site quality via access, appearance and/or maintenance improvements.	the OLEMP (Volume 9, Report 22: Outline Landscape and Ecological Management Plan).
Essex Green Infrastructure Strategy 2020	The Green Infrastructure Objectives include the following which are pertinent to this chapter: *'Protect existing green infrastructure, especially designated sites;* *Improve existing green infrastructure so it's better functioning for people and wildlife;* *Create more high quality green infrastructure, especially in areas of deficiency; and* *Improve the connectivity of green infrastructure for people and wildlife.'*	Designated sites, protected species, and habitats and other species identified as being of importance for the conservation of biodiversity, are identified in Section 0. Effects upon important ecological features are assessed in Sections 4.11-4.14. Mitigation measures are set out in Section 4.10. Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Report 22: Outline Landscape and Ecological Management Plan). These include woodland and hedgerow planting proposals that seek to address the requirement to promote coherent, resilient ecological networks that form part of the wider green infrastructure network. The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report

4.4 CONSULTATION AND SCOPING

4.4.1 To date, consultation with regards the scope of the EcIA has taken place via the Scoping Report (VEOWFL, 2021), via the VE Evidence Plan (Onshore Ecology Expert Topic Group (ETG)) process and statutory consultation under Section 42 of the Planning Act 2008.

4.4.2 A Scoping Opinion for VE was sought from the Secretary of State (SoS) which included consultation responses from Natural England (NE), Environment Agency (EA), Essex County Council (Essex CC), Little Clacton Parish Council, Tendring Parish Council (TPC) (The Planning Inspectorate (PINS), 2021) that were relevant to this chapter. This included responses to the proposed assessment methodology for further consideration.

4.4.3 The ETG consultation process has comprised the provision of technical papers on proposed methodology, provision of the Preliminary Ecological Appraisal (PEA) report (Volume 6, Part 6, Annex 4.1), provision of summary of results following completion of surveys and discussion regarding the approach to biodiversity net gain (BNG) assessment with RSPB, EA, TDC, NE, Essex CC and Essex Wildlife Trust (EWT). Onshore Ecology ETG meetings were held on 18 May 2021 (pre-Scoping), 26 April 2022 (post Scoping), 22 November 2022 (pre-PEIR),10 October 2023 (post PEIR) and 15 December 2023.

4.4.4 VE statutory consultation, under Section 42 of the Planning Act 2008, ran from 14 March 2023 to 12 May 2023. A Preliminary Environmental Information Report (PEIR) was published as part of formal consultation which provided preliminary information on onshore ecology within Volume 6, Part 3, Chapter 4: Onshore Biodiversity and Nature Conservation. Responses were received from Section 42 consultation in April and May 2023.

4.4.5 A comprehensive summary of relevant consultation comments received relating to onshore biodiversity and nature conservation, and associated responses is included in Table 4.2.

Table 4.2: Summary of consultation relating to onshore biodiversity and conservation

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
PINS Scoping Opinion, November 2021	*'The Inspectorate considers that there is insufficient evidence to predict that significant transboundary effects will not arise and does not agree that this matter can be scoped out of the assessment at this stage. Accordingly, the ES should include an assessment of these matters or information demonstrating the absence of LSE.'*	Transboundary effects are assessed in Section 4.17.
PINS Scoping Opinion, November 2021	*'The ES must provide clear justification as to how the final study area reflects the zone of influence of the Proposed Development.'*	The important ecological features that may be impacted by the project and the extent of the study areas (which vary depending upon the feature affected) have been agreed through the scoping and evidence plan process which are described within this table and in Sections 4.5 and 4.6.
PINS Scoping Opinion, November 2021	*'The Applicant should ensure that the desk-based assessment is as comprehensive as possible.'*	Full details of the data sources used for the desk-based assessment are provided in Section 4.5.
PINS Scoping Opinion, November 2021	The ES should include candidate Local Wildlife Sites where significant effects are likely.	No candidate Local Wildlife Sites have been identified as part of the desk study, or through the evidence plan process.
PINS Scoping Opinion, November 2021	*'The ES should explain why the approach to identifying survey sites for arable weeds can be considered robust and if possible include evidence of agreement with relevant stakeholders.'*	The survey scope for habitats and species has been agreed with relevant stakeholders through the scoping and evidence plan process which is described within this table and in Sections 4.5 and 4.6.
PINS Scoping Opinion, November 2021	*'The Inspectorate considers that in addition to identifying the location of ancient woodland, the ES should also identify the locations of veteran trees through appropriate desk and, where necessary, field-based survey. The ES should assess the effects of the Proposed Development on veteran trees where significant effects are likely to occur.'*	Veteran trees have been included in the assessment process, as described within this table and in Section 4.6.
PINS Scoping Opinion, November 2021	*'The ES should explain how the indirect effects on ecological receptors have been identified and assessed.'*	The identification of the potential for indirect effects on ecological receptors has been agreed with relevant stakeholders through the scoping and evidence plan process.

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
		Further details are described within this table and in Sections 4.5, 4.6, Table 4.3, Table 4.4, Table 4.14 and Section 4.11.
PINS Scoping Opinion, November 2021	*'Potential significant effects from habitat fragmentation should be scoped into the assessment where significant effects are likely to occur.'*	Potential effects from habitat fragmentation are included within Table 4.14, Section 4.11 and Section 4.14.
PINS Scoping Opinion, November 2021	*'The ES must describe all the individual forms of damage identified which would lead to significant effects on designated sites.'*	Designated sites are identified in Section 0. Effects upon designated sites are assessed in Sections 4.11-4.14.
PINS Scoping Opinion, November 2021	The impact of HDD or similar trenchless methods should be addressed within the ES.	Effects upon important ecological features, including those arising from HDD or similar trenchless methods are assessed in Sections 4.11-4.14.
PINS Scoping Opinion, November 2021	The Inspectorate considers that there is potential for effects on aquatic species and watercourses, *'particularly as a result of watercourse crossings through changes to topography, channel morphology and flow during construction. These effects should be assessed in the ES where significant effects would arise.'*	Designated sites, protected species, and habitats and other species identified as being of importance for the conservation of biodiversity, are identified in Section 0; these include certain aquatic species and watercourses. Effects upon important ecological features are assessed in Sections 4.11-4.14.
PINS Scoping Opinion, November 2021	*'Mitigation measures should aim to maintain the movement of bat species across the wider landscape and avoid leaving any population isolated.'*	Mitigation measures are set out in Section 4.10 and additional mitigation measures for bats during construction are set out in Section 4.11 and in Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan. These include woodland and hedgerow planting proposals that seek to address the requirement to promote coherent, resilient ecological networks that form part of the wider green infrastructure network and will facilitate bat movement across the landscape.
PINS Scoping Opinion, November 2021	The ES should provide a rationale and a justification as to why the approach of using aerial imagery to prepare an initial habitat map followed by ground truthing provides a robust baseline.	The approach to habitat survey has been agreed with relevant stakeholders through the scoping and evidence plan process. Further details are described within this table and in Sections 4.5 and 4.6.

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
		Aerial imagery has been relied upon only where access for survey has not proved possible, as described in Sections 4.5 and 4.7 and shown on .
PINS Scoping Opinion, November 2021	*''The Scoping Report refers to wintering bird surveys being carried out in agricultural fields known to support or with potential to support key species located within the Area of Search plus 250m. No explanation is given as to why a 250m buffer is considered to be sufficient. The wintering bird surveys should extend to a 400 m buffer as advised by NE unless otherwise agreed with relevant stakeholders.'*	The approach to wintering bird survey has been agreed with relevant stakeholders through the scoping and evidence plan process. Further details are described within this table and in Sections 4.5 and 4.6. Survey data for a 400 m buffer from the Order Limits has been gathered, except in a few locations identified on Figure 4.2 and detailed in Section 4.7.
PINS Scoping Opinion, November 2021	*'The Inspectorate notes that NE has highlighted the existence of a district level licensing scheme in Essex for great crested newts (GCN).* *'In the event that the Applicant chooses to pursue this, it would still be necessary to include information about effects on GCN in the ES.'*	The results of surveys for GCN are provided in Section 0. Effects upon important ecological features, including GCN, are assessed in Sections 4.11-4.14.
EA Scoping Opinion, November 2021	*'We have previously highlighted the residual risks of using HDD for cable laying under watercourses and designated sites. Leaks present a very real long term threat to water quality and key habitats and their biodiversity. Landfall through the Holland Haven Marshes SSSI may be a complex location to achieve the ideal safe drilling through impermeable geology and this will need careful consideration. All watercourse crossings will also need to be carefully planned to be absolutely safe.'*	Details in respect of potential watercourse crossings are provided in Volume 6, Part 3, Chapter 1 Onshore Project Description. Potential impacts to water quality are assessed in Volume 6, Part 3, Chapter 6 Hydrology, Hydrogeology and Flood Risk. Effects upon important ecological features as a result of the use of HDD or other trenchless techniques are assessed in Sections 4.11-4.14.
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'In accordance with Regulation 14 of the EIA Regulations, the ES should provide a statement about the relevant expertise or qualifications of the competent experts involved in its preparation.'*	Details for the relevant expertise or qualifications of the experts involved in the preparation of this ES chapter are provided in Section 4.1.2. For details of the staff who undertook ecological baseline surveys used to inform this chapter, please refer to the

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
		technical appendices at Volume 6, Part 6, Annexes 4.1 – 4.17, 4.22.1, 4.22.2 & 4.22.3.
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'Where ecological impacts are scoped out of the VE EIA, it will be necessary to also provide sufficient information on non-significant impacts on protected and Priority species and habitats at DCO submission either in a non-EIA chapter or separate documentation.'*	The important ecological features that may be impacted by the project have been agreed through the scoping and evidence plan process and are described within this table and in Sections 4.5 and 4.6. The assessment has been undertaken in accordance with the industry standard (CIEEM, 2022) as described in Section 4.6. Effects upon important ecological features are assessed in Sections 4.11-4.14.
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'A planning application will need to be supported by adequate ecological surveys and assessments to enable the SoS to determine that any application submitted is in line with national and local policy and its statutory duties.* *This will include likely impacts on designated sites (international, national and local), protected species and priority habitats and species - not just significant ones.'*	The important ecological features that may be impacted by the project have been agreed through the scoping and evidence plan process which are described within this table and in Sections 4.5 and 4.6. The assessment has been undertaken in accordance with the industry standard (CIEEM, 2022) as described in Section 4.6. Effects upon important ecological features are assessed in Sections 4.11-4.14.
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'Ecological assessments should take data search records & survey information and use professional judgement to come to reasoned conclusions as to the likelihood of species being present and affected by the proposed development. All surveys must be undertaken by suitably qualified ecologists at the appropriate time of year using standard methodologies.'*	The assessment has been undertaken in accordance with the industry standard (CIEEM, 2022) as described in Section 4.6. For details of the staff who undertook ecological baseline surveys used to inform this chapter, please refer to the technical appendices at Volume 6, Part 6, Annexes 4.1 – 4.17, 4.22.1, 4.22.2 & 4.22.3.
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*''Effective and robust measures, in line with the mitigation hierarchy, must be proposed which have a high degree of certainty for their deliverability in the long term. We welcome the embedded mitigation measures as part of the project.'*	The mitigation hierarchy has been applied, as described in Section 4.6. Mitigation measures are set out in Section 4.10. Outline proposals for mitigation and compensation, along with

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
		proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan).
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'Where there are any residual impacts, these will need to be compensated for onshore or offshore with long term management secured, and appropriate enhancements, for both terrestrial and marine habitats, included to ensure measurable Biodiversity Net Gain from this development.'*	Residual impacts are identified within Sections 4.11-4.14, Table 4.18 and Table 4.23. Mitigation measures are set out in Section 4.10. Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan). The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report.
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'We recommend that this report demonstrates the baseline assessment and details of losses and compensatory habitat as well as biodiversity enhancements to demonstrate net gain of habitats in both the Terrestrial Ecology and Benthic ecology ES chapters.'*	Mitigation measures are set out in Section 4.10. Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan). The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report. Benthic ecology is covered in Volume 6, Part 2, Chapter 5: Benthic and Intertidal Ecology.
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'We would support improving the condition of existing priority habitat as enhancements particularly in relation to losses from the cable landfall and onshore substation. We also expect this report to include details of enhancements for relevant species on the site and any need for off-site habitat provision and its long-term management and monitoring.'*	Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan). The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report.

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'Full Metric calculations should also be provided using v 3.0 or any successor.* *We recommend that the applicant thoroughly explores all reasonable options to deliver additionality for the measurable BNG to restore biodiversity networks & their ecological functionality and also provide enhancements for priority species affected by the development. We look forward to the BNG feasibility report to be submitted which shows how these species will benefit from these new habitats created and enhanced.'*	Volume 6, Part 6 Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan). The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report.
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'We note that bats, particularly barbastelle (Annex II species) – noted in 19.4.23 as recorded within the 2km study area - are included under Impact 19.9 as being likely to be affected by disruption of movement due to temporary habitat loss. We highlight that any temporary loss of the hedgerows will require temporary fencing to be used during construction to fill any gaps in hedgerows caused by the cable corridor works and remain until replacement hedging reaches a height where it can provide ecological functionality as a foraging or commuting route for these bats. We also highlight that all hedgerows will need assessment for bats as all with any passes of barbastelle bats may qualify hedgerows as Important Hedgerows under the Hedgerow Regulations.'*	Bats and hedgerows have been identified as important ecological features that may be impacted by the project, as agreed through the scoping and evidence plan process, which is described within this table and in Sections 4.5 and 4.6. Effects upon important ecological features are assessed in Sections 4.11-4.14. Mitigation measures are set out in Section 4.10 and additional mitigation measures for bats during construction are set out in Section 4.11. Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan).
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'We highlight that a small population of dormice was found to be present in non-woodland habitat within the onshore scoping area.* *We recommend that the optimal survey window for Phase 2 dormouse surveys in East Anglia is later than Bright et al., 2006, and this change in methodology is to be published soon (pers. comm., Essex & Suffolk Dormouse Group).'*	Dormouse survey method has followed published good practice, which includes surveying into the autumn months; results are summarised in Section 4.8. Full details are included in the reports at Volume 4, Annex 4.12: Dormouse Survey Report: North of A120 and Volume 4, Annex 4.13: Dormouse Survey Report: South of A120.

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'We would welcome early sight of the PEA wintering bird surveys to inform the scope of the project level Report to Inform an Appropriate Assessment (Shadow HRA) in relation to any functionally linked land for the coastal SPA & Ramsar sites, particularly at Hamford Water.'*	The results of wintering bird surveys are summarised in Section 4.8, with further details provided in the VE ES Annex 4.25: North Falls Ecology Reports (Annex 4.6, 4.10, 4.11 & 4.12)and in the ES Volume 6, Part 5, Annex 4.5. A Report to Inform an Appropriate Assessment (RIAA) has been produced (Volume 5 5, Annex 5.4: Report to Inform an Appropriate Assessment).
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'It is recommended as part of the habitat survey (that the report refers to that will be undertaken on page 96: 5.2.6), to include an audit of existing GI within the site boundary, identifying existing GI assets, areas for improvement and opportunities to meet gaps in provision in response to local need, that contributes to a wider GI landscape network.'*	The habitat survey provides comprehensive details of the type and extent of all habitats within 100m of the Order Limits, as detailed in Section 4.8 and VE ES Volume 6, Part 6, Annex 4.23: Five Estuaries Preliminary Environmental Information Report - Habitat and Hedgerow and Great Crested Newt Reports (Annex 4.2 and 4.3) Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan). These include woodland and hedgerow planting proposals that seek to address the requirement to promote coherent, resilient ecological networks that form part of the wider green infrastructure network. Further details are also included in Volume 6, Part 3, Chapter 2: Onshore Landscape and Visual Impact Assessment.
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'Chapter 19 mentions that there will be some habitat fragmentation and impact on local ecology through the installation of cables and onshore substations. These impacts need to be minimised by mitigation measures and habitats or vegetation reinstated where appropriate. Any habitat enhancements, whether boundary hedgerow, field margin, grassland or wildflower meadow, grass strips, or woodlands all need to be connected to the landscape wide GI network to prevent fragmentation and promote biodiversity migration. It is recommended that a Landscape and Ecology Management Plan is produced that incorporates the mitigation measure for*	The mitigation hierarchy has been applied, as described in Section 4.6. Mitigation measures are set out in Section 4.10. Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan). These include woodland and hedgerow planting proposals that seek to address the requirement to promote coherent, resilient ecological networks that form part of the wider green infrastructure network.

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
	habitat/ GI removal, fragmentation and potential impact on protected designated sites (i.e., Holland Haven Marshes and Weeleyhall Wood SSSIs etc.) to be identified in the EIA. There should also be the inclusion of a 'Landscaping and Screening Proposal' for the onshore substation that could result in a beneficial impact.'	Further details are also included Volume 6, Part 3, Chapter 2: Onshore Landscape and Visual Impact Assessment.
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'The report on page 87 in Table 4 references Biodiversity Net Gain as part of the compensation measures, but It does not mention that the EIA will include an assessment of biodiversity net gain, that should be appended to the Terrestrial Ecology and Nature Conservation chapter of the ES. The Environment Bill now requires NSIPs to delivery biodiversity net gain. It is recommended as a proposal from the EIA is the creation of a biodiversity enhancement plan (BEP). The purpose of the BEP is to lay out the specific objectives for biodiversity and the means by which these objectives will be achieved, including the protection of existing species and habitats (GI), the establishment of specific enhancements (including net gain), their maintenance and monitoring.'*	The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report.
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'Biodiversity enhancements should be selected to fit the physical attributes of the site and should tie in with existing habitats and species of value on and around the site. Furthermore, they should be compatible with the primary purpose of the site – to generate wind power (albeit mainly onshore substations and underground cables). If agricultural production is also planned for the site, biodiversity enhancements should aim to dovetail with these goals.'*	Mitigation measures are set out in Section 4.10. Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan). The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report.
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'GI will require sustainable management and maintenance if it is to provide benefits and services in the long term. Documents such as the CEMP, Landscape and Ecological Management Plan (LEMP) and Biodiversity Enhancement*	A CoCP is provided in Volume 9, 9.21 Code of Construction Practice. The mitigation hierarchy has been applied, as described in Section 4.6.

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
	Plan are documents that will help ensure appropriate tasks, mitigating measures and methods are in place to: *Protect the retained trees and hedgerows.* *Schedule of advanced planting to create a landscape structure or evidence is shown that substantive GI is secured as early as possible in subsequent phases.* *Landscape management and maintenance plan and work schedule for a minimum of 10 years including how management company services for the maintenance of GI assets and green spaces shall be funded and managed for the lifetime of the development.* *Address recommendations within the habitat and ecology survey to enhance the ecological value through the proposed development.* *Demonstrate measurable net gains for biodiversity, as outlined under paragraph 8[C], 153, 174[a][d] and 179 of the National Planning Policy Framework updated 2021.* *Although we recommend these are submitted early in the planning process, these documents can be conditioned or submitted at reserved matters stage.'*	Mitigation measures including protection of retained habitats are set out in Section 4.10. Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan). These include woodland and hedgerow planting proposals that seek to address the requirement to promote coherent, resilient ecological networks that form part of the wider green infrastructure network. Further details are also included Volume 6, Part 3, Chapter 2: Onshore Landscape and Visual Impact Assessment. The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report.
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'The development should be capable of removal and reversible [sic] i.e., at the end of the life of the development, the land can be return to an appropriate after use, either to its former use or an alternative use meeting local needs. Including removal of all cables, substation and other temporary structures onsite. It is recommended that restoration plans/ decommission programs are identified at early stage of planning and updated as development progresses and it needs to be a recommendation from the EIA.'*	A full project description, including onshore decommissioning is included in Volume 6, Part 3, Chapter 1: Onshore Project Description. Potential impacts of decommissioning upon onshore biodiversity are assessed in Section 4.13.

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'A stronger commitment (than purely to consider) is required (than is made in 5.3.2.) for the use of trenchless technologies such as HDD at the landfall to ensure existing sea defences are not compromised and to protect sensitive features and minimise the extent of direct interaction with the intertidal areas and coastal features. If beach access will be required for construction vehicles, equipment and materials at landfall (3.5.3) then it is important that measures are put in place to similarly protect the features mentioned above.'*	A full project description, including details of trenchless technologies that may be used, is included in Volume 6, Part 3, Chapter 1: Onshore Project Description. Effects upon important ecological features are assessed in Sections 4.11-4.14. Mitigation measures, including protection of retained habitats, are set out in Section 4.10. Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan).
Essex CC Scoping Opinion, a joint response with TDC, November 2021	*'The brackets at the end of 3.6.3 listing key project parameters should also list that HDD will be used under Holland Haven Marshes SSSI (as stated in 19.5.7).'*	A full project description, including details of trenchless technologies that may be used, is included in Volume 6, Part 3, Chapter 1: Onshore Project Description. HDD will be used under Holland Haven Marshes SSSI.
Little Clacton Parish Council Scoping Opinion, November 2021	*'Tendring combines an array of conservation areas, sites of special scientific interest, historical and ecological corridors. There is no doubt, that this project would cause significant harm to the natural landscapes, habitats, endangered species and people's way of life in this small rural pocket of East Anglia.* *There are currently two projects that are being presented to the people of Tendring and the most critical point to make is as follows: it should be part of the agreement for both projects, that a combined cable routing and shared onshore substation is fully investigated and feasibility studies undertaken to ensure only one cable route is designated and all cabling laid at the same time.* *We do not want to have two huge disruptions when the cabling could and should be all put into one trench.'*	VE and NF OWF have been and continue to be in discussion with respect to project co-ordination and minimising impacts where feasible to do so. Refer to Volume 6, Part 3, Chapter 1: Onshore Project Description for further details.

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Natural England Scoping Opinion, November 2021	NE recommend that the applicant consults with NE, Rural Payments Agency and landowners at the earliest opportunity to discuss possible interaction with Higher Level Stewardship Agreements and Countryside Stewardship Schemes, as a number of these are present within the Area of Search.	Every land interest identified within the OL has been specifically asked for details of any environmental schemes (eg: Countryside Stewardship) that the land is subject to in Land Information Questionnaires, as part of the land referencing process. This has been followed up with landowners and their representatives as part of ongoing engagement.
Natural England Scoping Opinion, November 2021	*'Recommend the developer contact Operation Turtle Dove for records in the area and present these, where relevant in the ES.'*	Desk study data relating to birds were summarised in the VE PEIR PEA report included at VE ES Volume 6, Part 6, Annex 4.22.1, 4.22.2 & 4.22.3. Five Estuaries Preliminary Ecological Appraisal (PEA) Parts 1-3). This included collation of turtle dove records from EFC and the RSPB which have been used to inform the assessment.
Natural England Scoping Opinion, November 2021	*'Include candidate Local Wildlife Sites in relevant ES figures and consider impacts to these sites within any EIA.'*	No candidate Local Wildlife Sites have been identified as part of the desk study, or through the evidence plan process.
Natural England Scoping Opinion, November 2021	*'NE recommends consideration of light pollution effects on sensitive ecological receptors.'*	Potential effects of additional lighting are included in Sections 4.11 and 4.12. Control measures in respect of lighting are included in the CoCP provided in Volume 9, 9.21
Natural England Scoping Opinion, November 2021	*'Recommend that the applicant contact Natural England as soon as possible to discuss licensing and potential Letters of No Impediment (LONI).'*	Requirements for licensing and the potential for LONI have been subjects of discussion with key stakeholders through the evidence plan process. An EPSL will be required in respect of GCN, and the DLL route is proposed. Volume 6, Part 6, Annex 4.20: GCN District Level Licencing Impact Assessment and Conservation Payment Certificate (unsigned) and associated documents are considered equivalent the draft licence application and LONI in this respect.

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
		An EPSL may also be required for dormouse and/or bats. This is dependent on final scheme design and the outcome of pre-commencement surveys A NE licence may be necessary for temporary impacts to water vole. This is dependent on final scheme design and the outcome of pre-commencement surveys. Further detail is provided in Section 4.10 and Table 4.15.
Natural England Scoping Opinion, November 2021	*'Recommend that the applicant develop an Outline Landscape and Ecological Management Strategy (OLEMS), alongside an Outline Code of Construction Practice (OCoCP).'*	A CoCP is provided in Volume 9, 9.21. An OLEMP (equivalent to OLEMS) is included in Volume 9, 9.22: Outline Landscape and Ecological Management Plan.
Natural England Scoping Opinion, November 2021	*'The ES should carefully consider potential impacts on ancient woodland and demonstrate that these have been avoided wherever possible.'*	Ancient woodland has been included in the assessment, as referenced in Sections 4.6, 0 and 4.11. Direct impacts to ancient woodland will be avoided.
Natural England Scoping Opinion, November 2021	*'We note that the proposed [non-breeding bird] surveys cover an Area of Search plus 250 m buffer. Natural England recommend that a 400 m buffer be adopted around area of search.'*	The approach to wintering bird survey has been agreed with relevant stakeholders through the scoping and evidence plan process. Further details are described within this table and in Sections 4.5 and 4.6. Survey data for a 400 m buffer from the Order Limits has been gathered, except in a few locations identified on Figure 4.2 and detailed in Section 4.7.
Natural England Scoping Opinion, November 2021	*'We recommend the applicant considers district level licensing for GCN.'*	Details in respect of European Protected Species Licences (EPSL) for GCN have been discussed with ETG members as part of the evidence plan process. The district level licensing EPSL approach is to be used, refer to Section 10 and Table 4.15 for details, and Volume 6 Part 6 Annex 4.20 GCN District Level Licencing Impact Assessment and Conservation Payment Certificate (unsigned) and associated documents (currently pending).

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Natural England Scoping Opinion, November 2021	*'The England Biodiversity Strategy published by Defra establishes principles for the consideration of biodiversity and the effects of climate change. The ES should reflect these principles and identify how the development's effects on the natural environment will be influenced by climate change, and how ecological networks will be maintained. The NPPF requires that the planning system should contribute to the enhancement of the natural environment 'by establishing coherent ecological networks that are more resilient to current and future pressures' (NPPF Para 174), which should be demonstrated through the ES.* *We recommend applicant consider Climate Change adaptation in the ES as described.'*	Mitigation measures, including protection of retained habitats, are set out in Section 4.10. Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan). These include woodland and hedgerow planting proposals that seek to address the requirement to promote coherent, resilient ecological networks that form part of the wider green infrastructure network. Climate change adaptation is considered within Volume 6, Part 4, Chapter 1: Climate Change.
Natural England Scoping Opinion, November 2021	*'There is currently no mention of net gain within the scoping and Natural England recommend that the applicant consider this within the proposal from an early stage in order to future proof proposals.'*	The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report.
Natural England Scoping Opinion, November 2021	*'Much of the scoping area is being considered for woodland creation and we suggest that the Applicant contact the Forestry Commission for further information regarding this and possible consideration within the EIA.'*	The Forestry Commission was contacted in September 2023 with regard to pre-existing woodland creation commitments. It has been confirmed that VE will not affect any areas that are subject to current or legacy grant schemes for woodland planting. Trenchless techniques result in no impacts, refer to ES Volume 6 Part 6 Annex 1.1 Onshore Crossing Register.
Tendring Parish Council Scoping Opinion, November 2021	*'There is an abundance of wildlife in the area – water vole, owls, bats, otters, stoats, deer and so on – so we would request the survey incorporate the impact any work would have on natural habitats. These sites are recorded as part of*	Details of surveys undertaken are provided in Sections 4.5 and 0. Effects on internationally, nationally and locally designated sites, on protected species and on habitats and other species

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	Tendring District Council's planning policy and are taken into account when applying the National Planning Policy Framework to planning applications.' https://www.tendringdc.gov.uk/sites/default/files/documents/planning/planning%20policy/LocalWildlifeSiteReview.pdf	identified as being of importance for the conservation of biodiversity are assessed in Sections 4.11-4.14.
Pre-Scoping: Evidence Plan onshore ecology ETG August 2021, attended by EA, Essex County Council, RSPB	Discussion about proposed survey methods for habitats and species likely to be present. The points listed below focus on points not picked up in subsequent scoping responses: Comments were invited on the 15 km buffer used to identify international designated sites for the purposes of HRA screening: no comments were received from attendees. Comments were invited on the 2 km buffer used for SSSI: no comments were received from attendees. RSPB noted that the Tendring peninsula is a relative stronghold for corn bunting *Emberiza calandra*. RSPB would be concerned about any loss of scrub, particularly for turtle dove *Streptopelia turtur*. RSPB are aware of some areas that attract turtle dove but are not aware of any in the Tendring area. RSPB also noted that black-tailed godwit is present in internationally important numbers in the region in April and July and suggested that consideration should be given to SPA species and when the features will be present. Surveys may be important beyond the wintering months. RSPB noted golden plover can distribute differently at night. However, RSPB concern was over the impact of pylons impacting golden plover at night but confirmed that this is not a concern with buried cables.	Desk study data relating to birds were summarised in the PEIR PEA report included at VE ES Volume 6, Part 6, Annex 4.22.1, 4.22.2 & 4.22.3. Five Estuaries Preliminary Ecological Appraisal (PEA) Parts 1-3.This included collation of turtle dove records from EFC and the RSPB which have been used to inform the assessment. The methods and results of bird surveys completed are provided in Sections 4.5 and 0 respectively, with further details provided in PEIR PEA report included at VE ES Volume 6, Part 6, Annex 4.22.1, 4.22.2 & 4.22.3. Five Estuaries Preliminary Ecological Appraisal (PEA) Parts 1-3, Volume 6, Part 6, Annexes 4.2-4.6.
Post-Scoping: Evidence Plan onshore ecology ETG April 2022 attended	Discussion about scoping opinion, findings of PEA and proposed survey scope. Main points arising were:	No candidate Local Wildlife Sites have been identified as part of the desk study, or through the evidence plan process.

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
by Essex County Council, Tendring District Council, NE, EA and EWT	250 m or 400 m buffer for wintering bird survey; NE to confirm its position (see below NE Response in relation to PEA and detailed survey scope, August 2022). In respect of arable plant species, it was confirmed that the intention is to identify areas where rare species may be present during the habitat survey, with additional survey at other times of year undertaken if necessary. Confirmed that no candidate LoWS were included in data from Essex Field Club, TDC explained that there are candidate LoWS sites elsewhere in Essex and could confirm if there are any within the project area. Agreed to discuss with NE LONI in respect of GCN once further project design information is available. Noted that full survey reports would not be available for PEIR. EA requested that drilling depths and controls to minimise the risk of pollution on SSSI are included in the EIA. Natural England had undertaken a site visit to Holland Haven and now have lesser concerns about sink holes and frack out. Natural England's preference was for the HDD to go under the sea defence by the golf course (i.e. where it is flat). The EA's preference is to avoid any areas with high erosion and where ground conditions may be unconsolidated. EA agreed to provide details in respect of previous pollution incidents resulting from HDD and any lessons learned. When asked if anyone had any specific concerns in regard to transboundary effects on onshore ecology no concerns were raised. No concerns were raised over the survey scopes proposed.	Details in respect of potential trenchless techniques that may be employed are provided in Volume 6, Part 3 Chapter 1: Onshore Project Description. Potential impacts to water quality are assessed in Volume 6, Part 3, Chapter 6: Hydrology, Hydrogeology and Flood Risk. Effects upon important ecological features, including those arising from the use of HDD or similar trenchless methods are assessed in Sections 4.11-4.14. The eastern option beneath the golf course i.e. Natural England's preference has been selected as the HDD location.

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
NE Response to April 2022 ETG meeting minutes May 2022	Whilst VE awaits final confirmation of the site selection for the East Anglia Connection Node Substation, it is important to ensure that their onshore surveys cover the appropriate area and provide sufficient data to cover the finalised onshore area. Advised that two further important ecological features (IEF) be included in the assessment: > The 2022 habitat surveys should be carried out with consideration to hedgerows/ treelines and waterbodies (as these represent functionally linked land and mobile species). > Functionally Linked Land (FLL) should be considered: Holland Haven Marshes SSSI and Ancient Semi-Natural Woodland (ASNW) and Plantations on Ancient Woodland Sites (PAWS) which occur within 100m. Feedback in relation to survey scope provided for reptiles, breeding and wintering birds, bats, badger, otter and water vole and dormouse. Confirmed that in respect of BNG, the mitigation hierarchy must be adhered to. Net gain is additional to required mitigation and compensation measures and the project should aim for net gain of at least 10%.	All specific feedback in relation to the survey scope has been incorporated into the relevant methodologies. The survey scope for habitats and species has been agreed with relevant stakeholders through the scoping and evidence plan process which are described within this table and in Sections 4.5 and 4.6. The mitigation hierarchy has been applied, as described in Section 4.6. IEF used for the assessment are detailed in Table 4.13. This includes hedgerows and waterbodies (ponds and rivers). FLL is not an independent IEF, but has been considered within the assessment where it is associated with designated sites, ASNW or PAWS in Sections 0, 4.11-4.14 and Table 4.13. The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report.
RSPB response to PEA consultation June 2022	Works in the most sensitive areas or priority habitats should be undertaken outside of the main breeding period March – August. Wintering birds may be impacted and this should be addressed. HDD should be used to minimise impacts to SSSI and priority habitats.	The important ecological features that may be impacted by the project have been agreed through the scoping and evidence plan process which are described within this table and in Sections 4.5 and 4.6. This includes wintering birds. Mitigation measures, including measures to avoid or reduce impacts on birds, are set out in Section 4.10. Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume

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	Noted that the 2016 UK Review of SPA outlined that the current status of SPAs is considered insufficient for many species including dark-bellied Brent Goose, which is a feature of Hamford Water SPA. Potential impacts on this SPA and its associated species should be avoided. The Hamford Water SPA boundary has been identified for review to ensure the importance of dark-bellied brent goose, golden plover and lapwing is recognized appropriately. The findings of the SPA review should be fully taken into account for any surveys or decisions associated with the VE potential cable route. Holland Haven Marshes SSSI and Great Holland Pits LoWS should be avoided where possible. Main concerns relate to direct loss and disturbance of this habitat and its dependent species. Support further breeding bird surveys. If there are any potential lighting impacts, these need to be addressed and avoided where possible in particular close to the SSSIs. Works should be careful not to impact turtle dove, corn bunting and nightingale *Luscinia megarhynchos* habitats, food sources and nesting. Any known territories of these species should be avoided during the breeding season. Some hedgerows may be of high ecological value and damage to these should be avoided. The use of dead hedging to block gaps in hedgerows to retain connectivity/replace cover appears sensible. RSPB welcomed recommendations to create and manage habitats to benefit notable bird species.	9, Annex 9.22: Outline Landscape and Ecological Management Plan). Effects upon important ecological features, including those arising from the use of HDD or similar trenchless methods are assessed in Sections 4.11-4.14. HDD, or similar trenchless technique will be used under Holland Haven Marshes SSSI. Great Holland Pits LoWS will be avoided. Effects on SPA bird species have been specifically considered within Sections 4.11 to 4.14 of this chapter and in the RIAA (Volume 5, 5.4, Report to Inform an Appropriate Assessment). Potential effects of additional lighting are included in Sections 4.11 and 4.12. Effects on breeding birds have been considered within Sections 4.11 to 4.14.

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Essex County Council response to PEA consultation June 2022	Re-iterated that the Council wish to be involved in discussions relating to HRA and any compensation for temporary loss of FLL. Satisfied that the important ecological features identified and the requirements for further survey provide the basis for assessment of likely significant impacts for the Ecology chapter. Noted that the Council was unable to find any reference to Important Hedgerows and would appreciate confirmation that appropriate ecological assessment of any hedgerows which may be breached will be undertaken at areas to inform the route choices and the further survey requirements in Table 5.1 updated. As previously highlighted, all hedgerows with any passes of barbastelle bats may qualify hedgerows as Important Hedgerows under the Hedgerow Regulations. Welcome all opportunities to deliver biodiversity enhancements for habitats using the Defra Metric and submission of a detailed BNG assessment as well as potential for species enhancements.	Effects on SPA bird species have been specifically considered within Sections 4.11 to 4.14 of this chapter and in the RIAA (Volume 5, 5.4, Report to Inform an Appropriate Assessment). The important ecological features that may be impacted by the project has been agreed through the scoping and evidence plan process which are described within this table and in Sections 4.5 and 4.6. This includes important hedgerows and bats. The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report.
NE response to PEA consultation June 2022	Whilst content with the survey methodology proposed for the relevant protected sites, NE advised consideration of potential impacts to functionally linked habitats supporting Special Protection Area (SPA) species. Furthermore, NE advised that potential impacts of bentonite breakout on Hamford Water and other protected sites or watercourses, should be fully assessed and mitigated for. Also advised that survey results be presented in the Preliminary Environmental Information Report (PEIR). Requested clarity on certain species scopes, i.e., buffer zones for wintering bird survey, deviations from standard practice with GCN survey, extent of water vole and otter survey, type of badger survey, hibernating bat survey scope.	Effects on SPA bird species, including birds using functionally linked habitats, have been specifically considered within Sections 4.11 to 4.14 of this chapter and in the RIAA (Volume 5, 5.4, Report to Inform an Appropriate Assessment). Effects upon important ecological features, including those arising from the use of HDD or similar trenchless methods are assessed in Sections 4.11-4.14. Potential impacts to water quality are assessed in Volume 6, Part 3, Chapter 6: Hydrology, Hydrogeology and Flood Risk. Full details of survey scopes were included in the PEIR PEA report included at VE ES Volume 6, Part 6, Annex 4.22.1, 4.22.2 & 4.22.3. Five Estuaries Preliminary Ecological Appraisal (PEA) Parts 1-3, ES Annex 4.25: North Falls

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	Advised that Reasonable Avoidance Measures should include a phased vegetation clearance, supervision by a suitably qualified Ecological Clerk of Works (ECOW), and be mapped within the PEIR and measures detailed in the management plan. Advised that the potential of air quality to impact upon designated sites should be assessed and the results detailed in the PEIR.	Ecology Reports – (Annex 4.13: North Falls Offshore Wind Farm Onshore Landfall Area: Breeding Bird Surveys 2021). Additional survey scopes for baseline surveys included in this Chapter are provided in Volume 6 Part 6 Annex 4.1 – 4.17. Mitigation measures, including Reasonable Avoidance Measures, are set out in Section 4.10. Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Application Document 9.22: Outline Landscape and Ecological Management Plan). Designated sites that may potentially be affected by changes to air quality are scoped out of this chapter, but are assessed in Volume 6, Part 3, Chapter 10: Air Quality.
NE Response to further information provided after its response to the PEA August 2022	NE provided justification for its stance in respect of 400 m buffer requirement for inland wintering bird surveys. NE confirmed it does not hold specific data on where bat maternity colonies are present within churches. Confirmed that consideration of potential impacts to roosting bats should be applied where maternity roosts may be present inside or outside the survey area where there is suitable connectivity to foraging/roosting habitats, if these habitats are to be impacted upon. Where trees that provide potential roost features for bats, including hibernating bats, are to be removed/managed, suitable mitigation must be followed. This advice also applies to potential roost features that cannot be fully assessed. This mitigation should be supervised by a suitably experienced ECOW. Advised that bat surveys should be spaced at least two weeks apart as a minimum.	Summary detail for the bat survey scope and baseline data used to inform the assessment is included at Section 4.5, with further details in: • Volume 6, Part 6, Annex 4.7: Bat Survey Report: North of A120, • Volume 4 Annex 4.8: Roosting Bats Tree Survey Report: South of A120, • Volume 4, Annex 4.9: Bat Activity Survey Report: South of A120, • Volume 4, Annex 4.10: Bat Survey Report: Additional Tree Survey.

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Essex County Council August 2022	Provided information on likely future BNG legislation, guidance and requirements. Would like the project to deliver a minimum of 10% BNG, however, recognise this might not always be possible and state that off-site BNG delivery can provide biodiversity benefits and protection.	The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report.
Pre-PEIR: Evidence Plan onshore ecology ETG November 2022 attended by Essex County Council, Tendring District Council, NE, EA, EWT & RSPB	The purpose of the ETG was to provide additional clarity in respect of bat survey scope, discuss survey results, BNG approach, potential mitigation and compensation requirements. Main points covered were as follows: VE explained how the bat surveys undertaken were representative and precautionary, providing sufficient data and coverage and sought to confirm that NE was satisfied with the approach. NE confirmed it would consider its response once the full survey scope is available to review. VE confirmed that the National Grid Substation search areas were not surveyed in detail and that public domain third party information available at the time of DCO submission would also be used to inform the cumulative impact assessment. VE requested agreement on the sufficiency of the survey coverage of the non-breeding birds survey from all parties. VE agreed to provide figures showing data coverage and Natural England agreed to confirm in writing whether it agrees that the spatial and temporal coverage is sufficient. VE confirmed that nocturnal wintering bird survey was not undertaken. Robust assessment would be based on the presence of lapwing and golden plover during the day, with an assumption that similar numbers may be present in potentially suitable fields at night. This is a precautionary approach and therefore nocturnal surveys are not required for the ES characterisation.	Full details for the bat survey scope are included in Volume 6, Part 6 Annexes 4.7 – 4.10. Cumulative impact assessment is covered in section 4.14. Figure 4.2 details the extent of bird survey areas. Assessment of impacts to wintering bird species can be found at Sections 4.11 – 4.14. The OLEMP is submitted as Volume 9, 9.22 Outline Landscape and Ecological Management Plan. Volume 6, Part 6, Annex 4.18 Onshore Biodiversity Net Gain Indicative Design Stage Report sets out in detail the VE approach to BNG.

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
	VE confirmed that principles for mitigation, compensation and enhancement would be set out in PEIR, with full details included in the OLEMP at DCO submission. All attendees agreed to confirm if there were relevant projects that could be complemented by compensation and enhancements for VE. The proposed approach to BNG was explained with a view to gaining agreement from attendees for key assumptions. In principle it was agreed that the staged approach to BNG assessment was acceptable and that the RLB would not form the basis of the assessment. VE confirmed that all statutory requirements in respect of BNG would be met.	
NE Response to Pre-PEIR Onshore Ecology ETG November 2022 meeting minutes and associated documents January 2023	Overwintering birds: NE cannot confirm sufficiency of survey coverage for the cable corridor and substation search areas until it has seen a revised map more clearly indicating gaps than the map already provided. Golden plover: NE advised that implications of potential nocturnal golden plover presence should be considered for areas subject to 24-hour working. NE also advised that VE consider data from other nearby projects in relation to this species, including in combination impacts. With respect to SPA bird species NE reiterated that the: *'onshore scoping area should be based on the potential for species to be present in the area, the Impact Risk Zone (IRZ) for designated sites, ecology, and a consideration of Functionally Linked Land (FLL).'* Bats: NE reconfirmed that:	Gaps in coverage during the wintering bird surveys for the onshore export cable corridor (ECC) are shown in Figure 4.2. Survey limitations are discussed in Section 4.7. As set out in Paragraph 4.7.19, the assessment is based on the precautionary assumption that golden plover could use any suitable fields within the relevant study area, at night as well as during the day. Mitigation measures, including measures to avoid disturbance to bird species such as golden plover, are proposed in Table 4.15. Effects on SPA bird species, including birds using functionally linked habitats, have been specifically considered within Sections 4.11 to 4.14 of this chapter and in the RIAA (Volume 5, 5.4, Report to Inform an Appropriate Assessment). Summary detail for the bat survey scope and baseline data used to inform the assessment is included at Section 4.5, with further details at Volume 6, Part 6, Annex 4.7: Bat Survey Report: North of A120, Volume 4, Annex 4.8: Roosting Bats

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
	'Without knowing when surveys have been carried out, e.g. dates and spacing between surveys, Natural England cannot confirm that they agree with the survey methodology and impact assessment. The onus is on the Applicant to ensure that the data collected is sufficient to determine species presence/likely absence, make an assessment of potential impacts and in turn inform appropriate mitigation.' Requested a copy of a cited reference in relation to tree survey efficacy. Re-iterated that back-to-back surveys count as a single survey visit. Advised that at least one survey be carried out between June and July. Desk Study: NE advised that that a revised data search for targeted species should be considered. BNG: NE confirmed that: *'Whilst BNG will not be mandatory [for NSIPS] at the time of consent for the project, we would welcome and encourage the inclusion of habitat management and monitoring plans, with the aim of securing them for a minimum of 30 years, in readiness of mandatory NSIP BNG commencing in 2025.'* BNG: NE provided a list of projects that may be helpful for the local community and VE in achieving BNG goals, and measures to be considered for inclusion at the OnSS to assist with local conservation aims. BNG: NE agreed with the approach outlined and offered further comment in respect of reinstated agricultural land and hedges. SSSIs: NE stated that the ES should include a full assessment of the direct and indirect effects of the development on the interest features of these sites and should identify such mitigation measures as may be required	Tree Survey Report: South of A120, Volume 4, Annex 4.9: Bat Activity Survey Report: South of A120, Volume 4, Annex 4.10: Bat Survey Report: Additional Tree Survey. Further details of desk study and survey scopes are provided in VE ES Volume 6, Part 6, Annex 4.1 – 4.17 and 4.22 – 4.25 This includes data obtained from Essex Field Club. . The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report. An assessment of effects on the notified features of relevant SSSIs is provided in Sections 4.11 to 4.14. Mitigation measures, including measures relating to SSSI notified features, are proposed in Table 4.15. Assessment of cumulative effects is provided in Section 4.14.

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
	in order to avoid, minimise, or reduce any adverse significant effects. Survey Data: NE confirmed that advice provided at PEIR will be based on data provided at that stage and may therefore be subject to change. Cumulative Assessment: NE noted that publicly available data will be used for in-combination assessment, including that from North Falls (if available).	
Essex County Council Section 42 response May 2023	Requested the production of a Green Infrastructure Strategy for the route based on Essex Green Infrastructure Strategy (2020) and Standards (2022). To include a Green Infrastructure Plan, including delivery of BNG, timescales, construction standards and management. Highlighted the establishment of a Local Nature Partnership (LNP) to be supported and acknowledged going forward.	Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan), which is considered equivalent to a Green Infrastructure Strategy document. The OLEMP refers to relevant aspects of the Essex GI strategy and standards and includes woodland and hedgerow planting proposals that seek to address the requirement to promote coherent, resilient ecological networks that form part of the wider green infrastructure network. Further details are also included Volume 6, Part 3, Chapter 2: Onshore Landscape and Visual Impact Assessment. The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report.
Essex County Council Section 42 response May 2023	OLEMP - Considered 5 year maintenance period insufficient and should be for a minimum of 10 years. OLEMP should include roles and responsibilities for Green Infrastructure assets and maintenance activities/ frequencies as well as how these would be funded. Highlighted that the development is within a Climate Focus Area (CFA), and to contribute towards CFA targets.	Outline proposals for mitigation and compensation, including roles and responsibilities, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan), which is considered equivalent to a Green Infrastructure Strategy document. It includes measures to increase biodiversity and therefore assists toward CFA targets. The commitment to 5 years maintenance period remains.

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
		Further details are also included Volume 6, Part 3, Chapter 2: Onshore Landscape and Visual Impact Assessment.
Essex County Council Section 42 response May 2023	Requested that detailed hedgerow survey is undertaken and advised that an arboricultural survey and impact assessment be undertaken in accordance with BS5837: 2012.	Detailed hedgerow survey has been undertaken: summary detail for the habitat and hedgerow survey scope and baseline data used to inform the assessment is included at Section 4.5, with further details in VE ES Volume 6, Part 6, Annex 4.23: Five Estuaries Preliminary Environmental Information Report - Habitat and Hedgerow and Great Crested Newt Reports, (Annex 4.2: Habitat and Hedgerow Survey Report, N of A120 and, Annex 4.3: Habitat and Hedgerow Survey Report, S of A120). Arboricultural survey and impact assessment, in accordance with BS5837: 2012, has been undertaken and is reported in the OLEMP at Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan.
Essex County Council Section 42 response May 2023	Asked whether any land is considered to be Functionally Linked Land (FLL) for birds associated with nearby designated sites and what mitigation will be needed to ensure no adverse effect on integrity.	Effects on qualifying or notified bird species for designated sites, including birds using functionally linked habitats, have been specifically considered within Sections 4.11 to 4.14 of this chapter and in the RIAA (Volume 5, 5.4, Report to Inform an Appropriate Assessment). Mitigation measures are set out in Section 4.10. Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan).
Essex County Council Section 42 response May 2023	Welcomed the mitigation and preliminary mitigation and compensation. Suggested that woodland/ scrub creation/ regeneration be used where appropriate to increase habitat connectivity.	Outline proposals for mitigation and compensation are included in the OLEMP (Volume 9 Annex 9.22 Outline Landscape and Ecological Management Plan), These include woodland and hedgerow planting proposals that seek to address the requirement to promote coherent, resilient ecological networks that form part of the wider green infrastructure network/ habitat connectivity.

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
	Requested submission of a Soft Landscaping Plan and note that it would be inappropriate to remove mature trees for temporary access.	No mature trees are anticipated to require removal for temporary access. Further details are also included Volume 6, Part 3, Chapter 2: Onshore Landscape and Visual Impact Assessment.
Essex Wildlife Trust Section 42 Response May 2023	EWT considered that due to the conservation status of water voles in Essex, and the distribution of the core population in coastal refugia (borrow dykes and ditch networks), the water voles within the study area are likely to be of regional importance. Requested the LEDPP applies to the entire onshore component.	Identification and evaluation of Important Ecological Features, including water vole, is provided at Section 0 and Table 4.13. The water voles within the Study Area are assessed as being of Regional Importance. Outline proposals for mitigation and compensation, including maintenance and management timescales, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan), which supersedes the LEDPP provided with the PEIR. The OLEMP applies to all land within the Order Limits, but excludes the land associated with lesser black backed gull compensation measures.
Environment Agency Section 42 Response April 2023	Pointed out the omission of rivers and streams within habitat lists/ important habitats and that they ought to be shown.	Identification and evaluation of Important Ecological Features, including rivers and streams, is provided at Section 4.8 and Table 4.13.
Environment Agency Section 42 Response April 2023	Recommended that mitigation/ compensation for hedgerow loss should result in overall net gain in overall length of hedgerow within the Proposed Order Limits. Queried the 5-year maintenance period vs 30-year management requirement for BNG.	Outline proposals for mitigation and compensation, including maintenance and management timescales, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan), These include woodland and hedgerow planting proposals that seek to address the requirement to promote coherent, resilient ecological networks that form part of the wider green infrastructure network/ habitat connectivity. The commitment to a 5 year maintenance period (all areas) and 30 year management plan for areas under the control of RWE and/or necessary to meet BNG commitments remains.

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
		Further details are also included Volume 6, Part 3, Chapter 2: Onshore Landscape and Visual Impact Assessment. The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report.
Environment Agency Section 42 Response April 2023	No net loss of water vole habitat should apply throughout the development site and potential enhancements should include improvements to the ecology of watercourses. Stated that HDD is the preferred option for all watercourse crossings.	Mitigation measures, including a commitment to no net loss of habitat for water vole, are set out in Section 4.10. trenchless crossing locations are identified on the obstacles crossing register at Volume 6, Part 6, Annex 1.1 Crossings Register; it is proposed for all main watercourses. Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan).
Woodland Trust, Tendring Parish Council and Forestry Commission Section 42 Response May 2023	Each identified concerns about proximity to ASNW, other woodland and veteran trees, as well as potential indirect impacts to these. FC recommended enhancing ecological networks to create woodland blocks of at least 5ha, with species chosen to establish a resilient treescape.	Effects on woodland habitats and trees as well as other features identified as being of importance for the conservation of biodiversity are assessed in Sections 4.11-4.14. No direct impacts to ASNW or to veteran trees are anticipated. Mitigation measures are set out in Section 4.10. Outline proposals for mitigation and compensation, along with proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan). These include woodland and hedgerow planting proposals that whilst not including blocks of 5ha in extent, seek to address the requirement to promote coherent, resilient ecological networks that form part of the wider green infrastructure network/ habitat connectivity.
Tendring District Council Section 42 Response May 2023	Welcomed long term commitment to BNG and asked that 30-year management be applied to all planting. Requested that positive contributions toward to the Local Nature Recovery Strategy be made.	The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report.

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
		The 30 year management commitment applies to areas that will remain under the control of VE and/or are necessary for delivery of BNG. Reinstated habitats elsewhere will be subject to a maintenance period of 5 years only, to ensure successful establishment.
RSPB Section 42 Response May 2023	Primarily commented on offshore matters, but noted that in respect of onshore impacts, the southern landfall is not favoured.	The Order Limits include the northern landfall option only.
Natural England Section 42 Response May 2023	Advised that HDD should be outside Holland Haven Marshes SSSI and made suggestions for mitigation/ compensation if it cannot be avoided, including timing restrictions. Expressed concern about risk of frack outs from the HDD and requested a HDD risk assessment is provided as part of the ES.	A full project description, including details of trenchless technologies that may be used, is included in Volume 6, Part 3, Chapter 1: Onshore Project Description. HDD will be used under Holland Haven Marshes SSSI, with entry/exit pits located outside of the SSSI. An outline HDD methodology which includes a consideration of risks is provided at ES Volume 9, 9.28 Outline Landfall HDD Method Statement..
Natural England Section 42 Response May 2023	Requested information in respect of functionally linked land and mitigation to reduce impacts to species associated with adjacent designated sites. Requested that SSSI features not covered by an HRA are assessed within the ES.	Effects on qualifying species for European sites, including species using functionally linked habitats, have been specifically considered within Sections 4.11 to 4.14 of this chapter and in the RIAA (Volume 5, 5.4, Report to Inform an Appropriate Assessment). All SSSI features that could be impacted by the scheme have been specifically considered. Details are provided in Sections 4.11-4.14.
Natural England Section 42 Response May 2023	Stated that where aerial imagery has been used to inform the assessment it should be ground truthed prior to application submission.	All accessible areas have been subject to ground truthing and/ or detailed survey. Any areas where this is not the case are indicated in , and a precautionary approach has been applied when assessing potential impacts as described in Section 4.7.

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
Natural England Section 42 Response May 2023	Referred the project to NE standing advice in respect of protected species and ASNW outside of designated sites.	Surveys and assessment have been undertaken in accordance with NE standing advice. For survey scopes refer to VE ES Volume 6 Part 6 Annex 4.1 – 4.17 and Annexes 4.22-4.25 Assessment is detailed within Section 4.11 – 4.14.
Natural England Section 42 Response May 2023	Suggested nocturnal surveys for wintering birds if night time working is planned and cannot be avoided.	Nocturnal surveys have not been undertaken (for the reasons described in section 4.7.19). Nocturnal working during the winter will be minimised. Where nocturnal working is unavoidable, mitigation measures will be applied where it takes place in parts of the onshore ECC in which significant numbers of golden plover/ lapwing could potentially be affected (as set out in Table 4.15).
Natural England Section 42 Response May 2023	Requested all areas have 2 years' worth of survey data for wintering birds, including nocturnal surveys.	Two years of survey data for wintering birds are available for all areas (see Figure 4.2). Small gaps in coverage during the wintering bird surveys for the onshore ECC are shown in Figure 4.2 and survey limitations are discussed in Section 4.7. Nocturnal surveys have not been undertaken (for the reasons described in section 4.7.19). Nocturnal working during the winter will be minimised and mitigation measures applied where it is unavoidable and golden plover/ lapwing could be affected (as set out in Table 4.15).
Natural England Section 42 Response May 2023	Highlighted that habitat which may be used by foraging/ commuting bats will need assessment. Suggested that surveys for Nathusius' pipistrelle which migrate across North Sea are considered – noting that surveys need to be carried out at appropriate times and locations.	Bat activity survey has been undertaken for all species of bat, including Nathusius' pipistrelle *Pipistrellus nathusii*; summary details of the bat survey scope and baseline data used to inform the assessment are included at Section 4.5, with further details at Volume 6, Part 6, Annex 4.7: Bat Survey Report: North of A120, Volume 4, Annex 4.8: Roosting Bats Tree Survey Report: South of A120, Volume 4, Annex 4.9: Bat Activity Survey Report: South of A120, Volume 4, Annex 4.10: Bat Survey Report: Additional Tree Survey. Effects on bats are assessed in Sections 4.11-4.14. Mitigation measures are set out in Section 4.10. Outline proposals for mitigation and compensation, along with

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
		proposals for biodiversity enhancement, are included in the OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan). These include woodland and hedgerow planting proposals that seek to address the requirement to promote coherent, resilient ecological networks that form part of the wider green infrastructure network/ habitat connectivity and provide habitat for foraging and commuting bats.
Natural England Section 42 Response May 2023	Stated that the project will need to determine if protected species licenses are required and Letters of No Impediment should be provided to accompany the application – this will require draft licence applications to be made.	An EPSL will be required in respect of GCN, and the DLL route is proposed. Volume 6, Part 6, Annex 4.20: GCN District Level Licencing Impact Assessment and Conservation Payment Certificate (unsigned) and associated documents are considered equivalent the draft licence application and LONI in this respect, and are pending. An EPSL may also be required for dormouse and/or bats. This is dependent on final scheme design and the outcome of pre-commencement surveys. A NE licence may be necessary for temporary impacts to water vole. This is dependent on final scheme design and the outcome of pre-commencement surveys. Further detail is provided in Section 4.10 and Table 4.15.
Natural England Section 42 Response May 2023	Requested further detail in terms of an HRA/ RIAA.	Effects on qualifying features for European sites have been specifically considered within Sections 4.11 to 4.14 of this chapter and in the RIAA (Volume 5, 5.4, Report to Inform an Appropriate Assessment).
Natural England Section 42 Response May 2023	Requested that the project provide BNG in line with the NPPF and that Defra Metric 4.0 may be used.	The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report. This approach has been informed by discussions with NE and other recently submitted NSIP projects.
Evidence Plan Onshore Ecology ETG Meeting	Summary of consultation feedback from Section 42 provided to attendees.	The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6 Annex 4.18 Five Estuaries Offshore Wind Farm

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
October 2023	Summary of survey results provided to attendees. Updated outline of proposed approach to mitigation and to application of the Defra Metric provided to attendees. NE provided initial comment on the approach to using the Defra Metric: > confirmed that since 30 years management cannot be secured for affected hedgerows along the cable corridor, for the purpose of the Metric they must be deemed lost (regardless of commitments for them to be replaced with native species-rich hedgerows). > Set out that habitat provided as mitigation for protected species, SUDS etc could count towards no net loss of biodiversity, but not count toward gain. Highlighted a need to discuss what is mitigation for loss and then what is 10% on top of that. EA asked if there was any more information in relation to drilling locations for the HDD crossing of sea wall.	Onshore Biodiversity Net Gain Indicative Design Stage Report. The specific points raised by NE have been addressed in the BNG report. A full project description, including details of trenchless technologies that may be used, is included at Volume 6, Part 3, Chapter 1: Onshore Project Description and at the obstacles crossing register at Volume 6, Part 6 Annex 1.1 Onshore Crossing Register. Further detail in respect of the HDD crossing of the sea wall is also included in Volume 6 Part 3 Chapter 6 Hydrology, Hydrogeology and Flood Risk.
NE BNG meeting in December 2023	Discussion draft BNG Indicative Design Stage Report supplied to NE on 17.11.2023. This meeting was called in order for the content and specifically the assumptions used to be discussed in detail. NE agreed to provide formal response to the draft report following the meeting. NE agreed with the approach to strategic significance. NE noted that the since the Condition Assessment (CA) data was gathered using Metric 3.1, any differences between it and the Statutory Metric CA should be flagged in the report. NE requested greater clarity on using the project footprint rather than the Order Limits for the project baseline.	The VE approach to BNG is set out in Section 4.6 and Volume 6, Part 6 Annex 4.18 Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report. The specific points raised by NE have been addressed in the BNG report.

Date and consultation phase/ type	Consultation and key issues raised	Section where comments addressed
	NE stressed the need to be very clear on the reality of reaching the target condition assessment stated (especially in consideration of woodlands, which should aim for low or moderate rather than good quality). NE agreed it would be useful to consider running two versions of the Metric: one where hedges at the ECC are "lost" (as per its advice), one where they are lost then "created" (ie reinstated, as is the practical reality). Highlight the difference in the BU results. Add narrative as to how the scheme results in no net loss of hedgerow since all are being replaced, and more are being created at the OnSS at the boundaries of the woodland.	
NE Licensing meeting in February 2024	8 February 2024 discussion in respect of District Level Licensing for GCN and potential approach that VEOWF may take in applying to join it. Additional meeting scheduled 23 February 2024 (i.e. post printing of this chapter) to discuss other protected species licensing.	An EPSL will be required in respect of GCN, and the DLL route is proposed. Volume 6, Part 6, Annex 4.20: GCN District Level Licencing Impact Assessment and Conservation Payment Certificate (unsigned) and associated documents are considered equivalent to the draft licence application and LONI in this respect and are pending.

4.5 SCOPE AND METHODOLOGY

4.5.1 The assessment scope has been informed by relevant national and local planning policy and guidance, established best practice and experience, as well as via the consultation process.

4.5.2 The EcIA contained within this Chapter seeks to:

- establish baseline conditions and identify important ecological features present (or those that could be present);
- identify important ecological features that could be impacted by the project;
- identify potential effects and their significance; and
- provide details of proposed mitigation or compensation measures and enhancements, (noting that at this stage some of the recommendations are outline, depending on the detailed project design (post consent)).

4.5.3 The design and options for the onshore elements are described in detail within Volume 6, Part 3, Chapter 1: Onshore Project Description. The EcIA parameters are summarised in this chapter, in Section 4.9.

STUDY AREA

4.5.4 Assessment has been undertaken within study areas discussed and agreed with key stakeholders, which are defined as follows:

- Habitats and protected/ notable species (except those mentioned below) within the onshore Order Limits, plus the surrounding 100 m (i.e., 100 m either side of the onshore ECC and to all sides of any other infrastructure or works areas such as Temporary Construction Compounds (TCCs) and access tracks). This includes all areas landward of Mean High Water Springs (MHWS). Areas below MHWS are covered in the relevant offshore chapters (Volume 6, Part 2, Chapters 4 Offshore Ornithology, Chapter 5 Benthic Ecology, Chapter 6 Fish and Shellfish Ecology and Chapter 7 Marine Mammals).

4.5.5 The 100 m buffer is based upon the premise that indirect impacts (such as noise or dust deposition) to un-designated habitats and/ or species (except those noted at the bullet points below) are unlikely to be significant beyond 100 m.

- Non-breeding birds – land within the onshore Order Limits, plus a buffer of at least 400 m to allow for possible disturbance effects outside the Order Limits. The 400 m buffer was requested by Natural England in line with advice provided to other offshore wind farm projects, such as East Anglia One North and East Anglia Two, as set out in their letter dated 23 August 2022 (see Table 4.2).
- Water courses and water bodies up to 250 m from the Order Limits where these may be suitable for use by otter *Lutra lutra*, water vole *Arvicola amphibius* or GCN.
- A 250 m up/ downstream search area has been used for otter and water vole. This is because these are highly mobile, territorial species and it is possible that effects from the onshore elements of VE, such as habitat loss, may impact populations of these species that occur outside the Order Limits. The 250 m search area for GCN breeding ponds is based upon published guidance (English Nature, 2001) that states that the majority of adult GCN stay within 250 m of breeding ponds and that beyond 250 m impacts to GCN are normally low.
- Intertidal (where relating to birds) and onshore elements of nationally designated sites (Sites of Special Scientific Interest (SSSI), Local Nature Reserves (LNR)) and LoWS within 2 km of the onshore Order Limits and

internationally designated sites (SAC, SPA and Ramsar Sites) within 15 km. The inclusion of a 15 km study area for internationally designated sites is to enable consideration of potential impacts on mobile qualifying species, particularly birds. Beyond 15 km, connectivity with designated sites is unlikely.

4.5.6 For further detail including the rationale for these distances, please refer to EIA Scoping Report Table 19.1 and ES Volume 6, Part 6, Annex 4.22.1, 4.22.2 & 4.22.3. Five Estuaries Preliminary Ecological Appraisal (PEA) Parts 1-3. Please note that the draft onshore Red Line Boundary (RLB) presented in the PEIR differ from the Order Limits presented in this ES. Surveys were based on the draft onshore RLB under consideration at the time of survey (plus relevant buffers) and the implications of subsequent changes to the Order Limits, following survey completion, are discussed in Section 4.7.

4.5.7 Within this report the following terms are used:

- Study area: This is the 2 km zone around the onshore infrastructure.
- Survey area: This is the 100 m zone around the draft onshore RLB presented at PEIR (noting that this differs from but is generally larger than the Onshore Order Limits).
- Areas other than these, which have been included in the EcIA (such as ponds within 250 m, or internationally designated sites within 15 km), are specifically described.

BASELINE DATA COLLECTION

4.5.8 Baseline data collection has been undertaken by a combination of desk study and field survey as described below.

DESK STUDY

4.5.9 A comprehensive desk-based data search has been undertaken and is described in the ES Volume 6, Part 6, Annex 4.22.1, 4.22.2 & 4.22.3. Five Estuaries Preliminary Ecological Appraisal (PEA) Parts 1-3. This included gathering details for statutory and non-statutory designated sites for nature conservation, as well as pre-existing ecological records for protected and notable species. Subsequent to the PEA, records were received from North East Essex Badger Group in May 2022 and these have additionally been used to inform this chapter.

4.5.10 Additional sources that have been obtained and reviewed since the PEA also include:

- Tendring District Local Wildlife Site Review 2008 (Essex Ecology Services Ltd, 2009);
- Local Wildlife Site Selection Criteria (Essex Local Wildlife Sites Partnership, Revised 2016);
- Essex Bat Group website www.essexbatgroup.org; and
- Frost *et al*. (2021) (annual peak waterbird count data for nearby designated sites).

4.5.11 In instances where anecdotal reports of protected or notable species have been received from members of the public (but are not contained in any other data source previously mentioned), these are referenced in the relevant results section.

FIELD SURVEY

4.5.12 Field survey information used to inform this chapter was gathered specifically for VE, or else has been provided by NF OWF to VE, in instances where it held pertinent ecological survey data and reports. All technical reports upon which this chapter is based are included in the Annexes for this ES (Volume 6, Part 6, Annexes 4.1-4.17 and 4.22-4.25.

4.5.13 A brief summary of survey methods is provided below and a brief summary of key findings is provided in Section 0.

HABITAT AND HEDGEROW SURVEY

4.5.14 Habitats within the survey area were classified and mapped using UKHab v1.1 (Butcher *et al.*, 2020), during late summer 2021, summer and autumn 2022. Habitats were also subject to condition assessment in accordance with Defra Metric 3.1, undertaken in conjunction with the UKHab survey.

4.5.15 More detailed botanical recording was undertaken during the habitat survey at areas that were known or suspected to support protected or notable plant species and that may be impacted, specifically arable margins, the ditch network, hedgerows and woodlands. The presence of invasive non-native plant species was also recorded during the habitat survey.

4.5.16 Sufficient data were also gathered during the habitat survey to determine whether hedgerows that could be breached/ removed as a result of the onshore elements of VE might meet the definition of "important" under the Hedgerow Regulations (1997). Any such hedgerows were then subject to more detailed survey, in summer – autumn 2022.

4.5.17 Full details of the habitat and hedgerow survey undertaken to inform the assessment are included in the ES Volume 6, Part 6, Annex 4.23: Five Estuaries Preliminary Environmental Information Report - Habitat and Hedgerow and Great Crested Newt Reports (Annex 4.2: Habitat and Hedgerow Survey Report, N of A120 and Annex 4.3: Habitat and Hedgerow Survey Report, S of A120).

4.5.18 National Vegetation Classification (NVC) survey was undertaken at terrestrial and aquatic habitats at Holland Haven Marshes SSSI, on behalf of NF OWF in July and August 2021. Terrestrial habitats within 50 m of the SSSI boundary were included, and aquatic habitats within 200 m. Full details are included in the ES Volume 6, Part 6, Annex 4.25: North Falls Ecology Reports (Annex 4.7: North Falls Offshore Wind Farm Holland Haven Marshes SSSI and adjacent land NVC Survey 2021).

4.5.19 Details from an Extended Phase 1 Habitat Survey undertaken on behalf of NF OWF (full details included in the ES Volume 6, Part 6, Annex 4.25: North Falls Ecology Reports (Annex 4.8: North Falls Offshore Wind Farm Extended Phase 1 Habitat Survey 2021) are also pertinent to large parts of the VE project area and have been referenced where appropriate.

4.5.20 Due to late-stage amendments to the Order Limits, limited areas have not been subject to detailed survey, and have instead been classified via aerial photograph interpretation undertaken by an ecologist and GIS analyst working in collaboration. Refer to Section 4.7 Limitations and to for more details.

INVERTEBRATE SURVEY

4.5.21 Terrestrial and aquatic invertebrate survey was undertaken at Holland Haven Marshes SSSI, on behalf of NF OWF between May and August 2021. Sixteen aquatic sample locations and six terrestrial sample locations were used to obtain baseline values for invertebrates present within the SSSI. Full details are included in the ES Volume 6, Part 6, Annex 4.25: North Falls Ecology Reports (Annex 4.9: North Falls Offshore Wind Farm Holland Haven Marshes SSSI: Survey and Assessment of Aquatic and Terrestrial Invertebrates 2021).

GREAT CRESTED NEWT SURVEY

4.5.22 A total of 117 water bodies were initially identified through desk study and aerial photography as potentially requiring field survey as they occurred within 250 m of the onshore Order Limits under consideration at the time of survey. Fourteen were not accessible for survey in 2022; survey access was again sought in 2023 and gained at four (refer to Volume 5, Annex 4.1: Great Crested Newt Survey Report: Additional Ponds for details). Ten ponds therefore remain without survey data. Ponds north of the A120 which could potentially be within 250 m of permanent habitat loss (as a result of the OnSS) were subject to HSI assessment, plus presence/ absence surveys using a minimum of three methods including trapping, netting, torching and egg search and/ or environmental DNA (eDNA) survey. All other ponds were subject to HSI assessment, eDNA survey and egg search.

4.5.23 All surveys were undertaken in accordance with survey timings recommended within published good practice guidance (English Nature, 2001 and Biggs *et al.* 2014) between April and mid-June 2022 or April – mid-June 2023.

REPTILE SURVEY

4.5.24 The reptile survey comprised habitat suitability assessment at all parts of the survey area and presence/ absence survey at moderate or high potential habitat where habitat loss may occur.

4.5.25 Presence/ absence survey was undertaken in accordance with standard good practice methods (Froglife, 1999). Artificial refugia were installed and allowed to "bed in", then each checked for basking or sheltering reptiles at least seven times during May, or September/ October 2022, before being retrieved at the end.

4.5.26 Further detail is included in Volume 6, Part 6, Annex 4.16: Reptile Survey Report: North of A120 and Annex 4.17: Reptile Survey Report: South of A120, which comprise the survey reports for survey areas north and south of the A120 respectively.

WINTERING BIRD SURVEY

4.5.27 Wintering bird surveys were undertaken at the landfall and surrounding area, by MacArthur Green, on behalf of NF OWF, in 2020-21 and 2021-22. In 2020-21, survey work was undertaken during each month from October to March. This comprised a series of twice monthly transect walks (incorporating regularly-spaced vantage points) to record bird numbers, distribution and activity within the area surveyed. Target species included all wildfowl, wader and raptor species, although any other species of high conservation concern were also recorded. The "look-see" methodology advised for Wetland Bird Survey (WeBS) core counts was followed, which determines that efforts should be made to ensure all suitable areas within the area surveyed should be surveyed to within 500 m. Evidence of actual, and possible, disturbance sources to birds was also noted during surveys, to help inform baseline disturbance levels within the area surveyed. In 2021-22, surveys followed the same methodology used in 2020-21, with the addition of monthly transect walks during August and September. Further details are provided in the ES Volume 6, Part 6, Annex 4.25: North Falls Ecology Reports (Annex 4.10: North Falls OWF Onshore Landfall Area 2020/21 Non-breeding Bird Surveys and Annex 4.11: North Falls OWF Onshore Landfall Area 2021/22 Non-breeding Bird Surveys).

4.5.28 Wintering bird surveys were also undertaken at the landfall by SLR, on behalf of VE, in 2021-22. Surveys were undertaken at each of the proposed landfall zones under consideration at that time plus a buffer zone of at least 500 m. Surveys specifically focused on the recording of waterbird species, although other notable sightings were recorded incidentally. Surveys took place twice per month from September 2021 to March 2022 inclusive. To account for changes in bird numbers and distribution due to the tidal state, each survey was undertaken 'through the tide', either starting at low tide and ending at high tide or starting at high tide and ending at low tide. During each survey, counts were undertaken hourly. On each count the number and location of all waterbirds were mapped and the behaviour of each bird or flock was noted, to provide an indication of how birds use the area surveyed. Any potential anthropogenic disturbance events that took place during each count were recorded incidentally to provide an indication of the levels of existing disturbance within the area surveyed (although a detailed study of existing disturbance was not carried out as the primary focus of the survey was to record bird numbers, distribution and activity). Further details are provided in the ES Volume 6, Part 6, Annex 4.24: Five Estuaries Preliminary Environmental Information Report - Wintering Birds Landfall Report..

4.5.29 Wintering bird surveys were undertaken for the Onshore ECC and OnSS search areas under consideration at that time, by MacArthur Green, on behalf of NF OWF, in 2021-22 and on behalf of NF OWF and VE in 2022-23. Target species for the surveys included geese, particularly dark-bellied brent goose *Branta bernicla bernicla* and European white-fronted goose *Anser albifrons albifrons*, and waders, particularly any that are qualifying features of nearby designated sites, but also those that are known to utilise inland habitats in winter, primarily lapwing *Vanellus vanellus*, curlew *Numenius arquata* and golden plover *Pluvialis apricaria*. Any other Annex I, Schedule 1 or rare red-listed species were also considered as target species and recorded during the surveys. Surveys were undertaken twice each month from October 2021 to March 2022 and again from October 2022 to March 2023, focussed on areas of suitable habitat for target species. Recording followed a similar methodology to that employed for the surveys completed on behalf of NF OWF at the landfall in 2020-21 and 2021-22 (see above). Further details are provided in the ES Volume 6, Part 6, Annex 4.5: Onshore Cable Route: Non-Breeding Bird Surveys 2022-23 Report and ES Volume 6, Part 6, Annex 4.25: North Falls Ecology Reports , (Annex 4.12 North Falls Offshore Wind Farm Onshore Cable Route: Non-breeding Bird Surveys 2021-22).

4.5.30 Survey area boundaries for all non-breeding bird surveys carried out are shown in Figure 4.2. Note that the non-breeding bird survey areas differ from the generic survey area definition provided in Paragraph 4.5.7.

BREEDING BIRD SURVEY

4.5.31 Breeding bird surveys were undertaken at the landfall and surrounding area by MacArthur Green, on behalf of NF OWFL, in 2021 and 2022. In both years, surveys comprised a series of twice monthly transect walks (incorporating regularly-spaced vantage points) in April, May and June, plus a single visit in July, to record bird numbers, distribution and activity within the area surveyed. Target species included species listed on Annex I of the EU Birds Directive and/or Schedule 1 of the Wildlife & Countryside Act 1981 (as amended), all nearby SPA and SSSI qualifying features and rare species included on the red list of Birds of Conservation Concern (BoCC) in place at that time (Eaton *et al*., 2015). Surveys focussed on areas of suitable habitat likely to be utilised by target species, e.g., wetlands, marshy fields, field margins, scrub. Grid references of target species were obtained using a GPS to be able to identify nest locations or territory centres and the breeding status of all birds encountered was noted, using standard British Trust for Ornithology (BTO) codes. Further details are provided in the ES, Volume 6, Part 6, Annex 4.4: Onshore Landfall Area Breeding Bird Surveys 2022 Report and Volume 6, Part 6, Annex 4.25: North Falls Ecology Reports (Annex 4.13: North Falls OWF Onshore Landfall Area Breeding Bird Survey 2021).

4.5.32 Breeding bird surveys were undertaken for the survey area defined in Paragraph 4.5.7 (excluding the landfall) in 2022. Surveys were undertaken by MKA Ecology, covering most of the area north of the A120, and by Ecology Resources, covering the area south of the A120 and a small area north of the A120[1]. The survey undertaken by MKA Ecology comprised four survey visits between mid-April and mid-July using a reduced effort territory mapping methodology (Marchant, 1983; Bibby *et al*., 2000). Additional survey visits to determine breeding locations for hobby *Falco Subbuteo* and barn owl *Tyto alba* were also undertaken in August. The survey undertaken by Ecology Resources comprised four survey visits between mid-May and late June, following the methodology prescribed by the Bird Survey and Assessment Steering Group (2022), plus further visits in August to assess the breeding status of corn bunting, hobby and barn owl. Further details are provided in the ES Volume 6, Part 6, Annex 4.2: Breeding Bird Survey Report: North of A120 and Volume 6, Part 6, Annex 4.3: Breeding Bird Survey Report: South of A120.

4.5.33 Survey area boundaries for the various breeding bird surveys are shown in Figure 4.2. Note that the breeding bird survey area at the landfall differs from the generic survey area definition provided in Paragraph 4.5.7.

OTTER AND WATER VOLE SURVEY

[1] The Ecology Resources survey also included part of the landfall area (Route Section 1), although data for that area have not been used in this assessment to avoid potential duplication with the more extensive surveys carried by MacArthur Green at the landfall and surrounding area.

4.5.34 Surveys were undertaken during 2022 in accordance with current good practice (Chanin, 2003, Dean *et al*., 2016 and Dean *et al*. 2021) at all water courses that may be breached by the onshore infrastructure options under consideration at the time of survey. Areas within Holland Haven Marshes SSSI were not subject to survey as pre-existing records for both species existed for the SSSI, and no direct impacts to the SSSI are anticipated.

4.5.35 During each of the two visits evidence indicating the presence of these species was sought, such as prints, paths, burrows/holts, feeding remains and droppings.

4.5.36 Further detail is included in Volume 5 Annex 4.14: Otter and Water Vole Survey Report: North of A120 and Annex 4.15: Otter and Water Vole Survey Report: South of A120, which comprise the survey reports for survey areas north and south of the A120 respectively.

DORMOUSE SURVEY

4.5.37 The dormouse survey comprised an initial habitat-based assessment of each hedgerow and woodland within the survey area to determine its suitability for dormouse. This was followed by presence/ absence survey following standard methods (Bright *et al*., 2006) using nest tubes at all woodlands and hedgerows that may be breached by the onshore ECC and which are potentially suitable for use by dormice.

4.5.38 The tubes were installed between April and June 2022-then subject to approximately monthly checks up to November 2022 for evidence of the presence of dormice, after which they were removed.

4.5.39 Further detail is included at Volume 5, Annex 4.12: Dormouse Survey Report: North of A120 and Annex 4.13: Dormouse Survey Report: South of A120, which comprise the survey reports for survey areas north and south of the A120 respectively.

BADGER SURVEY

4.5.40 A badger survey was undertaken in tandem with the habitat survey of the area north of the A120, during May – July 2022. The surveys followed standard methods (Scottish Natural Heritage, 2003) and included a search for the presence of badger setts and other signs such as dung pits or latrines, paths, prints and hairs. Where possible, setts have been classified as being Main, Annex, Subsidiary or Outlier, depending upon their size, relative locations and degree of use.

4.5.41 Further detail is provided at Volume 5, Annex 4.11: Badger Survey Report: North of A120 (Public) and at Volume 5, Annex 4.21: Confidential protected species reports.

4.5.42 Badger data for areas south of the A120 has been made available to VE by NF OWF and has additionally been used to inform the assessment. The survey method employed by NF OWF comprised a search for signs of setts undertaken at the same time as the Extended Phase 1 Habitat Survey in April – October 2021 and March 2022. It was reported in a confidential annex to the NF OWF PEIR.

BAT SURVEY

4.5.43 Methods used during each survey type were in accordance with published good practice guidance in place at the time of survey (Collins, 2016).

4.5.44 Bat activity survey was targeted at hedgerows, woodlands and/ or riparian areas which may be removed, illuminated or breached. Transects were identified to cover these areas, which were walked once per month from April – October 2022 (south of the A120) and May – October (north of the A120) with all bat observations noted down and recorded via full spectrum detectors. A total of 45 full spectrum static bat detectors were also installed across these areas, each recording for a minimum of five nights per month from May – October 2022.

4.5.45 Data from the bat detectors were analysed via Kaleidoscope Pro software and the Bats of Europe 5.1.0 auto-id classifier, set to the United Kingdom. This software allows data to be classified automatically with bat species which fit the same call characteristics that each call file provides. While the software is efficient, it is not totally infallible, therefore manual checks by an experienced bat worker skilled in bat call identification were also made for locally rare/ previously unrecorded species and to check the error rate of the software.

4.5.46 During 2022 and 2023 preliminary roost inspections and presence/ absence surveys were conducted at trees which may be removed or disturbed. All trees within the survey area were subject to a preliminary roost assessment during which they were assessed as having negligible, low, moderate or high potential to support bats.

4.5.47 Trees with moderate potential and that could be affected by the proposal were then subject to a minimum of two presence/ absence survey visits to determine likely bat absence, trees with high potential were subject to three survey visits. These comprised a mixture of the following:

- A detailed at-height inspection during the active season (May – September) where safe to do so. If full survey was possible during the inspection, and given that all such inspections were undertaken in the summer period, the survey was deemed to count as a presence/ absence survey.
- Each tree was also subject to at least one dusk emergence and/ or dawn re-entry survey to better determine bat presence/absence.

4.5.48 All bat activity was recorded using full spectrum detector equipment and infra-red cameras.

4.5.49 Further detail is included at Volume 6, Part 6, Annex 4.7: Bat Survey Report: North of A120, Annex 4.8: Roosting Bats Tree Survey Report: South of A120, Annex 4.9: Bat Activity Survey Report: South of A120 and Annex 4.10: Bat Survey Report: Additional Tree Survey, which comprise the survey reports for survey areas north and south of the A120.

4.6 ASSESSMENT CRITERIA AND ASSIGNMENT OF SIGNIFICANCE

4.6.1 Whilst Volume 6 Part 1, Chapter 3: EIA Methodology provides an indicative EIA assessment matrix, it also identifies that assessment methodologies may differ in accordance with the prevailing technical area guidance and specific requirements of receptor groups. As such the following sections provide a description of the assessment criteria and assessment methodologies of relevance to onshore biodiversity and nature conservation, which are derived from best practice guidance documents applicable to this topic and differ from those presented in the broader EIA methodology chapter.

4.6.2 The ecological evaluation and impact assessment approach used in this report is based on CIEEM Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland ("CIEEM guidelines") (CIEEM, 2022), which are widely regarded as industry best practice.

IMPORTANT ECOLOGICAL FEATURES

4.6.3 Ecological features can be important for a variety of reasons and the rationale used to identify them is explained below. Importance may relate, for example, to protected status, the quality or extent of the site or habitats therein; habitat and/ or species rarity; the extent to which such habitats and/ or species are threatened throughout their range, or to their rate of decline.

4.6.4 Important habitats are considered here to be those which:

- match descriptions of habitats listed on Annex 1 of the Habitats Directive, so far as it applies to the UK and as transposed by The Conservation of Habitats and Species Regulations 2017 ;
- match descriptions of habitats of principal importance for biodiversity under Section 41 (S41) of the NERC Act 2006;
- comprise irreplaceable habitats; such as (but not limited to) limestone pavement, sand dunes, ancient woodland and veteran trees;
- Meet the Local Wildlife Site selection criteria for Essex; and/ or
- comprise a significant habitat resource for an important species (see below).

4.6.5 Important species are considered here to be those:

- of European conservation importance (as listed on Annexes II, IV and V of the Habitats Directive or Annex 1 of the Birds Directive) so far as it applies to the UK and as transposed by The Conservation of Habitats and Species Regulations 2017 ;
- specially protected under the terms of the Wildlife and Countryside Act 1981 ;
- of principal importance for biodiversity under S41 of the NERC Act 2006;
- Red listed or listed as near threatened using International Union for the Conservation of Nature (IUCN) criteria (IUCN, 2012; IUCN, 2016; IUCN 2019), e.g. in one of the UK Species Status Project reviews, or, where a more recent assessment of the taxonomic group has not yet been undertaken, listed in a Red Data Book);
- for birds, a potentially important population of a species which is red or amber listed in the UK (Stanbury *et al*., 2021);
- which are listed as a Nationally Rare or Nationally Scarce species (e.g., in one of the Species Status Project reviews) or listed as a nationally notable species where a more recent assessment of the taxonomic group has not yet been undertaken;
- endemic to a country or geographic location (it is appropriate to recognise endemic sub-species, phenotypes, or cultural behaviours of a population that are unique to a particular place); and/or
- Meet the Local Wildlife Site selection criteria for Essex.

4.6.6 For birds, where appropriate, the value of species populations has been determined using the standard '1% criterion' method, as used, for example, within the Guidelines for the Selection of Biological SSSIs (Drewitt, Whitehead & Cohen, 2020). Under this method a site holding >1% of the biogeographic population is important at the relevant level, e.g., a site holding >1% of the national population of a species is nationally important for that species.

4.6.7 The CIEEM guidelines state that the importance of an ecological feature should be considered within a defined geographical context. The following frame of reference is used:

- International;
- National (i.e. UK);
- Regional (i.e., East Anglia);
- County (i.e., Essex); and
- Local (i.e., within circa 5 km of the Order Limits).

4.6.8 For the purposes of this assessment only ecological features of local importance or greater and/ or subject to legal protection are subject to detailed assessment (and are referred to as "important ecological features"). Effects on other ecological features of lower importance are considered unlikely to be significant in legal or policy terms so are not subject to detailed assessment.

IMPACT ASSESSMENT

4.6.9 The impact assessment process involves the following steps:

- identifying and characterising potential impacts;
- incorporating measures to avoid and mitigate (reduce) these impacts;
- assessing the significance of any residual effects after mitigation;
- identifying appropriate compensation measures to offset significant residual effects (if required); and
- identifying opportunities for ecological enhancement.

4.6.10 When describing impacts, reference has been made to the following characteristics, as appropriate:

- Beneficial, negligible or adverse;
- Extent;
- Magnitude;
- Duration (<5 years, 5-10 years, >10 years);
- Timing;
- Frequency; and
- Reversibility.

4.6.11 The impact assessment process considers both direct and indirect impacts:

- Direct ecological impacts are changes that are directly attributable to a defined action, e.g., the physical loss of habitat occupied by a species during the construction process.

- Indirect ecological impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process or feature, e.g., the interruption of water courses which cause hydrological changes, which, in the absence of mitigation, could lead to the drying out of downstream habitats.

SIGNIFICANT EFFECTS

4.6.12 The concept of ecological significance is addressed in Paragraphs 5.24 through to 5.28 of the CIEEM guidelines. Significance is a concept related to the weight that should be attached to effects when decisions are made. For the purpose of an EcIA, a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local and the scale of significance of an effect may or may not be the same as the geographic context in which the feature is considered important.

4.6.13 Paragraphs 5.29 – 5.34 of the CIEEM guidelines cover how significant effects are determined. To summarise:

- for designated sites – effects may be significant if they are likely to undermine the conservation objectives of the site; or positively or negatively affect the conservation status of species or habitats for which the site is designated; or may affect the condition of the site or its interest/ qualifying features.
- for ecosystems – effects may be significant if the project is likely to result in a change in ecosystem structure and function. Consideration should be given as to whether any processes or key characteristics will be removed or changed, if there will be an effect on the nature, extent, structure and function of component habitats or if there is an effect on the average population size and viability of component species.
- for habitats and species – consideration of conservation status is important for evaluating the effects of impacts on individual habitats and species and assessing their significance. Conservation status is defined as follows:
  - Habitats – conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area.
  - Species – conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

CUMULATIVE EFFECTS

4.6.14 Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a proposed development results in individually insignificant impacts that, when considered cumulatively with impacts of other proposed or permitted plans and projects, can result in significant effects.

4.6.15 More details in respect of the approach used for the cumulative effects assessment and the delivery scenarios with NF OWF are provided in Volume 6, Part 1, Chapter 3, Environmental Impact Assessment Methodology and its Annex 3.1: Cumulative Effects Assessment Methodology, as well as in Section 4.14 of this chapter.

AVOIDANCE, MITIGATION AND ENHANCEMENT

4.6.16 Where potentially significant effects have been identified, the mitigation hierarchy has been applied, as recommended in the CIEEM guidelines. The mitigation hierarchy sets out a sequential approach beginning with the avoidance of impacts where possible, the application of mitigation measures to minimise unavoidable impacts and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied, residual effects are then identified along with any necessary compensation measures, and incorporation of proposals for biodiversity enhancement.

4.6.17 It is important for the EcIA to clearly differentiate between avoidance, mitigation, compensation and enhancement and these terms are defined here as follows:

- **Avoidance** is used where an impact has been avoided, e.g., through changes in scheme design;
- **Mitigation** seeks to reduce and/ or eliminate the potential for significant effects to arise as a result of the project. Mitigation measures can be part of the project design or secondarily added to reduce impacts in the case of potentially significant effects;
- **Compensation** describes measures taken to offset residual effects resulting in the loss of, or permanent damage to, ecological features despite mitigation. For example, it may take the form of replacement habitat provision or improvements to existing habitats; and
- **Enhancement** is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures, although they can be complementary.

4.6.18 Within the EcIA, mitigation measures should be described clearly and their likely success assessed. When seeking mitigation or compensation solutions, the CIEEM guidelines state that efforts should be consistent with the geographical scale at which an effect is significant. For example, mitigation and compensation for effects on a species population that is significant at a county scale should ensure, wherever possible, there are no adverse effects upon the population status at a county scale. The relative geographic scale at which the effect is significant therefore has a bearing on the required outcome which must be achieved.

BIODIVERSITY NET GAIN (BNG)

4.6.19 Biodiversity Net Gain (BNG) is an approach to development activities that leaves the natural environment in a measurably better state than it was before. BNG works with and does not replace the mitigation hierarchy. It does not replace existing legal requirements (e.g., in relation to protected species) and it should not be applied to compensate for impacts on irreplaceable habitats. VE is cognisant of the good practice in respect of BNG and aligns with the ten principles developed by CIEEM, IEMA and CIRIA (Baker *et al.*, 2019) summarised below.

- Principle 1. Apply the Mitigation Hierarchy. Avoid and then minimise impacts on biodiversity. As a last resort, and in agreement with stakeholders and decision-makers, compensate for losses that cannot be avoided.
- Principle 2. Avoid losing biodiversity that cannot be offset by gains elsewhere. Avoid impacts on irreplaceable biodiversity – these impacts cannot be offset.
- Principle 3. Be inclusive and equitable. Engage stakeholders in designing, implementing, monitoring and evaluating the approach to Net Gain. Share the benefits fairly among stakeholders.
- Principle 4. Address risks. Mitigate difficulty and/or uncertainty using well-accepted ways to add contingency when calculating biodiversity losses and gains.
- Principle 5. Make a measurable Net Gain contribution. Achieve a measurable, overall gain for biodiversity and the services ecosystems provide while directly contributing towards nature conservation priorities.
- Principle 6. Achieve the best outcomes for biodiversity. Achieve the best outcomes for biodiversity by using robust, credible evidence and local knowledge.
- Principle 7. Be additional. Achieve nature conservation outcomes that demonstrably exceed existing obligations (i.e., do not deliver something that would occur anyway).
- Principle 8. Create a Net Gain legacy. Ensure Net Gain generates long-term benefits.
- Principle 9. Optimise sustainability. Prioritise Biodiversity Net Gain and, where possible, optimise the wider environmental benefits for a sustainable society and economy.
- Principle 10. Be transparent. Communicate all Net Gain activities in a transparent and timely manner, sharing the learning with all stakeholders.

4.6.20 In respect of Principle 5, VE has/ will use the Statutory Metric (or its successor) to demonstrate measurable Net Gain contribution. It is however worth highlighting here that since the metric is a proxy, it does not account for species-specific mitigation, compensation or enhancement. Loss/ gains in this respect are assessed within this chapter and will be measured against monitoring targets set out within the relevant European Protected Species Licence(s) (if applicable) and OLEMP that is submitted as part of this ES (refer to Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan).

4.6.21 Whilst demonstrating BNG through the use of the Statutory Metric is not be mandatory for NSIPs at the time of writing, it has been included in readiness of mandatory NSIP BNG commencing in 2025.

4.6.22 The Statutory Metric uses a comparison of habitats as a proxy for biodiversity and describes these habitats using standard units referred to as Biodiversity Units (BUs). BUs are calculated using the size of a parcel of habitat and its quality. The overall calculation of the change in biodiversity resulting from a project or development is made by subtracting the value of pre-project or 'baseline' BUs of an area of land from the number of post-project units. Post-project units incorporate temporary and permanent losses resulting from the project, along with the value of any mitigation, compensation and enhancement proposals include as part of the project. It is a requirement of the Statutory Metric that habitat required to deliver BNG must be secured for at least 30 years.

4.6.23 For the purposes of BNG assessment to be submitted alongside the VE DCO application an indicative scheme design for the ECC and OnSS has been assessed, which is considered to represent a reasonable worse case scenario compared with final design. This approach allows an understanding of the maximum area of land required in order to deliver BNG and if this can be met on site within the Order Limits. The BNG assessment will be updated post DCO decision, based on the detailed scheme design and Project Delivery Scenario. By adopting the approach outlined above it is unlikely that BNG requirements at the detailed design stage would exceed the indicative requirements identified at the pre-DCO stage.

4.6.24 The VE approach to BNG is set out in detail in Volume 6, Part 6, Annex 4.18 Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report which includes baseline and post-project plans as well as a completed Statutory Metric spreadsheet.

4.6.25 The requirements for auditing against the BNG objectives (i.e. delivery of the post-project BUs, in the locations and of the habitat types and condition stated) will be set out within an annex to the final LEMP.

4.7 UNCERTAINTY AND TECHNICAL DIFFICULTIES ENCOUNTERED

ALL SURVEYS

4.7.1 No significant limitations were associated with the surveys. Please refer to the survey reports in ES Volume 6, Part 6, Annex 4.1 – 4.17 and 4.22 – 4.25 for details in respect of the main assumptions and limitations associated with each. Limitations associated with each survey type are also summarised below.

ALL NON-AVIAN SURVEYS

4.7.2 As previously noted, field surveys have been undertaken using survey areas that corresponded to the draft RLB that was under consideration when the survey was carried out, which differs from the current Order Limits. identifies 41 areas where there may be gaps in data coverage for non-avian surveys (gaps in data coverage for bird surveys are covered separately below). Only two of the data gaps shown in are within the Order Limits (Areas 22 and 34 on). The remainder are within 100m of the Order Limits and typically comprise residential properties, or areas adjacent to proposed access routes where no impacts to vegetation are proposed. Lack of survey data for Areas 1-21, 23-33 and 35-41 is therefore not considered to be a limitation.

4.7.3 In respect of Area 22; this comprises part of an arable field and a roadside hedgerow; the majority of which was observable from adjacent accessible areas. This is also not considered to be a limitation.

4.7.4 Area 34 corresponds to Bentley Road. Due to the process of design evolution, Bentley Road and its surroundings were originally scoped into the assessment (pre-PEIR) and initial surveys for dormouse and bats were undertaken. Following the initial data gathering the area was excluded from the RLB used for PEIR and no further survey was undertaken there.

4.7.5 Following the Stage 2 consultation and further discussions between VEOWFL, NFOWFL and National Grid to review options of using Bentley Road for abnormal load deliveries from the A120 junction, into the ECC. Until the VE and NF signed the Good Neighbour Agreement (GNA), progressing this approach between the parties by working in collaboration meant that Bentley Road was taken forward as an access point, and the area would be proposed to be included in the Order Limits. However, the inclusion of Bentley Road within the Order Limits occurred after the point that access to be able to conduct additional surveys wasn't possible given project timescales.

4.7.6 The result is that some data exists for the area in respect of hedgerow suitability for dormice and preliminary roost assessment of trees for bats. Where such initial data exists, it has been included in the relevant figures showing potential impacts (Figure 4.8 and Figure 4.11) and is further discussed in the relevant sections within this chapter.

4.7.7 Detailed habitat survey for the Bentley Road area has not been undertaken, as the proposed access was only added to the Order Limits at a late stage. Habitats at that location have been assessed based on aerial photograph interpretation by a GIS analyst and ecologist working in collaboration. As a precaution, a walkover survey from public rights of way to corroborate the output and to identify high level ecological constraints undertaken on 12 June 2023 by Jess Colebrook MCIEEM. This survey was undertaken due to the possibility of Bentley Road being used, however, the inclusion of Bentley Road within the order limits was not confirmed until late summer 2023, and therefore no further surveys were able to be undertaken. The results of this exercise comprise mapped habitat polygons and lines, included on Figure 4.5.

4.7.8 Lack of detailed field survey data for habitats and/ or protected species at Bentley Road (Area 34 on) is not considered to be a significant limitation to the EcIA, based on the field and desk study data available, the types of agricultural habitats present and the mitigation proposed. The late inclusion of Bentley Road within the OL is taken into consideration when setting out the limitations in more detail in the following sections. Follow up surveys in respect of protected species that may be affected by planned work at Bentley Road will be undertaken during the next appropriate survey season (April 2024 onward), and results will be submitted as further environmental information to this Chapter.

HABITAT AND HEDGEROW SURVEYS

4.7.9 Extreme hot and dry weather may have limited data accuracy in respect of plant species assemblage and abundance. This limitation has been taken into account when evaluating important ecological features and potential impacts.

4.7.10 The vast majority of the proposed access roads follow existing public roads and require no vegetation removal or cutting. The exception is Bentley Road north of the A120, where some widening is necessary. As already noted, habitats at that location have been assessed based on aerial photograph interpretation by a GIS analyst and ecologist working in collaboration, with a walkover survey from public rights of way to corroborate the output. Lack of detailed field survey data for Bentley Road and the remaining access roads shown on Figure 4.1 is not considered to be a significant limitation to the EcIA, based on the field and desk study data available, the types of habitats present and the mitigation proposed.

GCN SURVEYS

4.7.11 In total, ten ponds within 250 m of the Order Limits were not accessible for GCN survey. Three of these are north of the A120 and the following comments have been made based on aerial images and OS maps:

- Pond 92 – pond in scrub in field corner, more than 500 m from other mapped ponds.
- Pond 93 – pond with scrub in field corner, more than 500 m from other mapped ponds.
- Pond 96 – pond with scrub at field edge. One other pond within 500 m, located 470m distant (outside of survey area).

4.7.12 The landscape north of the A120 contains widely dispersed ponds and no positive GCN results from those surveyed, or from desk study data. It is considered highly unlikely that a significant population of GCN are present in any of the unsurveyed ponds.

4.7.13 South of the A120 pond clusters are more frequently present, and in particular around Thorpe le Soken. The following comments are made in respect of the unsurveyed ponds south of the A120, based on aerial images and OS maps:

- Pond 21 – Large pond within scrubby area, just beyond 250m from the Order Limits. Four other ponds within 500 m (PO080 and three others beyond the survey area).
- Pond PO80 – indistinct, within horse paddock/residential curtilage. Five other ponds within 500m, two of which (pond numbers 23 and 24) are within the survey area. Pond 24 occurs 365 m to the north-west, and GCN are confirmed present.

4.7.14 The above two ponds occur within the same pond cluster (based on 500 m dispersal distance) and are theoretically within the range of GCN present at pond 24. GCN presence is therefore presumed at Pond 21 and Pond PO080.

- Pond PO196 – relatively recent water management feature (part of ongoing residential development) at junction of Henderson Road and Landermere Road. No vegetation evident on aerial images, shown as built up areas and gardens on Habitat Plan. No other mapped ponds within 500 m of PO196. GCN considered highly unlikely to be present based upon these factors, and presumed absent for the basis of this assessment.

- Pond 31- indistinct, within scrub/woodland at field corner.
- Pond 32 – indistinct, within scrub/woodland at field corner.
- Pond 33 – within grassland field south of Golden Lane.
- Pond 49 – within grassland field west of Tendring Road.

4.7.15 Ponds 31, 32, 33 and 49 occur within the same pond cluster (based on 500 m dispersal distance), which also includes Pond 50 (>250 m from the Order Limits) where GCN have been recorded. There is considered insufficient evidence upon which to determine the likely presence of GCN at these ponds, and on that basis a precautionary approach has been applied and presence assumed.

4.7.16 All ponds within 250m of the parts of Bentley Road within the OL have been surveyed.

REPTILE SURVEY

4.7.17 During the presence/absence survey a limited number of refugia went missing or were damaged. As soon as such damage or disturbance was noted, a replacement refuge was installed within 7 days.

WINTERING BIRD SURVEYS

4.7.18 The non-breeding bird surveys undertaken for the onshore ECC and OnSS search areas in 2021-22 (ES Volume 6, Part 6, Annex Annex 4.25: North Falls Ecology Reports, Annex 4.12) and 2022-23 (ES Volume 6, Part 6, Annex 4.5) covered almost all of the area within the onshore Order Limits and 400 m buffer. However, following minor changes to the Order Limits after the surveys were completed, there are a few small areas in which survey coverage didn't include all of the land within the 400 m buffer. These are shown in Figure 4.2. The full extent of the area within the Order Limits was covered by at least one year of survey and there are two winters of survey data for the vast majority. Areas within the Order Limits that only have one year's data are limited to two proposed access routes and a small extent of the proposed National Grid East Anglia Connection Node (EACN) substation site at the north-western tip of the proposed order limits. These areas extend to 0.02 ha, which represents only 0.01% of the area within the Order Limits. An area extending to 83.1 ha within the 400m buffer was not covered by the surveys in either year. This represents 2.56% of the 400 m buffer. These data gaps are very small in the context of the wider study area and are not considered to significantly affect the validity of the assessment.

4.7.19 Surveys for non-breeding birds did not include surveys undertaken at night, which would have been very difficult to carry out in any meaningful way over such a large area. It is acknowledged that some wader species, such as lapwing and golden plover, can feed on agricultural land at night, potentially using different fields at night to those used during the day. However, the assessment is based on the precautionary assumption that such species could use any suitable fields within the relevant study area, not just the fields they were recorded using during the day. Therefore, the lack of nocturnal survey data makes no difference to the assessment of habitat loss and disturbance. Note also that it is very unlikely that peak counts of birds used in the assessment would have been larger at night than during the day, primarily due to limitations in viewing and counting birds at night. The lack of nocturnal survey data would therefore not affect the count data on which the assessment is based.

4.7.20 Additional limitations associated with the wintering bird surveys are described in Section 2.2.3 of ES Volume 6, Part 6, Annex 4.24: Five Estuaries Preliminary Environmental Information Report - Wintering Birds Landfall Report and ES Volume 6, Part 6, Annex 4.25: North Falls Ecology Reports (section 2.2 of Annex 4.12). All of the limitations described are minor and none significantly affect the conclusions of the assessment. No survey limitations are described for the North Falls OWF non-breeding bird surveys at the landfall area in either 2020-21 or 2021-22 see ES Volume 6, Part 6, Annex 4.25: North Falls Ecology Reports (Annex 4.10: North Falls OWF Onshore Landfall Area – 2020-21 Non Breeding Bird Surveys and Annex 4.11: North Falls OWF Onshore Landfall Area – 2021-22 Non Breeding Bird Surveys), or for the non-breeding surveys of the onshore ECC in 2022-23 (see ES Volume 6, Part 6, Annex 4.5: North Falls and Five Estuaries Offshore Wind Farms Onshore Cable Route: Non-Breeding Bird Surveys 2022-23 Report).

BREEDING BIRDS

4.7.21 The breeding bird surveys undertaken for the onshore ECC and OnSS search areas in 2022 (ES Volume 6, Part 6, Annexes 4.2 and 4.3) covered most of the area within the onshore Order Limits and 100 m buffer. However, following minor changes to the Order Limits after the surveys were completed, there are some areas in which survey coverage did not include all of the land within the Order Limits or 100 m buffer. These are shown in Figure 4.2 and mostly relate to proposed access routes. An area extending to 9.93 ha within the Order Limits was not covered by the surveys, which represents 2.5% of the land within the Order Limits. An area of 129.2 ha within the 100 m buffer was not covered by the surveys, which represents 10% of the 100 m buffer. These data gaps are small in the context of the wider study area and given they mostly relate to access routes, which will be subject to limited impacts, are not considered to significantly affect the validity of the assessment.

4.7.22 Additional limitations associated with the breeding bird surveys are described in Section 2.4 of ES Volume 6, Part 6, Annex 4.25: North Falls Ecology Reports:, Annex 4.13: North Falls OWF Onshore Landfall Area: Breeding Bird Surveys 2021; Section 2.4 of ES Volume 6, Part 6, Annex 4.4: North Falls OWF Onshore Landfall Area Breeding Bird Surveys 2022; Section 3.7 of ES Volume 6, Part 6, Annex 4.2: Breeding Bird Survey Report: North of A120; and Section 2.4 of ES Volume 6, Part 6, Annex 4.3: Breeding Bird Survey Report: South of A120. These include limitations relating to access and the timing of survey visits. All of the limitations described are minor and none significantly affect the conclusions of the assessment.

OTTER AND WATER VOLE SURVEY

4.7.23 Survey access was impeded at some areas due to encroachment by dense scrub and/or vegetation. However, it is considered that sufficient access was possible at each water course such that the likely presence of either species would have been detected.

4.7.24 England endured multiple heatwaves over the summer of 2022 with peak temperatures of 40°C in July. This brought a prolonged period of drought to Suffolk and Essex that scorched vegetation, changing habitats and landscapes significantly. In the August visit, watercourses were drier, and vegetation was much less preferable for otter and water vole. This has been taken into consideration in the evaluation and impact assessment.

DORMOUSE SURVEY

4.7.25 Two hedgerows in the northern part of the proposed Order Limits were not subject to survey due to access refusal. These are not anticipated to be affected by the scheme and this is therefore not considered to be a limitation to this assessment.

4.7.26 South of the A120 an additional two hedgerows also had limited access, with reduced survey effort as a result. In both cases dormice were confirmed present and therefore access constraints are not considered to have impacted the results.

4.7.27 Hedgerows adjacent to Bentley Road were subject to habitat suitability assessment for dormouse in May 2022, as reported in Volume 6, Part 6, Annex 4.12: Dormouse Survey Report North of A120. None were found to be suitable for dormouse. Further survey is therefore not required at these areas and there are considered to be no significant limitations to the dormouse survey as a result.

BADGER SURVEY

4.7.28 Dense scrub and lack of access permission prevented full access to a small proportion of the Survey Area. It remains possible that evidence of badger including setts, could be present in unsurveyed parts, which includes areas at Bentley Road. Nevertheless, given the site context and the types of habitat present (most of which is unsuitable for digging of setts due to regular agricultural disturbance), the level of survey is considered to be sufficient to inform the ecological impact assessment.

BAT SURVEY

4.7.29 Constraints were noted on several of the Potential Roost Feature (PRF) surveys, such as trees being unsafe to climb, features being too extensive to be fully inspected, or active bird nest present at time of survey. On the few occasions where the limitation was considered to have significantly affected the survey, an additional visit was subsequently made. This is therefore not considered to be a limitation.

4.7.30 In some instances, survey access was refused, however this did not affect any trees within the proposed Order Limits which may be affected and as such is not considered to be a limitation. Trees which were identified as not being directly impacted (within "exclusion areas" or outside of the RLB under consideration at the time of survey) were not subject to presence/ absence survey. It remains the case that none of these would be directly impacted and lack of detailed presence/absence survey therefore is not considered to be a limitation.

4.7.31 Spacing of some presence/absence surveys were less than 15 days apart during June – August 2023. Due to the roost switching behaviours of tree roosting bats this is not considered to affect the chances of detecting bat presence compared to spacing surveys 15 days (or more) apart, and is not therefore considered to be a limitation. Nevertheless, all such trees were subject to an additional presence/absence survey in June 2023.

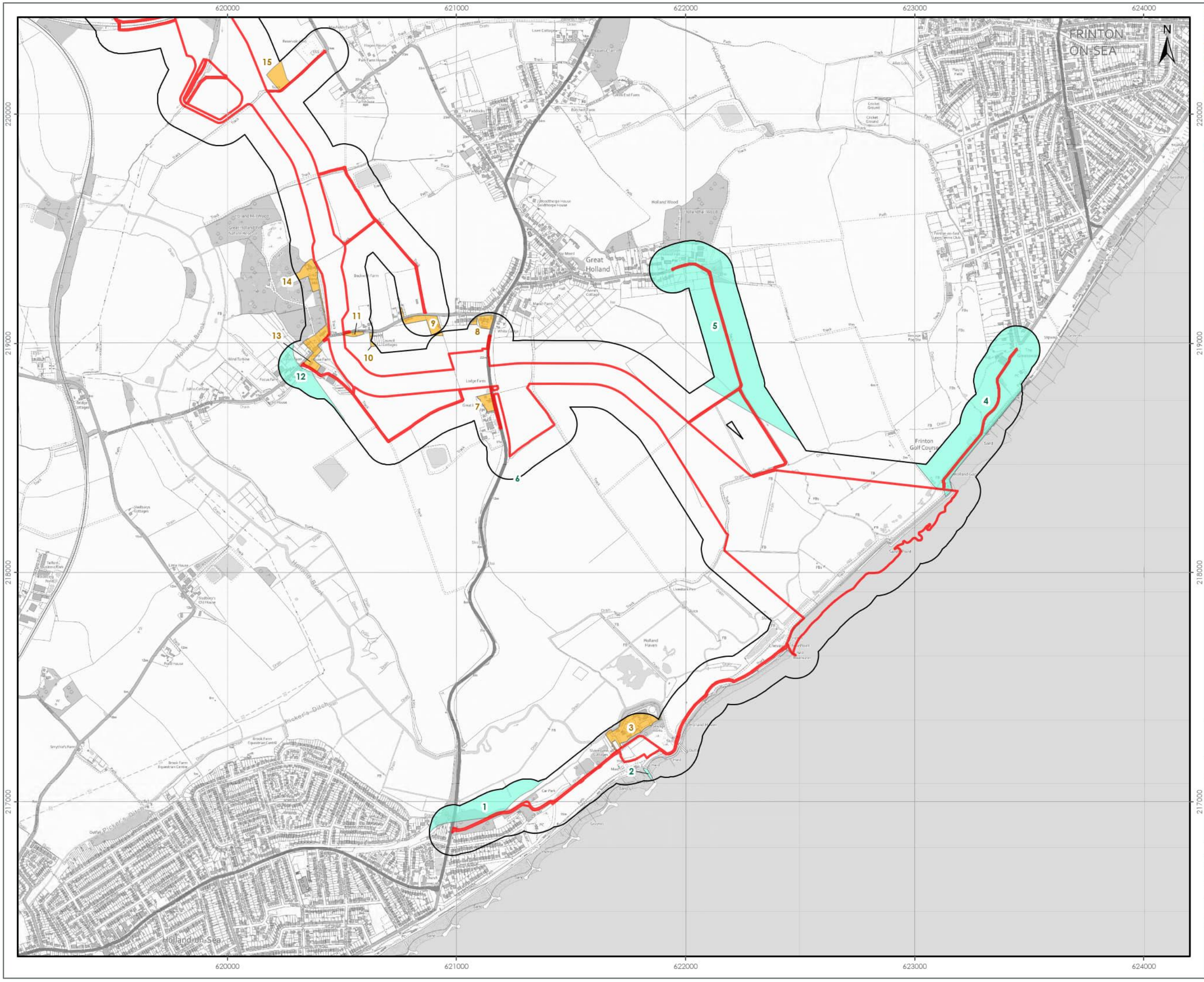
4.7.32 A total of 27 trees within the RLB under consideration at the time of survey were not subject to survey in 2022 due to a mapping error that was picked up too late to respond to. All these trees are located within the same hedgerow within which a static detector was deployed, and along which a transect was walked. In June 2023 the trees were subject to a PRA and PRF assessment, and this is therefore not considered to be a limitation.

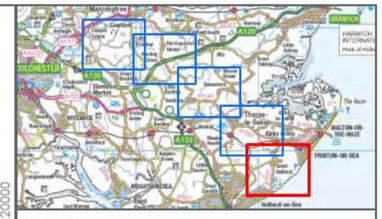
4.7.33 At Bentley Road, all trees within 100m were subject to a preliminary roost assessment (PRA) in June 2022, following the methodology and by the staff set out in Volume 6, Part 6, Annex 4.7: Bat Survey Report North of A120. The results of the assessment are not included in the report at Annex 4.7, since the area was removed from scope (before being added again, once survey and reporting was complete). The results have however been included on Figure 4.8, which shows that two trees with high potential and nine trees with moderate potential are present, with the remainder having negligible or low potential or having been scoped out due to lack of potential impacts. Detailed presence/ absence survey has not been conducted at any of these trees; the majority of which would not be directly impacted, and which are already subject to disturbance from passing vehicles. This is not considered to be a significant limitation since a precautionary approach has been adopted in relation to the high and moderate potential trees that may be lost.

4.7.34 During the activity surveys there were occasions when access was not possible for transects and where equipment failed to record as it should. However, the data obtained are extensive and considered sufficient to provide a robust baseline dataset to determine species presence and habitat usage.

4.7.35 Overall, the survey effort is deemed proportionate to the scheme and the potential impacts. Taking into account the above points, the scope of surveys and breadth of data gathered is considered sufficient to inform the evaluation and impact assessment.

4.7.36 As parts of the scheme design remain to be resolved (at the detailed design stage, post consent), the Maximum Design Scenario (MDS) identified in Table 4.14 has been selected as having the potential to result in the greatest effect on an identified receptor or receptor group. These scenarios have been selected from the details provided in the project description (Volume 6, Part 3, Chapter 1: Onshore Project Description). Effects of greater significance are not predicted to arise should any other development scenario to that assessed here be taken forward in the final design scheme, within the assessed boundaries.





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- No Survey Access to Date
- No Survey Access to Date: Aerial Image Interpretation Used (2022)

0 125 250 500
Metres

Data Source:
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PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

AREAS WITH POTENTIAL DATA GAPS WITHIN THE ONSHORE ORDER LIMITS

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.1

Sheet No: 1 of 5

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FIVE ESTUARIES
OFFSHORE WIND FARM

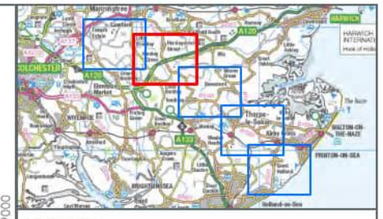
610000 611000 612000 613000 614000

229000 228000 227000 226000

N

32 33 34 35 36 37 31 30

Horsley Cross
Goose Green
Tendring Heath
Tendring Green
Little Bentley
Mill Green
Holland Brook



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- No Survey Access to Date
- No Survey Access to Date: Aerial Image Interpretation Used (2022)
- No Survey Access to Date: Aerial Image Interpretation and Walkover from Public Right of Way Used (2023)

0 125 250 500
Metres

Data Source:
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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
AREAS WITH POTENTIAL DATA GAPS WITHIN THE ONSHORE ORDER LIMITS

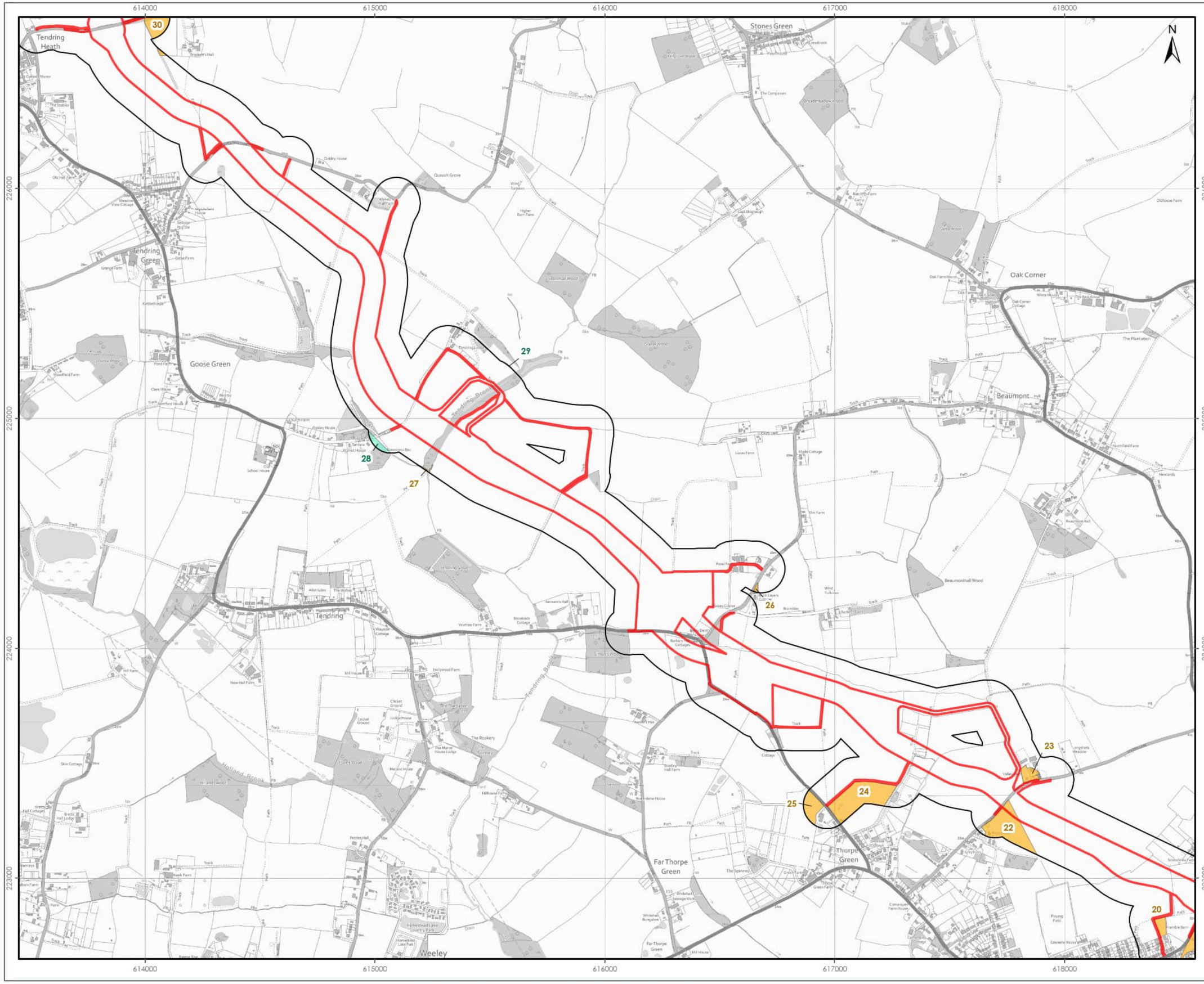
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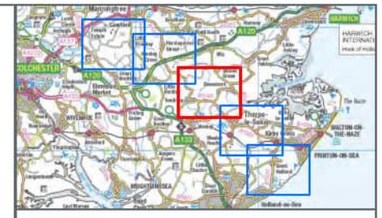
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Sheet No: 4 of 5

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
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FIVE ESTUARIES OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- No Survey Access to Date
- No Survey Access to Date: Aerial Image Interpretation Used (2022)

0 125 250 500

Metres

Data Source:
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License number 0100031673.

PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

AREAS WITH POTENTIAL DATA GAPS WITHIN THE ONSHORE ORDER LIMITS

VER	DATE	REMARKS	Drawn	Checked
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DRAWING NUMBER: 4.1

Sheet No: 3 of 5

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FIVE ESTUARIES
OFFSHORE WIND FARM

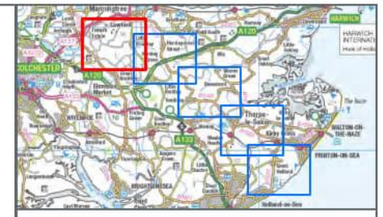
606000 607000 608000 609000 610000

230000 229000 228000 227000

N

41 40 39 38 37 36 35

Foxash Estate
Little Bromley
Burnt Heath
Bromley Cross
ROMAN POTTERY KILN
POTTERY KILN
Bromley Brook



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- No Survey Access to Date
- No Survey Access to Date: Aerial Image Interpretation Used (2022)
- No Survey Access to Date: Aerial Image Interpretation and Walkover from Public Right of Way Used (2023)

0 125 250 500
Metres

Data Source:
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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
AREAS WITH POTENTIAL DATA GAPS WITHIN THE ONSHORE ORDER LIMITS

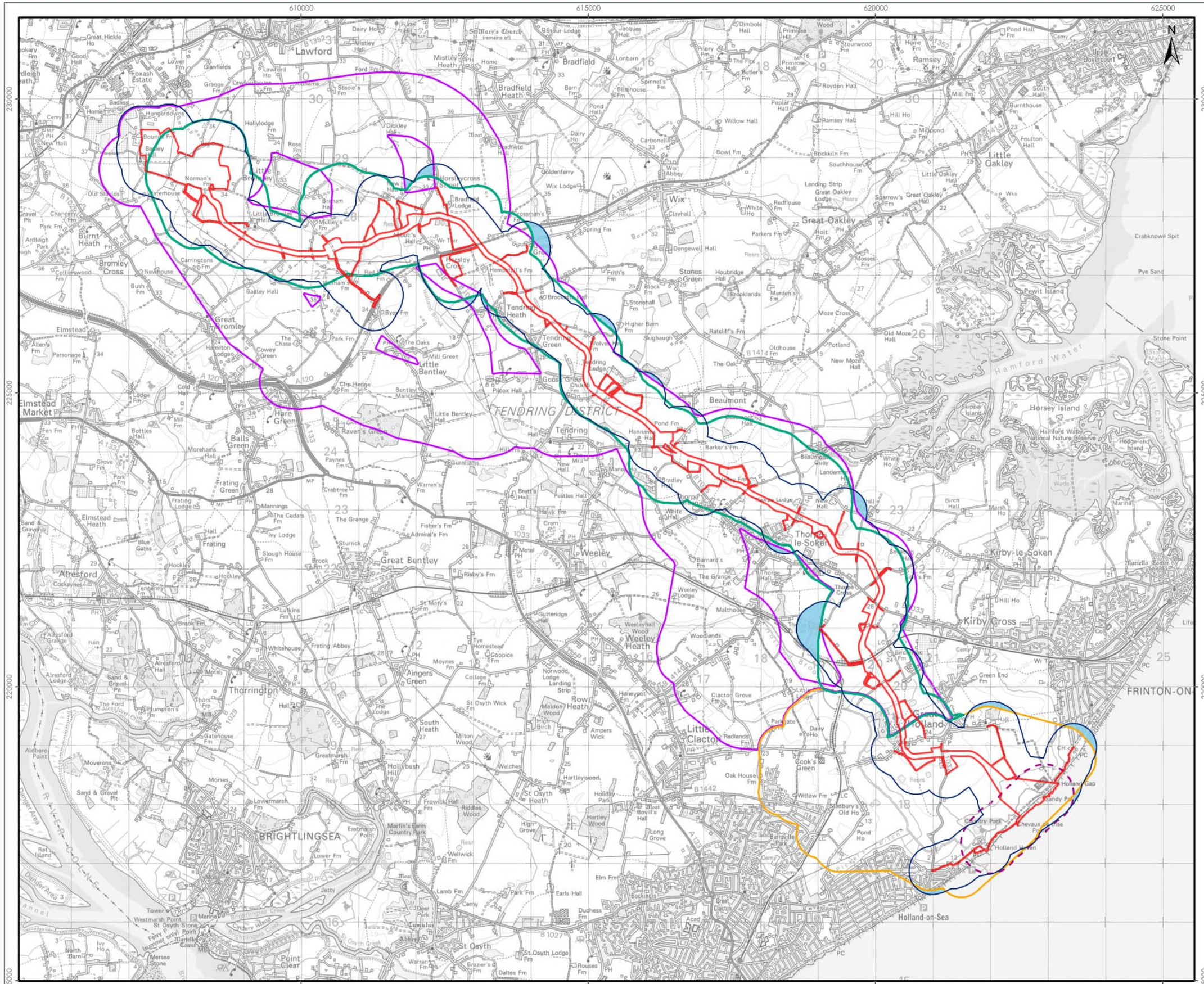
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DRAWING NUMBER: 4.1

Sheet No: 5 of 5

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:15,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WIND FARM



LEGEND

- Onshore Order Limits
- Onshore Order Limits 400 m Buffer
- Five Estuaries Landfall Location Survey Area Non-Breeding 2021-22
- North Falls Onshore Cable Route Survey Area Non-breeding 2021-22
- North Falls Landfall Area Survey Area Non-breeding 2020-21 & 2021-22
- North Falls Cable Route Survey Area Non-breeding 2022-23
- Area within Onshore Order Limits 400m Buffer that Lie Outside Relevant Survey Area

0 0.5 1 2

Kilometres

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PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

NON-BREEDING BIRD SURVEY AREAS

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.2a

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:60,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM

4.8 EXISTING ENVIRONMENT

GENERAL CONTEXT

4.8.1 The Survey Area is situated on and close to the Essex coast within the Tendring District. The landfall area is situated between Holland-On-Sea and Frinton-On-Sea and the onshore ECC continues northwest inland, crossing predominantly agricultural land. The OnSS zone is located north of the A120 within intensively agricultural land, that also includes hedgerows.

4.8.2 The Holland Brook, sometimes called the Holland River, runs parallel to the west of the onshore ECC. Its source begins near Little Bentley, and it meets the sea to the west of the proposed landfall area at Little Holland. The Tendring Brook is a tributary of the Holland Brook and bisects the onshore ECC northeast of Tendring. Several smaller watercourses are also present within the survey area.

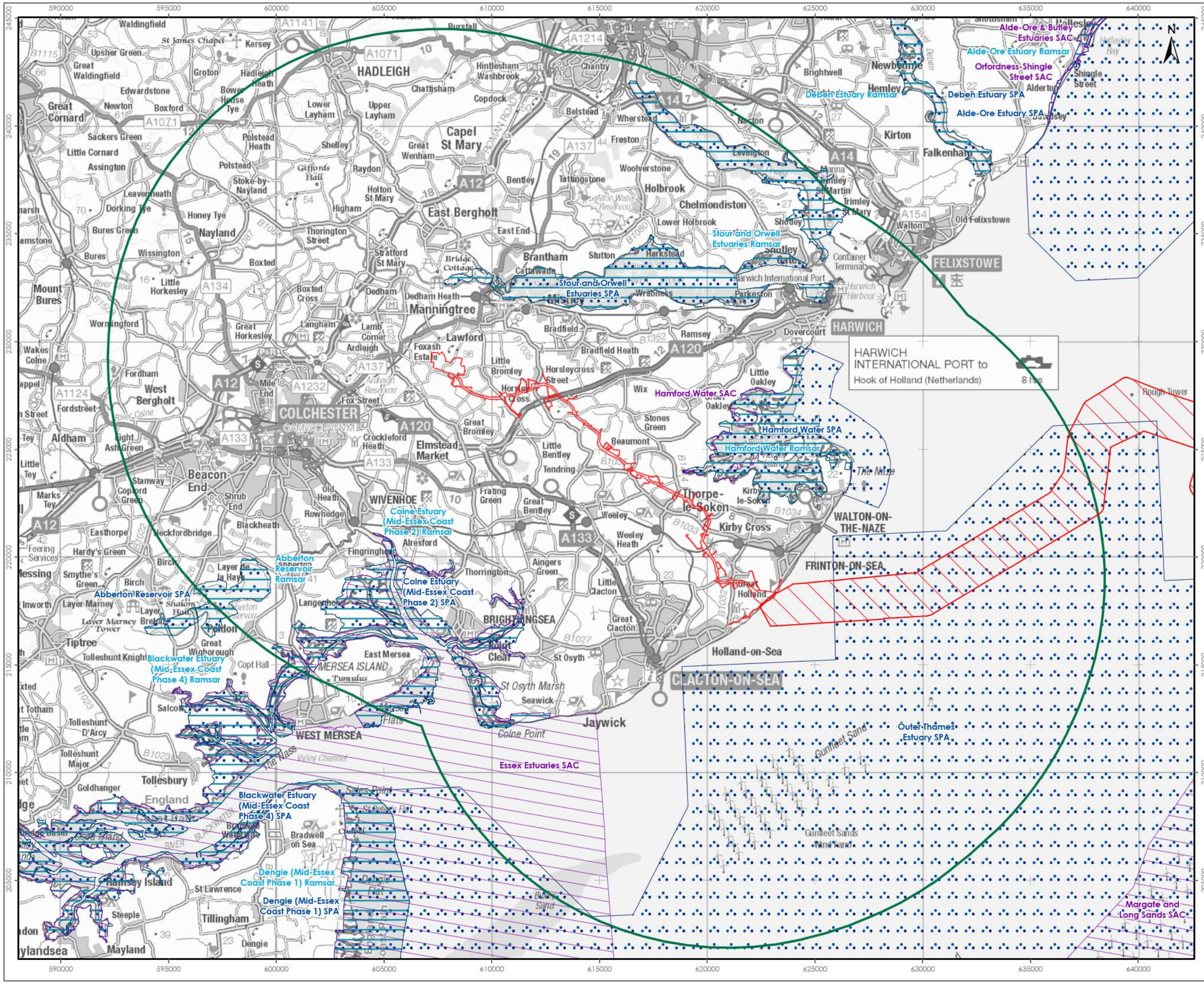
4.8.3 The Survey Area comprises two broadly distinct areas:

- Coastal Strip including Holland Haven Marshes SSSI: Low lying agricultural fields with areas of fen, scrub and hedgerows, Frinton Golf Course, and including the southeastern section of the Holland Brook. A pedestrian footpath is present between these and the adjacent beach, which also includes man-made sea-defences and a small area of maritime cliffs and slopes;
- North of Holland Haven Marshes SSSI: habitats are predominantly agricultural in nature comprising various cereal crops, clover leys and pasture, intersected by hedgerows and tributaries of the Holland Brook, other water courses and land drains. Waterbodies (including several irrigation reservoirs) and small areas of woodland are occasional. Wide arable field margins are few with many fields cropping right up to the hedge base. The onshore ECC occasionally passes residential dwellings, farm buildings and skirts around small villages/hamlets.

DESIGNATED SITES

4.8.4 **Figure 4.3** shows the location of statutory and non-statutory designated sites in relation to the project. Summary descriptions for each site and a brief rationale for scoping sites in or out of the assessment are provided in Table 4.3 and Table 4.4 respectively. Full descriptions for the qualifying/ notified features for each site are appended at Volume 6, Part 6, Annex 4.19: Statutory Designated Sites Qualifying or Notified Features. Note that Table 4.4 includes some designated sites which have been scoped into the assessment of air quality effects (see Volume 6, Part 3, Chapter 10 Air Quality) but have been scoped out of the assessment presented in this chapter.

4.8.5 Further information in respect of SACs, SPAs and Ramsar sites can also be found in the Habitats Regulations Assessment (HRA) Screening Assessment, the conclusions of which are presented in the RIAA (Volume 6, Part 6, 5.4: Report to Inform Appropriate Assessment).


HARWICH INTERNATIONAL PORT to
Hook of Holland (Netherlands) 8 hrs
Alde-Ore & Butley Estuaries SAC
Alde-Ore Estuary Ramsar
Orfordness-Shingle Street SAC
Deben Estuary Ramsar
Deben Estuary SPA
Alde-Ore Estuary SPA
Stour and Orwell Estuaries Ramsar
Stour and Orwell Estuaries SPA
Hamford Water SAC
Hamford Water SPA
Hamford Water Ramsar
Colne Estuary (Mid-Essex Coast Phase 2) Ramsar
Colne Estuary (Mid-Essex Coast Phase 2) SPA
Abberton Reservoir Ramsar
Abberton Reservoir SPA
Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar
Blackwater Estuary (Mid-Essex Coast Phase 4) SPA
Dengie (Mid-Essex Coast Phase 1) Ramsar
Dengie (Mid-Essex Coast Phase 1) SPA
Essex Estuaries SAC
Outer Thames Estuary SPA
Margate and Long Sands SAC
HARWICH
FELIXSTOWE
COLCHESTER
CLACTON-ON-SEA
FRINTON-ON-SEA
WALTON-ON-THE-NAZE
HADLEIGH
WIVENHOE
BRIGHTLINGSEA
MERSEA ISLAND
WEST MERSEA
Rough Tower
Gunfleet Sand
Gunfleet Sands Wind Farm
The Naze
Colne Point
St Osyth Marsh
Holland-on-Sea
Jaywick
Tollesbury
Ramsey Island
Mayland
Tillingham
Steeple
Bradwell on Sea
Dovercourt
Harwich International Port
Parkeston
Manningtree
Mistley
Lawford
Capel St Mary
East Bergholt
Holbrook
Chelmondiston
Shotley
Shotley Gate
Kirton
Falkenham
Newbourne
Hemley
Levington
Nacton
Wherstead
Belstead
Freston
Woolverstone
Tattingstone
Bentley
Brantham
Stutton
Harkstead
Cattawade
Bradfield
Bradfield Heath
Ramsey
Little Oakley
Wix
Stones Green
Beaumont
Little Bentley
Tendring
Weeley
Weeley Heath
Kirby Cross
Thorpe-le-Soken
Great Holland
Little Clacton
Great Clacton
Thorrington
Ardleigh
Elmstead Market
Great Bromley
Little Bromley
Horsley Cross
Horsleycross Street
Foxash Estate
Fox Street
Mile End
Dedham
Dedham Heath
Stratford St Mary
Higham
Raydon
Great Wenham
Copdock
Chattisham
Hintlesham
Washbrook
Chantry
Burstall
Kersey
St James Chapel
Waldingfield
Great Waldingfield
Edwardstone
Boxford
Newton
Great Cornard
Sackers Green
Little Cornard
Assington
Polstead
Stoke-by-Nayland
Leavenheath
Dorking Tye
Honey Tye
Bures Green
Bures
Nayland
Wissington
Boxted
Thorington Street
Mount Bures
Wormingford
Great Horkesley
Little Horkesley
Boxted Cross
Langham
Lamb Corner
Wakes Colne
Fordham
West Bergholt
Fordstreet
Aldham
Tye Green
Ash Green
Stanway
Copford Green
Marks Tey
Beacon End
Shrub End
Old Heath
Rowhedge
Colne Estuary (Mid-Essex Coast Phase 2) Ramsar
Alresford
Fingringhoe
Abberton Reservoir Ramsar
Abberton Reservoir SPA
Layer Marney Tower
Layer Breton
Layer de la Haye
Inworth
Tiptree
Great Wigborough
Tolleshunt Knights
Tolleshunt D'Arcy
Tolleshunt Major
Goldhanger
Salcott
Copt Hall
Tumulus
East Mersea
Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar
Blackwater Estuary (Mid-Essex Coast Phase 4) SPA
Dengie (Mid-Essex Coast Phase 1) Ramsar
Dengie (Mid-Essex Coast Phase 1) SPA
Sales Point
St Peter's Flat
Bradwell Waterside
Bradwell Power Station
Dengie Flat
Buxey Sand
Inner Gabbard
Outer Gabbard
Sunk Inner
Sunk Outer
Knock John
Middle Fort
Red Sands Fort
Roughs Tower
Shivering Sands Wind Farm
Kentish Flats
Kentish Flats Extension
Thanet Wind Farm
Thanet
Foulness
Maplin Sands
Shoeburyness
Southend-on-Sea
Canvey Island
Benfleet
Hadleigh
Leigh-on-Sea
Shingle Street
Alderton
Felixstowe
Old Felixstowe
Walton
Trimley St Martin
Trimley St Mary
Marina
Container Terminal
Harwich Harbour
Orwell Bridge
Wrabness
Bridge Cottage
Stour
Orwell
River Colne
River Blackwater
River Roman
Valley Channel
The Naze
The Nass
Copt Hall
Roman Road
Roman River
Abberton Reservoir
Alton Water Reservoir
Ardleigh Reservoir
Gifford's Hall
Shelley
Upper Layham
Lower Layham
Hadleigh Heath
Bower House Tye
Groton
Upsher Green
Great Waldingfield
Easthorpe
Heckfordbridge
Hardy's Green
Smythe's Green
Birch
Feering Services
Mount Bures
Bures
Nayland
Dedham Heath
Manningtree
Mistley
Lawford
Colchester
Elmstead Market
Wivenhoe
Brightlingsea
Clacton-on-Sea
Frinton-on-Sea
Walton-on-the-Naze
Harwich
Felixstowe
Kirton
Falkenham
Newbourne
Hemley
Shingle Street
Alderton
Old Felixstowe
Walton
Holbrook
Chelmondiston
Shotley
Shotley Gate
Harwich International Port
Parkeston
Container Terminal
Harwich Harbour
Orwell Bridge
Wrabness
Bridge Cottage
Stour
Orwell
River Stour
River

605000 610000 615000 620000 625000

230000 225000 220000 215000

Cattawade Marshes SSSI
Stour and Orwell Estuaries Ramsar
Stour Estuary SSSI
Wrabness LNR
Stour and Orwell Estuaries SPA
Stour Estuary RSPB Reserve
Stour and Copperas Woods Ramsey SSSI
Harwich Foreshore SSSI
Little Oakley Channel Deposit SSSI
Section 7
Section 5
Section 6
Ardleigh Gravel Pit SSSI
Hamford Water SAC
Hamford Water SPA
Hamford Water SSSI
Hamford Water Ramsar
Hamford Water NNR
Section 4A
Section 4B
The Naze SSSI
Wivenhoe Gravel Pit SSSI
Colne LNR
Section 3
Section 2
Section 1
Weeleyhall Wood SSSI
Upper Colne Marshes SSSI
Holland-Haven Marshes SSSI
Holland Haven LNR
Riddles Wood SSSI
Pickers Ditch Meadow LNR
St Osyth Pit SSSI
Holland On Sea Cliff SSSI
Colne Estuary (Mid-Essex Coast Phase 2) SPA
Colne Estuary (Mid-Essex Coast Phase 2) Ramsar
Colne Estuary SSSI
Outer Thames Estuary SPA
Colne Estuary NNR
Clacton Cliffs & Foreshore SSSI
Essex Estuaries SAC

ESTER
WIVENHOE
ERSEA ISLAND
Lawford
Manningtree
Mistley
Bradfield
Ardleigh
Little Bromley
Great Bromley
Bromley Cross
Wix
Great Oakley
Little Oakley
Harwich
Dovercourt
Parkeston
Ramsey
Elmstead Market
Great Bentley
Weeley
Kirby-le-Soken
Thorpe-le-Soken
Thorrington
Little Clacton
Great Holland
Kirby Cross
WALTON-ON-THE-NAZE
FRINTON-ON-SEA
BRIGHTLINGSEA
CLACTON-ON-SEA
Holland-on-Sea
Tendring
Little Bentley
Harwich
Felixstowe
Ipswich
Colchester
Clacton-on-Sea

N

LEGEND

- Onshore Order Limits
- Onshore Order Limits 2 km Buffer
- Offshore Order Limits
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Substation Operational Boundary
- North Falls Indicative Substation Operational Boundary
- 400kV Underground Cable Zone
- Landfall Compound Zone
- Landfall Exit Pit Sheet Piling Zone
- National Grid EACN Substation Zone
- Ramsar
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- National Nature Reserve (NNR)
- Local Nature Reserve (LNR)
- RSPB Reserve
- Local Wildlife Site (LoWS)

0 0.75 1.5 3
Kilometres

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Local Wildlife Sites data retrieved through Tendring District Council.

PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
STATUTORY AND NON-STATUTORY DESIGNATED SITES

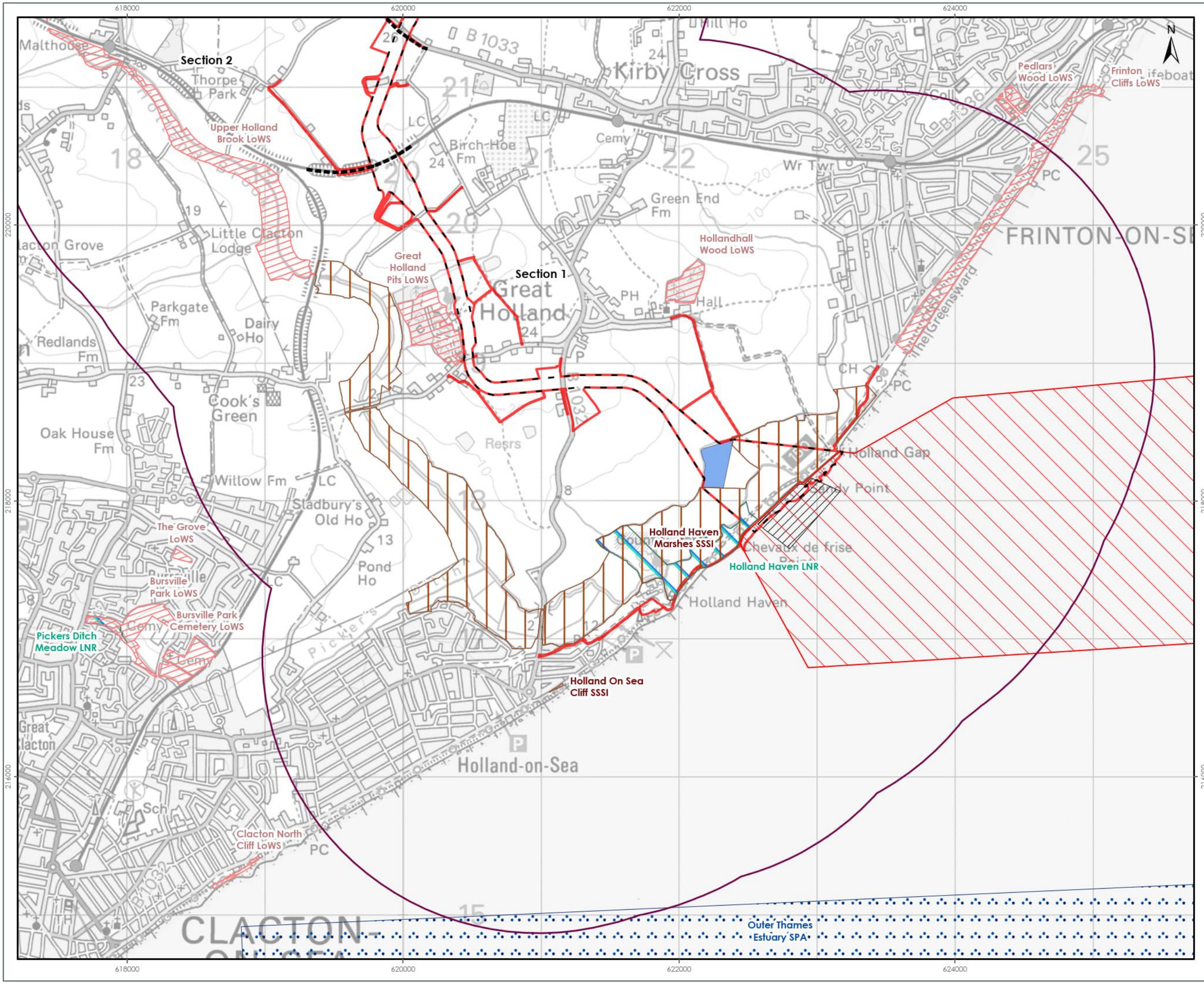
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Sheet No: 2 of 7

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
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FIVE ESTUARIES OFFSHORE WIND FARM



LEGEND

- Onshore Order Limits
- Onshore Order Limits 2 km Buffer
- Offshore Order Limits
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Landfall Compound Zone
- Landfall Exit Pit Sheet Piling Zone
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)
- Local Wildlife Site (LoWS)

0 0.25 0.5 1
Kilometres

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DRAWING NUMBER: 4.3

Sheet No: 1 of 5

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:25,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

616000 618000 620000 622000

224000 222000 220000

Section 4A
Section 3
Section 2
Section 1

Hamford Water SSSI
Hamford Water SPA
Hamford Water Ramsar
Hamford Water NNR
Hamford Water SAC
Weeleyhall Wood SSSI
Holland Haven Marshes SSSI

Beaumont Marsh LoWS
Gravel Wood LoWS
Tendring Grove LoWS
Simon's Wood LoWS
Beaumont Bridge Verge LoWS
Home Wood LoWS
Thorpe Green LoWS
Far Thorpe Green LoWS
St Michaels Churchyard LoWS
Island and Rogers Grove LoWS
Lower Botony Farm LoWS
Upper Holland Brook LoWS
Great Holland Pits LoWS
Weeley Bypass LoWS
Hollandhall Wood LoWS
Frinton Cliffs LoWS

Beaumont
Beaumont Hall
Pond Fm
Hannam's Hall
Barker's Fm
Manor Ho
Bradley Hall
Valley Fm
Thorpe Green
Thorpe Lodge
New Hall
Landermere Hall
Quay
White Ho
Kentshill Fm
Birch Hall
Marsh Ho
Far Thorpe Green
Coll
Thorpe le-Soken
Barnard's Fm
The Grange Fm
Thorpe Hall
Thorpe Cross
Sneating Hall
Kirby-le-Soken
King's Fm
Island and Rogers Grove
Weeley Lodge
Malthouse
Thorpe Park
Woodlands
Weeleyhall Wood
Weeley Heath
Hill Ho
Kirby Cross
Birch Hoe Fm
Cemy
Wr Twr
Green End Fm
Honeypot Fm
Clacton Grove Fm
Little Clacton Lodge
Weeley Bypass
Parkgate Fm
Dairy Ho
Little Clacton
Redlands Fm
Great Holland
Hall
Cook's
Pickers

B1033 B1034 B1035 B1414

LEGEND

- Onshore Order Limits
- Onshore Order Limits 2 km Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Ramsar
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- National Nature Reserve (NNR)
- Local Wildlife Site (LoWS)

0 0.25 0.5 1
Kilometres

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Sheet No: 2 of 5

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:25,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

608000 610000 612000 614000

230000 228000 226000

Section 7

Section 6

Section 5

Section 4B

Wignall Street Grassland LoWS

Furze Hill Complex LoWS

Little Bromley Churchyard LoWS

Manning Grove LoWS

Great Bromley Churchyard LoWS

Mill Wood LoWS

Little Bentleyhall Wood LoWS

Pilcox Wood LoWS

Goose Green Verge LoWS

Stonehall Wood LoWS

Tendring Grove LoWS

TENDRING DISTRICT

Lawford, Mistley, Mistley Heath, Bradfield, Bradfield Heath, Lawford Ho, Lower Fm, Glanfields, Grange Fm, Lawfordhouse Fm, Aldhams, Stacie's Fm, Ford Fm, Home Fm, Lonbarn, Barn Fm, Bluehouse Fm, Pond Hall, Hungerdowns, Hollylodge Fm, Dickley Hall, Moat, Bradfield Hall, Dairy Ho, Rose Fm, Little Bromley, Norman's Fm, Waterhouse Fm, New Hall, Horsleycross Street, Bradfield Lodge, Goldenferry, Wix Lodge, Braham Hall, Bromley, PH, Mulley's Fm, Crossman's Fm, Spring Fm, Resr, Abbott's Hall, Wr Twr, Goose Green, Carringtons Fm, Newhouse, Horsley Cross, Hempstall's Fm, Frith's Fm, Red House Fm, Welham's Fm, Badley Hall, Holland Brook, Brocketts Hall, Byes Fm, Tendring Heath, Park Fm, The Chase, Cowey Green, Hamilton Lodge, The Oaks, Mill Green, Little Bentley, Tendring Green, Wolves Fm, Tendring Lodge, Pilcox Hall, Goose Green Church Fm, Cold Hall, Clip Hedge Fm, Bentley Manor, Little Bentley Hall, Hare Green, Mill Fm, Raven's Green, Tendring Hall, A120, B1035

LEGEND

- Onshore Order Limits
- Onshore Order Limits 2 km Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Substation Operational Boundary
- North Falls Indicative Substation Operational Boundary
- National Grid EACN Substation Zone
- Local Wildlife Site (LoWS)

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Kilometres

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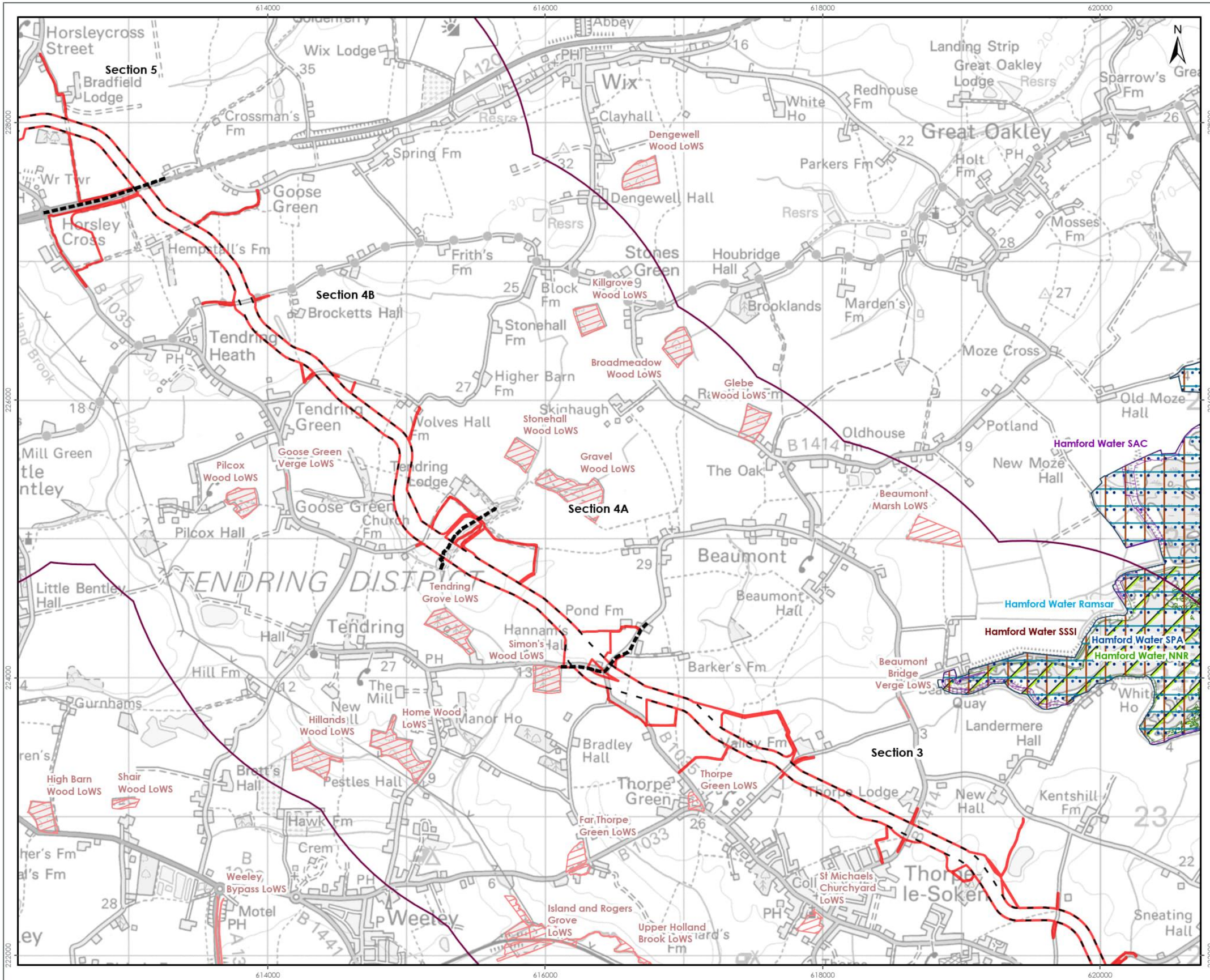
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Sheet No: 4 of 5

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
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FIVE ESTUARIES OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 2 km Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Ramsar
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- Special Area of Conservation (SAC)
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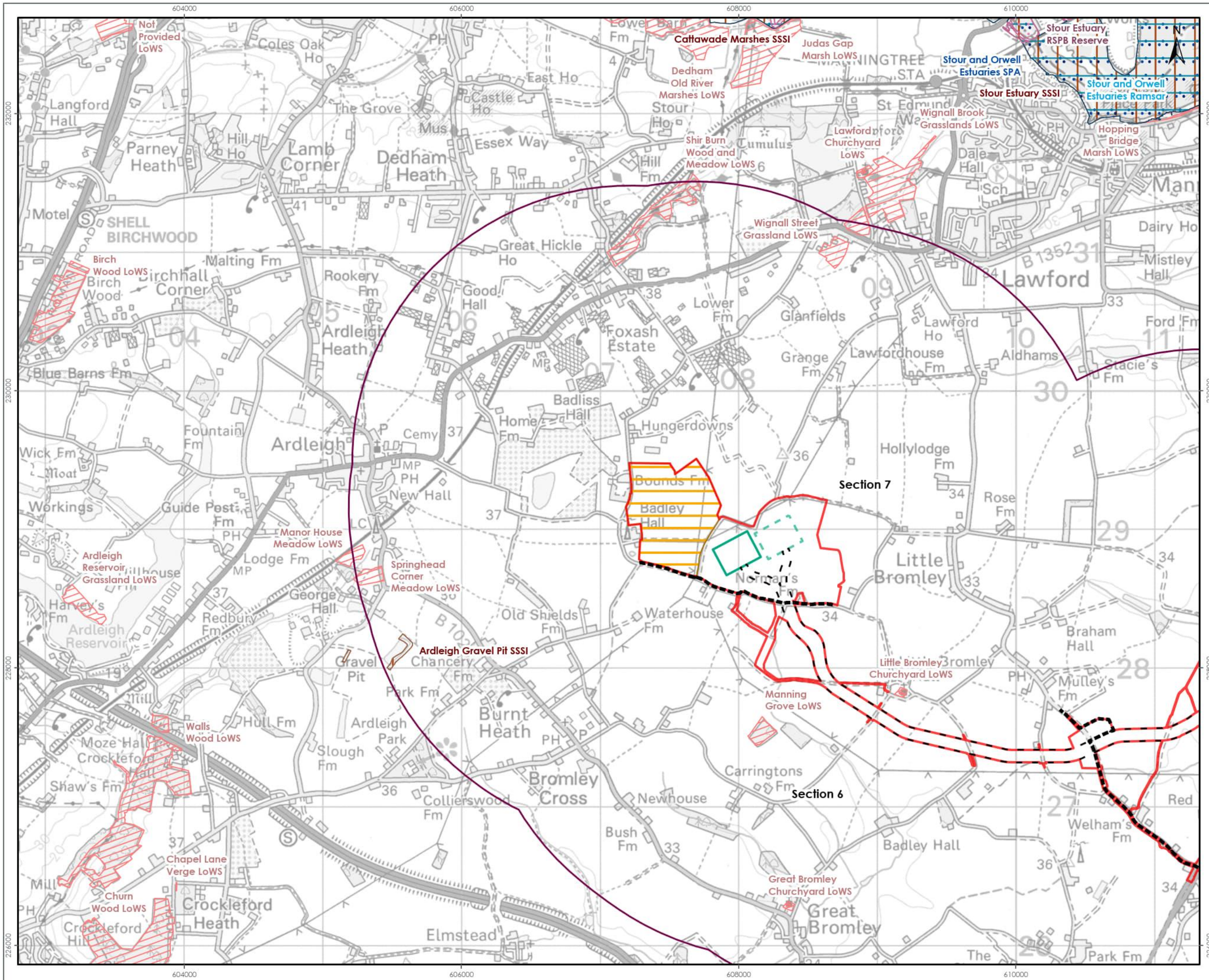
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DRAWING NUMBER: 4.3

Sheet No: 3 of 5

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:25,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WIND FARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 2 km Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Substation Operational Boundary
- North Falls Indicative Substation Operational Boundary
- National Grid EACN Substation Zone
- Ramsar
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)
- RSPB Reserve
- Local Wildlife Site (LoWS)

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DRAWING NUMBER: 4.3

Sheet No: 5 of 5

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:25,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

Table 4.3: Designated sites scoped into the assessment

Site name & designation	Reason for notification/ designation	Reason for scoping in
Hamford Water SSSI NNR SAC SPA and Ramsar	Hamford Water is of international importance for breeding little tern *Sternula albifrons* and wintering dark-bellied brent geese, wildfowl and waders, and of national importance for many other bird species. It also supports communities and species of coastal plants which are rare or extremely local in Britain, including hog's Fennel *Peucedanum officinale* which elsewhere is found only in Kent. It is also one of only two localities for Fisher's estuarine moth *Gortyna borelii lunata.*	Located 802 m east of the onshore Order Limits and hydrologically linked to it. A tributary joins the onshore Order Limits in one area and crosses in another. Indirect impacts possible through being functionally linked to land used by designated site bird populations. For Fisher's estuarine moth (a feature of this site) see the invertebrate section 4.8.21 onward.
Stour and Orwell Estuaries SSSI SPA and Ramsar	The Stour Estuary is nationally important for 13 species of wintering waterfowl and three species on autumn passage. The estuary is also of national importance for coastal saltmarsh, sheltered muddy shores, two scarce marine invertebrates and a scarce vascular plant assemblage. The component SSSIs are the Stour Estuary SSSI, Orwell Estuary SSSI and Cattawade Marshes SSSI. The Stour Estuary includes an RSPB reserve.	Located 3,146 m north-north-east from the onshore Order Limits with no hydrological links. Indirect impacts possible through being functionally linked to land used by designated site bird populations.
Colne Estuary (Mid-Essex Coast Phase 2) SSSI NNR SPA and Ramsar	The Colne Estuary is of international importance for wintering dark-bellied brent geese and black-tailed godwit *Limosa limosa* and of national importance for breeding little tern and five other species of wintering waders and wildfowl. The variety of habitats, which include mudflat, saltmarsh, grazing marsh, sand and shingle spits, disused gravel pits and reed beds, support outstanding assemblages of invertebrates and plants.	Located 7,302 m south-west from the onshore Order Limits with no hydrological links. Indirect impacts possible through being functionally linked to land used by designated site bird populations.
Abberton Reservoir SPA Ramsar SSSI	Abberton is the largest freshwater body in Essex with a water area of about 500 ha, and one of the most important reservoirs in Britain for wildfowl. About thirty thousand birds visit the reservoir annually including internationally important numbers of one species and nationally important members of twelve others.	Located 12,077 m west-south-west from the onshore Order Limits and not hydrologically linked to it. Indirect impacts possible through being functionally linked to land used by designated site bird populations.

Site name & designation	Reason for notification/ designation	Reason for scoping in
Blackwater Estuary (Mid-Essex Coast Phase 4) SPA Ramsar SSSI NNR	The Blackwater Estuary is the largest estuary in Essex north of the Thames and, is one of the largest estuarine complexes in East Anglia. Its mudflats, fringed by saltmarsh on the upper shores, support internationally and nationally important numbers of overwintering waterfowl. Shingle and shell banks and offshore islands are also a feature of the tidal flats. The surrounding terrestrial habitats; the sea wall, ancient grazing marsh and its associated fleet and ditch systems, plus semi-improved grassland are also of high conservation interest. This rich mosaic of habitats supports an outstanding assemblage of nationally scarce plants and a nationally important assemblage of rare invertebrates.	Located 14,367 m from the onshore Order Limits and not hydrologically linked to it. Indirect impacts possible through being functionally linked to land used by designated site bird populations.
Holland Haven Marshes SSSI LNR	The ditch network at Holland Haven Marshes represents an outstanding example of a freshwater to brackish water transition intimated by the aquatic plant communities, which include several nationally and locally scarce species. The adjoining grasslands are of botanical importance as well as acting as a buffer zone to the ditch system. Further interest is provided by the aquatic and terrestrial invertebrates and the birds which frequent the area, especially in winter. Includes Holland Haven LNR.	Located within the landfall area and the onshore ECC.
LoWS within or adjacent to the onshore Order Limits, including: > Simon's Wood; and > Great Holland Pits.	**Simon's Wood** This ancient woodland has been densely replanted with conifers, particularly pines *Pinus* spp. with scattered larch *Larix decidua*. Supports S41 habitat lowland mixed deciduous woodland and ancient woodland. **Great Holland Pits** The varied habitats of this ex-gravel pit include heathy grassland, pasture, a remnant of old woodland, large and small pools and wet depressions. Supports S41 habitat open mosaic habitat on previously developed land.	LoWS directly adjacent or partly lies within onshore Order Limits and may be directly affected.

Site name & designation	Reason for notification/ designation	Reason for scoping in
LoWS within c.200m of the onshore Order Limits, including > Little Bromley Churchyard > Hollandhall Wood; and > Thorpe Green	**Little Bromley Churchyard** This small churchyard represents a remnant of the dry acid grassland that would formerly have been widespread on the Tendring plateau. It is now the only such grassland, other than the nearby Great Bromley churchyard, that remains in an otherwise intensively cultivated landscape. Supports S41 habitat lowland meadow. **Hollandhall Wood** Lowland mixed deciduous woodland, ASNW. Much of this woodland's canopy is characterised by pedunculate oak *Quercus robur* standards. **Thorpe Green** Thorpe Green contains a good mix of grass and herb species. Supports S41 habitat lowland meadow.	LoWS within 200 m of the onshore Order Limits and may be indirectly affected.

Table 4.4: Designated sites scoped out of the assessment

Site Name and Designation	Reason for Notification/ Designation	Reason for Scoping Out
Essex Estuaries SAC	Essex Estuaries SAC contains a very wide range of marine and estuarine sediment communities, including extensive saltmarsh, and intertidal mudflats and sandflats. The component SSSIs are the Blackwater Estuary SSSI, Colne Estuary SSSI, Crouch and Roach Estuaries SSSI, Dengie SSSI and Foulness SSSI.	Located 7,375 m south-south-west from the onshore Order Limits. No direct impacts anticipated due to separation distance and the nature of the qualifying habitats. Potential indirect impacts as a result of changes to air quality are assessed in Volume 6, Part 3, Chapter 10 Air Quality.
Weeleyhall Wood SSSI	Weeleyhall Wood is one of the largest ancient woods in the Tendring peninsula. It contains one of the best examples in Essex of base-poor springline alder woodland, a type of woodland which is rare in the county, as well as good examples of lowland hazel-pedunculate oak and some wet ash-maple woodland,	The site is approximately 2.29 km from the onshore Order Limits and is hydrologically linked via a tributary of the Holland Brook (although the woodland is upstream of the Order Limits). Potential indirect effects are limited to air quality changes and have been included in the air quality assessment at: Volume 6, Part 3, Chapter 10 Air Quality.

Site Name and Designation	Reason for Notification/ Designation	Reason for Scoping Out
	and chestnut coppice-with-standards derived from these last two. The alder valleys support a rich ground flora. Additional interest is provided by two ponds and damp, grassy rides.	
All other LoWS not listed in Table 4.3	Various	All other LoWS are located >200 m from the onshore Order Limits and are not hydrologically linked to it. No direct or indirect impacts are anticipated as a result of lack of potential impact pathways (with the exception of air quality impacts which are assessed for relevant LoWS in Volume 6, Part 3, Chapter 10 Air Quality). They are therefore scoped out of further assessment.

HABITATS

4.8.6 Table 4.5 shows the habitat types present within the survey area and those within the onshore Order Limits itself (further details are provided in the ES Volume 6, Part 6, Annex 4.23: Five Estuaries Preliminary Environmental Information Report - Habitat and Hedgerow and Great Crested Newt Reports:Annex 4.2: Habitat and Hedgerow Survey Report, North of A120 and Annex– 4.3: Habitat and Hedgerow Survey Report, South of A120). Those in **bold** are S41 habitat types.

Table 4.5: Habitats present within the survey area

UK Hab Primary Code	Habitat Type	Present in Survey Area	Present within Order Limits
c	Cropland	Y	Y
c1	Arable and horticulture	Y	Y
c1a6	**Arable margins sown with wild flowers or a pollen and nectar mix**	Y	Y
c1a8	**Game bird mix strips and corners**	Y	Y
c1b	Temporary grass and clover leys	Y	Y
c1c	Cereal crops	Y	Y
c1c7	Other cereal crops	Y	Y
c1d	Non-cereal crops	Y	Y
f2e	**Reedbeds**	Y	N
g	Grassland	Y	N
g1c	Bracken	Y	N
g3	Neutral grassland	Y	N
g3a	**Lowland meadow**	Y	Y
g3c	Other neutral grassland	Y	Y
g3c5	*Arrhenatherum* neutral grassland	Y	Y

UK Hab Primary Code	Habitat Type	Present in Survey Area	Present within Order Limits
g4	Modified grassland	Y	Y
h2a	**Hedgerow (priority habitat)**	Y	Y
h2b	Other hedgerows	Y	Y
h3a	Blackthorn scrub	Y	N
h3d	Bramble scrub	Y	Y
h3h	Mixed scrub	Y	Y
r1	Standing open water and canals	Y	Y
r2	Rivers and streams	Y	N
r2b	Other rivers and streams	Y	Y
s1	Inland rock	Y	Y
t1	Littoral Rock	Y	Y
t2	Littoral Sediment	Y	Y
t2h	Beach	Y	N
u1	Built-up areas and gardens	Y	Y
u1b	Developed land; sealed surface	Y	Y
u1b5	Buildings	Y	Y
u1b6	Other developed land	Y	Y
u1c	Artificial unvegetated, unsealed surface	Y	Y
u1d	Suburban/ mosaic of developed/ natural surface	Y	Y

UK Hab Primary Code	Habitat Type	Present in Survey Area	Present within Order Limits
u1e	Built linear features	Y	Y
w1	Broadleaved mixed and yew woodland	Y	N
w1f7	**Other Lowland mixed deciduous woodland**	Y	Y
w1g	Other woodland; broadleaved	Y	Y
w1g6	Line of trees	Y	Y
w1g7	Other broadleaved woodland types	Y	N
w1h	Other woodland; mixed	Y	Y
w1h5	Other woodland; mixed; mainly broadleaved	Y	Y
w1h6	Other woodland; mixed; mainly conifer	Y	Y
w2c	Other coniferous woodland	Y	Y

4.8.7 The above primary habitat types also include secondary habitats such as (but not limited to) scattered trees or scrub, details of secondary habitats for each habitat polygon or line feature have been retained within a GIS and can be provided upon request.

4.8.8 Some S41 habitat types exist as habitat mosaics and these are indicated via the application of relevant secondary codes which can be applied across a range of habitat types. Within the survey area the most pertinent include:

> 19 – Ponds (priority habitat) – note that when ponds are too small to map (i.e., less than 5 m x 5 m), this code has been applied to the area of habitat they occur within.

- 25 – Coastal and Floodplain Grazing Marsh (priority habitat) – this applies to some of the low-lying fields near to the Holland Brook, irrespective of grassland type. It extends to 13.71 ha within the OL.
- 33 Ancient Woodland Site – this applies to ASNW (and PAWS, with PAWS having the additional code 36 Plantation, applied).

4.8.9 Three hedgerows within the survey area are considered to meet the definition of 'important hedgerows' in relation to wildlife and landscape criteria and an addition eight in respect of supporting protected species, under the Hedgerow Regulations 1997, as shown on Figure 4.4 (for consideration of historically important hedgerows please refer to Volume 6, Part 3, Chapter 7: Onshore Archaeology and Cultural Heritage).

4.8.10 Figure 4.4 shows the type and location of important hedgerows and S41 habitats within the Survey Area, including secondary habitat codes for each. It also includes the locations of notable plant species recorded during field survey (refer to Paragraph 4.8.13.

620500 621000 621500 622000

217500 217000 216500

N

Holland Haven

Holland Haven Marshes SSSI

Holland Brook

Sewage Works

3

Beach Works TCC

2

1

Clacton Road

w1h

w1h

Secondary Codes:	73 - Bare Ground
10 - Scattered Scrub	117 - Dry
11 - Scattered Trees	140 - Anthills
14 - Scattered Rushes	147 - Fallen Dead Wood Abundant
16 - Tall Herb	148 - Flower Forage Abundant
17 - Ruderal/Ephemeral	160 - Sward Type Mosaic
19 - Ponds (Priority Habitat)	161 - Tall or Tussocky Sward
36 - Plantation	162 - Temporary Water Bodies
38 - Secondary Woodland	190 - Hedgerow With Trees
39 - Freshwater Man-Made	191 - Ditch
41 - Freshwater Natural	362 - Artificial Lake or Pond
51 - Coppice	370 - Wetlands
56 - Young Trees - Planted	1011 - Pasture or Meadow
65 - Hay	



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Temporary Beach Access Zone
- Temporary Construction Compound
- Access and Crossing Zone

Other Important Habitats

- w1h - Other Woodland; Mixed

Priority Habitat Inventory England

- Coastal and Floodplain Grazing Marsh (Natural England)

Statutory and Non-Statutory Sites

- Site of Special Scientific Interest (SSSI)

Area with Potential Data Gaps

- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

0 50 100 200
Metres

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PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

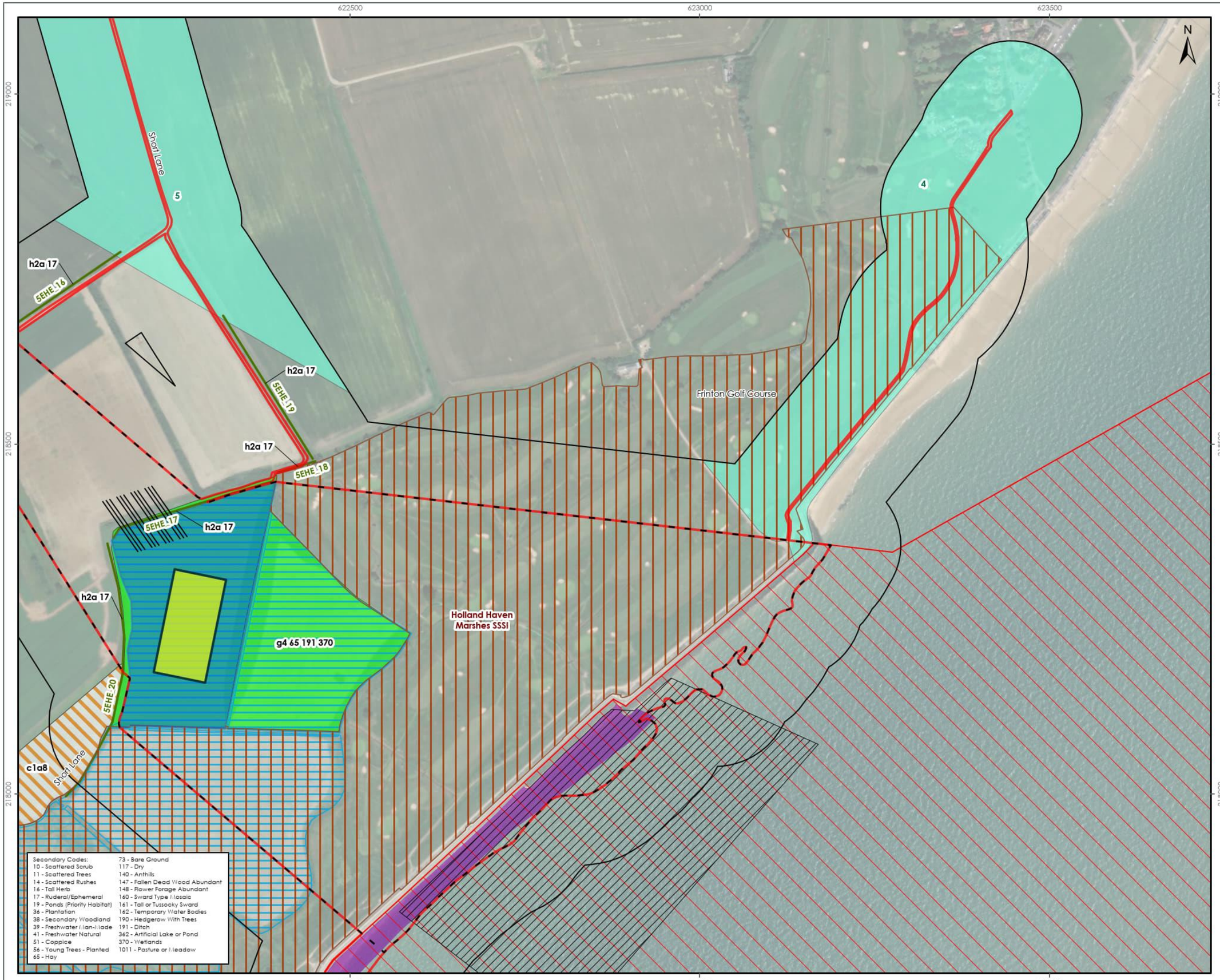
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DRAWING NUMBER: 4.4

Sheet No: 1 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Offshore Order Limits
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Beach Access Zone
- Landfall Compound Zone
- Indicative Landfall Compound
- Landfall Exit Pit Sheet Piling Zone

Section 41 Habitats (Linear)

- h2a - Hedgerow (Priority Habitat)

Section 41 Habitats

- c1a8 - Game Bird Mix Strips and Corners
- g4 - Modified Grassland

Priority Habitat Inventory England

- Coastal and Floodplain Grazing Marsh (Natural England)

Statutory and Non-Statutory Sites

- Site of Special Scientific Interest (SSSI)

Area with Potential Data Gaps

- No Survey Access To Date

Note.
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DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

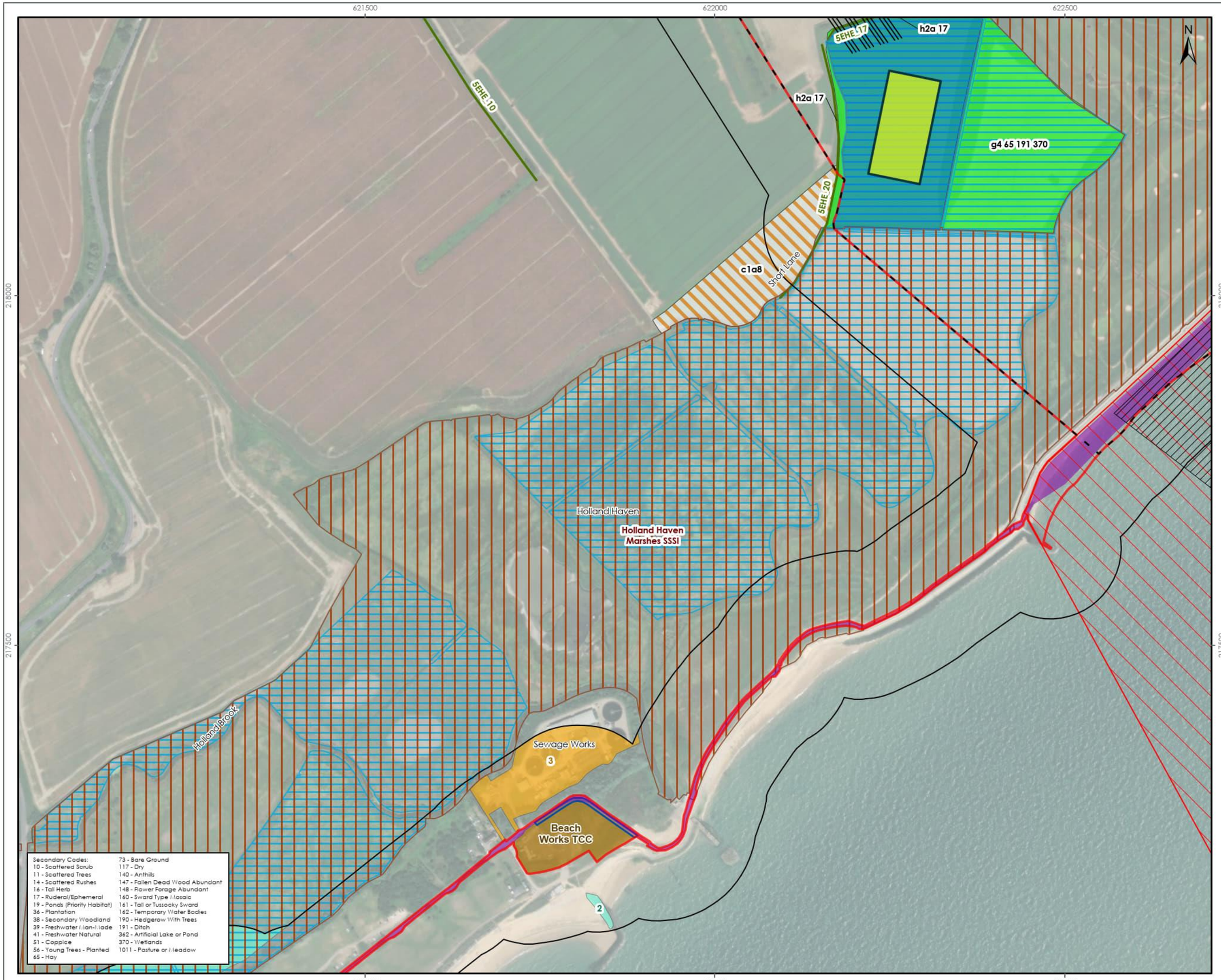
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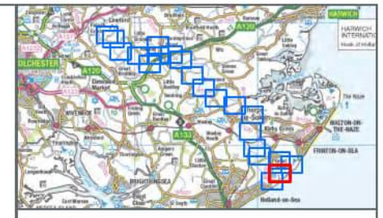
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Sheet No. 3 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Offshore Order Limits
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Beach Access Zone
- Temporary Construction Compound
- Access and Crossing Zone
- Landfall Compound Zone
- Indicative Landfall Compound
- Landfall Exit Pit Sheet Piling Zone

Section 41 Habitats (Linear)

- h2a - Hedgerow (Priority Habitat)

Section 41 Habitats

- c1a8 - Game Bird Mix Strips and Corners
- g4 - Modified Grassland

Priority Habitat Inventory England

- Coastal and Floodplain Grazing Marsh (Natural England)

Statutory and Non-Statutory Sites

- Site of Special Scientific Interest (SSSI)

Area with Potential Data Gaps

- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

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DRAWING NUMBER: 4.4

Sheet No: 2 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

621000 621500 622000 622500

219000 218500

N

Great Holland

Hollandhall Wood LoWS

Clacton Road

Short Lane

Holland Haven Marshes SSSI

TCC1

TCC2

5 6 7 8 9

5EHE_01 5EHE_02 5EHE_04 5EHE_05 5EHE_06 5EHE_07 5EHE_08 5EHE_09 5EHE_10 5EHE_15 5EHE_16 5EHE_17 5EHE_18 5EHE_19 5EHE_20 5EHE_92 5EHE_93

h2a 17 c1a8 w1h5

g4 65 191 370

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Mosaic
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone
- Landfall Compound Zone
- Indicative Landfall Compound

Important Hedgrow (Hedgerow Regulations Assessment)
- Important Hedgerow (Under Schedule 1 Part II Section 7 : Plant Species and Features Present)

Section 41 Habitats (Linear)
- h2a - Hedgerow (Priority Habitat)

Section 41 Habitats
- c1a8 - Game Bird Mix Strips and Corners
- g4 - Modified Grassland

Other Important Habitats
- w1h5 - Other Woodland: Mixed Mainly Broadleaved

Priority Habitat Inventory England
- Coastal and Floodplain Grazing Marsh (Natural England)

Statutory and Non-Statutory Sites
- Site of Special Scientific Interest (SSSI)
- Local Wildlife Site (LoWS)
- Ancient and Semi-Natural Woodland (Natural England)

Area with Potential Data Gaps
- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

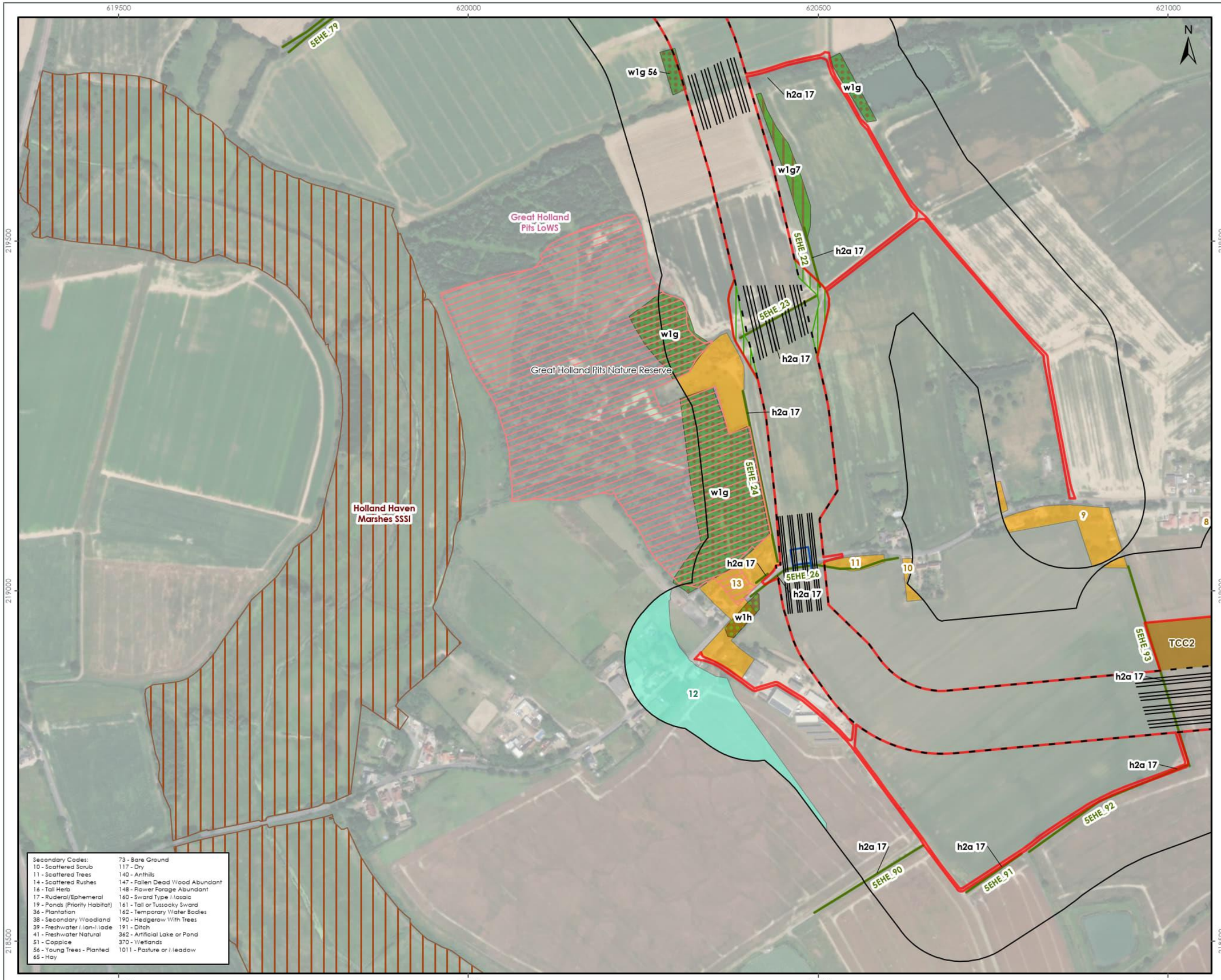
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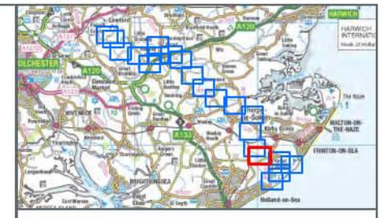
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Sheet No: 4 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WIND FARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Section 41 Habitats (Linear)
- h2a - Hedgerow (Priority Habitat)

Other Important Habitats
- w1g - Other Woodland: Broadleaved
- w1g7 - Other Broadleaved Woodland Types
- w1h - Other Woodland: Mixed

Statutory and Non-Statutory Sites
- Site of Special Scientific Interest (SSSI)
- Local Wildlife Site (LoWS)

Area with Potential Data Gaps
- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
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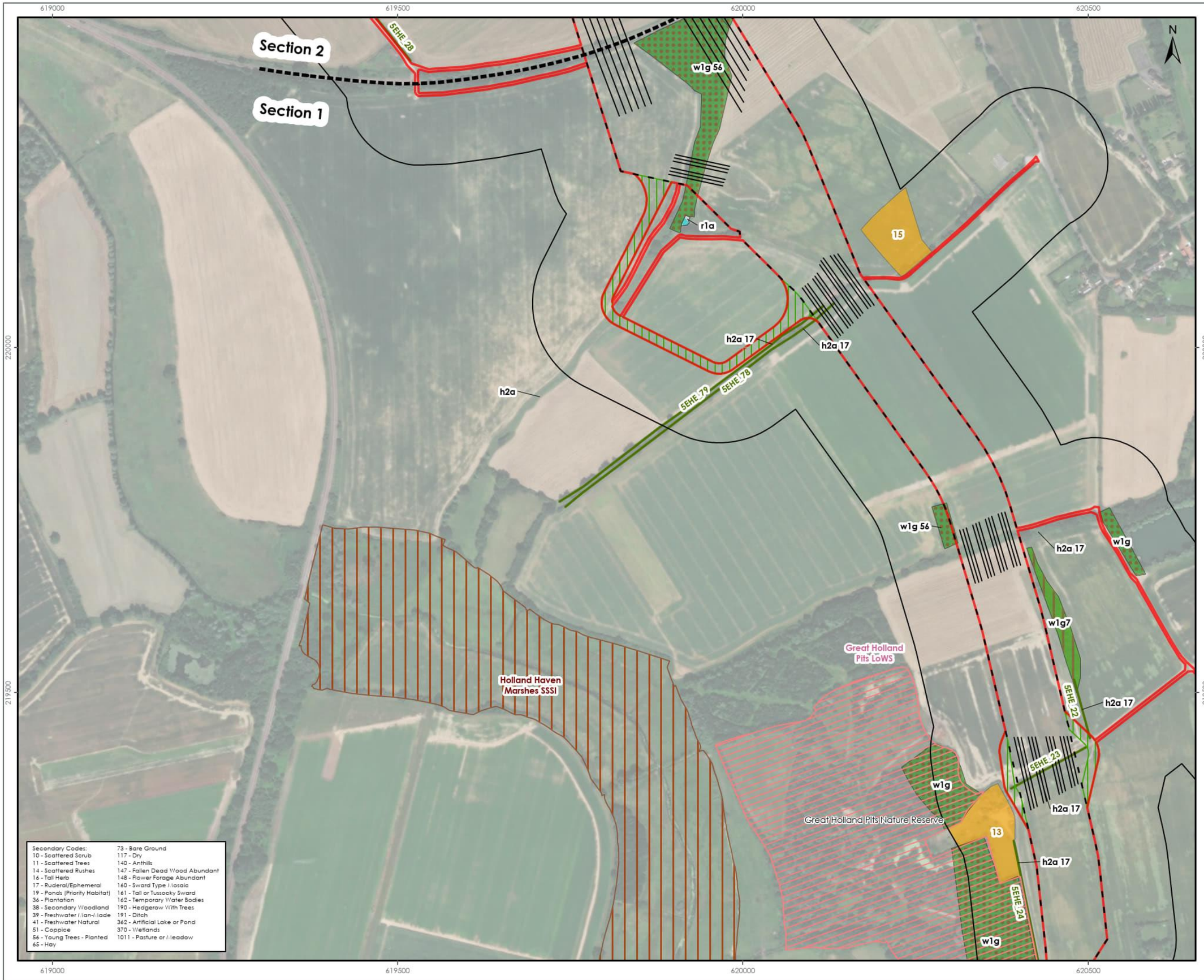
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Sheet No: 5 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Off Route Haul Road

Section 41 Habitats (Linear)

- h2a - Hedgerow (Priority Habitat)

Section 41 Habitats

- r1a - Eutrophic Standing Water

Other Important Habitats

- w1g - Other Woodland; Broadleaved
- w1g7 - Other Broadleaved Woodland Types

Statutory and Non-Statutory Sites

- Site of Special Scientific Interest (SSSI)
- Local Wildlife Site (LoWS)

Area with Potential Data Gaps

- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
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IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

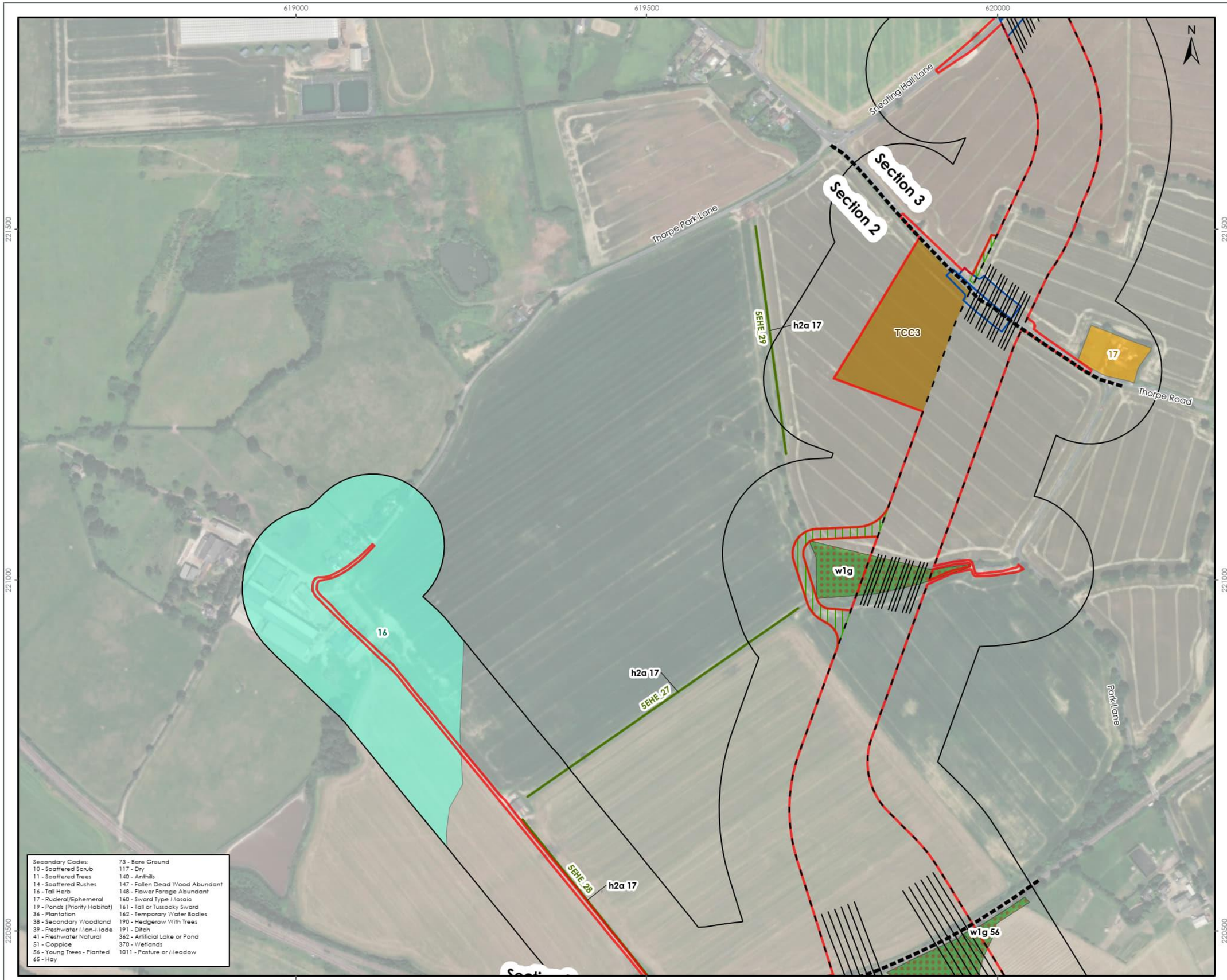
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DRAWING NUMBER: 4.4

Sheet No: 6 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WIND FARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Section 41 Habitats (Linear)

- h2a - Hedgerow (Priority Habitat)

Other Important Habitats

- w1g - Other Woodland; Broadleaved

Area with Potential Data Gaps

- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

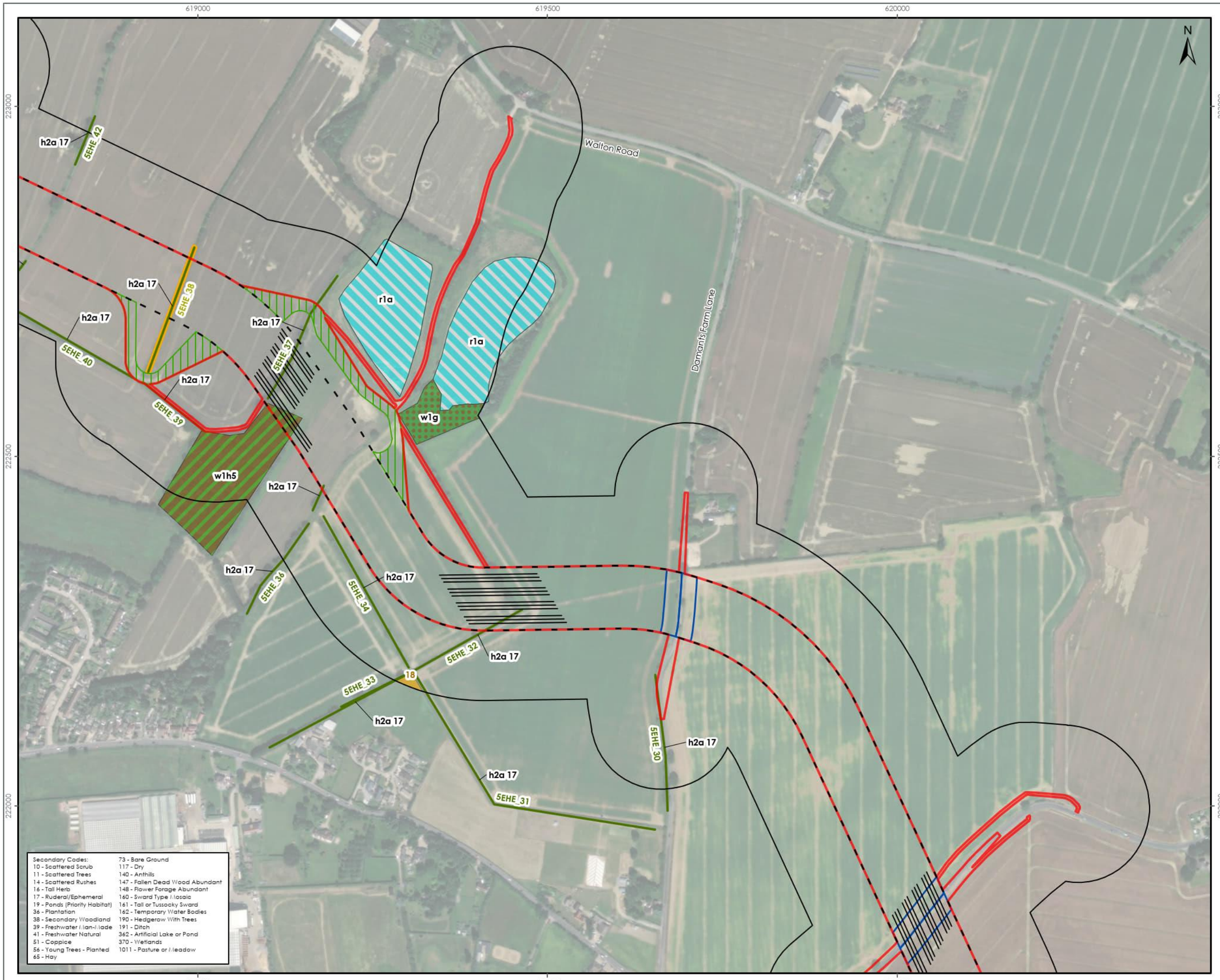
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1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 7 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WIND FARM



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Off Route Haul Road
- Access and Crossing Zone

Important Hedgrow (Hedgerow Regulations Assessment)

- Important Hedgerow (Under Schedule 1 Part II Section 6a : Protected Species Present)

Section 41 Habitats (Linear)

- h2a - Hedgerow (Priority Habitat)

Section 41 Habitats

- r1a - Eutrophic Standing Water

Other Important Habitats

- w1g - Other Woodland: Broadleaved
- w1h5 - Other Woodland: Mixed Mainly Broadleaved

Area with Potential Data Gaps

- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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PROJECT TITLE:
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DRAWING TITLE:
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VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 8 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WIND FARM

617500 618000 618500 619000

223500 223000

N

17 5EHE_57 h2a 17 5EHE_56 w1g 5EHE_54 h2a 17 5EHE_53 h2a 17 23 5EHE_44 h2a 17 22 Golden Lane

21 Landermere Road h2a 17 5EHE_42 5EHE_51 h2a 17 h2a 17 h2a 17 5EHE_43 20 5EHE_52 h2a 17 5EHE_41 19 h2a 17 5EHE_38 h2a 17 5EHE_40 h2a 17 5EHE_39 Thorpe-le-Soken

Secondary Codes:	73 - Bare Ground
10 - Scattered Scrub	117 - Dry
11 - Scattered Trees	140 - Anthills
14 - Scattered Rushes	147 - Fallen Dead Wood Abundant
16 - Tall Herb	148 - Flower Forage Abundant
17 - Ruderal/Ephemeral	160 - Sward Type Mosaic
19 - Ponds (Priority Habitat)	161 - Tall or Tussocky Sward
36 - Plantation	162 - Temporary Water Bodies
38 - Secondary Woodland	190 - Hedgerow With Trees
39 - Freshwater Man-Made	191 - Ditch
41 - Freshwater Natural	362 - Artificial Lake or Pond
51 - Coppice	370 - Wetlands
56 - Young Trees - Planted	1011 - Pasture or Meadow
65 - Hay	



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Off Route Haul Road
- Access and Crossing Zone

Important Hedgrow (Hedgerow Regulations Assessment)

- Important Hedgerow (Under Schedule 1 Part II Section 6a : Protected Species Present)
- Important Hedgerow (Under Schedule 1 Part II Section 7 : Plant Species and Features Present and Under Schedule 1 Part II Section 6a : Protected Species Present)

Section 41 Habitats (Linear)

- h2a - Hedgerow (Priority Habitat)

Other Important Habitats

- w1g - Other Woodland; Broadleaved
- w1h - Other Woodland; Mixed

Area with Potential Data Gaps

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Note.
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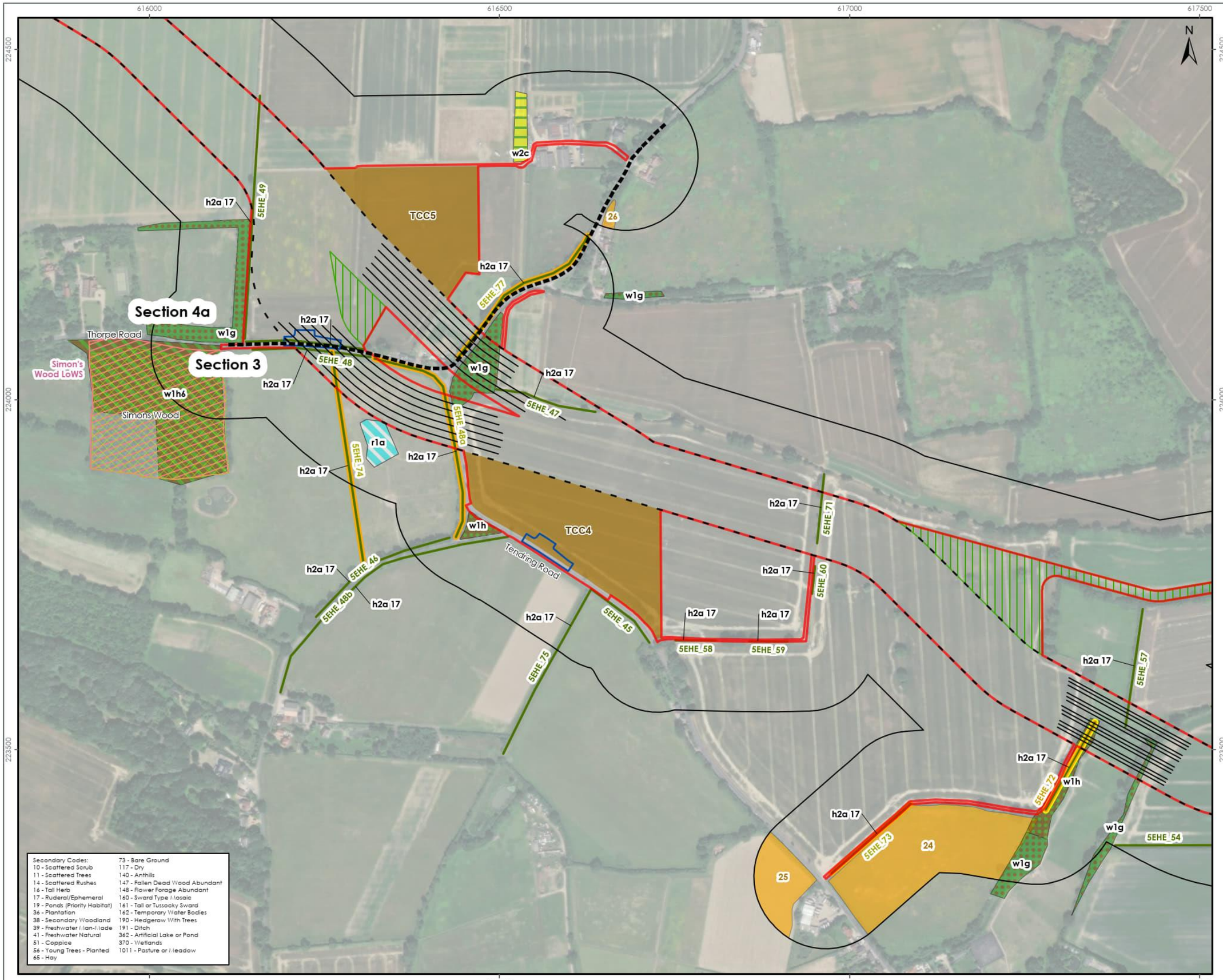
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Sheet No: 9 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WIND FARM



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Important Hedgrow (Hedgerow Regulations Assessment)

- Important Hedgerow (Under Schedule 1 Part II Section 6a : Protected Species Present)
- Important Hedgerow (Under Schedule 1 Part II Section 7 : Plant Species and Features Present and Under Schedule 1 Part II Section 6a : Protected Species Present)

Section 41 Habitats (Linear)

- h2a - Hedgerow (Priority Habitat)

Section 41 Habitats

- r1a - Eutrophic Standing Water

Other Important Habitats

- w1g - Other Woodland; Broadleaved
- w1h - Other Woodland; Mixed
- w1h6 - Other Woodland; Mixed; Mainly Conifer
- w2c - Other Coniferous Woodland
- Local Wildlife Site (LoWS)
- Ancient and Semi-Natural Woodland (Natural England)

Area with Potential Data Gaps

- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
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FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 10 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

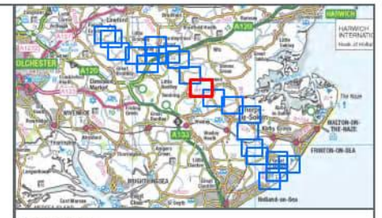
615000 615500 616000

225000 224500 224000

N

w1g
h2a 17
5EHE_61
Tendring Brook
r2b
w1h5 36
Section 4b
Section 4a
r1a
w1g
Lodge Lane
28
w1g
27
w1g
h2a 17
5EHE_62
h2a 17
5EHE_49
TCC5
h2a
Section 4a
Thorpe Road
w1g
Section 3
h2a 17
5EHE_77
5EHE_74
w1g
Simon's Wood LoWS
w1h6
h2a 17
5EHE_486
Simons Wood

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
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190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Important Hedgrow (Hedgerow Regulations Assessment)

- Important Hedgerow (Under Schedule 1 Part II Section 6a : Protected Species Present)

Section 41 Habitats (Linear)

- h2a - Hedgerow (Priority Habitat)
- r2b - Other River and Stream

Section 41 Habitats

- r1a - Eutrophic Standing Water

Other Important Habitats

- w1g - Other Woodland: Broadleaved
- w1h5 - Other Woodland: Mixed Mainly Broadleaved
- w1h6 - Other Woodland: Mixed: Mainly Conifer
- Local Wildlife Site (LoWS)
- Ancient and Semi-Natural Woodland (Natural England)

Area with Potential Data Gaps

- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

0 50 100 200
Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 11 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

614000 614500 615000 615500

226000

225500

N

5EHE_64

h2a 17

5EHE_63

h2a 17

w1g

r1a

r1a

w1g

w1g

h2a 17

5EHE_61

r2b

Tendring Brook

r1a

w1h5 36

Section

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Mosaic
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Off Route Haul Road
- Access and Crossing Zone

Section 41 Habitats (Linear)
- h2a - Hedgerow (Priority Habitat)
- r2b - Other River and Stream

Section 41 Habitats
- r1a - Eutrophic Standing Water

Other Important Habitats
- w1g - Other Woodland; Broadleaved
- w1h5 - Other Woodland; Mixed Mainly Broadleaved

Area with Potential Data Gaps
- No Survey Access To Date

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

0 50 100 200
Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 12 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WIND FARM

613000 613500 614000 614500

227500 227000 226500

N

Section 5

Section 4b

31

5EHE_69

5EHE_68

h2a 17

Colchester Road

h2a 17

5EHE_65

30

Stones Green Road

Tendring Heath

Secondary Codes:	73 - Bare Ground
10 - Scattered Scrub	117 - Dry
11 - Scattered Trees	140 - Anthills
14 - Scattered Rushes	147 - Fallen Dead Wood Abundant
16 - Tall Herb	148 - Flower Forage Abundant
17 - Ruderal/Ephemeral	160 - Sward Type Mosaic
19 - Ponds (Priority Habitat)	161 - Tall or Tussocky Sward
36 - Plantation	162 - Temporary Water Bodies
38 - Secondary Woodland	190 - Hedgerow With Trees
39 - Freshwater Man-Made	191 - Ditch
41 - Freshwater Natural	362 - Artificial Lake or Pond
51 - Coppice	370 - Wetlands
56 - Young Trees - Planted	1011 - Pasture or Meadow
65 - Hay	



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Off Route Haul Road
- Access and Crossing Zone

Section 41 Habitats (Linear)

- h2a - Hedgerow (Priority Habitat)

Area with Potential Data Gaps

- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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Metres

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IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 13 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WIND FARM

612500 613000 613500

228000 227500 227000

N

TCC7

w1g

32

31

Section 5

Section 4b

Colchester Road

h2a 17

5EHE 69

5EHE 68

h2a 17

h2a 17

5EHE 67

B1035

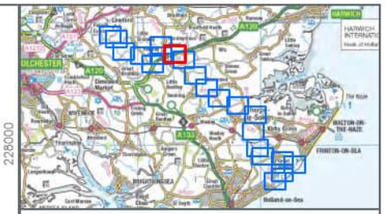
h2a 17

TCC6

5EHE 66

h2a 17

Secondary Codes:	73 - Bare Ground
10 - Scattered Scrub	117 - Dry
11 - Scattered Trees	140 - Anthills
14 - Scattered Rushes	147 - Fallen Dead Wood Abundant
16 - Tall Herb	148 - Flower Forage Abundant
17 - Ruderal/Ephemeral	160 - Sward Type Mosaic
19 - Ponds (Priority Habitat)	161 - Tall or Tussocky Sward
36 - Plantation	162 - Temporary Water Bodies
38 - Secondary Woodland	190 - Hedgerow With Trees
39 - Freshwater Man-Made	191 - Ditch
41 - Freshwater Natural	362 - Artificial Lake or Pond
51 - Coppice	370 - Wetlands
56 - Young Trees - Planted	1011 - Pasture or Meadow
65 - Hay	



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Important Hedgrow (Hedgerow Regulations Assessment)

- Important Hedgerow (Under Schedule 1 Part II Section 7 : Plant Species and Features Present)

Section 41 Habitats (Linear)

- h2a - Hedgerow (Priority Habitat)

Other Important Habitats

- w1g - Other Woodland; Broadleaved

Area with Potential Data Gaps

- No Survey Access To Date

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

0 50 100 200
Metres

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PROJECT TITLE:
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DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 14 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM

611500 612000 612500

228500 228000 227500

N

w1h5 w1g7 w1g7 w1g7 16

r1 39 191 269 r1 39 73 415 r1 39 191 r1 14 39 h2a 190 h2a 262 h2a 17 5EHE_72a r2b

TCC8 TCC7 h2a 17 5EHE_70 33 32 w1g

Clacton Road

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Mosaic
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Section 41 Habitats (Linear)
- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- r1 - Standing Open Water and Canals
- r2b - Other River and Stream

Section 41 Habitats
- r1 - Standing Open Water and Canals

Other Important Habitats
- w1g - Other Woodland; Broadleaved
- w1g7 - Other Broadleaved Woodland Types
- w1h5 - Other Woodland; Mixed Mainly Broadleaved

Area with Potential Data Gaps
- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 15 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

611500 612000 612500

228000 227500 227000

N

TCC8 TCC7 w1g

5EHE 70

r1 39 191 415 h2a 190 r1 14 39 h2a

411 410 w1g7 r1 10 11 19

262 5EHE 72a h2a 17

Clacton Road

r2b

r1 191 286

Holland Brook

5EHE 69

h2a 17

5EHE 67

h2a 190 421

B1035

f2e

h2a 17 5EHE 66 TCC6

A120 285

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Mosaic
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow

LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Important Hedgrow (Hedgerow Regulations Assessment)
- Important Hedgerow (Under Schedule 1 Part II Section 7 : Plant Species and Features Present)

Section 41 Habitats (Linear)
- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- r1 - Standing Open Water and Canals
- r2b - Other River and Stream

Section 41 Habitats
- f2e - Reedbeds
- r1 - Standing Open Water and Canals

Other Important Habitats
- w1g - Other Woodland: Broadleaved
- w1g7 - Other Broadleaved Woodland Types

Area with Potential Data Gaps
- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation and Walkover from Public Right of Way Used (2023)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 16 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

610500 611000 611500 612000

227000 226500 226000

TCC11

Section 5

Section 6

N

r2b

h2a 190

421

r1 39 191

r1 39

f2e

190

h2

418

300

r1 16 17 39 191

423

34

290

294

291

A120

285

h2a

288

289

w1g7

w1

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Mosaic
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow

LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Temporary Construction Compound

Section 41 Habitats (Linear)
- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- r1 - Standing Open Water and Canals
- r2b - Other River and Stream

Section 41 Habitats
- f2e - Reedbeds
- r1 - Standing Open Water and Canals

Other Important Habitats
- w1 - Broadleaved Mixed and Yew Woodland
- w1g7 - Other Broadleaved Woodland Types

Area with Potential Data Gaps
- No Survey Access To Date: Aerial Image Interpretation and Walkover from Public Right of Way Used (2023)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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FIVE ESTUARIES OFFSHORE WINDFARM

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IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 17 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

609500 610000 610500 611000

228000 227500 227000

N

h2a 11 190
408
35
36
w1
305
h2
309
c1a6 117 148 161
37
h2a 190
425
310
308
312
h2
h2a 191
318
r1 39 162
c1a6 117 148 161
h2a 190
316
317
38
h2
w1h5 38
315
319
Paynes Lane
TCC9
TCC10
TCC11
301
417
Section 5
Section 6
418
300
h2a 190
r2b
h2a 190
421
h2a 190
421
421
h2a 190
412
409
411
410
w1g7
r1 10
284
r1 39 191
r1 39
f2e
h2
h2
r1 16 17 39 191
h2a 190
422
423
h2a 190
34
h2
296
290
h2
h2
291
289
h2

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Mosaic
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Substation Temporary Construction Haul Road
- Temporary Construction Compound
- Access and Crossing Zone

Section 41 Habitats (Linear)
- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- r1 - Standing Open Water and Canals
- r2b - Other River and Stream

Section 41 Habitats
- c1a6 - Arable Margins Sown with Wild Flowers or a Pollen and Nectar Mix
- f2e - Reedbeds
- r1 - Standing Open Water and Canals

Other Important Habitats
- w1 - Broadleaved Mixed and Yew Woodland
- w1g7 - Other Broadleaved Woodland Types
- w1h5 - Other Woodland: Mixed Mainly Broadleaved

Area with Potential Data Gaps
- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation Used (2022)
- No Survey Access To Date: Aerial Image Interpretation and Walkover from Public Right of Way Used (2023)

Note.
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FIVE ESTUARIES OFFSHORE WINDFARM

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IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 18 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

608000 608500 609000 609500

228000 227500 227000

N

r1 39 191
WF
g3a 148 1011
c1a8
h2a 190
w1h5 38
350
h2a 190
428
r1 39 162
c1a8
r1 39 162
c1a8
c1a6 16 17 73 148
332
330
329
326
Little Bromley Churchyard LoWS
r1 39 362
Spratts Lane
g3a 117 140 148 160
c1a6 16 17 73 148
h2a
h2a
333
323
h2a 191
318
h2a 190
317
38
319

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Mosaic
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor
- Ardleigh Road Drainage Zone
- Substation Temporary Construction Haul Road
- Access and Crossing Zone

Invasive Species (Field Survey 2022)
- WF Water Fern

Section 41 Habitats (Linear)
- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- r1 - Standing Open Water and Canals

Section 41 Habitats
- c1a6 - Arable Margins Sown with Wild Flowers or a Pollen and Nectar Mix
- c1a8 - Game Bird Mix Strips and Corners
- g3a - Lowland Meadows
- r1 - Standing Open Water and Canals

Other Important Habitats
- w1h5 - Other Woodland; Mixed Mainly Broadleaved
- Local Wildlife Site (LoWS)

Area with Potential Data Gaps
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

0 50 100 200
Metres

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FIVE ESTUARIES OFFSHORE WINDFARM

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VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 19 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

607000 607500 608000 608500

229500

229000

228500

N

r1 39
w1h5 36
h2 190
370
c1a6 10 148
h2a 190
c1a6 148 161
w1h5 36
396
w1
w1h5 36
w1h5
h2a 190
h2
h2
402
397
w1h6 36
w1h5 38
w1f7 38
434
w1h5 36
h2b
435
h2a 190
41
h2a 190
w1f7 51
374
381
392
w1h5 36
r1 41 362
w1h5 38
433
h2a 190
40
432
h2a 190
h2
395
w1
h2
Section 7
Section 6
384
379
h2a
w1
w1
39
w1
w1f7 38
h2a
427
339
h2a
h2a 190
429
355
h2a 190
h2a 190
r1 39 162
r1 39 191
426
h2a

Secondary Codes:	
10 - Scattered Scrub	73 - Bare Ground
11 - Scattered Trees	117 - Dry
14 - Scattered Rushes	140 - Anthills
16 - Tall Herb	147 - Fallen Dead Wood Abundant
17 - Ruderal/Ephemeral	148 - Flower Forage Abundant
19 - Ponds (Priority Habitat)	160 - Sward Type Mosaic
36 - Plantation	161 - Tall or Tussocky Sward
38 - Secondary Woodland	162 - Temporary Water Bodies
39 - Freshwater Man-Made	190 - Hedgerow With Trees
41 - Freshwater Natural	191 - Ditch
51 - Coppice	362 - Artificial Lake or Pond
56 - Young Trees - Planted	370 - Wetlands
65 - Hay	1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Substation Operational Boundary
- Substation Works Area
- Ardleigh Road Drainage Zone
- Indicative Substation Access Route
- Substation Temporary Construction Haul Road
- North Falls Indicative Substation Operational Boundary
- Access and Crossing Zone
- National Grid EACN Substation Zone

Notable Plants (Field Survey 2022)

- Corn Spurrey

Section 41 Habitats (Linear)

- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- h2b - Other Hedgerow
- r1 - Standing Open Water and Canals

Section 41 Habitats

- c1a6 - Arable Margins Sown with Wild Flowers or a Pollen and Nectar Mix
- g3a - Lowland Meadows
- r1 - Standing Open Water and Canals
- w1f7 - Other Lowland Mixed Deciduous Woodland

Other Important Habitats

- w1 - Broadleaved Mixed and Yew Woodland
- w1h5 - Other Woodland; Mixed Mainly Broadleaved
- w1h6 - Other Woodland; Mixed; Mainly Conifer

Area with Potential Data Gaps

- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

0 50 100 200
Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 21 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WIND FARM

607500 608000 608500 609000

229000 228500 228000

w1h5 36
w1f7 38
w1h5
h2a
427
339
h2a
h2a 190
429
355
h2a 190
h2a 190
w1f7 51
374
381
h2a
379
384
Section 7
Section 6
w1
w1
39
w1
r1 39 162
r1 39 191
426
h2a
Ardleigh Road
r1 39 191
WP
g3a 148 1011
c1a8
332
w1h5 38
h2a 190
350
h2a 190
428
r1 39 162

N

Secondary Codes:	73 - Bare Ground
10 - Scattered Scrub	117 - Dry
11 - Scattered Trees	140 - Anthills
14 - Scattered Rushes	147 - Fallen Dead Wood Abundant
16 - Tall Herb	148 - Flower Forage Abundant
17 - Ruderal/Ephemeral	160 - Sward Type Mosaic
19 - Ponds (Priority Habitat)	161 - Tall or Tussocky Sward
36 - Plantation	162 - Temporary Water Bodies
38 - Secondary Woodland	190 - Hedgerow With Trees
39 - Freshwater Man-Made	191 - Ditch
41 - Freshwater Natural	362 - Artificial Lake or Pond
51 - Coppice	370 - Wetlands
56 - Young Trees - Planted	1011 - Pasture or Meadow
65 - Hay	



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Substation Operational Boundary
- Substation Works Area
- Ardleigh Road Drainage Zone
- Indicative Substation Access Route
- Substation Temporary Construction Haul Road
- North Falls Indicative Substation Operational Boundary
- Access and Crossing Zone
- National Grid EACN Substation Zone

Notable Plants (Field Survey 2022)
- Corn Spurrey

Invasive Species (Field Survey 2022)
- Water Fern

Section 41 Habitats (Linear)
- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- r1 - Standing Open Water and Canals

Section 41 Habitats
- c1a6 - Arable Margins Sown with Wild Flowers or a Pollen and Nectar Mix
- c1a8 - Game Bird Mix Strips and Corners
- g3a - Lowland Meadows
- w1f7 - Other Lowland Mixed Deciduous Woodland

Other Important Habitats
- w1 - Broadleaved Mixed and Yew Woodland
- w1h5 - Other Woodland; Mixed Mainly Broadleaved

Area with Potential Data Gaps
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

0 50 100 200
Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 20 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

620500 621000 621500 622000

217500 217000 216500

N

Holland Haven

Holland Haven Marshes SSSI

Holland Brook

Sewage Works 3

Beach Works TCC

2

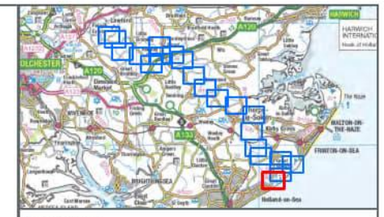
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Clacton Road

w1h

w1h

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Mosaic
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Temporary Beach Access Zone
- Temporary Construction Compound
- Access and Crossing Zone

Other Important Habitats
- w1h - Other Woodland; Mixed

Priority Habitat Inventory England
- Coastal and Floodplain Grazing Marsh (Natural England)

Statutory and Non-Statutory Sites
- Site of Special Scientific Interest (SSSI)

Area with Potential Data Gaps
- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 1 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

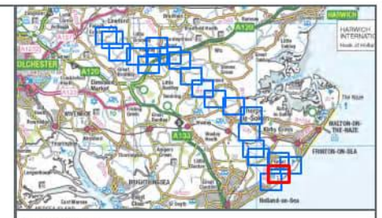
FIVE ESTUARIES OFFSHORE WINDFARM

621500 622000 622500

218000 217500

5EHE_10
5EHE_17
h2a 17
h2a 17
5EHE_20
g4 65 191 370
c1a8
Short Lane
Holland Haven
Holland Haven Marshes SSSI
Holland Brook
Sewage Works
3
Beach Works TCC
2
N

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Mosaic
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Offshore Order Limits
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Beach Access Zone
- Temporary Construction Compound
- Access and Crossing Zone
- Landfall Compound Zone
- Indicative Landfall Compound
- Landfall Exit Pit Sheet Piling Zone

Section 41 Habitats (Linear)
- h2a - Hedgerow (Priority Habitat)

Section 41 Habitats
- c1a8 - Game Bird Mix Strips and Corners
- g4 - Modified Grassland

Priority Habitat Inventory England
- Coastal and Floodplain Grazing Marsh (Natural England)

Statutory and Non-Statutory Sites
- Site of Special Scientific Interest (SSSI)

Area with Potential Data Gaps
- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 2 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WIND FARM

622500 623000 623500

219000 218500 218000

N

Short Lane

5

4

h2a 17

5EHE 16

h2a 17

5EHE 19

h2a 17

5EHE 18

5EHE 17

h2a 17

h2a 17

5EHE 20

c1a8

Short Lane

Frinton Golf Course

Holland Haven Marshes SSSI

g4 65 191 370

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Mosaic
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Offshore Order Limits
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Beach Access Zone
- Landfall Compound Zone
- Indicative Landfall Compound
- Landfall Exit Pit Sheet Piling Zone

Section 41 Habitats (Linear)
- h2a - Hedgerow (Priority Habitat)

Section 41 Habitats
- c1a8 - Game Bird Mix Strips and Corners
- g4 - Modified Grassland

Priority Habitat Inventory England
- Coastal and Floodplain Grazing Marsh (Natural England)

Statutory and Non-Statutory Sites
- Site of Special Scientific Interest (SSSI)

Area with Potential Data Gaps
- No Survey Access To Date

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 3 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WIND FARM

621000 621500 622000 622500

219000 218500

N

Great Holland

Hollandhall Wood LoWS

Clacton Road

Short Lane

Holland Haven Marshes SSSI

TCC1

TCC2

5

6

7

8

9

h2a 17

5EHE_01

5EHE_02

5EHE_04

5EHE_05

5EHE_06

5EHE_07

5EHE_08

5EHE_09

5EHE_10

5EHE_15

5EHE_16

5EHE_17

5EHE_18

5EHE_19

5EHE_20

5EHE_92

5EHE_93

c1a8

w1h5

g4 65 191 370

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Mosaic
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone
- Landfall Compound Zone
- Indicative Landfall Compound

Important Hedgrow (Hedgerow Regulations Assessment)
- Important Hedgerow (Under Schedule 1 Part II Section 7 : Plant Species and Features Present)

Section 41 Habitats (Linear)
- h2a - Hedgerow (Priority Habitat)

Section 41 Habitats
- c1a8 - Game Bird Mix Strips and Corners
- g4 - Modified Grassland

Other Important Habitats
- w1h5 - Other Woodland; Mixed Mainly Broadleaved

Priority Habitat Inventory England
- Coastal and Floodplain Grazing Marsh (Natural England)

Statutory and Non-Statutory Sites
- Site of Special Scientific Interest (SSSI)
- Local Wildlife Site (LoWS)
- Ancient and Semi-Natural Woodland (Natural England)

Area with Potential Data Gaps
- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

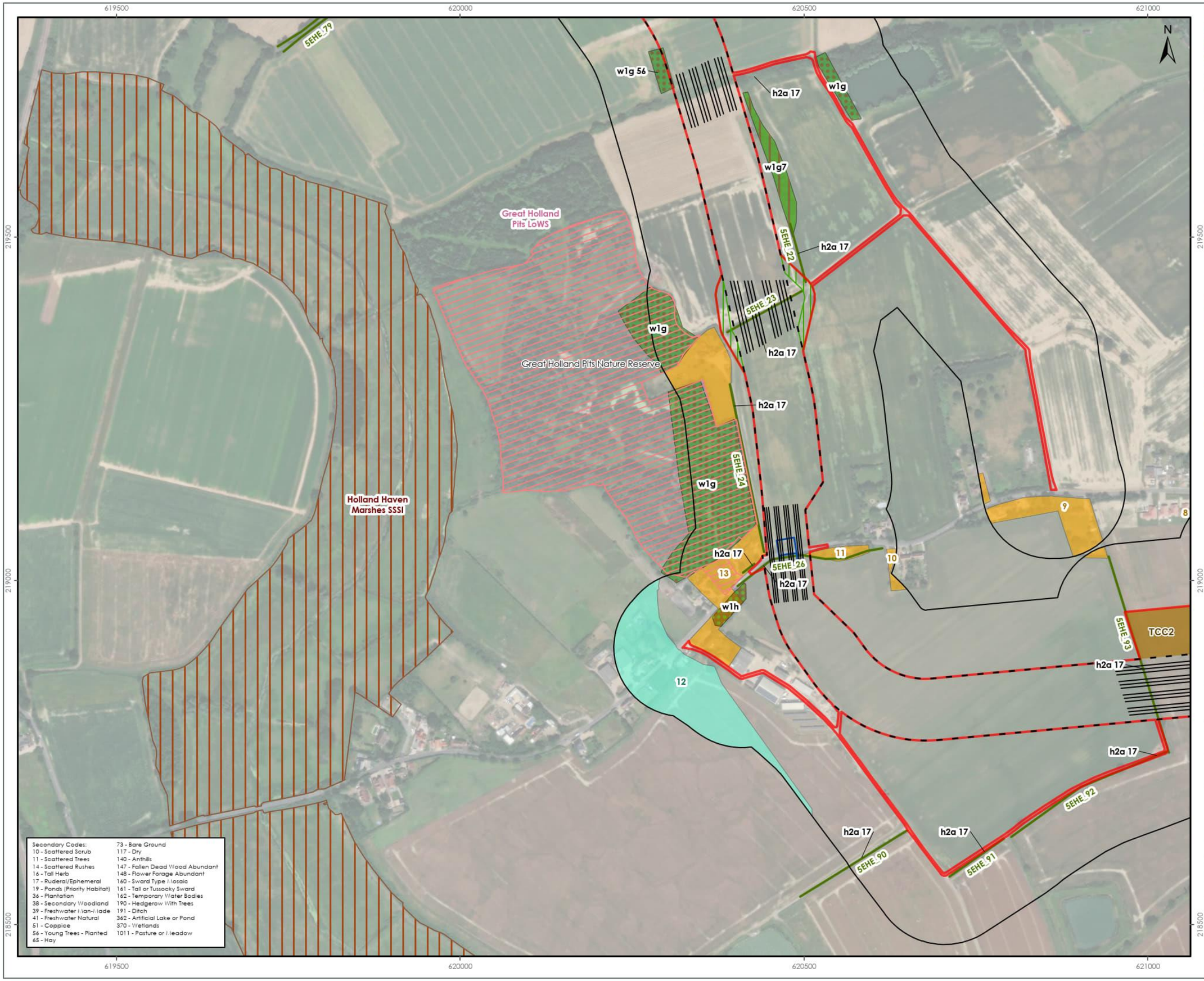
VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 4 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Section 41 Habitats (Linear)

- h2a - Hedgerow (Priority Habitat)

Other Important Habitats

- w1g - Other Woodland; Broadleaved
- w1g7 - Other Broadleaved Woodland Types
- w1h - Other Woodland; Mixed

Statutory and Non-Statutory Sites

- Site of Special Scientific Interest (SSSI)
- Local Wildlife Site (LoWS)

Area with Potential Data Gaps

- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 5 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WIND FARM

619000 619500 620000 620500

220000

219500

Section 2

Section 1

SEHE_28

w1g 56

r1a

15

h2a 17

h2a 17

h2a

SEHE_79

SEHE_78

w1g 56

h2a 17

w1g

w1g7

Great Holland Pits LoWS

5EHE_22

h2a 17

Holland Haven Marshes SSSI

5EHE_23

w1g

h2a 17

Great Holland Pits Nature Reserve

13

h2a 17

5EHE_24

w1g

N

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Miscia
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow

LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Off Route Haul Road

Section 41 Habitats (Linear)
- h2a - Hedgerow (Priority Habitat)

Section 41 Habitats
- r1a - Eutrophic Standing Water

Other Important Habitats
- w1g - Other Woodland; Broadleaved
- w1g7 - Other Broadleaved Woodland Types

Statutory and Non-Statutory Sites
- Site of Special Scientific Interest (SSSI)
- Local Wildlife Site (LoWS)

Area with Potential Data Gaps
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
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Metres

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FIVE ESTUARIES OFFSHORE WINDFARM

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IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 6 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WIND FARM

619000
619500
620000
221500
221000
220500
N
Sheating Holl Lane
Thorpe Park Lane
Thorpe Road
Section 2
Section 3
TCC3
17
5EHE 29
h2a 17
w1g
16
h2a 17
5EHE 27
5EHE 28
h2a 17
w1g 56
Pork Lane

Secondary Codes:	73 - Bare Ground
10 - Scattered Scrub	117 - Dry
11 - Scattered Trees	140 - Anthills
14 - Scattered Rushes	147 - Fallen Dead Wood Abundant
16 - Tall Herb	148 - Flower Forage Abundant
17 - Ruderal/Ephemeral	160 - Sward Type Mosaic
19 - Ponds (Priority Habitat)	161 - Tall or Tussocky Sward
36 - Plantation	162 - Temporary Water Bodies
38 - Secondary Woodland	190 - Hedgerow With Trees
39 - Freshwater Man-Made	191 - Ditch
41 - Freshwater Natural	362 - Artificial Lake or Pond
51 - Coppice	370 - Wetlands
56 - Young Trees - Planted	1011 - Pasture or Meadow
65 - Hay	



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Section 41 Habitats (Linear)

- h2a - Hedgerow (Priority Habitat)

Other Important Habitats

- w1g - Other Woodland: Broadleaved

Area with Potential Data Gaps

- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

0 50 100 200
Metres

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IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 7 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM

619000 619500 620000

223000 222500 222000

N

Walton Road

Damants Farm Lane

h2a 17 5EHE_42

h2a 17 5EHE_38

h2a 17 5EHE_40

h2a 17 5EHE_37

h2a 17 5EHE_39

r1a

r1a

w1g

w1h5

h2a 17

h2a 17 5EHE_36

h2a 17 5EHE_34

h2a 17

5EHE_32

18

5EHE_33

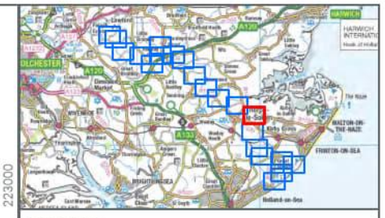
h2a 17

h2a 17 5EHE_30

h2a 17

5EHE_31

Secondary Codes:	
10 - Scattered Scrub	73 - Bare Ground
11 - Scattered Trees	117 - Dry
14 - Scattered Rushes	140 - Anthills
16 - Tall Herb	147 - Fallen Dead Wood Abundant
17 - Ruderal/Ephemeral	148 - Flower Forage Abundant
19 - Ponds (Priority Habitat)	160 - Sward Type Mosaic
36 - Plantation	161 - Tall or Tussocky Sward
38 - Secondary Woodland	162 - Temporary Water Bodies
39 - Freshwater Man-Made	190 - Hedgerow With Trees
41 - Freshwater Natural	191 - Ditch
51 - Coppice	362 - Artificial Lake or Pond
56 - Young Trees - Planted	370 - Wetlands
65 - Hay	1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Off Route Haul Road
- Access and Crossing Zone

Important Hedgrow (Hedgerow Regulations Assessment)

- Important Hedgerow (Under Schedule 1 Part II Section 6a : Protected Species Present)

Section 41 Habitats (Linear)

- h2a - Hedgerow (Priority Habitat)

Section 41 Habitats

- r1a - Eutrophic Standing Water

Other Important Habitats

- w1g - Other Woodland; Broadleaved
- w1h5 - Other Woodland; Mixed Mainly Broadleaved

Area with Potential Data Gaps

- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

0 50 100 200
Metres

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Aerial Imagery (2021) Source: Maxar, Microsoft

PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 8 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WIND FARM

617500 618000 618500 619000

223500 223000

N

17 5EHE_57 h2a 17 5EHE_56 w1g 5EHE_54 h2a 17 5EHE_53 h2a 17 23 Golden Lane 5EHE_44 h2a 17 22 21 Landermere Road h2a 17 5EHE_42 h2a 17 5EHE_51 h2a 17 h2a 17 5EHE_43 20 5EHE_52 19 h2a 17 5EHE_41 h2a 17 5EHE_38 h2a 17 5EHE_40 h2a 17 5EHE_39 Thorpe-le-Soken

Secondary Codes:	73 - Bare Ground
10 - Scattered Scrub	117 - Dry
11 - Scattered Trees	140 - Anthills
14 - Scattered Rushes	147 - Fallen Dead Wood Abundant
16 - Tall Herb	148 - Flower Forage Abundant
17 - Ruderal/Ephemeral	160 - Sward Type Mosaic
19 - Ponds (Priority Habitat)	161 - Tall or Tussocky Sward
36 - Plantation	162 - Temporary Water Bodies
38 - Secondary Woodland	190 - Hedgerow With Trees
39 - Freshwater Man-Made	191 - Ditch
41 - Freshwater Natural	362 - Artificial Lake or Pond
51 - Coppice	370 - Wetlands
56 - Young Trees - Planted	1011 - Pasture or Meadow
65 - Hay	



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Off Route Haul Road
- Access and Crossing Zone

Important Hedgrow (Hedgerow Regulations Assessment)

- Important Hedgerow (Under Schedule 1 Part II Section 6a : Protected Species Present)
- Important Hedgerow (Under Schedule 1 Part II Section 7 : Plant Species and Features Present and Under Schedule 1 Part II Section 6a : Protected Species Present)

Section 41 Habitats (Linear)

- h2a - Hedgerow (Priority Habitat)

Other Important Habitats

- w1g - Other Woodland; Broadleaved
- w1h - Other Woodland; Mixed

Area with Potential Data Gaps

- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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Metres

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Aerial Imagery (2021) Source: Maxar, Microsoft

PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

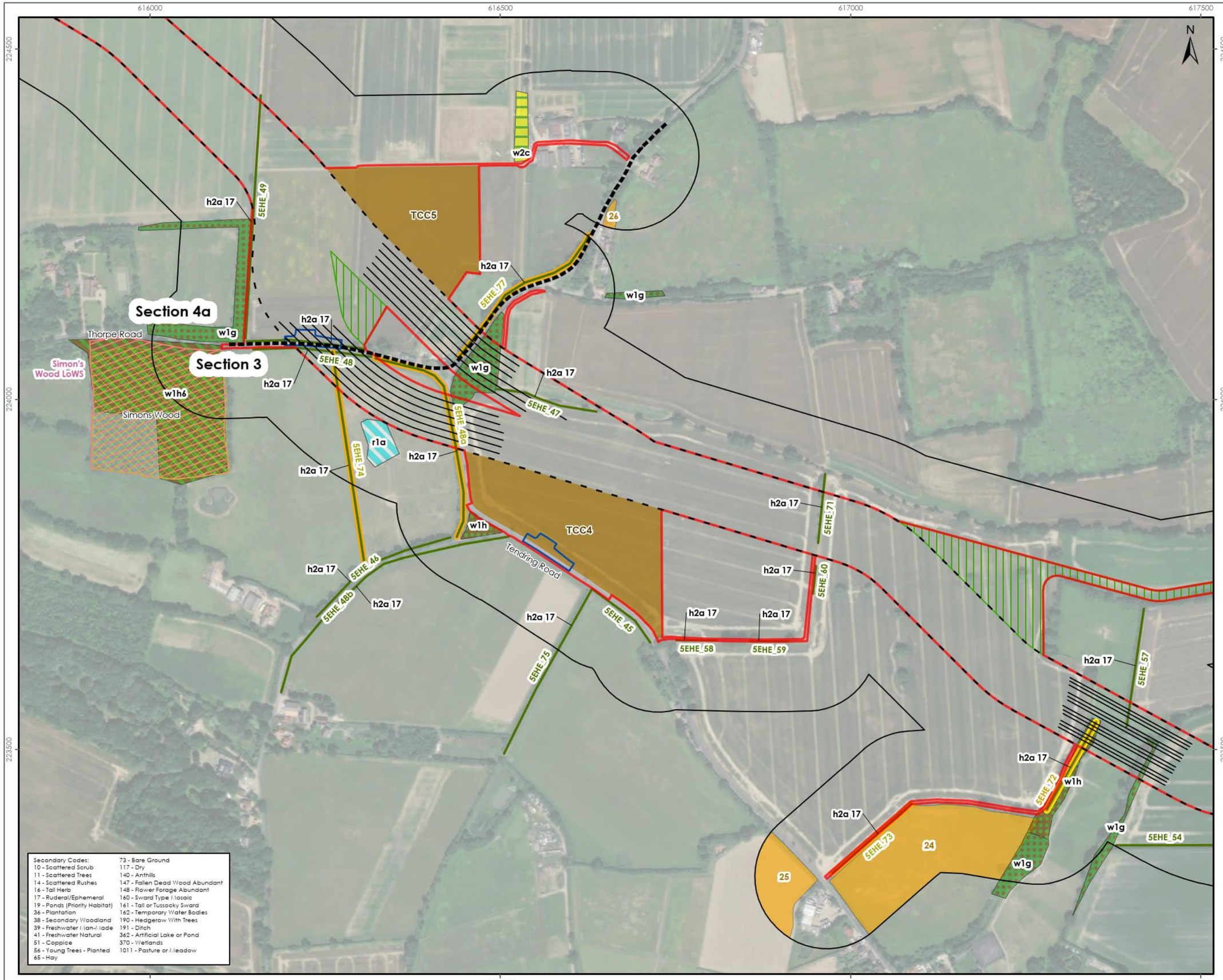
VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 9 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WIND FARM



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Important Hedgrow (Hedgerow Regulations Assessment)

- Important Hedgerow (Under Schedule 1 Part II Section 6a : Protected Species Present)
- Important Hedgerow (Under Schedule 1 Part II Section 7 : Plant Species and Features Present and Under Schedule 1 Part II Section 6a : Protected Species Present)

Section 41 Habitats (Linear)

- h2a - Hedgerow (Priority Habitat)

Section 41 Habitats

- r1a - Eutrophic Standing Water

Other Important Habitats

- w1g - Other Woodland; Broadleaved
- w1h - Other Woodland; Mixed
- w1h6 - Other Woodland; Mixed; Mainly Conifer
- w2c - Other Coniferous Woodland
- Local Wildlife Site (LoWS)
- Ancient and Semi-Natural Woodland (Natural England)

Area with Potential Data Gaps

- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

0 50 100 200
Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 10 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

615000 615500 616000

225000 224500 224000

N

w1g
h2a 17
SEHE 61
Tending Brook
r2b
w1h5 36
Section 4b
Section 4a
r1a
w1g
Lodge Lane
28
w1g
27
w1g
h2a 17
SEHE 62
w1g
h2a 17
SEHE 49
TCC5
h2a
Section 4a
Thorpe Road
w1g
h2a 17
Section 3
SEHE 77
SEHE 74
w1g
Simon's Wood LoWS
w1h6
Simons Wood
SEHE 48a

Secondary Codes:	
10 - Scattered Scrub	73 - Bare Ground
11 - Scattered Trees	117 - Dry
14 - Scattered Rushes	140 - Anthills
16 - Tall Herb	147 - Fallen Dead Wood Abundant
17 - Ruderal/Ephemeral	148 - Flower Forage Abundant
19 - Ponds (Priority Habitat)	160 - Sward Type Mosaic
36 - Plantation	161 - Tall or Tussocky Sward
38 - Secondary Woodland	162 - Temporary Water Bodies
39 - Freshwater Man-Made	190 - Hedgerow With Trees
41 - Freshwater Natural	191 - Ditch
51 - Coppice	362 - Artificial Lake or Pond
56 - Young Trees - Planted	370 - Wetlands
65 - Hay	1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Important Hedgrow (Hedgerow Regulations Assessment)

- Important Hedgerow (Under Schedule 1 Part II Section 6a : Protected Species Present)

Section 41 Habitats (Linear)

- h2a - Hedgerow (Priority Habitat)
- r2b - Other River and Stream

Section 41 Habitats

- r1a - Eutrophic Standing Water

Other Important Habitats

- w1g - Other Woodland; Broadleaved
- w1h5 - Other Woodland; Mixed Mainly Broadleaved
- w1h6 - Other Woodland; Mixed; Mainly Conifer
- Local Wildlife Site (LoWS)
- Ancient and Semi-Natural Woodland (Natural England)

Area with Potential Data Gaps

- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 11 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

614000 614500 615000 615500

226000

225500

N

5EHE_64

5EHE_63

h2a 17

h2a 17

w1g

r1a

r1a

w1g

w1g

h2a 17

5EHE_61

r1a

r2b

w1h5 36

Tendring Brook

Section

Secondary Codes:	
10 - Scattered Scrub	73 - Bare Ground
11 - Scattered Trees	117 - Dry
14 - Scattered Rushes	140 - Anthills
16 - Tall Herb	147 - Fallen Dead Wood Abundant
17 - Ruderal/Ephemeral	148 - Flower Forage Abundant
19 - Ponds (Priority Habitat)	160 - Sward Type Mosaic
36 - Plantation	161 - Tall or Tussocky Sward
38 - Secondary Woodland	162 - Temporary Water Bodies
39 - Freshwater Man-Made	190 - Hedgerow With Trees
41 - Freshwater Natural	191 - Ditch
51 - Coppice	362 - Artificial Lake or Pond
56 - Young Trees - Planted	370 - Wetlands
65 - Hay	1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Off Route Haul Road
- Access and Crossing Zone

Section 41 Habitats (Linear)

- h2a - Hedgerow (Priority Habitat)
- r2b - Other River and Stream

Section 41 Habitats

- r1a - Eutrophic Standing Water

Other Important Habitats

- w1g - Other Woodland; Broadleaved
- w1h5 - Other Woodland; Mixed Mainly Broadleaved

Area with Potential Data Gaps

- No Survey Access To Date

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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DRAWING TITLE:

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VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 12 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WIND FARM

613000 613500 614000 614500

227500 227000 226500

N

Section 5

Section 4b

31

5EHE_69

5EHE_68

h2a 17

Colchester Road

h2a 17

5EHE_65

30

Stones Green Road

Tendring Heath

Secondary Codes:	73 - Bare Ground
10 - Scattered Scrub	117 - Dry
11 - Scattered Trees	140 - Anthills
14 - Scattered Rushes	147 - Fallen Dead Wood Abundant
16 - Tall Herb	148 - Flower Forage Abundant
17 - Ruderal/Ephemeral	160 - Sward Type Mosaic
19 - Ponds (Priority Habitat)	161 - Tall or Tussocky Sward
36 - Plantation	162 - Temporary Water Bodies
38 - Secondary Woodland	190 - Hedgerow With Trees
39 - Freshwater Man-Made	191 - Ditch
41 - Freshwater Natural	362 - Artificial Lake or Pond
51 - Coppice	370 - Wetlands
56 - Young Trees - Planted	1011 - Pasture or Meadow
65 - Hay	



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Off Route Haul Road
- Access and Crossing Zone

Section 41 Habitats (Linear)

- h2a - Hedgerow (Priority Habitat)

Area with Potential Data Gaps

- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 13 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WIND FARM

612500 613000 613500

228000 227500 227000

N

TCC7 w1g 32 31 TCC6

Section 5 Section 4b

Colchester Road

B1035

h2a 17 5EHE_69 5EHE_68 5EHE_67 5EHE_66

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Mosaic
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow

LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Important Hedgrow (Hedgerow Regulations Assessment)
- Important Hedgerow (Under Schedule 1 Part II Section 7 : Plant Species and Features Present)

Section 41 Habitats (Linear)
- h2a - Hedgerow (Priority Habitat)

Other Important Habitats
- w1g - Other Woodland; Broadleaved

Area with Potential Data Gaps
- No Survey Access To Date

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 14 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

611500 612000 612500

228500 228000 227500

N

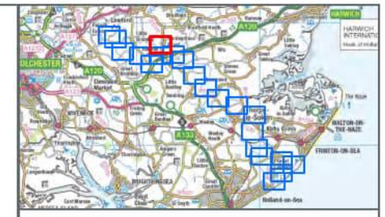
w1h5 w1g7 w1g7 w1g7 16

r1 39 191 269 r1 39 73 415 r1 39 191 r1 14 39 h2a 190 h2a 262 h2a 17 5EHE_72a r2b

32 33 TCC8 h2a 17 5EHE_70 TCC7 w1g

Clacton Road

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Mosaic
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Section 41 Habitats (Linear)
- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- r1 - Standing Open Water and Canals
- r2b - Other River and Stream

Section 41 Habitats
- r1 - Standing Open Water and Canals

Other Important Habitats
- w1g - Other Woodland; Broadleaved
- w1g7 - Other Broadleaved Woodland Types
- w1h5 - Other Woodland; Mixed Mainly Broadleaved

Area with Potential Data Gaps
- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 15 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

611500 612000 612500

228000 227500 227000

N

TCC8 TCC7 w1g

5EHE_70

r1 39 191 415 h2a 190 r1 14 39 h2a

411 410 w1g7 r1 10 11 19

262 5EHE_72a h2a 17

r2b

r1 191 284

Holland Brook

Clacton Road

5EHE_69 h2a 17 5EHE_67

B1035

h2a 190 421

f2e

5EHE_66 h2a 17 TCC6

A120 285

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Mosaic
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Important Hedgrow (Hedgerow Regulations Assessment)
- Important Hedgerow (Under Schedule 1 Part II Section 7 : Plant Species and Features Present)

Section 41 Habitats (Linear)
- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- r1 - Standing Open Water and Canals
- r2b - Other River and Stream

Section 41 Habitats
- f2e - Reedbeds
- r1 - Standing Open Water and Canals

Other Important Habitats
- w1g - Other Woodland: Broadleaved
- w1g7 - Other Broadleaved Woodland Types

Area with Potential Data Gaps
- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation and Walkover from Public Right of Way Used (2023)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 16 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

610500 611000 611500 612000

227000 226500 226000

TCC11

Section 5

Section 6

N

r2b

h2a 190

r1 39 191

f2e

r1 39

h2

r1 16 17 39 191

34

A120

w1g7

w1

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Mosaic
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow

LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Temporary Construction Compound

Section 41 Habitats (Linear)
- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- r1 - Standing Open Water and Canals
- r2b - Other River and Stream

Section 41 Habitats
- f2e - Reedbeds
- r1 - Standing Open Water and Canals

Other Important Habitats
- w1 - Broadleaved Mixed and Yew Woodland
- w1g7 - Other Broadleaved Woodland Types

Area with Potential Data Gaps
- No Survey Access To Date: Aerial Image Interpretation and Walkover from Public Right of Way Used (2023)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 17 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

609500 610000 610500 611000

228000 227500 227000

N

h2a 11 190
408
35
36
w1
305
h2
309
w1
c1a6 117 148 161
h2a 190
37
425
310
308
312
h2
h2
c1a6 117 148 161
h2a 191
318
r1 39 162
TCC9
TCC10
TCC11
301
417
h2a 190
412
409
411
410
w1g7
r1 10
286
h2a 190
316
317
38
h2
w1h5 38
315
319
Paynes Lane
Section 5
Section 6
418
300
r2b
h2a 190
h2a 190
421
421
421
h2a 190
f2e
r1 39
r1 39 191
h2
h2
r1 16 17 39 191
h2a 190
423
423
h2a 190
34
h2
296
290
h2
h2
291
289
h2

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Mosaic
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow

609500 610000 610500 611000



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Substation Temporary Construction Haul Road
- Temporary Construction Compound
- Access and Crossing Zone

Section 41 Habitats (Linear)
- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- r1 - Standing Open Water and Canals
- r2b - Other River and Stream

Section 41 Habitats
- c1a6 - Arable Margins Sown with Wild Flowers or a Pollen and Nectar Mix
- f2e - Reedbeds
- r1 - Standing Open Water and Canals

Other Important Habitats
- w1 - Broadleaved Mixed and Yew Woodland
- w1g7 - Other Broadleaved Woodland Types
- w1h5 - Other Woodland; Mixed Mainly Broadleaved

Area with Potential Data Gaps
- No Survey Access To Date
- No Survey Access To Date: Aerial Image Interpretation Used (2022)
- No Survey Access To Date: Aerial Image Interpretation and Walkover from Public Right of Way Used (2023)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

0 50 100 200
Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 18 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

608000 608500 609000 609500

228000 227500 227000

N

r1 39 191
WP
g3a 148 1011
c1a8
h2a 190
w1h5 38
350
h2a 190
428
r1 39 162
c1a8
332
330
329
326
Little Bromley Churchyard LoWS
Spratts Lane
r1 39 362
r1 39 162
c1a8
c1a6 16 17 73 148
g3a 117 140 148 160
c1a6 16 17 73 148
h2a
h2a
333
323
h2a 191
318
h2a 190
317
38
319

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Mosaic
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor
- Ardleigh Road Drainage Zone
- Substation Temporary Construction Haul Road
- Access and Crossing Zone

Invasive Species (Field Survey 2022)
- WP Water Fern

Section 41 Habitats (Linear)
- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- r1 - Standing Open Water and Canals

Section 41 Habitats
- c1a6 - Arable Margins Sown with Wild Flowers or a Pollen and Nectar Mix
- c1a8 - Game Bird Mix Strips and Corners
- g3a - Lowland Meadows
- r1 - Standing Open Water and Canals

Other Important Habitats
- w1h5 - Other Woodland; Mixed Mainly Broadleaved
- Local Wildlife Site (LoWS)

Area with Potential Data Gaps
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

0 50 100 200
Metres

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Aerial Imagery (2021) Source: Maxar, Microsoft

PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 19 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

607500 608000 608500 609000

229000 228500 228000

N

w1h5 36
w1f7 38
w1h5
h2a
427
339
h2a
h2a 190
429
355
h2a 190
h2a 190
w1f7 51
374
381
h2a
379
384
Section 7
Section 6
w1
w1
39
w1
r1 39 162
r1 39 191
426
h2a
Ardleigh Road
r1 39 191
WP
g3a 148 1011
c1a8
w1h5 38
r1 39 162
h2a 190
350
h2a 190
428
332

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
51 - Coppice
56 - Young Trees - Planted
65 - Hay
73 - Bare Ground
117 - Dry
140 - Anthills
147 - Fallen Dead Wood Abundant
148 - Flower Forage Abundant
160 - Sward Type Mosaic
161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Substation Operational Boundary
- Substation Works Area
- Ardleigh Road Drainage Zone
- Indicative Substation Access Route
- Substation Temporary Construction Haul Road
- North Falls Indicative Substation Operational Boundary
- Access and Crossing Zone
- National Grid EACN Substation Zone

Notable Plants (Field Survey 2022)
- Corn Spurrey

Invasive Species (Field Survey 2022)
- WF Water Fern

Section 41 Habitats (Linear)
- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- r1 - Standing Open Water and Canals

Section 41 Habitats
- c1a6 - Arable Margins Sown with Wild Flowers or a Pollen and Nectar Mix
- c1a8 - Game Bird Mix Strips and Corners
- g3a - Lowland Meadows
- w1f7 - Other Lowland Mixed Deciduous Woodland

Other Important Habitats
- w1 - Broadleaved Mixed and Yew Woodland
- w1h5 - Other Woodland; Mixed Mainly Broadleaved

Area with Potential Data Gaps
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

0 50 100 200
Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 20 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

607000 607500 608000 608500

229500 229000 228500

N

r1 39
w1h5 36
h2 190
370
c1a6 10 148
h2a 190
c1a6 148 161
396
w1
w1h5 36
w1h5
h2a 190
w1f7 38
h2
402
399
h2
w1h6 36
w1h5 38
w1f7 38
434
w1h5 36
h2b
h2a 190
435
41
h2a 190
w1f7 51
374
381
392
w1h5 36
r1 41 362
w1h5 38
433
h2a 190
40
432
h2a 190
h2
w1
395
Section 7
Section 6
h2a
379
384
w1
w1
39
w1
h2a 190
429
355
h2a 190
h2a
427
339
h2a
r1 39 162
r1 39 191
426
h2a

Secondary Codes:
10 - Scattered Scrub
11 - Scattered Trees
14 - Scattered Rushes
16 - Tall Herb
17 - Ruderal/Ephemeral
19 - Ponds (Priority Habitat)
36 - Plantation
38 - Secondary Woodland
39 - Freshwater Man-Made
41 - Freshwater Natural
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161 - Tall or Tussocky Sward
162 - Temporary Water Bodies
190 - Hedgerow With Trees
191 - Ditch
362 - Artificial Lake or Pond
370 - Wetlands
1011 - Pasture or Meadow



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Substation Operational Boundary
- Substation Works Area
- Ardleigh Road Drainage Zone
- Indicative Substation Access Route
- Substation Temporary Construction Haul Road
- North Falls Indicative Substation Operational Boundary
- Access and Crossing Zone
- National Grid EACN Substation Zone

Notable Plants (Field Survey 2022)
- Corn Spurrey

Section 41 Habitats (Linear)
- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- h2b - Other Hedgerow
- r1 - Standing Open Water and Canals

Section 41 Habitats
- c1a6 - Arable Margins Sown with Wild Flowers or a Pollen and Nectar Mix
- g3a - Lowland Meadows
- r1 - Standing Open Water and Canals
- w1f7 - Other Lowland Mixed Deciduous Woodland

Other Important Habitats
- w1 - Broadleaved Mixed and Yew Woodland
- w1h5 - Other Woodland; Mixed Mainly Broadleaved
- w1h6 - Other Woodland; Mixed; Mainly Conifer

Area with Potential Data Gaps
- No Survey Access To Date: Aerial Image Interpretation Used (2022)

Note.
All Section 41 Habitats are based on UK Hab v.1.1.

0 50 100 200
Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT HEDGEROWS, S41 HABITATS, OTHER IMPORTANT HABITATS, AND NOTABLE PLANT SPECIES RECORDED WITHIN THE SURVEY AREA

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.4

Sheet No: 21 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

SPECIES

4.8.11 The following sections are based on a combination of desk study information and field survey data to provide an assessment of the value of the habitats present within the relevant survey areas for each species or group of species.

4.8.12 Refer to Figure 4.5 for locations where important non-avian species have been recorded in desk study information; note that the degree of accuracy for desk study records may vary (as explained in text below).

620000
621000
622000
219000
218000
217000
N
Great Holland
Little Clacton Road
Clacton Road
Clacton Road
Clacton Road
Short Lane
Short Lane
TCC2
TCC1
Holland Haven
Sewage Works
Beach Works TCC



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Offshore Order Limits
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Beach Access Zone
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone
- Landfall Compound Zone
- Indicative Landfall Compound
- Landfall Exit Pit Sheet Piling Zone

Plant
- Hog's Fennel
- Other Plant

Reptile
- Adder
- Common Lizard

Invasive and Non-Invasive Species
- Japanese Rose
- New Zealand Pigmyweed
- Parrot's-feather
- Water Fern

Invertebrate
- Fisher's Estuarine Moth
- Other Invertebrate

Mammal
- Brown Hare
- Otter
- Northern Water Vole
- Harvest Mouse
- Hazel Dormouse
- Western Hedgehog

Amphibian
- Common Frog

0 100 200 400
Metres

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Aerial Imagery (2021) Source: Maxar, Microsoft
Species data provided by Essex Field Club.

PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT NON-AVIAN SPECIES (ESSEX FIELD CLUB DATA)

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.5

Sheet No: 1 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM

621000
622000
623000
220000
219000
218000
N
Great Holland
Little Clacton Road
Clacton Road
Short Lane
TCC2
TCC1
Frinton Golf Course
Holland Haven



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Offshore Order Limits
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Beach Access Zone
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone
- Landfall Compound Zone
- Indicative Landfall Compound
- Landfall Exit Pit Sheet Piling Zone

Plant
- Hog's Fennel
- Other Plant

Reptile
- Common Lizard

Invasive and Non-Invasive Species
- Japanese Rose
- New Zealand Pigmyweed
- Parrot's-feather
- Water Fern
- Japanese Knotweed

Invertebrate
- Fisher's Estuarine Moth
- Other Invertebrate

Mammal
- Brown Hare
- Otter
- Northern Water Vole
- Harvest Mouse
- Hazel Dormouse

Amphibian
- Warty Newt / Great Crested Newt
- Common Frog

0 100 200 400
Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT NON-AVIAN SPECIES (ESSEX FIELD CLUB DATA)

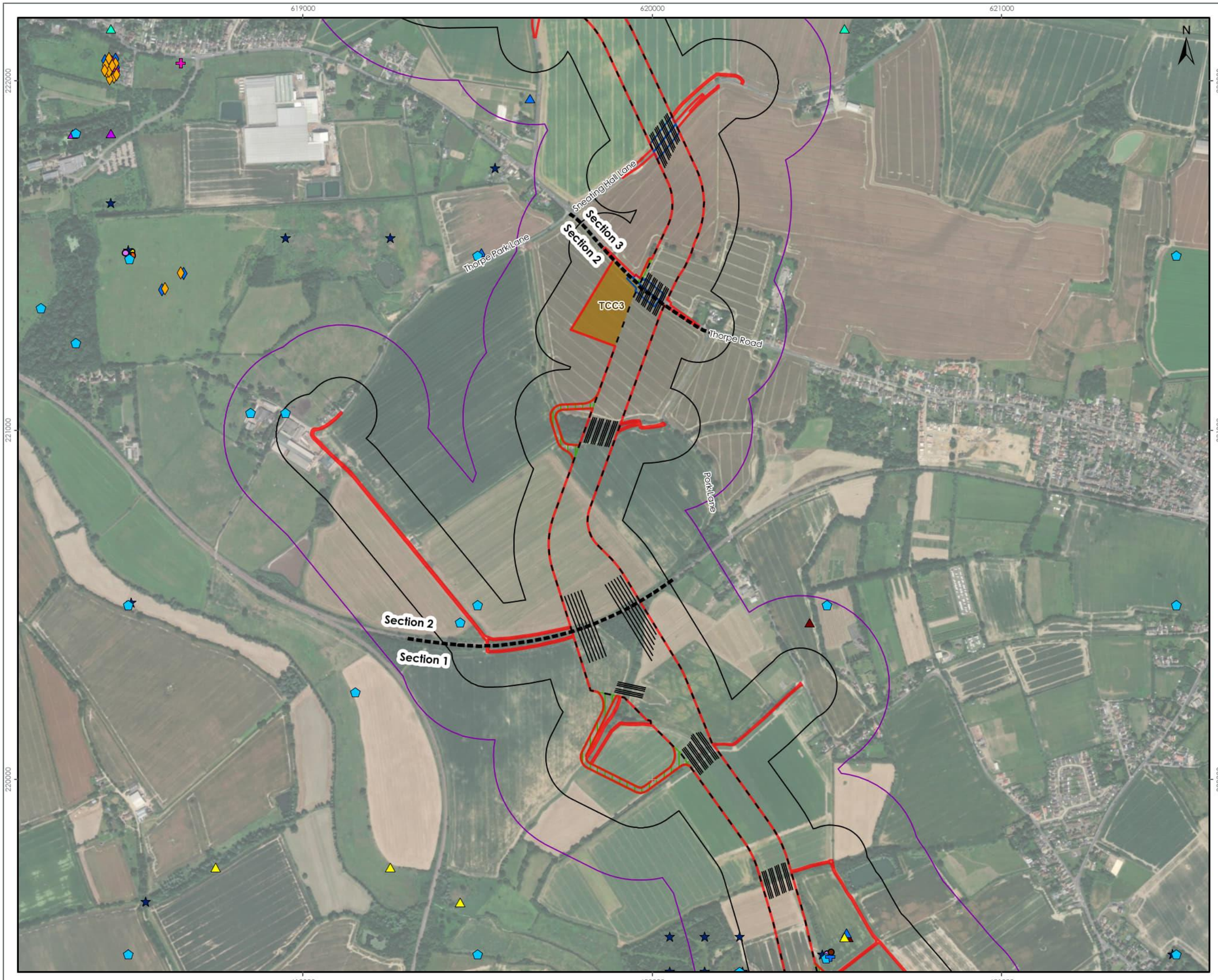
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1	22/02/2024	ES Submission	DB	JRS

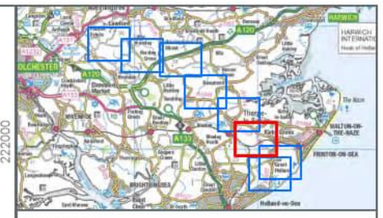
DRAWING NUMBER: 4.5

Sheet No: 2 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Plant
- Other Plant

Reptile
- Common Lizard
- Grass Snake
- Slow-worm

Invasive and Non-Invasive Species
- New Zealand Pigmyweed
- Water Fern
- Giant-rhubarb
- Giant Hogweed
- Japanese Knotweed

Invertebrate
- Other Invertebrate

Mammal
- Brown Hare
- Northern Water Vole
- Harvest Mouse
- Hazel Dormouse
- Western Hedgehog

Amphibian
- Warty Newt / Great Crested Newt
- Common Frog

0 100 200 400
Metres

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PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

IMPORTANT NON-AVIAN SPECIES (ESSEX FIELD CLUB DATA)

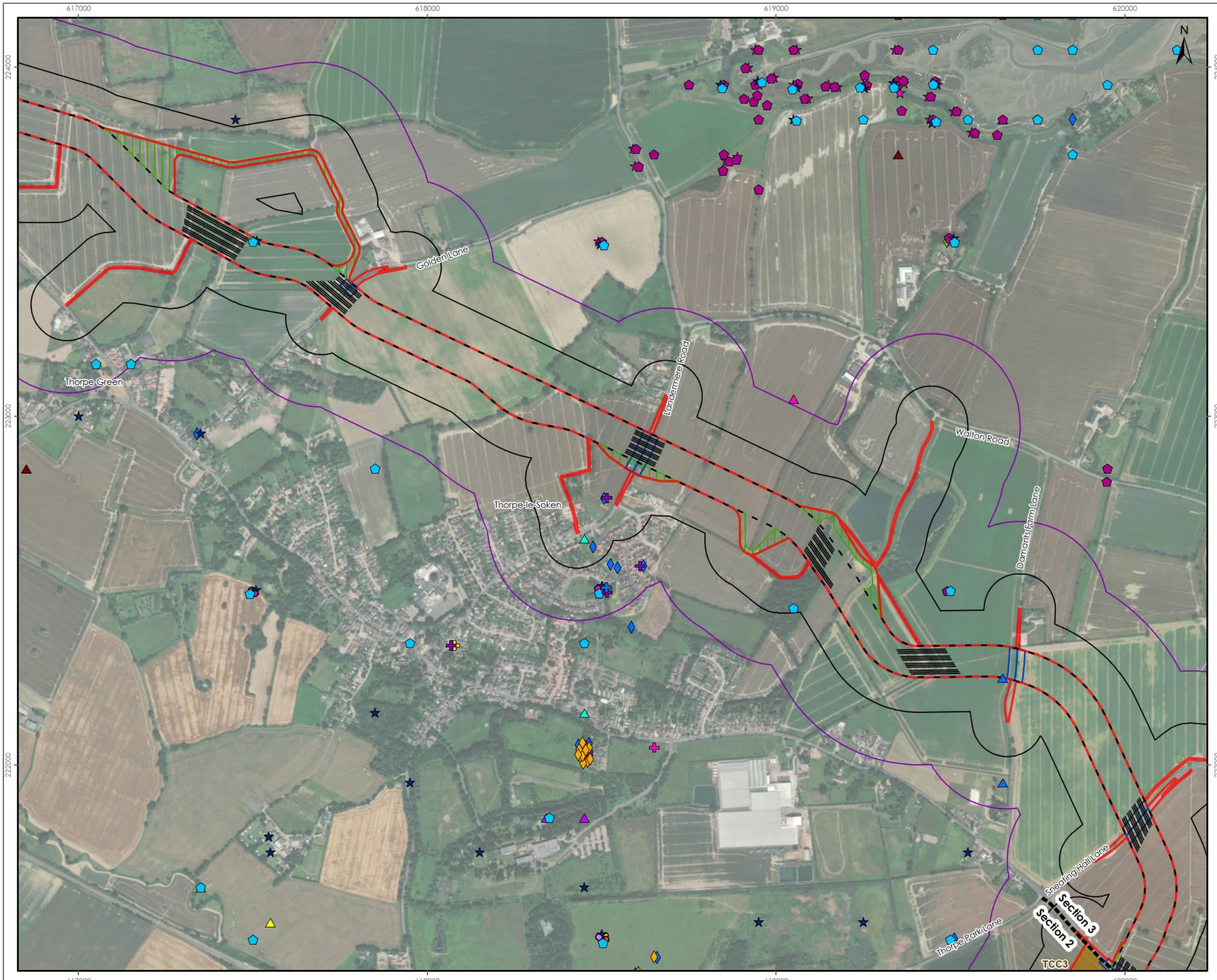
VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

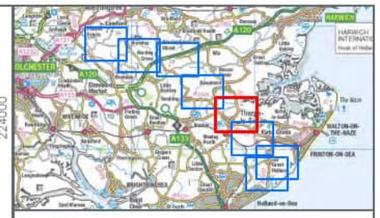
DRAWING NUMBER: 4.5

Sheet No: 3 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Plant
- Hog's Fennel
- Other Plant

Reptile
- Adder
- Common Lizard
- Grass Snake
- Slow-worm

Invasive and Non-Invasive Species
- New Zealand Pigmyweed
- Giant-rhubarb
- Giant Hogweed
- Japanese Knotweed

Invertebrate
- Fisher's Estuarine Moth
- Other Invertebrate

Mammal
- Brown Hare
- Otter
- Northern Water Vole
- Harvest Mouse
- Hazel Dormouse
- Western Hedgehog

Amphibian
- Warty Newt / Great Crested Newt
- Common Frog
- Smooth Newt
- Palmate Newt

0 100 200 400
Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT NON-AVIAN SPECIES (ESSEX FIELD CLUB DATA)

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

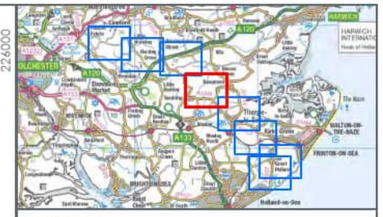
DRAWING NUMBER: 4.5

Sheet No: 4 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

615000
616000
617000
226000
225000
224000
N
Gravel Wood
Section 4b
Section 4a
Lodge Lane
Section 4a
Section 3
TCC5
Thorpe Road
Simons Wood
TCC4
Tendring Road



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Plant
- Hog's Fennel
- Other Plant

Invasive and Non-Invasive Species
- New Zealand Pigmyweed

Invertebrate
- Fisher's Estuarine Moth
- Other Invertebrate

Mammal
- Otter
- Northern Water Vole
- Harvest Mouse
- Hazel Dormouse
- Western Hedgehog

0 100 200 400
Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT NON-AVIAN SPECIES (ESSEX FIELD CLUB DATA)

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.5

Sheet No: 5 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WIND FARM

613000 614000 615000

228000 227000 226000

N

TCC8 TCC7

TCC6

Section 5

Section 4b

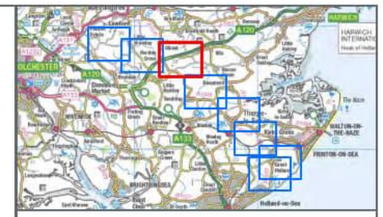
A120

B1035

Colchester Road

Stones Green Road

Tendring Heath



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Plant
- Hog's Fennel
- Other Plant

Reptile
- Common Lizard

Invasive and Non-Invasive Species
- Three-cornered Garlic

Invertebrate
- Fisher's Estuarine Moth
- Other Invertebrate

Mammal
- Harvest Mouse

0 100 200 400

Metres

Data Source:
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Aerial Imagery (2021) Source: Maxar, Microsoft
Species data provided by Essex Field Club.

PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

IMPORTANT NON-AVIAN SPECIES (ESSEX FIELD CLUB DATA)

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.5

Sheet No: 6 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

609000 610000 611000 612000

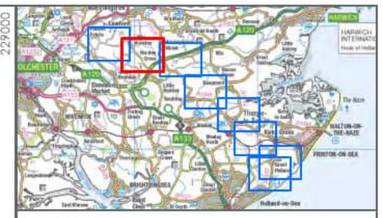
229000 228000 227000

N

TCC8 TCC7 TCC9 TCC10 TCC11

Section 5 Section 6

Sprats Lane Paynes Lane Bentley Road Gloucon Road A120



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Substation Temporary Construction Haul Road
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Plant
- Other Plant

Invasive and Non-Invasive Species
- Japanese Knotweed

Invertebrate
- Other Invertebrate

Mammal
- Brown Hare
- Harvest Mouse

0 100 200 400
Metres

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Aerial Imagery (2021) Source: Maxar, Microsoft
Species data provided by Essex Field Club.

PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

IMPORTANT NON-AVIAN SPECIES (ESSEX FIELD CLUB DATA)

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

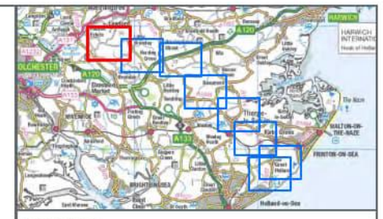
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Sheet No: 7 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

607000
608000
609000
229000
228000
N
Hungerdown Lane
Grange Road
Section 7
Section 6
Ardleigh Road
Spratts Lane
Barton Road



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Substation Operational Boundary
- Substation Temporary Construction Compound
- Ardleigh Road Drainage Zone
- Indicative Substation Access Route
- Substation Temporary Construction Haul Road
- North Falls Indicative Substation Operational Boundary
- Access and Crossing Zone
- National Grid EACN Substation Zone

Plant
- Other Plant

Invasive and Non-Invasive Species
- Japanese Knotweed

Invertebrate
- Other Invertebrate

Mammal
- Brown Hare
- Harvest Mouse

Amphibian
- Common Frog

0 100 200 400
Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT NON-AVIAN SPECIES (ESSEX FIELD CLUB DATA)

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.5

Sheet No: 8 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WIND FARM

620000
621000
622000
219000
218000
217000
N
Great Holland
Little Clacton Road
Clacton Road
Clacton Road
Short Lane
Short Lane
TCC2
TCC1
Holland Haven
Sewage Works
Beach Works TCC
Clacton Road

LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Offshore Order Limits
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Beach Access Zone
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone
- Landfall Compound Zone
- Indicative Landfall Compound
- Landfall Exit Pit Sheet Piling Zone

Plant
- Hog's Fennel
- Other Plant

Reptile
- Adder
- Common Lizard

Invasive and Non-Invasive Species
- Japanese Rose
- New Zealand Pigmyweed
- Parrot's-feather
- Water Fern

Invertebrate
- Fisher's Estuarine Moth
- Other Invertebrate

Mammal
- Brown Hare
- Otter
- Northern Water Vole
- Harvest Mouse
- Hazel Dormouse
- Western Hedgehog

Amphibian
- Common Frog

0 100 200 400
Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT NON-AVIAN SPECIES (ESSEX FIELD CLUB DATA)

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.5

Sheet No: 1 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

621000
622000
623000
220000
219000
218000
N
Great Holland
Little Clacton Road
Clacton Road
Short Lane
TCC2
TCC1
Frinton Golf Course
Holland Haven



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Offshore Order Limits
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Beach Access Zone
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone
- Landfall Compound Zone
- Indicative Landfall Compound
- Landfall Exit Pit Sheet Piling Zone

Plant
- Hog's Fennel
- Other Plant

Reptile
- Common Lizard

Invasive and Non-Invasive Species
- Japanese Rose
- New Zealand Pigmyweed
- Parrot's-feather
- Water Fern
- Japanese Knotweed

Invertebrate
- Fisher's Estuarine Moth
- Other Invertebrate

Mammal
- Brown Hare
- Otter
- Northern Water Vole
- Harvest Mouse
- Hazel Dormouse

Amphibian
- Warty Newt / Great Crested Newt
- Common Frog

0 100 200 400
Metres

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Aerial Imagery (2021) Source: Maxar, Microsoft
Species data provided by Essex Field Club.

PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT NON-AVIAN SPECIES (ESSEX FIELD CLUB DATA)

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

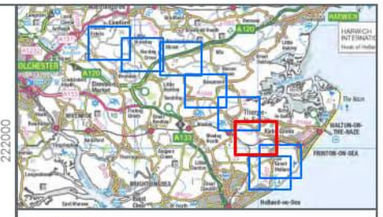
DRAWING NUMBER: 4.5

Sheet No: 2 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM

619000
620000
621000
222000
221000
220000
N
Sheating Hall Lane
Thorpe Park Lane
Section 3
Section 2
TCC3
Thorpe Road
Park Lane
Section 2
Section 1



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Plant
- Other Plant

Reptile
- Common Lizard
- Grass Snake
- Slow-worm

Invasive and Non-Invasive Species
- New Zealand Pigmyweed
- Water Fern
- Giant-rhubarb
- Giant Hogweed
- Japanese Knotweed

Invertebrate
- Other Invertebrate

Mammal
- Brown Hare
- Northern Water Vole
- Harvest Mouse
- Hazel Dormouse
- Western Hedgehog

Amphibian
- Warty Newt / Great Crested Newt
- Common Frog

0 100 200 400
Metres

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Aerial Imagery (2021) Source: Maxar, Microsoft
Species data provided by Essex Field Club.

PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

IMPORTANT NON-AVIAN SPECIES (ESSEX FIELD CLUB DATA)

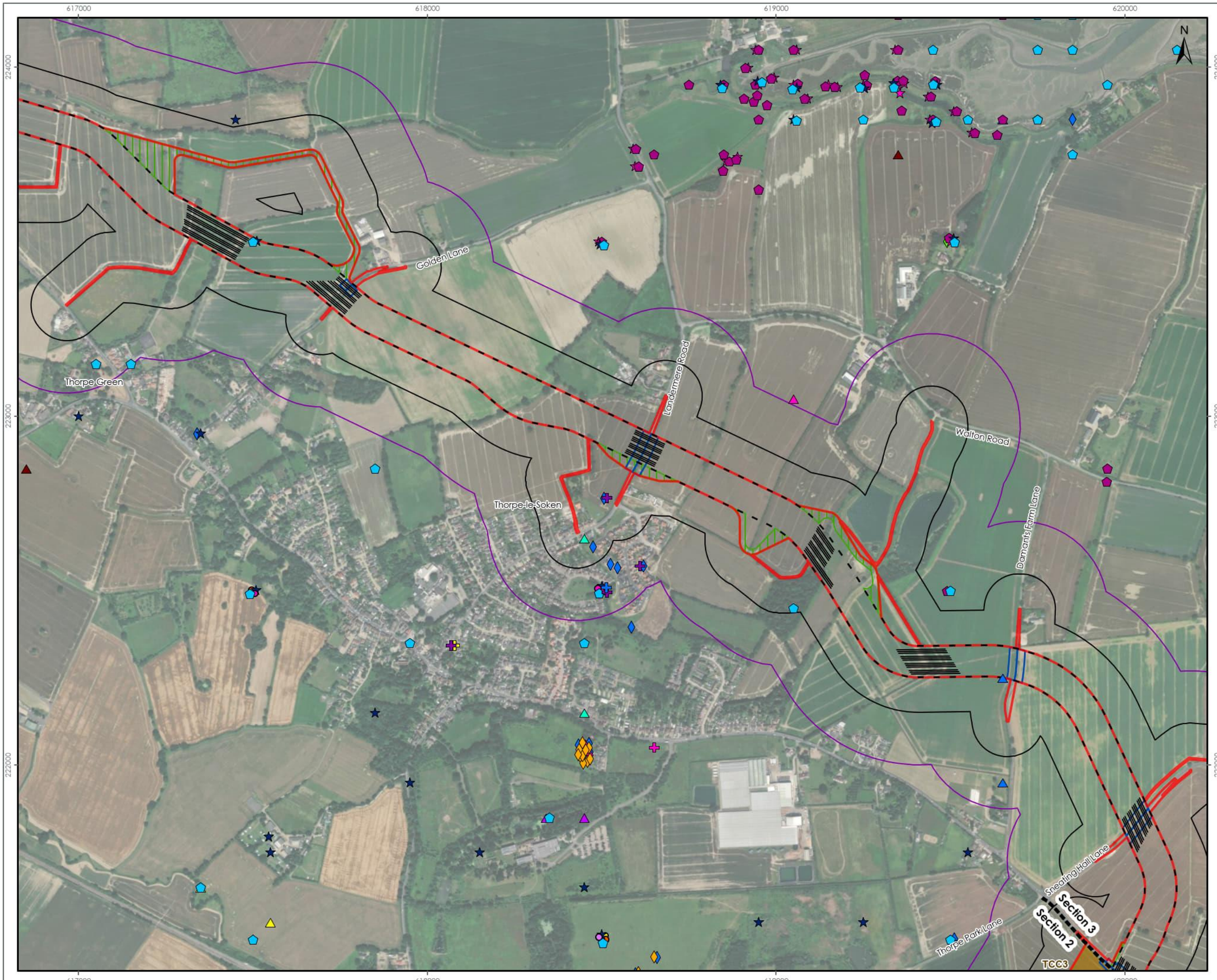
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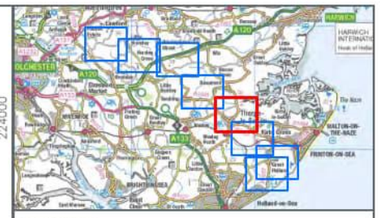
DRAWING NUMBER: 4.5

Sheet No: 3 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Plant
- Hog's Fennel
- Other Plant

Reptile
- Adder
- Common Lizard
- Grass Snake
- Slow-worm

Invasive and Non-Invasive Species
- New Zealand Pigmyweed
- Giant-rhubarb
- Giant Hogweed
- Japanese Knotweed

Invertebrate
- Fisher's Estuarine Moth
- Other Invertebrate

Mammal
- Brown Hare
- Otter
- Northern Water Vole
- Harvest Mouse
- Hazel Dormouse
- Western Hedgehog

Amphibian
- Warty Newt / Great Crested Newt
- Common Frog
- Smooth Newt
- Palmate Newt

0 100 200 400
Metres

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Aerial Imagery (2021) Source: Maxar, Microsoft
Species data provided by Essex Field Club.

PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT NON-AVIAN SPECIES (ESSEX FIELD CLUB DATA)

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

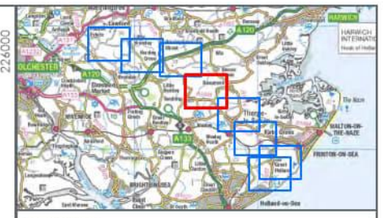
DRAWING NUMBER: 4.5

Sheet No: 4 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

615000
616000
617000
226000
225000
224000
N
Gravel Wood
Section 4b
Section 4a
Lodge Lane
TCC5
Section 3
Section 4a
Thorpe Road
Simons Wood
TCC4
Tendring Road



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Plant
- Hog's Fennel
- Other Plant

Invasive and Non-Invasive Species
- New Zealand Pigmyweed

Invertebrate
- Fisher's Estuarine Moth
- Other Invertebrate

Mammal
- Otter
- Northern Water Vole
- Harvest Mouse
- Hazel Dormouse
- Western Hedgehog

0 100 200 400
Metres

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Aerial Imagery (2021) Source: Maxar, Microsoft
Species data provided by Essex Field Club.

PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT NON-AVIAN SPECIES (ESSEX FIELD CLUB DATA)

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.5

Sheet No: 5 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

613000 614000 615000

228000 227000 226000

N

TCC8 TCC7

TCC6

Section 5

Section 4b

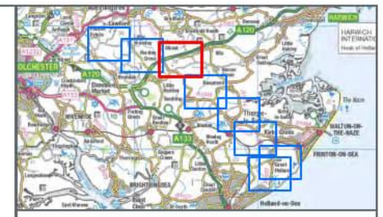
A120

B1035

Colchester Road

Stones Green Road

Tendring Heath



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Plant
- Hog's Fennel
- Other Plant

Reptile
- Common Lizard

Invasive and Non-Invasive Species
- Three-cornered Garlic

Invertebrate
- Fisher's Estuarine Moth
- Other Invertebrate

Mammal
- Harvest Mouse

0 100 200 400

Metres

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Aerial Imagery (2021) Source: Maxar, Microsoft
Species data provided by Essex Field Club.

PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

IMPORTANT NON-AVIAN SPECIES (ESSEX FIELD CLUB DATA)

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.5

Sheet No: 6 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
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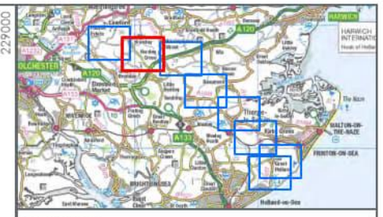
FIVE ESTUARIES OFFSHORE WINDFARM

609000 610000 611000 612000

229000 228000 227000

N

TCC8
TCC7
TCC9
TCC10
TCC11
Section 5
Section 6
Sprats Lane
Paynes Lane
Bentley Road
Clacton Road
A120



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Substation Temporary Construction Haul Road
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Plant
- Other Plant

Invasive and Non-Invasive Species
- Japanese Knotweed

Invertebrate
- Other Invertebrate

Mammal
- Brown Hare
- Harvest Mouse

0 100 200 400
Metres

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Aerial Imagery (2021) Source: Maxar, Microsoft
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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
IMPORTANT NON-AVIAN SPECIES (ESSEX FIELD CLUB DATA)

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

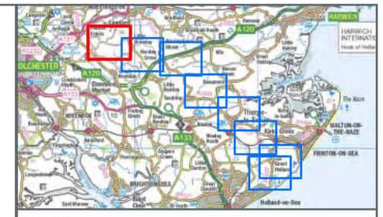
DRAWING NUMBER: 4.5

Sheet No: 7 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM

607000
608000
609000
229000
228000
N
Hungerdown Lane
Grange Road
Section 7
Section 6
Ardleigh Road
Spratts Lane
Barton Road



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Substation Operational Boundary
- Substation Temporary Construction Compound
- Ardleigh Road Drainage Zone
- Indicative Substation Access Route
- Substation Temporary Construction Haul Road
- North Falls Indicative Substation Operational Boundary
- Access and Crossing Zone
- National Grid EACN Substation Zone

Plant
- Other Plant

Invasive and Non-Invasive Species
- Japanese Knotweed

Invertebrate
- Other Invertebrate

Mammal
- Brown Hare
- Harvest Mouse

Amphibian
- Common Frog

0 100 200 400
Metres

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Aerial Imagery (2021) Source: Maxar, Microsoft
Species data provided by Essex Field Club.

PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

IMPORTANT NON-AVIAN SPECIES (ESSEX FIELD CLUB DATA)

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.5

Sheet No: 8 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WIND FARM

PLANTS

4.8.13 The desk study data provided by EFC confirms that 133 notable, scarce and rare plant species may occur within the study area; this includes two species; chamomile *Chamaemelum nobile* and annual knawel *Scleranthus annuus* listed on S41 and numerous species listed on the Great Britain (GB), England and/ or Essex Red Data Lists. Most of the records have been provided at 1 km resolution such that it is not possible to accurately determine their location in relation to the Order Limits. However, the bulk of the records are confined to priority habitats, which are sparsely distributed in the survey area and are mostly within designated sites such as Holland Haven Marshes SSSI and the head waters of Hamford Water SSSI. The coastal habitats support the most notable or rare plant species, with wetland, woodland and other semi-natural habitats also supporting such species. A limited number of scarce plants are also associated with arable margin habitats. Figure 4.5 shows the location for notable plant species records from EFC, with further detail included in the ES Volume 6, Part 6, Annex 4.22.1, 4.22.2 & 4.22.3. Five Estuaries Preliminary Ecological Appraisal (PEA) Parts 1-3 report.. With the exception of hog's fennel (see below) Figure 4.5 does not discriminate between species as many locations relate to more than one record (i.e., they are the entry for all species records for the monad (i.e., a single square km based on the OS Grid).

4.8.14 During the habitat survey, notable plant species were recorded at several locations north of the A120, as set out in ES Volume 6, Part 6, Annex 4.23: Five Estuaries Preliminary Environmental Information Report - Habitat and Hedgerow and Great Crested Newt Reports: Annex 4.2 Habitat and Hedgerow Survey Report: North of A120 and as shown on Figure 4.4. These mainly comprised species associated with dry or disturbed areas within arable fields, but also two associated with grassland as follows:

- Common cudweed *Filago vulgaris*; GB Red listing based on 2001 IUCN guidelines (from 2018): Near Threatened, England Red listing based on 2001 IUCN guidelines (from 2014): Near Threatened;
- Corn spurrey *Spergula arvensis*; GB Red listing based on 2001 IUCN guidelines (from 2018): Vulnerable, England Red listing based on 2001 IUCN guidelines (from 2014): Vulnerable;
- Sea holly *Eryngium maritimum*; England Red listing based on 2001 IUCN guidelines (from 2014): Near Threatened, Essex Red List;
- Chicory *Cichorium intybus*; England Red listing based on 2001 IUCN guidelines (from 2014): Vulnerable;
- Field scabious *Knautia arvensis*; England Red listing based on 2001 IUCN guidelines (from 2014): Near Threatened; and
- Pyramidal orchid *Anacamptis pyramidalis*. Essex Red List.

4.8.15 Except for within Holland Haven Marshes SSSI, no evidence of notable species was recorded for surveys undertaken south of the A120 (refer to the ES Volume 6, Part 6, Annex 4.23: Five Estuaries Preliminary Environmental Information Report - Habitat and Hedgerow and Great Crested Newt Reports: Annex 4.3: Habitat and Hedgerow Survey Report: South of A120 for details). Given the survey constraint related to this area (i.e. the extended period of hot dry weather may have resulted in unrepresentative species assemblage or abundance information), it is considered possible notable arable species, such as but not limited to those listed above, may also occur within cropland margins south of the A120.

4.8.16 Special effort was made to locate hog's fennel (the food plant of Fisher's Estuarine moth – see following section) during the habitat surveys; but no specimens were recorded. During the invertebrate survey at Holland Haven Marshes in 2021 (refer to ES Volume 6, Part 6, Annex 4.25: North Falls Ecology Reports: Annex 4.9: North Falls Offshore Wind Farm Holland Haven Marshes SSSI: Survey and Assessment of Aquatic and Terrestrial Invertebrates 2021), hog's fennel was confirmed present within maritime grassland within the SSSI. The EFC data includes 102 records for this species at coastal locations at Hamford Water and Holland Haven Marshes, but also at Kents Hill Farm on Walton Rd east of Thorpe le Soken, at Bradley Hall Farm northwest of Thorpe Green, and at the eastern side of the onshore Order Limits adjacent to the A120.

4.8.17 In July and August 2021, Wild Frontier Ecology Ltd on behalf of NF OWF conducted an NVC survey of Holland Haven Marshes SSSI and adjacent land. The survey recorded 21 species of elevated conservation status[2], of which six are mentioned in the SSSI citation (refer to the ES Volume 6, Part 6, Annex 4.25: North Falls Ecology Reports: Annex 4.7: North Falls Offshore Wind Farm Holland Haven Marshes SSSI and Adjacent Land NVC Survey 2021).

4.8.18 The EFC data also provided records of invasive non-native species within the study area. This includes 11 species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended); three-cornered garlic *Allium triquetrum*, water fern *Azolla filiculoides*, Hottentot-fig *Carpobrotus edulis*, New Zealand pigmyweed *Crassula helmsii*, Japanese Knotweed *Fallopia japonica*, giant-rhubarb *Gunnera tinctoria*, giant hogweed *Heracleum mantegazzianum*, Himalayan balsam *Impatiens glandulifera*, parrot's-feather *Myriophyllum aquaticum*, Rhododendron *Rhododendron ponticum* and Japanese rose *Rosa rugosa*. Those in bold occur within the survey area.

4.8.19 During the habitat surveys, water fern and a species of Rhododendron were recorded at two separate locations north of the A120 (refer to the ES Volume 6, Part 6, Annex 4.23: Five Estuaries Preliminary Environmental Information Report - Habitat and Hedgerow and Great Crested Newt Reports: Annex 4.2: Habitat and Hedgerow Survey Report: North of A120) and New Zealand pigmyweed was also recorded present in a single pond during survey for GCN in May 2022. Refer to Figure 4.4 for locations. No evidence of invasive non-native species was reported for areas south of the A120.

[2] Elevated conservation status in the report refers to: Red Data Book species, Essex Red Data Book species and species mentioned in the SSSI citation.

4.8.20 It should be borne in mind that exhaustive searching for particular species has not been undertaken, and as plants may only be evident at certain times of year the presence of additional species remains a possibility. This has been accounted for in the evaluation and assessment of impacts; the field survey and desk study information are considered adequate for the purpose of EIA.

INVERTEBRATES

4.8.21 EFC provided details for 161 notable, scarce and rare invertebrate species that have been recorded from the study area (refer to the EFC data in at the ES Volume 6, Part 6, Annex 4.22.1, 4.22.2 & 4.22.3. Five Estuaries Preliminary Ecological Appraisal (PEA) Parts 1-3 reports, and Figure 4.5. 121 of these are moth species, with records concentrated at Beaumont Quay and Great Holland Pits Nature Reserve.

4.8.22 67 of these records are for Fisher's estuarine moth *Gortyna borelii lunata*, which is included in Schedule 2 of the Conservation of Habitats and Species Regulations 2017 and Schedule 5 of the Wildlife & Countryside Act 1981 in respect of section 9(4)(b) and (c) and (5) only). It has been recorded at broadly the same locations as its food plant, hog's fennel, mentioned in Paragraph 4.8.15 above. It is a qualifying feature of Hamford Water SAC; this being one of two SACs designated for the species in the UK (the other is in Kent).

4.8.23 Records of other notable invertebrates including beetles, butterflies and flies are also present around Thorpe le Soken and Great Holland Pits nature reserve. Other places where such species have been recorded include roadsides, golf courses, parks and gardens.

4.8.24 Survey work undertaken on behalf of NF OWF at Holland Haven Marshes SSSI (refer to the ES Volume 6, Part 6, Annex 4.25: North Falls Ecology Reports: Annex 4.9: North Falls Offshore Wind Farm Holland Haven Marshes SSSI: Survey and Assessment of Aquatic and Terrestrial Invertebrates 2021) has confirmed the presence of six terrestrial invertebrate species of conservation concern, including a Nationally Scarce rove beetle and two S41 species – small heath butterfly *Coenonympha pamphilus* and cinnabar moth *Tyria jacobaeae*. Aquatic species were also surveyed and the survey identified three species of Nationally Scarce water beetle. Whilst Fisher's estuarine moth was not recorded, its larval host plant, hog's fennel, was noted to occur within the maritime grassland such that the species should be assumed to be present. The report also considers it likely that the population at Holland Haven Marshes SSSI is isolated from that at Hamford Water SAC but is of at least National importance.

4.8.25 Habitats within the study area that are considered to be most valuable to invertebrate species broadly match those listed for important plant species, namely habitats adjacent to the coast or to the Holland Brook, hedgerows and ancient or semi-natural woodland. Unlike for notable plants, the arable habitats are unlikely to support scarce or rare species of invertebrates.

AMPHIBIANS

4.8.26 GCN, common toad *Bufo bufo*, smooth newt *Lissotriton vulgaris* and common frog *Rana temporaria* have been recorded at ponds within the study area. EFC data includes 24 records for amphibians in total (refer to the ES Volume 6, Part 6, Annex 4.22.1, 4.22.2 & 4.22.3. Five Estuaries Preliminary Ecological Appraisal (PEA) Parts 1-3 reportsand Figure 4.6). GCN is protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act and in Schedule 2 of the Conservation of Habitats and Species Regulations 2017 , it is also a S41 species. Common toad is a S41 species.

4.8.27 The EFC desk study data referred to above confirms that GCN has previously been recorded at five locations within the study area, two of which are within 250 m of the onshore Order Limits; one in the village of Thorpe le Soken, and one at Great Holland Pits Nature Reserve. The Magic website also shows a record for a European Protected Species Licence (EPSL) at Thorpe le Soken (believed to be the same record as in EFC data), with all other GCN EPSL records more than 1 km distant. The Magic website also confirms that 82% of the area within the Order Limits is within a green GCN Risk Zone, with the remainder being in an amber zone[3].

4.8.28 The baseline data for GCN within 250 m of the Order Limits, including field survey data collected for VE and NF, are summarised in Table 4.6 and shown in Figure 4.6:. For survey reports please refer to the ES Volume 6, Part 6, Annex 4.23: Five Estuaries Preliminary Environmental Information Report - Habitat and Hedgerow and Great Crested Newt Reports: Annex 4.4: Great Crested Newt Survey Report: North of A120 and Annex 4.5: Great Crested Newt Survey Report: South of A120. Further data are also provided in the NF PEIR, Chapter 23 Onshore Ecology and Annex 23.2 eDNA Great Crested Newt Results Report (Volume III) and this ES Volume 6, Part 6, Annex 4.1: Great Crested Newt Survey Report: Additional Ponds.

Table 4.6: GCN Baseline data summary for ponds within 250 m of Order Limits

Location	Total number of ponds Present	Results summary
Within Order Limits	25, 24 of which are within Holland Haven Marshes SSSI, just one elsewhere	All ponds have been surveyed and GCN confirmed absent.
Ponds up to 100m from Order Limits	35	2 ponds (P25 and P65) confirmed to support GCN. GCN absence confirmed at 29 ponds.

[3] These zones have been identified by NE as part of the District Licensing Scheme; Amber zones contain main population centres for GCN and comprise important connecting habitat that aids natural dispersal. Green zones contain sparsely distributed GCN and are less likely to contain important pathways of connecting habitat for this species. White zones contain no GCN. More details here: https://naturalengland-defra.opendata.arcgis.com/datasets/Defra::gcn-risk-zones-essex/about .

Location	Total number of ponds Present	Results summary
		4 ponds were not subject to survey.
Ponds 101 – 250m from Order Limits	36	4 ponds confirmed to support GCN (P11, P13, P54, P6, P8, PO192) GCN absence confirmed at 24 ponds. 6 ponds were not subject to survey.

4.8.29 During the field survey, no evidence of GCN was recorded in ponds north of the A120. GCN presence was confirmed in a total of eight ponds within 250m of the Order Limits across the remainder of the GCN survey area south of the A120, at four broad locations: Great Holland Pits, north-west of Thorpe Green, east of the corridor north of Tendring Brook (, and either side of the corridor north of Thorpe Cross.

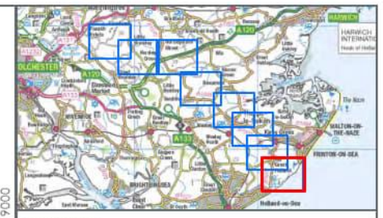
4.8.30 Access constraints prevented survey at a number of ponds. As a result of this, and as set out in Section 4.7.11 - 4.7.15, GCN absence has been assumed at ponds north of the A120 and at P0196, and presence has been assumed at pond numbers 21, PO80, 31, 32 33 and 49.

621000 622000 623000

219000 218000 217000

Great Holland
Clacton Road
Short Lane
Holland Haven
Sewage Works
Beach Works TCC
TCC1
TCC2
PO34 HSI: Below Average
P2 HSI: Poor
P3 HSI: Good
NF PO1 HSI: Excellent
PO2 HSI: Excellent
PO3 HSI: Excellent
PO4 HSI: Excellent
PO5 HSI: Excellent
PO6 HSI: Excellent
PO7 HSI: Excellent
PO8 HSI: Excellent
PO9 HSI: Excellent
PO10 HSI: Excellent
PO11 HSI: Average
PO15 HSI: Excellent
PO16 HSI: Excellent
PO17 HSI: Excellent
PO20 HSI: Excellent
PO21 HSI: Good
PO24 HSI: Average
PO0 HSI: Average
PO13 HSI: Excellent
PO14 HSI: Excellent
PO18 HSI: Good
PO19 HSI: Excellent
PO22 HSI: Average
PO23 HSI: Average
PO25 HSI: Average
PO26 HSI: Excellent
PO27 HSI: Below Average
PO29 HSI: Good
PO28 HSI: Good

N



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Offshore Order Limits
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Beach Access Zone
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone
- Landfall Compound Zone
- Indicative Landfall Compound
- Landfall Exit Pit Sheet Piling Zone

Great Crested Newt Pond Survey Results 2022/23 (RHDHV/SLR)

- GCN Present
- Pond Not Accessible - Assumed GCN Present
- GCN Present 250 m Buffer
- GCN Absent

Great Crested Newt Pond Survey Results 2022 (North Falls)

- GCN Absent

0 100 200 400
Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
POTENTIAL IMPACTS GREAT CRESTED NEWTS (GCN)

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

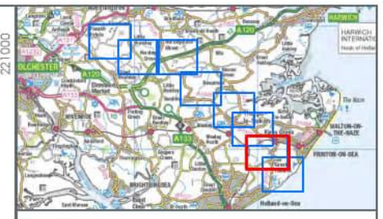
DRAWING NUMBER: 4.6

Sheet No: 1 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

620000
621000
622000
221000
220000
219000
N
Pork Lane
Section 2
Section 1
P20
HSI: Poor
NF P19
HSI: Average
NF P18
HSI: Not Surveyed
P13
HSI: Below Average
P17
HSI: Good
P36
HSI: Good
P11
HSI: Poor
P10
HSI: Below Average
P9
HSI: Excellent
P7
HSI: Average
P8
HSI: Below Average
P6
HSI: Below Average
P5
HSI: Below Average
Great Holland
Clacton Road
TCC2
TCC1
PO34
HSI: Below Average
P2
HSI: Poor
P4
HSI: Good
P3
HSI: Good
Short Lane



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone
- Landfall Compound Zone
- Indicative Landfall Compound

Great Crested Newt Pond Survey Results 2022/23 (RHDHV/SLR)

- GCN Present
- Pond Not Accessible - Assumed GCN Present
- GCN Present 50 m Buffer
- GCN Present 100 m Buffer
- GCN Present 250 m Buffer
- GCN Absent

Great Crested Newt Pond Survey Results 2022 (North Falls)

- GCN Absent
- Pond Not Accessible

Essex Field Club Record

- Warty Newt / Great Crested Newt

Great Crested Newt Pond Surveys 2017 - 2019 (Natural England)

- Great Crested Newt Absent

Great Crested Newt Class Survey Licence Returns (Natural England)

- Great Crested Newt Class Survey Licence Returns

0 100 200 400
Metres

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1	22/02/2024	ES Submission	DB	JRS

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Sheet No: 2 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WIND FARM

618000
619000
620000
621000
222000
221000

N

P29
HSI: Average
P28
HSI: Excellent
P27
HSI: Excellent
Thorpe-le-Soken
PO196
HSI: Not Surveyed
P26
HSI: Good
P25
HSI: Good
Damant's Farm Lane
PO83
HSI: Average
P24
HSI: Good
P23
HSI: Good
PO80
HSI: Not Surveyed
P21
HSI: Not Surveyed
Thorpe Park Lane
Section 3
Section 2
TCC3
Thorpe Road
P22
HSI: Average
Pork Lane
P20
HSI: Poor
Section 2
Section 1

LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Great Crested Newt Pond Survey Results 2022/23 (RHDHV/SLR)

- GCN Present
- Pond Not Accessible - Assumed GCN Present
- GCN Present 50 m Buffer
- GCN Present 100 m Buffer
- GCN Present 250 m Buffer
- GCN Absent
- Pond Not Accessible - Assumed GCN Absent

Essex Field Club Record

- Warty Newt / Great Crested Newt

Great Crested Newt Class Survey Licence Returns (Natural England)

- Great Crested Newt Class Survey Licence Returns

0 100 200 400
Metres

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DRAWING TITLE:
POTENTIAL IMPACTS
GREAT CRESTED NEWTS (GCN)

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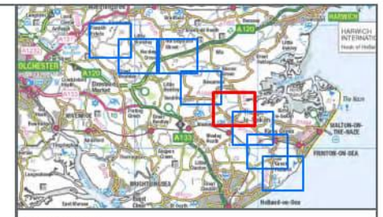
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Sheet No: 3 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM

617000
618000
619000
224000
223000
222000
N
P16
TCC5
Section 3
PPO105
HSI: Below Average
PO176
HSI: Good
TCC4
Tendring Road
P51
HSI: Below Average
P35
HSI: Poor
Golden Lane
P33
HSI: Not Surveyed
P50
HSI: Excellent
Thorpe Green
P34
HSI: Poor
P49
HSI: Not Surveyed
P32
HSI: Not Surveyed
P31
HSI: Not Surveyed
Landermere Road
NF PO88
HSI: Not Surveyed
P30
HSI: Good
P29
HSI: Average
Walton Road
P28
HSI: Excellent
P27
HSI: Excellent
Thorpe-le-Soken
PO196
HSI: Not Surveyed
P26
HSI: Good
P25
HSI: Good
Damants Farm Lane
P46
HSI:
Excellent
P24
HSI: Good
P23
HSI: Good



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Great Crested Newt Pond Survey Results 2022/23 (RHDHV/SLR)

- GCN Present
- Pond Not Accessible - Assumed GCN Present
- GCN Present 50 m Buffer
- GCN Present 100 m Buffer
- GCN Present 250 m Buffer
- GCN Absent
- Pond Not Accessible - Assumed GCN Absent

Great Crested Newt Pond Survey Results 2022 (North Falls)

- GCN Absent

Essex Field Club Record

- Warty Newt / Great Crested Newt

Great Crested Newt Class Survey Licence Returns (Natural England)

- Great Crested Newt Class Survey Licence Returns

0 100 200 400
Metres

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FIVE ESTUARIES OFFSHORE WINDFARM

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POTENTIAL IMPACTS GREAT CRESTED NEWTS (GCN)

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1	22/02/2024	ES Submission	DB	JRS

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Sheet No: 4 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM

614000 615000 616000 617000

226000 225000 224000

N

PO192
HSI: Good

P66
HSI: Good

PO193
HSI: Below Average

P65
HSI: Average

Gravel Wood

P64
HSI: Below Average

P63
HSI: Good

Section 4b

P62
HSI: Average

Section 4a

P60
HSI: Good

P61
HSI: Average

Lodge Lane

PINC01
HSI: Average

PO115
HSI: Average

P59
HSI: Not Surveyed

P77
HSI: Good

P102
HSI: Good

P58
HSI: Not Surveyed

P75
HSI: Not Surveyed

P76
HSI: Not Surveyed

Section 4a

Thorpe Road

P57
HSI: Average

P56
HSI: Average

Simons Wood

P16
HSI: Average

TCC5

Section 3

PPO105
HSI: Below Average

P55
HSI: Good

P53
HSI:
Average

TCC4

Tendring Road

P54
HSI: Average

PO102
HSI:
Excellent

P52
HSI: Good

614000 615000 616000 617000



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Great Crested Newt Pond Survey Results 2022/23 (RHDHV/SLR)

- GCN Present
- Pond Not Accessible - Assumed GCN Present
- GCN Present 50 m Buffer
- GCN Present 100 m Buffer
- GCN Present 250 m Buffer
- GCN Absent

0 100 200 400
Metres

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FIVE ESTUARIES OFFSHORE WINDFARM

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POTENTIAL IMPACTS GREAT CRESTED NEWTS (GCN)

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Sheet No: 5 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM

612000 613000 614000 615000

228000 227000

N

NF PO129
HSI: Not Surveyed

P74
HSI: Below Average

D195
SI: Good

101
SI: Good

I: Good

TCC8

TCC7

Clacton Road

Section 5

Section 4b

A120

Colchester Road

PO142
HSI: Good

B1035

TCC6

P73
HSI: Good

P72
HSI: Good

Stones Green Road

Tendring Heath

P70
HSI: Average

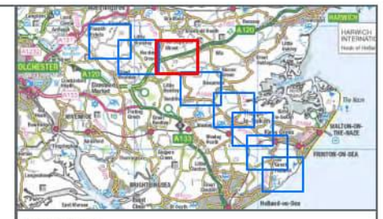
P69
HSI: Below Average

P84
HSI: Poor

P81
HSI: Below Average

P68
HSI: Not Surveyed

612000 613000 614000 615000



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Great Crested Newt Pond Survey Results 2022/23 (RHDHV/SLR)

- GCN Present
- Pond Not Accessible - Assumed GCN Present
- GCN Present 50 m Buffer
- GCN Present 100 m Buffer
- GCN Present 250 m Buffer
- GCN Absent

Great Crested Newt Pond Survey Results 2022 (North Falls)

- GCN Absent

0 100 200 400

Metres

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PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

POTENTIAL IMPACTS GREAT CRESTED NEWTS (GCN)

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.6

Sheet No: 6 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

609000 610000 611000 612000

228000 227000

N

P93
HSI: Not Surveyed

P91
HSI: Excellent

NF PO141
HSI: Good

P89
HSI: Poor

PO195
HSI: Good

P101
HSI: Good

P87
HSI: Good

TCC8

P90
HSI: Good

PO183
HSI: Good

P88
HSI: Good

NF PO143
HSI: Not Surveyed

TCC9

TCC10

TCC11

P86
HSI: Below Average

PO142
HSI: Good

Spratts Lane

Barton Road

Paynes Lane

Section 5

Section 6

P92
HSI: Not Surveyed

NF PO146
HSI: Poor

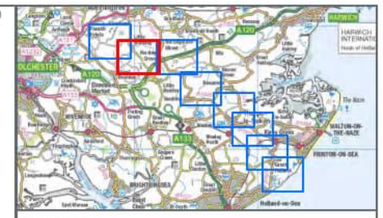
P85
HSI: Good

Bentley Road

A120

P83
HSI: Poor

609000 610000 611000 612000



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Substation Temporary Construction Haul Road
- Temporary Construction Compound
- Access and Crossing Zone

Great Crested Newt Pond Survey Results 2022/23 (RHDHV/SLR)

- GCN Present
- Pond Not Accessible - Assumed GCN Present
- GCN Present 50 m Buffer
- GCN Present 100 m Buffer
- GCN Present 250 m Buffer
- GCN Absent
- Pond Not Accessible - Assumed GCN Absent

Great Crested Newt Pond Survey Results 2022 (North Falls)

- GCN Absent
- Pond Not Accessible

0 100 200 400
Metres

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PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

POTENTIAL IMPACTS GREAT CRESTED NEWTS (GCN)

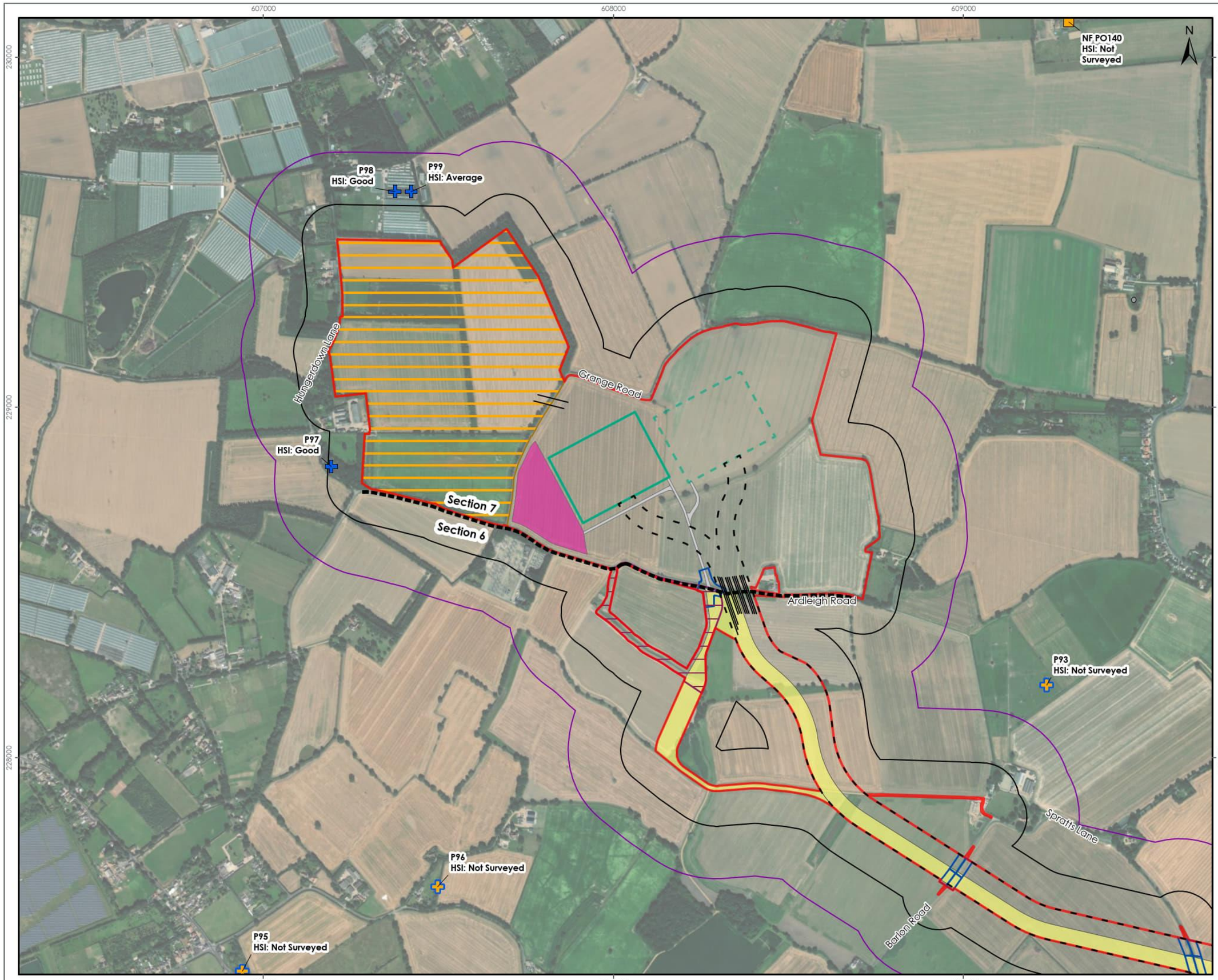
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1	22/02/2024	ES Submission	DB	JRS

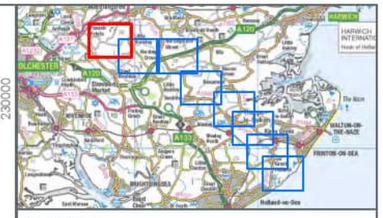
DRAWING NUMBER: 4.6

Sheet No: 7 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WIND FARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Order Limits 250 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Substation Operational Boundary
- Substation Temporary Construction Compound
- Ardleigh Road Drainage Zone
- Indicative Substation Access Route
- Substation Temporary Construction Haul Road
- North Falls Indicative Substation Operational Boundary
- Access and Crossing Zone
- National Grid EACN Substation Zone

Great Crested Newt Pond Survey Results 2022/23 (RHDHV/SLR)

- GCN Present
- Pond Not Accessible - Assumed GCN Present
- GCN Absent
- Pond Not Accessible - Assumed GCN Absent

Great Crested Newt Pond Survey Results 2022 (North Falls)

- Pond Not Accessible

Great Crested Newt Pond Surveys 2017 - 2019 (Natural England)

- 10 FIG Inconclusive

0 100 200 400
Metres

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FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

POTENTIAL IMPACTS GREAT CRESTED NEWTS (GCN)

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.6

Sheet No: 8 of 8

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:10,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES OFFSHORE WINDFARM

4.8.31 Urban (with the exception of private gardens), cropland and short sward modified grassland habitats are considered to be of low value to GCN, as well as other locally occurring amphibians, at all stages of its lifecycle. All gardens, woodlands, hedgerows, scrub and wetlands within 250 m of ponds supporting GCN are considered to be of high value to sheltering, hibernating and foraging GCN, as well as providing routes between ponds and foraging areas. Grassland (excluding short sward modified grassland) and other vegetated habitat is considered to be of moderate value to sheltering and foraging GCN.

4.8.32 The remaining amphibian species were recorded in low numbers north of the A120, such that none of the ponds are considered to support a significant single-species population or multi-species assemblage. Ponds south of the A120 were not subject to torching and trapping survey such that it is not possible to determine amphibian numbers present at those locations.

4.8.33 It is worth noting that no GCN were incidentally recorded at the artificial refugia installed during the reptile survey (see below), nor have any GCN been recorded during site investigation work undertaken in 2022 and 2023, at various locations within the Order Limits, which involved searches of terrestrial habitats at trench and borehole locations.

REPTILES

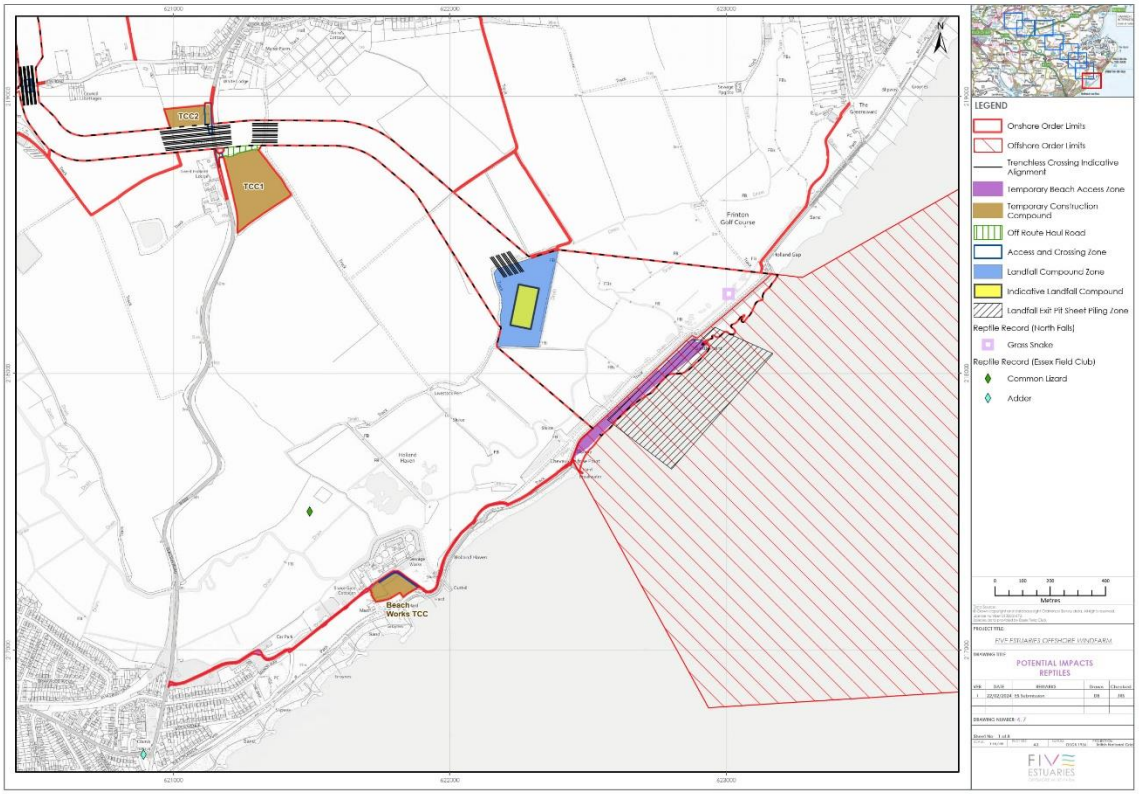
4.8.34 EFC data include a total of 75 records for four species of reptile within the study area. These include:

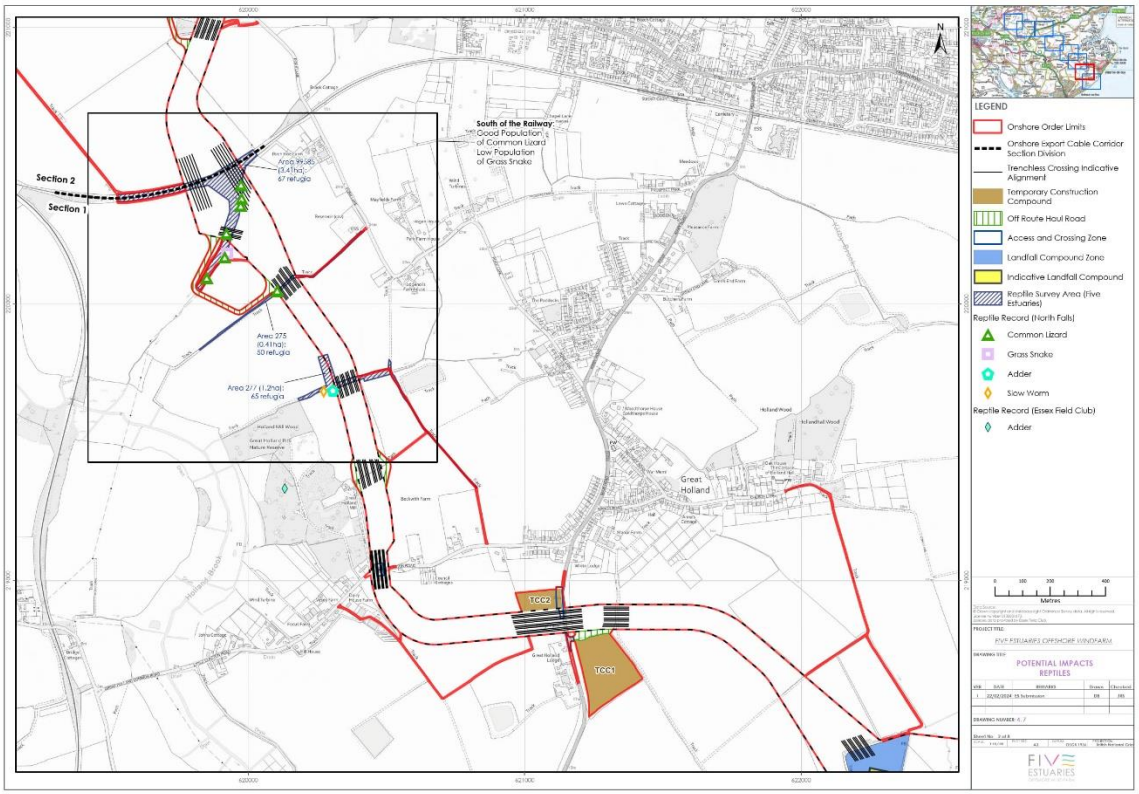
- Adder *Vipera berus*;
- Slow worm *Anguis fragilis*;
- Grass snake *Natrix natrix* and
- Common lizard *Zootoca vivipara*.

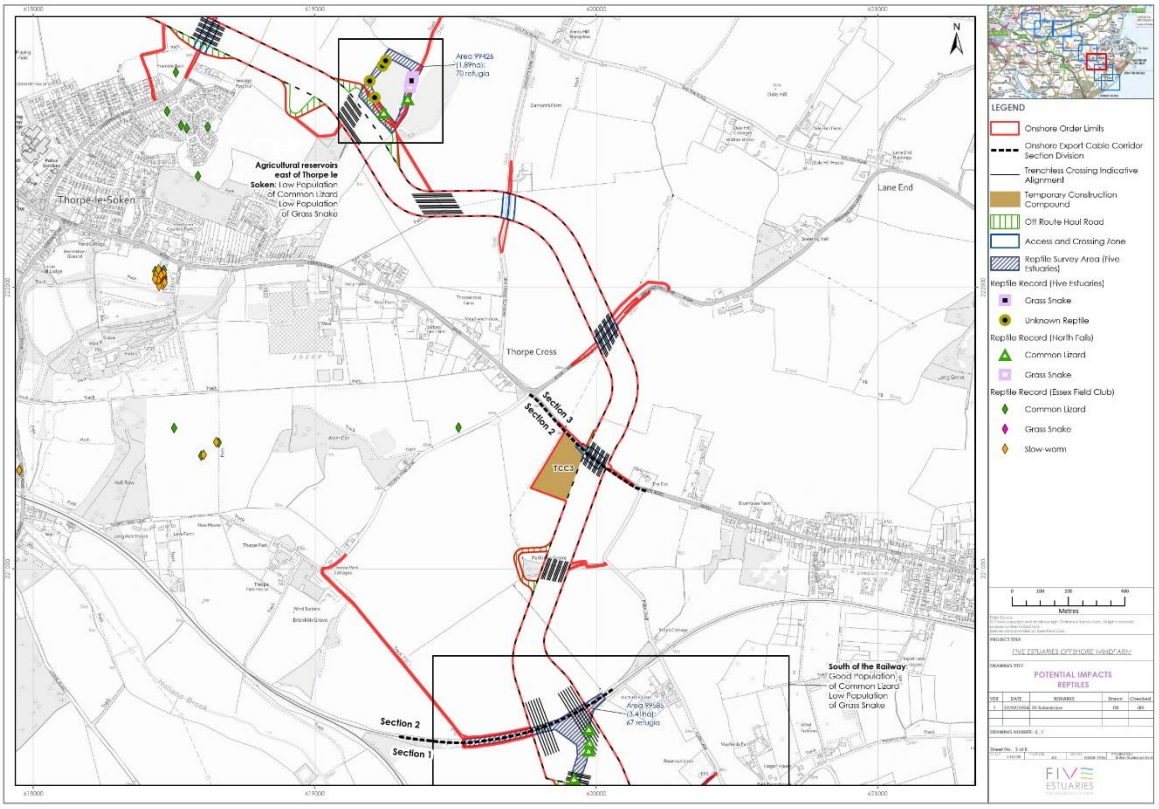
4.8.35 All the above species are protected from intentional killing, injuring and sale under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are listed under Section 41 of the NERC Act 2006.

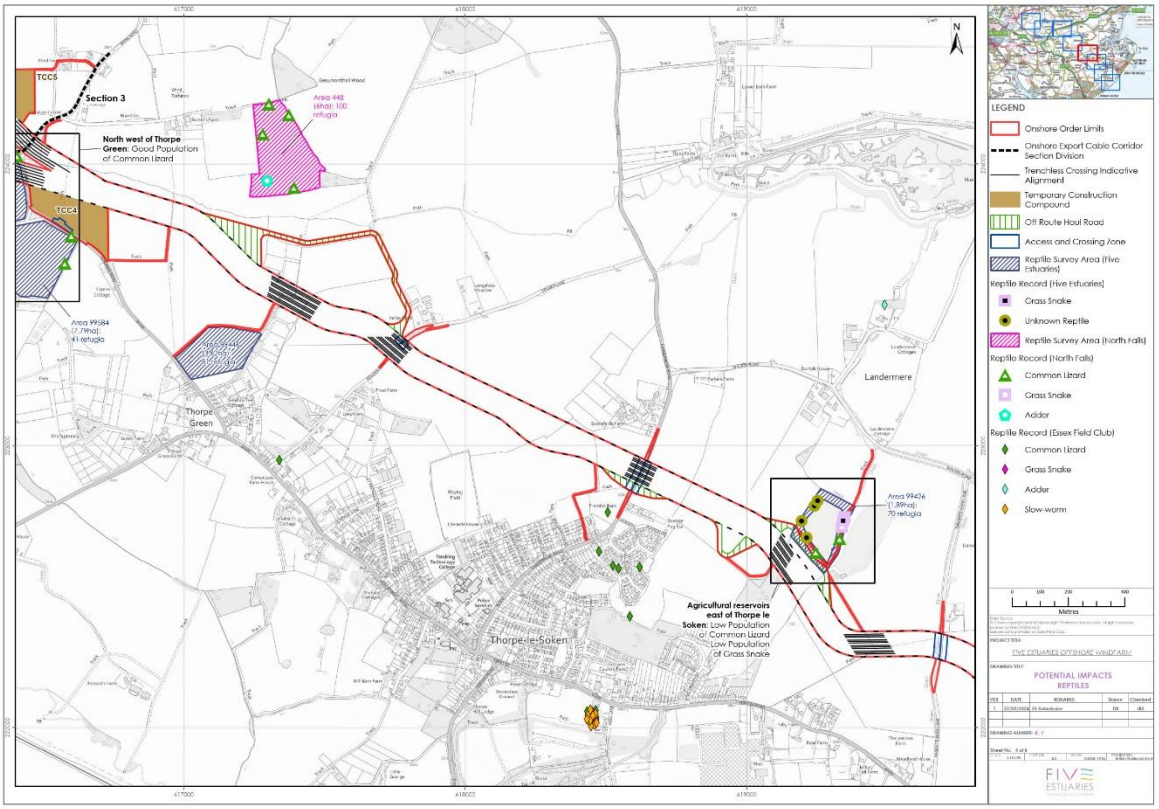
4.8.36 The species records returned by EFC include a concentration of common lizard and slow worm records at Thorpe le Soken and Weeley, with scattered records of common lizard, grass snake and adder across the wider study area, as indicated on Figure 4.7.

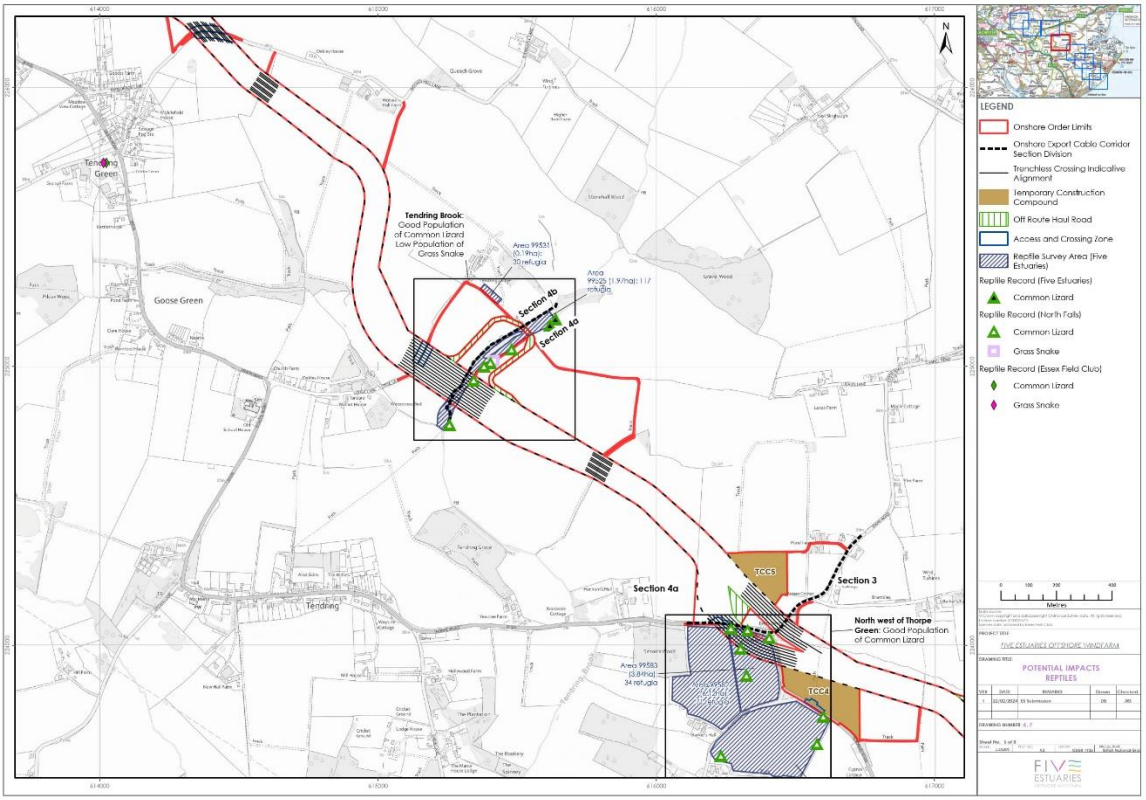
Figure 4.7: Potential impacts: reptiles

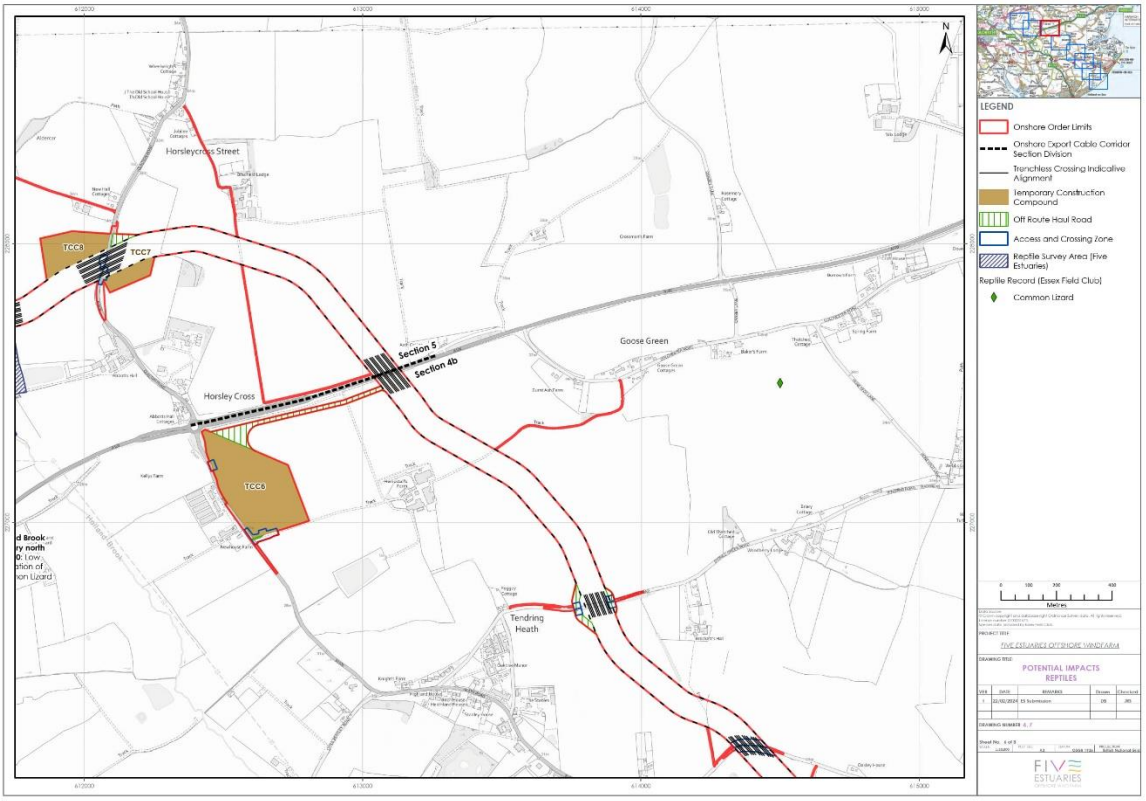


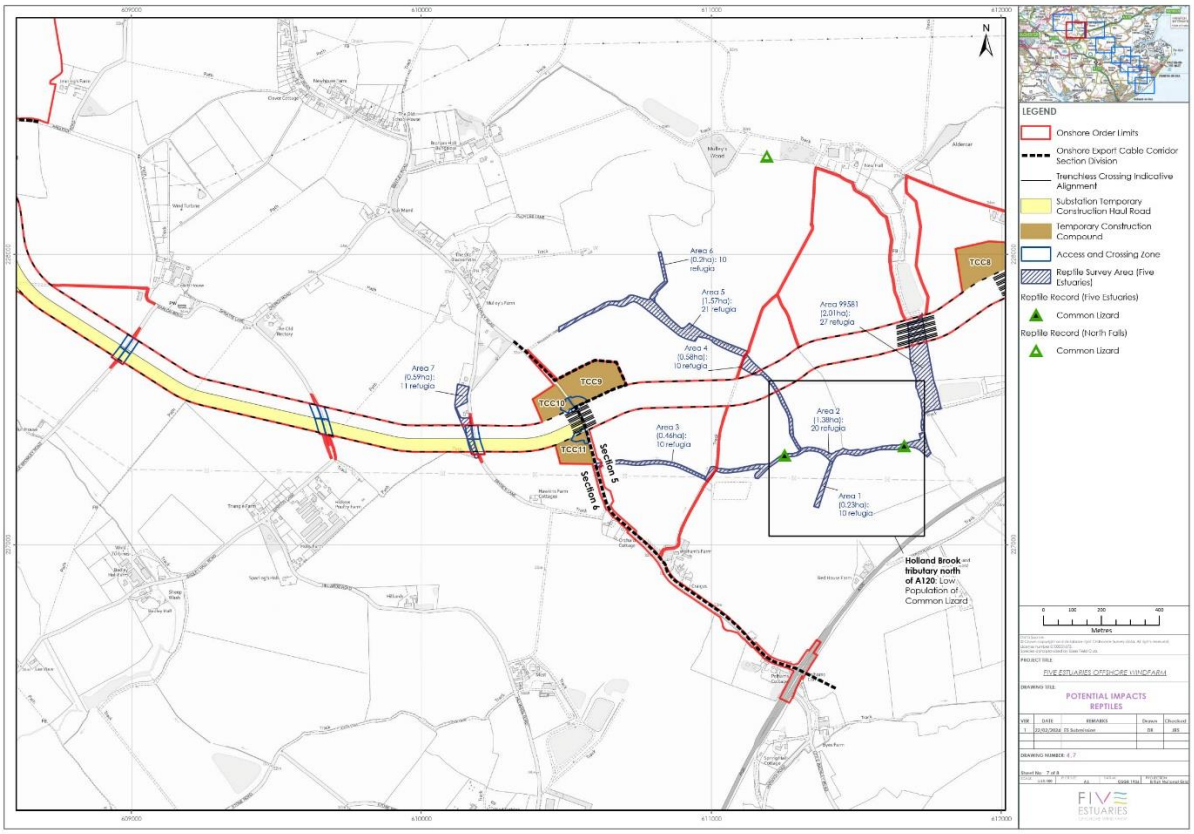


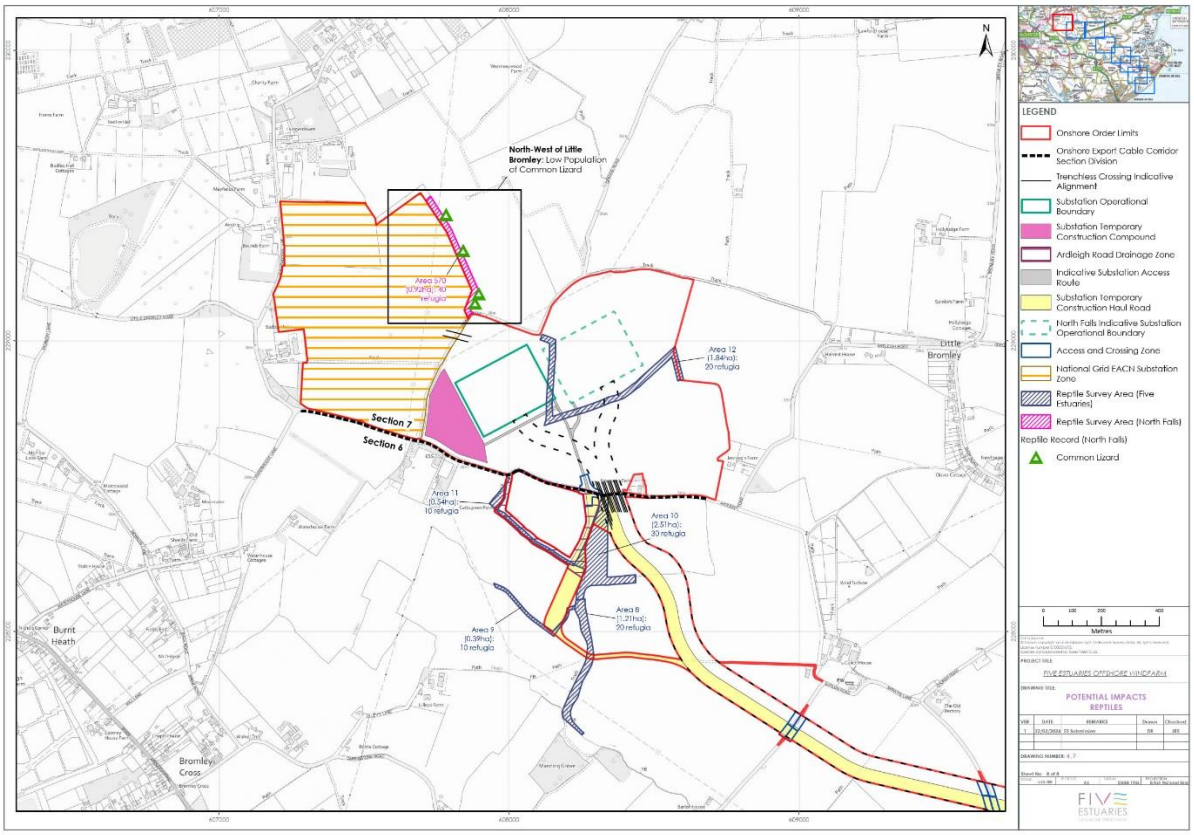

Area 99426
(1.89ha):
70 refugia
Agricultural reservoirs
east of Thorpe le
Soken: Low Population
of Common Lizard
Low Population
of Grass Snake
Thorpe-le-Soken
Lane End
Thorpe Cross
Section 3
Section 2
TCC3
South of the Railway:
Good Population
of Common Lizard
Low Population
of Grass Snake
Area 99585
(3.41ha):
67 refugia
Section 2
Section 1
N
LEGEND
Onshore Order Limits
Onshore Export Cable Corridor
Section Division
Trenchless Crossing Indicative
Alignment
Temporary Construction
Compound
Off Route Haul Road
Access and Crossing Zone
Reptile Survey Area (Five
Estuaries)
Reptile Record (Five Estuaries)
Grass Snake
Unknown Reptile
Reptile Record (North Falls)
Common Lizard
Grass Snake
Reptile Record (Essex Field Club)
Common Lizard
Grass Snake
Slow-worm
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS
REPTILES


TCC5
Section 3
North west of Thorpe
Green: Good Population
of Common Lizard
TCC4
Area 448
(4ha): 100
refugia
Area 99584
(7.29ha):
41 refugia
Thorpe
Green
Landermere
Area 99406
(1.89ha):
70 refugia
Agricultural reservoirs
east of Thorpe le
Soken: Low Population
of Common Lizard
Low Population
of Grass Snake
Thorpe-le-Soken
N
LEGEND
Onshore Order Limits
Onshore Export Cable Corridor
Section Division
Trenchless Crossing Indicative
Alignment
Temporary Construction
Compound
Off Route Haul Road
Access and Crossing Zone
Reptile Survey Area (Five
Estuaries)
Reptile Record (Five Estuaries)
Grass Snake
Unknown Reptile
Reptile Survey Area (North Falls)
Reptile Record (North Falls)
Common Lizard
Grass Snake
Adder
Reptile Record (Essex Field Club)
Common Lizard
Grass Snake
Adder
Slow-worm
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS
REPTILES


Tendring Brook: Good Population of Common Lizard Low Population of Grass Snake
Area 99531 (0.19ha): 30 refugia
Area 99525 (1.9ha): 117 refugia
Section 4b
Section 4a
Section 4a
Section 3
North west of Thorpe Green: Good Population of Common Lizard
Area 99583 (3.84ha): 34 refugia
TCC5
TCC4
Goose Green
Tendring
Tendring Green
LEGEND
Onshore Order Limits
Onshore Export Cable Corridor Section Division
Trenchless Crossing Indicative Alignment
Temporary Construction Compound
Off Route Haul Road
Access and Crossing Zone
Reptile Survey Area (Five Estuaries)
Reptile Record (Five Estuaries)
Common Lizard
Reptile Record (North Falls)
Common Lizard
Grass Snake
Reptile Record (Essex Field Club)
Common Lizard
Grass Snake
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS REPTILES
FIVE ESTUARIES


Horsleycross Street
TCC8
TCC7
Section 5
Section 4b
Goose Green
Horsley Cross
TCC6
Tendring Heath
LEGEND
Onshore Order Limits
Onshore Export Cable Corridor Section Division
Trenchless Crossing Indicative Alignment
Temporary Construction Compound
Off Route Haul Road
Access and Crossing Zone
Reptile Survey Area (Five Estuaries)
Reptile Record (Essex Field Club)
Common Lizard
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS REPTILES
FIVE ESTUARIES


LEGEND
Onshore Order Limits
Onshore Export Cable Corridor Section Division
Trenchless Crossing Indicative Alignment
Substation Temporary Construction Haul Road
Temporary Construction Compound
Access and Crossing Zone
Reptile Survey Area (Five Estuaries)
Reptile Record (Five Estuaries)
Common Lizard
Reptile Record (North Falls)
Common Lizard
Area 6 (0.2ha): 10 refugia
Area 5 (1.57ha): 21 refugia
Area 99581 (0.91ha): 27 refugia
Area 4 (0.58ha): 10 refugia
Area 7 (0.59ha): 11 refugia
Area 2 (1.38ha): 20 refugia
Area 3 (0.46ha): 10 refugia
Area 1 (0.23ha): 10 refugia
TCC8
TCC9
TCC10
TCC11
Section 5
Section 6
Holland Brook and tributary north of A120: Low Population of Common Lizard
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS REPTILES
FIVE ESTUARIES


LEGEND
Onshore Order Limits
Onshore Export Cable Corridor Section Division
Trenchless Crossing Indicative Alignment
Substation Operational Boundary
Substation Temporary Construction Compound
Ardleigh Road Drainage Zone
Indicative Substation Access Route
Substation Temporary Construction Haul Road
North Falls Indicative Substation Operational Boundary
Access and Crossing Zone
National Grid FACN Substation Zone
Reptile Survey Area (Five Estuaries)
Reptile Survey Area (North Falls)
Reptile Record (North Falls)
Common Lizard
North-West of Little Bromley: Low Population of Common Lizard
Area 12 (1.84ha): 20 refugia
Area 11 (0.54ha): 10 refugia
Area 10 (2.51ha): 20 refugia
Area 8 (1.21ha): 20 refugia
Area 9 (0.39ha): 10 refugia
Section 7
Section 6
Little Bromley
Burnt Heath
Bromley Cross
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS REPTILES
FIVE ESTUARIES

4.8.37 Habitats that may be suitable for use by reptiles occur across the survey area and include rough grassland, field margins, hedgerows, scrub, woodland edges and wetlands, although the large arable fields within the survey area are not likely to support reptile species.

4.8.38 Field survey by VE and NF has confirmed the presence of common lizard, grass snake, slow worm (incidental record) and adder (incidental record) in areas of suitable habitat within the Order Limits. No site supported more than two species. Full details for the reptile surveys undertaken for VE can be found in Volume 6, Part 6, Annex 4.16 and Annex 4.17 for areas north and south of the A120 respectively, with additional data gathered by NF available in the NF OWF PEIR Chapter 23, Annex 3.4 Reptile Survey Report (Volume III).

4.8.39 The reptile records are concentrated at field boundaries at six broad locations, as indicated on Figure 4.7 and summarized in Table 4.7 (CL = common lizard and GS = grass snake).

Table 4.7: Reptile baseline survey summary

Location	Results summary	Population size (Froglife, 1999)
South of the railway	15 CL, 1 adult GS and 1 juv GS	Good population of CL Low population of GS
Agricultural reservoirs east of Thorpe le Soken	4 unknown species, 4 adult CL, 2 adult GS plus 1 juv;	Low population of CL Low population of GS
North-west of Thorpe Green	13 CL;	Good population of CL
Tendring Brook	13 adult CL, 1 adult GS	Good population of CL Low population of GS
Holland Brook tributary north of A120	2 CL	Low population of CL
North-west of Little Bromley	4 adult CL, 1 juv CL	Low population of CL

NON-BREEDING BIRDS

LANDFALL AREA

4.8.40 The results of non-breeding bird surveys at the landfall and surrounding area (broadly equating to Route Section 1 as shown in Figure 1.2) are presented in detail in the ES Volume 6, Part 6, Annex 4.24: Five Estuaries Preliminary Environmental Information Report - Wintering Birds Landfall Report and Annex 4.25: North Falls Ecology Reports (Annex 4.10: North Falls Offshore Wind Farm Onshore Landfall Area: 2020/21 Non-breeding Bird Surveys and Annex 4.11: North Falls Offshore Wind Farm Onshore Landfall Area: 2021/22 Non-breeding Bird Surveys). The results of additional surveys in August and September 2022, covering part of the autumn migration period, are presented in the ES Volume 6, Part 6, Annex 4.4: North Falls Onshore Landfall Area Breeding Bird Surveys 2022 Report. A summary of key findings is provided below. Survey data for the Order Limits and 400 m buffer, for species representing wintering qualifying features for nearby European sites, listed in the Holland Haven Marshes SSSI in respect of their wintering populations, or otherwise considered to represent IEFs during the winter in the PEIR, are also aggregated in the ES Volume 6, Part 6, Annex 4.6: Wintering Bird Data Analysis in relation to Onshore Works[4].

4.8.41 Figures showing the distribution of target waterbird species, or target waterbird species groups, recorded during surveys carried out by MacArthur Green, on behalf of NF OWFL, in 2020-21 and 2021-22, are provided in the ES Volume 6, Part 6, Annex 4.25: North Falls Ecology Reports (Annex 4.10 North Falls Offshore Wind Farm Onshore Landfall Area: 2020/21 Non-breeding Bird Surveys: and Annex 4.11: North Falls Offshore Wind Farm Onshore Landfall Area: 2021/22 Non-breeding Bird Surveys). A series of figures showing the distribution and relative abundance of waterbird species recorded during surveys undertaken by SLR, on behalf of VE, in 2021-22 are provided in the ES Volume 6, Part 6, Annex 4.24: Five Estuaries Preliminary Environmental Information Report - Wintering Birds Landfall Report Figures showing the distribution and relative abundance of waterbird species representing qualifying features of nearby designated sites (or listed in the Holland Haven Marshes SSSI citation) from all non-breeding bird surveys combined, in relation to the Order Limits and a 400 m buffer, are also provided in the ES Volume 6, Part 6, Annex 4.6: Wintering Bird Data Analysis in relation to Onshore Works.

[4] Note that the wintering bird data analysis presented in ES Volume 6, Part 6, Annex 4.6 was based on an earlier version of the Order Limits that was under consideration at that time. The Order Limits have subsequently been subject to minor changes, which may affect some of the figures presented in Annex 4.6. None of the changes are likely to affect the conclusions of the assessment, however.

4.8.42 In total, 52 target species (wildfowl, waders, raptors and rare BoCC red-listed species) were recorded in the area surrounding the landfall during surveys carried out by MacArthur Green, on behalf of NF OWFL in 2020-21 with 61 target species recorded in the same area during the NF OWFL 2021-22 surveys. 39 waterbird species were recorded during the surveys undertaken at each landfall location, plus a minimum 500 m buffer, by SLR on behalf of VE, in 2021-22. The species recorded include several species representing qualifying features for nearby SPAs and Ramsar sites and/ or wintering species referred to in the Holland Haven Marshes SSSI citation (see Table 4.3).

4.8.43 A number of target species were recorded within Holland Haven Marshes SSSI during the autumn passage surveys in August and September 2022, albeit in relatively low numbers. These included wader species such as avocet *Recurvirostra avosetta*, curlew, dunlin *Calidris alpina*, ringed plover *Charadrius hiaticula*, ruff *Calidris pugnax*, sanderling *Calidris alba* and green sandpiper *Tringa ochropus*. Counts were generally up to three individuals, with a peak of seven curlew, ten whimbrel *Numenius phaeopus* and a peak flock of 59 lapwing.

4.8.44 Desk study data relating to wintering birds were summarised in the PEA report (ES Volume 6, Part 6, Annex 4.22.1-3) and in the report on the 2021-22 surveys undertaken at the landfall on behalf of VE (ES Volume 6, Part 6, Annex 4.24). All of the target species for which there are previous records at the landfall and surrounding area were also recorded during the surveys undertaken in 2020-21 and 2021-22.

4.8.45 Peak counts for selected waterbird species recorded within the Order Limits and 400 m buffer at the landfall, over the course of all surveys combined, are shown in Table 4.8. Species included in Table 4.8 include all species representing wintering qualifying features for nearby European sites, listed in the Holland Haven Marshes SSSI citation in respect of their wintering populations, or otherwise considered to represent IEFs during the winter in the PEIR Onshore and Biodiversity chapter. The counts presented in Table 4.8 are based on data provided in ES Volume 6, Part 6, Annex 4.6: Wintering Bird Data Analysis in relation to Onshore Works.

4.8.46 Within Table 4.8, peak counts are presented separately for the proposed access route/ TCC to the west of Holland Haven Marshes (boundaries shown in Drawings 1-4 in ES Volume 6, Part 6, Annex 4.6) and for the remainder of the landfall area. This is to enable impacts associated with the use of the proposed access route and TCC to be assessed separately from disturbance impacts associated with other works at the landfall.

4.8.47 Table 4.8 also provides the most recent 5-year mean peak count for the Holland Marshes Wetland Bird Survey (WeBS) count sector (Austin *et al*., 2023), although it should be noted that these counts cover a slightly different area to the survey counts presented.

4.8.48 Table 4.8 also indicates whether the relevant species represent non-breeding qualifying features for SPAs and Ramsar sites within 15 km of the landfall area[5] or are wintering species referred to in the citation for Holland Haven Marshes SSSI.

[5] Although located within 15 km of the onshore Proposed Order Limits, Abberton Reservoir SPA/Ramsar and Blackwater Estuary (Mid-Essex Coast Phase 4) SPA/Ramsar are >15 km from the landfall area and are therefore excluded from Table 4.8.

Table 4.8: Peak counts of selected waterbird species within the Order Limits and 400 m buffer at the landfall and immediate surrounding area (Route Section 1) (all surveys combined)

English Name	Scientific Name	Peak Count – Order Limits plus 400 m Buffer (excluding Holland Haven Access)	Peak Count – Holland Haven Access plus 400 m Buffer	Holland Marshes WeBS Sector Five Year Mean Peak Count 2017/18-2021/22	SPA/ Ramsar/ SSSI Qualifying Feature (non-breeding)?
Dark-bellied brent goose	*Branta bernicla bernicla*	1,100	900	889	Hamford Water SPA/ Ramsar Stour & Orwell Estuaries SPA/ Ramsar Colne Estuary (Mid-Essex Coast Phase 2) SPA/Ramsar Holland Haven Marshes SSSI
European white fronted goose	*Anser albifrons albifrons*	40	238	39	-
Mute swan	*Cygnus olor*	12	7	5	Colne Estuary (Mid-Essex Coast Phase 2) SPA/Ramsar (assemblage)
Shelduck	*Tadorna tadorna*	30	18	25	Hamford Water SPA Stour & Orwell Estuaries SPA (assemblage) Colne Estuary (Mid-Essex Coast Phase 2) SPA (assemblage)
Shoveler	*Anas clypeata*	4	33	34	Holland Haven Marshes SSSI
Gadwall	*Anas strepera*	44	10	6	Stour & Orwell Estuaries SPA (assemblage)
Wigeon	*Mareca penelope*	200	288	406	Stour & Orwell Estuaries SPA (assemblage) Holland Haven Marshes SSSI
Pintail	*Anas acuta*	8	3	2	Stour & Orwell Estuaries SPA/Ramsar

English Name	Scientific Name	Peak Count – Order Limits plus 400 m Buffer (excluding Holland Haven Access)	Peak Count – Holland Haven Access plus 400 m Buffer	Holland Marshes WeBS Sector Five Year Mean Peak Count 2017/18-2021/22	SPA/ Ramsar/ SSSI Qualifying Feature (non-breeding)?
					Holland Haven Marshes SSSI
Teal	*Anas crecca*	80	324	351	Hamford Water SPA Holland Haven Marshes SSSI
Great crested grebe	*Podiceps cristatus*	3	-	-	Stour & Orwell Estuaries SPA (assemblage)
Avocet	*Recurvirostra avosetta*	40	45	31	Hamford Water SPA
Lapwing	*Vanellus vanellus*	890	150	448	Stour & Orwell Estuaries SPA (assemblage)
Golden plover	*Pluvialis apricaria*	150	1	57	-
Ringed plover	*Charadrius hiaticula*	1	-	1	Hamford Water SPA/ Ramsar Stour & Orwell Estuaries SPA (assemblage) Colne Estuary (Mid-Essex Coast Phase 2) SPA (assemblage)
Curlew	*Numenius arquata*	84	54	24	Stour & Orwell Estuaries SPA (assemblage) Colne Estuary (Mid-Essex Coast Phase 2) SPA (assemblage)
Black-tailed godwit	*Limosa limosa*	1	21	22	Hamford Water SPA/ Ramsar Stour & Orwell Estuaries SPA/ Ramsar Colne Estuary (Mid-Essex Coast Phase 2) SPA (assemblage)

English Name	Scientific Name	Peak Count – Order Limits plus 400 m Buffer (excluding Holland Haven Access)	Peak Count – Holland Haven Access plus 400 m Buffer	Holland Marshes WeBS Sector Five Year Mean Peak Count 2017/18-2021/22	SPA/ Ramsar/ SSSI Qualifying Feature (non-breeding)?
Turnstone	*Arenaria interpres*	10	16	6	Stour & Orwell Estuaries SPA (assemblage)
Knot	*Calidris canutus*	-	1	-	Stour & Orwell Estuaries SPA/ Ramsar
Ruff	*Calidris pugnax*	-	4	3	Holland Haven Marshes SSSI
Sanderling	*Calidris alba*	4	1	-	Colne Estuary (Mid-Essex Coast Phase 2) SPA (assemblage)
Dunlin	*Calidris alpina*	-	6	5	Stour & Orwell Estuaries SPA/ Ramsar Colne Estuary (Mid-Essex Coast Phase 2) SPA (assemblage)
Purple sandpiper	*Calidris maritima*	12	27	5	Holland Haven Marshes SSSI
Snipe	*Gallinago gallinago*	5	36	10	Holland Haven Marshes SSSI
Redshank	*Tringa totanus*	2	5	6	Hamford Water SPA/ Ramsar Stour & Orwell Estuaries SPA/ Ramsar Colne Estuary (Mid-Essex Coast Phase 2) SPA/Ramsar
Cormorant	*Phalacrocorax carbo*	31	18	12	Stour & Orwell Estuaries SPA (assemblage) Colne Estuary (Mid-Essex Coast Phase 2) SPA (assemblage)

4.8.49 Comparing the peak counts obtained during surveys undertaken at the landfall in 2020-21 and 2021-22 with WeBS data for Holland Marshes over the period 2017-18 to 2021-22 shows that peak counts are broadly comparable for most species recorded in larger numbers. This indicates that the 2020-21 and 2021-22 survey data are generally representative of other recent years. Where there are differences between the 2020-21 and 2021-22 survey data and the WeBS data for 2017-18 to 2021-22, in most cases (e.g., lapwing, curlew and purple sandpiper) these differences are likely to be due to differences in the area covered. For some other species, notably European white-fronted goose, differences are likely to reflect fluctuations in numbers between years, as evidenced by the WeBS data for 2015-16 to 2019-20 (Austin *et al*., 2023).

4.8.50 Non-waterbird target species recorded at the landfall during the wintering surveys included the following:

- Marsh harrier *Circus aeruginosus* – single bird during NF OWFL surveys in 2021-22;
- Hen harrier *Circus cyaneus* – two records (non-breeding hen harrier is a qualifying feature for the Colne Estuary (Mid-Essex Coast Phase 2) SPA);
- Barn owl – single birds during NF OWFL surveys in 2020-21 and 2021-22;
- Short-eared owl *Asio flammeus* – single birds during NF OWFL surveys in 2020-21 and 2021-22;
- Kingfisher *Alcedo atthis* – single birds during NF OWFL surveys in 2020-21 and 2021-22;
- Merlin *Falco columbarius* – single birds during NF OWFL surveys in 2020-21 and VE surveys in 2021-22;
- Hobby – single bird during NF OWFL surveys in 2021-22;
- Peregrine *Falco peregrinus* – several records of 1-2 birds during all surveys;
- Bearded tit *Panurus biarmicus* – 2 birds during NF OWFL surveys in 2021-22;
- Cetti's warbler *Cettia cetti* – several records during all surveys;
- Dartford warbler *Curruca undata* – single birds during all surveys;
- Firecrest *Regulus ignicapilla* – single bird during NF OWFL surveys in 2020-21; and
- Corn bunting – single bird during NF OWFL surveys in 2021-22.

4.8.51 The NF OWFL surveys in 2020-21 noted that there is widespread and frequent human activity across parts of the area surveyed, including dog walkers, wildfowling, golfing, angling and metal detecting. The coastal strip was most heavily used for recreational pursuits and there was frequent potential disturbance to birds. The VE surveys in 2021-22 indicated that walkers using the track along the seawall did not usually cause noticeable disturbance to waterbirds. Excluding people using the track along the seawall, the number of disturbance events recorded during the VE surveys was relatively low and 45% of these events resulted in no evident disturbance of birds observed. These findings suggest that waterbirds using areas in proximity to the seawall are relatively habituated to regular disturbance. The NF OWFL surveys (both years) highlighted the use of bird scarers on some of the fields inland of Holland Marshes, particularly within the Little Clacton and Great Holland compartments. These are likely to affect the distribution and usage of these areas by waterbird species.

EXPORT CABLE CORRIDOR AND SUBSTATION AREA

4.8.52 The results of wintering bird surveys of the onshore ECC and substation area, carried out by MacArthur Green on behalf of NF OWFL in 2021-22, are presented in detail in the ES Volume 6, Part 6, Annex 4.25: North Falls Ecology Reports: Annex 4.12 and the results of surveys in 2022-23 are presented in the ES Volume 6, Part 6, Annex 4.5: North Falls and Five Estuaries Offshore Wind Farms Onshore Cable Route: Non-breeding Bird Surveys 2022-23 Report. A summary of key findings provided below. Survey data for the Order Limits and 400 m buffer, for species representing wintering qualifying features for nearby European sites, listed in the Holland Haven Marshes SSSI in respect of their wintering populations, or otherwise considered to represent IEFs during the winter in the PEIR, are also aggregated in the ES Volume 6, Part 6, Annex 4.6: Wintering Bird Data Analysis in relation to Onshore Works[4].

4.8.53 Figures showing the distribution of waterbird species, or waterbird species groups, and other target species recorded during the surveys are provided in the ES Volume 6, Annex 4.5 and Annex 4.25: North Falls Ecology Reports: Annex 4.12.. Figures showing the distribution and relative abundance of waterbird species representing qualifying features of nearby designated sites (or listed in the Holland Haven Marshes SSSI citation) from all non-breeding bird surveys combined, in relation to the Order Limits and a 400 m buffer, are also provided in the ES Volume 6, Part 6, Annex 4.6.

4.8.54 In total, 51 target species (wildfowl, waders, raptors and rare BoCC red-listed species) were recorded in the area surveyed in 2021-22 and 54 target species were recorded in the area surveyed in 2022-23. The species recorded include several species representing over wintering qualifying features for nearby SPAs and Ramsar sites and/ or wintering species referred to in the Holland Haven Marshes SSSI citation (see Table 4.3).

4.8.55 Desk study data relating to wintering birds for the area within which the onshore ECC and substation area are located were summarised in the PEA report (Volume 6, Part 6, Annex 4.1). The desk study provided few target species records within the study area used for this assessment (i.e., within the onshore Order Limits and 400 m buffer). Dark-bellied brent geese have been recorded close to Thorpe-le-Soken, which may be within the study area for this assessment, although the precise location of the record is unknown. Dark-bellied brent geese have also been recorded outside this study area to the east, close to Hamford Water, and outside this study area to the north, towards the Stour Estuary. Golden plover has been recorded just outside this study area near Weeley and Wix.

4.8.56 Peak counts for selected waterbird species recorded within the Order Limits and 400 m buffer along the onshore ECC and at the OnSS, over the course of both surveys combined, are shown in Table 4.9. Species included in Table 4.9 include all species representing wintering qualifying features for nearby European sites, listed in the Holland Haven Marshes SSSI citation in respect of their wintering populations, or otherwise considered to represent IEFs during the winter in the PEIR. The counts presented in Table 4.9 are based on data provided in ES Volume 6, Part 6, Annex 4.6: Wintering Bird Data Analysis in relation to Onshore Works.

4.8.57 Table 4.9 also indicates whether the relevant species represent non-breeding qualifying features for SPAs and Ramsar sites within 15 km of the onshore ECC and OnSS or are wintering species referred to in the citation for Holland Haven Marshes SSSI.

Table 4.9: Peak counts of selected wintering waterbird species within the Order Limits and 400 m buffer along the onshore export cable corridor and at the substation (Route Sections 2-7) (2021-22 and 2022-23 surveys combined)

English Name	Scientific Name	Peak Count Route Section 2	Peak Count Route Section 3	Peak Count Route Section 4a	Peak Count Route Section 4b	Peak Count Route Section 5	Peak Count Route Section 6	Peak Count Route Section 7	SPA/ Ramsar/ SSSI Qualifying Feature (non-breeding)?
Dark-bellied brent Goose	*Branta bernicla bernicla*	-	65	-	-	-	-	-	Hamford Water SPA/ Ramsar Stour & Orwell Estuaries SPA/ Ramsar Colne Estuary (Mid-Essex Coast Phase 2) SPA/Ramsar Blackwater Estuary (Mid-Essex Coast Phase 4) SPA/Ramsar Holland Haven Marshes SSSI
Mute swan	*Cygnus olor*	-	2	-	2	12	3	-	Colne Estuary (Mid-Essex Coast Phase 2) SPA (assemblage) Abberton Reservoir SPA
Shelduck	*Tadorna tadorna*	-	15	-	-	-	-	-	Hamford Water SPA Stour & Orwell Estuaries SPA (assemblage) Colne Estuary (Mid-Essex Coast Phase 2) SPA (assemblage)
Shoveler	*Anas clypeata*	-	4	-	-	-	-	-	Abberton Reservoir SPA/Ramsar Holland Haven Marshes SSSI
Gadwall	*Anas strepera*	-	44	11	31	-	-	-	Stour & Orwell Estuaries SPA (assemblage)

English Name	Scientific Name	Peak Count Route Section 2	Peak Count Route Section 3	Peak Count Route Section 4a	Peak Count Route Section 4b	Peak Count Route Section 5	Peak Count Route Section 6	Peak Count Route Section 7	SPA/ Ramsar/ SSSI Qualifying Feature (non-breeding)?
									Abberton Reservoir SPA/Ramsar
Teal	*Anas crecca*	-	80	14	4	-	-	-	Hamford Water SPA Abberton Reservoir SPA/Ramsar Holland Haven Marshes SSSI
Pochard	*Aythya farina*	-	2	-	-	-	-	-	Abberton Reservoir SPA
Tufted duck	*Aythya fuligula*	-	66	-	-	2	-	-	Abberton Reservoir SPA
Coot	*Fulica atra*	-	28	2	4	2	-	-	Abberton Reservoir SPA
Great crested grebe	*Podiceps cristatus*	-	3	-	-	-	-	-	Stour & Orwell Estuaries SPA (assemblage) Abberton Reservoir SPA
Lapwing	*Vanellus vanellus*	1	265	27	153	-	12	56	Stour & Orwell Estuaries SPA (assemblage)
Golden plover	*Pluvialis apricaria*	-	-	-	49	-	1	5	-
Curlew	*Numenius arquata*	-	17	1	31	-	-	-	Stour & Orwell Estuaries SPA (assemblage) Colne Estuary (Mid-Essex Coast Phase 2) SPA (assemblage)
Black-tailed godwit	*Limosa limosa*	-	1	-	-	-	-	-	Hamford Water SPA/ Ramsar Stour & Orwell Estuaries SPA/ Ramsar

English Name	Scientific Name	Peak Count Route Section 2	Peak Count Route Section 3	Peak Count Route Section 4a	Peak Count Route Section 4b	Peak Count Route Section 5	Peak Count Route Section 6	Peak Count Route Section 7	SPA/ Ramsar/ SSSI Qualifying Feature (non-breeding)?
									Colne Estuary (Mid-Essex Coast Phase 2) SPA (assemblage) Blackwater Estuary (Mid-Essex Coast Phase 4) SPA/Ramsar
Snipe	*Gallinago gallinago*	-	1	-	1	2	1	-	Holland Haven Marshes SSSI
Redshank	*Tringa totanus*	-	2	-	-	-	-	-	Hamford Water SPA/ Ramsar Stour & Orwell Estuaries SPA/ Ramsar Colne Estuary (Mid-Essex Coast Phase 2) SPA/Ramsar
Cormorant	*Phalacrocorax carbo*	-	17	1	3	1	-	9	Stour & Orwell Estuaries SPA (assemblage) Colne Estuary (Mid-Essex Coast Phase 2) SPA (assemblage)

4.8.58 Non-waterbird target species recorded during the surveys of the onshore ECC and substation areas in winter 2021-22 and 2022-23 included the following:

- Marsh harrier – recorded on six (out of 12) survey visits, peak count of six in 2021-22, recorded regularly near Hamford Water in 2022-23 with a peak count of four;
- Hen harrier – single record in December 2021 (non-breeding hen harrier is a qualifying feature for the Colne Estuary (Mid-Essex Coast Phase 2) SPA and Blackwater Estuary (Mid-Essex Coast Phase 4) SPA), not recorded in 2022-23;
- Red kite *Milvus milvus* – recorded on three (out of 12) survey visits, peak count of five in 2021-22, recorded regularly in 2022-23 with a peak count of seven;
- Barn owl – up to two birds recorded on five (out of 12) survey visits in 2021-22, present in 2022-23 with a peak count of one;
- Kingfisher – recorded on six (out of 12) survey visits, peak count of three in 2021-22, present at Hamford Water in 2022-23;
- Kestrel *Falco tinnunculus* – recorded on all survey visits, peak count of 18 in 2021-22, peak count of 14 in 2022-23;
- Merlin – up to two birds recorded on three (out of 12) survey visits in 2021-22, recorded infrequently in 2022-23 (single birds only);
- Peregrine – recorded on ten (out of 12) survey visits, peak count of four in 2021-22, recorded infrequently in 2022-23 (single birds only);
- Woodlark *Lullula arborea* – single record of two birds in October 2021, not recorded in 2022-23;
- Cetti's warbler – single bird on one (out of 12) survey visits in 2021-22 and peak count of one in 2022-23; and
- Corn bunting – peak count of 86 in 2021-22, recorded on 11 (out of 12) survey visits, with the largest flocks in the north of the area surveyed near Little Bromley and New Hall and in the south of the area surveyed near Great Holland. In 2022-23, peak count of 59, with most in the north of the area surveyed near Little Bromley.

4.8.59 Of the species representing designated site qualifying features that were recorded within the Order Limits and/or 400 m buffer in relatively large numbers (i.e., peak counts >20) over the two winters, dark-bellied brent geese were only recorded in Route Section 3, near Hamford Water, with a peak count of 65. Lapwing was recorded in six of the seven route sections, although numbers >100 were only recorded in Route Sections 3 (265) and 4b (153). Curlew was only recorded in the southern part of the area surveyed (Route Sections 3, 4a and 4b), with a peak count of 31. Although not a designated site qualifying feature, golden plover is an IEF and was recorded in three out of the seven route sections, with a peak count of 49 in Route Section 4b. The main concentrations of ducks within the 400 m buffer, including gadwall, teal and tufted duck, were on the water bodies to the east of Thorpe-le-Soken, within Route Section 3.

BREEDING BIRDS

LANDFALL AREA

4.8.60 The results of breeding bird surveys at the landfall and surrounding area, carried out on behalf of NF OWFL in 2021 and 2022, are presented in detail in the ES Volume 6, Part 6, Annex 4.4 and Volume 6, Part 6, Annex 4.25: North Falls Ecology Reports: Annex 4.13 respectively, with a summary of key findings provided below. Figures showing the distribution of records for target species in 2022 are provided in ES Volume 6, Part 6, Annex 4.21: Confidential Protected Species Reports and Figures.

4.8.61 Desk study data relating to breeding birds at the landfall and surrounding area were summarised in the PEA report (ES Volume 6, Part 6, Annexes 4.22.1-3). Of note were records for turtle dove and nightingale at Holland Haven and Great Holland Pits LoWS, although turtle dove was recorded only once during the surveys at the landfall and surrounding area, in August 2022 and nightingale wasn't recorded at all. The Holland Haven Marshes SSSI citation refers to ringed plover breeding behind the seawall, but no evidence of breeding ringed plover was recorded during the 2021 or 2022 breeding bird surveys. All other notable species for which breeding records were identified by the desk study were recorded during the 2021 and/or 2022 breeding bird survey.

4.8.62 Target species recorded breeding within the Order Limits and 100 m buffer over the two years of survey are listed in Table 4.10. Table 4.10 also shows the number of records of each species within the Order Limits and 100 m buffer and provides additional notes on breeding status within the wider survey area. Table 4.10 also indicates whether the relevant species represent breeding qualifying features for SPAs and Ramsar sites within 15 km of the landfall area or are breeding species referred to in the citation for Holland Haven Marshes SSSI. Note that the number of records shown does not necessarily equate to the number of pairs within the Order Limits and 100 m buffer.

Table 4.10: Target bird species recorded breeding within the Order Limits and 100 m buffer at the landfall and surrounding area (Route Section 1) during the surveys undertaken in 2021 and 2022

English Name	Scientific Name	No. of Records within Order Limits and 100 m Buffer (2021)	No. of Records within Order Limits and 100 m Buffer (2022)	Notes on Breeding Status in Wider Survey Area	SPA/ Ramsar/ SSSI Qualifying Feature (breeding)?
Grey partridge	*Perdix perdix*	0	0	Incidental record of a breeding pair provided by a landowner in 2021, outside the Order Limits and 100 m buffer. Not recorded during surveys in either year.	-
Avocet	*Recurvirostra avosetta*	0	0	Up to 39 individuals within the SSSI (outside the 100 m buffer) in 2021 and up to 42 in 2022, most, if not all of which	Stour & Orwell Estuaries SPA

English Name	Scientific Name	No. of Records within Order Limits and 100 m Buffer (2021)	No. of Records within Order Limits and 100 m Buffer (2022)	Notes on Breeding Status in Wider Survey Area	SPA/ Ramsar/ SSSI Qualifying Feature (breeding)?
				were considered likely to comprise breeding birds.	
Lapwing	*Vanellus vanellus*	0	0	Recorded outside the 100 m buffer in wet grassland within the SSSI and on arable land outside the SSSI. Three territories in 2021 and up to 15 territories in 2022.	-
Redshank	*Tringa totanus*	0	0	Up to six individuals present with breeding confirmed at one location in 2021 and up to four territories in 2022. All records within the SSSI, outside the 100 m buffer.	-
Marsh harrier	*Circus aeruginosus*	0	0	One unconfirmed breeding territory (single female on several dates) in arable farmland outside the 100 m buffer in 2021 and 2022.	-
Barn owl	*Tyto alba*	0	0	Three pairs present in 2021 and 2022, all of which were outside the 100 m buffer.	-
Cetti's warbler	*Cettia cetti*	8	24	26 territories recorded within wider survey area in 2021 and 25 territories located in the same area in 2022.	-
Yellow wagtail	*Motacilla flava*	1	2	Five territories within wider survey area in 2021 and activity in four areas early in 2022 but no evidence of successful breeding. All breeding activity recorded in arable farmland, outside the SSSI.	Holland Haven Marshes SSSI
Corn bunting	*Emberiza calandra*	5	16	13 singing males in 2022 and 11 singing males in 2021. Mostly present in arable habitat.	-

English Name	Scientific Name	No. of Records within Order Limits and 100 m Buffer (2021)	No. of Records within Order Limits and 100 m Buffer (2022)	Notes on Breeding Status in Wider Survey Area	SPA/ Ramsar/ SSSI Qualifying Feature (breeding)?
Yellowhammer	*Emberiza citrinella*	0	1	Mostly recorded in arable margins to the west of Holland Brook (outside the 100 m buffer). Recorded at nine locations in 2021 and six locations in 2022.	-

4.8.63 Other species recorded during the breeding bird surveys at the landfall and surrounding area in 2021 and 2022 are listed in the ES Volume 6, Partt 6, Annex 4.25 (Annex 4.13) and the ES Volume 6, Part 6, Annex 4.4. These included skylark *Alauda arvensis*, meadow pipit *Anthus pratensis* and reed warbler *Acrocephalus scirpaceus*, which are referred to in the citation for Holland Haven Marshes SSSI. All three species were common with up to 56 skylark territories recorded throughout the wider area surveyed in 2021, with 89 territories recorded in the same area in 2022. Eight meadow pipit territories were recorded in 2021, with 32 territories in 2022 and 21 reed warbler territories were recorded in 2021, with 34 in 2022.

4.8.64 Several other wader and wildfowl species, not included in Table 4.10, were recorded during the surveys in both years but no confirmed evidence of breeding was reported in either year.

EXPORT CABLE CORRIDOR AND SUBSTATION AREA

4.8.65 Breeding bird surveys of the onshore ECC and substation area were carried out in spring/ summer 2022. The results, including figures showing the distribution of species recorded, are presented in detail in the ES Volume 6, Part 6, Annex 4.2: Breeding Bird Survey Report: North of A120 and Annex 4.3: Breeding Bird Survey Report: South of A120. Figures showing breeding locations for species protected through inclusion on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended) are provided in ES Volume 6, Part 6, Annex 4.21: Confidential Protected Species Reports and Figures. Desk study data relating to breeding birds along the onshore ECC and at the substation area were summarised in the PEA report (ES Volume 6, Part 6, Annexes 4.22.1-3). A summary of key survey findings is provided below.

4.8.66 Schedule 1 species, priority species listed under S41 of the NERC Act 2006 and red-listed species of conservation concern (Stanbury *et al*., 2021) that were confirmed or probably breeding in each Route Section within the Order Limits and 100 m buffer are listed in Table 4.11. For areas north of the A120 the number of territories or pairs is given, whilst for areas south of the A120 the number of territories (where identified) and the number of records is provided due to differences in the way data were collected and analysed. Note that the number of records does not necessarily equate to the number of breeding pairs.

Table 4.11: Specially protected bird species and bird species of high conservation concern confirmed or probably breeding within the Order Limits and 100 m buffer along the Onshore ECC and at the Substation area during the surveys undertaken in 2022

English Name	Scientific Name	No of Territories/ Pairs recorded in each Route Section (where the No. of Territories/ Pairs was not Identified or is Likely to be Incomplete, the number of Records is given in Brackets)							Notes on Breeding Status
		Route Section 2	Route Section 3	Route Section 4a	Route Section 4b	Route Section 5	Route Section 6	Route Section 7	
Lapwing	*Vanellus vanellus*	(3)							Regarded as possible breeder only.
Barn owl	*Tyto alba*								At least two nests recorded within the survey area but both outside the 100 m buffer.
Hobby	*Falco subbuteo*			(1)		1		1	Successful nests identified in or close to Route Sections 5 and 7. Regarded as possible breeder only in Route Section 4a.
Skylark	*Alauda arvensis*	3 (8)	11 (78)	2 (167)	15 (124)	8	33	29	Abundant breeder in arable fields.
Cetti's warbler	*Cettia cetti*		(1)						
Starling	*Sturnus vulgaris*		(1)		(417)				Records include foraging flocks. Regarded as probable breeder.
Song thrush	*Turdus philomelos*		(10)	(2)	(1)	2		5	Regarded as probable breeder in Route Sections 3, 4a and 4b.
House sparrow	*Passer domesticus*		4		2	4	2	1	

English Name	Scientific Name	No of Territories/ Pairs recorded in each Route Section (where the No. of Territories/ Pairs was not Identified or is Likely to be Incomplete, the number of Records is given in Brackets)							Notes on Breeding Status
		Route Section 2	Route Section 3	Route Section 4a	Route Section 4b	Route Section 5	Route Section 6	Route Section 7	
Yellow wagtail	*Motacilla flava*			(1)		(1)	2	2	Regarded as possible breeder only in Route Sections 4a and 5.
Greenfinch	*Chloris chloris*			(2)				2	Regarded as possible breeder only in Route Section 4a.
Linnet	*Linaria cannabina*		(17)	(11)	(13)	2	2	3	Regarded as probable breeder in Route Sections 3, 4a and 4b.
Corn bunting	*Emberiza calandra*	(2)		(1)		2 (5)	22	6	The high density of singing males in Route Section 6 was notable. Regarded as probable breeder in Route Sections 2 and 4a.
Yellowhammer	*Emberiza citrinella*		(9)	(13)	(10)	3	3	6	Frequent in areas with better quality hedgerows. Lower density where corn bunting density was high. Regarded as probable breeder in Route Sections 3, 4a and 4b.
Reed bunting	*Emberiza schoeniclus*			(1)	1 (3)				Regarded as probable breeder.

4.8.67 Several other notable species were recorded during the surveys but were either recorded outside the Order Limits and 100 m buffer or were not considered likely to be breeding within the area surveyed. These included the Schedule 1 species quail *Coturnix coturnix*, marsh harrier, red kite and peregrine. There were no records of turtle dove or nightingale during the surveys.

BATS

4.8.68 All bat species in the UK are protected through inclusion in Schedule 5 of the Wildlife and Countryside Act and in Schedule 2 of the Conservation of Habitats and Species Regulations 2017 . Noctule, common pipistrelle, soprano pipistrelle, brown long-eared bat and barbastelle are also S41 species.

4.8.69 The EFC desk study data for bats is detailed in the ES Volume 6, Part 6, Annexes 4.22.1-3: Preliminary Ecological Appraisal Report. The results of bat surveys undertaken to inform this EcIA, including a series of figures showing tree numbers, locations and survey results, are presented in detail in the following Annex documents:

- Volume 6, Part 6, Annex 4.7: Bat Survey Report: North of A120;
- Volume 6, Part 6, Annex 4.8: Roosting Bats Tree Survey Report: South of A120;
- Volume 6, Part 6, Annex 4.9: Bat Activity Survey Report: South of A120; and
- Volume 6, Part 6, Annex 4.10: Bat Survey Report: Additional Tree Survey.

4.8.70 A summary of key findings is provided below, utilising all the above sources.

4.8.71 The EFC desk study data (extended to 6 km from the onshore Order Limits to account for core sustenance zones of the species likely to be present) includes records for the following species:

- Common pipistrelle Pipistrellus pipistrellus;
- Soprano pipistrelle *P. pygmaeus*;
- Nathusius' pipistrelle *Pipistrellus nathusii*;
- Pipistrelle sp.;
- Brown long-eared bat Plecotus auritus;
- Daubenton's bat Myotis daubentonii;
- Myotis sp.;
- Natterer's bat *Myotis nattereri*;
- Serotine Eptesicus serotinus;
- Noctule Nyctalus noctule;
- Leisler's bat Nyctalus leisleri;
- Barbastelle Barbastella barbastellus; and
- Bat sp.

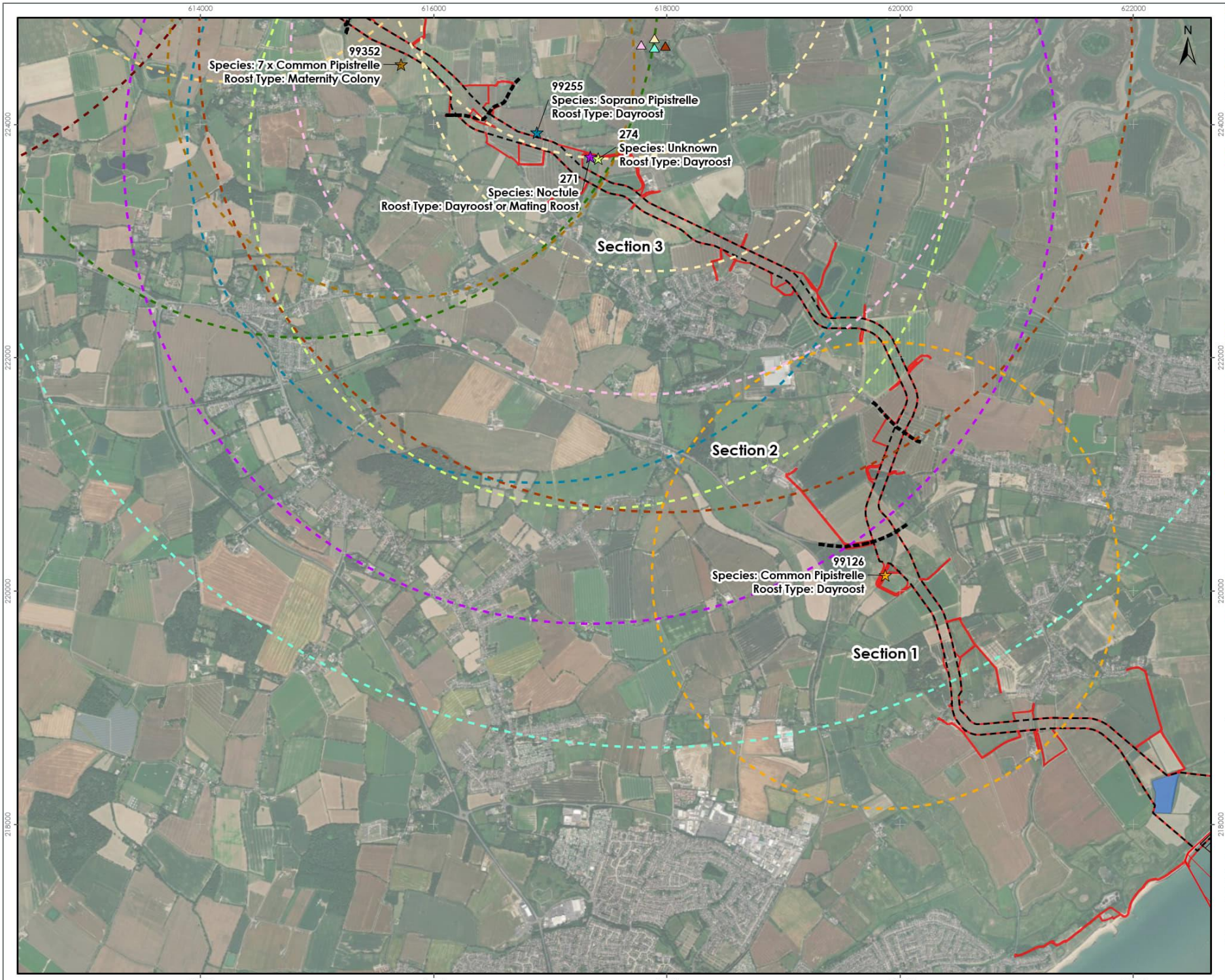
4.8.72 Eight known roost locations occur within 6 km of the Order Limits and are shown on Figure 4.8. The closest are 924m distant at Church Lane, Beaumont-cum-Moze and include a brown long-eared bat maternity roost, common pipistrelle, barbastelle and Natterer's bat roosts. The remaining four include a brown long-eared maternity roost at the Church of St Mary, Ardleigh, a brown long-eared bat roost at Hamilton Lodge, a common pipistrelle roost at Clacton-on-Sea and a serotine roost at Frinton-on-Sea. None of these are within the Order Limits.

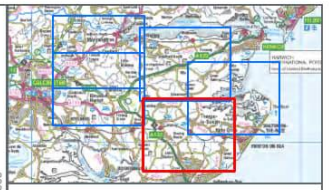
4.8.73 There are 42 trees within the Order Limits with moderate or high potential to support bats. Four species of bat were confirmed to roost within ten trees within the survey area, this includes one roost tree that is within the Order Limits (refer to Figure 4.8 for locations):

- Common pipistrelle – one maternity and two day roosts;
- Soprano pipistrelle – two day roosts;
- Natterer's bat – one day roost;
- Noctule – one day roost or mating roost; and
- Unknown bat sp – three day roosts.

4.8.74 At least a further seven species were recorded foraging within the survey area during bat activity surveys and are considered therefore to roost within a relatively short distance (between 1 km and 6 km, depending on the Core Sustenance Zone (CSZ) of the species involved (refer to Collins, J (ed.) 2023). Several of these species are known to roost in trees and therefore there is considered to be a possibility of a previously unidentified roost being present within the survey area, currently or in future. This includes Nathusius' pipistrelle, barbastelle and brown long-eared bat.

4.8.75 The activity surveys identified that bat activity levels vary across the survey area. A synopsis for each recorded species is provided in Table 4.12 with locations shown on Figure 4.8.





LEGEND

- Onshore Order Limits
- Offshore Order Limits
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Landfall Compound Zone
- Landfall Exit Pit Sheet Piling Zone

Bat Roost Tree and Core Sustenance Zone (CSZ) (Five Estuaries)

Common Pipistrelle 2 km Buffer (ID)

- 452
- 99126
- 99352

Soprano Pipistrelle 3 km Buffer (ID)

- 99255

Natterer's Bat 4 km Buffer (ID)

- 1030

Noctule Species 4 km Buffer (ID)

- 271

Unknown Species 3 km Buffer (ID)

- 274
- 99388

Bat Roost Tree and Core Sustenance Zone (CSZ) (Essex Field Club Records)

- Common Pipistrelle 2 km Buffer
- Natterer's Bat 4 km Buffer
- Brown Long-eared Bat 3 km Buffer
- Western Barbastelle 6 km Buffer

0 0.25 0.5 1
Kilometres

Data Source:
© Crown copyright and database right Ordnance Survey data. All rights reserved. License number 0100031673.
Aerial Imagery (2021) Source: Maxar, Microsoft
Species data provided by Essex Field Club.

PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

POTENTIAL IMPACTS BATS

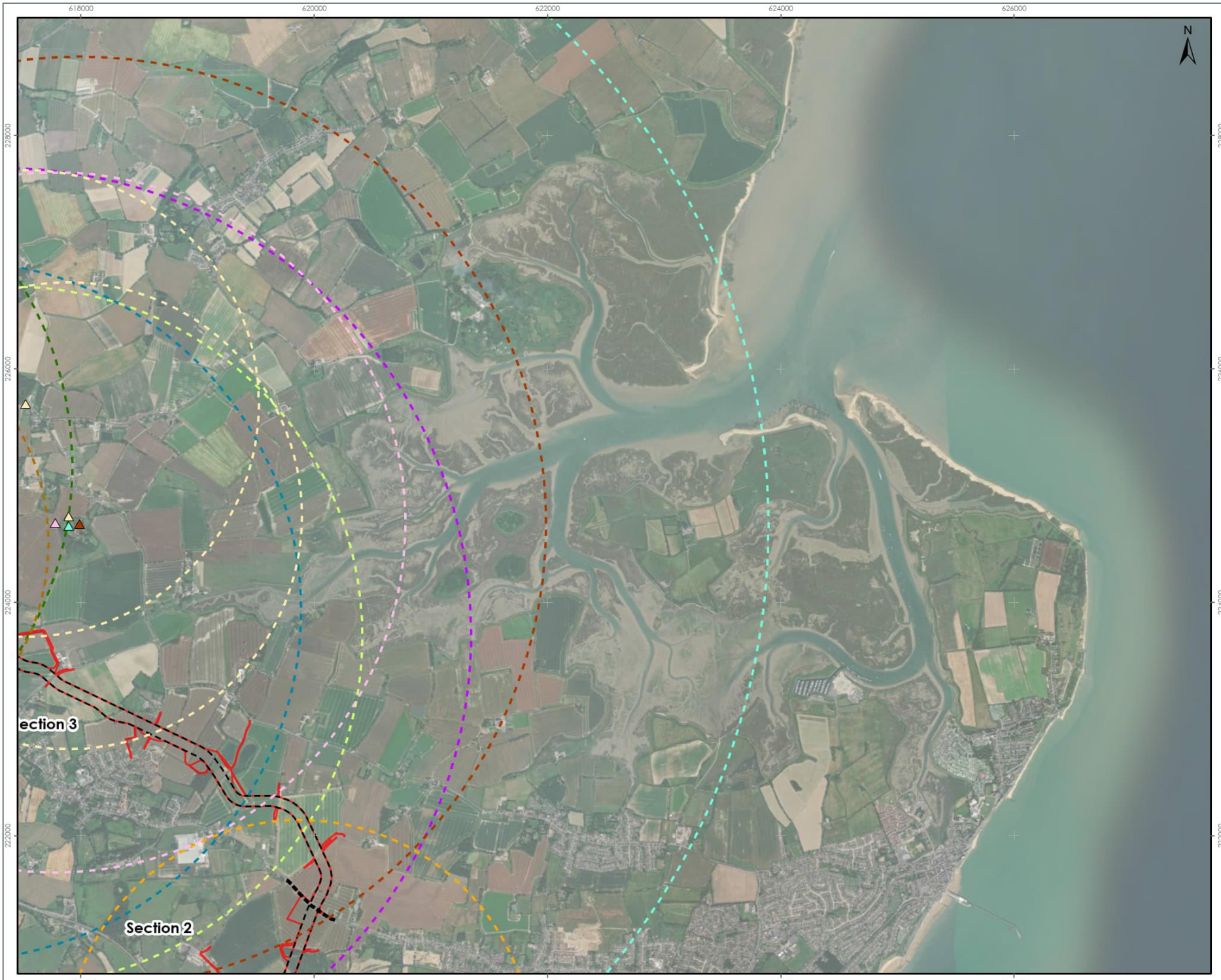
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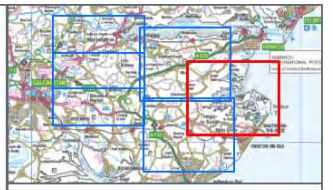
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Sheet No: 1 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:50,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor

Bat Roost Tree and Core Sustenance Zone (CSZ) (Five Estuaries)

Common Pipistrelle 2 km Buffer (ID)

- 99126
- 99352

Soprano Pipistrelle 3 km Buffer (ID)

- 99255

Noctule Species 4 km Buffer (ID)

- 271

Unknown Species 3 km Buffer (ID)

- 274
- 99388

Bat Roost Tree and Core Sustenance Zone (CSZ) (Essex Field Club Records)

- Common Pipistrelle 2 km Buffer
- Natterer's Bat 4 km Buffer
- Brown Long-eared Bat 3 km Buffer
- Western Barbastelle 6 km Buffer

0 0.25 0.5 1
Kilometres

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Aerial Imagery (2021) Source: Maxar, Microsoft
Species data provided by Essex Field Club.

PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

POTENTIAL IMPACTS BATS

VER	DATE	REMARKS	Drawn	Checked
1	14/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.8

Sheet No: 2 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:50,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor

Bat Roost Tree and Core Sustenance Zone (CSZ) (Five Estuaries)

Common Pipistrelle 2 km Buffer (ID)
- 452
- 99352

Soprano Pipistrelle 3 km Buffer (ID)
- 99255

Natterer's Bat 4 km Buffer (ID)
- 1030

Noctule Species 4 km Buffer (ID)
- 271

Unknown Species 3 km Buffer (ID)
- 274
- 874
- 99388

Bat Roost Tree and Core Sustenance Zone (CSZ) (Essex Field Club Records)
- Common Pipistrelle 2 km Buffer
- Natterer's Bat 4 km Buffer
- Brown Long-eared Bat 3 km Buffer
- Western Barbastelle 6 km Buffer

0 0.25 0.5 1
Kilometres

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Aerial Imagery (2021) Source: Maxar, Microsoft
Species data provided by Essex Field Club.

PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
POTENTIAL IMPACTS BATS

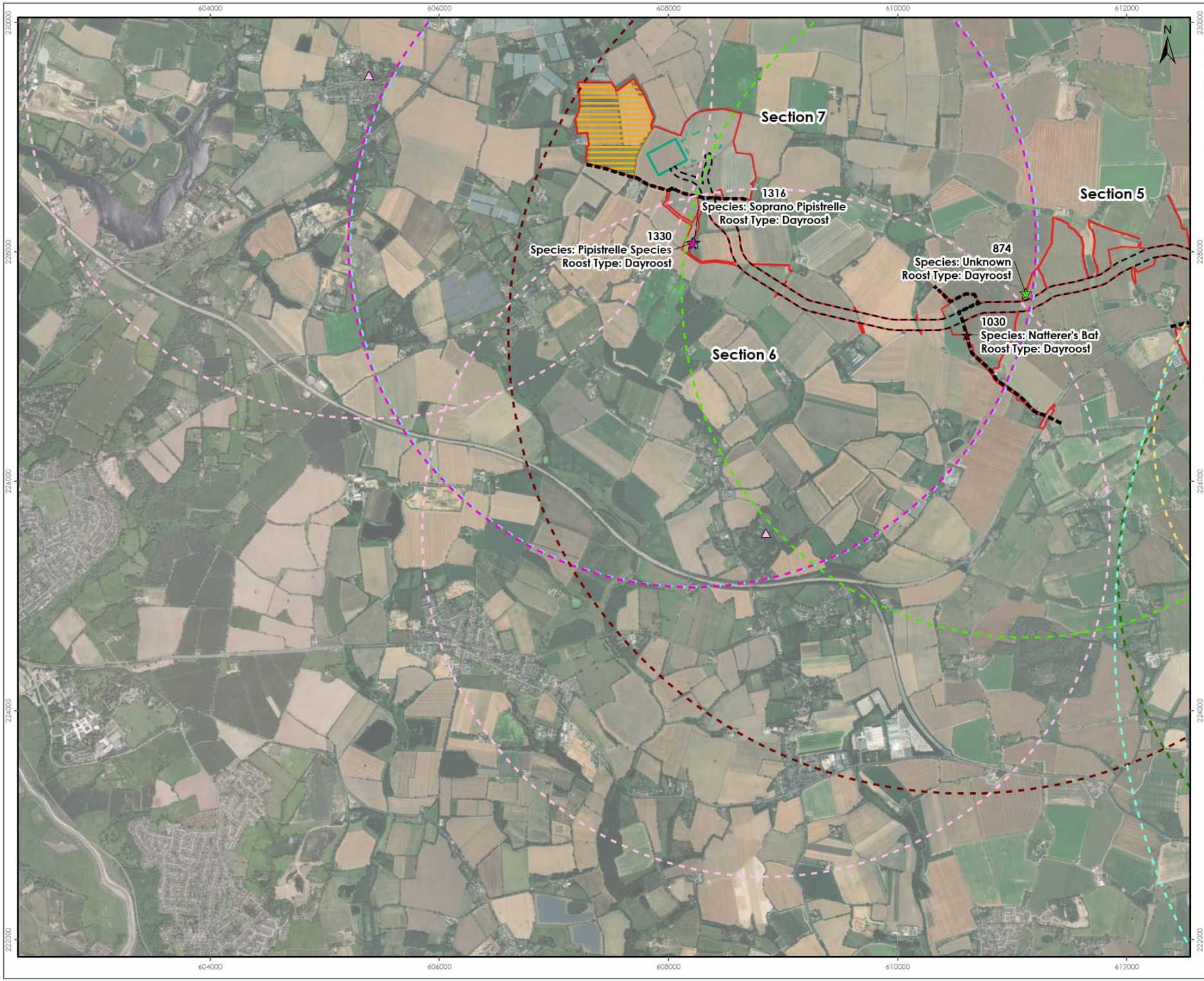
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1	14/02/2024	ES Submission	DB	JRS

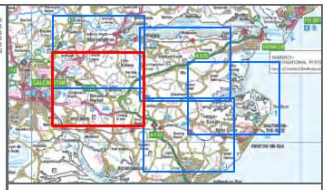
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Sheet No: 3 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
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FIVE ESTUARIES OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Substation Operational Boundary
- North Falls Indicative Substation Operational Boundary
- National Grid EACN Substation Zone

Bat Roost Tree and Core Sustenance Zone (CSZ) (Five Estuaries)

Common Pipistrelle 2 km Buffer (ID)
- 452

Soprano Pipistrelle 3 km Buffer (ID)
- 1316

Pipistrelle Species 3 km Buffer (ID)
- 1330

Natterer's Bat 4 km Buffer (ID)
- 1030

Unknown Species 3 km Buffer (ID)
- 874
- 99388

Bat Roost Tree and Core Sustenance Zone (CSZ) (Essex Field Club Records)
- Brown Long-eared Bat 3 km Buffer
- Western Barbastelle 6 km Buffer

0 0.25 0.5 1
Kilometres

Data Source:
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Aerial Imagery (2021) Source: Earthstar Geographics
Species data provided by Essex Field Club.

PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
POTENTIAL IMPACTS BATS

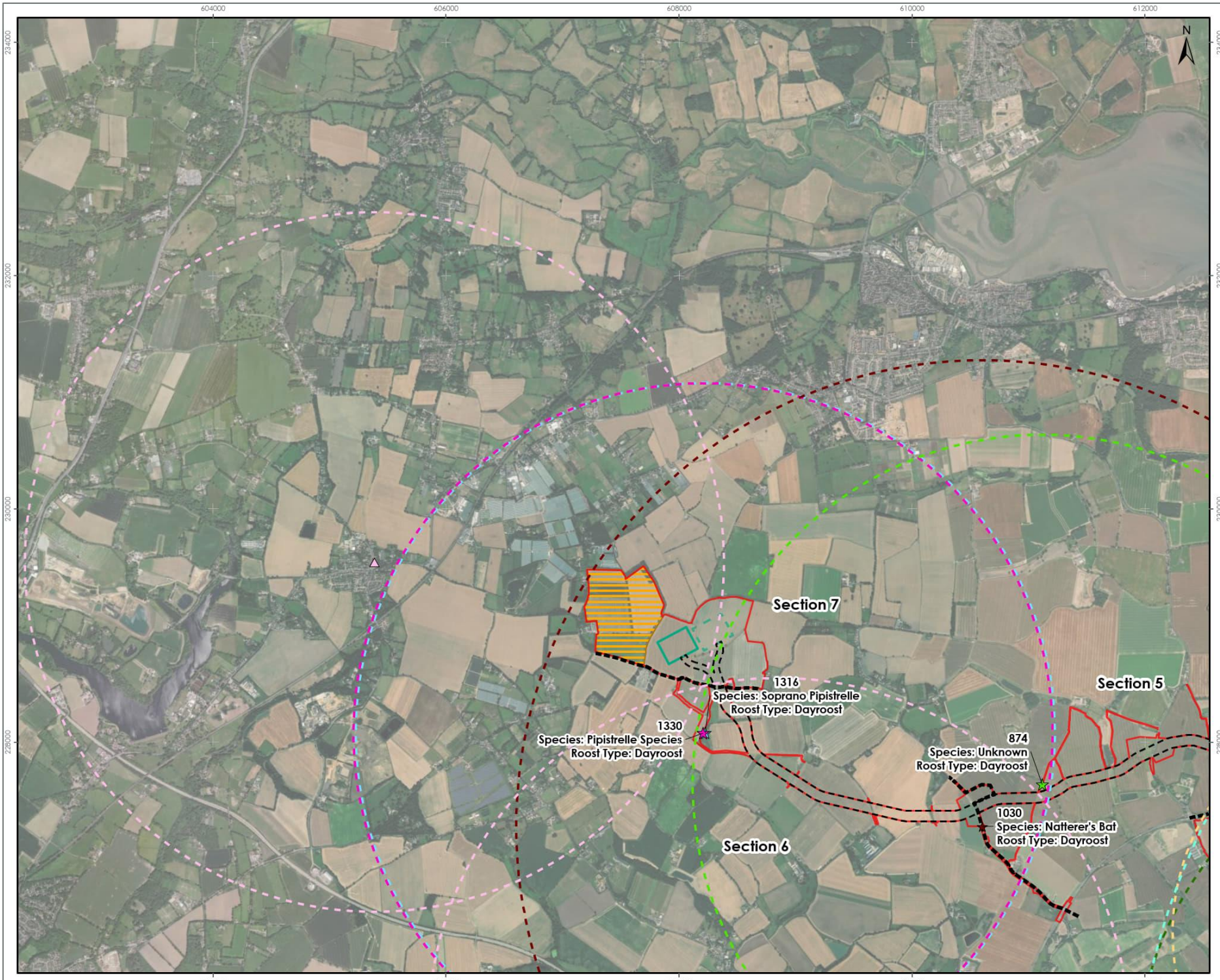
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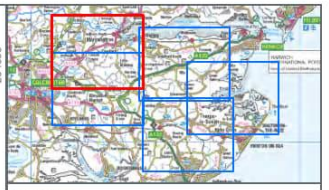
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Sheet No: 4 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
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FIVE ESTUARIES
OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Substation Operational Boundary
- North Falls Indicative Substation Operational Boundary
- National Grid EACN Substation Zone

Bat Roost Tree and Core Sustenance Zone (CSZ) (Five Estuaries)

Common Pipistrelle 2 km Buffer (ID)
- 452

Soprano Pipistrelle 3 km Buffer (ID)
- 1316

Pipistrelle Species 3 km Buffer (ID)
- 1330

Natterer's Bat 4 km Buffer (ID)
- 1030

Unknown Species 3 km Buffer (ID)
- 874
- 99388

Bat Roost Tree and Core Sustenance Zone (CSZ) (Essex Field Club Records)
- Brown Long-eared Bat 3 km Buffer
- Western Barbastelle 6 km Buffer

0 0.25 0.5 1
Kilometres

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Aerial Imagery (2021) Source: Earthstar Geographics
Species data provided by Essex Field Club.

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FIVE ESTUARIES OFFSHORE WINDFARM

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POTENTIAL IMPACTS BATS

VER	DATE	REMARKS	Drawn	Checked
1	14/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.8

Sheet No: 5 of 21

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:80,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WIND FARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Offshore Order Limits
- Onshore Export Cable Corridor
- Temporary Beach Access Zone
- Temporary Construction Compound
- Access and Crossing Zone
- Landfall Compound Zone
- Landfall Exit Pit Sheet Piling Zone
- Potential Flightline and / or Foraging Area
- h2a - Hedgerow (Priority Habitat)
- Woodland / Scrub

0 50 100 200
Metres

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Aerial Imagery (2021) Source: Maxar, Microsoft
Species data provided by Essex Field Club.

PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

POTENTIAL IMPACTS BATS

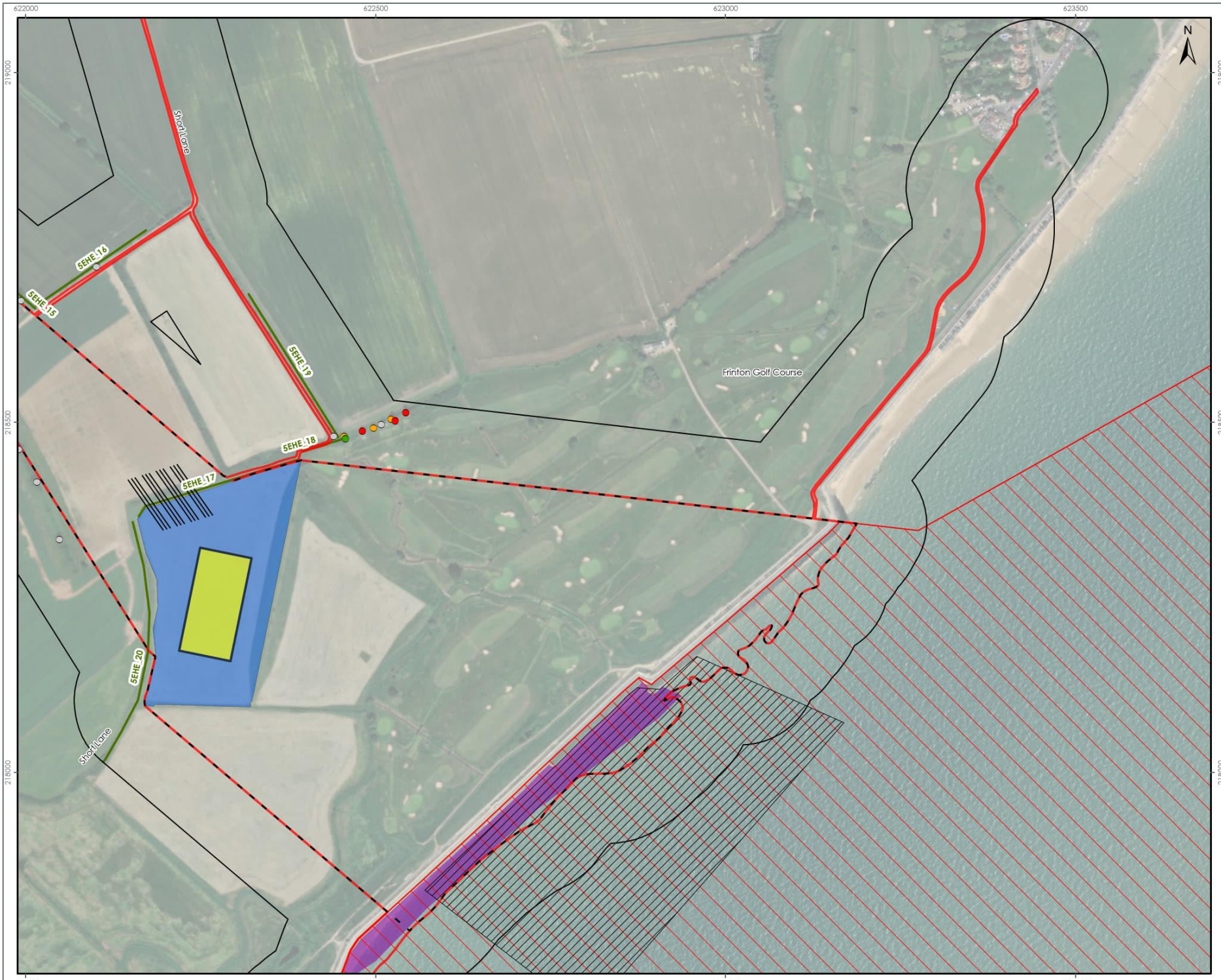
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1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.8

Sheet No: 6 of 23

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WIND FARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Offshore Order Limits
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Beach Access Zone
- Landfall Compound Zone
- Indicative Landfall Compound
- Landfall Exit Pit Sheet Piling Zone

Tree with Bat Roost Potential (Five Estuaries)

- High
- Moderate
- Low
- Negligible

Potential Flightline and / or Foraging Area

- h2a - Hedgerow (Priority Habitat)

0 50 100 200
Metres

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PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

POTENTIAL IMPACTS BATS

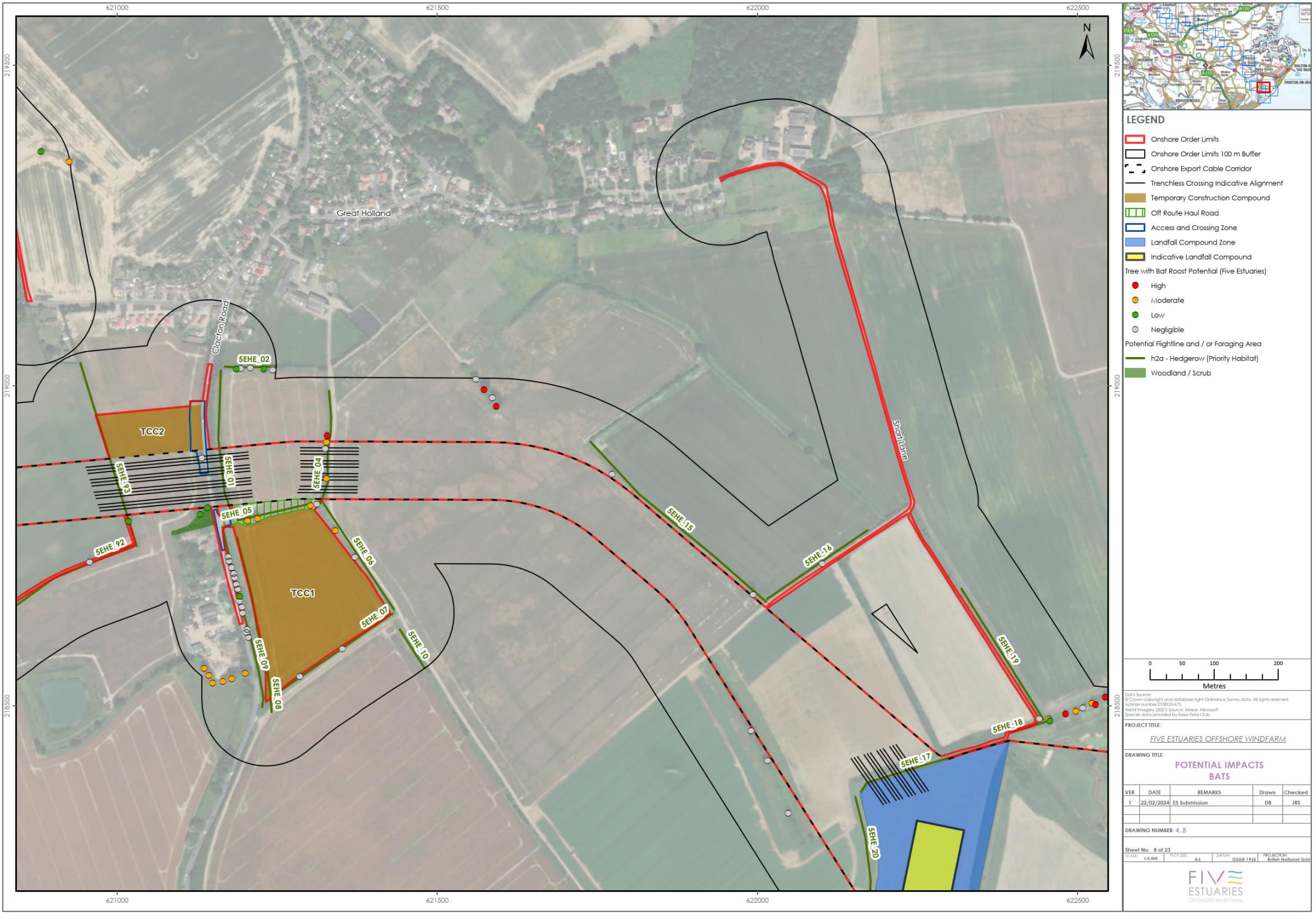
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Sheet No: 7 of 23

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone
- Landfall Compound Zone
- Indicative Landfall Compound

Tree with Bat Roost Potential (Five Estuaries)

- High
- Moderate
- Low
- Negligible

Potential Flightline and / or Foraging Area

- h2a - Hedgerow (Priority Habitat)
- Woodland / Scrub

0 50 100 200
Metres

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PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

POTENTIAL IMPACTS BATS

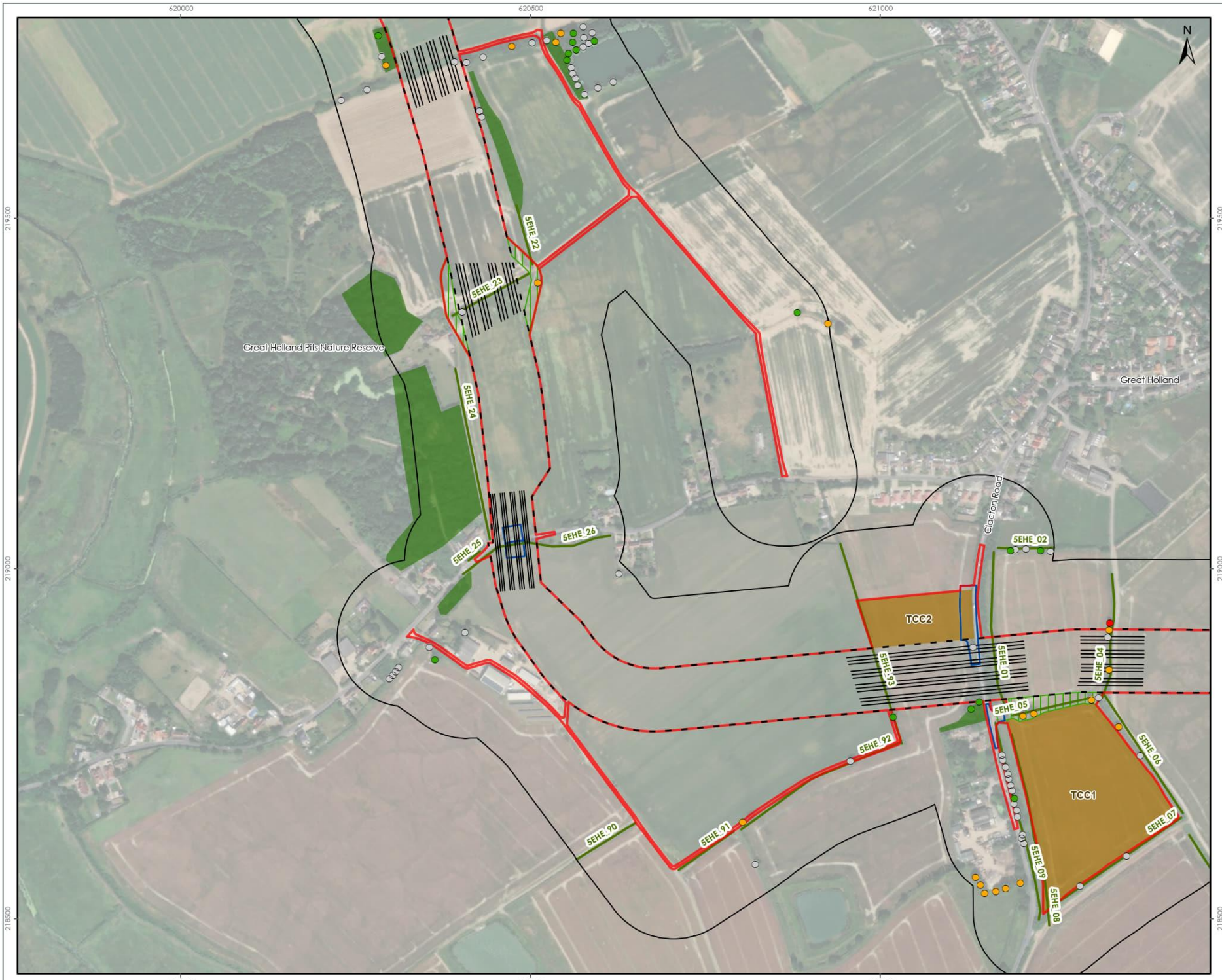
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DRAWING NUMBER: 4.8

Sheet No: 8 of 23

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WIND FARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Tree with Bat Roost Potential (Five Estuaries)

- High
- Moderate
- Low
- Negligible

Potential Flightline and / or Foraging Area

- h2a - Hedgerow (Priority Habitat)
- Woodland / Scrub

0 50 100 200
Metres

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FIVE ESTUARIES OFFSHORE WINDFARM

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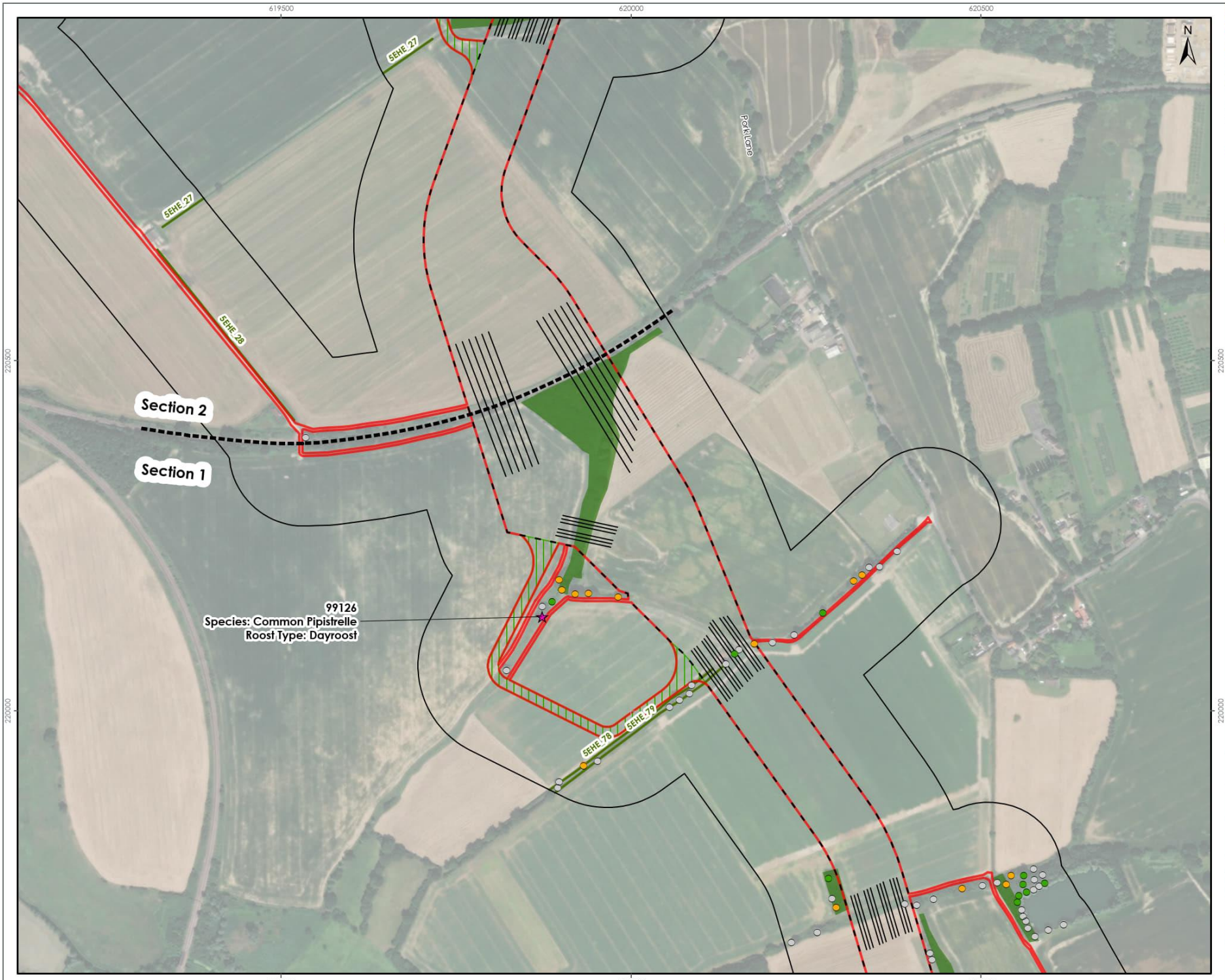
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1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.8

Sheet No: 9 of 23

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WIND FARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Off Route Haul Road

Tree with Bat Roost Potential (Five Estuaries)

- Confirmed Roost
- Moderate
- Low
- Negligible

Potential Flightline and / or Foraging Area

- h2a - Hedgerow (Priority Habitat)
- Woodland / Scrub

0 50 100 200
Metres

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FIVE ESTUARIES OFFSHORE WINDFARM

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POTENTIAL IMPACTS BATS

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.8

Sheet No: 10 of 23

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Tree with Bat Roost Potential (Five Estuaries)

- High
- Moderate
- Low
- Negligible

Potential Flightline and / or Foraging Area

- h2a - Hedgerow (Priority Habitat)
- Woodland / Scrub

0 50 100 200
Metres

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PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

POTENTIAL IMPACTS BATS

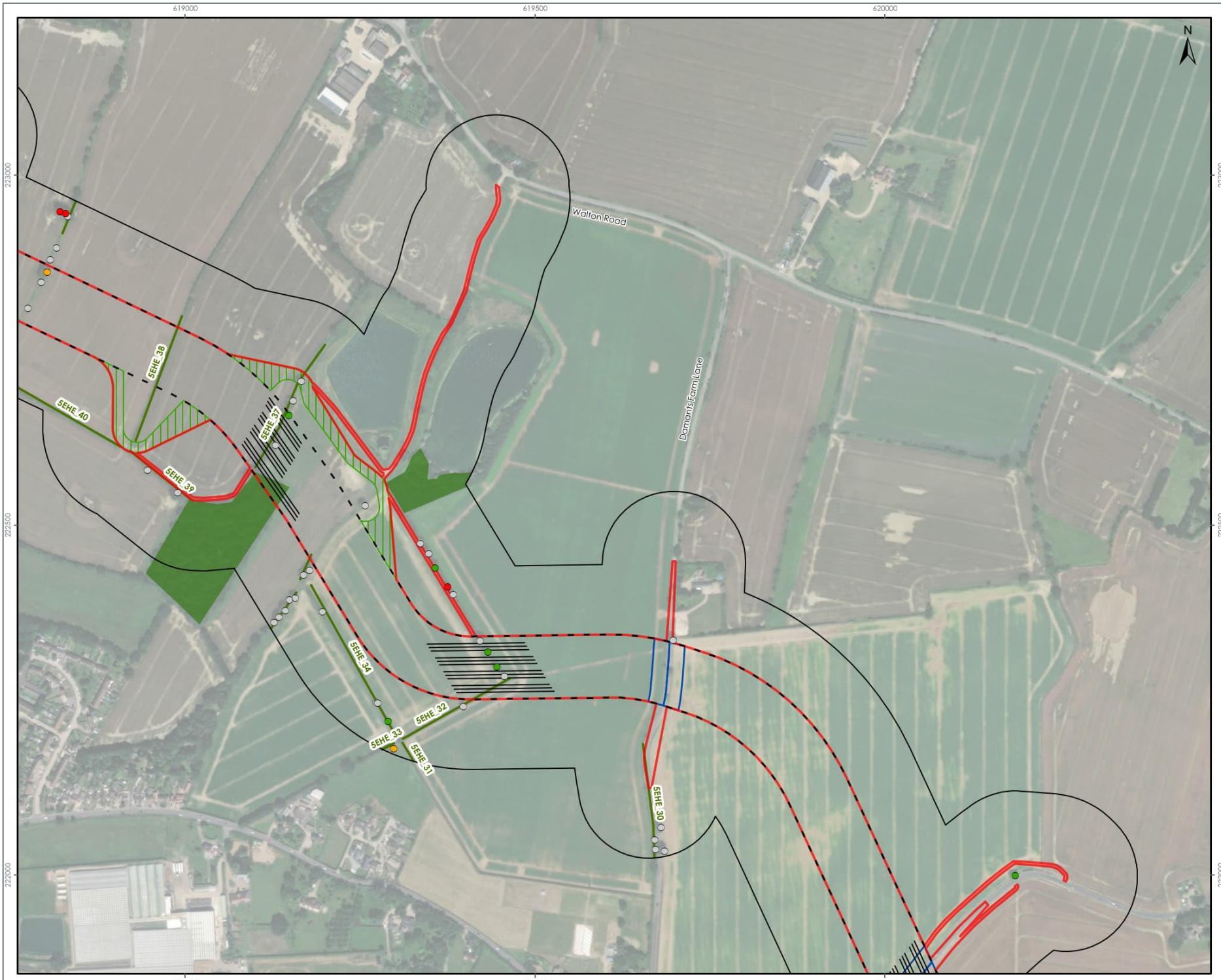
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DRAWING NUMBER: 4.8

Sheet No: 11 of 23

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Off Route Haul Road
- Access and Crossing Zone

Tree with Bat Roost Potential (Five Estuaries)

- High
- Moderate
- Low
- Negligible

Potential Flightline and / or Foraging Area

- h2a - Hedgerow (Priority Habitat)
- Woodland / Scrub

0 50 100 200
Metres

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PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

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POTENTIAL IMPACTS BATS

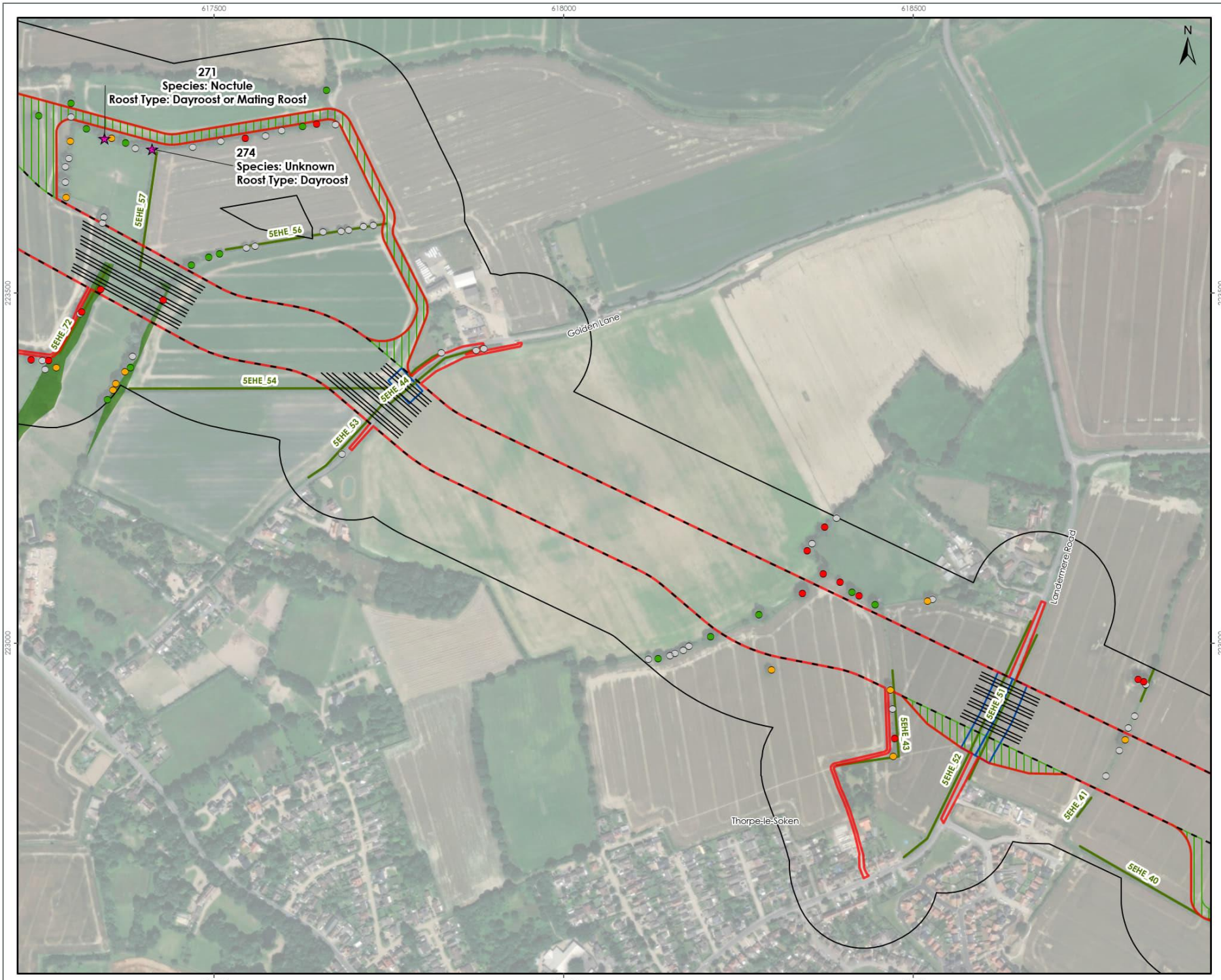
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DRAWING NUMBER: 4.8

Sheet No: 12 of 23

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Off Route Haul Road
- Access and Crossing Zone

Tree with Bat Roost Potential (Five Estuaries)

- Confirmed Roost
- High
- Moderate
- Low
- Negligible

Potential Flightline and / or Foraging Area

- h2a - Hedgerow (Priority Habitat)
- Woodland / Scrub

0 50 100 200
Metres

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FIVE ESTUARIES OFFSHORE WINDFARM

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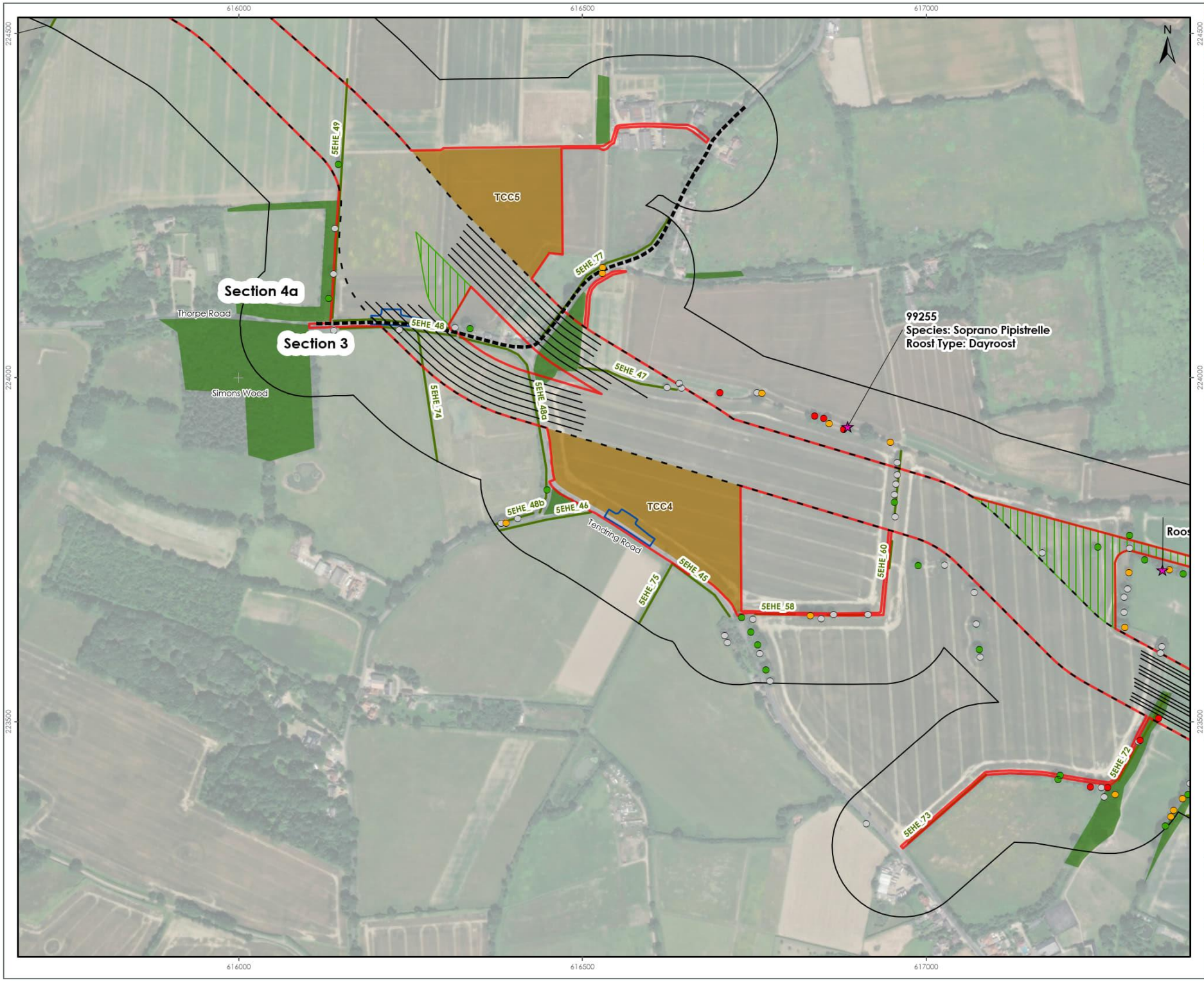
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DRAWING NUMBER: 4.8

Sheet No: 13 of 23

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Tree with Bat Roost Potential (Five Estuaries)

- Confirmed Roost
- High
- Moderate
- Low
- Negligible

Potential Flightline and / or Foraging Area

- h2a - Hedgerow (Priority Habitat)
- Woodland / Scrub

0 50 100 200
Metres

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FIVE ESTUARIES OFFSHORE WINDFARM

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POTENTIAL IMPACTS BATS

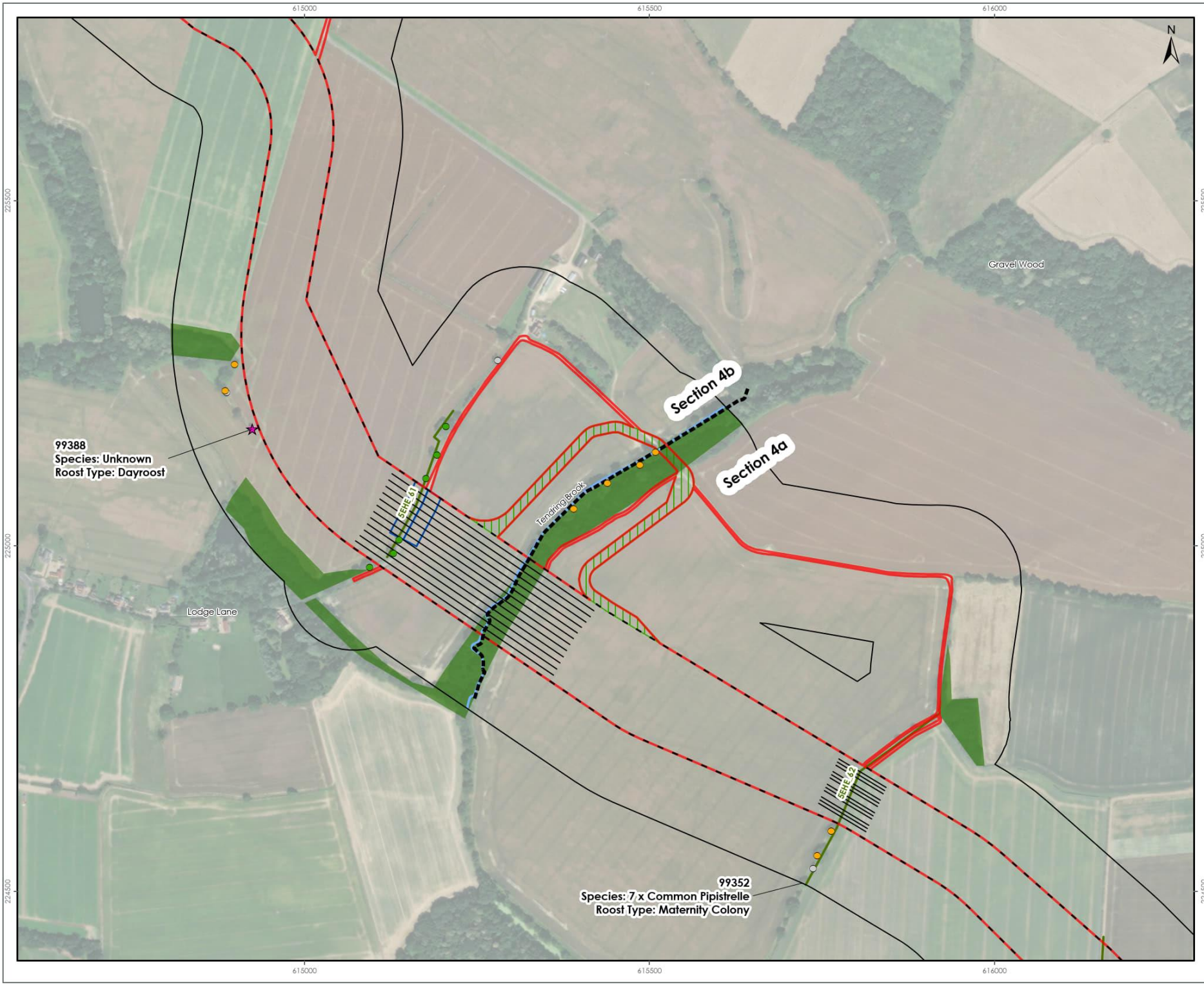
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DRAWING NUMBER: 4.8

Sheet No: 14 of 23

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Off Route Haul Road
- Access and Crossing Zone

Tree with Bat Roost Potential (Five Estuaries)

- Confirmed Roost
- Moderate
- Low
- Negligible

Potential Flightline and / or Foraging Area

- h2a - Hedgerow (Priority Habitat)
- Woodland / Scrub
- r2b - Other River and Stream

0 50 100 200
Metres

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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

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POTENTIAL IMPACTS BATS

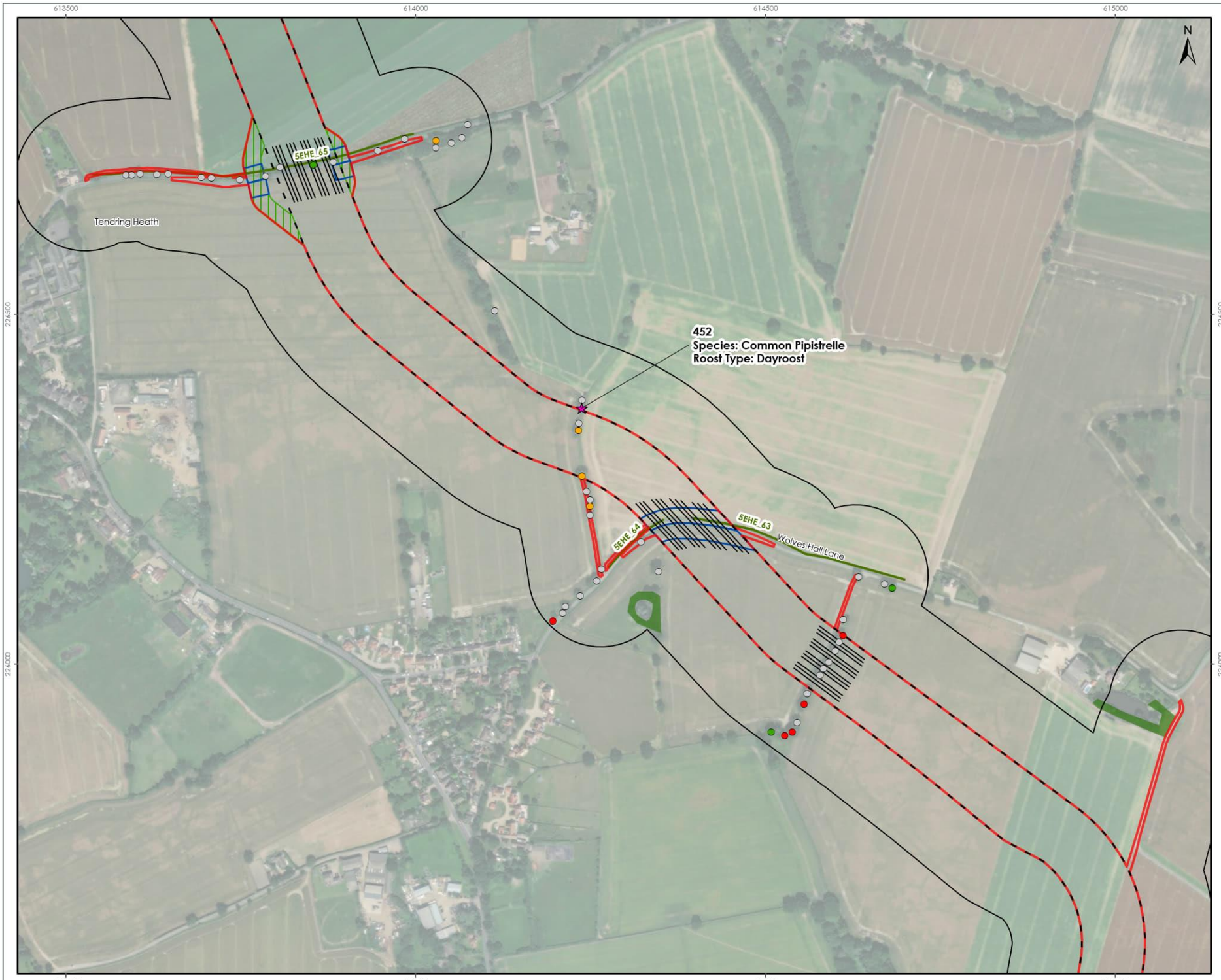
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DRAWING NUMBER: 4.8

Sheet No: 15 of 23

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Off Route Haul Road
- Access and Crossing Zone

Tree with Bat Roost Potential (Five Estuaries)

- Confirmed Roost
- High
- Moderate
- Low
- Negligible

Potential Flightline and / or Foraging Area

- h2a - Hedgerow (Priority Habitat)
- Woodland / Scrub

0 50 100 200
Metres

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PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

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POTENTIAL IMPACTS BATS

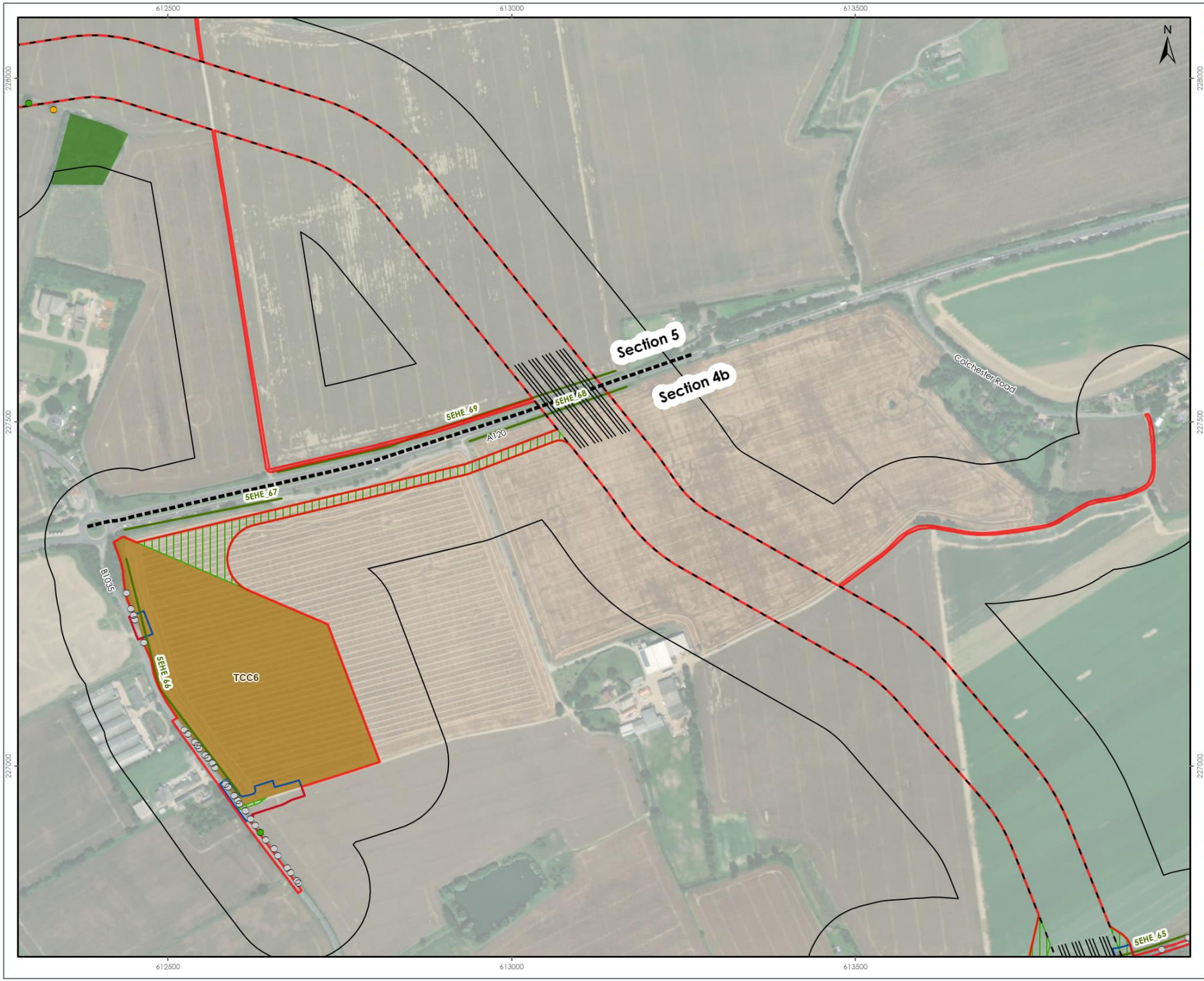
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1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.8

Sheet No: 16 of 23

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Tree with Bat Roost Potential (Five Estuaries)

- Moderate
- Low
- Negligible

Potential Flightline and / or Foraging Area

- h2a - Hedgerow (Priority Habitat)
- Woodland / Scrub

0 50 100 200
Metres

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FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

POTENTIAL IMPACTS BATS

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.8

Sheet No: 17 of 23

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM



LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Temporary Construction Compound
- Off Route Haul Road
- Access and Crossing Zone

Tree with Bat Roost Potential (Five Estuaries)

- Confirmed Roost
- High
- Moderate
- Low
- Negligible

Potential Flightline and / or Foraging Area

- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- Woodland / Scrub
- r1 - Standing Open Water and Canals
- r2b - Other River and Stream

0 50 100 200
Metres

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FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
POTENTIAL IMPACTS BATS

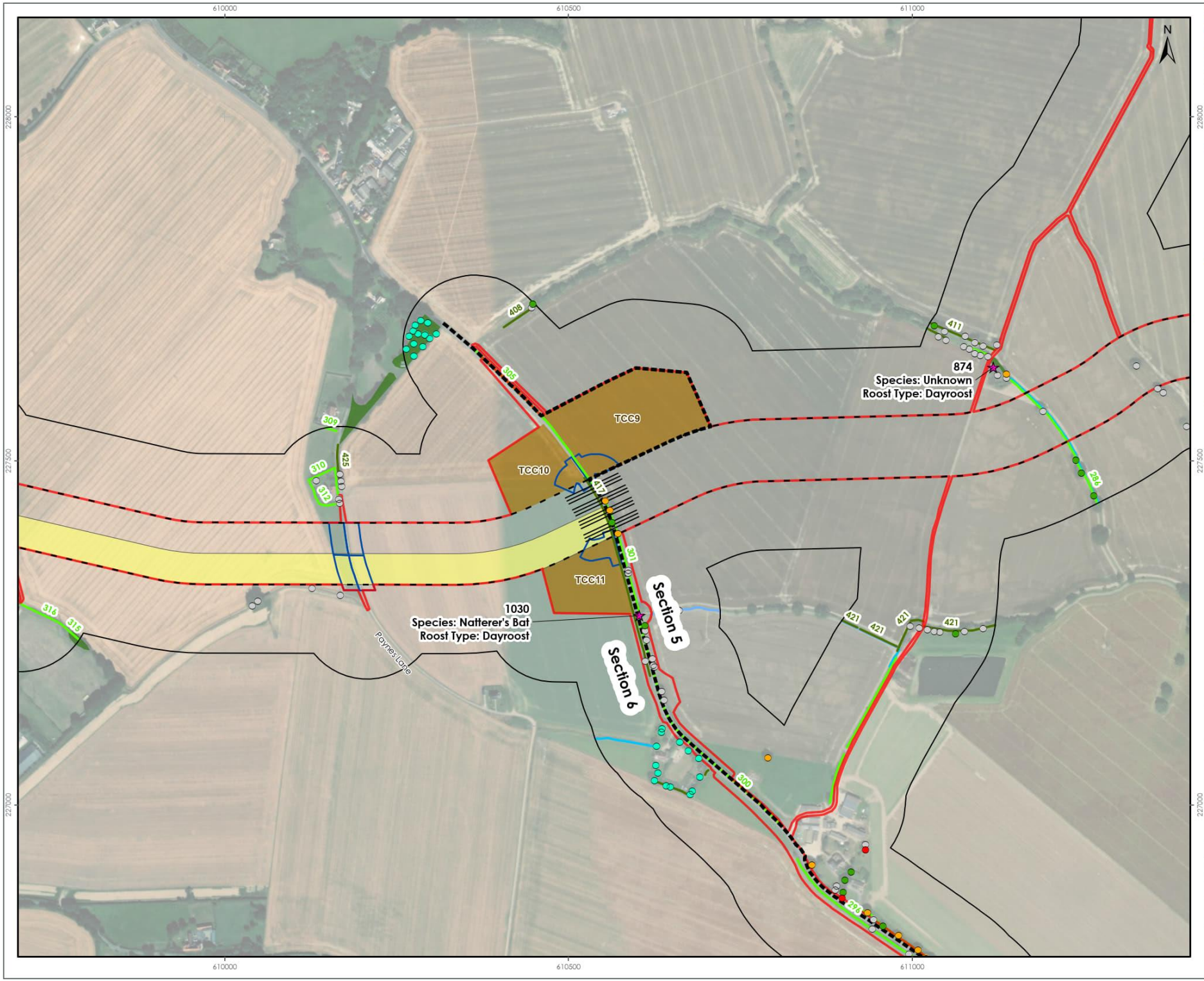
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DRAWING NUMBER: 4.8

Sheet No.: 18 of 23

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Substation Temporary Construction Haul Road
- Temporary Construction Compound
- Access and Crossing Zone

Tree with Bat Roost Potential (Five Estuaries)

- Confirmed Roost
- High
- Moderate
- Low
- Negligible
- Not Surveyed - No Impact Anticipated

Potential Flightline and / or Foraging Area

- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- Woodland / Scrub
- r1 - Standing Open Water and Canals
- r2b - Other River and Stream

0 50 100 200
Metres

Data Source:
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Aerial Imagery (2021) Source: Maxar, Microsoft
Species data provided by Essex Field Club.

PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

POTENTIAL IMPACTS BATS

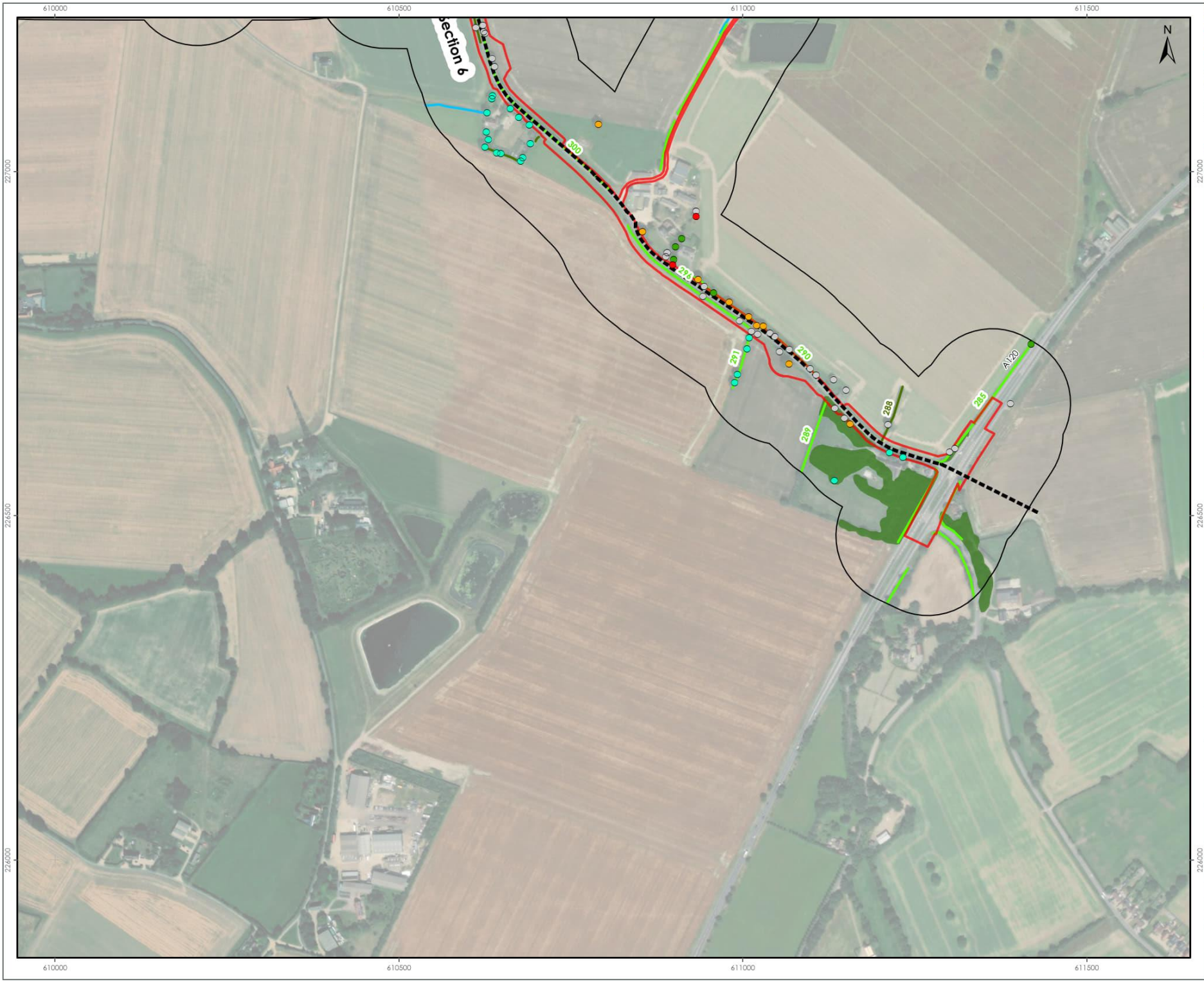
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DRAWING NUMBER: 4.8

Sheet No: 19 of 23

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division

Tree with Bat Roost Potential (Five Estuaries)

- High
- Moderate
- Low
- Negligible
- Not Surveyed - No Impact Anticipated

Potential Flightline and / or Foraging Area

- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- Woodland / Scrub
- r1 - Standing Open Water and Canals

0 50 100 200
Metres

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Aerial Imagery (2021) Source: Maxar, Microsoft
Species data provided by Essex Field Club.

PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

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POTENTIAL IMPACTS BATS

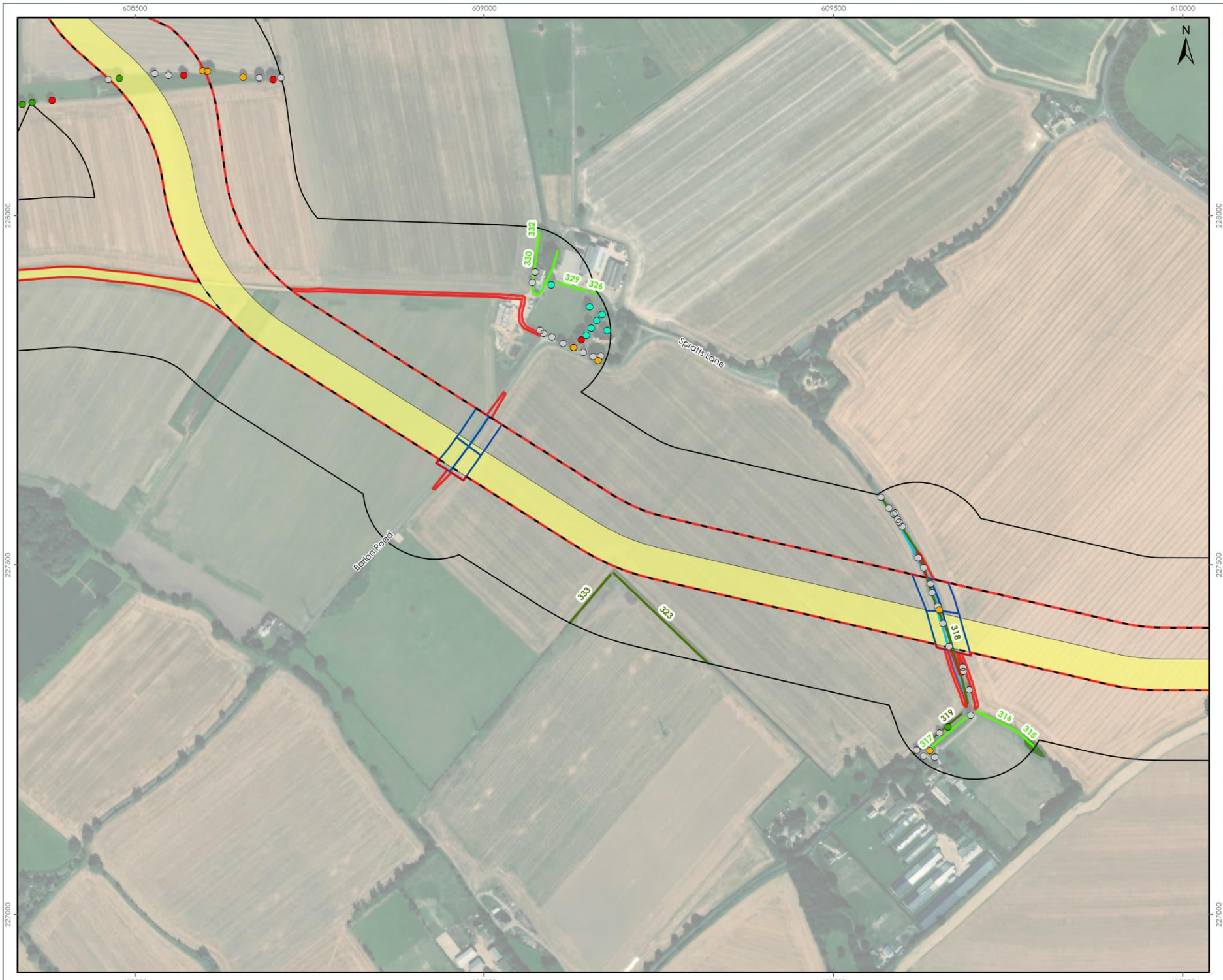
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DRAWING NUMBER: 4.8

Sheet No: 20 of 23

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor
- Substation Temporary Construction Haul Road
- Access and Crossing Zone

Tree with Bat Roost Potential (Five Estuaries)

- High
- Moderate
- Low
- Negligible
- Not Surveyed - No Impact Anticipated

Potential Flightline and / or Foraging Area

- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- Woodland / Scrub
- r1 - Standing Open Water and Canals

0 50 100 200
Metres

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Aerial Imagery (2021) Source: Maxar, Microsoft
Species data provided by Essex Field Club.

PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

POTENTIAL IMPACTS BATS

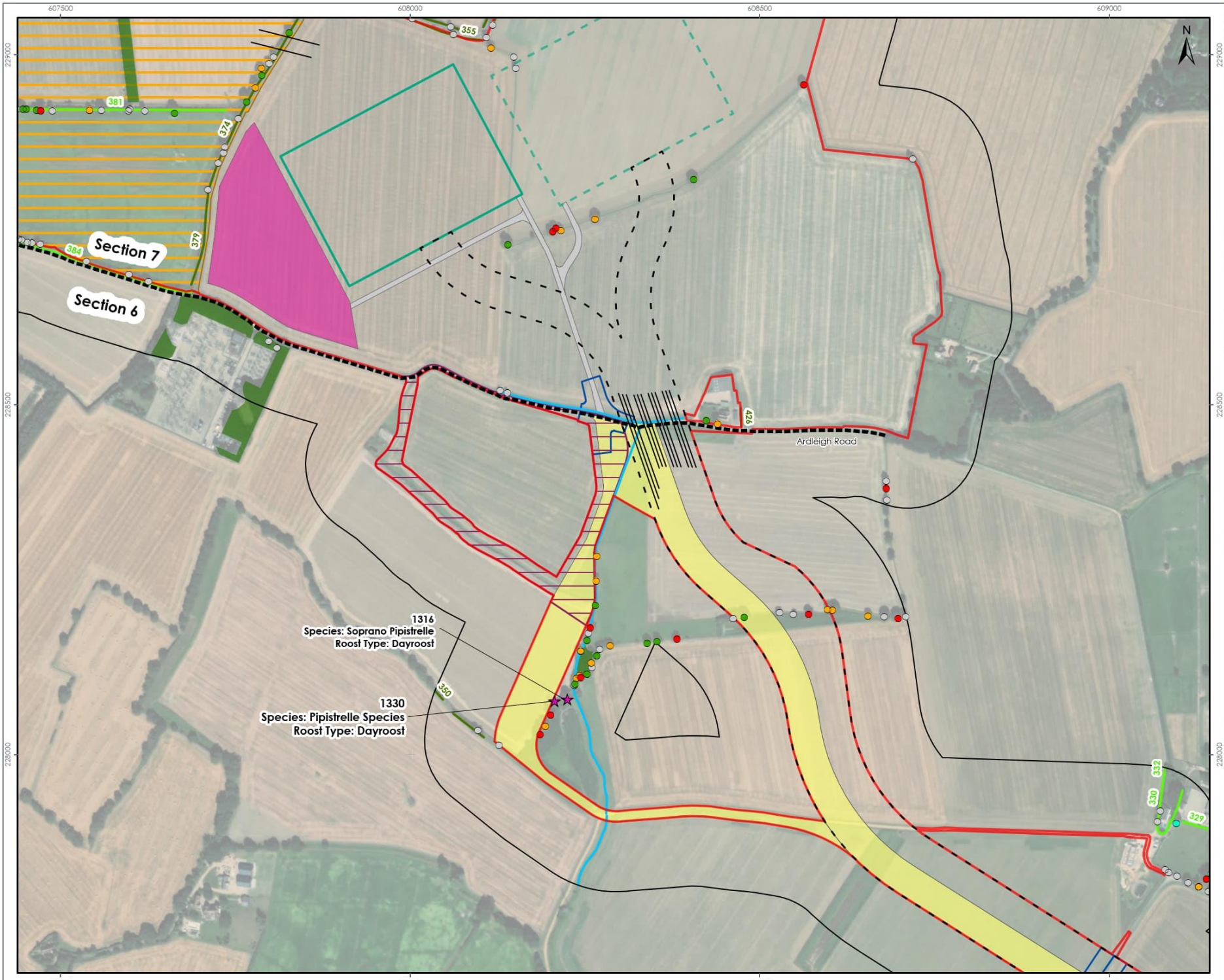
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DRAWING NUMBER: 4.8

Sheet No: 21 of 23

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Substation Operational Boundary
- Substation Temporary Construction Compound
- Ardleigh Road Drainage Zone
- Indicative Substation Access Route
- Substation Temporary Construction Haul Road
- North Falls Indicative Substation Operational Boundary
- Access and Crossing Zone
- National Grid EACN Substation Zone

Tree with Bat Roost Potential (Five Estuaries)

- Confirmed Roost
- High
- Moderate
- Low
- Negligible
- Not Surveyed - No Impact Anticipated

Potential Flightline and / or Foraging Area

- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- Woodland / Scrub
- r1 - Standing Open Water and Canals

0 50 100 200
Metres

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Species data provided by Essex Field Club.

PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
POTENTIAL IMPACTS BATS

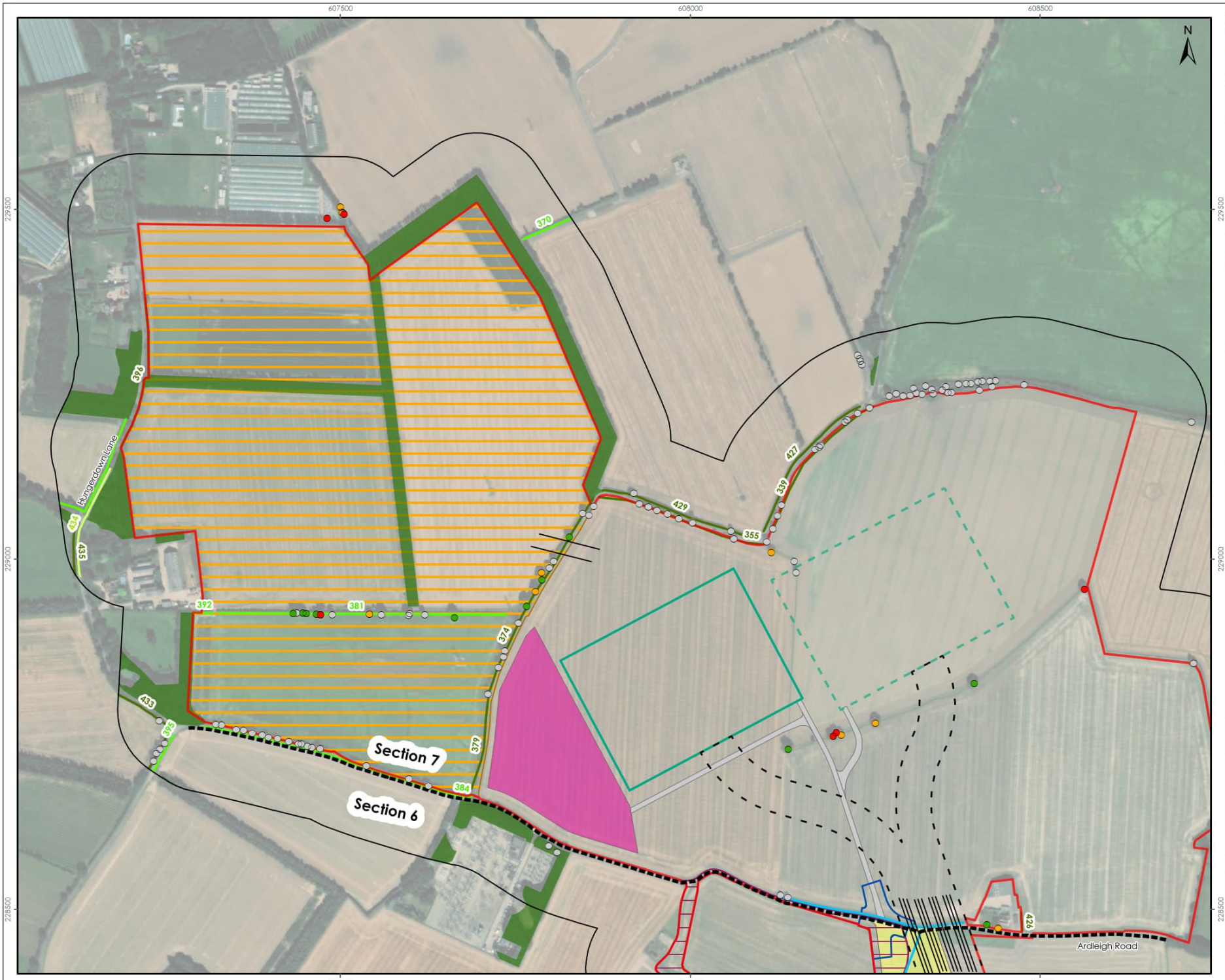
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DRAWING NUMBER: 4.8

Sheet No: 22 of 23

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WIND FARM





LEGEND

- Onshore Order Limits
- Onshore Order Limits 100 m Buffer
- Onshore Export Cable Corridor Section Division
- Onshore Export Cable Corridor
- Trenchless Crossing Indicative Alignment
- Substation Operational Boundary
- Substation Temporary Construction Compound
- Ardleigh Road Drainage Zone
- Indicative Substation Access Route
- Substation Temporary Construction Haul Road
- North Falls Indicative Substation Operational Boundary
- Access and Crossing Zone
- National Grid EACN Substation Zone

Tree with Bat Roost Potential (Five Estuaries)

- High
- Moderate
- Low
- Negligible

Potential Flightline and / or Foraging Area

- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- h2b - Other Hedgerow
- Woodland / Scrub
- r1 - Standing Open Water and Canals

0 50 100 200
Metres

Data Source:
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Aerial Imagery (2021) Source: Maxar, Microsoft
Species data provided by Essex Field Club.

PROJECT TITLE:

FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:

POTENTIAL IMPACTS BATS

VER	DATE	REMARKS	Drawn	Checked
1	22/02/2024	ES Submission	DB	JRS

DRAWING NUMBER: 4.8

Sheet No: 23 of 23

SCALE:	PLOT SIZE:	DATUM:	PROJECTION:
1:5,000	A3	OSGB 1936	British National Grid

FIVE ESTUARIES
OFFSHORE WINDFARM

Table 4.12: Bat species synopsis

Species	Roosting	Foraging
Common pipistrelle	Three roosts were confirmed at trees during 2022 surveys as follows: 99126 – day roost, three bats emerged 05/05/2022 99352 – maternity or satellite – seven bats emerged 07/09/2022 452 – day roost, single bat emerged 10/08/2022	Common pipistrelle has a core sustenance zone (CSZ) of 2km and soprano pipistrelle of 3km. Both species were recorded in all months at all locations. The mosaic of mature trees, watercourses, agricultural land and small woodlands present across the survey area is considered highly suitable for use by this species group.
Soprano pipistrelle	Two roosts confirmed during 2022 surveys T1316 – day roost, single bat emerged 19/07/22 99295 – day roost – single bat emerged 11/05/22	
Pipistrelle species (either common or soprano, discrimination not possible)	T1330 – day roost – single pipistrelle observed during PRF inspection on 11/07/22 and 26/06/23	
Nathusius' pipistrelle	No evidence of roosts found during presence/ absence survey. During the activity survey Nathusius' pipistrelle passes were never recorded in amounts great enough, or with sufficient regularity, to suggest a maternity colony occurred nearby. However, the recording of 16 passes on one night at Location 26, followed by 11 passes two nights later would indicate that a bat/ small numbers of bats roosted relatively nearby. At location 32, there was also a peak of activity on one night in July (17 passes), this may also indicate a roost.	During the activity survey Nathusius' pipistrelle passes were recorded at all except two survey locations across the survey area. This species' foraging is associated with riparian habitats, broad-leaved and mixed woodland, as well as parkland and has a CSZ of 3km. It is considered most likely that Nathusius' pipistrelle pass through the survey area, and in particular along routes adjacent to/ passing waterbodies or areas of broadleaved woodland. Any such bats would be expected to stop to forage upon abundant sources of prey. The lack of regular evidence suggests the area is not a well-used resource by the local population at the time of survey.

Species	Roosting	Foraging
	During the recording period in May at Location 12 several nights also recorded between 13 and 31 passes, which is also considered to suggest a roost nearby. Given this species has been recorded using trees for roosting, it is possible a roost could have occurred within the survey area, or may do so in future.	
Myotis species (Daubenton's, whiskered, Brandt's and Natterer's bats)	T1030 – One Natterer's bat recorded during PRF inspection. Suspect roost in the vicinity of Location 28 Based on higher levels of activity recorded. Higher levels of Myotis species activity were also recorded at Locations 30 and 16 and it is considered likely that additional roost(s) could have occurred within or near to the survey area, or may do so in future.	During the automated activity survey Myotis species were recorded across all locations, reasonably regularly, but on the majority of nights only accumulating one or two passes for areas north of the A120. South of the A120 greater levels of activity were noted, and in particular at Location 30 (east of Tendring Green and north-west of Tendring Brook), where 393 passes were recorded in September, and Location 16 (Short Lane bordering Holland Haven Marshes SSSI) where 600 passes were recorded in July and 288 in October. The results of the surveys show a trend towards higher levels of Myotis activity in close proximity to waterbodies or areas of woodland. The mosaic of mature trees, watercourses, agricultural land and small woodlands present across the survey area is considered highly suitable for use by this species group.
Noctule	One day roost or mating roost recorded at T271 – two bats emerged in September 2022 Automated data suggests a roost close to Locations 33, 24, 25 and/ or T1331.1, based on increased activity at those locations compared with other surveyed locations.	Noctules forage widely in a range of habitats including out in the open, over trees and often associated with water. The Core Sustenance Zone (CSZ) is 4km. The species was recorded regularly at all locations across the survey area. The mosaic of mature trees, watercourses, agricultural land and small woodlands present in the survey area is considered highly suitable for use by this species.
Serotine	No evidence of a roost was recorded during the presence/ absence surveys or inferred from bat activity surveys.	Serotine bats have a CSZ of 4km, and prefer to forage within pasture and parkland, at open woodland edge and tall hedgerows and will also visit gardens and suburban areas, where they are found foraging at white streetlights. Where they were detected, it was in low numbers and for the majority of nights no serotine bats were recorded. Having said this, the hedgerows, woodland edge and small suburban areas across

Species	Roosting	Foraging
		the survey area are suitable for serotine bats and they are likely use these on occasion to forage and would certainly commute through the survey area.
Leisler's	No evidence of a roost recorded during presence/ absence surveys or inferred from bat activity surveys.	Leisler's bat has a CSZ of 3km and will forage widely at woodland edge, wood-lined roads, over pasture, waterbodies but generally avoiding improved grassland. Very low numbers of Leisler's bat calls were recorded across the survey season, it is thought likely they use the survey area as an occasional commuting route only.
Brown long-eared bat	No conclusive evidence of a roost for this species was discovered during the 2022 or 2023 surveys, based upon tree inspections or inferred from activity survey data. However, it should be borne in mind that this species is particularly difficult to detect due to its quiet calls. It is therefore concluded that although there is no direct evidence, brown long-eared bats could roost within the survey area, in trees or buildings and are most likely to roost in proximity to Locations 22, 27 and 30, compared to elsewhere within the survey area, based on activity data.	This species foraging is strongly associated with tree cover, it prefers woodland with a cluttered understorey but will also use hedgerows. It has a CSZ of 3km. Due to the difficulties in detecting this species, it is difficult to draw firm conclusions about the specific locations which may be of most value. It is considered highly likely that brown long-eared bats pass through the survey area, but are most likely to forage within the small woodlands, rather than hedgerows or open habitats that dominate the majority of the area.
Barbastelle	No confirmed roosts were found during the surveys. However, it is thought likely that barbastelles roost within or in the near vicinity of the north of the survey area, based on the level of barbastelle activity recorded at Locations 28, 31 and 33, compared with other surveyed locations.	Barbastelle bats forage over/ in riparian zones, unimproved grassland and field margins, but with a preference for broad-leaved woodland and tend to wait for darkness to cross open areas, their CSZ is 6km. Data suggest barbastelle bats forage throughout the survey area, utilising appropriate habitat (i.e., woodland, Tendring Brook and Holland Haven Marshes) and would use the field margins and hedges with mature trees for commuting between foraging sites.

BADGER

4.8.76 Badgers receive protection under the Protection of Badgers Act 1992. Woodland and hedgerows are particularly suitable for sett digging, and grassland fields for foraging. EFC provided 58 records for badger and North East Essex Badger Group provided details for 27 setts within the study area. Further details of the desk study data are contained in the ES Volume 6, Part 6, Annexes 4.22.1-3: Preliminary Ecological Appraisal Report.

4.8.77 Further details of the badger surveys north of the A120 are included in the badger survey report in Volume 6, Part 6, Annex 4.11: Badger Survey Report: North of A120 (Public) and Annex 4.21 Confidential protected species reports. This confidential Annex, along with Figure 4.9 will be provided to key consultees, and includes full details including sett locations (these are omitted from this EcIA due to the potential for badger persecution should sett locations enter the public domain). Reference has also been made to badger data gathered by NF, including data for areas south of the A120, which were provided as a confidential annex to its PEIR. A brief summary of key findings is provided below.

4.8.78 Badger is confirmed to occur throughout the survey area, with main, subsidiary and outlier setts all recorded. Locations are indicated on Figure 4.9 which is included at Volume 6, Part 6, Annex 4.21 Confidential protected species reports.

Figure 4.9: CONFIDENTIAL Potential impacts: badgers

(included as confidential annex)

4.8.79 Four subsidiary and one outlier sett are present within the Order Limits. Agricultural fields were found not to support any setts; this is likely due to the lack of cover and degree of disturbance, but also the low-lying nature of much of the area, where the water table can be relatively high for parts of the year.

OTTER

4.8.80 Otter is fully protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 and in Schedule 2 of The Conservation of Habitats and Species Regulations 2017 , it is also a S41 species. EFC returned records of otter within Holland Haven Marshes SSSI, north-east of Thorpe-le-Soken at Hamford Water SSSI, at Goose Green and at the River Stour, west of Manningtree.

4.8.81 Full details for the desk study data are contained in the ES Volume 6, Part 6, Annexes 4.22:1-3: Preliminary Ecological Appraisal Report. The results of the otter surveys, including figures showing survey results, are presented in detail in ES Volume 6, Part 6, Annex 4.14: Otter and Water Vole Survey Report: North of A120 and ES Volume 6, Part 6, Annex 4.15: Otter and Water Vole Survey Report: South of A120, with a brief summary of key findings provided below.

4.8.82 Field survey found no evidence of otter at any locations within the survey area. Based on the lack of evidence, otter is considered likely to be absent from the majority of suitable habitats within the Order Limits. Due to the wide ranging nature of this species, it remains possible, but is considered unlikely that watercourses or ponds could be used occasionally or in future for passage, foraging or shelter by otters.

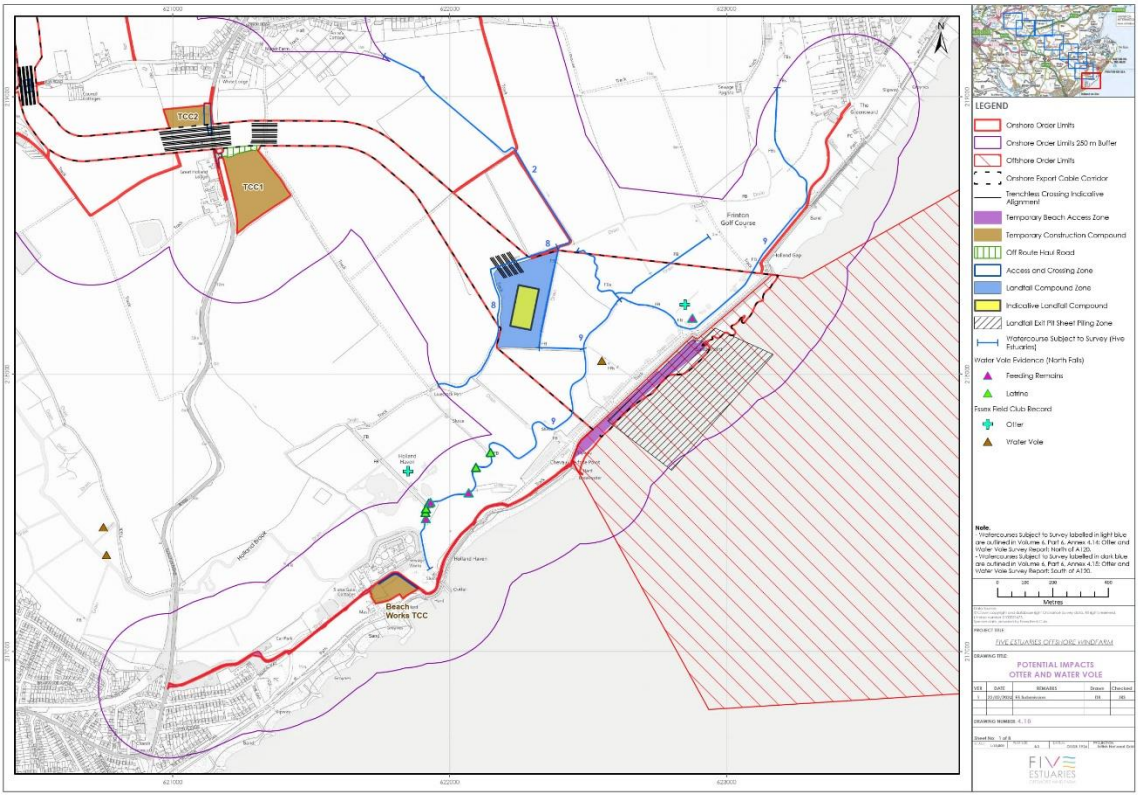
WATER VOLE

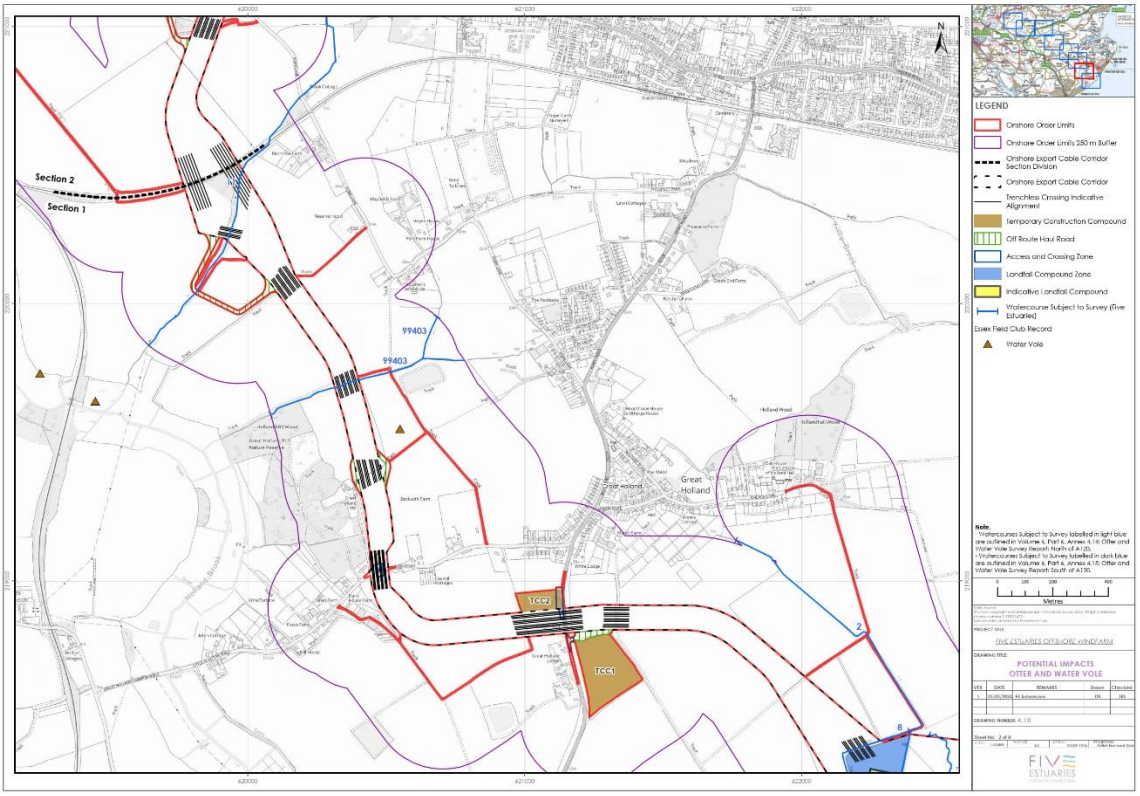
4.8.83 Water vole is fully protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act 1981, it is also a S41 species.

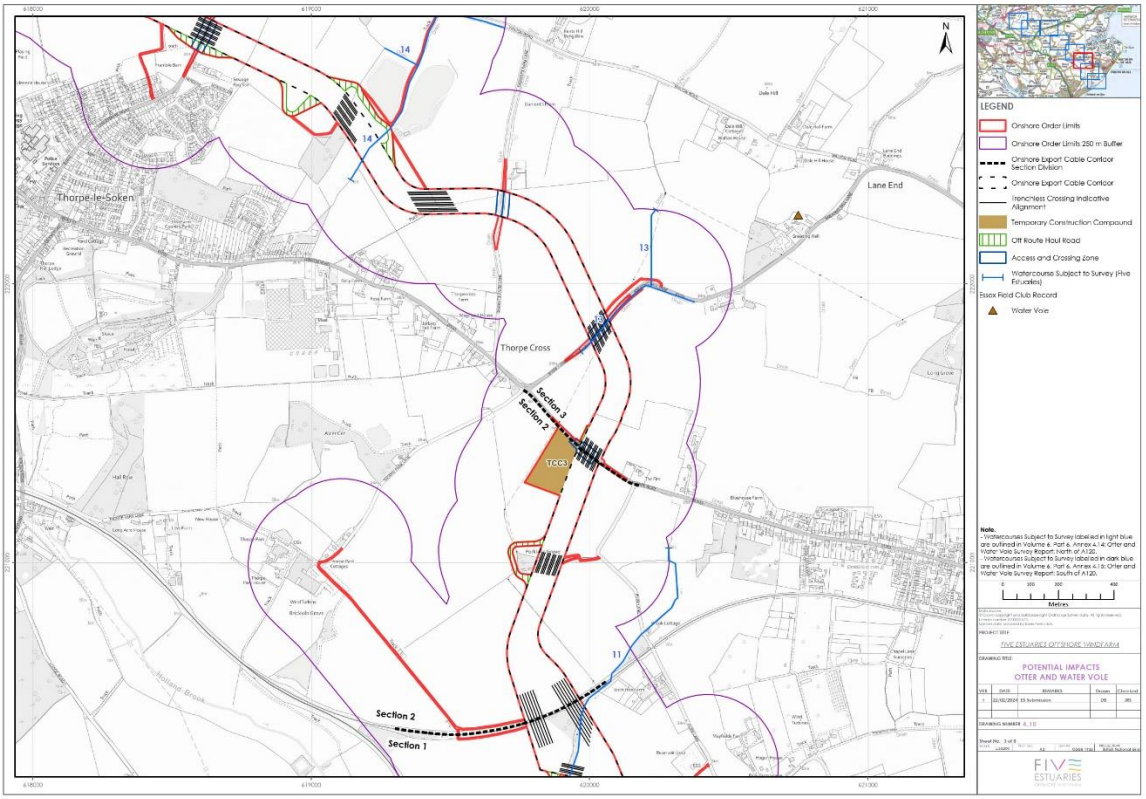
4.8.84 EFC returned 18 records of water vole within the study area, all except three occur more than 250 m from the onshore Order Limits. The three within 250 m occur at the Kirby Brook between Holland Haven Marshes SSSI and Frinton Golf Club, between the Great Holland Pits Nature Reserve and a large waterbody to the east (the record could have come from either, the precision does not enable distinction) and at the Tendring Brook, east of Tendring. Full details of the desk study data are contained in the ES Volume 6, Part 6, Annexes 4.22.1-3: Preliminary Ecological Appraisal Report.

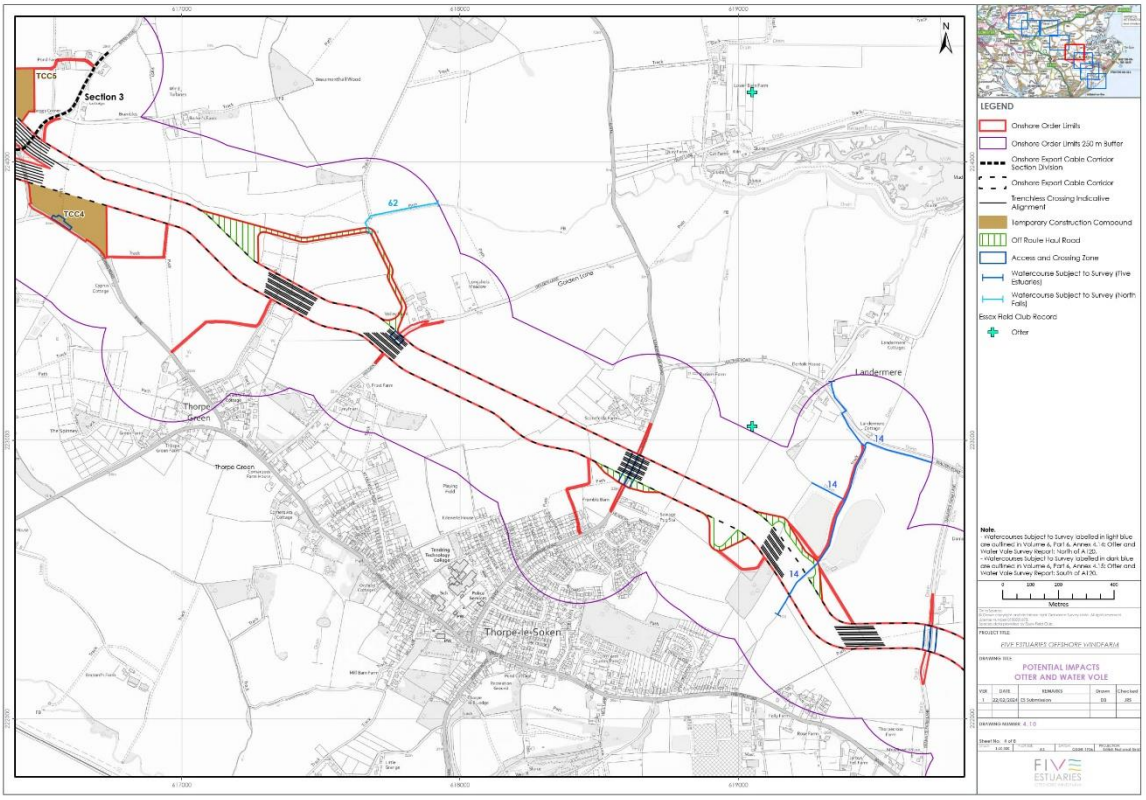
4.8.85 The results of the water vole surveys, including figures showing survey results, are presented in detail in Volume 6, Part 6, Annex 4.14: Otter and Water Vole Survey Report: North of A120 and Volume 6, Part 6, Annex 4.15: Otter and Water Vole Survey Report: South of A120. A brief summary of key findings is provided below and included in Figure 4.10.

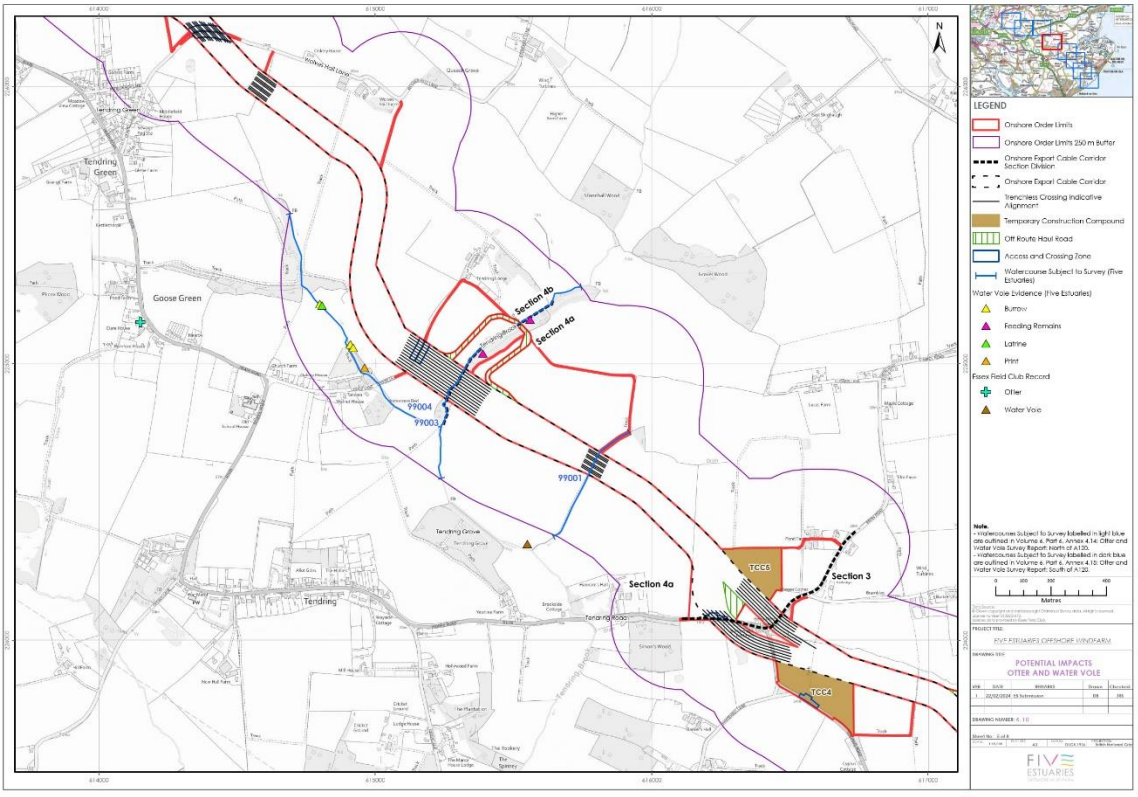
Figure 4.10: Potential impacts: otter and water vole



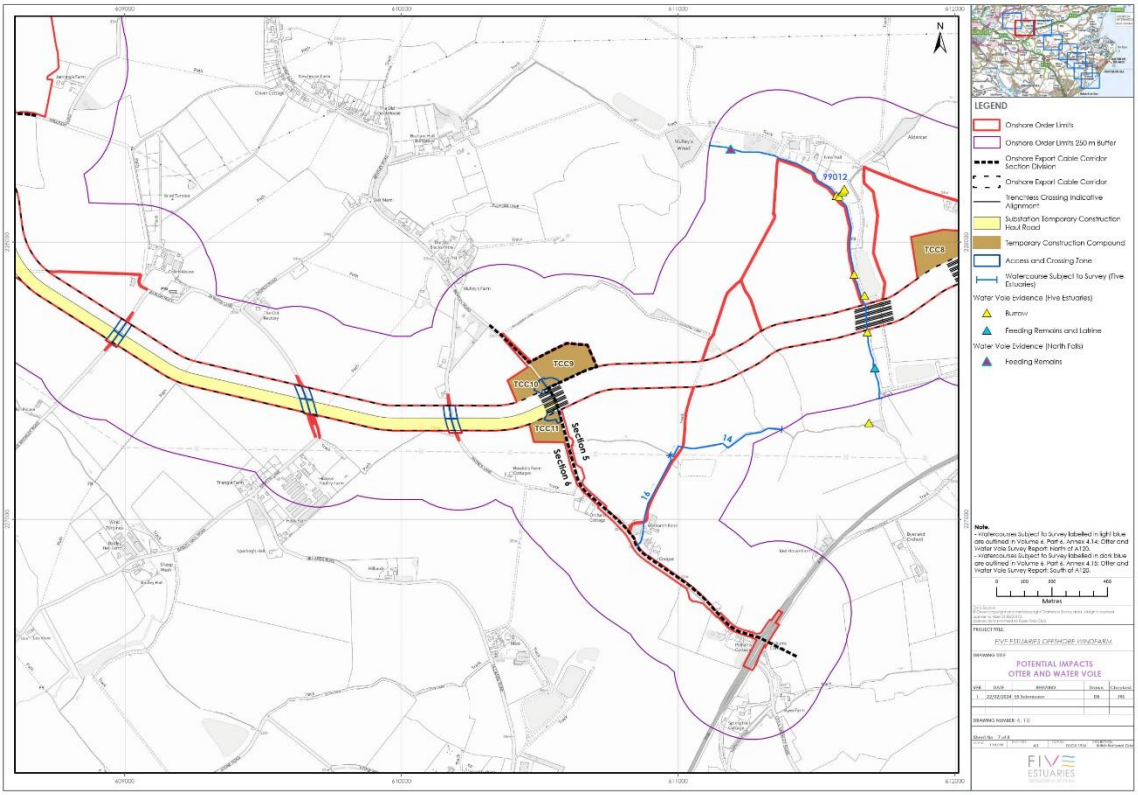

Section 2
Section 1
99403
99403
Great Holland
TCC2
TCC1
2
8
N
LEGEND
Onshore Order Limits
Onshore Order Limits 250 m Buffer
Onshore Export Cable Corridor Section Division
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Temporary Construction Compound
Off Route Haul Road
Access and Crossing Zone
Landfall Compound Zone
Indicative Landfall Compound
Watercourse Subject to Survey (Five Estuaries)
Essex Field Club Record
Water Vole
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS
OTTER AND WATER VOLE

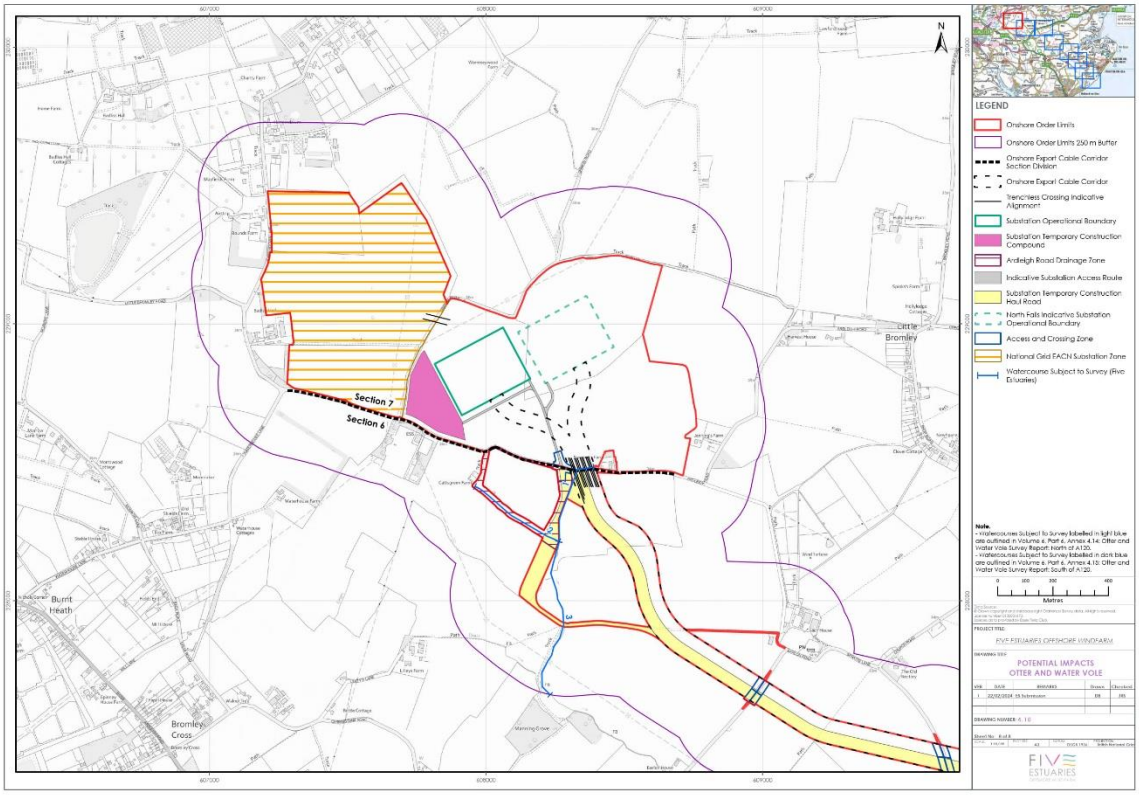

Thorpe-le-Soken
Thorpe Cross
Lane End
14
14.1
13
11
Section 3
Section 2
Section 2
Section 1
TCC3
N
LEGEND
Onshore Order Limits
Onshore Order Limits 250 m Buffer
Onshore Export Cable Corridor Section Division
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Temporary Construction Compound
Off Route Haul Road
Access and Crossing Zone
Watercourse Subject to Survey (Five Estuaries)
Essex Field Club Record
Water Vole
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS
OTTER AND WATER VOLE


TCC5
Section 3
TCC4
62
Thorpe Green
Thorpe-le-Soken
Landermere
14
LEGEND
Onshore Order Limits
Onshore Order Limits 250 m Buffer
Onshore Export Cable Corridor Section Division
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Temporary Construction Compound
Off Route Haul Road
Access and Crossing Zone
Watercourse Subject to Survey (Five Estuaries)
Watercourse Subject to Survey (North Falls)
Essex Field Club Record
Otter
POTENTIAL IMPACTS
OTTER AND WATER VOLE


Tendring Green
Goose Green
Tendring
Section 4b
Section 4a
99004
99003
99001
TCC5
Section 3
TCC4
LEGEND
Onshore Order Limits
Onshore Order Limits 250 m Buffer
Onshore Export Cable Corridor Section Division
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Temporary Construction Compound
Off Route Haul Road
Access and Crossing Zone
Watercourse Subject to Survey (Five Estuaries)
Water Vole Evidence (Five Estuaries)
Burrow
Feeding Remains
Latrine
Print
Essex Field Club Record
Otter
Water Vole
POTENTIAL IMPACTS
OTTER AND WATER VOLE


Horsleycross Street
TCC6
TCC7
Section 5
Section 4b
Goose Green
Horsley Cross
TCC5
Tendring Heath
Tendring Heath Road
LEGEND
Onshore Order Limits
Onshore Order Limits 250 m Buffer
Onshore Export Cable Corridor Section Division
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Temporary Construction Compound
Off Route Haul Road
Access and Crossing Zone
POTENTIAL IMPACTS OTTER AND WATER VOLE
FIVE ESTUARIES


99012
TCC8
TCC9
TCC10
TCC11
Section 5
Section 6
14
15
LEGEND
Onshore Order Limits
Onshore Order Limits 250 m Buffer
Onshore Export Cable Corridor Section Division
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Substation Temporary Construction Haul Road
Temporary Construction Compound
Access and Crossing Zone
Watercourse Subject to Survey (Five Estuaries)
Water Vole Evidence (Five Estuaries)
Burrow
Feeding Remains and Latrine
Water Vole Evidence (North Falls)
Feeding Remains
POTENTIAL IMPACTS OTTER AND WATER VOLE
FIVE ESTUARIES



4.8.86 Up to a medium density (Dean et al, 2016) of water vole was confirmed present at the northern-most section of the Holland Brook within the survey area. A low population of water vole was recorded at the Tendring Brook. Since no confirmatory field signs were recorded at the other water courses, it is considered unlikely that population(s) were present at the time of survey. However, since water vole is a highly mobile species, it is considered possible that water courses linked to those with water vole records could be used seasonally, or could be used in future.

DORMOUSE

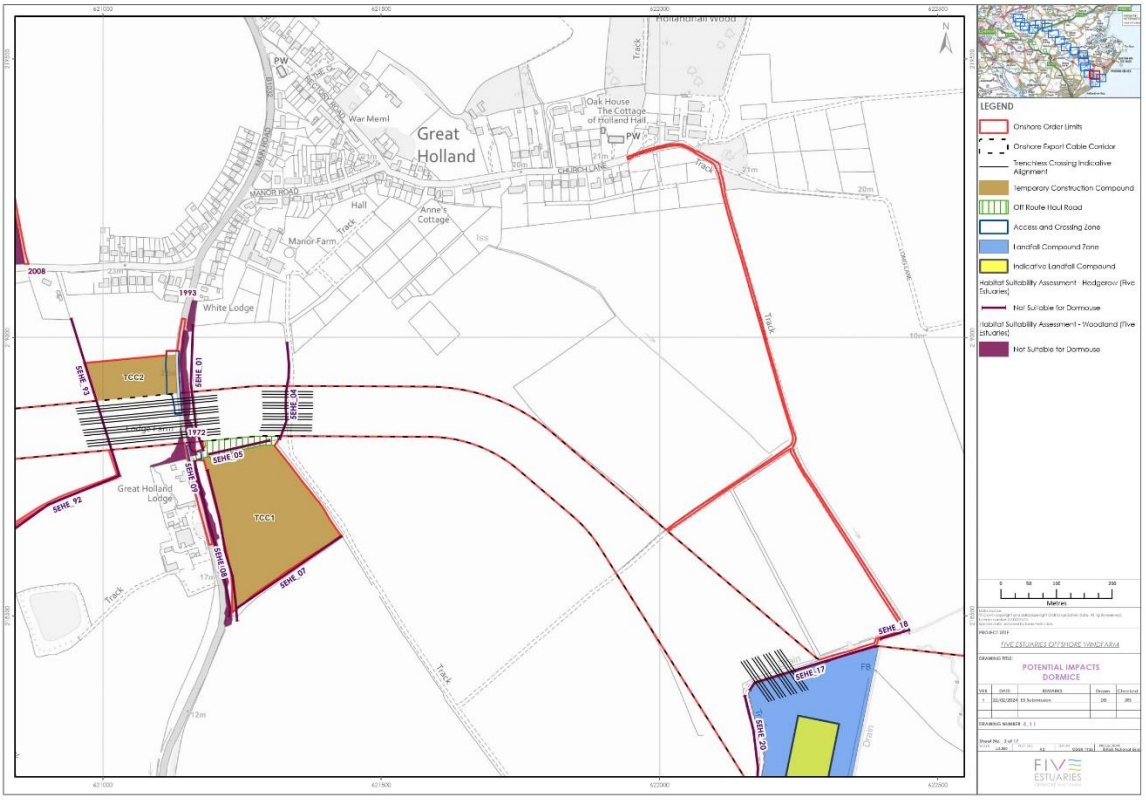
4.8.87 Dormouse is fully protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act and in Schedule 2 of the Conservation of Habitats and Species Regulations 2017, it is also a S41 species.

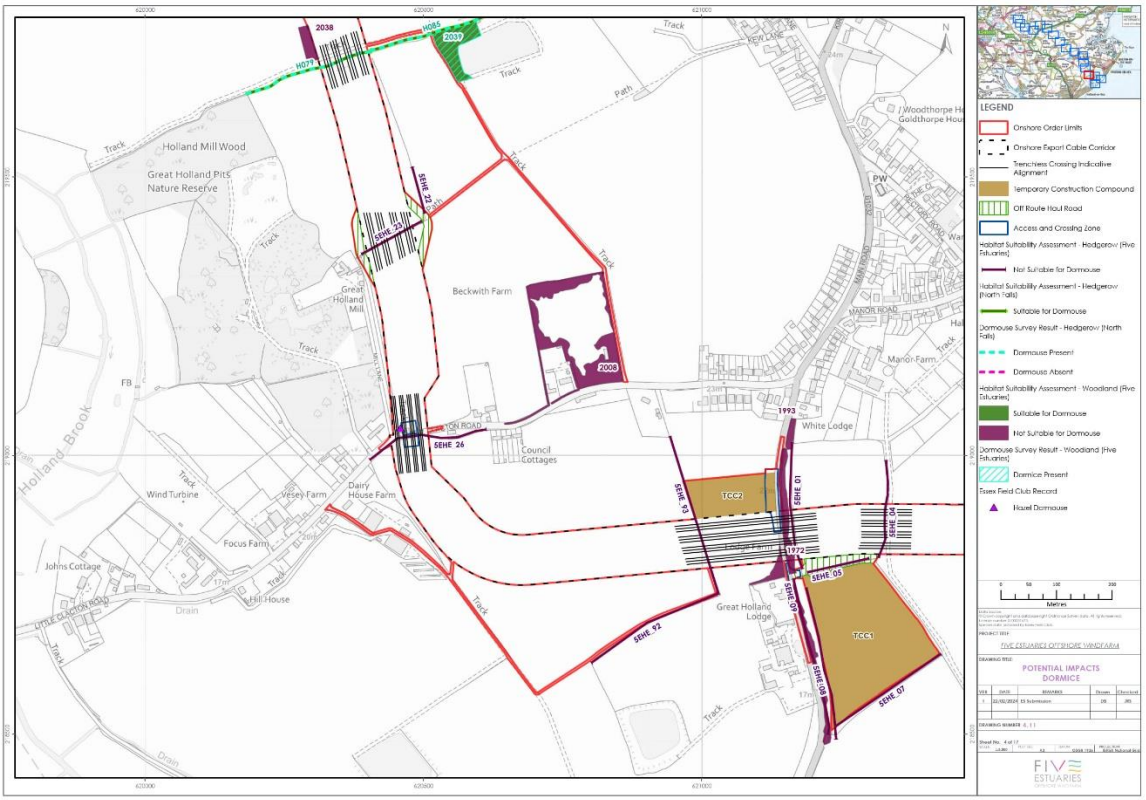
4.8.88 EFC returned records for dormouse at Thorpe le Soken, Great Holland Pits LoWS, Weeley Heath, Beaumont and Little Bentley. Full details for the desk study data are contained in the ES Volume 6, Part 6, Annexes 4.22:1-3: Preliminary Ecological Appraisal Report.

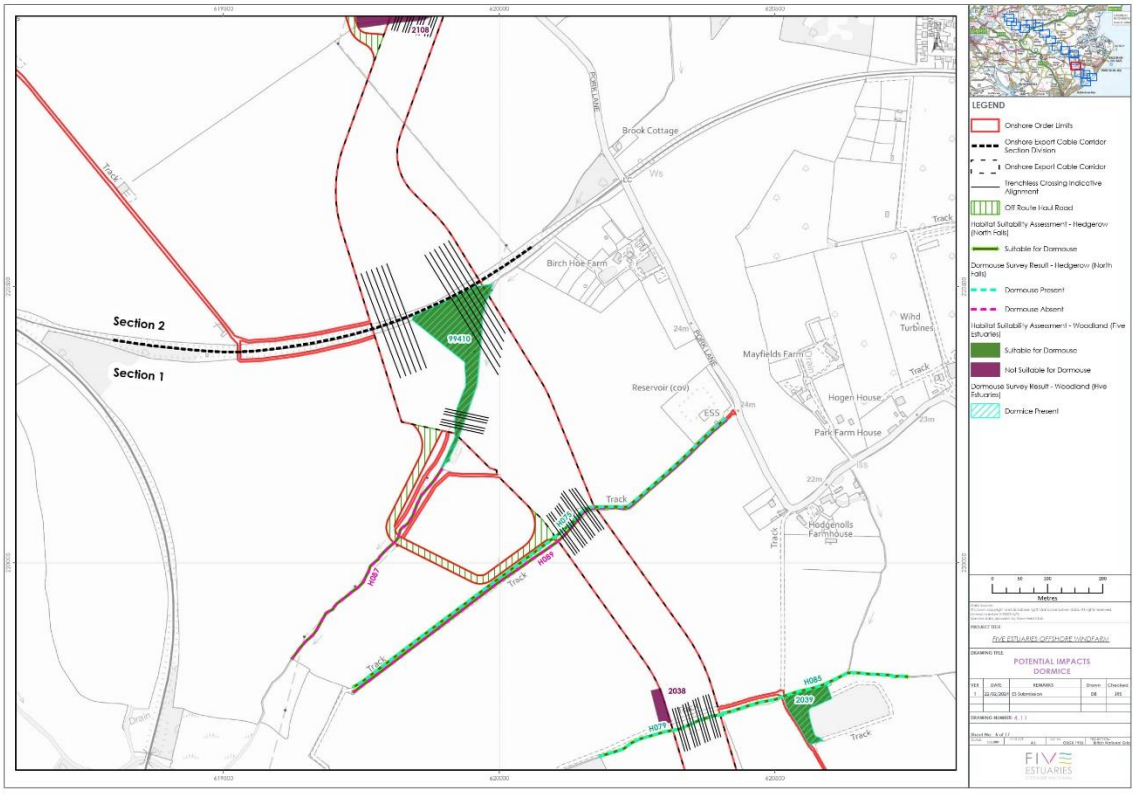
4.8.89 The results of the dormouse surveys, including figures showing survey results, are presented in detail in Volume 6, Part 6, Annex 4.12: Dormouse Survey Report: North of A120 and Annex 4.13: Dormouse Survey Report: South of A120. A brief summary of key findings is provided below and included in Figure 4.11.

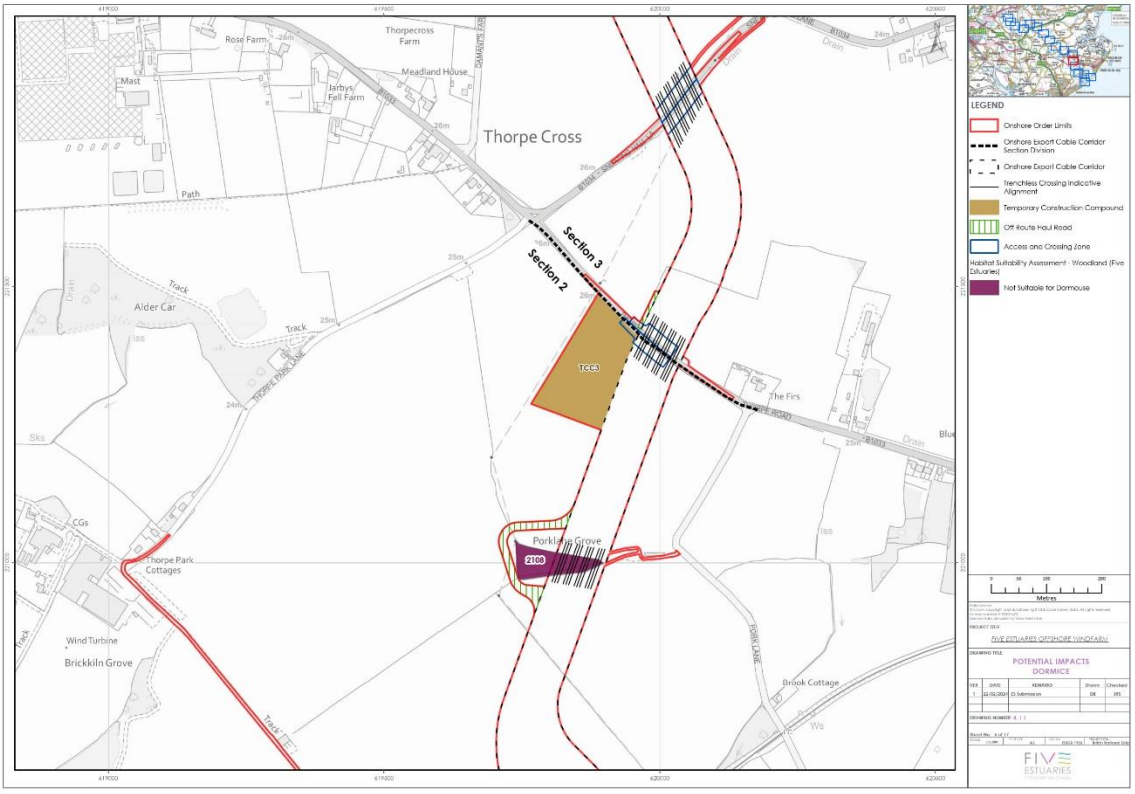
Figure 4.11: Potential impacts: dormice

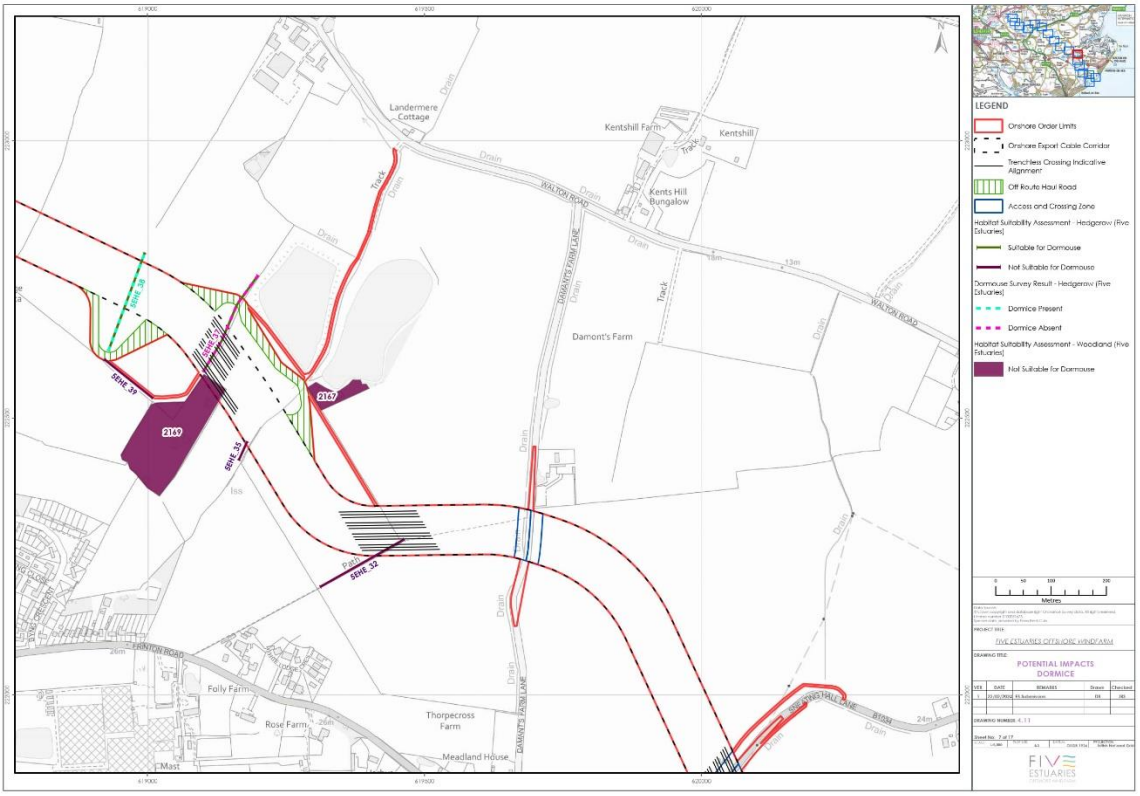


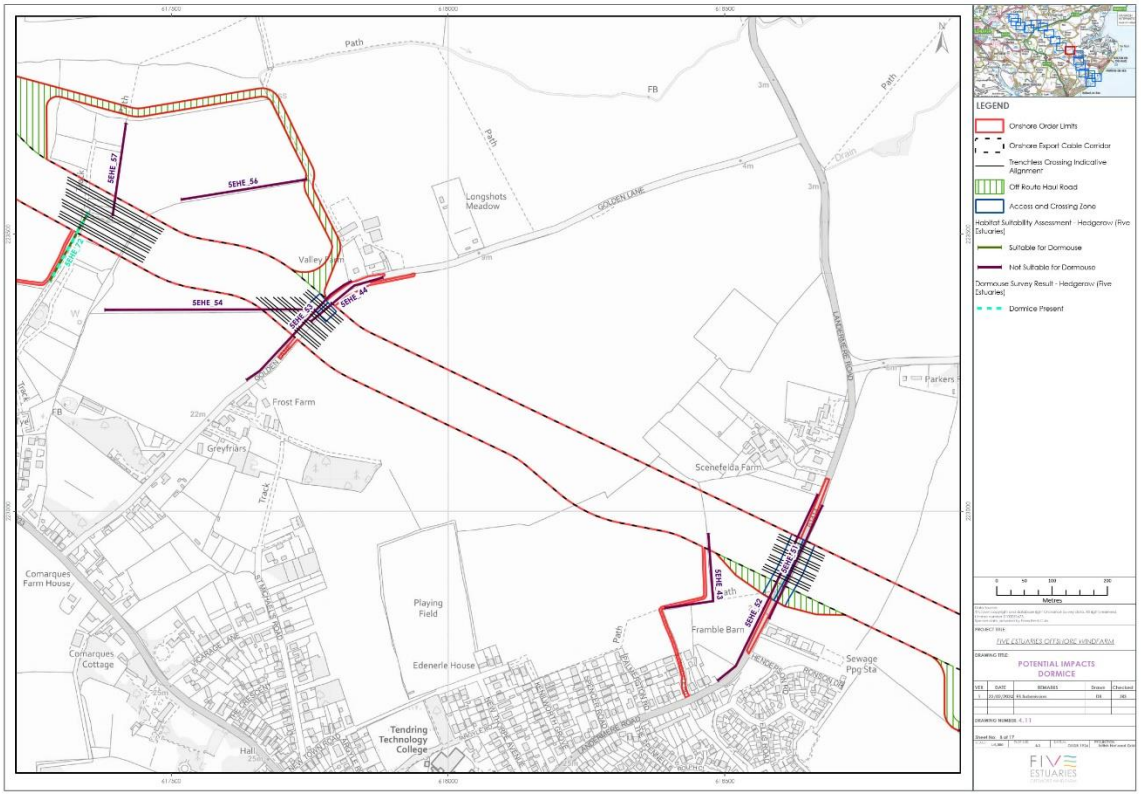

Great Holland
Oak House
The Cottage
of Holland Hall
Anne's Cottage
Manor Farm
White Lodge
Great Holland Lodge
TCC1
TCC2
SEHE 01
SEHE 03
SEHE 04
SEHE 05
SEHE 07
SEHE 08
SEHE 16
SEHE 17
SEHE 20
SEHE 34
SEHE 92
2008
1993
1972
LEGEND
Onshore Order Limits
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Temporary Construction Compound
Off Route Haul Road
Access and Crossing Zone
Landfall Compound Zone
Indicative Landfall Compound
Habitat Suitability Assessment - Hedgerow (Five Estuaries)
Not Suitable for Dormouse
Habitat Suitability Assessment - Woodland (Five Estuaries)
Not Suitable for Dormouse
POTENTIAL IMPACTS
DORMICE

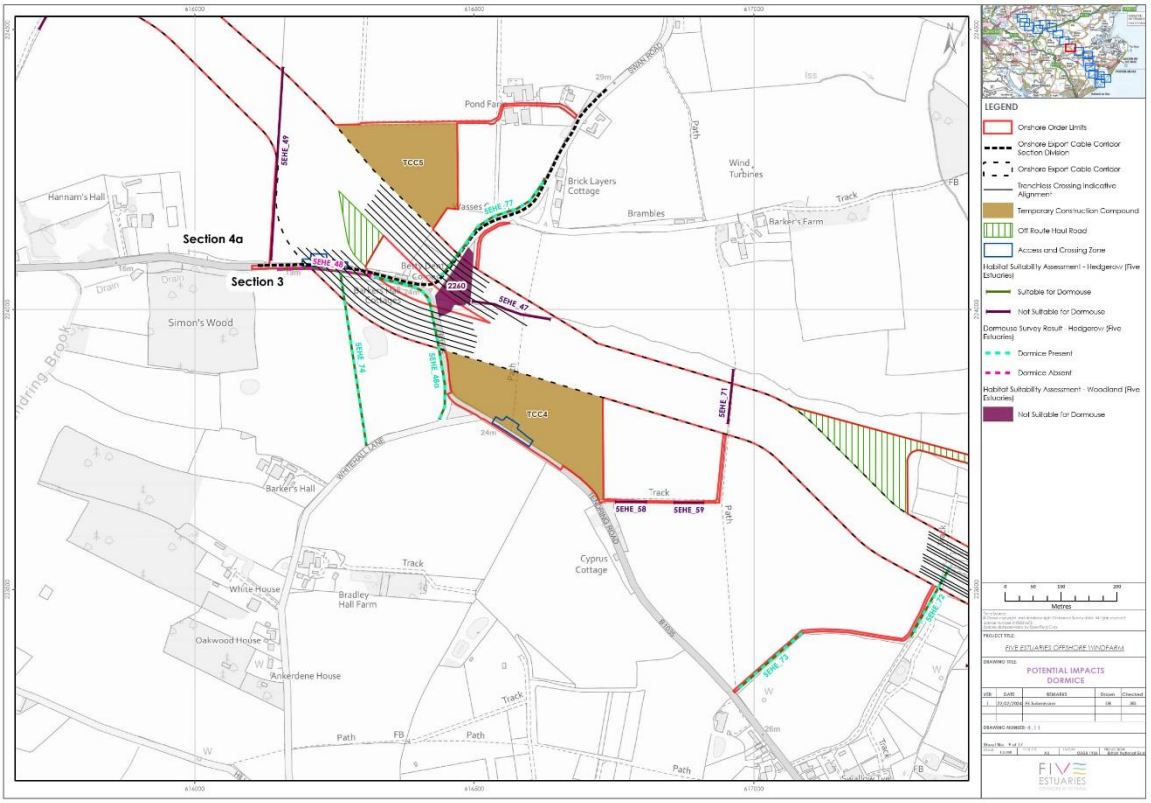

Holland Mill Wood
Great Holland Pits
Nature Reserve
Great Holland Mill
Beckwith Farm
Holland Brook
Wind Turbine
Vesey Farm
Dairy House Farm
Focus Farm
Johns Cottage
Hill House
Council Cottages
Great Holland Lodge
White Lodge
Manor Farm
TCC1
TCC2
SEHE 01
SEHE 03
SEHE 04
SEHE 05
SEHE 07
SEHE 08
SEHE 23
SEHE 25
SEHE 26
SEHE 92
2008
2038
2039
1993
1972
LEGEND
Onshore Order Limits
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Temporary Construction Compound
Off Route Haul Road
Access and Crossing Zone
Habitat Suitability Assessment - Hedgerow (Five Estuaries)
Not Suitable for Dormouse
Habitat Suitability Assessment - Hedgerow (North Falls)
Suitable for Dormouse
Dormouse Survey Result - Hedgerow (North Falls)
Dormouse Present
Dormouse Absent
Habitat Suitability Assessment - Woodland (Five Estuaries)
Suitable for Dormouse
Not Suitable for Dormouse
Dormouse Survey Result - Woodland (Five Estuaries)
Dormice Present
Essex Field Club Record
Hazel Dormouse
POTENTIAL IMPACTS
DORMICE

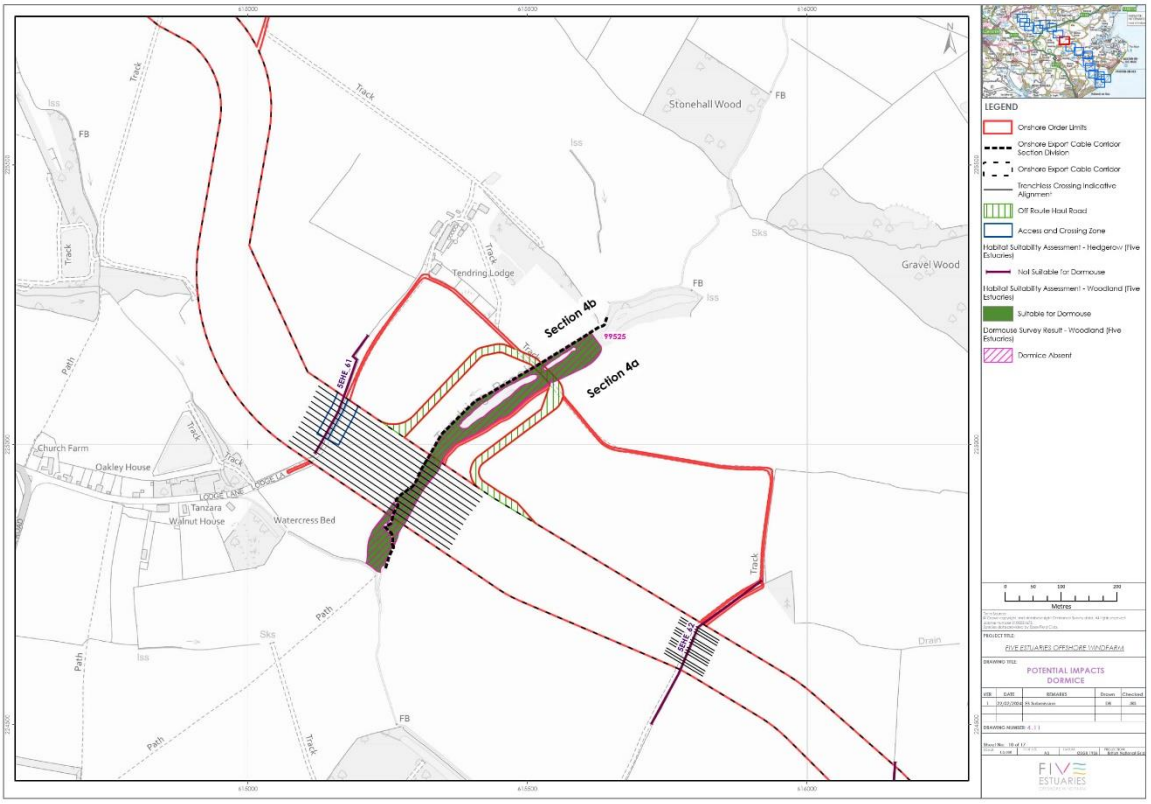

Section 2
Section 1
Brook Cottage
Birch Hoe Farm
Mayfields Farm
Wind Turbines
Reservoir (cov)
Hogen House
Park Farm House
Hodgenolls Farmhouse
Track
2108
99410
2038
2039
H085
H087
H079
LEGEND
Onshore Order Limits
Onshore Export Cable Corridor Section Division
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Off Route Haul Road
Habitat Suitability Assessment - Hedgerow (North Falls)
Suitable for Dormouse
Dormouse Survey Result - Hedgerow (North Falls)
Dormouse Present
Dormouse Absent
Habitat Suitability Assessment - Woodland (Five Estuaries)
Suitable for Dormouse
Not Suitable for Dormouse
Dormouse Survey Result - Woodland (Five Estuaries)
Dormice Present
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS DORMICE


Thorpe Cross
Section 3
Section 2
Thorpecross Farm
Meadland House
Jarbys Fell Farm
Rose Farm
Mast
Path
Alder Car
Track
TCC3
The Firs
Porklane Grove
2108
Thorpe Park Cottages
Wind Turbine
Brickkiln Grove
Brook Cottage
LEGEND
Onshore Order Limits
Onshore Export Cable Corridor Section Division
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Temporary Construction Compound
Off Route Haul Road
Access and Crossing Zone
Habitat Suitability Assessment - Woodland (Five Estuaries)
Not Suitable for Dormouse
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS DORMICE


Landermere Cottage
Kentshill Farm
Kentshill
Kents Hill Bungalow
WALTON ROAD
DAMANTS FIRM LANE
Damont's Farm
Track
Drain
SEHE_39
SEHE_38
SEHE_37
SEHE_35
SEHE_32
2147
2149
Path
Folly Farm
Rose Farm
Thorpecross Farm
Meadland House
Mast
DAMANTS FARM LANE
LEGEND
Onshore Order Limits
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Off Route Haul Road
Access and Crossing Zone
Habitat Suitability Assessment - Hedgerow (Five Estuaries)
Suitable for Dormouse
Not Suitable for Dormouse
Dormouse Survey Result - Hedgerow (Five Estuaries)
Dormice Present
Dormice Absent
Habitat Suitability Assessment - Woodland (Five Estuaries)
Not Suitable for Dormouse
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS DORMICE

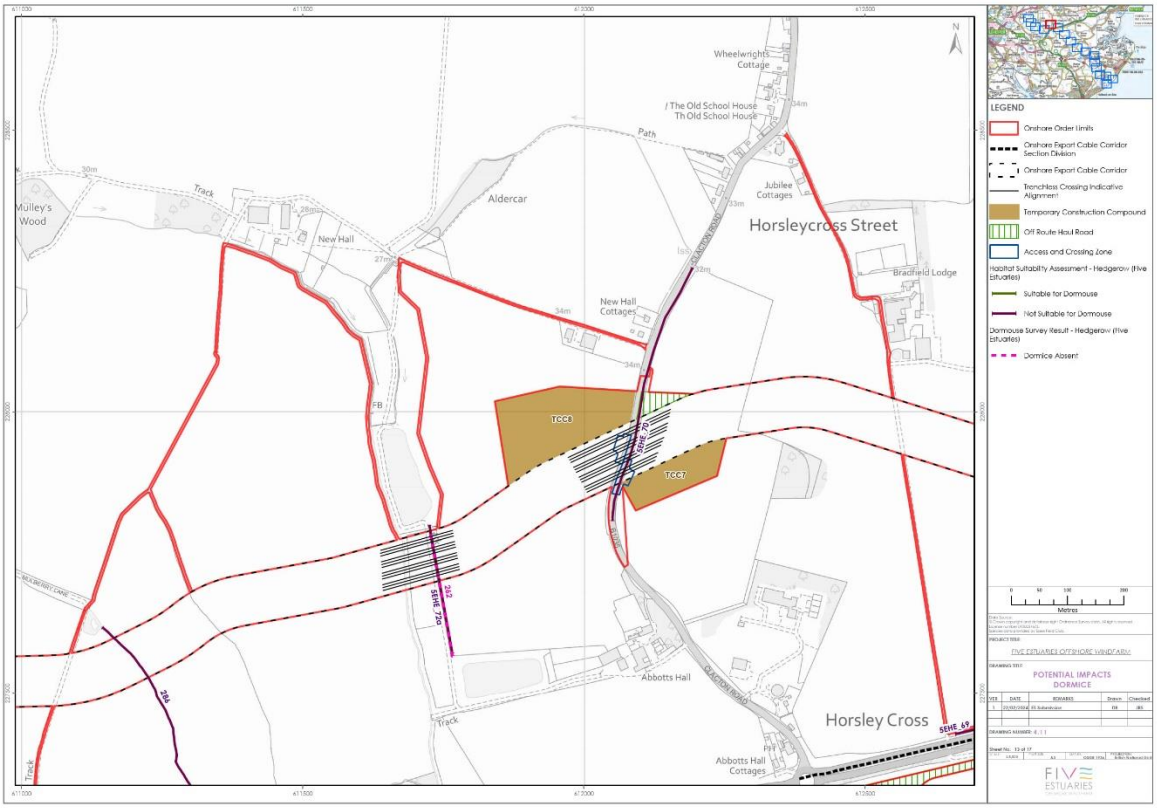

Path
FB
Longshots Meadow
GOLDEN LANE
Valley Farm
Frost Farm
Greyfriars
Scenefelda Farm
Parkers
Comarques Farm House
Comarques Cottage
Playing Field
Edenerie House
Tendring Technology College
Framble Barn
Sewage Ppg Sta
SEHE_57
SEHE_56
SEHE_54
SEHE_44
SEHE_43
SEHE_42
LEGEND
Onshore Order Limits
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Off Route Haul Road
Access and Crossing Zone
Habitat Suitability Assessment - Hedgerow (Five Estuaries)
Suitable for Dormouse
Not Suitable for Dormouse
Dormouse Survey Result - Hedgerow (Five Estuaries)
Dormice Present
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS DORMICE

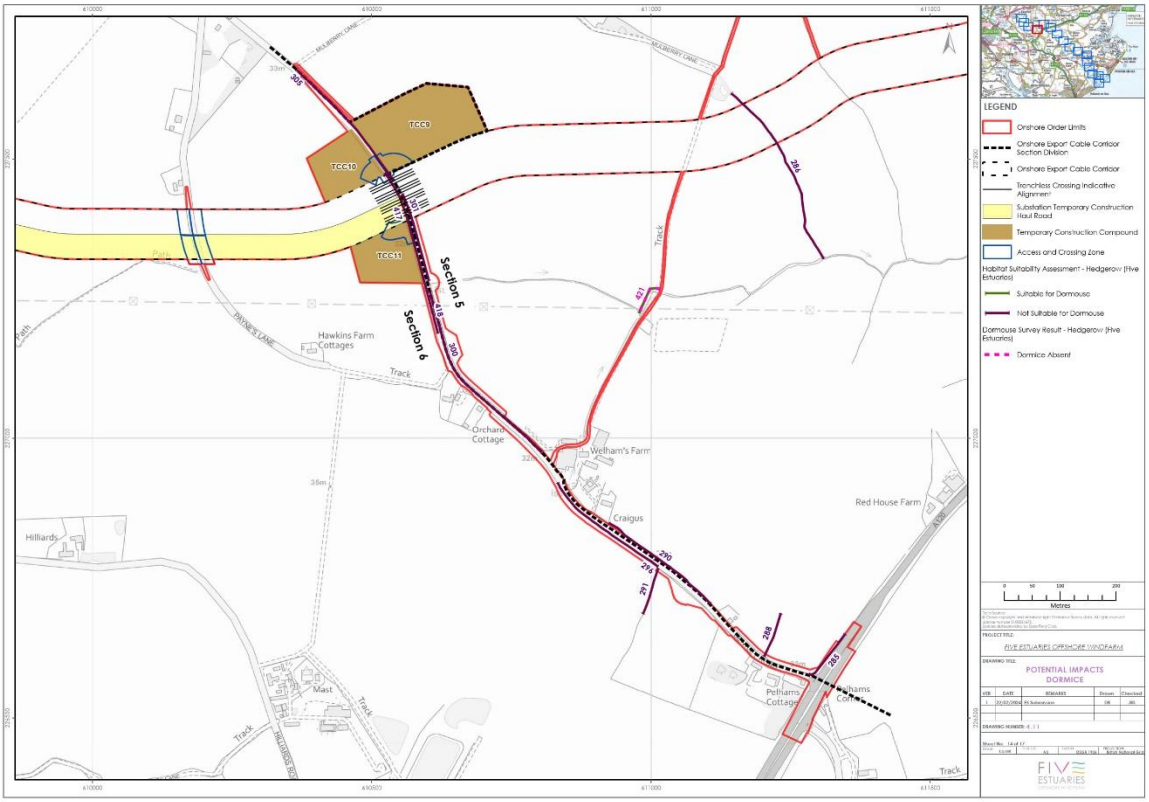

Section 4a
Section 3
TCC5
TCC4
SEHE_49
SEHE_48
SEHE_47
SEHE_74
SEHE_75
SEHE_71
SEHE_58
SEHE_59
SEHE_73
Hannam's Hall
Pond Farm
Brick Layers Cottage
Wind Turbines
Brambles
Barker's Farm
Simon's Wood
Barker's Hall
Cyprus Cottage
White House
Bradley Hall Farm
Oakwood House
Ankerdene House
LEGEND
Onshore Order Limits
Onshore Export Cable Corridor Section Division
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Temporary Construction Compound
Off Route Haul Road
Access and Crossing Zone
Habitat Suitability Assessment - Hedgerow (Five Estuaries)
Suitable for Dormouse
Not Suitable for Dormouse
Dormouse Survey Result - Hedgerow (Five Estuaries)
Dormice Present
Dormice Absent
Habitat Suitability Assessment - Woodland (Five Estuaries)
Not Suitable for Dormouse
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS DORMICE

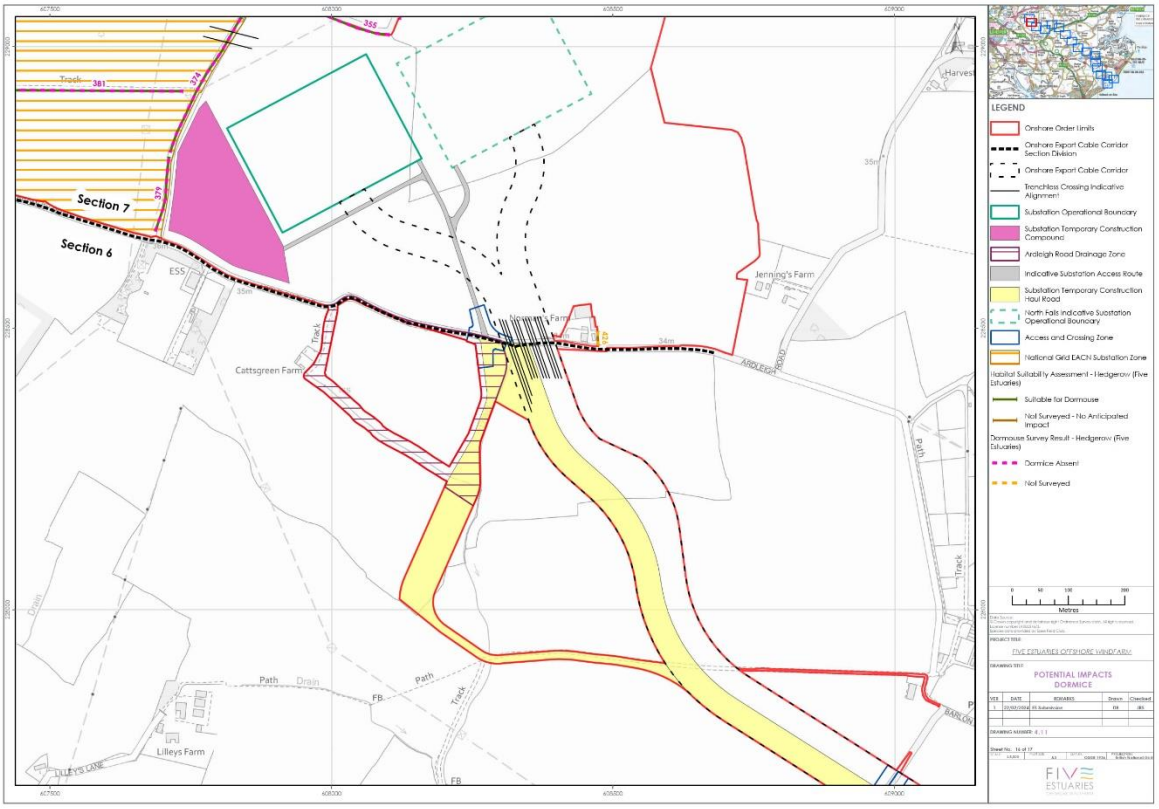

Section 4b
Section 4a
SEHE_47
Stonehall Wood
Gravel Wood
Tendring Lodge
Church Farm
Oakley House
Tanzara
Walnut House
Watercress Bed
LEGEND
Onshore Order Limits
Onshore Export Cable Corridor Section Division
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Off Route Haul Road
Access and Crossing Zone
Habitat Suitability Assessment - Hedgerow (Five Estuaries)
Not Suitable for Dormouse
Habitat Suitability Assessment - Woodland (Five Estuaries)
Suitable for Dormouse
Dormouse Survey Result - Woodland (Five Estuaries)
Dormice Absent
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS DORMICE

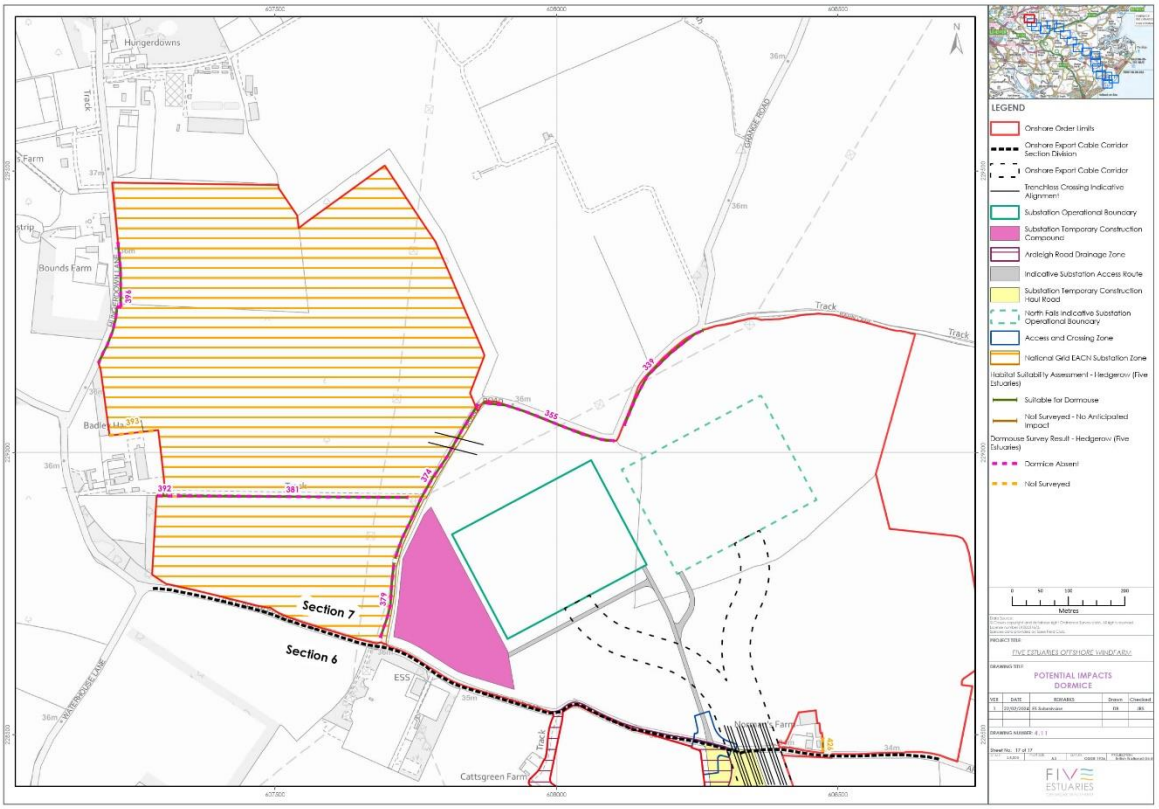

Woodberry Lodge
Foggey Cottage
Tendring Heath
2399
SEHE_65
Brockett's Hall
Oaktree Manor
The Stables
Old Hall Farm
Gooses Farm
PARSONAGE LANE
Meadow View Cottage
Middlefield House
Sewage Ppg Sta
Tendring Green
Glebe Farm
Grange Farm
SEHE_64
SEHE_63
Oakley House
Wolves Hall Farm
Track
Path
LEGEND
Onshore Order Limits
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Off Route Haul Road
Access and Crossing Zone
Habitat Suitability Assessment - Hedgerow (Five Estuaries)
Not Suitable for Dormouse
Habitat Suitability Assessment - Woodland (Five Estuaries)
Not Suitable for Dormouse
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS DORMICE


Crossma
Track
Arch Cottage
Section 5
Section 4b
SEHE_67
SEHE_68
Horsley Cross
2431
TCC6
Hempstall's Farm
Burnt Ash Farm
Newhouse Farm
SEHE_66
Foggey Cottage
LEGEND
Onshore Order Limits
Onshore Export Cable Corridor Section Division
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Temporary Construction Compound
Off Route Haul Road
Access and Crossing Zone
Habitat Suitability Assessment - Hedgerow (Five Estuaries)
Not Suitable for Dormouse
Habitat Suitability Assessment - Woodland (Five Estuaries)
Not Suitable for Dormouse
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS DORMICE


Wheelwrights Cottage
The Old School House
Th Old School House
Jubilee Cottages
Horsleycross Street
Aldercar
Mulley's Wood
New Hall
New Hall Cottages
Bradfield Lodge
TCC8
TCC7
Abbotts Hall
Horsley Cross
Abbotts Hall Cottages
LEGEND
Onshore Order Limits
Onshore Export Cable Corridor Section Division
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Temporary Construction Compound
Off Route Haul Road
Access and Crossing Zone
Habitat Suitability Assessment - Hedgerow (Five Estuaries)
Suitable for Dormouse
Not Suitable for Dormouse
Dormouse Survey Result - Hedgerow (Five Estuaries)
Dormice Absent
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS DORMICE


TCC9
TCC10
TCC11
Section 5
Section 6
Hawkins Farm Cottages
Orchard Cottage
Welham's Farm
Craigus
Red House Farm
Hilliards
Pelhams Cottage
LEGEND
Onshore Order Limits
Onshore Export Cable Corridor Section Division
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Substation Temporary Construction Haul Road
Temporary Construction Compound
Access and Crossing Zone
Habitat Suitability Assessment - Hedgerow (Five Estuaries)
Suitable for Dormouse
Not Suitable for Dormouse
Dormouse Survey Result - Hedgerow (Five Estuaries)
Dormice Absent
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS DORMICE


Section 7
Section 6
ESS
Cattsgreen Farm
Jenning's Farm
Nosterly Farm
Lilleys Farm
Path
Track
Drain
FB
LEGEND
Onshore Order Limits
Onshore Export Cable Corridor Section Division
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Substation Operational Boundary
Substation Temporary Construction Compound
Ardleigh Road Drainage Zone
Indicative Substation Access Route
Substation Temporary Construction Haul Road
North Falls indicative Substation Operational Boundary
Access and Crossing Zone
National Grid EACN Substation Zone
Habitat Suitability Assessment - Hedgerow (Five Estuaries)
Suitable for Dormouse
Not Surveyed - No Anticipated Impact
Dormouse Survey Result - Hedgerow (Five Estuaries)
Dormice Absent
Not Surveyed
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS
DORMICE


Hungerdowns
Bounds Farm
Badley Ha
Section 7
Section 6
ESS
Cattsgreen Farm
Nosterly Farm
Track
LEGEND
Onshore Order Limits
Onshore Export Cable Corridor Section Division
Onshore Export Cable Corridor
Trenchless Crossing Indicative Alignment
Substation Operational Boundary
Substation Temporary Construction Compound
Ardleigh Road Drainage Zone
Indicative Substation Access Route
Substation Temporary Construction Haul Road
North Falls indicative Substation Operational Boundary
Access and Crossing Zone
National Grid EACN Substation Zone
Habitat Suitability Assessment - Hedgerow (Five Estuaries)
Suitable for Dormouse
Not Surveyed - No Anticipated Impact
Dormouse Survey Result - Hedgerow (Five Estuaries)
Dormice Absent
Not Surveyed
Metres
FIVE ESTUARIES OFFSHORE WINDFARM
POTENTIAL IMPACTS
DORMICE

4.8.90 Potentially suitable habitat for dormice includes well-linked hedgerow, scrub and woodlands that support food plants such as hazel *Corylus* avellana and bramble *Rubus fruticosus*. Within the survey area, these are most abundant west of Great Holland, north of Thorpe le Soken, south-east of Little Bromley and south-east of Foxash Estate.

4.8.91 No evidence of dormouse was found north of the A120. Dormouse presence was however confirmed at the following broad locations within the Order Limits, south of the A120:

- Hedges south and east of, and linking into Simons Wood LWS, north-west of Thorpe Green;
- Hedges immediately north of Thorpe Green;
- In woodland adjacent to the railway; and
- In hedges east of and linking into Great Holland Pits LWS.

OTHER MAMMALS

4.8.92 Three other S41 mammal species are noted to occur within the 2 km study area, based on the desk study data: hedgehog *Erinaceus* europaeus, harvest mouse *Micromys europaeus* and brown hare *Lepus europaeus*.

4.8.93 The survey area includes numerous habitats that are suitable for use by hedgehog such as hedgerows, woodland edges, scrub and gardens. Suitable habitat for brown hare is also present across the Survey Area, including grassland and crops for foraging and woodland and hedgerows for cover. Suitable habitat for harvest mouse includes areas of tall grassland, including agricultural fields under crop or ley, road verges, hedgerows and reed beds.

SUMMARY OF IMPORTANT ECOLOGICAL FEATURES

4.8.94 Table 4.13 outlines the important ecological features that have been identified within the relevant study areas, or which based upon desk study information, habitat suitability or via more recent survey data are considered likely to be present within the relevant study areas, and which may be affected by the project. For designated sites and their qualifying or notified features, importance reflects the geographical context of the designation. SPAs, SACs and Ramsar sites are therefore all considered to be internationally important. SSSIs are considered nationally important and LoWSs are considered important at a county (Essex) level. The locations of important habitat features and relevant designated sites are shown in **Figure 4.3** to Figure 4.11.

Table 4.13: Important ecological features that may be affected

Important ecological feature	Reason for importance	Geographical scale of importance
Hamford Water SAC SPA and Ramsar	Statutory Designated Site	International
Hamford Water SSSI and NNR	Statutory Designated Site	National
Stour and Orwell Estuaries SPA and Ramsar	Statutory Designated Site	International
Colne Estuary (Mid-Essex Coast Phase 2) SPA and Ramsar	Statutory Designated Site	International
Abberton Reservoir SPA Ramsar SSSI	Statutory Designated Site	International
Blackwater Estuary (Mid-Essex Coast Phase 4) SPA and Ramsar	Statutory Designated Site	International
Holland Haven Marshes SSSI LNR	Statutory Designated Site	National
LoWs within 200m of the Order Limits, including > Thorpe Green; > Simons Wood; > Great Holland Pits; > Little Bromley Churchyard; and > Hollandhall Wood.	LoWS	County

Important ecological feature	Reason for importance	Geographical scale of importance
Hedgerows (UKHab primary code h2a)	Most meet the S41 definition (Maddock. A.(ed), 2011), which is: "*A hedgerow is defined as any boundary line of trees or shrubs over 20 m long and less than 5 m wide, and where any gaps between the trees or shrub species are less than 20 m wide. Any bank, wall, ditch or tree within 2 m of the centre of the hedgerow is considered to be part of the hedgerow habitat, as is the herbaceous vegetation within 2 m of the centre of the hedgerow. All hedgerows consisting predominantly (i.e., 80% or more cover) of at least one woody UK native species are covered by this priority habitat, where each UK country can define the list of woody species native to their respective country*" Most hedgerows within the Survey Area are relatively species-poor but some are more species-rich and eleven are "Important" under the Hedgerow Regulations 1997. The hedgerows in the Survey Area support dormice populations and an assemblage of eleven species of bats; both for foraging and commuting as well as potential roost resource where trees are present. .	County

Important ecological feature	Reason for importance	Geographical scale of importance
Arable margins (UKHab primary codes c1a6 and c1a8)	Small areas within the Survey Area are considered to meet the S41 definition which is: "*Arable field margins are herbaceous strips or blocks around arable fields that are managed specifically to provide benefits for wildlife. The arable field must be in a crop rotation which includes an arable crop, even if in certain years the field is in temporary grass, set-aside or fallow. Arable field margins are usually sited on the outer 2-12m margin of the arable field, although when planted as blocks they occasionally extend further into the field centre*".	Local
Lowland meadow (UKHab primary code g3a)	Small areas within the Survey Area meet the S41 definition which is: "*They are taken to include most forms of unimproved neutral grassland across the enclosed lowland landscapes of the UK. In terms of National Vegetation Classification plant communities, they primarily embrace each type of Cynosurus cris–atus–- Centaurea nigra grassland, Alopecurus prat–nsis–- Sanguisorba officinalis floodplain meadow and Cynosurus cris–atus–- Caltha palustris flood-pasture.*"	Local
ASNW and PAWS (UKHab primary codes starting "w" with secondary code 33)	A single area of woodland (Simon's Wood LoWS) listed in the Ancient Woodland Inventory occurs directly adjacent to the Order Limits.	National

Important ecological feature	Reason for importance	Geographical scale of importance
	Ancient woodland is an irreplaceable resource, protected under local, national and UK planning policies. It assists in supporting dormice populations and an assemblage of eleven species of bats, as well as other important invertebrate, amphibian, bird, mammal and plant species.	
Woodland (excluding ASNW and PAWS) and mature trees (UKHab primary codes starting "w")	Small woodland blocks and linear areas form an important part of the wider network of woods, trees, hedges and scrub. They assist in supporting dormice populations and an assemblage of eleven species of bats for roosting, foraging and commuting, as well as other important invertebrate, amphibian, bird, mammal and/ or plant species. Limited amounts of woodland in the survey area meet the S41 definition for lowland mixed deciduous woodland which is: "*Lowland mixed deciduous woodland includes woodland growing on the full range of soil conditions, from very acidic to base-rich, and takes in most semi-natural woodland in southern and eastern England, and in parts of lowland Wales and Scotland*"	County
Reedbeds (UKHab primary code f2e)	The largest linear reedbeds within Holland Haven Marshes SSSI and two further areas associated	Local

Important ecological feature	Reason for importance	Geographical scale of importance
	with irrigation reservoirs north of the A120 are considered to meet the S41 description: "*Reedbeds are wetlands dominated by stands of the common reed Phragmites australis, wherein the water table is at or above ground level for most of the year. They tend to incorporate areas of open water and ditches, and small areas of wet grassland and carr woodland may be associated with them*." The reedbeds within the Survey Area are unlikely to comprise a significant proportion of the total resource of this habitat type within Essex.	
Coastal and floodplain grazing marsh (UKHab secondary code 25)	Many of the fields associated with the Holland Brook drainage network within and adjacent to the Holland Haven Marshes SSSI and Upper Holland Brook LoWS are considered to meet to the S41 description of Coastal and Floodplain Grazing Marsh, including those that have been agriculturally improved, which is: "*Grazing marsh is defined as periodically inundated pasture, or meadow with ditches which maintain the water levels, containing standing brackish or fresh water. The ditches are especially rich in plants and invertebrates. Almost all areas are grazed and some are cut for hay or silage. Sites may contain seasonal water-filled hollows and permanent ponds with emergent swamp communities, but not extensive areas of*	National (where present within Holland Haven Marshes SSSI) and County (where present within LoWS).

Important ecological feature	Reason for importance	Geographical scale of importance
	tall fen species like reeds; although they may abut with fen and reed swamp communities." The coastal and floodplain grazing marsh within the Order Limits comprises a small proportion of the total resource of this habitat type within Essex, but supports other important invertebrate and plant species.	
Coastal saltmarsh (UKHab code t2a)	Areas within Holland Haven Marshes SSSI meet the S41 description, and are a notified feature of the SSSI. The coastal saltmarsh within the Survey Area comprises a small proportion of the total resource of this habitat type within Essex but supports other important invertebrate and plant species.	National (as it is present within Holland Haven Marshes SSSI and is a notified feature of the SSSI)
Ponds (UKHab primary code r1a)	Some ponds in the area are likely to meet the S41 definition by supporting GCN and/ or other S41 or Red Data Book species. The number of ponds within the Survey Area is relatively small and together they are therefore considered to be of up to Local value. The value of relevant species populations (e.g., GCN) within these ponds is assessed separately below.	Local
Rivers (UKHab code r2a)	The Holland Brook and Tendring Brook meet the S41 definition by virtue of supporting protected and/ or S41 species such as water vole, various bird species and potentially invertebrates, rather than for habitat type/ quality *per se*. Remaining	County (where part of LoWS) and Local in other locations.

Important ecological feature	Reason for importance	Geographical scale of importance
	water courses within the survey area are not considered to meet the definition.	
Notable plant species	Populations of national importance present at Holland Haven Marshes SSSI. Additional S41 and/ or red data book species associated with the coastal habitats and arable margins. Numerous locally important species also present, primarily within S41 habitats.	National within the SSSI, County within S41 habitats and LoWS and Local elsewhere.
Invasive non-native plant species	Three species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) recorded within the survey area.	N/A
Invertebrates	Populations of S41 species and/ or Red Data Book (RDB) species primarily associated with coastal habitats, including Holland Haven Marshes SSSI, but also the Holland Brook. Other S41 habitats are also potentially important for this group.	National within the SSSI, County within S41 habitats and LoWS and Local elsewhere.
GCN and common toad	GCN is protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and in Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended), it is also a S41 species. Common toad is also a S41 species. GCN populations are present at ponds within the Survey Area; the size of these is unknown but is considered unlikely to be of regional importance,	Up to County

Important ecological feature	Reason for importance	Geographical scale of importance
	based upon desk study information available which indicate very large and more contiguous populations elsewhere within East Anglia.	
Reptiles	Adder, slow worm, grass snake and common lizard are protected from intentional killing, injuring and sale under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are all S41 species. Low populations of common lizard recorded at six locations, good populations of common lizard at three locations and low populations of grass snake at three locations. Single records for slow worm and adder. Based on EFC data all four reptile species occurring with in the Survey Area are widely distributed in Essex, with more records in the south and east of the county. None of the surveyed locations meet the selection criteria for a LoWS (Essex Wildlife Trust , 2016), which is "*Any site supporting significant populations of three of more reptile species will be eligible for selection*". .	Local
Non-breeding Birds (Landfall Area)	Based on 2020-21 and 2021-22 survey data: Presence of 16 species within the Order Limits and 400 m buffer which could form a significant proportion of nearby SPA/ Ramsar non-breeding populations (see ES Volume 6, Part 6, Annex 4.6: Wintering Bird Data Analysis in relation to	Local to International

Important ecological feature	Reason for importance	Geographical scale of importance
	Onshore Works)[6]: dark-bellied brent goose, mute swan, shelduck, gadwall, wigeon, pintail, teal, great crested grebe, avocet, lapwing, curlew, black-tailed godwit, turnstone, sanderling, cormorant and hen harrier. Assuming these species were to form part of one of the nearby SPA/ Ramsar populations, their populations could be considered internationally important. Regular presence within the Order Limits and 400 m buffer of a significant proportion of the SSSI population of five additional wintering species referred to in the citation for Holland Haven Marshes SSSI: shoveler, ruff, snipe, purple sandpiper and short-eared owl. Assuming these species form part of the SSSI population their populations could be considered nationally important. Presence of other waterbird species or other species of high conservation concern within the study area for non-breeding birds. Most of these species were recorded in low numbers only and most populations are unlikely to be of greater than local importance. The peak count of European white-fronted geese exceeded 1% of the national wintering population (Woodward *et*	

[6] Excluding Abberton Reservoir SPA/ Ramsar and Blackwater Estuary (Mid-Essex Coast Phase 4) SPA/ Ramsar, which are >15 km from the landfall area.

Important ecological feature	Reason for importance	Geographical scale of importance
	al., 2020) and the birds recorded are therefore considered to be nationally important.	
Non-breeding Birds (Onshore ECC and Substation Area)	Based on 2021-22 and 2022-23 survey data: Presence of 11 species within the Order Limits and 400 m buffer which could form a significant proportion of nearby SPA/ Ramsar non-breeding populations (see ES Volume 6, Part 6, Annex 4.6: Wintering Bird Data Analysis in relation to Onshore Works): dark-bellied brent goose, mute swan, shelduck, shoveler, gadwall, teal, tufted duck, great crested grebe, lapwing, curlew and cormorant. Assuming these species were to form part of one of the nearby SPA/ Ramsar populations, their populations could be considered internationally important. Presence of other waterbird species or other species of high conservation concern within the Order Limits and 400 m buffer. Many of these species' populations are likely to be of local importance. None of the peak counts exceeded 1% of the national wintering population (Woodward *et al*., 2020) and therefore none of the populations recorded are considered to be nationally important. Species such as marsh harrier, peregrine and corn bunting may be of county importance.	Local to International
Breeding Birds (Landfall Area)	Based on 2021 and 2022 survey data:	Local to National

Important ecological feature	Reason for importance	Geographical scale of importance
	Presence of four breeding species within the Order Limits and 400 m buffer that are referred to in the citation for Holland Haven Marshes SSSI: skylark, reed warbler, yellow wagtail and meadow pipit. Assuming these species form part of the SSSI population their populations could be considered nationally important. Presence of one breeding species within the Order Limits and 400 m buffer that is protected through inclusion on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended): Cetti's warbler. The population recorded represents considerably less than 1% of the national breeding population (Woodward *et al*., 2020) but is likely to be of county importance. Presence of several other species within the Order Limits and 400 m buffer that are included on the BoCC red list and/ or S41 species, including corn bunting and yellowhammer. All of the populations recorded represent considerably less than 1% of the national population (Woodward *et al*., 2020) but the corn bunting population (16 records in 2022) is likely to be of county importance and other species are likely to be of local importance.	
Breeding Birds (Onshore ECC and Substation Area)	Based on 2022 survey data: Presence of one confirmed breeding species within the Order Limits and 400 m buffer that is	Local to County

Important ecological feature	Reason for importance	Geographical scale of importance
	protected through inclusion on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended): hobby. Based on the summary of its status in Essex provided in ES Volume 6, Part 6, Annex 4.2, the population recorded (two confirmed pairs) is likely to be of county importance. Presence of one other species within the Order Limits and 400 m buffer that based on the summary of its status in Essex provided in ES Volume 6, Part 6, Annex 4.2 and the population recorded is likely to be of county importance: corn bunting. Presence of several other species within the Order Limits and 400 m buffer that are included on the BoCC red list and/ or S41 species. Based on the summary of their status in Essex provided in ES Volume 6, Part 6, Annex 4.2 and the populations recorded, several of these, including lapwing, skylark, Cetti's warbler, yellow wagtail and yellowhammer are likely to be of local importance.	
Bats	All UK bat species are protected through inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). Common pipistrelle, soprano pipistrelle, brown long-eared bat, noctule and barbastelle bat are also S41 species. Barbastelle is also listed on	Evaluation provided by species below.

Important ecological feature	Reason for importance	Geographical scale of importance
	Annex II of the EC Habitats Directive (an "Annex II species"), whose conservation requires the designation of SACs. In all cases the conservation status/ distribution provided below is as per Reason, P.F. and Wray, S. (2023).	
Common pipistrelle, soprano pipistrelle and brown long-eared bat	These species are considered to be widespread in south-east England/ East Anglia to The Wash. Confirmed presence of maternity and day roosting common pipistrelle and day roosting soprano pipistrelle within the potential tree roost resource. Likely presence of brown long-eared bat roosts within the tree roost resource. The mosaic of mature trees, watercourses, agricultural land and small woodlands are all highly suitable for use by this species group.	Local (as per Reason, P.F. and Wray, S. (2023).
Nathusius' pipistrelle	This species is considered rarer, or of restricted distribution in south-east England/ East Anglia to The Wash. The evaluation is based on the potential presence of a day roost in the tree roost resource, plus occasional presence of commuting and/ or foraging bat(s) at locations (generally) associated with water.	Local (as per Reason, P.F. and Wray, S. (2023).

Important ecological feature	Reason for importance	Geographical scale of importance
Myotis species (Daubenton's, whiskered, Brandt's and Natterer's bats)	In south-east England/ East Anglia to The Wash, Daubenton's bat and Natterer's bat are considered widespread in many geographies but not abundant in all, Brandt's and whiskered bat are considered rarer or of restricted distribution. The evaluation is based upon the confirmed presence of a Natterers day roost and the potential for other roosts in the tree roost resource and the regularly recorded foraging and commuting *Myotis* species.	Local (as per Reason, P.F. and Wray, S. (2023).
Noctule	This species is a S41 species and in south-east England/ East Anglia to The Wash is considered widespread in many geographies but not abundant in all. One day roost or mating roost has been confirmed, with potential for other roosts within the tree roost resource. Noctule may forage anywhere within the Order Limits.	Local (as per Reason, P.F. and Wray, S. (2023).
Serotine and Leisler's bat	No evidence of roosting bats, limited amounts of activity recorded.	Less than Local (as per Reason, P.F. and Wray, S. (2023).
Barbastelle	In south-east England/ East Anglia to The Wash barbastelle is considered very rare. No confirmed roosts were found during the surveys. However, it is thought likely that barbastelle roost within or in the near vicinity of the north of the Order Limits based on recorded activity data.	County (as per Reason, P.F. and Wray, S. (2023).

Important ecological feature	Reason for importance	Geographical scale of importance
	Survey data suggests barbastelle bats forage throughout the survey area, utilising appropriate habitat (i.e., woodland, Tendring Brook and Holland Haven Marshes) and would use the field margins and hedges with mature trees for commuting between foraging sites.	
Badger	Protected under the Protection of Badgers Act 1992 for welfare rather than nature conservation reasons. Badgers are a widespread and commonly occurring species in Essex.	Less than local
Otter	Protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). Otter is also a S41 species. No evidence of the species has been found during field surveys, but there are existing records in the wider study area.	Less than local
Water Vole	Fully protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), it is also a S41 species. Populations are present at Holland Haven Marshes SSSI, Tendring Brook and Holland Brook. Coastal populations of watervole are considered stable but elsewhere in the county the species is	County

Important ecological feature	Reason for importance	Geographical scale of importance
	extinct from whole catchments (Essex Wildlife Trust website, accessed 20.11.2023 and McGuire, C & Morse, A 2020). The populations present in the Survey Area are identified as Local Key Areas and are not identified as Regional Key areas (McGuire, C & Morse, A 2020)	
Dormouse	Protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). Dormouse is also a S41 species. Breeding populations present at several locations within the Order Limits south of the A120. Dormice are relatively widespread but uncommon in Essex (Bright, P *et al* 2006 and Peoples Trust for Endangered Species (PTES) website), and absent from other parts of East Anglia. The latest report on dormouse conservation status in the UK suggests that under IUCN Red List Criteria the species should be reclassed from Vulnerable to Endangered (Wembridge *et al* 2023)	Regional
Hedgehog, brown hare and harvest mouse.	S41 species. Not surveyed but unusually large populations are considered unlikely to be present within the survey area based on the habitats present and desk study data and therefore populations are unlikely to be of more than local value.	Local

4.8.95 All remaining ecological features within the study area that are likely to be affected by the onshore elements of VE are assessed as having less than local importance due to being common and widespread at the local and national level.

EVOLUTION OF THE BASELINE

4.8.96 Baseline ecological conditions could evolve in the future as a result of land use policy, environmental improvements and development pressures. There may also be some changes to the baseline over time as a result of natural variation and weather events.

4.8.97 Climate change is predicted to result in warmer and wetter winters, hotter and drier summers plus increased occurrence of extreme weather events. This is likely to lead to complex changes to biodiversity; though significant changes to the list of important ecological receptors identified locally are not anticipated within the next 5 years. Within 10 years changes are possible but are impossible to accurately predict at this stage.

4.8.98 Of most relevance at the project location is that coastal plants and wildlife that cannot respond to sea level rise or coastal erosion by moving inland (for example, due to the presence of urban land, or flood defences) may be lost. There could also be possible loss of species on the southern edge of their range and gain of more southern species expanding their range northwards. Other changes could include adverse effects on large open waterbodies due to drought or damage to woodland habitats due to increased storm events. In addition, the number and range of invasive non-native species (INNS) may increase.

4.8.99 The above events and trends have the potential to alter the baseline assessment of the EcIA over time. However, in the absence of any detailed, quantifiable information it has been assumed that the baseline conditions will remain largely as they are for the purpose of the assessment (with the exception of other developments, where known, which are considered in the assessment of cumulative effects, see Section 4.14).

4.9 KEY PARAMETERS FOR ASSESSMENT

4.9.1 The MDS criteria identified in Table 4.14 have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. These criteria have been selected from the details provided in the onshore project description (Volume 6, Part 3, Chapter 1: Onshore Project Description). Effects of greater significance are not predicted to arise should any other development scenario, based on details within the project design envelope, to that assessed here be taken forward in the final design scheme. The MDS takes into consideration designed-in mitigation as described in Section 4.10. Refer to Table 4.14 for details.

Table 4.14: MDS key parameters for EclA

Potential effect	Maximum adverse scenario assessed	Justification
Construction		
Permanent and temporary loss of habitat	**Onshore ECC and Landfall** Trenching and the associated construction corridor will result in temporary habitat loss along the onshore ECC. The construction period is anticipated to last 18 - 27 months. HDD crossings, or other suitable trenchless crossing techniques (HDD is referred to within this chapter to represent any trenchless crossing technique) are required for the landfall; larger surface watercourses; key roads; some utility crossings and at most hedgerows. HDD compounds would be located at each end of the crossing, requiring an associated compound with permeable surfacing. 31 HDD or other suitable trenchless crossings have been committed to and are detailed in the obstacle crossing register in Volume 6, Part 6, Annexe 1.1 Onshore Crossings Register. Some HDD or other suitable trenchless crossings may also require up to 10 m wide haul road to pass across the feature where existing gaps or access routes cannot be used. Where there is not certainty that HDD/ other trenchless techniques would be used, trenched crossing has been assumed as a worst case scenario, with hedgerows crossing points being reduced from standard corridor width to 30 m across. Based on Scenario 1 for onshore delivery with NF, i.e. VE undertakes the additional onshore cable trenching and ducting works for NF OWF as part of a single civils campaign, the onshore ECC is assumed to be approximately 60 m wide for open trench sections and approximately 90 m wide for trenchless sections, and up to 24.5 km in length. For hedgerows where open trench crossing is used, stockpiles will not be continued through the hedgerow, meaning the expected width of hedgerow removed would be approximately 30 m.	The MDS includes the maximum development footprint (temporary and permanent) and therefore the largest possible area of disturbance to ecological receptors. It also assumes use of the technologies likely to cause most damage where the technology to be used is still uncertain, e.g., that the most ecologically sensitive habitats would be affected, where there are different routing options.

Potential effect	Maximum adverse scenario assessed	Justification
	Twelve TCCs are assumed, including one at the beach (TCC#1-TCC#11 and "Beach TCC"). This EcIA is based upon assessing the indicative corridor location within the Order Limits, as shown on Figures in Volume 6, Part 3, Chapter 1 Project Description. Due to the significant effort made at the design stage to avoid ecological receptors via mitigation, any changes to the relative position of the indicative corridor location within the proposed Order Limits is not considered to result in greater impacts than have been identified to any important ecological features. Permanent habitat loss associated with the onshore ECC is limited to the two transition joint bays (TJB) at the landfall and would amount to a maximum of 200 m^2. Temporary habitat loss during construction includes land disturbed within the indicative onshore ECC route, TCCs and HDD compounds. **Substation** For the OnSS the following has been assumed: Under scenario 1, platforms for two substations will be levelled and cleared of vegetation. There will be a permanent loss of 5.88 ha of habitat for each substation footprint due to the construction footprints of these elements of the project (assuming Air Insulated Switchgear (AIS) is used for both, which has the larger land take requirement). A further 0.86 ha of permanent habitat loss is associated with the substation access route. Temporary habitat loss as a result of potential TCC work areas are estimated at 3.75 ha in total. In addition to the OnSS and access footprints, there will potentially be an area to account for "cut and fill" to create a level area, plus areas required for screening planting. An indicative planting plan has been prepared which shows landscape and ecological mitigation, compensation and/ or enhancement in the zone around the OnSS (including the TCC), which comprises a total area of 31.63 ha. This incorporates woodland, hedgerow, orchard and grassland planting, as well as indicative earthworks (additional to the OnSS and access described above) and drainage.	

Potential effect	Maximum adverse scenario assessed	Justification
	The main OnSS construction works are anticipated to take place over an approximately 27-month period. Preliminary/ enabling works, such as the improvement works to Bentley Road, may extend this period. **Bentley Road Improvements** Prior to substation construction enabling works to Bentley Road will be needed. These will consist of widening of Bentley Road to between 6m and 6.75m and improvement of the Bentley Road / A120 junction. A temporary footpath / cycle way / bridleway (a non-motorised user path) has been assumed to be included within the design and that it would be set back from the road to minimise impact on trees and hedgerows. However, since certainty on its location is subject to final design, all habitats in the Bentley Road area are assumed to be potentially affected as a worst case scenario. This EcIA is based on an MDS of permanent habitat loss in areas identified on Figure 4.4 where tree removal or vegetation trimming is proposed. Approximately 20 trees may require felling; all trees covered by the Tree Preservation Order on the eastern side of the road are to be retained (refer to ES Volume 9 Report 22 Outline Landscape and Ecological Management Plan Annex 1 Arboricultural Feasibility Report).	
Impacts upon protected or notable species or upon their resting or breeding sites	The potential exists for protected or notable species to be impacted by construction activities either physically, i.e., via permanent or temporary habitat loss or inadvertent injury or killing, or from disturbance via light, noise and human presence. All legally protected and notable species known or considered likely to occur within the study area are included in the assessment. The maximum adverse scenario for this effect is based on the temporary and permanent habitat loss areas given above. Construction has been assumed to commence in 2027, the duration has been assumed to be 18 – 27 months as set out in Volume 6, Part 3 Chapter 1: Onshore Project Description.	The MDS includes the maximum development footprint (temporary and permanent) and therefore the largest possible area of disturbance to ecological receptors. It also assumes use of the technologies likely to cause most damage where the technology to be used is still uncertain, e.g., trenched crossings of smaller watercourses, and that the most ecologically sensitive habitats would be affected, where there are different routing options.

Potential effect	Maximum adverse scenario assessed	Justification
	24-hour working has been assumed to be required at five HDD y locations (TX21 – railway line, TX-23 Swan Road, TX-24 B1035, TX-26 Tendring Brook and TX-31 A120)); otherwise it has been assumed that works would be limited to 07:00 to 19:00 from Monday to Saturday with no work where noise is audible beyond the site boundary outside these hours, including Sundays and Bank Holidays. The requirement for three sheet piled exit pits within the intertidal zone is currently being considered and has been assumed for the purpose of this assessment. If driven piling is used this would result in 88dB percussive piling noise (based upon a stand-off distance from the piling rig of 10m), 30 minutes duration per pile installation and 660 piles needed and a maximum number of 8 installed per day. This has been assumed to be 82 consecutive days noise for the purpose of this assessment. Foundations for the OnSS may require piling, however, if required it has been assumed that less noisy rotary piling (rather than driven piling) would be used. Temporary lighting has been assumed to be necessary during construction hours at the times of year when working hours would otherwise be in darkness (approximately October – April). Additional 24-hour security lighting has been assumed at all TCCs.	
Habitat fragmentation and species isolation	There is potential for permanent habitat fragmentation and species isolation as a result of OnSS construction. Temporary habitat fragmentation and species isolation may also result from construction of the onshore ECC. All legally protected and notable species known or considered likely to occur within the study area are included in the assessment. The assessment is based upon the habitat loss parameters and construction programme given above. However, in addition, the duration of temporary habitat fragmentation is habitat, location and species-specific. For the MDS it is considered to last for a maximum period of 5 years post construction; this being the approximate	The MDS includes the maximum development footprint (temporary and permanent) and therefore the largest possible area of disturbance to ecological receptors. It also assumes use of the technologies likely to cause most damage where the technology to be used is still uncertain, e.g., trenched crossings of smaller watercourses, and that the most ecologically sensitive habitats would be affected, where there are different routing options.

Potential effect	Maximum adverse scenario assessed	Justification
	duration for recovery of a hedgerow to ecological function for use by most species.	
Spread of INNS	There is potential for the presence of INNS which could be spread by construction activities, anywhere across an area equal to the maximum habitat loss areas stated above. INNS known to be present within the Order Limits and which are included in this assessment include: > Rhododendron; > Water fern; and > New Zealand pigmyweed.	The MDS includes the maximum development footprint (temporary and permanent) and therefore the largest possible area of disturbance to ecological receptors. It also assumes use of the technologies likely to cause most damage where the technology to be used is still uncertain, e.g., trenched crossings of smaller watercourses, and that the most ecologically sensitive habitats would be affected, where there are different routing options.
Operation		
OnSS: Disturbance via maintenance, noise and light.	Planned maintenance at the OnSS is likely to be highly localised with a minimal likelihood of disturbance expected to the adjacent habitats and species. Approximately one visit per week is anticipated typically involving two personnel. For unplanned major maintenance, vehicles similar to those used for construction may also be required (rigid lorries delivering materials, low loaders delivering plant and individual vehicles for personnel). In the event of a transformer replacement or failure, an abnormal indivisible load (AIL) similar to that used during construction would be required. Lighting at the OnSS would be directional for safety and security. Task-specific lighting could be used externally, if required, on a very infrequent basis. The sound power level of operational plant associated with the OnSS would be up to 95 dB(A).	Parameters are based on those stated within the Onshore Project Description (Volume 6, Part 3, Chapter 1).

Potential effect	Maximum adverse scenario assessed	Justification
Onshore ECC: potential effects as for construction but much more limited in extent and timescale and would not include permanent habitat loss.	Planned maintenance requires one visit to each cable joint pit per year by a team of two. Unplanned maintenance may involve the repair of onshore cable faults. This is extremely rare (indicatively 1-2 events per lifetime). Typically, this involves excavating the two TJB (minimum 500 m apart), pulling the cable back through the ducting and pulling a new cable through. Alternatively, the area of the fault may be excavated (with an additional 40 m in both directions) and two new joints installed within this area. Methods for excavation and reburial will be similar to the original installation. The location, extent or nature of any unplanned corrective maintenance required can't be predicted at this stage and therefore possible effects in terms of temporary habitat loss or disturbance can't be assessed. Any unplanned corrective maintenance required would be subject to any necessary consents and consultation with the relevant nature conservation bodies at the time.	The MDS includes the maximum footprint and therefore the largest possible area of disturbance to ecological receptors. It also assumes that the most ecologically sensitive habitats would be affected, where there are different routing options.
Decommissioning		
Decommissioning impacts: similar in nature to those during construction but would be more limited in geographical extent and timescale and would not include permanent habitat loss.	The activities and methodology for decommissioning are likely to include: > Dismantling and removal of electrical equipment; > Removal of cabling, and where required leaving in situ as with the ducting; > Removal and demolition of buildings, fences, and services equipment; and > Reinstatement and landscaping works.	The MDS includes the maximum footprint and therefore the largest possible area of disturbance to ecological receptors. It also assumes that the most ecologically sensitive habitats would be affected, where there are different routing options.
Cumulative effects		
Effects during construction	VE construction may be undertaken at the same time as, and perhaps in conjunction with NF OWF. As such, the two projects have worked together to develop a shared onshore ECC, landfall location, and single site for both onshore substations. However, in respect of cumulative impacts, two	Separate construction phases would be the highest risk due to receptors being affected for an extended period of time, affecting more breeding seasons.

Potential effect	Maximum adverse scenario assessed	Justification
	potential scenarios have been identified (as set out in Volume 6 Part 1 Chapter 3 section 3.4.25 – 26) of which scenario 2 is considered worst case for ecological receptors: CEA Scenario 3 – VE delivers two ducts for two circuits only and North Falls delivers two ducts for two circuits separately in succession i.e. one project reinstates and the other then starts works. It is assumed that the other developments identified will be built out to their maximum permissible extent but that any proposed mitigation and compensation measures will be implemented.	The MDS includes the maximum development footprint for both VE and the potential cumulative projects (where known) and therefore the largest possible area of disturbance to ecological receptors. It also assumes use of the technologies likely to cause most damage where the technology to be used is still uncertain, e.g., trenched crossings of smaller watercourses, and that the most ecologically sensitive habitats would be affected, where there are different routing options.
Effects during operation	It is assumed that the other developments identified will be built out to their maximum permissible extent but that any proposed mitigation and compensation measures will be implemented.	The MDS includes the maximum development footprint (permanent) and therefore the largest possible area of disturbance to ecological receptors. It also assumes that the most ecologically sensitive habitats would be affected, where there are different routing options.

4.10 MITIGATION

4.10.1 Primary mitigation in respect of the proposed OnSS, onshore ECC and landfall has involved the sensitive siting and design of the onshore infrastructure during site selection, to ensure potential impacts are avoided or reduced.

4.10.2 The mitigation contained in Table 4.15 includes mitigation measures or commitments that have been identified and adopted as part of the evolution of the project design of relevance to this topic, these include project design measures, compliance with elements of good practice and use of standard protocols. General mitigation measures, which would apply to all parts of the project, are set out first. Thereafter mitigation measures that would apply specifically to onshore biodiversity and nature conservation issues associated with the landfall, onshore ECC and OnSS, are described separately. Where the assessment identifies significant effects, even after accounting for mitigation, further measures may be required, which are presented as additional mitigation (for details refer to the tables within Section 4.11). These have typically been put forward where:

- Specific mitigation/ compensation measures are required to reduce impacts in relation to potential habitat loss (e.g., important hedgerows, arable field margins, lowland meadow, woodland *etc*); and
- Specific mitigation measures are required to reduce impacts on protected and/ or notable species (e.g. Fisher's estuarine moth, bats, badger, otter, water vole, dormouse).

Table 4.15: Mitigation relating to onshore biodiversity and nature conservation

Parameter	Mitigation measures in the project design
General	
Project design	Careful routing of the onshore ECC and design of key crossing points (sea defence structures, main rivers, non-main and ordinary watercourses, roads) to avoid key areas of sensitivity, such as all statutory designated sites (including Holland Haven Marshes SSSI), Tendring Brook, important hedgerows, ponds, woodlands and lowland meadow wherever possible (see Volume 6, Part 1, Chapter 4: Site Selection and Alternatives for further details on alternatives and site selection).
GCN European Protected Species Licence (EPSL)	An EPSL from NE will be required for temporary works affecting terrestrial habitat used by GCN along the route. The project proposes to enter the District Level Licensing (DLL) scheme, based on current survey data and available scheme details. The DLL differs from the traditional EPSL route in that any impacts to GCN are offset at a district or county-level rather than site-level and uses a conservation fee from developers that is used to create and maintain new ponds and habitat in locations that will benefit the species for the foreseeable future. This approach has been discussed and agreed with NE as part of the evidence plan process; it is anticipated that NE will issue an Impact Assessment and Conservation Payment Certificate (IACPC) for countersigning based upon the MDS used to inform this assessment, which will be included at Volume 6, Part 6 Annex 4.20: Five Estuaries Offshore Wind Farm: GCN District Level Licencing Impact Assessment and Conservation Payment Certificate (unsigned) and associated documents. The IACPC is considered equivalent to a “Letter of No Impediment” LONI, i.e., confirmation that NE agrees to the DLL approach described, subject to the payment stated and conditions of the licence. The final approach to GCN EPSL would be revisited post-consent, and would be informed by pre-commencement survey data and final scheme design.
Dormouse EPSL	The measures which are pertinent include use of HDD beneath all woodlands (rather than trenching through the woodland), and retention of trees and hedgerows wherever practicable. One hedge (reference 5EHE_38) with dormouse presence confirmed (one old nest on one occasion, at the southern end of the hedgerow) may be affected on the ECC. The option of trenchless crossing and an off-route haul road has been retained at this location, such that if dormouse are present in future impacts to the species can be avoided, and there would be no requirement for an EPSL. Two 10m wide hedgerow breaches to enable haul route access from the B1035 Thorpe Road to the onshore ECC are proposed. Current field survey data does not include records for dormouse in the hedges, but the species is present directly adjacent and so its potential future presence cannot be ruled out. The requirement for an EPSL will be re-assessed based upon pre-commencement/pre-construction survey results and final scheme design.

Parameter	Mitigation measures in the project design
	In the event an EPSL is required, the EPSL application would be submitted to NE in advance of work. The conditions of the EPSL would be specified to ensure that construction and temporary presence of the haul road does not result in significant adverse impacts to the local population. This would include: > creation of temporary compensation/ mitigation habitats for use by dormice in immediately adjacent areas. This would include installation of dormouse boxes and cessation of field-side hedgerow management for the construction plus hedgerow re-establishment period (roadside hedgerow management practice to remain as currently, for road safety purposes). > Scheduling of certain work to avoid sensitive periods of the dormouse life cycle; standard practice would be followed i.e., a two stage removal. Top growth of the hedgerow would be removed in the winter months (November – February) when dormouse are hibernating, avoiding ground disturbance. Clearance of stumps, roots and other vegetation would be undertaken from May – September thereafter.
Bat EPSL	The measures which are pertinent include use of HDD beneath all woodlands (rather than trenching through the woodland), and retention of trees and hedgerows wherever practicable. Reduction in corridor width at hedgerow crossings. The over-riding principle is for no net loss of potential roost resource as a result of the scheme. The construction phase may result in the loss of a number of mature trees, including some which have moderate or high potential to support bats. None have been found to support roosting bats to date, but since tree roosting bats utilise a range of locations over any given season, an EPSL may later prove necessary pending the findings of pre-commencement surveys. In the event an EPSL is needed, it would be sought to cover work at all trees with potential roost features (PRF) (i.e., the total roost resource) that may be affected by the project. All work undertaken under the EPSL and which could result in disturbance of bats would be overseen by the Named Ecologist, or his/ her Accredited Agent (such as a suitably skilled and experienced Ecological Clerk of Works (ECOW) (see below). If required, the EPSL application would be submitted to NE once final design details are available and pre-commencement surveys for bats have been completed. Key principles that would be followed to mitigate and compensate for impacts are described in the OLEMP at Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan.
Water Vole Licence	The measures which are pertinent include use of HDD beneath all watercourses identified during the ecological surveys (noting that open trench may be used at one small watercourse identified in the OS data used for the hydrological assessment in Volume 6 Part 3 Chapter 6 Hydrology and Flood Risk, but was not present during ecological field surveys and therefore not counted as such in the habitat survey). The over-riding principle is no net loss of water vole habitat as a result of the scheme.

Parameter	Mitigation measures in the project design
	The construction phase affects two water courses which support water vole; a 10m wide haul road is proposed to cross the Tendring Brook (utilising an existing access that may require upgrading) and the Holland Brook north of Horsley Cross. Based on current survey data a licence is not considered necessary, to enable this work to proceed However, this will be re-assessed based upon pre-commencement/pre-construction survey results and final scheme design.. In the event a licence is required, the licence application would be submitted to NE in advance of work affecting water vole habitat. The conditions of the licence would be specified to ensure that construction and temporary presence of the haul road does not result in significant adverse impacts to the local population. These would include: > Micro-siting to avoid water vole burrows (if present); > Scheduling of work to avoid sensitive periods of the water vole life cycle. > Removing vegetation back to bare earth in spring and autumn; > Carrying out a destructive search of water vole burrows, after an appropriate monitoring period, after removing vegetation; > Creation of temporary compensation/ mitigation habitats for use by water vole in immediately adjacent areas (such as provision of nest boxes or feeding stations, sympathetic management of bankside habitats) for the construction plus vegetation re-establishment period. > Reinstatement of bankside habitats immediately after work, to include sowing with species -rich locally appropriate sward and fencing, if applicable, to prevent stock access.
Construction	
Vegetation Clearance and Other Construction Works	All construction work will be undertaken in accordance with a CoCP (Volume 9, Annex 9.21 Code of Construction Practice) and OLEMP (Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan). Measures that are included in both are as follows: > Pre-commencement surveys for hog's fennel, S41 and/ or red data book plant species associated with coastal habitats and arable margins, and other protected species whose distribution could have changed since the baseline surveys will be undertaken to update the baseline and determine potential impacts at the time of construction. Micro-siting of project elements will be used to avoid important ecological features, where possible. > The construction corridor width at hedgerow crossing points will be reduced to the minimum possible (for the purpose of EIA this is considered to be 30m).

Parameter	Mitigation measures in the project design
	> Protective fencing will be installed around retained habitats of importance and retained trees including root protection zones located directly adjacent to working areas. > Construction lighting at HDD locations would be at the lowest, safest permissible level and with light spill minimised via use of cowls and compliance with the relevant guidance (BCT, 2023). This will result in no significant increase in illumination levels above current levels outside of the working area. > An Ecological Clerk of Works (ECOW) will be employed to oversee construction work, provide toolbox talks to contractors and minimise risks to important ecological features. > All habitats will be reinstated as soon as possible after construction. Hedgerows along the onshore ECC will be reinstated using a species-rich, locally appropriate native mixture including heavy standard trees at a 3:1 ratio for any lost. Standard trees will not be planted above cables. > Removal of potential nesting bird habitat will take place outside of the breeding season (March – August inclusive), where possible, to avoid damage to, or destruction of active nests. Where this is not possible, a check for the presence of nesting birds by the ECOW will take place in advance of work. Where active nests are located the relevant areas of vegetation would be retained until such time as young fledge or the relevant nesting attempt has ended. > Surveys for Schedule 1 bird species and other breeding species of conservation concern which are likely to be particularly sensitive to disturbance, e.g., breeding waders, will take place prior to and during construction (as required). Avoidance of disturbance to these species whilst nesting will be achieved through the implementation of disturbance-free buffer zones around active nests. The extent of any buffer zones will be species and location-specific and will be determined by the ECOW, taking into consideration relevant guidance and experience from other sites, as appropriate. The ECOW will also monitor nesting attempts to check that the agreed buffer zones are successful. > Checks for the presence of GCN, bats, otter, water vole, dormice, badger setts, reptiles, hedgehogs, harvest mice, hares or other protected or notable species will be carried out by the ECOW prior to vegetation clearance. Additional reasonable avoidance measures for GCN, bats, dormice, badger, water vole, otter and reptiles will be implemented/ mitigation licences applied for as necessary (details are included in the OLEMP at Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan).
Measures to reduce disturbance to non-breeding birds at the landfall	The OLEMP (Volume 9, Report 9.22: Outline Landscape and Ecological Management Plan) and CoCP (ES Volume 9, 9.21: Code of Construction Practice) include measures to reduce disturbance to important populations of non-breeding birds at the landfall including: > Piling at the landfall (if required) would either take place outside the winter period (October to March) or would utilize less noisy, vibro-piling or push piling technology.

Parameter	Mitigation measures in the project design
	> Fencing/ hoarding would be used during the winter months to provide visual and acoustic screening of the landfall compound. Where practical, similar measures would also be employed in other areas where disturbance to significant numbers of non-breeding waterbirds is likely. Full details of proposed fencing would be provided in the final LEMP, post consent but prior to construction commencing, once detailed construction designs and programmes are available. > If necessary, works at the landfall would be suspended during periods of very cold weather. Disturbance to non-breeding waterbirds is likely to be most critical during periods of prolonged cold weather, when they may be unable to feed in their usual foraging areas and may face reduced prospects for survival. A scheme has been in place since 1983 to minimise the level of disturbance from wildfowl shooting in frozen conditions (JNCC, 2019). Similar measures would be imposed here, with the works suspended after seven consecutive days on which the ground was frozen (as measured at a nearby weather station). Any suspension of works would last for a minimum of seven days thereafter and any lifting of the suspension will take into consideration the need for a period of recovery for waterbirds after the end of the severe weather itself. Any cold weather suspension of works, if required, would only apply at the landfall as non-breeding waterbirds are likely to move to the coast during such conditions (as the inland fields would be frozen).
Measures to reduce disturbance to non-breeding birds along the onshore ECC and at the OnSS	The OLEMP (Volume 9, Report 9.22: Outline Landscape and Ecological Management Plan) and CoCP (ES Volume 9, 9.21: Code of Construction Practice) include measures to reduce disturbance to important populations of non-breeding birds along the onshore ECC and at the OnSS, including: Where practical, in areas where disturbance to significant numbers of non-breeding waterbirds is likely, measures such as fencing/ hoarding would be used during the winter months to provide visual and acoustic screening of active working areas. The requirement for such measures would be determined by the ECOW, considering the nature and timing of the works and relevant bird data, including previous survey data and observations made during the construction period. Based on current survey data such measures are most likely to be required in Route Section 3, where the route passes closest to Hamford Water, and may include screening of waterbodies used by relatively large numbers of waterbirds, in places where screening isn't provided by existing vegetation or topography. Measures such as fencing/ hoarding would also be used at the five HDD locations in which 24-hour working is assumed to be required (TX21 – railway line, TX-23 Swan Road, TX-24 B1035, TX-26 Tendring Brook and TX-31 A120), where these lie adjacent to potentially suitable habitat for lapwing and golden plover, to reduce possible disturbance effects on nocturnal activity by these species. Full details of proposed fencing would be provided in the final LEMP, post consent but prior to construction commencing, once detailed construction designs and programmes are available.
Landscape and Ecological Management Plan (LEMP)	Construction mitigation measures and additional mitigation and compensation measures, beyond those covered in the outline CoCP (Volume 9, 9.21: Code of Construction Practise), including woodland planting, pond creation and hedgerow planting at the OnSS, are identified within the OLEMP in Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan. The OLEMP also includes details of proposed biodiversity enhancements. The OLEMP sets out the key landscape and ecology elements that will be

Parameter	Mitigation measures in the project design
	secured in the final LEMP which The Applicant will be required to submit to the relevant planning authority for approval as a requirement of the DCO.
Biosecurity and INNS Management	All construction work will be undertaken in accordance with the INNS control measures set out in the CoCP (Volume 9, 9.21: Code of Construction Practice).
Pollution Prevention and Emergency Incident Response	Construction practices will incorporate measures to prevent pollution. The CoCP (Volume 9, 9.21 Code of Construction Practice) sets out pollution control principles, which would be implemented by the project during construction.
Best Practice	All construction work will be undertaken in accordance with the CoCP (Volume 9, 9.21: Code of Construction Practice) and relevant good practice guidance, where applicable, including, but not limited to: > Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors CIRIA (C532) (CIRIA 2001); > CIRIA – SuDS Manual (C753) (CIRIA, 2015b), including: > No discharge to main river watercourses will occur without permission from the EA (SuDS Manual); > Wheel washers and dust suppression measures to be used as appropriate to prevent the migration of pollutants (SuDS Manual); and > Regular cleaning of roads of any construction waste and dirt to be carried out (SuDS Manual).
Operation	
General	Operational practices will incorporate measures to prevent pollution and increased flood risk, including emergency spill response procedures, clean up and control of any potentially contaminated surface water runoff. These measures will be included within the LEMP. The LEMP would also include specific measures to avoid potential impacts to protected or notable species or sensitive habitats during planned operational or maintenance work. Where unplanned operational or maintenance works are required, appropriate mitigation measures would be developed and agreed with relevant consultees prior to works taking place.
Decommissioning	

Parameter	Mitigation measures in the project design
General	Decommissioning practices will incorporate measures similar to the construction phase, to prevent impact to ecological receptors.
	Provision of an onshore decommissioning plan, including a revised CoCP, in advance of decommissioning works will be a requirement of the DCO, to include protection of ecological features, based on up-to-date survey information and relevant guidance in place at the time of decommissioning.

4.11 ENVIRONMENTAL ASSESSMENT: CONSTRUCTION PHASE

4.11.1 This section addresses the site clearance and construction phase impacts to the important ecological features identified, through reference to the MDS presented in Table 4.14 and assuming that all of the mitigation measures set out in Table 4.15 are implemented.

4.11.2 Construction impacts in relation to air quality and hydrology have been assessed elsewhere within the ES and are summarised below in respect of ecological receptors.

- The air quality chapter (Volume 6, Part 3, Chapter 10: Air Quality) considers air quality impacts during construction to sensitive ecological receptors as a result of dust (Section 10.11.17 onward) and increased road traffic (Section 10.11.50 onward).
- With respect to dust, it concludes that construction dust impacts are considered to be removed or minimised via the implementation of proposed mitigation measures. As such, residual effects are concluded to be not significant in terms of the EIA Regulations.
- With respect to increased road traffic, it concludes that, “Impacts on ecological designations are likely to be imperceptible, whereby resultant effects are considered to be not significant. No further assessment is required.”
- The hydrology and flood risk chapter (Volume 6, Part 3, Chapter 6: Hydrology, Hydrogeology and Flood Risk) provides a description of the hydrological setting of water courses within the survey area in Section 6.7. It includes mitigation to reduce impacts to receiving waters in Sections 6.9. The assessment concludes that *“the likely overall effect of the onshore elements of VE on water quality and flood risk throughout the construction, operation and decommissioning of VE is not significant in EIA terms.”*

4.11.3 The assessment of effects on aquatic receptors in this chapter draws heavily on the proposed mitigation measures and the assessment of effects on water quality presented in Volume 6, Part 3, Chapter 6: Hydrology, Hydrogeology and Flood Risk.

IMPACTS TO STATUTORY DESIGNATED SITES

4.11.4 For clarity there will be no loss of habitat within any statutory designated site as a result of VE.

HAMFORD WATER SSSI/ NNR/ SAC/ SPA/ RAMSAR

QUALIFYING BIRD SPECIES

4.11.5 At its closest point, Hamford Water SSSI/ SPA/ Ramsar is located 2.92 km from the section of the Order Limits that includes the landfall (Route Section 1). A significant proportion (>1%) of the SPA/ Ramsar populations of dark-bellied brent goose, shelduck, teal, avocet and black-tailed godwit were recorded within Route Section 1 and/ or 400 m buffer during non-breeding bird surveys in 2020-21 and 2021-22 (see ES Volume 6, Part 6, Annex 4.6). As Hamford Water is located within 2.92 km, a precautionary approach has been adopted which assumes that all of the birds of these species recorded within the Order Limits and/ or 400 m buffer during surveys at the landfall area could potentially represent part of the Hamford Water population.

4.11.6 Permanent habitat loss at the landfall area would be limited to the two TJBs and would amount to a maximum of 0.02 ha located within agricultural fields to the north of Holland Haven Marshes. These areas could potentially be used by dark-bellied brent geese but are not likely to be important for the other relevant qualifying species based on 2020-21 and 2021-22 non-breeding bird survey data. The agricultural habitats present here are common and widespread and the permanent loss of 0.02 ha represents a very small proportion of the total area of similar habitat available within 5 km[7] of Hamford Water. As such, permanent habitat loss is **not likely to be significant**.

4.11.7 Temporary habitat loss in Route Section 1 would include HDD entry/exit pits (including up to three within the intertidal), three TCCs, a 60 m working width for the onshore ECC inland from the TJB (around 90 m for standard HDD sections) and associated off-road haul routes. Temporary habitat loss could affect intertidal habitats at the beach and would affect agricultural fields to the north of Holland Haven Marshes. None of the large open waterbodies within Holland Haven Marshes SSSI would be affected. It is assumed that temporary loss would occur for a maximum of three non-breeding seasons.

[7] Dark-bellied brent geese tend to move a maximum of 5km inland from coastal SPAs (McKay *et al*., 2001)

4.11.8 The only relevant SPA/ Ramsar qualifying species which could be significantly affected by temporary habitat loss, i.e., the only species recorded within the Order Limits, based on 2020-21 and 2021-22 non-breeding bird survey data, is dark-bellied brent goose (all other qualifying features were only recorded within the 400 m buffer). The beach was not used by dark-bellied brent geese and therefore temporary habitat loss is limited to the agricultural fields to the north of Holland Haven Marshes. These fields were used by up to 1,100 dark-bellied brent geese, which represents up to 23.87% of the Hamford Water SPA population (based on most recent data (Austin *et al*., 2023). However, usage of the study area was irregular, and the fields used varied from month to month, and year to year. These habitats are common and widespread and the area subject to temporary loss is likely to represent a small proportion of the total area of similar habitat available within 5 km of Hamford Water, occurring for a maximum of three non-breeding seasons. As such, temporary habitat loss is **not likely to be significant**.

4.11.9 Disturbance, both from noise and visual sources could displace waterbirds using areas within up to 400 m[8] of construction works at the landfall area, for a maximum of three non-breeding seasons. This could affect all five relevant SPA/ Ramsar qualifying species recorded within the Order Limits and 400 m buffer during the 2020-21 and 2021-22 non-breeding bird surveys.

4.11.10 Dark-bellied brent goose is the only one of the five species to be regularly recorded within the Order Limits and 400 m buffer for the landfall and onshore ECC. The other four species were primarily recorded within the 400 m buffer for the Holland Haven Access (all but four records of shelduck, all but three records of teal, all but one record of avocet and all records of black-tailed godwit). Dark-bellied brent goose is therefore the only relevant qualifying species likely to be affected by construction works at the landfall itself or along the onshore ECC. However, following the implementation of the mitigation measures, which would substantially reduce noise and visual disturbance, disturbance to dark-bellied brent geese is considered **unlikely to be significant**. This is because the area potentially affected represents only a small proportion of the total area of similar habitat available within 5 km of Hamford Water and any residual disturbance would occur for a maximum of three non-breeding seasons.

4.11.11 Almost all of the records of shelduck, teal, avocet and black-tailed godwit within the 400 m buffer were from the freshwater pools within Holland Haven Marshes SSSI. Use of the Holland Haven Access is unlikely to cause significant disturbance to birds using the freshwater pools as it primarily follows existing roads or tracks, already subject to relatively high levels of recreational use. The western part of the route is also screened from the marshes by existing vegetation and structures. Disturbance is possible on the beach, but the beach is already subject to relatively high levels of recreational use. Usage of the beach and offshore area by the relevant qualifying species is also very low. On that basis, for all other relevant qualifying species, following the implementation of the mitigation measures, it is considered **unlikely that disturbance would be significant**.

[8] 400 m represents a maximum, and disturbance distances for some qualifying species are likely to be much lower, e.g., for black-tailed godwit the maximum disturbance distance is 100-200 m (Goodship & Furness, 2022).

4.11.12 At its closest point, Hamford Water SSSI/ SPA/ Ramsar is located 0.80 km from the section of the Order Limits that includes the onshore ECC (Route Section 3). A significant proportion (>1%) of the SPA/ Ramsar populations of dark-bellied brent goose, shelduck and teal were recorded within the onshore ECC or OnSS area and 400 m buffer during non-breeding bird surveys in 2021-22 and 2022-23 (see ES Volume 6, Part 6, Annex 4.6). As Hamford Water is located within 0.78 km, a precautionary approach has been adopted which assumes that all of the birds of these species recorded within the Order Limits and/ or 400 m buffer during surveys at the landfall area could potentially represent part of the Hamford Water population.

4.11.13 Permanent habitat loss at the OnSS would affect up to 5.88 ha, plus an additional 5.88 ha due to the clearance of vegetation from the platform for the NF OWF substation and 0.86 ha associated infrastructure. Including areas subject to proposed landscaping/ habitat creation (including fields which would be enclosed by proposed tree planting), as shown in the OLEMP (Volume 9, Report 9.22: Outline Landscape and Ecological Management Plan), the effective loss of arable habitat at the OnSS would be approximately 57.6 ha in total. There were no records of dark-bellied brent goose, shelduck or teal within Route Section 7, in which the OnSS will be located. As such there will be no permanent habitat loss for Hamford Water SPA/ Ramsar qualifying features and therefore **no impact**.

4.11.14 Temporary habitat loss along the ECC would include HDD entry/exit pits, 11 TCCs, a 60 m working width for the onshore ECC (90 m for HDD sections) and associated off-road haul routes. Temporary habitat loss would largely affect agricultural fields and none of the large open waterbodies within the study area would be directly affected. It is assumed that temporary loss would occur for a maximum of three non-breeding seasons.

4.11.15 None of the relevant qualifying species were recorded within the Order Limits, with most records of shelduck and teal coming from waterbodies that will not be directly affected. The agricultural habitats subject to temporary loss are common and widespread and the area subject to temporary loss is likely to represent a small proportion of the total area of similar habitat available within 5 km of Hamford Water[7], occurring for a maximum of three non-breeding seasons. As such, temporary habitat loss is **not likely to be significant**.

4.11.16 Disturbance, both from noise and visual sources could displace waterbirds using areas within up to 400 m of construction works within the ECC and at the OnSS, for a maximum of three non-breeding seasons. This could affect the relevant SPA/ Ramsar qualifying species. Dark-bellied brent goose and shelduck were only recorded in Route Section 3 and teal was only recorded in Route Sections 3, 4a and 4b. Dark-bellied brent geese were recorded in agricultural fields but teal and shelduck were primarily recorded using waterbodies within the 400 m buffer. The agricultural habitat affected represents only a very small proportion of the total area of similar habitat available within 5 km of Hamford Water. Disturbance to waterbodies would be reduced via the mitigation measures (see Table 4.15) and by screening provided by existing vegetation and topography in many cases. Disturbance would occur for a maximum of two season only and in practice significant disturbance is unlikely to take place for more than one season, given all records of the relevant species fall within a relatively short section of the route. On that basis, following the implementation of the mitigation measures, which would substantially reduce noise and visual disturbance, disturbance to any of the relevant qualifying species is considered **unlikely to be significant**.

4.11.17 Hamford Water SPA is also designated for breeding little tern. According to the SPA citation, the closest known little tern colony is on the northeast corner of Horsey Island, which is over 6 km from the Order Limits. Breeding little tern is therefore not likely to be affected by the onshore aspects of the project.

4.11.18 In addition to the SPA/ Ramsar qualifying species included in the assessment above, the citation for Hamford Water SSSI refers to several additional wildfowl and wader species (in addition to coastal habitats, plant and invertebrate species, see section 4.11.19 and 4.11.28 below). The assessment provided above for relevant SPA/ Ramsar qualifying species, and the assessments provided below for other SPAs/ Ramsar sites, cover all of the wildfowl and wader species referred to in the SSSI citation and such species are therefore not assessed separately here.

FISHER'S ESTUARINE MOTH

4.11.19 The population of Fisher's estuarine moth present at the SAC also utilises areas beyond the site boundary where the larval food plant hog's fennel is present, along with rough grassland suitable for egg laying. Except at Holland Haven Marshes SSSI, surveys to date have found no evidence of hog's fennel within the survey area (i.e., within the Order Limits plus 100 m), though desk study data indicates it may be present northwest of Thorpe le Soken and at the A120.

4.11.20 The flying season of the moth is generally September – October, when they fly around or rest upon the food plant; however there are apparently no data on the dispersal ecology of the Fisher's estuarine moth from the UK or elsewhere in Europe.

4.11.21 Lighting from the construction phase of the project may affect nocturnal invertebrate behaviour, including that of Fisher's estuarine moth, if present close to construction areas. Lighting of the ECC and TCCs would only be during the months when construction hours are in darkness (i.e., at dawn and dusk Oct-April). Sunrise/ sunset in October is 7am and 6pm approximately, such that there would be potential for around one hour of additional illumination per night for 31 of the 61 nights during the flight period. Lighting would also be required where 24-hour working is required, e.g., at major HDD locations.

4.11.22 The Order Limits is separated from the SAC by at least 802 m of intervening landscape such that lightspill is not anticipated to reach the SAC itself. The potential for a significant proportion of the SAC population of Fisher's estuarine moth to be present outside of the SAC boundary is low, based on the relative lack of desk study records, lack of suitable habitat and lack of larval food plants.

4.11.23 Therefore, whilst the period of illuminated construction partially overlaps with the flight period, there is considered very limited possibility for it to interact with the individuals that form part of the population for which the SAC is designated. It is therefore assessed as **not significant**.

4.11.24 Desk study data indicates the food plant for the moth (hog's fennel) occurs within the Order Limits, though no evidence was recorded during habitat surveys in 2021 and 2022. It is nevertheless considered possible (but unlikely given its rarity) that vegetation removal during construction has potential to affect hog's fennel plants and adjacent rough grassland that could be used by the moth population.

4.11.25 Additional mitigation measures to minimise this risk will include pre-construction checks for the presence of hog's fennel during June – September the season prior to work commencing. If a plant(s) is located and cannot be retained *in situ*, then options for translocation and/ or propagation will be explored. It is anticipated that any such exercise would be informed by/ in collaboration with conservation work already ongoing, involving Natural England, Tendring District Council, Colchester Zoo, Essex Wildlife Trust, and Writtle College. Further details are provided in the OLEMP at Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan.

4.11.26 The risk of damage or disturbance to Fisher's estuarine moth food plants, and/ or individuals outside of the designated site is considered to be very low, and the success of mitigation (if required) is considered highly likely based on reported conservation efforts to date (for example online at the Action for the Wild website and Colchester Zoo (2022). Impacts to the local population of Fisher's estuarine moth as a result of vegetation removal are therefore considered **not significant.**

COASTAL HABITATS AND PLANT SPECIES

4.11.27 The onshore parts of Hamford Water SSSI includes communities of rare coastal plants and saltmarsh, which are notified features that are not part of the SPA, SAC or Ramsar designations.

4.11.28 No direct or indirect impact pathways have been identified that would affect these features, due mainly to the separation distance between the SSSI and VE. The effect of VE on the SSSI is therefore considered **not significant**. Note that hydrological and air quality effects are assessed separately and details are included in the respective chapters.

STOUR AND ORWELL ESTUARIES SPA AND RAMSAR

QUALIFYING BIRD SPECIES

4.11.29 At its closest point, the Stour and Orwell Estuaries SPA/ Ramsar is located 11.64 km from the section of the Order Limits that includes the landfall (Route Section 1). A significant proportion (>1%) of the SPA/ Ramsar populations of dark-bellied brent goose, shelduck, gadwall, wigeon, pintail, great crested grebe, lapwing, curlew, turnstone and cormorant were recorded within Route Section 1 and/ or 400 m buffer during non-breeding bird surveys in 2020-21 and 2021-22 (see ES Volume 6, Part 6, Annex 4.6). Dark-bellied brent geese tend to move a maximum of 5 km inland from coastal SPAs (McKay *et al*., 2001) and therefore dark-bellied brent geese recorded at the landfall area are not likely to form part of the Stour and Orwell Estuaries SPA/ Ramsar population so are not considered further here. Similarly, lapwing has a core foraging range of 12 km (Gillings *et al*., 2007) so is also not considered in relation to the landfall area because the vast majority of the landfall area, including all areas within Holland Haven Marshes SSSI and all areas in which lapwing was recorded, lie beyond 12 km from the SPA/ Ramsar site. For the other species, in the absence of relevant information regarding core foraging range, a precautionary approach has been adopted. This assumes that all of the birds recorded within the Order Limits and 400 m buffer at the landfall could potentially represent part of the Stour and Orwell Estuaries population, although in most cases this is unlikely given the intervening distance and the availability of similar habitat much closer to the SPA/ Ramsar site.

4.11.30 Permanent habitat loss at the landfall area would be limited to the two TJBs and would amount to a maximum of 0.02 ha located within agricultural fields to the north of Holland Haven Marshes. These areas could potentially be used by curlew but are not likely to be important for the other relevant qualifying species based on 2020-21 and 2021-22 non-breeding bird survey data. The agricultural habitats present here are common and widespread and the permanent loss of 0.02 ha represents a very small proportion of the total area of similar habitat in the wider area. As such, permanent habitat loss is **not likely to be significant**.

4.11.31 Temporary habitat loss in Route Section 1 would include HDD entry/exit pits (including up to three within the intertidal), three TCCs, a 60 m working width for the onshore ECC inland from the HDD exit pit (90 m for HDD sections) and associated off-road haul routes. Temporary habitat loss could affect intertidal habitats at the beach and would affect agricultural fields to the north of Holland Haven Marshes. None of the large open waterbodies within Holland Haven Marshes SSSI would be affected. It is assumed that temporary loss would occur for a maximum of three non-breeding seasons.

4.11.32 The only relevant SPA/ Ramsar qualifying species which could be significantly affected by temporary habitat loss at the landfall and Route Section 1, i.e., the only species recorded within the Order Limits, based on 2020-21 and 2021-22 non-breeding bird survey data, are curlew and turnstone (all other relevant qualifying features were only recorded within the 400 m buffer). Temporary habitat loss could occur at the beach and in the agricultural fields to the north of Holland Haven Marshes. The beach and the fields were used by flocks of <50 curlew and the beach was used by flocks of up to ten turnstone. However, usage of the area within the Order Limits was irregular, and the areas used varied from month to month, and year to year. The area subject to temporary loss represents a very small proportion of the total area of similar habitat available within the vicinity of Holland Haven Marshes, occurring for a maximum of three non-breeding seasons. As such, temporary habitat loss is **not likely to be significant**.

4.11.33 Disturbance, both from noise and visual sources could displace waterbirds using areas within up to 400 m^8 of construction works at the landfall area, for a maximum of three non-breeding seasons. This could affect all eight relevant SPA/ Ramsar qualifying species recorded during the 2020-21 and 2021-22 non-breeding bird surveys.

4.11.34 Curlew and turnstone are the only ones of the relevant qualifying species to be regularly recorded within the Order Limits and 400 m buffer for the landfall and onshore ECC. The other species were primarily recorded within the 400 m buffer for the Holland Haven Access (shelduck, gadwall, wigeon, pintail and cormorant) and/ or offshore (wigeon, pintail, great crested grebe and cormorant). Birds recorded offshore were mostly recorded some distance offshore and/ or in small numbers on a small number of occasions. If disturbance occurs to birds recorded offshore there is plentiful alternative habitat for any displaced birds to move into. Curlew and turnstone are therefore the only relevant qualifying species likely to be affected by construction works at the landfall itself or along the onshore ECC. For curlew, which primarily use the fields and golf course, the area potentially affected represents only a small proportion of the total area of similar habitat available in the vicinity of Holland Haven Marshes and any residual disturbance would occur for a maximum of three non-breeding seasons. For turnstone, the area affected by disturbance would be relatively small and there is similar habitat available further along the beach for any displaced birds to move into. It is also noted that birds using the beach are already habituated to relatively high levels of visual disturbance from human activity along the seawall. Following the implementation of the mitigation measures, which would substantially reduce noise and visual disturbance, disturbance to curlew and turnstone is therefore considered **unlikely to be significant**.

4.11.35 Most records of shelduck, gadwall, wigeon, pintail and cormorant within the 400 m buffer were from the freshwater pools within Holland Haven Marshes SSSI. Use of the Holland Haven Access is unlikely to cause significant disturbance to birds using the freshwater pools as it primarily follows existing roads or tracks, already subject to relatively high levels of recreational use. The western part of the route is also screened from the marshes by existing vegetation and structures. Disturbance is possible on the beach, but the beach is already subject to relatively high levels of recreational use. Usage of the beach by the species listed above is also very low. On that basis, for all other relevant qualifying species, following the implementation of the mitigation measures, it is considered **unlikely that disturbance would be significant**.

4.11.36 At its closest point, the Stour and Orwell Estuaries SPA/ Ramsar is located 3.15 km from the part of the Order Limits that includes the onshore ECC and OnSS. A significant proportion (>1%) of the SPA/ Ramsar populations of dark-bellied brent goose, gadwall, great crested grebe, lapwing, curlew and cormorant were recorded within the onshore ECC or OnSS area and 400 m buffer during non-breeding bird surveys in 2021-22 and 2022-23 (see ES Volume 6, Part 6, Annex 4.6: Wintering Birds Data Analysis in relation to Onshore Works). As the Stour and Orwell Estuaries SPA is located within 3.15 km, a precautionary approach has been adopted which assumes that any of these species recorded within the study area could potentially represent part of the SPA population.

4.11.37 Permanent habitat loss at the OnSS would affect up to 5.88 ha, plus an additional 5.88 ha due to the clearance of vegetation from the platform for the NF OWF substation and 0.86 ha associated infrastructure. Including areas subject to proposed landscaping/ habitat creation (including fields which would be enclosed by proposed tree planting), as shown in the OLEMP (Volume 9, Report 9.22: Outline Landscape and Ecological Management Plan), the effective loss of arable habitat at the OnSS would be approximately 57.6 ha in total. There were no records of dark-bellied brent goose, gadwall, great crested grebe or curlew within Route Section 7, in which the OnSS will be located and therefore these species will not be affected by permanent habitat loss. Over two years of survey there was only one record of lapwing within the Order Limits at Route Section 7 (peak count 56) and only two records of cormorant (peak count 9). Given the limited use and the abundance of similar arable habitat in the surrounding area permanent habitat loss is considered **unlikely to be significant**.

4.11.38 Temporary habitat loss along the ECC would include HDD entry/exit pits, 11 TCCs, a 60 m working width for the onshore ECC (90 m for HDD sections) and associated off-road haul routes. Temporary habitat loss would largely affect agricultural fields and none of the large open waterbodies within the study area would be directly affected. It is assumed that temporary loss would occur for a maximum of three non-breeding seasons.

4.11.39 The only relevant qualifying species recorded within the Order Limits, which could therefore be subject to temporary habitat loss, were lapwing and curlew. None of the other relevant qualifying species were recorded within the Order Limits, with most records of gadwall, great crested grebe and cormorant coming from waterbodies that will not be directly affected. The agricultural habitats subject to temporary loss are common and widespread and the area subject to temporary loss represents a very small proportion of the total area of similar habitat available within the wider area, occurring for a maximum of three non-breeding seasons. As such, temporary habitat loss is **not likely to be significant**.

4.11.40 Disturbance, both from noise and visual sources could displace waterbirds using areas within up to 400 m of construction works within the ECC and at the OnSS, for a maximum of three non-breeding seasons. This could affect the relevant SPA/ Ramsar qualifying species. Dark-bellied brent goose, lapwing and curlew were recorded in agricultural fields but the other relevant species (gadwall, great crested grebe and cormorant) were primarily recorded using waterbodies within the 400 m buffer. The agricultural habitat affected represents only a very small proportion of the total area of similar habitat available within the wider area. Disturbance to waterbodies would be reduced via the mitigation measures (see Table 4.15) and by screening provided by existing vegetation and topography in many cases. Disturbance would occur for a maximum of three non-breeding seasons and in practice significant disturbance is unlikely to take place in most locations used by these species for more than one season. On that basis, following the implementation of the mitigation measures, which would substantially reduce noise and visual disturbance, disturbance to any of the relevant qualifying species is considered **unlikely to be significant**.

4.11.41 The Stour and Orwell Estuaries SPA is also designated for breeding avocet. There is no suitable habitat for breeding avocet within the ECC and OnSS search areas study area. Whilst avocet breeds within the study area at Holland Haven Marshes, the breeding location is approximately 14 km from the Stour and Orwell Estuaries SPA and these birds are not likely to form part of the SPA population. The Stour and Orwell Estuaries SPA breeding avocet population is therefore not likely to be affected by the project.

COLNE ESTUARY (MID-ESSEX COAST PHASE 2) SPA AND RAMSAR

QUALIFYING BIRD SPECIES

4.11.42 At its closest point, the Colne Estuary (Mid-Essex Coast Phase 2) SPA/ Ramsar is located 7.3 km from the section of the Order Limits that includes the landfall (Route Section 1). A significant proportion (>1%) of the SPA/ Ramsar populations of dark-bellied brent goose, mute swan, shelduck, curlew, black-tailed godwit, sanderling, cormorant and hen harrier were recorded within Route Section 1 and/ or 400 m buffer during non-breeding bird surveys in 2020-21 and 2021-22 (see ES Volume 6, Part 6, Annex 4.6). Dark-bellied brent geese tend to move a maximum of 5 km inland from coastal SPAs (McKay *et al*., 2001) and therefore dark-bellied brent geese recorded at the landfall area are not likely to form part of the Colne Estuary (Mid-Essex Coast Phase 2) SPA/ Ramsar population so are not considered further here. For the other species, in the absence of relevant information regarding core foraging range, a precautionary approach has been adopted. This assumes that all of the birds recorded within the Order Limits and 400 m buffer at the landfall could potentially represent part of the Colne Estuary (Mid-Essex Coast Phase 2) SPA/ Ramsar population, although in most cases this is unlikely given the intervening distance and the availability of similar habitat much closer to the SPA/ Ramsar.

4.11.43 Permanent habitat loss at the landfall area would be limited to the two TJBs and would amount to a maximum of 0.02 ha located within agricultural fields to the north of Holland Haven Marshes. These areas could potentially be used by mute swan and curlew but are not likely to be important for the other relevant qualifying species based on 2020-21 and 2021-22 non-breeding bird survey data. The agricultural habitats present here are common and widespread and the permanent loss of 0.02 ha represents a very small proportion of the total area of similar habitat in the wider area. As such, permanent habitat loss is **not likely to be significant**.

4.11.44 Temporary habitat loss in Route Section 1 would include HDD entry/exit pits (including up to three within the intertidal), three TCCs, a 60 m working width for the onshore ECC inland from the HDD exit pit (90 m for HDD sections) and associated off-road haul routes. Temporary habitat loss could affect intertidal habitats at the beach and would affect agricultural fields to the north of Holland Haven Marshes. None of the large open waterbodies within Holland Haven Marshes SSSI would be affected. It is assumed that temporary loss would occur for a maximum of three non-breeding seasons.

4.11.45 The only relevant SPA/ Ramsar qualifying species which could be affected by temporary habitat loss at the landfall and Route Section 1, i.e., the only species recorded within the Order Limits, based on 2020-21 and 2021-22 non-breeding bird survey data, are mute swan, curlew and sanderling (all other relevant qualifying features were only recorded within the 400 m buffer). Temporary habitat loss could occur at the beach and in the agricultural fields to the north of Holland Haven Marshes. The fields were used by flocks of <10 mute swans, the beach and the fields were used by flocks of <50 curlew and the beach was used by small numbers (up to four) sanderling. However, usage of the study area was irregular, and the areas used varied from month to month, and year to year. The area subject to temporary loss represents a small proportion of the total area of similar habitat available within the vicinity of Holland Haven Marshes, occurring for a maximum of three non-breeding seasons. As such, temporary habitat loss is **not likely to be significant**.

4.11.46 Disturbance, both from noise and visual sources could displace waterbirds using areas within up to 400 m^8 of construction works at the landfall area, for a maximum of three non-breeding seasons. This could affect all seven relevant SPA/ Ramsar qualifying species recorded during the 2020-21 and 2021-22 non-breeding bird surveys.

4.11.47 Mute swan, curlew and sanderling are the only ones of the relevant qualifying species to be regularly recorded within the Order Limits and 400 m buffer for the landfall and onshore ECC. The other species were primarily recorded within the 400 m buffer for the Holland Haven Access (shelduck, black-tailed godwit and cormorant) and/ or offshore (cormorant). Hen harrier was only recorded twice in two years so is unlikely to be subject to significant disturbance. If disturbance occurs to birds recorded offshore there is plentiful alternative habitat for any displaced birds to move into and disturbance is not likely to be significant. Mute swan, curlew and sanderling are therefore the only relevant qualifying species likely to be affected by construction works at the landfall itself or along the onshore ECC. For mute swan and curlew, which primarily use the fields and golf course, the area potentially affected represents only a small proportion of the total area of similar habitat available in the vicinity of Holland Haven Marshes and any residual disturbance would occur for a maximum of three non-breeding seasons. For sanderling, the area affected by disturbance would be relatively small and there is similar habitat available further along the beach for any displaced birds to move into. The number of birds recorded is very small (up to four) and it is also noted that birds using the beach are already habituated to relatively high levels of visual disturbance from human activity along the seawall. Following the implementation of the mitigation measures, which would substantially reduce noise and visual disturbance, disturbance to mute swan, curlew and sanderling is considered **unlikely to be significant**.

4.11.48 Most records of shelduck, black-tailed godwit and cormorant within the 400 m buffer were from the freshwater pools within Holland Haven Marshes SSSI. Use of the Holland Haven Access is unlikely to cause significant disturbance to birds using the freshwater pools as it primarily follows existing roads or tracks, already subject to relatively high levels of recreational use. The western part of the route is also screened from the marshes by existing vegetation and structures. Disturbance is possible on the beach, but the beach is already subject to relatively high levels of recreational use. Usage of the beach by the species listed above is also very low. On that basis, for all other relevant qualifying species, following the implementation of the mitigation measures, it is considered **unlikely that disturbance would be significant**.

4.11.49 At its closest point, the Colne Estuary (Mid-Essex Coast Phase 2) SPA/ Ramsar is located 7.3 km from the part of the Order Limits that includes the onshore ECC and OnSS. A significant proportion (>1%) of the SPA/ Ramsar populations of dark-bellied brent goose, mute swan, shelduck, curlew and cormorant were recorded within the onshore ECC or OnSS area and 400 m buffer during non-breeding bird surveys in 2021-22 and 2022-23 (see ES Volume 6, Part 6, Annex 4.6). As noted previously, dark-bellied brent geese tend to move a maximum of 5 km inland from coastal SPAs and therefore dark-bellied brent geese recorded along the onshore ECC are not likely to form part of the SPA/ Ramsar population so are not considered further here. For the other species, a precautionary approach has been adopted that assumes that all of the birds recorded within the Order Limits and 400 m buffer at the landfall could potentially represent part of the SPA/ Ramsar population, although in most cases this is unlikely given the intervening distance.

4.11.50 Permanent habitat loss at the OnSS would affect up to 5.88 ha, plus an additional 5.88 ha due to the clearance of vegetation from the platform for the NF OWF substation and 0.86 ha associated infrastructure. Including areas subject to proposed landscaping/ habitat creation (including fields which would be enclosed by proposed tree planting), as shown in the OLEMP (Volume 9, Report 9.22: Outline Landscape and Ecological Management Plan), the effective loss of arable habitat at the OnSS would be approximately 57.6 ha in total. There were no records of mute swan, shelduck or curlew within Route Section 7, in which the OnSS will be located and therefore these species will not be affected by permanent habitat loss. Over two years of survey there were only two records of cormorant within the Order Limits at Route Section 7 (peak count 9). Given the limited use and the abundance of similar habitat in the surrounding area permanent habitat loss is considered **unlikely to be significant**.

4.11.51 Temporary habitat loss along the ECC would include HDD entry/exit pits, 11 TCCs, a 60 m working width for the onshore ECC (90 m for HDD sections) and associated off-road haul routes. Temporary habitat loss would largely affect agricultural fields and none of the large open waterbodies within the study area would be directly affected. It is assumed that temporary loss would occur for a maximum of three non-breeding seasons.

4.11.52 The only relevant qualifying species recorded within the Order Limits, which could therefore be subject to temporary habitat loss, were mute swan and curlew. None of the other relevant qualifying species were recorded within the Order Limits, with most records of shelduck and cormorant coming from waterbodies that will not be directly affected. The agricultural habitats subject to temporary loss are common and widespread and the area subject to temporary loss represents a very small proportion of the total area of similar habitat available within the wider area, occurring for a maximum of three non-breeding seasons. As such, temporary habitat loss is **not likely to be significant**.

4.11.53 Disturbance, both from noise and visual sources could displace waterbirds using areas within up to 400 m of construction works within the ECC and at the OnSS, for a maximum of three non-breeding seasons. This could affect the relevant SPA/ Ramsar qualifying species. Mute swan and curlew were recorded in agricultural fields but the other relevant species, shelduck and cormorant, were primarily recorded using waterbodies within the 400 m buffer. The agricultural habitat affected represents only a very small proportion of the total area of similar habitat available within the wider area. Disturbance to waterbodies would be reduced via the mitigation measures (see Table 4.15) and by screening provided by existing vegetation and topography in many cases. Disturbance would occur for a maximum of three non-breeding seasons and in practice significant disturbance is unlikely to take place in most locations used by these species for more than one season. On that basis, following the implementation of the mitigation measures, which would substantially reduce noise and visual disturbance, disturbance to any of the relevant qualifying species is considered **unlikely to be significant**.

4.11.54 The Colne Estuary (Mid-Essex Coast Phase 2) SPA is also designated for breeding little tern, pochard and ringed plover. The closest known little tern colony is at Colne Point, which is over 9 km from the project. Breeding little tern is therefore not likely to be affected by the onshore aspects of the project. Similarly, breeding pochard and ringed plover within the SPA are not likely to be affected by the project and neither species has been recorded breeding within the study area.

ABBERTON RESERVOIR SPA AND RAMSAR

QUALIFYING BIRD SPECIES

4.11.55 At its closest point, Abberton Reservoir SPA/ Ramsar is located 18.22 km from the part of the Order Limits that includes the landfall (Route Section 1). Given the intervening distance, no significant effects on SPA/ Ramsar qualifying features are likely in relation to construction works at the landfall area.

4.11.56 At its closest point, Abberton Reservoir SPA/ Ramsar is located 12.08 km from the part of the Order Limits that includes the onshore ECC and OnSS. A significant proportion (>1%) of the SPA/ Ramsar populations of mute swan, shoveler, gadwall, teal, tufted duck and great crested grebe were recorded within the onshore ECC or OnSS area and 400 m buffer during non-breeding bird surveys in 2021-22 and 2022-23 (see ES Volume 6, Part 6, Annex 4.6). In the absence of relevant information regarding core foraging range, a precautionary approach has been adopted which assumes that any of these species recorded within the Order Limits and 400 m buffer could potentially represent part of the SPA population. However, in practice most of the area within the Order Limits is located >15 km from the SPA and connectivity with the SPA/ Ramsar is unlikely.

4.11.57 None of the SPA/ Ramsar qualifying species were recorded within Route Section 7, in which the OnSS will be located and there will therefore be no permanent habitat loss for any Abberton Reservoir SPA qualifying features.

4.11.58 Temporary habitat loss along the ECC would include HDD entry/exit pits, 11 TCCs, a 60 m working width for the onshore ECC (90 m for HDD sections) and associated off-road haul routes. Temporary habitat loss would largely affect agricultural fields and none of the large open waterbodies within the study area would be directly affected. It is assumed that temporary loss would occur for a maximum of three non-breeding seasons.

4.11.59 The only relevant qualifying species recorded within the Order Limits, which could therefore be subject to temporary habitat loss, was mute swan. None of the other relevant qualifying species were recorded within the Order Limits, with most records coming from waterbodies that will not be directly affected. The agricultural habitats subject to temporary loss are common and widespread and the area subject to temporary loss represents a very small proportion of the total area of similar habitat available within the wider area, occurring for a maximum of three non-breeding seasons. As such, temporary habitat loss is **not likely to be significant**.

4.11.60 Disturbance, both from noise and visual sources could displace waterbirds using areas within up to 400 m of construction works within the ECC and at the OnSS, for a maximum of three non-breeding seasons. This could affect the relevant SPA/ Ramsar qualifying species. Mute swan was recorded in agricultural fields but the other relevant species, shoveler, gadwall, teal, tufted duck and great crested grebe, were recorded using waterbodies within the 400 m buffer. The agricultural habitat affected represents only a very small proportion of the total area of similar habitat available within the wider area. Disturbance to waterbodies would be reduced via the mitigation measures (see Table 4.15) and by screening provided by existing vegetation and topography in many cases. Disturbance would occur for a maximum of three non-breeding seasons and in practice significant disturbance is unlikely to take place in most locations used by these species for more than one season. On that basis, following the implementation of the mitigation measures, which would substantially reduce noise and visual disturbance, disturbance to any of the relevant qualifying species is considered **unlikely to be significant**.

4.11.61 Abberton Reservoir SPA is also designated for breeding cormorant. Given the intervening distance and the low number of records of cormorant during the breeding bird surveys for the onshore ECC and OnSS areas in 2022 (see ES Volume 6, Part 6, Annex 4.2 and Annex 4.3), **no significant effects are likely**.

BLACKWATER ESTUARY (MID-ESSEX COAST PHASE 4) SPA AND RAMSAR

QUALIFYING BIRD SPECIES

4.11.62 At its closest point, the Blackwater Estuary (Mid-Essex Coast Phase 4) SPA/ Ramsar is located 16.76 km from the part of the Order Limits that includes the landfall (Route Section 1). Given the intervening distance, no significant effects on SPA/ Ramsar qualifying features are likely in relation to construction works at the landfall area.

4.11.63 At its closest point, the Blackwater Estuary (Mid-Essex Coast Phase 4) SPA/ Ramsar is located 14.37 km from the part of the Order Limits that includes the onshore ECC and OnSS. A potentially significant proportion (>1%) of the SPA/ Ramsar populations of dark-bellied brent goose, gadwall, teal, curlew and cormorant were recorded within the onshore ECC or OnSS area and 400 m buffer during non-breeding bird surveys in 2021-22 and 2022-23 (see ES Volume 6, Part 6, Annex 4.6). As noted previously, dark-bellied brent geese tend to move a maximum of 5 km inland from coastal SPAs and therefore dark-bellied brent geese recorded along the onshore ECC are not likely to form part of the SPA/ Ramsar population so are not considered further here. For the other species, a precautionary approach has been adopted that assumes that all of the birds recorded within the Order Limits and 400 m buffer at the landfall could potentially represent part of the SPA/ Ramsar population, although in most cases this is unlikely given the intervening distance.

4.11.64 Permanent habitat loss at the OnSS would affect up to 5.88 ha, plus an additional XX ha due to the clearance of vegetation from the platform for the NF OWF substation and associated infrastructure. Including areas subject to proposed landscaping/ habitat creation (including fields which would be enclosed by proposed tree planting), as shown in the OLEMP (Volume 9, Report 9.22: Outline Landscape and Ecological Management Plan), the effective loss of arable habitat at the OnSS would be approximately 57.6 ha in total. There were no records of gadwall, teal or curlew within Route Section 7, in which the OnSS will be located and therefore these species will not be affected by permanent habitat loss. Over two years of survey there were only two records of cormorant within the Order Limits at Route Section 7 (peak count 9). Given the limited use and the abundance of similar habitat in the surrounding area permanent habitat loss is considered **unlikely to be significant**.

4.11.65 Temporary habitat loss along the ECC would include HDD entry/exit pits, 11 TCCs, a 60 m working width for the onshore ECC (90 m for HDD sections) and associated off-road haul routes. Temporary habitat loss would largely affect agricultural fields and none of the large open waterbodies within the study area would be directly affected. It is assumed that temporary loss would occur for a maximum of three non-breeding seasons.

4.11.66 The only relevant qualifying species recorded within the Order Limits, which could therefore be subject to temporary habitat loss, was curlew. None of the other relevant qualifying species were recorded within the Order Limits, with most records of gadwall, teal and cormorant coming from waterbodies that will not be directly affected. The agricultural habitats subject to temporary loss are common and widespread and the area subject to temporary loss represents a very small proportion of the total area of similar habitat available within the wider area, occurring for a maximum of three non-breeding seasons. As such, temporary habitat loss is **not likely to be significant**.

4.11.67 Disturbance, both from noise and visual sources could displace waterbirds using areas within up to 400 m of construction works within the ECC and at the OnSS, for a maximum of three non-breeding seasons. This could affect the relevant SPA/ Ramsar qualifying species. Curlew was recorded in agricultural fields but the other relevant species, gadwall, teal and cormorant, were primarily recorded using waterbodies within the 400 m buffer. The agricultural habitat affected represents only a very small proportion of the total area of similar habitat available within the wider area. Disturbance to waterbodies would be reduced via the mitigation measures (see Table 4.15) and by screening provided by existing vegetation and topography in many cases. Disturbance would occur for a maximum of three non-breeding seasons and in practice significant disturbance is unlikely to take place in most locations used by these species for more than one season. On that basis, following the implementation of the mitigation measures, which would substantially reduce noise and visual disturbance, disturbance to any of the relevant qualifying species is considered **unlikely to be significant**.

4.11.68 The Blackwater Estuary (Mid-Essex Coast Phase 4) SPA is also designated for breeding little tern, pochard and ringed plover. Given the intervening distance breeding little tern is not likely to be affected by the onshore aspects of the project. Similarly, breeding pochard and ringed plover within the SPA are not likely to be affected by the project and neither species has been recorded breeding within the study area.

HOLLAND HAVEN MARSHES SSSI

NON-BREEDING BIRDS

4.11.69 Holland Haven Marshes SSSI lies within and close to the part of the Order Limits that includes the landfall (Route Section 1). A significant proportion (>1%) of the SSSI populations of the following wintering species listed in the SSSI citation were recorded within Route Section 1 and/ or 400 m buffer during non-breeding bird surveys in 2020-21 and 2021-22 (see ES Volume 6, Part 6, Annex 4.6): dark-bellied brent goose; shoveler; wigeon; pintail; teal; ruff; snipe; purple sandpiper; hen harrier; and short-eared owl.

4.11.70 Permanent habitat loss at the landfall area would be limited to the two TJBs and would amount to a maximum of 0.02 ha located within agricultural fields to the north of the SSSI. These areas could potentially be used by dark-bellied brent goose but are not likely to be important for the other SSSI citation species based on 2020-21 and 2021-22 non-breeding bird survey data. The agricultural habitats present here are common and widespread and the permanent loss of 0.02 ha represents a very small proportion of the total area of similar habitat available within 5 km (dark-bellied brent geese tend to move a maximum of 5km inland from coastal SPAs (McKay *et al*., 2001)). As such, permanent habitat loss is **not likely to be significant**.

4.11.71 Temporary habitat loss in Route Section 1 would include HDD entry/exit pits (including up to three within the intertidal), three TCCs, a 60 m working width for the onshore ECC inland from the HDD exit pit (90 m for HDD sections) and associated off-road haul routes. Temporary habitat loss could affect intertidal habitats at the beach and would affect agricultural fields to the north of the SSSI. None of the freshwater lakes or pools within the SSSI would be affected. It is assumed that temporary loss would occur for a maximum of three non-breeding seasons.

4.11.72 The only relevant SSSI citation species which could be affected by temporary habitat loss at the landfall, i.e., the only species recorded within the Order Limits, based on 2020-21 and 2021-22 non-breeding bird survey data, are dark-bellied brent goose and purple sandpiper. All other relevant qualifying features were only recorded within the 400 m buffer. Temporary habitat loss could occur at the beach and in the agricultural fields to the north of Holland Haven Marshes. The fields were used by up to 1,100 dark-bellied brent geese, which represents 123.7% of the SSSI population (based on most recent data (Austin *et al*., 2023). The beach within the Order Limits was used by up to 10 purple sandpipers. However, usage of the area within the Order Limits by both species was irregular, and the areas used varied from month to month, and year to year. The area subject to temporary loss represents a small proportion of the total area of similar habitat available within the vicinity of Holland Haven Marshes, occurring for a maximum of three non-breeding seasons. As such, temporary habitat loss is **not likely to be significant**.

4.11.73 Disturbance, both from noise and visual sources could displace waterbirds using areas within up to 400 m^8 of construction works at the landfall area, for a maximum of three non-breeding seasons. This could potentially affect all of the SSSI citation species recorded within the Order Limits and 400 m buffer during the 2020-21 and 2021-22 non-breeding bird surveys.

4.11.74 Dark-bellied brent goose and purple sandpiper are the only citation species to be regularly recorded within the Order Limits and 400 m buffer for the landfall and onshore ECC and are therefore the only citation species likely to be affected by construction works at the landfall itself or along the onshore ECC. Most of the other species, i.e. shoveler, wigeon, pintail, tealm ruff and snipe, were primarily recorded within the 400 m buffer for the Holland Haven Access. Hen harrier and short-eared owl were only recorded twice each over two years of survey and are therefore unlikely to be significantly affected by disturbance.

4.11.75 Following the implementation of the mitigation measures, which would substantially reduce noise and visual disturbance, disturbance to dark-bellied brent geese is considered **unlikely to be significant**. This is because the area potentially affected represents only a small proportion of the total area of similar habitat available within 5 km of the SSSI and any residual disturbance would occur for a maximum of three non-breeding seasons. For purple sandpiper, the area affected by disturbance would be relatively small and there is similar habitat available further along the beach for any displaced birds to move into. It is also noted that birds using the beach are already habituated to relatively high levels of visual disturbance from human activity along the seawall. Following the implementation of the mitigation measures disturbance to purple sandpiper is also considered **unlikely to be significant**.

4.11.76 Most of the records of shoveler, wigeon, pintail, teal, ruff and snipe within the 400 m buffer were from the freshwater pools within Holland Haven Marshes SSSI. Use of the Holland Haven Access is unlikely to cause significant disturbance to birds using the freshwater pools as it primarily follows existing roads or tracks, already subject to relatively high levels of recreational use. The western part of the route is also screened from the marshes by existing vegetation and structures. Disturbance is possible on the beach, but the beach is already subject to relatively high levels of recreational use. Usage of the beach and offshore area by species listed above is also very low. Purple sandpiper regularly use the beach along the route of the Holland Haven Access (more so than the beach at the landfall itself) but there is similar habitat available further along the beach for any displaced birds to move into. On that basis, for these species, following the implementation of the mitigation measures, it is considered **unlikely that disturbance would be significant**.

BREEDING BIRDS

4.11.77 Four bird species recorded at the landfall area during breeding bird surveys in 2021 and 2022 are referred to in the SSSI citation (yellow wagtail, skylark, meadow pipit and reed warbler), although yellow wagtail was only recorded outside the SSSI and most of the skylark territories recorded in Route Section 1 were also recorded outside the SSSI. Given the avoidance of direct impacts on the SSSI, by use of HDD, and following the implementation of the mitigation measures, **no significant effects are likely** on the SSSI populations of any of these species.

HABITATS AND OTHER SPECIES

4.11.78 HDD will be used such that there will be no direct impacts to habitats or their associated plant and invertebrate communities, at Holland Haven Marshes SSSI. Effects on water quality/quantity and other potential hydrological impacts are assessed in Volume 6, Part 3 Chapter 6, which concludes that "the likely overall effect of the onshore elements of VE on water quality and flood risk throughout the construction, operation and decommissioning of VE is not significant in EIA terms".

4.11.79 Additional indirect impacts may arise as a result of lighting associated with construction, in particular the HDD compounds which may be subject to 24 hour working. Depending on the time of year at which the works take place, this could affect invertebrate populations for which the SSSI is designated (Bruce-White, C. and Shardlow, M. 2011). Species listed on the citation include soldier fly *Stratiomys singularior*, ruddy darter dragonfly *Sympetrum sanguineum*, Roesel's Bush-cricket *Metrioptera roeselii*, a bumble bee *Bombus muscorum* and brown argus butterfly *Aricia agestis*. The ecology of the weevil *Stenopelmus rufinasus* – the final species listed on the citation - has been difficult to determine, but since it is associated with an INNS (water fern) and first appeared in the UK in the 20th century its relevance to the SSSI designation is unclear.

4.11.80 Lighting for construction will be the minimised to the lowest safe level, and designed such that there will be no significant increase in illumination levels at the SSSI above current levels and therefore no significant effect on SSSI invertebrate populations.

4.11.81 Potential air quality impacts to the SSSI are assessed in Volume 6, Part 3, Chapter 10: Air Quality which concludes that residual effects are not significant in terms of the EIA Regulations.

IMPACTS TO LOCAL WILDLIFE SITES

4.11.82 None of the LoWS are noted in their descriptions for being of interest due to particular species; all are recognised for the importance of the habitat present. There is no anticipated loss of habitat within Great Holland Pits and Simon's Wood LoWS as they are adjacent but outside of the Order Limits.

4.11.83 Indirect impacts to habitats at these and other LoWS within 200 m, via changes to air quality or hydrology are assessed in Volume 6, Part 3, Chapter 6: Hydrology, Hydrogeology and Flood Risk and Chapter 10: Air Quality, both of which conclude that there will be no significant impacts.

4.11.84 No other potential indirect impacts on LoWS have been identified.

4.11.85 Protected and notable species that may be supported by habitats present at the LoWS (but not listed as features, such as great crested newt or bat species) are considered separately in the following sections.

PERMANENT AND TEMPORARY LOSS OF IMPORTANT HABITAT

4.11.86 Table 4.16Table 4.17 presents the extent of each habitat type that could be subject to temporary loss (i.e. excluding the permanent loss at the landfall TJBs, OnSS footprint and OnSS access). This is also illustrated on Figure 4.4 which shows the Order Limits and the locations of Important Ecological Features, and within Volume 6, Part 6, Annex 4.18: Five Estuaries Offshore Wind Farm Onshore Biodiversity Net Gain Indicative Design Stage Report.

4.11.87 The areas shown in Table 4.16 represent the maximum extent of temporary habitat loss that would result during construction. In addition to the areas shown in the table, an assessment of the potential for mature tree loss (for trees located outside of woodlands) has been undertaken and concludes that c.44 trees would be lost based upon likely micrositing of project elements to avoid trees identified in the Arboricultural Feasibility Report at Volume 9, Annex 4.21 Outline Landscape and Ecological Management Plan, Annex 1.

4.11.88 Permanent habitat loss at the landfall TJBs, OnSS footprint and OnSS access amounts to a total extent of c.12.74 ha based on the MDS assessed and includes modified grassland that comprises coastal and floodplain grazing marsh (0.12 ha), cropland, associated grassland margins and three trees.

Table 4.16: Habitats potentially subject to temporary loss based on the indicative onshore ECC

UK Hab Level 3	Extent (ha)	UK Hab Level 4	Extent (ha)	UK Hab Level 5	Extent (ha)
Cropland (c1)	220.5	c1a	0.77	c1a6	0.20
				c1a8	0.57
		c1b	2.56	-	-
		c1c	150.08	c1c7	26.20
		c1d	16.28	c1d8	27.97
Modified (g4) Grassland	9.17	-	-	-	-

UK Hab Level 3	Extent (ha)	UK Hab Level 4	Extent (ha)	UK Hab Level 5	Extent (ha)
(of which 1.14 ha is coastal and floodplain grazing marsh)					
Neutral (g3) Grassland	0.75	g3a	0.29	-	-
		g3c	0.45	g3c5	0.01
Hedgerow (h2)	1.61km, plus a further 0.52km subject to trimming for visibility splays.				
Scrub (h3)	0.11	h3h	0.11	-	-
Urban / Man Made (u1)	0.67	u1b	0.01	-	-
		u1c	0.54	-	-
		u1e	0.05	-	-
Woodland (w1)	0.12	w1g	0.06	w1g7	0.04
		w1h	0.07	w1h5	0.07

4.11.89 The extent and significance of predicted habitat loss is presented in Table 4.17 for each of the important habitat features listed in Table 4.13 for which habitat loss is possible. Table 4.17 references timescales as <5 years, 5-10 years and >10 years respectively. Reinstatement of habitat is considered to be mitigation. Where habitat is permanently lost (at the OnSS footprint), then replacement habitat is considered to be compensation.

4.11.90 For clarity;

- there is no anticipated loss of habitat at areas within Holland Haven Marshes SSSI, any LoWS, or within any areas of ASNW or PAWS;
- Habitat loss and other impacts at the proposed EACN Substation area as a result of National Grid's scheme are not included here, but are considered as part of the cumulative effects assessment at Section 4.14.
- Habitat loss in relation to the onshore ECC and substation for NF OWF are included here, since the MDS assumes that VE OWF installs the ducts and this is reflected the width of the corridor, as well as preparing the OnSS level platform. There is no additional habitat loss in respect of NF OWF; other potential impacts from NF OWF are included in the cumulative effects assessment at Section 4.14.
- Temporary loss of intertidal habitat, below MHWS, is covered in the offshore assessment (see Volume 6, Part 2, Chapter 5: Benthic and Intertidal Ecology in particular).

4.11.91 These features are therefore not included in Table 4.17.

Table 4.17: Assessment of significance of important habitat loss

Important habitat subject to loss	Extent of Loss	Mitigation	Additional Mitigation/ Compensation	Significance of residual effect
Hedgerows (h2a, S41 habitat and including one Important Hedgerow under the Hedgerow Regulations 1997)	**1.61 km**	**Onshore ECC (temporary loss)** HDD to avoid most hedgerows and reduction in corridor width (to 30m) where avoidance is impossible. Replanting/ reinstatement with a species-rich, locally appropriate native mixture including heavy standard trees at a 3:1 ratio for any lost (noting that trees cannot be planted over cables).	Indicative details illustrating how compensation and enhancement habitat could be incorporated in the vicinity of the OnSS are shown in the OLEMP at Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan. Since all hedgerows along the route will be reinstated, additional planting at the OnSS is considered enhancement, and is anticipated to include 4.53 km of species rich hedgerow based on the illustrative layout provided in the OLEMP.	Since only a small proportion of the hedgerows within the Order Limits would be impacted, a **significant adverse effect is anticipated** at a local level (rather than County level) for less than five years until the proposed mitigation/ compensation is sufficiently mature and becomes established. **Not significant after 5-10 years** once proposed mitigation has matured and become established as this allows time for new/ replacement hedgerows to establish.
Arable Field Margin (c1a6 and c1a8, S41 habitat)	**0.77 ha**	No specific measures apply	**Onshore ECC (temporary loss)** Creation and temporary maintenance of equivalent areas within the Order Limits during construction, via temporary changes to existing cropping regime/ management and/ or sowing of appropriate seed mixture. Indicative details illustrating how this could be achieved are provided in the OLEMP at Volume 9. Annex 9.22: Outline Landscape and Ecological Management Plan.	**Not significant over any timescale.**
Woodland (excluding ASNW and PAWS) and mature trees	**0.12 ha plus c.44 trees**	**Onshore ECC (temporary loss)** Some track widening may be needed at the Tendring Brook haul	Compensation via replanting of at least an equivalent amount, at locations aimed to link in and widen existing woodland, hedgerow and scrub network.	**Significant adverse effect at a local level** for 5-10 years until the proposed mitigation is sufficiently mature and become established.

Important habitat subject to loss	Extent of Loss	Mitigation	Additional Mitigation/ Compensation	Significance of residual effect
(UKHab primary codes starting “w”, including small areas of S41 habitat)		road crossing, which could impact trees in adjacent woodland. Retention of mature trees as far as safely practicable, via micrositing. Replanting/ reinstatement with a locally appropriate native mixture.	Approximately 8 ha of woodland planting is proposed; indicative details illustrating how this compensation and enhancement habitat could be incorporated in the vicinity of the OnSS are shown in the OLEMP at Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan.	**Not significant after 10 years** once proposed mitigation/ compensation has matured and become established.
Coastal and floodplain grazing marsh (S41 habitat) comprising modified grassland (g4), inland from Holland Haven Marshes SSSI	**1.26 ha**	**Landfall TJB (permanent loss)** 0.12 ha permanent loss. **Onshore ECC (temporary loss)** 1.14 ha temporary loss. Reinstatement would occur following construction. A range of measures relating to vegetation clearance and other construction works are proposed in Section 4.10, with further details provided in the CoCP (Volume 9, 9.21 Code of Construction Practice) and OLEMP at Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan.	None	**Not significant over any timescale.** The area that may be affected is subject to periodic agricultural disturbance via ploughing or reseeding as part of normal farming practice. The area subject to permanent loss is an extremely small proportion of the resource present locally, and supports an unexceptional agricultural grassland sward.

IMPACTS UPON PROTECTED OR NOTABLE SPECIES OR UPON THEIR RESTING OR BREEDING SITES, INCLUDING HABITAT FRAGMENTATION AND ISOLATION

4.11.92 Table 4.18 provides an assessment of potential impacts on protected or notable species based upon field survey and desk study data, sets out details of proposed mitigation measures and provides an assessment of residual effects. Refer also to Figures 4-4 to 4-11 which show the Order Limits and the locations of Important Ecological Features.

Table 4.18: Assessment of significance of effects on protected and notable species

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
S41 and/or red data book plant species associated with coastal habitats and arable margins. Other locally important plant species, primarily within S41 habitats.	Temporary loss of arable margin, hedgerow, woodland, coastal and floodplain grazing marsh habitats supporting important plant species. No permanent loss of arable margin, lowland meadow, hedgerow and woodland habitats supporting important plant species at the OnSS is anticipated since all have been avoided through scheme design.	Pre-commencement surveys for hog's fennel, S41 and/ or red data book plant species. Micro-siting of project elements will be used to avoid important ecological features, where possible.	Salvage of populations and reinstatement following construction. Exact method dependent on the species and habitat concerned, but may include seed saving and propagation or translocation of individual plants. Further details are included within the OLEMP in Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan.	Since only a proportion of the Order Limits would be impacted, a **potentially significant, adverse effect is anticipated at a local level** (rather than a County or National level) for less than 5 years. **Not significant after 5 years** once habitats are reinstated and ecologically functioning as previously.
Invertebrates (using coastal habitat but also the Holland Brook. Other S41 habitats are also potentially important for this group).	Temporary loss of hedgerow, woodland, coastal and floodplain grazing marsh habitats potentially supporting important invertebrate species. Disturbance due to lighting or changes to hydrology during construction.	Reinstatement of habitat after construction Mitigation measures to prevent hydrological impacts are included in Volume 6, Part 3, Chapter 6: Hydrology, Hydrogeology and Flood Risk. Lighting for construction will be the minimised to the lowest safe level, and designed such that there will be no significant increase in illumination levels above current levels outside of the working area. The CoCP (Volume 9, 9.21: Code of Construction Practice) sets out	None.	Since only a proportion of the Order Limits would be impacted, a **potentially significant, temporary adverse effect is anticipated at a local level** (rather than County or National level) for less than 5 years until the proposed mitigation is sufficiently mature and become established. **Not significant after 5 years** once proposed mitigation has matured and become established.

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
		pollution control principles which would be implemented by the project during construction.		
GCN, common toad and other amphibians	Refer to Figure 4.6 which illustrates the Order Limits in relation to GCN ponds. There are no GCN populations within 250 m of the OnSS therefore no anticipated impacts as a result of permanent habitat loss. Temporary loss of terrestrial habitats within 250m of fourteen GCN breeding ponds also potentially used by common toad and other amphibians. Temporary habitat fragmentation/ isolation, resulting in functional loss of terrestrial habitat and breeding ponds. Accidental killing and injury. Accidental pollution to breeding ponds from diffuse or point sources associated with construction.	GCN EPSL will be required from NE; the DLL route is proposed. The final approach to GCN EPSL would be revisited post-consent, and would be informed by pre-commencement survey data and final scheme design. Pre-commencement surveys and checks. Refer to mitigation in Section 4.10 for measures to reduce pollution risks.	At specific locations where impacts may occur, scheduling of certain work to avoid sensitive periods of the GCN and common toad life cycle. Removal of GCN, common toads and other amphibians from areas where there is risk of injury or death in advance, plus other precautionary measures.	**No significant effect** on the local conservation status is likely following the implementation of mitigation and compensation measures.
Reptiles	Refer to Figure 4.7 which illustrates the Order Limits and indicative scheme in relation to known reptile populations, and	Mitigation for GCN will also reduce risks to reptiles. Pre-commencement surveys and checks.	None	**No significant effect** is likely is likely following the implementation of mitigation measures.

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
	habitats suitable for use by reptiles. All of the areas with confirmed populations of reptiles within the Order Limits will be subject to HDD. However, direct impacts remain possible where haul routes are required to cross the HDD area. 1.84 ha of suitable habitats that may be used by reptiles will be subject to temporary loss with temporary habitat fragmentation/ isolation elsewhere. Accidental killing and injury. The project is not predicted to significantly adversely affect the local population due to the relatively poor quality and small extent of the suitable habitat affected and the low populations anticipated to be present. However, in view of the species' legal protection mitigation measures are proposed.	Reasonable avoidance measures would be used, where necessary, to reduce the risk of committing an offence under the protecting legislation.		
Breeding Birds (excluding qualifying or notified features for designated sites) – landfall area	Important species recorded breeding within the Order Limits or 100 m buffer during surveys in 2021 and 2022 included Cetti's warbler, yellow wagtail and corn bunting. Other potentially important breeding species,	A range of mitigation measures relating to breeding birds at the landfall area are proposed in Table 4.15. These include: employment of an ECOW; measures to avoid damage	n/a	**No significant effect on the local conservation status of important species recorded within the study area at the landfall area is likely following the**

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
	including avocet, lapwing and redshank were only recorded outside the 100 m buffer and, in most cases, were only recorded well beyond the 100 m buffer. Permanent habitat loss at the landfall area would be limited to the two TJBs and would amount to a maximum of 0.02 ha located within agricultural fields to the northwest of Holland Haven Marshes, which is not likely to significantly affect any important species. Temporary habitat loss could affect intertidal habitats at the beach and would affect agricultural fields to the north of Holland Haven Marshes. There would be no temporary habitat loss within the SSSI due to the use of HDD. Based on 2021 and 2022 survey data this is most likely to affect Cetti's warbler, yellow wagtail and corn bunting, though only small numbers would be affected. Temporary loss would occur for a maximum of three breeding seasons. Disturbance could affect the same species affected by temporary habitat loss, although most passerines are not	to active nests; surveys for important species prior to and during construction; and implementation of disturbance-free buffer zones around active nests of important species. Further details are provided in Table 4.15.		**implementation of mitigation measures.**

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
	particularly susceptible to disturbance and therefore only small numbers are likely to be affected. All of the more disturbance-sensitive species, i.e., the breeding waders, were located over 100 m from the Order Limits, and in most cases much further away than that. Disturbance could occur for a maximum of three breeding seasons. Inadvertent destruction or damage to active nests is possible during construction (all wild bird species).			
Breeding Birds (excluding qualifying or notified features for designated sites) – onshore ECC and OnSS	Important species recorded breeding within the Order Limits or 100 m buffer during surveys in 2022 included hobby and corn bunting, along with several other red-listed or S41 passerine species. Permanent loss of up to 12.62 ha of agricultural habitat would occur at the OnSS, which includes the clearance of vegetation from the platform for the NF OWF substation and associated infrastructure. Proposed landscaping and habitat creation at the OnSS (as shown in the OLEMP (Volume 9,	A range of mitigation measures relating to breeding birds along the onshore ECC and at the OnSS during construction are proposed in Table 4.15. These include: employment of an ECOW; measures to avoid damage to active nests; surveys for important species prior to and during construction; and disturbance-free buffer zones around active nests of important species. Further details are provided in Table 4.15.	Additional mitigation/ compensation for the permanent loss of arable habitat supporting skylark and corn bunting at the OnSS is not possible within the Order Limits due to a lack of potentially suitable land available. The requirement for landscaping at the substation is considered to outweigh the requirement for management of arable fields to benefit skylark and corn bunting and the proposed habitat creation would benefit a range of other bird species.	**The permanent loss of arable habitat at the OnSS, affecting up to six corn bunting territories and 21 skylark territories, would represent a significant adverse effect at a county level (corn bunting) and local level (skylark).** **No significant effect on the local conservation status of important species is anticipated in terms of temporary habitat loss, disturbance or damage to nests,**

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
	Report 9.22: Outline Landscape and Ecological Management Plan) would also lead to the loss of arable habitat. Whilst the proposed landscaping and habitat creation should benefit many bird species, it would result in the loss of species such as skylark and corn bunting, which favour open arable habitat. Tree planting adjacent to retained arable habitat may also reduce the value of adjacent habitat for these species by increasing the risk of nest predation. Including fields, which would be enclosed by proposed tree planting, the effective loss of arable habitat used by these species would be approximately 57.6 ha. Based on 2022 breeding season survey data, up to six corn bunting and 21 skylark territories may be affected., Temporary loss of habitat for important bird species, for a maximum of three breeding seasons, would affect corn bunting, skylark and several other red-listed or S41 species along the onshore ECC, although the number of territories affected is likely to be relatively small. Temporary loss of part of two		The presence of high grade agricultural land throughout much of the ECC (see Volume 6, Part 3, Chapter 5: Ground Conditions and Land Use) also limits the potential for management for these species, as it would require taking small areas of the best and most versatile land out of production.	**following the implementation of mitigation measures.**

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
	hobby territories and foraging habitat for barn owl and other raptor species could also occur, although the area affected would represent a very small proportion of the relevant species' core foraging range. Disturbance to important bird species could occur along the onshore ECC and at the OnSS during construction in the breeding season. Most passerines are not particularly susceptible to disturbance and therefore only small numbers are likely to be affected. However, disturbance could affect at least one nest site for the Schedule 1 species, hobby. All other Schedule 1 nest locations identified were beyond the 100 m buffer. Disturbance could occur for a maximum of three breeding seasons. Inadvertent destruction or damage to active nests during construction (all wild bird species).			
Non-Breeding Birds (excluding qualifying or notified features for designated	Important species recorded within the Order Limits and 400 m buffer at the landfall during non-breeding bird surveys in 2020-21 and 2021-22 included	A range of mitigation measures relating to non-breeding birds at the landfall area are proposed in Table 4.15.	n/a	**No significant effect on the local conservation status of important species recorded at the landfall area is likely**

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
sites) – landfall area	nationally important numbers of European white-fronted goose and locally important numbers of other species, notably golden plover. Permanent habitat loss at the landfall area would be limited to the two TJBs and would amount to a maximum of 0.02 ha located within agricultural fields to the north of Holland Haven Marshes. This is not likely to significantly affect any important bird species. Temporary habitat loss could affect intertidal habitats at the beach and would affect agricultural fields to the north of Holland Haven Marshes for a maximum of three non-breeding seasons. European white-fronted goose was not recorded within the Order Limits and golden plover was only recorded within the Order Limits on one occasion over two years of survey. Temporary loss of habitat is therefore not likely to be significant, especially given that similar agricultural habitats are common and widespread and the area subject to temporary loss represents a small proportion of	These include: employment of an ECOW; screening/ fencing of the landfall compound during the winter period and, where practical, ,other areas where disturbance to significant numbers of non-breeding waterbirds is likely; restrictions on piling during the winter period; and, if necessary, suspension of works during periods of prolonged cold weather. Further details are provided in Table 4.15.		**following the implementation of mitigation measures.**

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
	the total area of similar habitat available within the wider area. Disturbance during construction works at the landfall and adjacent section of the ECC could affect birds using intertidal habitats at the beach and agricultural habitats to the north of Holland Haven Marshes. Disturbance would occur for a maximum of three non-breeding seasons. With respect to European white-fronted goose and golden plover using agricultural habitats, usage of the study area was irregular, and the fields used varied from month to month, and year to year. The area potentially affected by disturbance represents only a small proportion of the total area of similar habitat available within the wider area. The landfall and ECC are >400 m from freshwater habitats within the SSSI so are not likely to cause disturbance to birds using those habitats. Use of the Holland Haven Access is unlikely to cause significant disturbance to birds using the freshwater habitats within the SSSI, despite lying within 400 m, as it primarily			

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
	follows existing roads or tracks, already subject to relatively high levels of recreational use. The western part of the route is also screened from the marshes by existing vegetation and structures.			
Non-Breeding Birds (excluding qualifying or notified features for designated sites) – onshore ECC and OnSS	Important species recorded within the Order Limits and 400 m buffer for the onshore ECC and OnSS area during non-breeding bird surveys in 2021-22 and 2022-23 included populations of marsh harrier, peregrine and corn bunting that are potentially of county importance, plus locally important numbers of golden plover. Permanent loss of up to 12.62 ha of agricultural habitat would occur at the OnSS, which includes clearance of vegetation from the platform for the NF OWF substation and associated infrastructure. Including areas subject to proposed landscaping/ habitat creation (including fields which would be enclosed by proposed tree planting), as shown in the OLEMP (Volume 9, Report 9.22: Outline Landscape and Ecological Management	A range of mitigation measures relating to non-breeding birds along the onshore ECC and at the OnSS are proposed in Table 4.15. These include: employment of an ECOW; and use of temporary fencing/ screening in winter, where practical, in areas where disturbance to significant numbers of non-breeding waterbirds is likely. Further details are provided in Table 4.15.	n/a	**No significant effect on the local conservation status of important species recorded along the onshore ECC and at the OnSS search areas is likely following the implementation of mitigation measures.**

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
	Plan), the effective loss of arable habitat at the OnSS would be approximately 57.6 ha. Based on 2021-22 and 2022-23 non-breeding bird survey data, these fields are used by wintering corn bunting, however, corn bunting was widely recorded within the surrounding area in both non-breeding bird survey years and these four fields are unlikely to be critical to the local wintering corn bunting population, particularly if the breeding population is lost from these fields (see assessment for breeding birds above). Temporary habitat loss would primarily affect agricultural habitats, which may be used by notable bird species including golden plover, marsh harrier, peregrine and corn bunting. Similar agricultural habitats are common and widespread and the area subject to temporary loss is likely to represent a small proportion of the total area of similar habitat available within the wider area. Temporary habitat loss would occur for a maximum of three non-breeding seasons.			

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
	Disturbance could affect birds using agricultural habitats and waterbodies and could potentially affect any of the species listed above. Similar agricultural habitats are common and widespread and the area potentially subject to disturbance is likely to represent a very small proportion of the total area of similar habitat available within the wider area. Disturbance would occur for a maximum of three non-breeding seasons.			
Bats – all species	Refer to Figure 4-8 which illustrates the Order Limits in relation to known roosts as well as trees and hedgerows that may be used by bats. There is one confirmed roost within the Order Limits, though several more occur on the boundary. No direct impacts to bat roosts are currently anticipated. Loss of trees that have moderate or high potential roost features	HDD beneath all woodlands (rather than trenching through the woodland), and retention of all trees and hedgerows wherever practicable. Reduction in corridor width at hedgerow crossings. The over-riding principle is for no net loss of potential roost resource as a result of the scheme. Pre-commencement surveys and checks. The construction phase may result in the loss of a number of mature	Compensation installed for every moderate or high potential or confirmed roost feature prior to loss; to include bat boxes on retained trees or installed poles, re-use of whole felled trunks by setting vertically as monoliths and/ or veteranisation (cutting and carving into healthy trees to mimic nature, to speed the process of decay and rot holes) as appropriate.	Common pipistrelle, soprano pipistrelle and brown long-eared bat **No significant effect is likely** on the local conservation status of bat populations as a result of temporary habitat loss following the implementation of mitigation measures.

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
	along the onshore ECC and at the OnSS. Temporary fragmentation of 1.61 km of hedgerow flight lines that are within the Core Sustenance Zones of the following roosts confirmed through desk study or field survey: > Barbastelle day roost(s) > Brown long eared bat maternity roost > Common pipistrelle – 1 maternity and 3 day roosts > Soprano pipistrelle – 2 day roosts > Natterer's bat – 2 day roosts > Noctule – 1 day roost or mating roost And which may also be in the core sustenance zone for Nathusius' pipistrelle (no roosts confirmed, but activity data suggests one in close proximity). Due to the large field sizes, in most cases there are no nearby	trees, including some which have moderate or high potential to support bats. None have been found to support roosting bats to date, but since tree roosting bats utilise a range of locations over any given season, an EPSL may later prove necessary pending the findings of pre-commencement surveys. In the event an EPSL is needed, it would be sought to cover work at all trees with potential roost features (PRF) (i.e., the total roost resource) that may be affected by the project. All work undertaken under the EPSL and which could result in disturbance of bats would be overseen by the Named Ecologist, or his/ her Accredited Agent (such as a suitably skilled and experienced Ecological Clerk of Works (ECOW) (see below). If required, the EPSL application would be submitted to NE once final design details are available and pre-commencement surveys for bats have been completed. Key principles that would be followed to mitigate and compensate for impacts are described in the OLEMP at Volume 9, Annex 9.22:	Temporary hedgerow gaps to be filled with "dead hedge" until such time as reinstated vegetation has established and is at least 1 m tall. Further details are provided in the OLEMP in Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan.	Nathusius' pipistrelle **No significant effect is likely** on the local conservation status of bat populations as a result of temporary habitat loss following the implementation of mitigation measures. Myotis species (Daubenton's, whiskered, Brandts and Natterer's bats) **No significant effect is likely** on the local conservation status of bat populations as a result of temporary habitat loss following the implementation of mitigation measures. Noctule **No significant effect is likely** on the local conservation status of bat populations as a result of temporary habitat loss following the implementation of mitigation measures.

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
	alternative routes for bats to follow.	Outline Landscape and Ecological Management Plan. Permanent hedgerow/ tree loss to be compensated as described in Table 4.17 . Construction lighting at HDD locations would be at the lowest, safest permissible level and with light spill minimised.		Serotine and Leisler's bat **No significant effect is likely** is likely on the local conservation status of bat populations as a result of temporary habitat loss following the implementation of mitigation measures.
				Barbastelle **No significant effect is likely** is likely on the local conservation status of bat populations as a result of temporary habitat loss following the implementation of mitigation measures.
Badger	Temporary loss and fragmentation of foraging habitat along the onshore ECC, permanent loss of foraging habitat at the OnSS. Accidental killing and injury. The project is not predicted to significantly adversely affect the local population due to no loss of setts being predicted and the abundance of adjacent unaffected agricultural land. However, in view of the species	Pre-commencement surveys and checks Reasonable avoidance measures would be used to reduce the risk of committing an offence under the protecting legislation. These may include micro-siting certain elements and/ or installing protective fencing to minimize disturbance to retained setts, ensuring excavations remain closed overnight or contain ramps such that badgers cannot become trapped	None	**No significant effect.**

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
	legal protection, mitigation measures are proposed.	and ensuring stockpiled soil is fenced or regularly disturbed so as to deter badger sett creation within it. Further details are provided in the OLEMP at Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan		
Water Vole	Based on desk study and field survey data, it is considered possible for the project to directly impact water vole burrows(s), if present in future at the Tendring Brook and/ or the Holland Brook. Temporary loss and fragmentation of foraging habitat/ routes. Accidental killing and injury.	Use of HDD beneath all watercourses identified during the ecological surveys. The over-riding principle is no net loss of water vole habitat as a result of the scheme. Micro-siting to avoid burrows. NE licence obtained in advance if any burrows are likely to be affected. In the event a licence is required, the licence application would be submitted to NE in advance of work affecting water vole habitat. The conditions of the licence would be specified to ensure that construction and temporary presence of the haul road does not result in significant adverse impacts to the local population. These would include: > Micro-siting to avoid water vole burrows (if present);	None	**No significant effect** on the local conservation status is likely following the implementation of mitigation and compensation measures.

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
		> Scheduling of work to avoid sensitive periods of the water vole life cycle. > Removing vegetation back to bare earth in spring and autumn; > Carrying out a destructive search of water vole burrows, after an appropriate monitoring period, after removing vegetation; > Creation of temporary compensation/ mitigation habitats for use by water vole in immediately adjacent areas (such as provision of nest boxes or feeding stations, sympathetic management of bankside habitats) for the construction plus vegetation re-establishment period. > Reinstatement of bankside habitats immediately after work, to include sowing with species -rich locally appropriate sward and fencing, if applicable, to prevent stock access.		

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
		Further details are provided in the OLEMP in Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan.		
Dormouse	Potential for the project to directly impact dormouse nests at two locations where haul routes are required. Temporary loss of foraging and sheltering habitat. Temporary fragmentation of foraging areas/ routes. Accidental killing and injury.	The measures which are pertinent include use of HDD beneath all woodlands (rather than trenching through the woodland), and retention of trees and hedgerows wherever practicable. One hedge (reference 5EHE_38) with dormouse presence confirmed (one old nest on one occasion, at the southern end of the hedgerow) may be affected on the ECC. The option of trenchless crossing and an off-route haul road has been retained at this location, such that if dormouse are present in future impacts to the species can be avoided, and there would be no requirement for an EPSL. Two 10m wide hedgerow breaches to enable haul route access from the B1035 Thorpe Road to the onshore ECC are proposed. Current field survey data does not include records for dormouse in the hedges, but the species is present directly adjacent and so its potential future presence cannot be ruled out. The requirement for an EPSL will be re-assessed based upon pre-commencement/pre-construction	None	**No significant effect** on the local conservation status is likely following the implementation of mitigation and compensation measures.

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
		survey results and final scheme design. In the event an EPSL is required, the EPSL application would be submitted to NE in advance of work. The conditions of the EPSL would be specified to ensure that construction and temporary presence of the haul road does not result in significant adverse impacts to the local population. This would include: > creation of temporary compensation/ mitigation habitats for use by dormice in immediately adjacent areas. This would include installation of dormouse boxes and cessation of field-side hedgerow management for the construction plus hedgerow re-establishment period (roadside hedgerow management practice to remain as currently, for road safety purposes). > Scheduling of certain work to avoid sensitive periods of the dormouse life cycle; standard practice would be followed i.e., a two stage removal. Top growth of the		

Important ecological feature	Potential impacts	Relevant Mitigation	Additional mitigation/ compensation	Significance of residual effect
		hedgerow would be removed in the winter months (November – February) when dormouse are hibernating, avoiding ground disturbance. Clearance of stumps, roots and other vegetation would be undertaken from May – September thereafter. Further details are provided in the OLEMP in Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan.		
Other S41 Mammal Species: hedgehog, harvest mouse and brown hare	Temporary loss of foraging and sheltering habitat, permanent loss at the OnSS. Temporary fragmentation of foraging areas/ routes. Accidental killing and injury.	Pre-commencement checks. Reasonable avoidance measures would be used to minimize impacts.	None	**Not significant.**

SPREAD OF INVASIVE NON-NATIVE SPECIES

4.11.93 The primary ways the project could increase the spread of INNS is via;

- disturbance to existing INNS populations within the construction footprint;
- inadvertently importing INNS from elsewhere, primarily on vehicles, but also other equipment or personnel; and
- via seeds, planting stock or planting substrate.

4.11.94 Mitigation measures beyond those listed in Table 4.15: i.e., the implementation of INNS control measures detailed in the CoCP (Volume 9, 9.21: Code of Construction Practice), are not considered necessary. Provided the mitigation measures are implemented as proposed, no significant effects are predicted over any timescale.

ACCIDENTAL POLLUTION

4.11.95 Measures to minimise the risk of a pollution event will be contained within the CoCP, a version of which is provided in Volume 9, 9.21: Code of Construction Practice. Further detail in this respect is also provided within Volume 6, Part 3, Chapter 6: Hydrology, Hydrogeology and Flood Risk. To summarise, it concludes that with mitigation measures in place, the effect on water quality as a result of construction would be **not significant** in EIA terms.

4.11.96 The risk of a pollution incident overwhelming the mitigation measures and large enough to significantly affect any of the important ecological features identified in Table 4.13 is considered so remote as to be disregarded for the purpose of assessment.

4.12 ENVIRONMENTAL ASSESSMENT: OPERATIONAL PHASE

DISTURBANCE OR DAMAGE TO IMPORTANT ECOLOGICAL FEATURES VIA MAINTENANCE, NOISE AND LIGHT AT THE ONSS

4.12.1 Once operational, maintenance activities will be limited to weekly inspections plus regular maintenance over a two-week period, once per year. This would be highly localised within the OnSS, with a minimal likelihood of disturbance expected to the adjacent habitats and species. Any such maintenance would be subject to the requirements of the OLEMP (as mentioned in Table 4.15 and included in Volume 9, 9.22 Outline Landscape and Ecological Management Plan), which includes specific measures to avoid potential impacts to protected/ notable species or sensitive habitats. The OLEMP also includes measures to minimise the risk of a pollution event. Following the implementation of the measures described in the OLEMP **no significant adverse effects are anticipated** for any important ecological feature as a result of regular maintenance at the OnSS.

4.12.2 Details in respect of sound levels generated by the operation of the OnSS are included in Volume 6, Part 3, Chapter 9: Airborne Noise and Vibration. Ecological receptors that could be affected by operational noise at the OnSS are limited to breeding and non-breeding birds. The potential for noise to affect bats has been considered and discounted, due to the lack of any known roosts within 500m of the OnSS.

4.12.3 There were very few records of important non-breeding bird species in Route Section 7, in which the OnSS would be located, during non-breeding bird surveys in 2021-22 and 2022-23. These were limited to lapwing (four records within Order Limits and 400 m buffer, peak count 56), golden plover (two records in Order Limits and 400 m buffer, peak count 5) and cormorant (four records in Order Limits and 400 m buffer, peak count 9). Operational noise at residential receptors close to the OnSS is assessed in Section 9.11 of Volume 6, Part 3, Chapter 9. This states that the sound rating level at the closest residential property considered (Norman's Farm, approximately 400 m from the indicative substation compound) is 40 dB. This is well below the level that could cause disturbance to waterbirds (noise levels below 55 dB represent low level noise and are unlikely to cause a response in waterbirds (Cutts *et al*., 2013)). Given the limited use of this area and relatively low operational noise levels **no significant effects are likely on non-breeding birds**.

4.12.4 Breeding bird interest within Route Section 7, in which the OnSS would be located, was limited to passerines, notably corn bunting and skylark, although habitat for these two species would be lost due to construction of the substation and the proposed landscaping/ habitat creation. Occasional use by the Schedule 1 species barn owl and hobby is possible but no nest sites for either species were recorded within the Order Limits or 100 m buffer during breeding bird surveys in 2022. Whilst birds of several species are likely to colonise the area following the establishment of the proposed landscaping/ habitat creation, given the relatively low predicted noise levels, **no significant effects are likely on breeding birds**.

4.12.5 The lighting scheme for the OnSS has not yet been decided but will be directional for safety and security only. It is anticipated that there would be no light spill beyond the OnSS site boundary and the detailed lighting scheme would follow current guidance to minimise impacts to bat species, e.g., Bat Conservation Trust (2023). As such, **no significant effects are likely** due to operational lighting.

DISTURBANCE OR DAMAGE TO IMPORTANT ECOLOGICAL FEATURES VIA MAINTENANCE

4.12.6 Planned maintenance of the cable route involves an annual visit to each cable joint pit and TJB by a team of two. As at the OnSS, all such maintenance would be subject to the requirements set out in the OLEMP (included at Volume 9, 9.22 Outline Landscape and Ecological Management Plan), which would include specific measures to avoid potential impacts to protected/ notable species or sensitive habitats. Following the implementation of the measures in the OLEMP, **no significant adverse effects are anticipated** for any important ecological feature as a result of regular maintenance.

4.12.7 The extent or nature of any unplanned corrective maintenance required can't be predicted at this stage and therefore possible effects in terms of disturbance can't be assessed. However, any effect would be of a scale and duration that is no greater than that for the construction phase and so any resulting effects would be the same or lower than the effects predicted for the construction phase. Any unplanned corrective maintenance required would be subject to any necessary consents and consultation with the relevant nature conservation bodies prior to work taking place.

4.13 ENVIRONMENTAL ASSESSMENT: DECOMMISSIONING PHASE

4.13.1 Details surrounding the decommissioning phase are yet to be fully clarified but are likely to include

- Dismantling and removal of electrical equipment;
- Removal of cabling, and where required leaving in situ as with the ducting;
- Removal and demolition of buildings, fences, and services equipment; and
- Reinstatement and landscaping works.

4.13.2 In addition, it is also recognised that policy, legislation and local sensitivities constantly evolve, which will limit the relevance of undertaking an assessment at this stage. Nevertheless, decommissioning activities are not anticipated to exceed the construction phase worst case criteria assessed; further to this in most cases impact magnitude will be much lower than during construction.

4.13.3 The decommissioning methodology would be finalised nearer to the end of the lifetime of VE, to be in line with current guidance, policy and legislation, as well as updated ecological survey information. Any such methodology would be agreed with the relevant authorities and statutory consultees.

4.14 ENVIRONMENTAL ASSESSMENT: CUMULATIVE EFFECTS

4.14.1 A comprehensive list of projects that have the potential to contribute to cumulative effects with the proposed OnSS, onshore ECC and Landfall has been compiled. This list, and the approach to compiling this list, are described in Volume 6, Part 1, Chapter 3, Annex 3.1: Cumulative Effects Assessment Methodology which is in accordance with PINS Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects.

4.14.2 For most important ecological features, the geographical extent of sites with the potential for cumulative effects is considered to be limited to the relevant onshore biodiversity and nature conservation study areas (i.e. 2 km for most important ecological features, 6 km for bats and 15 km for internationally designated sites. No impact pathways have been identified that would extend beyond these study areas).

4.14.3 For qualifying bird species for internationally designated sites, a detailed assessment of effects in combination with other plans or projects is provided in the VE RIAA and is not repeated here. The assessment of cumulative effects on birds provided here therefore focuses on other important bird species, including notified species for nationally designated sites.

4.14.4 For the important ecological features and potential effects set out in Table 4.13 the following types of other development have the potential to result in cumulative effects:

- Other developments that could result in loss or change (permanent and/ or temporary) to important habitats, which could potentially also be affected by VE;
- Other developments that could result in loss or change (permanent and/ or temporary) to habitats used by important and/ or protected faunal species populations, which could potentially also be affected by VE; and
- Other developments that could result in disturbance to important and/ or protected faunal species populations, which could potentially also be affected by VE.

4.14.5 On the basis of the above, the other projects which are included in the cumulative effects assessment for onshore biodiversity and nature conservation are presented in Table 4.20 and shown on the Figure 4.6 in Volume 6 Part 1, Chapter 3, Annex 3.1: Cumulative Effects Assessment Methodology. Each project, plan or activity has been considered and scoped in or out on the basis of effect-receptor pathway, data confidence and the temporal and spatial scales involved. All relevant longlist plans and projects were allocated into tiers reflecting varying levels of certainty. These are defined in Volume 1, Annex 3.1: Cumulative Effects Assessment Methodology, and outlined here in Table 4.19.

Table 4.19: Description of Tiers of other developments considered for cumulative effect assessment.

Tiers	Development Stage
Tier 1	Projects under construction.
	Permitted applications, whether under the Planning Act 2008 or other regimes, but not yet implemented.
	Submitted applications, whether under the Planning Act 2008 or other regimes, but not yet determined.
Tier 2	Projects on the Planning Inspectorate's Programme of Projects where a Scoping Report has been submitted.
	Projects under the Planning Act 2008 where a PEIR has been submitted for consultation.
Tier 3	Projects on the Planning Inspectorate's Programme of Projects where a Scoping Report has not been submitted.
	Identified in the relevant Development Plan (and emerging Development Plans with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will be limited.
	Identified in other plans and programmes (as appropriate) which set the framework for future development consents/ approvals, where such development is reasonably likely to come forward.

4.14.6 As already highlighted in Table 4.14, VE construction may be undertaken at the same time as, and perhaps in conjunction with the NF OWF project. For the purpose of cumulative assessment the worst case has been assumed, i.e., that the two projects occur separately. The NF OnSS would be sited to the east of the VE OnSS. Based on information available in the NF PEIR documents, the NF programme includes 9 months pre-construction works, 27 months OnSS construction and 24 months cable route installation (partly concurrent with the OnSS construction).

4.14.7 As set out in Volume 6, Part 1 Chapter 3 Environmental Impact Assessment Methodology, although the NG Norwich to Tilbury DCO, which includes the EACN substation is being applied for after the VE DCO application, the NG EACN substation has been included in the CEA, as VE current grid connection offer is to connect to the NG EACN substation.

Table 4.20: Projects considered within the onshore biodiversity and nature conservation cumulative effects assessment

Project	Status	Data Confidence	Tier	Approximate Distance from the proposed Order Limits (km)
North Falls Offshore Wind Farm	Scoping Opinion. 16 July 2021. PEIR submitted May 2023. Application is expected to be submitted to the Planning Inspectorate 2024	High	2	0.0
Norwich to Tilbury Reinforcement Project (East Anglian Connection Node)	Request for a Scoping Opinion. 7 November 2022. Application is expected to be submitted to the Planning Inspectorate Q4 2024	Low data confidence – no data available.	2	0.0
13/00745/OUT Development of new industrial park 22/01047/FUL and 22/01042/DETAIL Application for the erection of 8 commercial units This development is located south west of the A120, west of Horsley Cross roundabout on the A120, opposite a proposed TCC. A population of water vole is present at the western boundary of the site on the Holland Brook and mitigation for impacts to the population is proposed. In relation to birds, it is stated that there is limited scope for nesting birds on site, although five skylark territories were identified within the survey area. With the inclusion of on-site and off-site habitat compensation for skylark, residual impacts on this species were assessed as being negligible	Approval / Reserved Matters/Detailed.	High	1	0.3
21/00393/EIASCR and 22/02117/FUL Proposed solar photovoltaic farm, land south of Thorpe-le-Soken	Approved	High	1	0.6

Project	Status	Data Confidence	Tier	Approximate Distance from the proposed Order Limits (km)
The EcIA submitted with the application identifies that the site is used by a wide variety of nesting birds with impacts anticipated mainly in relation to ground nesting species including skylark, lapwing and corn bunting. A separate wintering bird survey report highlighted the presence of two qualifying species for the nearby Hamford Water SPA/Ramsar, shelduck and teal, although n negative effects were predicted for either species. Several badger setts are present at the fringes of the development area and there is some potential for reptiles and common amphibians and dormice to be present in limited areas of suitable habitat. Roosting bats may be present within the mature trees and the Site is likely to provide some suboptimal foraging and commuting habitats. Scheme design avoids key habitats, with specific mitigation included for lapwing, skylark and other farmland birds. Retention, creation and enhancement of key habitats predicted to result in significant enhancement of habitat value.				
21/02070/FUL Construction and operation of a 50MW Battery Energy Storage System. Nesting birds were considered as a feature in the report, which describes the site as being of low quality for nesting birds. Residual impacts on breeding birds were assessed to be negligible.	Approved	High	1	1.0
23/00365/FUL Proposed erection of 58 no. dwellings, land South of Holland Road Little Clacton. Ecological assessment submitted with the application identified the presence of a good population of common lizard and low population of slow worm. Mitigation proposed to ensure no killing or injury. Dormice also present in the hedgerows. EPSL will be sought, mitigation is proposed including provision of replacement habitat.	Awaiting decision	Medium	1	2.0

Project	Status	Data Confidence	Tier	Approximate Distance from the proposed Order Limits (km)
ESS/29/20/TEN Proposed western extension to Martells Quarry for the extraction, processing, sale and distribution of silica sand and gravel, and subsequent restoration using inert materials. Ecological assessment is included with the application, but does not appear to be undertaken by member of CIEEM or to follow industry guidelines. Of limited value in terms of informing cumulative assessment.	Resolved to be Granted subject to conditions & legal agree.	High	1	2.3
20/01130/FUL Erection of 122no. residential units, Thorpe Road, Clacton. Ecological survey submitted with the application identifies the potential for breeding birds, roosting bats. GCN confirmed absent.	Awaiting Decision	High	1	2.7
22/00979/DETAIL Reserved matters application for 280 homes, including offices, land for a new primary school, railway footbridge, attenuation basins, open space, play equipment and associated infrastructure. Large development, south of Thorpe Road at Weeley, west of the VE project. Hedges retained, with some gaps. Important bird species recorded on site included song thrush (max. 3), yellowhammer (max. 2), skylark (4 territories), corn bunting (max. 2) and barn owl (nesting confirmed). The residual effects on all bird species were assessed as being negligible.	Awaiting decision	High	1	3.1
23/00992/DETAIL Reserved Matters Application for 72 dwellings following the grant of outline planning permission 18/00767/OUT, land at Mistley.	Awaiting decision	High	1	3.2

Project	Status	Data Confidence	Tier	Approximate Distance from the proposed Order Limits (km)
Common lizard, slow worm and grass snake present. Potential for roosting bats in trees and 7 species confirmed to forage. Mitigation and enhancement strategy is included with the application, which is anticipated to result in overall biodiversity enhancement in the long term.				
22/02076/FUL 86 No residential dwellings to the north of Clacton Road including new access and 40 No residential dwellings to the south of Clacton Road using existing access. Preliminary Ecological Appraisal submitted with the application identifies the area as of very low ecological value, and that subject to its recommendations in respect of bats, badgers and nesting birds, no ecological issues that should prevent a planning approval.	Awaiting decision	High	1	4.1
CC/TEN/31/21 New link road between the existing A120 and A133 inclusive of a grade separated dumbbell junction at the A120. This scheme is located west of Elmstead Green and east of Colchester. Licensed dormouse mitigation is required prior to construction work. Barbastelle recorded. Hedgerows being removed. Three skylark territories may be lost as a result of the development. A farmland bird strategy will be developed, principally for skylark, to provide six skylark plots in nearby arable fields for ten years after construction.	Approved	High	1	4.1
22/01818/FUL Proposed development of 154 dwellings, Weeley Road, Great Bentley.	Awaiting decision	Medium	1	4.4

Project	Status	Data Confidence	Tier	Approximate Distance from the proposed Order Limits (km)
Bat survey report confirmed the presence of four species of foraging bats, and potential roost features (no roosts). Sensitive lighting scheme recommended.				
23/01001/NACON Construction of residential development, 115 units Further details not available.	Approved 28 Sep 2023	Medium	1	5.8
ESS/17/18/TEN Extraction of 3.8 million tonnes of sand and gravel as an easterly extension to the existing Wivenhoe Quarry, erection of sand and gravel processing plant and ancillary facilities. restoration to agriculture and low-level water-based nature conservation habitats, lowland meadow, woodland planting and hedgerow enhancement. ESS/28/23/TE and 23/00709/CMTR Continuation of extraction This project is located to the east of Wivenhoe, to the southwest of VE. For breeding birds, the site was evaluated to be of local importance, comprising a lowland farmland bird assemblage which included skylark (up to eight territories), corn bunting (one territory) and Cetti's warbler (two individuals singing). Winter bird surveys in 2015/16 recorded a typical farmland bird assemblage including lapwing (recorded in Nov and Dec with a peak of 142 birds); skylark (small numbers); gadwall (small numbers flying over); and meadow pipit (small numbers). With the implementation of mitigation measures, adverse effects on birds were assessed to be neutral.	Extraction approved, continuation awaiting decision.	High	1	5.5

4.14.8 All other developments included in the shortlist of other developments (refer to ES Part 1, Annex 3.1: Cumulative Effects Assessment Methodology have been scoped out of the cumulative assessment for onshore biodiversity. The primary reason for scoping out other developments is their distance from the onshore Order Limits. Further details are provided below:

- **Important habitats:** Other developments with the potential to have cumulative effects on important habitats would generally have to be located within very close proximity to the relevant habitats.
- **Birds:** The potential ornithological impact zone for the onshore elements of the project has been determined as being up to 400m based on the upper limit of potential disturbance to non-breeding birds. Other developments with the potential for spatial overlap (in accordance with the approach set out in the Scoping Report) are therefore taken as those being within 800m of the project, which has been rounded up to a 1km search buffer applied to the project onshore Order Limits. Cumulative effects on breeding birds would only occur over a shorter distance given the reduced impact zone, however the 1km search area has been applied for all bird species.
- **Bats:** the maximum core sustenance zones (CSZs) for bat species recorded at VE are 6 km (for barbastelle) and 1-4 km for all other species. Developments within 6 km which may impact built structures, trees, woodlands or hedges (i.e., potential roosting, foraging or commuting habitat) were therefore included in the cumulative effects assessment.
- **Important faunal species (other than birds and bats)**: The distances at which other developments could potentially give rise to cumulative effects on important faunal species will vary by species. Most faunal species are not likely to be affected by VE beyond 500 m from the Order Limits with many species only likely to be affected at much smaller distances. Other developments with the potential to have cumulative effects on important faunal species would therefore have to be located within 1 km of the relevant receptors.

4.14.9 Table 4.21 presents the scenarios whereby VE and the other projects listed in Table 4.20 could potentially result in cumulative effects for onshore biodiversity and nature conservation.

Table 4.21: Cumulative MDS

Potential effect	Scenario	Justification	Significance of Effect
Permanent and temporary habitat loss	Cumulative effects will potentially occur as a result of construction of all the other developments in Table 4.20.	All the other developments in Table 4.20 include areas used by important faunal species and/ or include important habitats, which could potentially be affected by habitat loss as a result of construction. The other developments are close enough to VE that the same species populations or habitat types could be affected. In addition, the population of water vole present at the northern parts of the Holland Brook could be affected by the 22/01047/FUL proposal as well as VE.	It is anticipated that other projects of significance would be constructed in accordance with a CoCP, LEMP and/or specific mitigation and compensation measures in respect of ecological receptors. Therefore, no significant cumulative habitat loss effects arising during the construction phase of proposed new developments are likely.
Impacts upon protected or notable species or upon their resting or breeding sites	Cumulative effects are possible during construction and decommissioning.	As above.	As above
Habitat fragmentation and species isolation	Cumulative effects are possible during construction.	As above.	As above
Impacts upon non-breeding birds, including permanent and temporary habitat loss and disturbance during construction	Cumulative effects are possible as a result of construction of the other developments in Table 4.20 that lie within 1 km of the Order Limits (see paragraph 4.14.8), i.e., NF OWF, the NG EACN substation, the new industrial park west of Horsley Cross roundabout and the	Additional permanent habitat loss in Route Section 7 due to NF OWF will be minimal as the NF OWF substation platform will already have been cleared and levelled as part of the project. Most temporary habitat loss associated with construction of the NF OWF substation is likely to be located within the landscaping and habitat creation area for the project,	Additional habitat loss due to NF OWF and the NG EACN substation is unlikely to have a significant effect. Disturbance effects due to VE, following the implementation of mitigation measures, are not likely to be significant and therefore disturbance due to construction of NF OWF and the NG

Potential effect	Scenario	Justification	Significance of Effect
	proposed solar farm south of Thorpe-le-Soken. Cumulative effects are likely during construction only. Cumulative effects are possible in respect of permanent and temporary habitat loss at the OnSS area with NF OWF and the NG EACN substation. Both developments lie within VE Route Section 7. Cumulative effects are possible in respect of disturbance with NF OWF and the NG EACN substation, if they are constructed separately to VE. Cumulative effects in relation to the new industrial park west of Horsley Cross roundabout are not likely. Cumulative effects are possible in relation to habitat loss and disturbance in relation to the proposed solar farm south of Thorpe-le-Soken.	which will effectively result in the loss of arable habitat of possible value to non-breeding waterbirds. Additional temporary habitat loss resulting from the construction of the NF OWF substation would therefore be minimal. Temporary habitat loss along the rest of the onshore ECC due to NF OWF has been included in the assessment for VE and therefore no additional cumulative effects are likely. The NG EACN substation will result in additional permanent and temporary habitat loss in Route Section 7. However, non-breeding bird interest within Route Section 7 is limited (see Volume 6, Part 6, Annex 4.6). The assessment of disturbance effects for VE assumes that disturbing works are possible anywhere within the Order Limits, which includes all land affected by NF OWF and the NGET EACN substation. If the projects are constructed together the assessment of disturbance effects would therefore remain unchanged. If constructed separately, assuming appropriate mitigation measures are employed during construction of NF OWF and the NG EACN substation, disturbance effects should be the same or lower than those assessed for VE, albeit the duration for which birds may be subject to disturbance would be longer.	EACN substation is also unlikely to be significant, assuming appropriate mitigation measures are used. Prolonging the duration of disturbance, assuming the continued employment of appropriate mitigation measures, is not likely to lead to significant cumulative effects given the wide availability of alternative habitat for any birds that are displaced and, in the case of the NG EACN substation, the limited non-breeding bird interest in that area. Cumulative effects due to habitat loss and disturbance with the proposed solar farm south of Thorpe-le-Soken are not likely to be significant given the limited wintering bird interest identified within the solar farm site.

Potential effect	Scenario	Justification	Significance of Effect
		No effects on wintering birds were predicted for the new industrial park west of Horsley Cross roundabout so there is no potential for cumulative effects. No significant effects on wintering birds are predicted for the proposed solar farm south of Thorpe-le-Soken and VE would only cause temporary habitat loss in that area. Potentially suitable alternative habitat remains abundant in that area. Significant cumulative effects are therefore unlikely.	
Impacts upon breeding birds, including permanent and temporary habitat loss and disturbance during construction	Cumulative effects are possible as a result of construction of the other developments in Table 4.20 that lie within 1 km of the Order Limits (see paragraph 4.14.8), i.e., NF OWF, the NGET EACN substation, the new industrial park west of Horsley Cross roundabout and the proposed solar farm south of Thorpe-le-Soken. Cumulative effects are likely during construction only. Cumulative effects are possible in respect of permanent and temporary habitat loss at the OnSS area with NF OWF and the NGET EACN substation. Both developments lie within VE Route Section 7. This could affect breeding skylark and corn bunting. Cumulative effects are possible in respect of disturbance with NF OWF and	Additional permanent habitat loss in Route Section 7 due to NF OWF will be minimal as the NF OWF substation platform will already have been cleared and levelled as part of the project and the landscaping and habitat creation area for the project has been designed to accommodate VE and NF OWF. Most temporary habitat loss associated with construction of the NF OWF substation is likely to be located within the landscaping and habitat creation area for the project and therefore additional temporary habitat loss resulting from the construction of the NF OWF substation would be minimal. Temporary habitat loss along the rest of the onshore ECC due to NF OWF has been included in the assessment for VE and therefore no additional cumulative effects are likely.	Additional habitat loss due to NF OWF would be minimal, as most habitat loss would take place during construction of VE and has therefore been included in the assessment of the project. A significant negative effect has been identified for the project (which includes the clearance of the substation platform for NF OWF) in relation to the permanent loss of habitat for breeding corn bunting and skylark at the OnSS site. No corn bunting territories were identified within the NG EACN site during breeding bird surveys in 2022 and therefore no additional cumulative effect is likely in relation to corn bunting. The construction of the NG EACN substation could result in the loss of up to four additional skylark territories (subject to detailed scheme design and the provision of mitigation or compensation). The skylark population in

Potential effect	Scenario	Justification	Significance of Effect
	the NGET EACN substation, if they are constructed separately to VE. Cumulative effects in relation to the new industrial park west of Horsley Cross roundabout are not likely. Cumulative effects in relation to the proposed solar farm south of Thorpe-le-Soken are not likely.	The NG EACN substation will result in additional permanent and temporary habitat loss in Route Section 7. Breeding bird interest within the NG EACN substation site is limited (see Volume 6, Part 6, Annex 4.2) with no corn bunting territories recorded and four skylark territories, although it is not known how many of these, if any, would be lost in the absence of further details regarding the NG EACN project. The assessment of disturbance effects for VE assumes that disturbing works are possible anywhere within the Order Limits, which includes all land affected by NF OWF and the NGET EACN substation. If the projects are constructed together the assessment of disturbance effects would therefore remain unchanged. If constructed separately, assuming appropriate mitigation measures are employed during construction of NF OWF and the NGET EACN substation, disturbance effects should be the same or lower than those assessed for VE, albeit the duration for which birds may be subject to disturbance would be longer. With the inclusion of habitat compensation for skylark, the new industrial park west of Horsley Cross roundabout would have a 'negligible' effect on breeding birds and therefore	Route Section 7 is locally important and construction of the NG EACN substation could therefore potentially result in a significant cumulative effect at a local level. Disturbance effects due to VE, following the implementation of mitigation measures, are not likely to be significant and therefore disturbance due to construction of NF OWF and the NG EACN substation is also unlikely to be significant, assuming appropriate mitigation measures are used. Prolonging the duration of disturbance, assuming the continued employment of appropriate mitigation measures, is not likely to lead to significant cumulative effects given the wide availability of alternative habitat for any birds that are displaced.

Potential effect	Scenario	Justification	Significance of Effect
		significant cumulative effects are not likely. Following the inclusion of compensation and enhancements for lapwing, skylark and other farmland birds no significant effects on breeding birds are predicted for the proposed solar farm south of Thorpe-le-Soken and there is therefore no potential for significant cumulative effects with VE.	
Spread of INNS	Cumulative effects are possible in respect of NF OWF, the NG EACN and Horsley Cross development during construction. Cumulative effects are not likely in respect of decommissioning or for the remainder of developments listed.	INNS have been recorded within the VE Order Limits and more widely in the study area. Separate or simultaneous activities during construction of NF OWF, the NG EACN Substation and Horsley Cross development, which lie adjacent to VE, could result in cumulative adverse effects. The other developments are considered sufficiently distant and separated hydrologically from VE that effects from it are unlikely to result in cumulative adverse effects.	It is anticipated that other projects of significance would be constructed in accordance with a CoCP including requirements to prevent spreading of INNS. Therefore, no significant effects arising from spread of INNS during the construction phase of proposed new developments are likely.
Accidental pollution	Cumulative effects are possible in respect of NF OWF, the NG EACN Substation and Horsley Cross development during construction. Cumulative effects are not likely in respect of decommissioning or for the remainder of developments listed.	The NF OWF, East Anglia Connection Node Substation and Horsley Cross developments are located adjacent to VE and simultaneous pollution events therefore could potentially affect the same habitats and species populations. The remaining developments are considered sufficiently distant and separated hydrologically from VE that	It is anticipated that other projects of significance would be constructed in accordance with a CoCP. Given the requirements to control potential detrimental effects on flood risk or water quality, appropriate mitigation would be in place for these schemes to secure approval. Therefore, no significant cumulative hydrology, hydrogeology and

Potential effect	Scenario	Justification	Significance of Effect
		any pollution events are unlikely to affect the same habitats and species populations.	flood risk effects arising during the construction phase of proposed new developments are likely.

4.15 CLIMATE CHANGE

4.15.1 The effects of climate change are expected to include warmer, drier summers, rising sea levels, storm events and temperature rise. This section assessed the following aspects:

- The effect of climate change on the local area in which the proposed development will take place; and
- The likely impacts of climate change and the project in-combination on the receiving environment.

4.15.2 The information provided in this section will be drawn upon and summarised in Volume 6, Part 4, Chapter 1: Climate Change. As outlined in Volume 6, Part 4, Chapter 1: Climate Change, the operational phase of VE would enable the use of renewable electricity which would result in a positive impact of reduced greenhouse gas emissions from electricity generation, resulting in a significant beneficial effect.

EFFECT OF CLIMATE CHANGE ON THE LOCAL ENVIRONMENT

4.15.3 Climate change is predicted to result in warmer and wetter winters, hotter and drier summers plus increased occurrence of extreme weather events. This will lead to complex changes to biodiversity; though significant changes to the list of important ecological receptors identified locally is not anticipated within the next 5 years. In the 5-10 years (or more) changes are possible but are impossible to accurately predict at this stage.

4.15.4 Of most relevance at the project location is that coastal plants and wildlife that cannot respond to sea level rise or coastal erosion by moving inland (for example, due to the presence of urban land, or flood defences) may be lost. There could also be possible loss of species on the southern edge of their range and gain of more southern species expanding their range northwards. Other changes could include adverse effects on waterbodies due to drought or damage to woodland habitats or mature trees due to increased storm events. In addition, the number and range of invasive non-native species (INNS) may increase.

EFFECT OF CLIMATE CHANGE AND THE PROJECT ON THE LOCAL ENVIRONMENT

4.15.5 Given the difficulties of predicting biodiversity change as a result of climate change, the additive effect (if any) of the project in the local area is equally hard to determine. The vast majority of negative impacts will take place during construction and therefore the climate effects occurring over 5-10 years (or more) highlighted above are unlikely to have resulted in measurable biodiversity change locally. The project is not assessed as being a barrier to species dispersal inland (as almost all infrastructure will be buried underground), or as having a significant impact on the hydrological regime of wetland and/or aquatic habitats (as outlined in Volume 6, Part 3, Chapter 6: Hydrology, Hydrogeology and Flood Risk). Mitigation to prevent the risk of introducing or spreading INNS has been committed to as part of Volume 9, 9.21 Code of Construction Practice.

4.15.6 The effects of climate change will therefore not alter the conclusions of the Onshore Biodiversity chapter.

4.16 INTER-RELATIONSHIPS

4.16.1 Table 4.22 sets out the inter-relationships between this chapter and others within the ES.

Table 4.22: Inter-relationships between the EcIA and other chapters within the ES

Topic/ Chapter	Details
LVIA (Volume 6, Part 3, Chapter 2)	Both chapters consider the potential effects of hedgerow and tree removals, the LVIA considering the impact on hedgerows and trees as landscape elements, and the Onshore Biodiversity and Nature Conservation assessment considering the impact on hedgerows and trees as important ecological features. Both chapters consider mitigation and compensation for hedgerow and tree loss in respect of planting proposed within the OLEMP at Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan. The planting proposed within the OLEMP, which includes essential screening to reduce landscape and visual effects, would result in the loss of arable habitat for breeding farmland birds, which is considered in this chapter.
Air Quality (Volume 6, Part 3, Chapter 10)	The air quality chapter considers AQ impact during construction to sensitive ecological receptors as a result of dust and increased road traffic concluding that residual effects are not significant in terms of the EIA Regulations.
Hydrology, Hydrogeology and Flood Risk (Volume 6, Part 3, Chapter 6)	The Hydrology and Flood Risk chapter provides a description of the hydrological setting of water courses within the survey area and assesses impacts upon them. It concludes that there are no significant residual effects on water quality and flood as a result of VE. The assessment of effects on aquatic receptors in this chapter draws on the proposed mitigation measures and the assessment of effects on water quality presented in the Hydrology and Flood Risk chapter.

4.17 TRANSBOUNDARY EFFECTS

4.17.1 There are no national or international transboundary effects with regard to onshore biodiversity and nature conservation (i.e. no significant effects on populations of migratory species are anticipated).

4.18 SUMMARY OF EFFECTS

4.18.1 This assessment has considered the potential biodiversity and nature conservation effects arising from onshore activities associated with the proposed VE OWF. Consideration has been given to potential worst-case effects arising from onshore construction, operational and decommissioning activities. Worst-case parameters have been adopted to provide as robust an assessment as possible.

4.18.2 The approach undertaken was based upon the PINS Scoping Opinion (PINS, 2021), Section 42 responses and subsequent discussions with the Onshore Ecology ETG.

4.18.3 A summary of effects on important ecological features is presented in Table 4.23, for the construction stage, and Table 4.24 for the operational and decommissioning stages and cumulative effects. Note that important ecological features identified in Section 0 which are unlikely to be affected by the onshore elements of VE are omitted.

4.18.4 Details for the mitigation measures which are summarised below can be found in the Volume 9, 9.21 Code of Construction Practice and Volume 9, 9.22 Outline Landscape and Ecological Management Plan.

Table 4.23: Summary of effects: construction stage

Receptor	Effect	Proposed Mitigation/ Compensation Measures	Residual Effect
Hamford Water SAC, SPA, Ramsar, SSSI and NNR	Qualifying bird species – effective permanent loss of approximately 57.6 ha of arable habitat at the OnSS, including areas subject to proposed landscaping/ habitat creation, outside the designated site and subject to low levels of use by qualifying species. Qualifying bird species – temporary loss of arable and inter-tidal habitat outside the designated site. Qualifying bird species – noise and visual disturbance. Fisher's estuarine moth – habitat loss. Fisher's estuarine moth – lighting disturbance.	A range of mitigation measures to reduce disturbance to non-breeding birds are proposed including: employment of an ECOW; screening/ fencing of the landfall compound during the winter period and, where practical, other areas where disturbance to significant numbers of non-breeding waterbirds is likely; restrictions on impact piling during the winter period; and, if necessary, suspension of works at the landfall during periods of prolonged cold weather. Mitigation measures for Fisher's estuarine moth include: pre-construction checks for its foodplant (hog's fennel) during the season prior to work commencing; and if a plant(s) is located and cannot be retained in situ, translocation and/ or propagation. Further details are provided in Table 4.15, in Volume 9, 9.21: Code of Construction Practice and Volume 9, Report 9.22: Outline Landscape and Ecological Management Plan.	Not significant.
Stour and Orwell Estuaries SPA and Ramsar	Qualifying bird species – effective permanent loss of approximately 57.6 ha of arable habitat at the OnSS, including areas subject to proposed landscaping/ habitat creation, outside the designated site and subject to low levels of use by qualifying species. Qualifying bird species – temporary loss of arable and inter-tidal habitat outside the designated site.	A range of mitigation measures to reduce disturbance to non-breeding birds are proposed including: employment of an ECOW; screening/ fencing of the landfall compound during the winter period and, where practical, other areas where disturbance to significant numbers of non-breeding waterbirds is likely; restrictions on piling during the winter period; and, if necessary, suspension of works at the landfall during periods of prolonged cold weather.	Not significant.

Receptor	Effect	Proposed Mitigation/ Compensation Measures	Residual Effect
	Qualifying bird species – noise and visual disturbance.	Further details are provided in Table 4.15, in Volume 9, 9.21: Code of Construction Practice and Volume 9, Report 9.22: Outline Landscape and Ecological Management Plan.	
Colne Estuary (Mid-Essex Coast Phase 2) SPA and Ramsar	Qualifying bird species – effective permanent loss of approximately 57.6 ha of arable habitat at the OnSS, including areas subject to proposed landscaping/ habitat creation, outside the designated site and subject to low levels of use by qualifying species. Qualifying bird species – temporary loss of arable and inter-tidal habitat outside the designated site. Qualifying bird species – noise and visual disturbance.	A range of mitigation measures to reduce disturbance to non-breeding birds are proposed including: employment of an ECOW; screening/ fencing of the landfall compound during the winter period and, where practical, other areas where disturbance to significant numbers of non-breeding waterbirds is likely; restrictions on piling during the winter period; and, if necessary, suspension of works at the landfall during periods of prolonged cold weather. Further details are provided in Table 4.15, in Volume 9, 9.21: Code of Construction Practice and Volume 9, Report 9.22: Outline Landscape and Ecological Management Plan.	Not significant.
Abberton Reservoir SPA Ramsar SSSI	Qualifying bird species – permanent habitat loss. No significant effects likely as no records of qualifying species at the OnSS. Qualifying bird species – temporary loss of arable habitat outside the designated site. Qualifying bird species – noise and visual disturbance.	A range of mitigation measures to reduce disturbance to non-breeding birds are proposed including: employment of an ECOW; screening/ fencing of the landfall compound during the winter period and, where practical, other areas where disturbance to significant numbers of non-breeding waterbirds is likely; restrictions on piling during the winter period; and, if necessary, suspension of works at the landfall during periods of prolonged cold weather. Further details are provided in Table 4.15, in Volume 9, 9.21: Code of Construction Practice and Volume 9, Report 9.22: Outline Landscape and Ecological Management Plan.	Not significant.

Receptor	Effect	Proposed Mitigation/ Compensation Measures	Residual Effect
Blackwater Estuary (Mid-Essex Coast Phase 4) SPA Ramsar	Qualifying bird species – effective permanent loss of approximately 57.6 ha of arable habitat at the OnSS, including areas subject to proposed landscaping/ habitat creation, outside the designated site and subject to low levels of use by qualifying species. Qualifying bird species – temporary loss of arable and inter-tidal habitat outside the designated site. Qualifying bird species – noise and visual disturbance.	A range of mitigation measures to reduce disturbance to non-breeding birds are proposed including: employment of an ECOW; screening/ fencing of the landfall compound during the winter period and, where practical, other areas where disturbance to significant numbers of non-breeding waterbirds is likely; restrictions on piling during the winter period; and, if necessary, suspension of works at the landfall during periods of prolonged cold weather. Further details are provided in Table 4.15, in Volume 9, 9.21: Code of Construction Practice and Volume 9, Report 9.22: Outline Landscape and Ecological Management Plan.	Not significant.
Holland Haven Marshes SSSI LNR	Qualifying bird species – permanent loss of 0.02 ha of arable habitat outside the designated site. Qualifying bird species – temporary loss of arable and inter-tidal habitat outside the designated site. Qualifying bird species – noise and visual disturbance. Habitat and other species – effects on water quality/ quantity. Habitats and other species – Lighting disturbance. Habitats and other species – air quality changes.	Direct impacts will be avoided by use of HDD. A range of mitigation measures to reduce disturbance to non-breeding birds are proposed including: employment of an ECOW; screening/ fencing of the landfall compound during the winter period and, where practical, other areas where disturbance to significant numbers of non-breeding waterbirds is likely; restrictions on piling during the winter period; and, if necessary, suspension of works at the landfall during periods of prolonged cold weather. Further details are provided in Table 4.15, in Volume 9, 9.21: Code of Construction Practice and Volume 9, Report 9.22: Outline Landscape and Ecological Management Plan.	Not significant.

Receptor	Effect	Proposed Mitigation/ Compensation Measures	Residual Effect
LoWs within 200m of the Order Limits, including > Thorpe Green; > Simon's Wood > Little Bromley Churchyard; > Manning Grove; > Upper Holland Brook; and > Hollandhall Wood.	Changes to air quality or hydrology.	The CoCP (Volume 9, 9.21) sets out pollution control principles which would be implemented by the project during construction.	Not significant
Hedgerows (h2a, S41 habitat and including one Important Hedgerow under the Hedgerow Regulations 1997)	1.61 km temporary habitat loss (onshore ECC).	Replanting/ reinstatement with a species-rich, locally appropriate native mixture including heavy standard trees at a 3:1 ratio for any lost. Indicative details illustrating how compensation and enhancement habitat could be incorporated in the vicinity of the OnSS are shown in the OLEMP at Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan. Since all hedgerows along the route will be reinstated, additional planting at the OnSS is considered enhancement, and is anticipated to include 4.53 km of species rich hedgerow based on the illustrative layout provided in the OLEMP.	Likely to be significant at a local level for less than 5 years. Not significant within 5-10 years once proposed mitigation has matured.
Arable margins (c1a6 and c1a8, S41 habitat)	0.77 ha temporary habitat loss (onshore ECC).	Creation and maintenance of equivalent areas within the Order Limits during construction, via changes to existing cropping regime/ management and/ or sowing of appropriate seed mixture.	Not significant.

Receptor	Effect	Proposed Mitigation/ Compensation Measures	Residual Effect
		Indicative details illustrating how this could be achieved are provided in the OLEMP at Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan.	
Woodland (excluding ASNW and PAWS) and mature trees (UKHab primary codes starting "w", including small areas of S41 habitat)	0.12 ha temporary habitat loss plus c. 44 trees (onshore ECC).	Replanting/ reinstatement with a locally appropriate native mixture. Compensation via replanting of at least an equivalent amount, at locations aimed to link in and widen existing woodland, hedgerow and scrub network. Approximately 8 ha of woodland planting is proposed; indicative details illustrating how compensation and enhancement habitat could be incorporated in the vicinity of the OnSS are shown in the OLEMP at Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan.	Potentially significant at a local level for 5-10 years. Not significant after 10 years once proposed mitigation/ compensation has matured and become established.
Coastal and floodplain grazing marsh (S41 habitat) comprising modified grassland (g4), inland from Holland Haven Marshes SSSI	1.14 ha temporary habitat loss (onshore ECC) and 0.12 ha permanent loss (landfall TJB)	Reinstatement would occur following construction. A range of measures relating to vegetation clearance and other construction works are proposed in Section 4.10, with further details provided in the CoCP (Volume 9, 9.21 Code of Construction Practice) and OLEMP at Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan.	Not significant.
Notable plant species (S41 and/ or red data book plant species associated with coastal habitats, arable margins and other S41 habitats).	Temporary loss of arable margin, hedgerow, woodland, coastal and floodplain grazing marsh habitats potentially supporting important plant species.	Salvage of populations and reinstatement following construction. Exact method dependent on the species and habitat concerned, but may include seed saving and propagation or translocation of individual plants.	Potentially significant at a local level for less than 5 years. Not significant within 5-10 years once habitats and species are reinstated and

Receptor	Effect	Proposed Mitigation/ Compensation Measures	Residual Effect
		Further details are included within the OLEMP at Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan.	mitigation/ compensation has established.
Invasive non-native plant species	Possible spread of INNS via disturbance to existing INNS populations within the construction footprint, inadvertently importing INNS from elsewhere, primarily on vehicles, but also other equipment or personnel and via seeds, planting stock or planting substrate.	Implementation of INNS control measures as detailed in the CoCP (Volume 9, 9.21: Code of Construction Practice).	Not significant.
Invertebrates (using coastal habitat but also the Holland Brook and other S41 habitats).	Temporary loss of hedgerow, woodland, coastal and floodplain grazing marsh habitats potentially supporting important invertebrate species. Disturbance due to lighting or changes to hydrology during construction.	Reinstatement of habitat after construction, and creation of compensatory habitat for permanent habitat loss at the OnSS. Mitigation measures to prevent hydrological impacts are included in Volume 6, Part 3, Chapter 6: Hydrology, Hydrogeology and Flood Risk. Lighting for construction will be the minimised to the lowest safe level, and designed such that there will be no significant increase in illumination levels above current levels outside of the working area. The CoCP (Volume 9, 9.21: Code of Construction Practice) sets out pollution control principles which would be implemented by the project during construction. Further details of mitigation, compensation and enhancement measures are included in the OLEMP at Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan	Potentially significant at a local level for less than 5 years. Not significant within 5-10 years once habitats are reinstated and mitigation/ compensation has established.
GCN and common toad	There are no GCN populations within 250m of the substation search areas therefore no	GCN EPSL will be required from NE; the DLL route is proposed. The final approach to GCN EPSL would be revisited post-consent, and would	Not significant.

Receptor	Effect	Proposed Mitigation/ Compensation Measures	Residual Effect
	anticipated impacts as a result of permanent habitat loss. Temporary loss of terrestrial habitats within 250 m of fourteen GCN breeding ponds also potentially used by common toad and other amphibians. Temporary habitat fragmentation/isolation, resulting in functional loss of terrestrial habitat and breeding ponds. Accidental killing and injury. Accidental pollution to breeding ponds from diffuse or point sources associated with construction.	be informed by pre-commencement survey data and final scheme design. Pre-commencement surveys and checks. At specific locations where impacts may occur, scheduling of certain work to avoid sensitive periods of the GCN and common toad life cycle. Removal of GCN and common toads from areas where there is risk of injury or death in advance, plus other precautionary measures. The CoCP (Volume 9, 9.21: Code of Construction Practice) sets out pollution control principles which would be implemented by the project during construction.	
Reptiles	All of the areas with confirmed populations of reptiles within the Order Limits will be subject to HDD. However, direct impacts remain possible where haul routes are required to cross the HDD area. Suitable habitats that may be used by reptiles will be subject to temporary loss at the OnSS, with temporary habitat fragmentation/ isolation elsewhere. Accidental killing and injury. The project is not predicted to significantly adversely affect the local population due to the relatively poor quality and small extent of the suitable habitat affected and the low population anticipated to be present. However, in view of the species' legal protection mitigation measures are proposed.	Mitigation for GCN will also reduce risks to reptiles. Pre-commencement surveys and checks. Reasonable avoidance measures would be used, where necessary, to reduce the risk of committing an offence under the protecting legislation.	Not significant.

Receptor	Effect	Proposed Mitigation/ Compensation Measures	Residual Effect
Breeding Birds (excluding qualifying or notified features for designated sites)	Effective permanent loss of approximately 57.6 ha of arable habitat at the OnSS, including areas subject to proposed landscaping/ habitat creation, supporting up to six pairs of corn bunting and 21 pairs of skylark. Temporary loss of arable, grassland, hedgerow, woodland and intertidal habitats. Noise and visual disturbance. Inadvertent destruction or damage to active nests.	A range of mitigation measures relating to breeding birds are proposed including: employment of an ECOW; measures to avoid damage to active nests; surveys for important species prior to and during construction; and disturbance-free buffer zones around active nests of important species. Further details are provided in Table 4.15, in Volume 9, 9.21: Code of Construction Practice and Volume 9, Report 9.22: Outline Landscape and Ecological Management Plan. Additional mitigation/ compensation for skylark and corn bunting is not possible within the Order Limits. Indicative details of proposed habitat creation at the OnSS, which should benefit a range of other breeding bird species are shown in the OLEMP at Volume 9, Report 9.22: Outline Landscape and Ecological Management Plan.	Significant at a county level (corn bunting) Significant at a local level (skylark) Not significant (other breeding bird species)
Non-Breeding Birds (excluding qualifying or notified features for designated sites)	Permanent loss of approximately 57.6 ha of agricultural habitat at the OnSS, including areas subject to proposed landscaping/ habitat creation, but subject to relatively low levels of use by important non-breeding bird species. Temporary loss of arable, grassland, hedgerow, woodland and intertidal habitats used by European white-fronted goose, golden plover, marsh harrier, peregrine and corn bunting. Noise and visual disturbance.	A range of mitigation measures to reduce disturbance to non-breeding birds are proposed including: employment of an ECOW; screening/ fencing of the landfall compound during the winter period and, where practical, other areas where disturbance to significant numbers of non-breeding waterbirds is likely; restrictions on piling during the winter period; and, if necessary, suspension of works at the landfall during periods of prolonged cold weather. Further details are provided in Table 4.15, in Volume 9, 9.21: Code of Construction Practice and Volume 9, Report 9.22: Outline Landscape and Ecological Management Plan.	Not significant.

Receptor	Effect	Proposed Mitigation/ Compensation Measures	Residual Effect
Bats – all species	There is one confirmed roost within the Order Limits, though several more occur on the boundary. No direct impacts to bat roosts are currently anticipated. Loss of trees that have moderate or high potential roost features along the onshore ECC and at the OnSS. Temporary fragmentation of 1.61 km of hedgerow flight lines that are within the Core Sustenance Zones of the following roosts confirmed through desk study or field survey: > Barbastelle day roost (s) > Brown long eared bat maternity roost > Common pipistrelle – 1 maternity and 3 day roosts > Soprano pipistrelle – 2 day roosts > Natterer's bat – 2 day roosts > Noctule – 1 day roost or mating roost And which may also be in the core sustenance zone for Nathusius' pipistrelle (no roosts confirmed, but activity data suggests one in close proximity.) Due to the large field sizes, in most cases there are no nearby alternative routes for bats to follow.	HDD beneath all woodlands (rather than trenching through the woodland), and retention of all trees and hedgerows wherever practicable. Reduction in corridor width at hedgerow crossings. The over-riding principle is for no net loss of potential roost resource as a result of the scheme. Pre-commencement surveys and checks. The construction phase may result in the loss of a number of mature trees, including some which have moderate or high potential to support bats. None have been found to support roosting bats to date, but since tree roosting bats utilise a range of locations over any given season, an EPSL may later prove necessary pending the findings of pre-commencement surveys. In the event an EPSL is needed, it would be sought to cover work at all trees with potential roost features (PRF) (i.e., the total roost resource) that may be affected by the project. All work undertaken under the EPSL and which could result in disturbance of bats would be overseen by the Named Ecologist, or his/ her Accredited Agent (such as a suitably skilled and experienced Ecological Clerk of Works (ECOW) (see below). If required, the EPSL application would be submitted to NE once final design details are available and pre-commencement surveys for bats have been completed. Key principles that would be followed to mitigate and compensate for impacts are described in the OLEMP at Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan.	Not significant

Receptor	Effect	Proposed Mitigation/ Compensation Measures	Residual Effect
		Permanent hedgerow/ tree loss to be compensated as described in Table 4.17. Construction lighting at HDD locations would be at the lowest, safest permissible level and with light spill minimised. Compensation installed for every moderate or high potential or confirmed roost feature prior to loss; to include bat boxes on retained trees or installed poles, re-use of whole felled trunks by setting vertically as monoliths and/ or veteranisation (cutting and carving into healthy trees to mimic nature, to speed the process of decay and rot holes) as appropriate. Temporary hedgerow gaps to be filled with “dead hedge” until such time as reinstated vegetation has established and is at least 1 m tall. Further details are provided in the OLEMP at Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan.	
Badger	Temporary loss and fragmentation of foraging habitat along the onshore ECC, permanent loss of foraging habitat at the OnSS. Accidental killing and injury. The project is not predicted to significantly adversely affect the local population due to no loss of setts being predicted and the abundance of adjacent unaffected agricultural land. However, in view of the species legal protection, mitigation measures are proposed	Pre-commencement surveys and checks. Reasonable avoidance measures would be used to reduce the risk of committing an offence under the protecting legislation. These may include micro-siting certain elements and/ or installing protective fencing to minimize disturbance to retained setts, ensuring excavations remain closed overnight or contain ramps such that badgers cannot become trapped and ensuring stockpiled soil is fenced or regularly disturbed so as to deter badger sett creation within it.	Not significant

Receptor	Effect	Proposed Mitigation/ Compensation Measures	Residual Effect
		Further details are provided in the OLEMP at Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan	
Otter	No evidence of otter has been found during field survey or via desk study. However, in view of the species highly mobile nature, existing records in the wider area and its legal protection mitigation measures are proposed. Temporary loss and fragmentation of foraging habitat/ routes. Accidental killing and injury.	Reasonable avoidance measures would be used to reduce the risk of committing an offence under the protecting legislation. These would be broadly similar to those described for badger (above).	Not significant.
Water Vole	Based on desk study and field survey data, it is considered possible for the project to directly impact water vole burrows(s) if present in future at the Tendring Brook and/or the Holland Brook. Temporary loss and fragmentation of foraging habitat/routes. Accidental killing and injury.	In the event a licence is required, the licence application would be submitted to NE in advance of work affecting water vole habitat. The conditions of the licence would be specified to ensure that construction and temporary presence of the haul road does not result in significant adverse impacts to the local population. These would include: > Micro-siting to avoid water vole burrows (if present); > Scheduling of work to avoid sensitive periods of the water vole life cycle. > Removing vegetation back to bare earth in spring and autumn; > Carrying out a destructive search of water vole burrows, after an appropriate monitoring period, after removing vegetation; > Creation of temporary compensation/ mitigation habitats for use by water vole	Not significant.

Receptor	Effect	Proposed Mitigation/ Compensation Measures	Residual Effect
		in immediately adjacent areas (such as provision of nest boxes or feeding stations, sympathetic management of bankside habitats) for the construction plus vegetation re-establishment period. > Reinstatement of bankside habitats immediately after work, to include sowing with species -rich locally appropriate sward and fencing, if applicable, to prevent stock access. Further details are provided in the OLEMP in Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan.	
Dormouse	Potential for the project to directly impact dormouse nests at two locations where haul routes are required. Temporary loss of foraging and sheltering habitat. Temporary fragmentation of foraging areas/ routes. Accidental killing and injury.	The requirement for an EPSL will be re-assessed based upon pre-commencement/pre-construction survey results and final scheme design. In the event an EPSL is required, the EPSL application would be submitted to NE in advance of work. The conditions of the EPSL would be specified to ensure that construction and temporary presence of the haul road does not result in significant adverse impacts to the local population. This would include: > creation of temporary compensation/ mitigation habitats for use by dormice in immediately adjacent areas. This would include installation of dormouse boxes and cessation of field-side hedgerow management for the construction plus hedgerow re-establishment period (roadside hedgerow management practice to remain as currently, for road safety purposes).	Not significant.

Receptor	Effect	Proposed Mitigation/ Compensation Measures	Residual Effect
		> Scheduling of certain work to avoid sensitive periods of the dormouse life cycle; standard practice would be followed i.e., a two stage removal. Top growth of the hedgerow would be removed in the winter months (November – February) when dormouse are hibernating, avoiding ground disturbance. Clearance of stumps, roots and other vegetation would be undertaken from May – September thereafter. Further details are provided in the OLEMP in Volume 9, Annex 9.22: Outline Landscape and Ecological Management Plan	
Other S41 Mammal Species: hedgehog, harvest mouse and brown hare	Temporary loss of foraging and sheltering habitat, permanent loss if present at the OnSS. Temporary fragmentation of foraging areas/ routes. Accidental killing and injury.	Pre-commencement checks. Reasonable avoidance measures would be used to minimise impacts.	Not significant.

Table 4.24 Summary of effects: operation, decommissioning and cumulative

Important ecological feature		Potential impacts	Preliminary mitigation/ compensation	Significance of residual effect
Operation				
All important ecological features	Disturbance or damage to features due to planned maintenance at the OnSS and along the ECC. Disturbance or damage to features due to operational noise and lighting at the OnSS. Disturbance or damage to features due to unplanned maintenance on the ECC.		The OLEMP at Volume 9, Report 9.22: Outline Landscape and Ecological Management Plan includes specific measures to avoid potential impacts to protected/ notable species or sensitive habitats. Unplanned maintenance would be subject to any necessary consents and consultation with the relevant nature conservation bodies prior to work taking place.	Not significant.
Decommissioning				
All important ecological features	Similar to construction, but in most cases impact magnitude will be much lower than during construction. The decommissioning methodology would be finalised nearer to the end of the lifetime of VE, to be in line with current guidance, policy and legislation, as well as updated ecological survey information. Any such methodology would be agreed with the relevant authorities and statutory consultees		Similar to construction, where necessary.	Not significant.
Cumulative				
Breeding skylark at the OnSS	Permanent habitat loss at the OnSS could result in the loss of up to 21 skylark territories. Permanent habitat loss at the adjacent NG EACN substation site could affect a further four skylark territories (subject to detailed scheme design and the provision of mitigation or compensation).		Mitigation/ compensation for skylark and corn bunting is not possible within the Order Limits. Mitigation/ compensation proposals for the NG EACN	Significant at a local level

Important ecological feature		Potential impacts	Preliminary mitigation/ compensation	Significance of residual effect
			substation are unknown at this time.	
All other important ecological features	Permanent and temporary habitat loss, Impacts upon protected or notable species or upon their resting or breeding sites. Habitat fragmentation and species isolation. Spread of INNS. Accidental pollution.		n/a	Not significant.

4.19 REFERENCES

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