AENC-ARC-ENV-REP-0155

Norwich to Tilbury

Volume 6: Environmental Statement

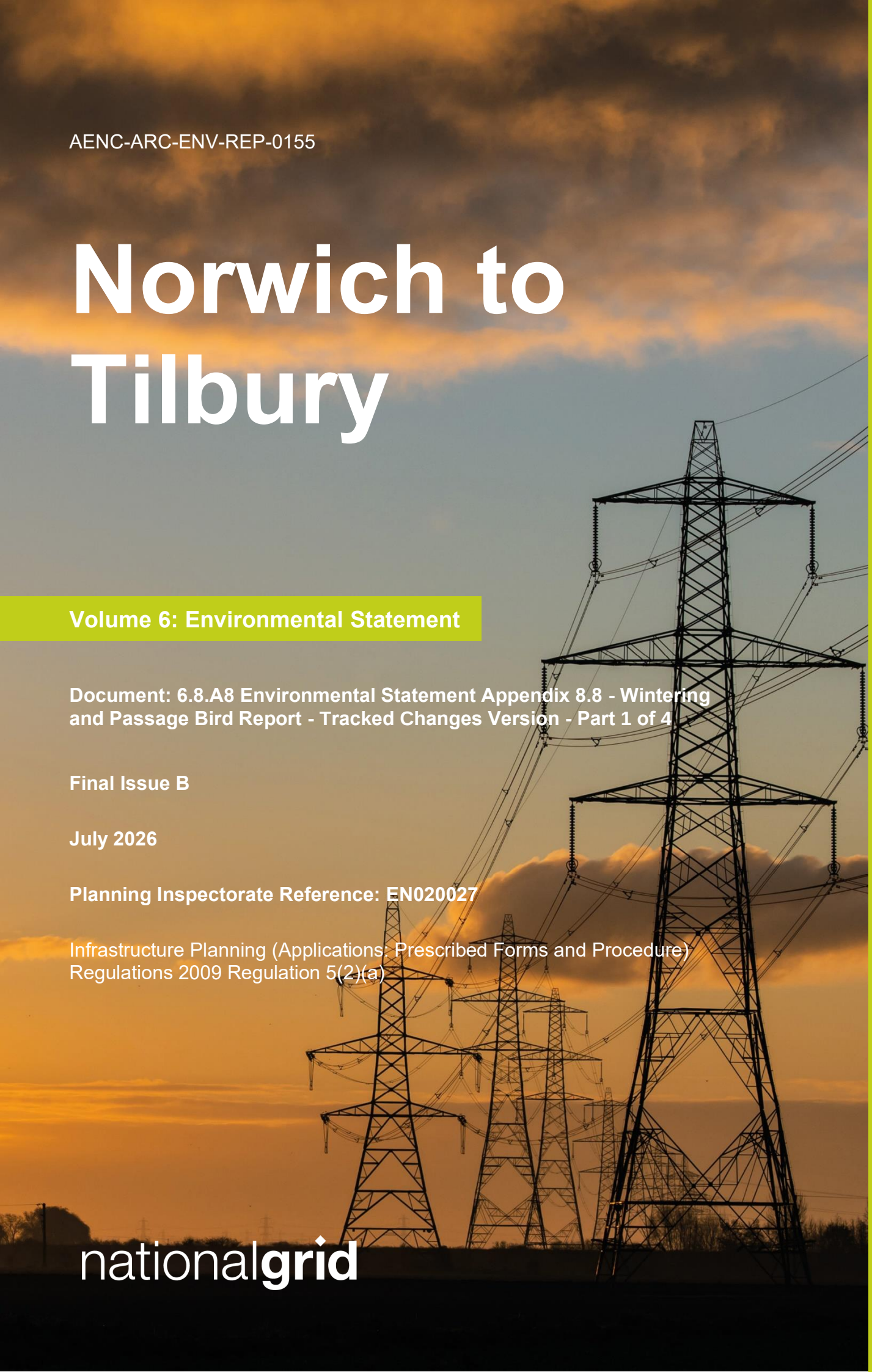
Document: 6.8.A8 Environmental Statement Appendix 8.8 - Wintering and Passage Bird Report - Tracked Changes Version - Part 1 of 4

Final Issue B

July 2026

Planning Inspectorate Reference: EN020027

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5(2)(a)



nationalgrid

Revision History

Version	Date	Submitted at
A	29 August 2025	DCO Application
B	21 July 2026	Deadline 7 to include latest cross references

Contents

1. Introduction

1.1 Background

1.1.1 This report has been produced as an appendix to Chapter 8: Ecology and Biodiversity (document reference 6.8) (Revision C) of the Environment Statement (ES) (Volume 6 of the Development Consent Order (DCO) application) for Norwich to Tilbury (the 'Project').

1.1.2 The ecological background and the scope for this report is set out in the Environmental Impact Assessment (EIA) Scoping Report (document reference 6.19) and agreed within the EIA Scoping Opinion received from the Planning Inspectorate in December 2022 (document reference 6.20).

1.1.3 It was anticipated the main habitats impacted within the Order Limits would be farmland which is likely to support a range of wintering farmland birds, particularly passerines. The general approach to these species is to:

- Avoid permanent effects to habitats of perceived value where practicable
- Reinstate habitats affected in areas of temporary habitat loss to equal or better condition than existing
- Improve the quality and availability of ecological networks across the Project.

1.1.4 Given the above, extensive surveys covering all farmland areas were not considered necessary; this was agreed with Natural England during consultation in August 2022 and so is not discussed further.

1.1.5 The main impact associated with overhead lines is generally considered to be collision risk, particularly to larger species which are not as manoeuvrable in flight, such as wildfowl. Consideration therefore needs to be given to areas that are likely to be used by wildfowl (and other passage and wintering wetland species) for migration and commuting between roosting and foraging grounds such as river corridors. This is particularly important where internationally and nationally important numbers of birds are present at Special Protection Areas (SPAs) (designation now under the National Site Network (NSN)) and Ramsar sites[1].

1.1.6 Underground cabling works have the potential to cause habitat loss, degradation, disturbance and fragmentation to wintering species. This is notable where there is the potential for Functionally Linked Land[2] (FLL) to be present. Such areas play an important role in supporting the internationally and nationally important numbers of SPA/ Ramsar species.

[1] The NSN replaces the European Natura 2000 sites network of sites of international importance, while Ramsar sites are internationally important wetlands designated under the Ramsar Convention and receive the same protection under UK policy as NSN sites.

[2] A term used to describe areas of land or sea occurring outside a designated site which is critical to, or necessary for the ecological or behavioural functions in a relevant season of a qualifying feature for which a Special Area of Conservation (SAC) / Special Protection Area / Ramsar site has been designated (Bowland Ecology, 2021).

1.1.7 Therefore, within the EIA Scoping Report (document reference 6.19), the key impact pathways perceived were the following:

- The potential for disturbance of birds associated with SPAs and Ramsar sites using FLL during the construction phase
- The potential for bird collision with new overhead lines and risk of mortality through electrocution (operational phase).

1.1.8 This report provides baseline information in support of both the ES (Volume 6 of the DCO application) and the Habitats Regulations Assessment (HRA) (document reference 5.3).

1.1.9 The Project has also been sub-divided into eight geographical sections for reader accessibility, based largely on Local Planning Authority boundaries. These are shown on Figure A8.8.1: Wintering/Passage Bird Survey Locations in Annex A and comprise:

- Section A – South Norfolk Council
- Section B – Mid-Suffolk District Council
- Section C – Babergh District Council, Colchester City Council and Tendring District Council
- Section D – Colchester City Council
- Section E – Braintree District Council
- Section F – Chelmsford City Council and Brentwood Borough Council
- Section G – Basildon Borough Council and Brentwood Borough Council (and part of Chelmsford City Council)
- Section H – Thurrock Council.

Environmental Impact Assessment

1.1.10 To monitor collision risk, it was agreed with Natural England (September 2022) that surveys would be located within the Order Limits, along pre-identified green corridors that contained either a network of waterways, a main river, or large waterbodies. Vantage Point (VP) surveys would be undertaken to target birds known to be of high risk of collision. Fourteen locations were identified, mapped, and agreed as survey locations for the EIA. All survey locations are shown on Figure A8.8.1: Wintering/Passage Bird Survey Locations in Annex A.

1.1.11 The surveys were focussed on these areas as it was considered waterbirds would likely commute along such corridors as well as take-off and land on watercourses or waterbodies and so be at risk of collision.

Habitats Regulations Assessment

1.1.12 To establish a baseline to inform the HRA, it was agreed with Natural England that surveys would focus on identifying potential FLL associated with two SPAs and two Ramsar sites:

- The Stour and Orwell Estuaries (SPA and Ramsar site)

- Thames Estuary and Marshes (SPA and Ramsar site).

1.1.13 Through consultation with Natural England the following criteria were agreed upon to determine an appropriate Survey Area for baseline data collection. Areas within the Order Limits that met at least one of the below criteria were subjected to wintering/passage bird survey work:

- Suitable habitat to support wintering/passage plovers within any of the Impact Risk Zones (IRZs) (up to 5 km) associated with the Sites of Special Scientific Interest (SSSIs) that underpin the Stour and Orwell Estuaries SPA/Ramsar site. Suitable habitat would typically include large open arable fields supporting winter cereals, base till, and certain grasslands. Small, enclosed fields or urban areas are not suitable and therefore excluded
- Suitable habitat within 500 m of the River Stour
- Suitable habitat within all IRZs for the SSSIs that underpin the Thames Estuary and Marshes SPA/Ramsar site.

1.1.14 In line with the above, five locations were identified, mapped, and agreed as survey locations for the 2022/2023 survey season. It was agreed that surveys would comprise a mix of transect and vantage points.

1.1.15 In 2023, following engagement with Natural England, six additional locations at the southern section of the route (Tilbury) were included for survey (2023/2024 season). The new areas were included based on the design presented at the time of the engagement, which incorporated the above criteria as well as considering the FLL area mapped as part of the Lower Thames Crossing project. The Project, as presented in the DCO application, only requires four of the Tilbury locations to be taken forwards for analysis. All survey locations are shown on Figure A8.8.1: Wintering/Passage Bird Survey Locations in Annex A.

1.2 Brief and Objectives

1.2.1 The brief was to establish a baseline for wintering/passage birds to inform an EIA and HRA. The objectives were to:

- Complete a desk study for wintering/passage birds, review existing data available online or provided through local data sources
- Complete a suite of wintering/passage bird surveys consisting of VP and transect surveys.

1.2.2 The results of the wintering/passage bird surveys have been included within this report, with the survey findings to be used to inform the EIA, HRA and any subsequent mitigation required for the Project.

1.3 Study and Survey Area

Study Area

1.3.1 The following Study Areas were used for the wintering bird desk study:

- SPAs and Ramsar sites of ornithological importance – within the Order Limits and up to 20 km from the Order Limits

- Statutory and non-statutory designated sites of ornithological importance for wintering/passage birds – within the Order Limits and up to 2 km from the Order Limits
- Individual records of wintering/passage bird species – within the Order Limits and up to 2 km from the Order Limits.

Survey Area

1.3.2 A total of 22 survey locations were identified for the wintering/passage bird assessment. These included the VP locations along green corridors and transect locations within 500 m of the River Stour and within IRZs of the SSSIs that underpin the Stour and Orwell Estuaries SPA/Ramsar site and the Thames Estuary and Marshes SPA/Ramsar site.

1.3.3 Further details on the wintering/passage bird Survey Area selection are provided in Section 3 below.

2. Relevant Legislation and Policy

2.1 Legal Compliance

2.1.1 The surveys and assessments have been undertaken in accordance with current legislation and planning policy in the context of the Project. A summary of the relevant legislation and policy is provided in Table A8.8.1.

Table A8.8.1 Legal compliance

Legislation	Details
Convention on Wetlands of International Importance Especially as Waterfowl Habitat 1971 (Council of Europe, 1971)	An international treaty created to ensure the conservation and sustainable management of wetlands, through the designation of Ramsar sites and international cooperation between contracting parties such as the UK government. The Contracting Party responsible for the site must ensure the protection of wintering bird populations, implementing appropriate measures, such as controlling invasive species and maintain suitable water levels.
Convention on the Conservation of European Wildlife and Natural Habitats 1979 (Council of Europe, 1979)	The Bern Convention, also referred to as the Conservation of European Wildlife and Natural Habitats, outlines the framework for the conservation for a wide range of species and their habitats. The convention encourages its member states to implement strategies for the protection and management of species and establish ecological networks for migration. For the protection of wintering birds, the UK is responsible under the Bern Convention for the conservation of important habitats such as wetlands and coastal areas and designating protection areas.
The Wildlife and Countryside Act 1981, as amended (WCA)	The Act is the main mechanism for legislative protection of wildlife in England. It gives protection to native species (particularly threatened species), their resting places and places of shelter by making it an offence to kill, injure, take, damage, destroy, sell, or possess them (with exceptions). Under the Wildlife and Countryside Act 1981 (as amended) all wild birds are protected from killing and injury, and their nests and eggs protected from taking, damage and destruction whilst in use. Additional protection is extended to species listed under Schedule 1 of the Act, meaning it is also an offence to disturb these species at or near the nest, or whilst they have dependent young during the breeding season.
The Natural Environment and Rural Communities (NERC) Act 2006	The NERC Act 2006 places a duty upon public bodies to maintain Section 41 (s41) lists of flora, fauna, and habitats (previously UK Biodiversity Action Plan (BAP) habitats and

Legislation	Details
	species) and to consider these ecological features as a material consideration in planning. It also requires decision-makers to have regard to the conservation of biodiversity in England, when carrying out their normal functions.
Directive 2009/147/EC of The European Parliament and of the council of 30 November 2009 on the conservation of wild birds (Directive 2009/147/EC)	The Birds Directive establishes a legal framework across Europe, enforcing the establishment of SPAs in member states of the European Union, to protect bird species. The directive prohibits activities such as deliberate killing, capture, and disturbance of bird species during their breeding, rearing, and migration periods.
The Conservation of Habitats and Species Regulations 2017 (as amended in 2019) ('Habitats Regulations')	The Regulations require authorities on behalf of the Secretary of State to maintain a list of sites which are important for either habitats or species (SACs and SPAs) and to provide protection for these sites through designation, planning, and other controls. The Regulations make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4. However, these actions can be made lawful through the granting of licenses by the appropriate authorities (Natural England in England). Licences may be granted for several purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on the favourable conservation status of the species concerned.

2.2 Planning Policy

2.2.1 Chapter 8: Ecology and Biodiversity (document reference 6.8) (Revision C) provides further details of relevant planning policy.

3. Methodology

3.1 Nomenclature

3.1.1 Common names of species recorded follow English naming conventions in the British Ornithological Union British List (British Ornithologists Union, 2022). Common names are used throughout this report while scientific names are listed in Annex C, in line with Natural History Museum Species dictionary[3].

3.2 Desk Study

Study Area

3.2.1 The following Study Areas were used to inform the methodology and establish the baseline as part of the wintering/passage bird desk study:

- SPA and Ramsar designated sites of ornithological importance – within 20 km of the Order Limits
- Statutory designated sites of ornithological interest for wintering/passage birds – within 2 km of the Order Limits
- Individual records of wintering/passage bird species and non-statutory sites of ornithological interest – within 2 km of the Order Limits.

Data Search

3.2.2 The desk study was completed in September 2023 and subsequently updated in January 2024, using desk-based data obtained from the previous 10 years (2013-2022). The data was obtained from the following sources:

- British Trust for Ornithology (BTO) – Wetland and Estuaries Bird Survey (WeBS)
- Royal Society for the Protection of Birds (RSPB)
- Essex Field Club
- Norfolk Biodiversity Information Centre
- Suffolk Biodiversity Information Service.

3.2.3 Freely downloadable datasets (available from Multi Agency Geographic Information for the Countryside; Multi Agency Geographic Information for the Countryside (MAGIC) mapping, Natural England, 2025) and aerial imagery were consulted for information regarding designated sites, qualifying features of the SPA and Ramsar sites and general habitat assessment.

[3] https://www.nhm.ac.uk/our-science/data/uk-species/index

3.2.4 Prior to analysis, the bird data received was filtered to show only data within the distance parameters set out in the Study Area above, as well as:

- Target and Secondary Species for both collision risk and HRA analysis (see Section 3.4)
- Wintering and passage bird records only (from September to March inclusive). Where the record provided a year date only, this data was retained for analysis unless notes identified breeding activity, in which case it was also filtered out.

3.3 Habitat Review

3.3.1 Satellite imagery was reviewed to identify areas within the Order Limits which provided suitable habitat for 'Target Species' (defined below). Key areas were subsequently selected for wintering bird surveys as set out in the EIA Scoping Report (document reference 6.19). This was a desk-based exercise supplemented by more detailed notes on the habitats that were made in the field. When combined with bird survey data, it can be determined whether any areas could be considered FLL in relation to designated sites, and if impacts in relation to habitat loss, disturbance and fragmentation are likely to occur.

3.4 Target Species

Collision Risk Species to Inform Environmental Impact Assessment

3.4.1 The Target Species for the collision risk assessment were determined following NatureScot guidance on assessing impacts of power lines on birds (NatureScot, 2016)[4], which recommends the same selection criteria as the guidance on bird survey methods to inform impact assessment of onshore wind farms (Scottish Natural Heritage, 2017). This guidance suggests Target Species should comprise species which are afforded a higher level of legislative protection, primarily birds listed on:

- Annex I of the EC Birds Directive (Directive 2009/147/EC)
- Schedule 1 of the Wildlife and Countryside Act 1981
- Red-listed Birds of Conservation Concern5 (Stanbury et al., 2021).

3.4.2 The guidance also identifies that Target Species should be restricted to those likely to be of higher risk of collision i.e., wildfowl, waders, raptors etc. Passerine species are not significantly impacted by windfarms and overhead cables, and have not been included in the assessment, even if the species is included on the lists above.

3.4.3 The sections of the Project considered to pose the highest risk of collision, are where overhead lines are proposed over waterways, as these are often used as commuting corridors by birds. This behaviour has been considered when selecting Target

[4] Guidance produced by Scottish Nature Agency but recognised as most appropriate guidance for assessing such impacts across the UK.

[5] As listed at the time of survey work.

Species, and as such, the bird groups listed below have been identified as requiring particular attention:

- Divers and grebes
- Raptors and owls
- Wildfowl
- Waders
- Bittern, heron, storks, spoonbills and egrets
- Seabirds (inland route but included as precaution)
- Gulls and terns (commute / migrate along river corridors).

3.4.4 Based on the above guidance, species of conservation concern (Annex I: Schedule-1 or Red-listed birds) within the groups listed above have been selected as 'Target Species'. 'Secondary Species' include species within the groups listed above that are not a species of conservation concern.

3.4.5 These species will be referred to as Collision Risk Target and Secondary Species throughout this report.

Qualifying Avian Features to Inform HRA

3.4.6 The bird species listed within the citations of the four SPA/Ramsar sites (listed below) were targeted for the HRA. Several other SPA/Ramsar sites are present within a 20 km radius of the Order Limits; following engagement with Natural England, the scope was narrowed to these four sites, and so Target Species are limited to the qualifying features of these four sites:

- Stour and Orwell Estuaries SPA
- Stour and Orwell Estuaries Ramsar Site
- Thames Estuary and Marshes SPA
- Thames Estuary and Marshes Ramsar Site.

3.4.7 According to SPA selection guidance, for a species to be a qualifying feature, the following criteria need to be met:

- An area is used regularly by 1% or more of the Great Britain (or in Northern Ireland, the all-Ireland) population of a species listed in Annex I of the Birds Directive (Directive 2009/147/EC) in any season
- An area is used regularly by 1% or more of the biogeographical population of a regularly occurring migratory species (other than those listed in Annex I of the Birds Directive; Directive 2009/147/EC) in any season.

3.4.8 These are internationally important bird numbers and are referred to as 'Qualifying Species' within this report.

3.4.9 In addition to this, a qualifying feature could be:

- An area used regularly by over 20,000 waterfowl (waterfowl as defined by the Ramsar Convention) or 20,000 seabirds in any season.

3.4.10 The above feature is an assemblage made up of a variety of different species and therefore, a single species does not form a qualifying feature. The citations do list noteworthy species, often present in nationally important numbers.

3.4.11 The noteworthy species within the assemblage are not always exhaustive and during consultation with Natural England, golden plover and lapwing were two species identified as requiring consideration. These are two species associated with the four SPA/Ramsar sites, which travel large distances (more than 5 km) between feeding and roosting sites, often associated with large arable fields. These noteworthy species (in Nationally significant numbers) along with golden plover and lapwing are referred to as 'Assemblage Species' throughout this report.

3.4.12 The Qualifying and Assemblage Species at each SPA make up the Target Species for that area. For example, dark-bellied brent goose is only a Target Species within the appropriate buffer for the Stour and Orwell Estuaries SPA, while avocet is only relevant to the Thames Estuary and Marshes SPA. These Target Species are identified in Table A8.8.2.

3.4.13 This report focusses on the passage and wintering bird populations; if a qualifying feature is a breeding bird population only, this is not included in Table A8.8.2. See Appendix 8.7: Breeding Bird Report (document reference 6.8.A7) (Revision C) for more information on breeding bird populations.

Table A8.8.2 Qualifying and assemblage species of the Stour and Orwell Estuaries and Thames Estuary and Marshes SPA and Ramsar sites

Species	Stour and Orwell Estuaries SPA	Stour and Orwell Estuaries Ramsar Site	Thames Estuary and Marshes SPA	Thames Estuary and Marshes Ramsar Site
Qualifying Species				
Avocet	-	-	Qualifying	-
Black-tailed Godwit	Qualifying	Qualifying	Qualifying	Qualifying
Dark-bellied Brent Goose	Qualifying	Qualifying	-	-
Dunlin	Qualifying	Qualifying	Qualifying	Qualifying
Grey Plover	Qualifying	Qualifying	Qualifying	Qualifying
Hen Harrier	-	-	Qualifying	
Knot	Qualifying	Qualifying	Qualifying	Qualifying
Pintail	Qualifying	Qualifying	-	-
Redshank	Qualifying	Qualifying	Qualifying	Qualifying
Ringed Plover	-	-	Qualifying	Qualifying
Species Contributing to Qualifying Waterbird Assemblage				
Avocet	-	-	-	Assemblage

Species	Stour and Orwell Estuaries SPA	Stour and Orwell Estuaries Ramsar Site	Thames Estuary and Marshes SPA	Thames Estuary and Marshes Ramsar Site
Cormorant	Assemblage	Assemblage	-	-
Curlew	Assemblage	Assemblage	-	-
Gadwall	Assemblage	-	Assemblage	Assemblage
Golden Plover	Assemblage	Assemblage	Assemblage	Assemblage
Goldeneye	Assemblage	-	-	-
Great Crested Grebe	Assemblage	Assemblage	-	-
Greenshank	-	-	-	Assemblage
Lapwing	Assemblage	Assemblage	Assemblage	Assemblage
Little Egret	-	-	-	Assemblage
Little Grebe	-	-	-	Assemblage
Pintail	-	-	Assemblage	-
Pochard	-	-	Assemblage	-
Ringed Plover	Assemblage	Assemblage	-	-
Ruff	-	-	-	Assemblage
Shelduck	Assemblage	Assemblage	Assemblage	Assemblage
Shoveler	-	-	Assemblage	Assemblage
Spotted Redshank	-	-	-	Assemblage
Teal	-	-	Assemblage	-
Tufted Duck	-	-	Assemblage	-
Turnstone	Assemblage	Assemblage	-	-
Water Rail	-	-	-	Assemblage
Wigeon	Assemblage	-	-	-

3.4.14 These species (Qualifying and Assemblage) will be referred to as the 'HRA Target Species' throughout this report, it should be noted that there is overlap with the Collision Risk Target and Secondary Species.

3.5 Survey Methodology

Survey Areas

3.5.1 As described in Section 1, consultation with Natural England was undertaken to agree survey locations using specific criteria. The initial survey locations are described in Table A8.8.3 and shown on Figure A8.8.1: Wintering/Passage Bird Survey Locations in Annex A. This figure also shows the 5 km IRZ associated with the SPA/Ramsar sites.

3.5.2 Although there were different criteria for determining the survey locations for the EIA and HRA, there was some overlap in survey locations and methodology as shown in Table A8.8.3.

3.5.3 Vantage point (VP) survey methodology was used along green corridors where there was a potential risk of bird collision with the Project's overhead line, whereas transect surveys were used where opencut methods are proposed to install underground cabling unless access restrictions existed in which case VPs were again used. For example, a VP was used alongside a transect at Survey Location 9 as access restrictions affected transect coverage.

3.5.4 The VP survey locations were selected to provide maximum visibility as well as ease of access along Public Rights of Ways. A visit was made to ground-truth the VP locations prior to the commencement of surveys.

Table A8.8.3 Wintering/passage bird survey locations (2022 / 23 season)

Project Section	Survey Location	Survey Methodology	Location	Relevant Assessment
A	1	Vantage Point	Toprow and Flordon	EIA
A	2	Vantage Point	Bunwell Fen to Carleton Fen	
A	3	Vantage Point	River Waveney-Little Ouse Corridor	
B	4	Vantage Point	River adj. Wickham Road	
B	5	Vantage Point	River Gipping	
C	6	Vantage Point	A1071 to Pigeon's Lane	
C	7	Transect	Land North of B1068	HRA
C	8	Transect	Land North of River Stour	
C	9	Vantage Point / Transect	River Stour	
C	10	Transect	A12 to Burnt Heath	
C	11	Vantage Point	Ardleigh Reservoir	EIA & HRA
D	12	Vantage Point	River Colne	EIA
E	13	Vantage Point	River Blackwater	

Project Section	Survey Location	Survey Methodology	Location	Relevant Assessment
E	14	Vantage Point	Silver End to Rivenhall	
E	15	Vantage Point	River Brain	
F	16	Vantage Point	River Ter	
F	17	Vantage Point	River Chelmer	
G	18	Vantage Point	River Wid	

3.5.5 Table A8.8.4 identifies the survey locations that were added in the 2023/2024 season to collate data for the HRA with regard to the Thames Estuary and Marshes SPA. These locations were added to the scope following consultation with Natural England. Survey locations are also shown on Figure A8.8.1: Wintering/Passage Bird Survey Locations in Annex A.

Table A8.8.4 Wintering/passage bird survey locations (2023/24 season) at Tilbury

Project Section	Survey Location	Location	Survey Methodology	Relevant Assessment
H	19	Southfields	Vantage Point	HRA
H	20	Linford		
H	21	East Tilbury		
H	22	Tilbury		

Vantage Point Surveys

3.5.6 The primary objective of the VP surveys was to collate data on bird flight behaviour to inform an assessment of the potential collision risk to birds because of the Project's overhead lines. An additional objective was to provide information on the habitats present and the use of these habitats by birds.

3.5.7 VP methodology was based on NatureScot guidance (Scottish Natural Heritage, 2017) for onshore windfarm development assessments; adapted for an overhead line collision risk assessment. VP watches quantified flight activity of Collision Risk Target Species within different height bands to differentiate between flights within and outside the collision risk zone (determined by the height of overhead cables). Flight activity was recorded along green corridors that cross the Order Limits, along with a minimum buffer of 200 m.

3.5.8 Fourteen VP locations were identified where overhead lines would cross green corridors; the surveys were conducted in the 2022/2023 season. These fourteen VP locations (shown in Table A8.8.3) were surveyed between September 2022 and March 2023. Each VP was subject to two three-hour survey visits per month, except for September and March during which one three-hour survey visit was undertaken. This equates to 36 hours survey time at each VP location over the winter.

3.5.9 At each VP, the survey was carried out by a pair of surveyors that were back-to-back, at least one of whom was an experienced field ornithologist; this allowed for simultaneous recording of the whole viewshed.

3.5.10 Surveys were alternated between morning and afternoon to ensure a range of times were covered. Morning visits commenced within one hour after dawn and afternoon visits ceased within one hour of dusk.

3.5.11 Surveys took place in inclement weather to record bird activity and behaviour in a range of conditions. Surveys were curtailed or did not take place where visibility was less than 1 km for prolonged periods (either from mist, precipitation, or low cloud-base), or in high winds (over Beaufort 6) as these conditions are likely to significantly impair data collection while bird activity is likely to be at a low-level.

3.5.12 Weather conditions were recorded at least hourly, or more often if there were significant changes noted. Any disturbance events which were considered to affect the behaviour of birds within the viewshed, such as farming activities, people walking or low-flying aircraft, were also recorded.

3.5.13 Target Species were recorded for the duration of the time they were in flight and within view, with time of detection and flight duration noted. The route of flight was plotted in the field onto 1:25,000 scale Ordnance Survey base maps. Bird flight height was estimated at the point of detection, and then at 15 second intervals, using five height categories determined to correlate with the anticipated pylon cable heights (see Table A8.8.5). The conductors of the proposed pylons would be situated across Height Bands 2 and 3 (as highlighted) as the maximum pylon heights would be approximately 50 m.

3.5.14 The flight activity of Secondary Species (criteria described in Section 3.4) was also recorded in 15-minute periods throughout the VP surveys; however, Target Species took priority over these birds. All perched birds and birds on waterbodies were recorded on arrival at the VP, with notes taken on the behaviour observed i.e., foraging/roosting. This was to help determine land use by birds and whether any areas could be considered FLL.

Table A8.8.5 Height bands used in flight analysis; collision risk heights highlighted

Height band 1	Height band 2	Height band 3	Height band 4	Height band 5
<10 m	10-25 m	25-50 m	50-75 m	>75 m

3.5.15 It should be noted that VP9 (that was survey in in the 2022/2023 season) covers an area where underground cabling works are proposed rather than overhead lines. Similarly, the proposals in the vicinity of Tilbury are for the new Tilbury North Substation, replacement of existing ZB/YYJ overhead lines, the installation of two Cable Sealing End (CSE) compounds and short stretches of underground cabling. Four VP locations were surveyed in the vicinity of Tilbury in the 2023/2024 season.

3.5.16 These five VP locations were not designed to assess collision risk, but rather the impact these works could have on potential FLL and the birds it supports. VP9 and the VPs at the Tilbury site were used in addition to, or as an alternative to, transects due to access restrictions (see below).

Transect Surveys

3.5.17 During the initial scope for the 2022/2023 winter season, five sites were identified (as shown on Figure A8.8.1: Wintering/Passage Bird Survey Locations in Annex A) within 5 km of the Stour and Orwell Estuaries SPA and Ramsar site, as potential FLL for HRA Target Species. The main impact considered to occur at Survey Location 11 was collision risk due to overhead lines over Ardleigh Reservoir, a VP survey was conducted here, and records were also made of birds not in flight and utilising the habitats in the area.

3.5.18 The transects were selected with a focus on habitats which are likely to be used by flocks of lapwing and golden plover which were identified as a concern by Natural England. Four areas (Survey Location 7 to 10) which consisted of large open arable fields were identified for transect surveys. Transects were considered the most suitable survey method at these locations, but as noted above a VP was used in addition to a transect at Survey Location 9 due to land access limitations.

3.5.19 The transect surveys followed an adaption to the BTO WeBS methodology which is based on a 'look-see' approach (Bibby *et al.,* 2000 and Gilbert *et al*., 1998). During the transects, fields were scanned using binoculars and a telescope (where necessary). These surveys were carried out within the same time parameters as the VP surveys. Details recorded included: time, species, number of birds, location, behaviour, and information regarding flights in or out of the site. BTO activity codes were used during the survey. The arable status of each field surveyed was recorded to help further understand bird distribution and the role of crop rotation.

3.5.20 As with the VP surveys, the transect surveys were conducted twice a month between October and February and once during September and March, thereby totalling twelve visits. Surveys at Survey Location 9 (upstream of the Stour Estuary) were arranged to coincide with high and low tide, with four visits during each of these times completed. This accounts for birds moving to and from intertidal foraging and roosting sites. The survey dates and times for the 2022/2023 surveys are presented in Annex D.

3.5.21 Additional survey locations were added to the scope for the 2023/2024 survey season. These were located at the southern end of the Project around Tilbury. These locations were selected for analysis regarding FLL, as they provided potentially suitable habitat within 5 km of the Thames Estuary and Marshes SPA and Ramsar site. In addition, the habitat in this area had been mapped as FLL as part of the Lower Thames Crossing project. Due to land access restrictions, VP surveys were conducted at these Tilbury sites rather than transects, but the transect methodology described above was followed, just from a fixed point with a view across the Survey Area.

3.5.22 Twelve visits were scheduled at Tilbury (Survey Location 19 to 22) between October and March 2023/2024 following the same methods outlined above (no September visit was conducted but two were conducted over March 2024). After five survey visits at Survey Location 19, this survey location was dropped from the survey schedule as the area was clearly unsuitable for HRA Target Species (see Tilbury habitat descriptions in Table A8.8.15 in the Results section), and no birds of note were being recorded within the Survey Area.

3.6 Dates of Survey and Personnel

3.6.1 Survey dates, timings, weather and state of tide (where relevant) are provided in Annex D. Lead surveyor experience is provided in Table A8.8.6 below.

Table A8.8.6 Surveyor experience

Surveyor	Qualifications	Chartered Institute of Ecology and Environmental Management (CIEEM) membership	Years' experience (professional ecology)
2022 / 2023 Survey Season			
1	BSc MSc	Yes	7 years
2	MSc BSc	Yes	4 years
3	BSc MSc	Yes	9 years
4	BSc	No	9 years
5	MSc BSc	No	19 years
6	Higher National Diploma Environmental Landscape Management	No	23 years
7	BSc MSc	Yes	7 years
2023 / 2024 Survey Season			
8	No formal qualifications but a very experienced ornithologist	No	27 years

3.7 Notes and Limitations

Desk Study

3.7.1 A desk study does not provide a full description of current ecological conditions within the Study Area (2 km from Order Limits). It is important to note that, even where data are held, a lack of records for a defined geographical area does not necessarily mean that there is a lack of ecological interest; the area may simply be under-recorded. Data provided may only be available in a broad scale resolution and cannot be used to define specifical geographical areas of interest. Therefore, professional judgement has been applied when interpreting records. The data coverage was extensive and is therefore not considered to be a limiting factor.

3.7.2 Due to the large bird data set which included many species, mapping the distribution of Collision Risk Target and Secondary Species was challenging. For ease of interpretation, any Secondary Species records amounting to less than 12 observations were omitted from the desk study maps, but they are still presented in the desk study results table. The birds omitted are generally vagrants or non-native birds and as such their exclusion from the maps is not considered significant.

Field Survey

3.7.3 Where visibility was impaired due to precipitation or mist, the surveys were rescheduled to take place as soon as practicable, such that there were no significant limitations to the surveys from weather.

3.7.4 Where views were obscured by woodland, it was considered birds flying at a collision risk height would have to rise above the trees and therefore would come into view and be included in the assessment.

3.7.5 All surveys were completed during the survey period; any surveys rescheduled due to weather restrictions were completed within the planned survey programme described above.

3.7.6 VP locations were chosen on Public Rights of Ways where land access was limited so that there were no limitations due to temporary land access restrictions and there were no significant limitations due to disturbance.

3.7.7 Individual birds and different bird species differ in their behaviour and detectability, and it is unlikely that registrations were detected for all birds during each survey visit. Nevertheless, it is considered that the data collected are sufficiently robust for evaluating the baseline wintering bird assemblage present.

3.7.8 Selection of Collision Risk Target Species was based on the conservation status of birds at the commencement of the survey work (September 2022). It is acknowledged there has been an addendum to the Birds of Conservation Concern (BoCC) list with regards to seabirds (Stanbury *et al*. 2024); however, as the Project is an inland scheme, records of the species concerned are few, and as such, no significant limitation is considered to occur.

4. Results

4.1 Desk Study

SPA and Ramsar Sites of Ornithological Importance

4.1.1 There were 27 sites (either SPA or Ramsar sites of ornithological importance) identified within 20 km of the Order Limits (see Table A8.8.7 below and Figure A8.8.2 – Designated Sites of Ornithological Importance in Annex A). Site details and reasons for designation are presented in Table in Annex B.

Table A8.8.7 SPA and Ramsar sites of ornithological importance within 20 km of the Order Limits

Project Section(s)	Site Name	Designation	Distance and Direction from Nearest Point of Order Limit
All Sections	Outer Thames Estuary	SPA (marine)	13.8 km east
A	Breckland	SPA	9.7 km west
A	Broadland	Ramsar site	8.9 km north-east
A	Broadland	SPA	8.9 km north-east
B, C	Deben Estuary	Ramsar site	13.8 km east
B, C	Deben Estuary	SPA	13.8 km east
B, C	Sandlings	SPA	17.9 km east
C	Hamford Water	Ramsar site	7.9 km east
C	Hamford Water	SPA	7.9 km east
C	Stour and Orwell Estuaries	Ramsar site	3.1 km east
C	Stour and Orwell Estuaries	SPA	3.1 km east
C/D	Colne Estuary (Mid-Essex Coast Phase 2)	Ramsar site	7.3 km south-east
C/D	Colne Estuary (Mid-Essex Coast Phase 2)	SPA	7.3 km south-east
D	Abberton Reservoir	Ramsar site	7.6 km south-east
D	Abberton Reservoir	SPA	7.6 km south-east
D	Dengie (Mid-Essex Coast Phase 1)	Ramsar site	17.7 km east
D	Dengie (Mid-Essex Coast Phase 1)	SPA	17.7 km east

Project Section(s)	Site Name	Designation	Distance and Direction from Nearest Point of Order Limit
D, E	Blackwater Estuary (Mid-Essex Coast Phase 4)	Ramsar site	11.0 km south-east
D, E	Blackwater Estuary (Mid-Essex Coast Phase 4)	SPA	11.0 km south-east
G	Crouch and Roach Estuaries (Mid-Essex Coast Phase 3)	Ramsar site	12.2 km east
G	Crouch and Roach Estuaries (Mid-Essex Coast Phase 3)	SPA	12.2 km east
H	Benfleet and Southend Marshes	Ramsar site	11.7 km east
H	Benfleet and Southend Marshes	SPA	11.7 km east
H	Medway Estuary and Marshes	Ramsar site	12.6 km south-east
H	Medway Estuary and Marshes	SPA	12.6 km south-east
H	Thames Estuary and Marshes	Ramsar site	1.8 km south-east
H	Thames Estuary and Marshes	SPA	1.8 km south-east

4.1.2 As part of the scoping exercise, Likely Significant Effects (LSEs) could not be ruled out for four of these sites as the Order Limit falls within the IRZ of the SSSIs that underpin these sites, and habitat with the potential to support HRA Target Species is present. These four sites are listed below (as agreed following consultation with Natural England all other SPA and Ramsar sites were descoped for further assessment):

- The Stour and Orwell Estuaries SPA
- The Stour and Orwell Estuaries Ramsar site
- Thames Estuary and Marshes SPA
- Thames Estuary and Marshes Ramsar site.

Statutory Designated Sites of Ornithological Interest

4.1.3 Three statutory designated sites (excluding SPA/Ramsar sites) with wintering bird interest were identified within 2 km of the Order Limits; these are identified in Table A8.8.8 and shown on Figure A8.8.2 – Designated Sites of Ornithological Importance in Annex A. They comprise SSSIs, a potential SSSI and a Local Nature Reserve (LNR). Reasons for designation are presented in Table in Annex B, with the exception of North Thames Estuary and Marshes potential SSSI (pSSSI) as no citation details are available at this time.

Table A8.8.8 Statutory designated sites of wintering ornithological interest within 2 km of the Order Limits

Project Section	Site Name	Designation	Distance and Direction from Nearest Point of Order Limit
G	Hutton Country Park	LNR	0.14 km west
H	Mucking Flats and Marshes	SSSI	1.83 km east
H	North Thames Estuary and Marshes	pSSSI	Boundary not confirmed but potential to be within 1 km of the Order Limits

Non-Statutory Designated Sites of Ornithological Interest

4.1.4 Several non-statutory designated sites including County Wildlife Sites (CWSs), and Local Wildlife Sites (LWSs) are present within 2 km of the Order Limits and list birds on the citation. Many list woodland and other common passerine birds or are noted for their breeding bird assemblage only. Just three non-statutory designated sites are considered to support notable numbers of wintering wetland birds. These are identified in Table A8.8.9 and shown on Figure A8.8.2 – Designated Sites of Ornithological Importance in Annex A. Reasons for designation are presented in Annex B.

Table A8.8.9 Non-statutory designated sites of wintering ornithological interest within 2 km of the Order Limits

Project Section(s)	Site Name	Designation	Distance and Direction from Nearest Point of Order Limit
C	Thorington Street Pit and Reservoir	CWS	1.57 km west
C	Wasses Marshes	CWS	0.12 km west
H	Mucking Creek Wetlands	LWS	1.06 km south-east

Individual Records of Wintering/Passage Bird Species

Overview

4.1.5 Overall, just over 26,000 bird records were returned from the five data sets, although these have been filtered as described in Section 3.2. Rather than presenting the full data set, this report presents wintering bird data considered relevant to the EIA and HRA.

Qualifying Species of the Stour and Orwell Estuaries and Thames Estuary and Marshes SPA/Ramsar Sites

4.1.6 As stated in the methods, the baseline bird data has been filtered using several parameters (see Section 3.2). To inform the HRA, data has been filtered further to show the distribution of Qualifying and Assemblage Species within a 10 km radius of their relevant SPA and within 2 km of the Order Limits. This is due the fact the Qualifying and Assemblage Species differ between each SPA/Ramsar site and the 10 km buffer zone has been selected to present a wide picture of bird distribution around the SPA/Ramsar sites.

4.1.7 The distribution of HRA Qualifying and Assemblage Species records is shown on Figure A8.8.3 – Distribution of SPA/Ramsar Qualifying Features – Desk Study Data and Figure A8.8.4 – Distribution of SPA/Ramsar Waterbird Assemblage Species – Desk Study Data respectively in Annex A. The data is also summarised in Table A8.8.10 and Table A8.8.11 for the Stour and Orwell Estuaries SPA/Ramsar site and Thames Estuary and Marshes SPA/Ramsar site respectively.

4.1.8 For the Stour and Orwell Estuaries SPA/Ramsar site, as shown within these figures and tables, few records of Qualifying Species are present within 2 km of the Project. The highest number of records relate to black-tailed godwit, and the majority of these are located around Langham Lake (name of WeBS site) situated along the River Stour. As well as the lake, there are flooded areas, wet grassland and large arable fields in this area. A smaller number of Qualifying Species records are present at Ardleigh Reservoir.

4.1.9 A similar trend can be seen in the Assemblage Species for the Stour and Orwell Estuary SPA/Ramsar site. The average count for these species is generally low, with good numbers of lapwing, gadwall and wigeon. The records of these species are also primarily associated with the habitats around Langham Lake, with a smaller number at Ardleigh Reservoir, gadwall and wigeon numbers are also boosted by birds utilising reservoirs to the west of Langham Lake, including the reservoir which is part of Thorington Street Pit and Reservoir CWS.

4.1.10 No records of Qualifying Species exist inside the Order Limits within 10 km of the Thames Estuary and Marshes SPA/Ramsar site and the only Assemblage Species record within the Order Limits is a single tufted duck record. Most Qualifying and Assemblage Species records are situated within 2 km of the SPA/Ramsar site, records of these species beyond this 2 km radius are few.

Table A8.8.10 Qualifying and assemblage species within 10 km of the Stour and Orwell Estuaries SPA/Ramsar site and 2 km of the Order Limits

Species	No. of Records	Total no. of Individuals	Average Count	Max Count	Last Recorded Year
Qualifying Species					
Black-tailed godwit	21	129	6.14	19	2020
Brent goose (dark-bellied)	0	0	0.00	0	-
Dunlin	4	9	2.25	4	2019

Species	No. of Records	Total no. of Individuals	Average Count	Max Count	Last Recorded Year
Grey plover	1	1	1.00	1	2015
Knot	1	2	2.00	2	2015
Pintail	7	19	2.71	9	2019
Redshank	10	27	2.70	8	2018
Assemblage Species					
Cormorant	41	319	7.78	31	2021
Curlew	8	14	1.75	3	2019
Gadwall	21	327	15.57	120	2021
Golden plover	5	10	2.00	6	2018
Goldeneye	2	9	4.50	8	2019
Great crested grebe	31	192	6.20	25	2021
Lapwing	34	2,024	59.53	600	2021
Ringed plover	4	5	1.25	2	2018
Shelduck	29	173	5.97	26	2021
Turnstone	1	3	3.00	3	2015
Wigeon	11	525	47.73	194	2021

Table A8.8.11 Qualifying and assemblage species within 10 km of the Thames Estuary and Marshes SPA / Ramsar site and 2 km of the Order Limits

Species	No. of Records	Total no. of Individuals	Average Count	Max Count	Last Recorded Year
Qualifying Species					
Avocet	32	251	7.84	94	2020
Black-tailed godwit	29	246	8.48	94	2020
Dunlin	26	194	7.46	81	2020
Grey plover	22	173	7.86	72	2020
Hen harrier	1	1	1.00	1	2017
Knot	11	62	5.64	31	2020
Redshank	15	61	4.07	21	2016

Species	No. of Records	Total no. of Individuals	Average Count	Max Count	Last Recorded Year
Ringed plover	18	89	4.94	45	2020
Assemblage Species					
Gadwall	16	227	14.19	32	2019
Golden plover	5	5	1.00	1	2019
Greenshank	10	19	1.90	5	2020
Lapwing	29	593	20.45	370	2020
Little egret	42	168	4.00	40	2020
Little grebe	44	237	5.39	31	2020
Pintail	8	12	1.50	3	2020
Pochard	33	322	9.76	34	2020
Ruff	2	2	1.00	1	2020
Shelduck	36	284	7.89	106	2020
Shoveler	15	171	11.40	46	2019
Spotted redshank	1	3	3.00	3	2013
Teal	54	412	7.63	85	2020
Tufted duck	57	1,199	21.04	141	2020
Water rail	41	106	2.59	19	2021

Collision Risk Target Species to Inform Environmental Impact Assessment

4.1.11 A total of 65 Collision Risk Target Species and 63 Collision Risk Secondary Species records were returned with 2 km of the Order Limits as outlined within Table A8.8.12 and Table A8.8.13 respectively.

4.1.12 Collision Risk Target Species with the highest average and/or max counts are primarily waders; the species with max counts of more than 50 birds include avocet, bar-tailed godwit, black-tailed godwit, curlew, dunlin, golden plover and lapwing. The only other non-wading species with counts of more than 50 are herring gull, kingfisher and white-fronted goose. Although not recorded in high numbers, numerous records of more solitary species are present for barn owl, little egret and red kite.

4.1.13 Collision Risk Secondary Species with counts of more than 50 were primarily wildfowl; Canada goose, gadwall, great crested grebe, greylag goose, mallard, mute swan, shelduck, teal, tufted duck, and wigeon. Other species with counts of more than 50 include black-headed gull, common buzzard, common gull, grey plover, sparrowhawk, tawny owl and turnstone. The highest number of records of more

solitary species are present for cormorant, grey heron, kestrel, lesser black-backed gull and little owl.

4.1.14 The distribution of Collision Risk Target Species is shown on Figure A8.8.5 – Collision Risk Target Species – Wildfowl (Desk Study Data 2013-2022) through to Figure A8.8.11 – Collision Risk Target Species – Seabirds & Kingfisher (Desk Study Data 2013 – 2022), with Secondary Species shown on Figure A8.8.12 – Collision Risk Secondary Species – Wildfowl (Desk Study Data 2013-2022) to Figure A8.8.16 – Collision Risk Secondary Species Butterns, Herons, Storks, Spoonbills & Egret Divers, Grebes & Seabirds (Desk Study Data 2013-2022). As seen within these figures, concentrations of bird records are present at three areas:

- Langham Lake with flooded areas, grassland and large arable fields in the vicinity (as described previously)
- Ardleigh Reservoir
- Habitats within the close vicinity of the Thames Estuary.

4.1.15 Outside these three areas, records are a little more scattered, particularly for raptors and owls. Records of wildfowl and waders are generally present around waterbodies and river corridors, which supports the decision to focus survey effort along green corridors.

4.1.16 The distribution maps show few records of Collision Risk Target and Secondary Species exist directly within the Order Limits.

Table A8.8.12 Collision risk target species desk study records

Species	No. of Records	Total no. of Individuals	Average Count	Max Count	Last Recorded Year
Arctic skua	9	17	1.89	5	2020
Arctic tern	9	21	2.33	6	2020
Avocet	36	256	7.11	94	2020
Barn owl	169	241	1.43	23	2022
Barnacle goose	19	32	1.68	6	2020
Bar-tailed godwit	11	70	6.36	54	2020
Bewick's swan	4	5	1.25	2	2019
Bittern	8	9	1.13	2	2019
Black kite	6	6	1.00	1	2019
Black tern	7	18	2.57	7	2020
Black-necked grebe	1	1	1.00	1	2015
Black-tailed godwit	51	376	7.37	94	2020
Black-throated diver	3	3	1.00	1	2020
Common scoter	12	37	3.08	10	2020

Species	No. of Records	Total no. of Individuals	Average Count	Max Count	Last Recorded Year
Common tern	63	249	3.95	44	2022
Crane	3	5	1.67	2	2020
Curlew	45	322	7.16	108	2020
Dunlin	31	204	6.58	81	2020
Garganey	3	3	1.00	1	2017
Glossy ibis	1	1	1.00	1	2020
Golden plover	35	779	22.26	320	2020
Goldeneye	25	130	5.20	42	2020
Goshawk	1	1	1.00	1	2020
Great northern diver	1	1	1.00	1	2015
Green sandpiper	71	276	3.89	41	2020
Greenshank	25	49	1.96	5	2020
Hen harrier	5	23	4.60	19	2017
Herring gull	168	1,530	9.11	1,000	2021
Hobby	91	172	1.89	13	2020
Honey buzzard	6	6	1.00	1	2020
Kingfisher	124	533	4.30	60	2020
Kittiwake	10	20	2.00	5	2020
Lapwing	100	2,833	28.33	600	2021
Little egret	159	456	2.87	41	2021
Little gull	11	26	2.36	10	2020
Little ringed plover	28	85	3.04	17	2020
Little tern	6	10	1.67	4	2020
Marsh harrier	36	204	5.67	46	2020
Mediterranean gull	7	10	1.43	4	2020
Merlin	18	44	2.44	20	2020
Montagu's harrier	2	2	1.00	1	2015
Osprey	13	14	1.08	2	2020
Peregrine	61	150	2.46	29	2021

Species	No. of Records	Total no. of Individuals	Average Count	Max Count	Last Recorded Year
Pintail	23	40	1.74	9	2020
Pochard	48	362	7.54	34	2021
Red Kite	148	281	1.90	10	2021
Red-necked grebe	1	1	1.00	1	2019
Red-throated diver	1	10	10.00	10	2015
Ringed Plover	23	95	4.13	45	2020
Ruff	11	15	1.36	4	2020
Scaup	5	8	1.60	3	2016
Shag	2	2	1.00	1	2018
Short-eared owl	26	46	1.77	12	2020
Slavonian grebe	2	2	1.00	1	2018
Smew	3	3	1.00	1	2017
Snowy owl	1	1	1.00	1	2014
Spoonbill	6	6	1.00	1	2020
Velvet scoter	2	2	1.00	1	2019
Whimbrel	22	120	5.45	32	2020
White stork	4	4	1.00	1	2017
White-fronted goose	13	372	28.62	200	2020
White-tailed eagle	2	2	1.00	1	2020
Whooper swan	1	1	1.00	1	2015
Wood sandpiper	5	7	1.40	3	2020
Woodcock	62	96	1.55	8	2020

Table A8.8.13 Collision risk secondary species desk study records

Species	No of Records	Total no. of Individuals	Average Count	Max Count	Last Recorded Year
Black swan	3	3	1.00	1	2020
Black-headed Gull	336	8,172	24.32	400	2021
Brent goose (dark-bellied)	7	12	1.71	6	2020

Species	No of Records	Total no. of Individuals	Average Count	Max Count	Last Recorded Year
Buzzard	438	1,300	2.97	58	2021
Canada goose	131	2,404	18.35	600	2021
Caspian gull	1	1	1.00	1	2020
Cattle egret	1	1	1.00	1	2019
Chiloe wigeon	3	3	1.00	1	2017
Common guillemot	1	2	2.00	2	2020
Common gull	160	725	4.53	200	2021
Common sandpiper	40	103	2.58	25	2020
Cormorant	159	711	4.47	31	2021
Curlew sandpiper	5	20	4.00	7	2020
Egyptian goose	20	67	3.35	8	2021
Eider	1	1	1.00	1	2019
Gadwall	39	562	14.41	120	2021
Gannet	6	14	2.33	6	2020
Goosander	42	150	3.57	38	2021
Great black-backed gull	40	85	2.13	12	2020
Great crested grebe	164	819	4.99	93	2021
Great skua	5	9	1.80	4	2020
Great white egret	24	27	1.13	2	2021
Grey heron	169	480	2.84	48	2021
Grey phalarope	1	1	1.00	1	2014
Grey plover	23	174	7.56	72	2020
Greylag goose	201	1,126	5.60	130	2021
Hybrid duck	1	1	1.00	1	2018
Hybrid goose	1	1	1.00	1	2018
Iceland gull	1	1	1.00	1	2014
Jack snipe	9	14	1.56	4	2020
Kestrel	336	799	2.38	49	2021

Species	No of Records	Total no. of Individuals	Average Count	Max Count	Last Recorded Year
Knot	12	64	5.33	31	2020
Lesser black-backed gull	197	484	2.46	25	2021
Little grebe	114	410	3.60	31	2021
Little owl	102	162	1.59	13	2021
Little stint	2	15	7.50	11	2020
Long-eared owl	4	5	1.25	2	2019
Mallard	277	10,353	37.38	237	2021
Mandarin duck	22	34	1.55	4	2020
Manx shearwater	1	1	1.00	1	2020
Muscovy duck	11	11	1.00	1	2017
Mute swan	149	931	6.25	67	2021
Oystercatcher	54	206	3.81	40	2021
Pink-footed goose	3	32	10.67	30	2016
Razorbill	2	2	1.00	1	2020
Red-breasted merganser	3	11	3.67	9	2019
Red-crested pochard	2	2	1.00	1	2019
Red-footed falcon	1	1	1.00	1	2019
Redshank	26	90	3.46	21	2018
Rough-legged buzzard	4	4	1.00	1	2016
Ruddy duck	1	1	1.00	1	2013
Sanderling	4	13	3.25	8	2020
Shelduck	75	480	6.40	106	2021
Shoveler	27	262	9.70	46	2021
Snipe	61	163	2.67	16	2020
Sparrowhawk	223	777	3.48	73	2022
Spotted redshank	1	3	3.00	3	2013

Species	No of Records	Total no. of Individuals	Average Count	Max Count	Last Recorded Year
Tawny owl	81	223	2.75	55	2021
Teal	112	1,973	17.62	340	2021
Tufted duck	124	1,891	15.25	141	2021
Turnstone	20	120	6.00	62	2020
Wigeon	15	545	36.33	194	2021
Yellow-legged gull	25	98	3.92	38	2020

4.2 Habitat Review

Habitat Suitable for Wintering/Passage Birds

4.2.1 The Order Limits pass predominantly through arable farmland, with areas of grassland and woodland mainly occurring along river valleys that cross the Project. Larger fields throughout could be suitable to provide some foraging or roosting value for wading birds, such as lapwing, and geese. Field boundaries are generally marked with hedgerows, which are likely to support wintering thrushes and resident farmland birds, as well as breeding farmland species, which are likely to be in denser flocks in the smaller fields.

Section A

4.2.2 The Project crosses the River Waveney and tributaries north of Diss, with associated woodlands, grassland, and a lake. Roydon Fen CWS and LNR is present adjacent to the Order Limits to the east comprising fen and wet woodland. The route crosses the River Tas at VP2, with wetlands at Carlton Rode Fen CWS present immediately to the west. Tributaries of the Waveney are present at Tacolneston and at VP1, with the Norfolk Valley Fens SAC at Flordon.

Section B

4.2.3 The Project crosses a watercourse at Offton in the south of the section, with Middle Wood, Offton SSSI adjacent to the Order Limits. The River Gipping and a tributary are crossed at Needham Market which form a grassland and woodland corridor. The River Gripping is also crossed further upstream at Mendelsham. The Project crosses three tributaries of the River Waveney, including at VP4, again supporting some woodland. Wortham Ling SSSI is adjacent to the Order Limits near Diss, designated for lowland dry heath and acid grassland.

Section C

4.2.4 Section C includes Ardleigh Reservoir and gravel pits and large fields at Ardleigh, which are likely to be of value for a range of waterfowl. The Project crosses Belstead Brook at Burstal (VP6), west of Ipswich, which comprises a mosaic of grassland and woodland habitats, including Sproughton Park CWS. Reservoirs and Highham Meadow CWS mosaic grassland are present at Halton St Mary. The Project crosses

the River Stour at Stratford St Mary, with grassland and large waterbodies on the route and Wasses Marshes CWS adjacent the Order Limits to the west. Woodlands to the south of the Stour include several LWSs.

Section D

4.2.5 The Project crosses the Roman River at Marks Tey, with Marks Tey Brickpit LWS (and geological SSSI), comprising a woodland grassland mosaic. The Project crosses the River Colne near Fordstreet (VP2), with a corridor of grassland and woodlands including Fiddlers Wood LWS and Fordham Bridge Meadow LWS. There are four waterbodies over 1 ha within 200 m of the Order Limits in this Section.

Section E

4.2.6 The Project crosses the River Brain (VP15) near White Notley. It also crosses an outflow from a group of lakes near Silver End (VP14), and the River Blackwater with two waterbodies in the vicinity (VP13) near Coggeshall. Woodlands making up Coggeshall Hall Farm LWS are also present here. There are a few small woodlands along the route, and a larger woodland (Mann/Parson's Wood LWS) adjacent the Order Limits at Great Leighs at the southern end of the Section.

Section F

4.2.7 The Project crosses three rivers around Chelmsford; the River Can, the River Ter and the River Chelmer. There is a reservoir 0.4 km west of the route near Mill Green in the south of the section and a waterbody over 1 ha within 200 m of the Order Limits near Broomfield. The Project also crosses an old gravel works at Pengymill, west of Chelmsford, consisting of an area of grassland adjacent to scrub with waterbodies in the wider area. There are several small woodlands along the route.

Section G

4.2.8 Section G includes some areas of agricultural grassland, which is generally found in smaller fields. This Project crosses the River Wid twice in this section. There are no large waterbodies within the Order Limits, but there is one reservoir c.3.5 ha adjacent to the Order Limits near Margaretting. Several smaller waterbodies are present in the immediate vicinity of the Order Limits as well as several woodlands.

Section H

4.2.9 The most significant habitats in this section are associated with the Thames Estuary and Marshes SPA/Ramsar situated to the south-east of the Order Limits. Wetlands and waterbodies associated with Mucking Flats and Marshes SSSI are located approximately 1.8 km to the east of the Order Limits. One waterbody of approximately 1 ha is adjacent to Order Limits at Linford, along with several small woodland LWSs and a golf course. Fields in the south of the section have extensive stretches of existing powerline infrastructure.

4.3 Survey Results

Description of Survey Locations

4.3.1 Survey locations were determined following the desk-based habitat review (Section 4.2). A more detailed description of the habitats present at each 2022/2023 survey location is provided in Table A8.8.14. Habitat descriptions for the 2023/2024 Tilbury survey locations are described in Table A8.8.15.

Table A8.8.14 Description of 2022/2023 survey locations

Project Section	Survey Location	Survey Type	Description
A	1	Vantage Point	A range of habitats, dominated by arable, grassland fields, and mixed woodland parcels. Most of the arable fields comprised low stubble during the surveys. The grasslands had also been grazed to a low sward by livestock. A stream was present through the centre of the site. The only landscape changes through the survey period were caused by farming activities such as ploughing of fields.
A	2	Vantage Point	A series of arable and pastoral fields surrounded by native hedgerows. The arable fields comprised low stubble at the time of survey, and the pastoral grassland fields had been kept short by livestock grazing. The River Tas was present in the centre of the site, surrounded by scrub and trees. Small parcels of mixed woodland were also present in the east and west sides of the site. No major landscape changes occurred during the survey period other than standard farming activities.
A	3	Vantage Point	The site comprised a mixture of arable fields and mixed woodland parcels, with the River Waveney present in the centre of the site. Native hedgerows were present surrounding the arable fields. The arable fields comprised low stubble at the time of survey. The wider area was dominated by arable fields and woodland. No major landscape changes occurred during the survey period other than standard farming activities.
B	4	Vantage Point	Comprised a series of arable fields and plantation woodland to the north and south of Wickham Road. Hedgerows were present surrounding the arable fields and bordering Wickham Road. The arable fields comprised low stubble at the time of the surveys. The only landscape changes through the survey period were caused by ploughing of fields.
B	5	Vantage Point	Comprised a series of arable and pastoral grassland fields, with a parcel of plantation woodland in the east. The River Gipping and a railway line were present bisecting the centre of the site. The arable comprised low stubble at the time of survey, and the grassland fields had been kept short by livestock grazing. No major landscape changes occurred during the survey period other than standard farming activities.

Project Section	Survey Location	Survey Type	Description
C	6	Vantage Point	The site was dominated by arable fields and three lakes which were in use as a fishery. Small parcels of mixed woodland and scrub were also present throughout the site. Thorpes Hill Road was present in the west side of the site. The arable fields comprised low stubble at the time of survey. No major landscape changes occurred during the survey period other than standard farming activities.
C	7	Transect	Three large arable fields which comprised low stubble at the time of survey, with ploughing occurring during the survey period. Game bird cover crop strips remained. Native hedgerows were present around the boundary of the site, which had been subject to regular cutting. The wider area was dominated by arable fields, with small strips of woodland present immediately to the north and south of the site.
C	8	Transect	Comprised a series of arable fields which were a mix of low stubble and leafy crop at the start of the surveys, with some rotational changes throughout the survey period. A road passed through the centre of the site. Native hedgerows were present around the boundary of the site, with mature trees within the hedgerows. Small areas of woodland were present to the north.
C	9	Vantage Point / Transect	The site comprised a wide range of habitats. The centre of the site was dominated by the River Stour which flowed west to east through the centre of the site and was lined with scattered trees and scrub. To the west of the Stour, a grassland area and lake were present which was managed as a nature reserve, with smaller areas of woodland and scrub. Arable fields were present in the north and south of the site, with smaller parcels of mixed woodland. The arable fields comprised low stubble at the time of survey. Hedgerows were present along the boundaries of the arable fields, the majority of which were regularly managed. No major landscape changes occurred during the survey period other than standard farming activities.
C	10	Transect	Dominated by arable fields which comprised stubble at the time of survey. Some areas had been left unmanaged to provide cover for game birds. Rotational activities such as ploughing occurred through the survey season. Native hedgerows were present along field boundaries. Most of the hedgerows were regularly managed. Mature scattered trees were present throughout the hedgerows. An area of mixed woodland was present in the south-west side of the site. A waterbody used for fishing was present in the fields just to the north-west of Ardleigh village. The site was bisected by a railway in the east and Dedham Road in the centre. The wider

Project Section	Survey Location	Survey Type	Description
			surroundings were dominated by arable fields and small parcels of woodland.
C	11	Vantage Point	A range of habitats, dominated by arable fields, mixed woodland, and a large lake. The arable fields comprised low stubble at the time of survey. Hedgerows were present along the boundaries of the arable fields, the majority of which were regularly managed. A caravan site was present in the east of the site. The wider area was dominated by arable fields, with small woodlands and lakes, several of which were in use as fisheries.
D	12	Vantage Point	A series of arable and pastoral grassland fields, located to the north and south of the River Colne which was present in the centre of the site. Most of the arable fields comprised low stubble at the time of survey. The pastoral grassland fields had been grazed to a low sward by livestock. Hedgerows were present surrounding the fields, and small parcels of mixed woodland were present in the west of the site. Mill Road was also present in the west of the site.
E	13	Vantage Point	Comprised a wide range of habitats. The centre of the site was dominated by the River Blackwater which flowed west to east and was lined by scattered trees and scrub. Arable fields were present throughout the site, the majority of which comprised stubble. Small parcels of mixed woodland were present throughout. A small lake was present in the centre of the site which was managed as a fishery, and a water treatment site was present in the west. No major landscape changes occurred during the survey period other than standard farming activities.
E	14	Vantage Point	Small grassland fields dominated the west of the site, with arable farmland in the eastern half. A stream was present with a band of woodland along its course. Several waterbodies were present, including four over 0.75 ha.
E	15	Vantage Point	The River Brain corridor comprises a belt of woodland along the river, bordered by a mix of relatively small (up to around 10 ha) arable and grassland fields with hedgerow margins and other stands of woodland. Small tributaries drained into the river and a small waterbody (1.5 ha) was present on the south-western edge of the site.
F	16	Vantage Point	The River Ter valley was largely dominated by a woodland and grassland mosaic, which forms part of Lowley's Farm Meadows County Wildlife Site in the north-west of the site. Large fields (over 10 ha) with hedgerow margins, border the river corridor to the north and south.

Project Section	Survey Location	Survey Type	Description
F	17	Vantage Point	The site comprised predominantly arable farmland. A belt of scrub and trees was present along the River Chelmer and adjacent to the B1008 to the east. An extended area of woodland, forming Langley's Deer Park, was present along the north-west boundary of the site.
G	18	Vantage Point	Located near Mountnessing. The River Wid runs east to west across the site and is flanked by a small corridor of scrub and trees. On the north side of the river, a horse-grazed field was present on the east side and an arable field was present to the west. On the south side of the river, a large field was used to grow pumpkins. Small areas of woodland are present on site as well as mature trees. No major landscape changes occurred during the survey period other than standard farming activities.

Table A8.8.15 Description of 2023 / 2024 Tilbury survey locations

Project Section	Survey Location	Survey Type	Description
H	19	Vantage Point	This site is located north of East Tilbury, near Walton's Hall and is the furthest from the Thames Estuary. The habitat was predominantly overgrown grassland with mixed scrub. A fast road (Buckingham Hill Road) runs along the edge of the site with fast moving traffic, including Heavy Goods Vehicles. No major landscape changes were observed during the period of survey.
H	20	Vantage Point	The site is located just west of Linford. The habitat was comprised of arable fields, with hedgerows and individual trees. A pond was located just beyond the northern boundary of the site, with another waterbody adjacent to Holford Road just outside of the western site boundary. An old barn was present towards the centre of the site. Aside from standard farming activities, no major changes were observed during the period of survey.
H	21	Vantage Point	The site is located just south of Tilbury Site 2, south of Muckingford Road. The habitat was comprised of arable fields, with hedgerows and individual trees. A pond was located on the south-eastern boundary of the site. Aside from standard farming activities, no major changes were observed during the period of survey.
H	22	Vantage Point	The site is situated just by Tilbury Substation with the habitat mostly comprising arable land. The site was surrounded by gulleys with reeds, which would suggest deep water. A busy road (Fort Road) runs along the western edge of the site which had fast moving traffic. The site had numerous pylons of different sizes running through it. On occasion, areas of this

Project Section	Survey Location	Survey Type	Description
			site would become waterlogged after periods of intense/prolonged rainfall. Aside from this, no major changes were observed during the period of survey.

Collision Risk Target Species

4.3.2 Peak counts of all Collision Risk Target and Secondary Species are presented foreach VP in Annex E. The number of months (out of the seven-month survey period) in which the birds were recorded is also shown.

4.3.3 Table 8.8.28 in Annex F presents a summary of the total time spent by all Collision Risk Target and Secondary Species within the potential impact risk zone of the proposed overhead line conductor array (height bands 2 and 3). This is calculated in bird-minutes based on the time spent within each height band multiplied by the number of birds in each flight record, totalled across the 36 hours of surveying.

4.3.4 The following Target Species were recorded at collision risk height during the survey work; barn owl, golden plover, green sandpiper, herring gull, hobby, lapwing, little egret, marsh harrier, peregrine, red kite and whooper swan. The majority of these were rare sightings and as such, their flight times at this height were short. The two species to spend the most amount of time at collision risk height were herring gull and lapwing, although in comparison with the total VP time, these were also relatively infrequent.

4.3.5 Herring gulls were primarily observed in mixed gull flocks. The largest lapwing flock comprised 45 birds at VP16; these birds were observed feeding / roosting on a large arable field before taking off and commuting away. Similar behaviour in smaller flocks was observed elsewhere.

4.3.6 As shown in Annex F, a range of Secondary Species were recorded at collision risk height across the VPs. The species that spent the most amount of time at collision risk height comprised other gulls (black-headed, common and lesser black-backed), Canada goose, common buzzard, greylag goose, and mallard. The greatest activity was that of gulls; mixed gull flocks of 250+ birds, primarily comprising black-headed gulls, that were observed commuting to and from arable fields.

4.3.7 The greatest number of Target and Secondary species recorded at a single location were at VP11, although most flights observed were below collision risk height. This VP was situated at Ardleigh Reserve and was approximately 5 km from the Stour and Orwell Estuaries SPA.

HRA Target Species

Stour and Orwell Estuaries SPA

Collision Risk

4.3.8 Collision risk is primarily covered within the previous section, but VP11 is located within 5 km of the Stour and Orwell Estuaries SPA/Ramsar site (4.9 km south-west of this designated site), and overhead lines are proposed. Therefore, collision risk to

specific HRA Target Species has been reviewed. The only HRA Target Species recorded in flight at VP11 was cormorant, an Assemblage Species rather than a Qualifying Species. Cormorant flight details are provided in Table A8.8.16.

Table A8.8.16 Records of HRA target species at VP11

Target Species	Month and Year	Count	Record Description
Cormorant	October 2022	1	Flying over at 10 – 25 m
Cormorant	November 2022	1	Flying over at 10 – 25 m
Cormorant	December 2022	1	Flying over at 10 – 25 m
Cormorant	December 2022	1	Flying over at < 10 m
Cormorant	December 2022	1	Landing on water
Cormorant	February 2023	1	Flying over at 10 – 25 m
Cormorant	February 2023	1	Flying over at 25 – 50 m
Cormorant	February 2023	1	Flying over at 10 – 25 m

4.3.9 As can be seen in the above table, very few cormorant flights were observed. Table 8.8.28 in Annex F shows that during these flights, a total of 2.75 minutes was spent at collision risk height, which is an insignificant figure considering the total survey time at this location (0.12% of total survey time). Therefore, collision risk impacts to HRA Target Species are not considered to be significant.

Habitat Loss and Disturbance of FLL

4.3.10 As described in the methods, most of the survey effort for the Stour and Orwell Estuaries SPA/Ramsar wintering bird assessment consisted of transect surveys, except for VP surveys: VP9 and VP11.

4.3.11 VP11 was designed to cover collision risk analysis, but also returned notes on habitat use by birds. The VP at Survey Location 9 was used alongside a transect due to access restrictions. Survey Location 9 includes the River Stour, Langham Lake and associated wetlands/arable fields, which was highlighted as having a concentration of bird records during the desk study.

4.3.12 A summary of the peak counts from transect and VP surveys combined for the Qualifying and Assemblage Species of the Stour and Orwell SPA/Ramsar site is presented in Annex G. Additional wetland species not included on the SPA/Ramsar site citations are also shown.

4.3.13 A total of 34 wetland species were recorded during the transects (combined with VP results). Two Qualifying Species were recorded during the survey work: black-tailed godwit and dark-bellied brent goose. A single record of four black-tailed godwit was made at Survey Location 9. Dark-bellied brent goose was recorded at Survey Location 10 and 11 on single occasions, with eight birds and one bird recorded at each location respectively.

4.3.14 Assemblage Species included cormorant, curlew, gadwall, golden plover, great crested grebe, lapwing, shelduck and wigeon. Most of these records were at Survey

Location 10 and to a lesser extent, Survey Location 7, 8, 9 and 11. Survey Location 10 covered a large area of mainly arable land with a fishing lake.

4.3.15 To determine the importance of each Survey Location, the significance of the HRA Target Species recorded is outlined in Table A8.8.17. The peak counts used in this table are of birds utilising the habitats within the Survey Location (birds flying overhead would not be affected by the Project). Where data is available, peak counts have been compared to counts listed on the SPA and Ramsar site citations, as well as peak mean counts from the Stour and Orwell Estuaries SPA WeBS data (provided by the BTO to cover the SPA area only). Where counts are over the 1% threshold, the percentage within the table has been highlighted and underlined.

Table A8.8.17 Significance of peak counts of HRA target species for the Stour and Orwell Estuaries SPA / Ramsar site recorded during wintering bird surveys

Species	Peak Count and Survey Location No.					% of SPA Citation (1995/96 - 1999/00)					% of Ramsar site Citation (1995/96 - 1999/00)					% of Stour and Orwell Estuaries SPA WeBS Peak Mean Count (2018/19 - 2022/23)				
	7	8	9	10	11	7	8	9	10	11	7	8	9	10	11	7	8	9	10	11
Qualifying Species																				
Black-tailed Godwit	-	-	4	-	-	-	-	0.2	-	-	-	-	0.2	-	-	-	-	0.2	-	-
Brent Goose (Dark-bellied)	-	-	-	8	1	-	-	-	0.3	<0.1	-	-	-	0.3	<0.1	-	-	-	0.3	<0.1
Assemblage Species																				
Cormorant	-	-	1	21	1	-	-	-	-	-	-	-	0.4	9.1	0.4	-	-	0.2	3.3	0.2
Curlew	-	-	-	4	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	0.2	-
Gadwall	-	-	-	45	25	-	-	-	-	-	-	-	-	-	-	-	-	-	23.6	13.1
Golden Plover	1	-	-	70	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	5.2	-
Great Crested Grebe	-	-	-	3	2	-	-	-	-	-	-	-	-	1.2	0.8	-	-	-	2.8	1.9
Lapwing	1	45	12	60	-	-	-	-	-	-	-	-	-	-	-	<0.1	2.2	0.6	3.0	-
Shelduck	-	-	3	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	0.2	-	-
Wigeon	-	-	5	1	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	<0.1	-

4.3.16 The peak counts of Qualifying Species made during the surveys, are below 1% of the numbers on the SPA and Ramsar site citations, as well as the mean peak counts from the Stour and Orwell Estuaries SPA WeBS data. In addition, the habitats within the Order Limits are not considered suitable to support large numbers of the estuarine Qualifying Species, although Survey Location 9 does provide wetland habitat for other wetland species.

4.3.17 Two Assemblage Species reach the 1% threshold of the bird figures on the Ramsar site citation: cormorant and great crested grebe, both at Survey Location 10. These birds were associated with waterbodies within the Survey Area. They are not reliant on the arable habitat which makes up most of the habitats in this area. Despite the significance, these are both common wintering birds found at most inland rivers and waterbodies across the UK. A peak count of three great crested grebe is still considered a small number despite its significance against the Ramsar site citation.

4.3.18 Excluding cormorant and great crested grebe (discussed above), three additional Assemblage Species are shown as significant against the Stour and Orwell Estuaries SPA WeBS data; gadwall (Survey Location 10 and 11), golden plover (Survey Location 10) and lapwing (Survey Location 8 and 10). Although good numbers of gadwall were using waterbodies in the area, like the cormorant and great crested grebe, their numbers are also small considering the wintering numbers across the UK.

4.3.19 Lapwing numbers have been shown to be significant at Survey Location 8 and 10. They were observed foraging and/or roosting in suitable fields at both of locations 8 and 10. Golden plover was recorded on two occasions, on one of these occasions a flock of 70 birds roosting at Survey Location 10 was recorded, this number is considered to be significant. Therefore, the habitats in these areas could be considered FLL for both lapwing and golden plover. Figure A8.8.17 – Field Results – Stour & Orwell Estuaries SPA/Ramsar Assemblage Species (Lapwing & Golden Plover) in Annex A shows the field results of grounded lapwing and golden plover, which also shows the extent of the FLL.

Thames Estuary and Marshes SPA

4.3.20 A summary of the VP peak counts for the Qualifying and Assemblage Species of the Thames Estuary and Marshes SPA/Ramsar are presented in Table A8.8.30 in Annex H. Additional wetland species not included on the SPA/Ramsar citations are also shown.

4.3.21 No Qualifying Species were recorded at Survey Location 19 to 22. Assemblage Species were recorded at Survey Location 20, 21 and 22 (although at Survey Location 22 this was only birds flying overhead). At Survey Location 20, three Assemblage Species were recorded on a small waterbody: little grebe, pochard and tufted duck. At Survey Location 21, a single record of a calling golden plover was made, while records of roosting and flying lapwing were also made. Lapwing flocks were also recorded at Survey Location 22; however, these were all of birds in flight overhead rather than using the habitats within the area. A more detailed breakdown of the lapwing records across these Survey Locations is provided in Table A8.8.18 below, while field maps showing the location of grounded Assemblage Species is shown on Figure A8.8.18 – Field Results – Thames Estuary and Marshes SPA/Ramsar Species in Annex A.

Table A8.8.18 Lapwing observations made during wintering bird surveys across Tilbury survey locations

Survey Location	Date	Behaviour and Flight Direction	Count
21	11/01/24	Roosting	75
		Flying overhead (south-east)	39
	23/01/24	Roosting	43
22	30/11/23	Flying overhead (north)	31
	07/12/23	Flying overhead (south)	101
	12/01/24	Flying overhead (west)	47

4.3.22 To determine the importance of each Survey Location, the significance of the Assemblage Species recorded is outlined in Table A8.8.19. Peak count numbers have been adjusted in the analysis to reflect birds on the ground (rather than those overhead). As such, Survey Location 22 is not included here as no Assemblage Species were recorded using the habitats.

4.3.23 Assemblage Species numbers are not present on the SPA citation, but they have been compared to counts listed on the Ramsar site citation (where available), as well as peak mean counts from the Thames Estuary and Marshes SPA WeBS data (provided by the BTO to cover the SPA area only).

Table A8.8.19 Significance of peak counts of assemblage species for the Thames Estuary and Marshes SPA/Ramsar site recorded during Tilbury wintering bird surveys

Assemblage Species	Peak Count (Survey Locations 20 and 21)		% of Ramsar site Citation (1998/99 - 2002/03)		% of Thames Estuary and Marshes SPA WeBS Peak Mean Count (2018/19-20022/23)	
	20	21	20	21	20	21
Golden Plover	-	1	-	-	-	<0.1
Lapwing	-	75	-	-	-	0.6
Little Grebe	1	-	0.4	-	<0.1	-
Pochard	1	-	-	-	<0.1	-
Tufted Duck	5	-	-	-	0.2	-

4.3.24 As shown within Table A8.8.19, the peak counts of the Assemblage Species at Survey Locations 20 and 21 are small and do not exceed the 1% threshold for the Ramsar site citation (where available) or the peak mean counts of the Thames Estuary and Marshes SPA WeBS data.

4.3.25 The survey results have shown Survey Location 19 to 22 do not support significant numbers of the Thames Estuary and Marshes SPA/Ramsar site Qualifying or Assemblage Species. This coupled with the fact the habitat notes did not identify notable habitat for these species, indicates that the Order Limits and the habitat in the immediate vicinity is not FLL.

5. Conclusion

5.1.1 Four European designated sites with wintering bird interest have been included in this assessment: Stour and Orwell Estuaries SPA and Ramsar site, and the Thames Estuary and Marshes SPA and Ramsar site. The desk study results for individual bird records show clusters of bird data at three locations: Langham Lake along the River Stour, Ardleigh Reservoir and habitats within the vicinity of the Thames Estuary. All three of these locations are situated within approximately 5 km of one of these SPA/Ramsar sites.

5.1.2 The fieldwork to assess collision risk did not record Target Species in flight at collision risk height for a notable amount of time. With regard to Secondary Species, the greatest activity was that of gulls; mixed gull flocks were observed which primarily comprised black-headed gulls. These were observed commuting to and from arable fields.

5.1.3 The fieldwork designed to aid the assessment of potential LSEs on European designated sites, has highlighted two areas of FLL within the Order Limits and 5 km of the Stour and Orwell Estuaries SPA/Ramsar site. These areas have been identified based on the significant numbers of lapwing and golden plover using the habitats. No FLL for the Thames Estuary and Marshes SPA/Ramsar site has been identified within the Order Limits.

Abbreviations

Abbreviation	Full Reference
BAP	Biodiversity Action Plan
BoCC	Birds of Conservation Concern
BTO	British Trust for Ornithology
CIEEM	Chartered Institute of Ecology and Environmental Management
CSE	Cable Sealing End
CWS	County Wildlife site
DCO	Development Consent Order
DEFRA	Department for Environment, Food and Rural Affairs
EIA	Environmental Impact Assessment
ES	Environmental Statement
FLL	Functionally Linked Land
HRA	Habitat Regulations Assessment
IRZ	Impact Risk Zones
LNR	Local Nature Reserve
LSE	Likely Significant Effects
LWS	Local Wildlife Site
MAGIC	Multi Agency Geographic Information for the Countryside
NERC	Natural Environment and Rural Affairs
NSN	National Site Network
pSSSI	Proposed Site of Special Scientific Interest
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Sites of Special Scientific Interest
S41	Section 41
VP	Vantage Point
WCA	Wildlife and Countryside Act
WeBS	Wetland and Estuaries Bird Survey

Glossary

Term	Description
Assemblage	The collection of species, of a particular group, which occur in the same habitat or area.
Bird of Passage	A bird which migrates from one area to another when the season changes.
Cable	An insulated conductor designed for underground installation.
Conductor	The overhead wire that carries electricity from one place to another, for example the line between two pylons.
County Wildlife Site	Non-statutory designated areas of land important for their wildlife and nature conservation value (Norfolk and Suffolk).
Habitat	The natural home or environment of an animal, plant, or other organism.
Habitat Degradation	A set of processes by which habitat quality is reduced.
Habitat Fragmentation	Processes by which large, continuous habitats are divided into smaller, isolated patches. Often as a result of human activities.
Habitat Regulations Assessment	The process by which plans and projects are assessed as to whether they are likely to have a significant effect on a European site either alone or in combination with other plans or projects, under the Conservation of Habitats and Species Regulations 2017, as amended.
Local Nature Reserve	Sites dedicated by the local authority under Section 21 of the National Parks and Access to the Countryside Act 1949 for nature conservation which have wildlife or geological features that are of special interest locally.
Local Wildlife Site	Non-statutory designated areas of land important for their wildlife and nature conservation value (Essex).
Non-Statutory Designated Site	Areas which are recognised for their ecological importance but do not have the same level of legal protection as statutory designated sites. These are typically identified at a local or regional level through non-legally binding agreements, policies, or planning frameworks.
Order Limits	The maximum extent of land within which the authorised development may take place.
Ornithology	The scientific study of birds.
Overhead Line	Conductor (wire) carrying electric current, strung from pylon to pylon.

Term	Description
Ramsar	Wetlands of international importance designated under the Convention on Wetlands of International Importance Especially as Waterfowl Habitat 1971.
Sites of Special Scientific Interest	Sites protected by law under the Wildlife and Countryside Act 1981. They are important because they support rare or endangered fauna and flora, and they represent the United Kingdom's best wildlife and geological sites.
Special Protection Area	An area designated under the European Union's Birds Directive (Directive 2009/147/EC) aimed at protecting rare, vulnerable, and migratory bird species and their habitats of European importance.
Species	A group of living organisms consisting of similar individuals capable of exchanging genes or interbreeding.
Statutory Designated Site	An area that has been legally designated and protected for its importance to biodiversity.
Substation	Substations are used to control the flow of power through the electricity system. They are also used to change (or transform) the voltage from a higher to lower voltage to allow it to be transmitted to local homes and businesses.
Transect	A defined path along which observations, measurements, or samples are taken in order to study the distribution and abundance of organisms, physical features, or other environmental variables.
Underground Cabling	An insulated conductor carrying electric current designed for underground installation. Underground cables link together two cable sealing end compounds.
Vantage Point	A location that offers a broad and elevated view of an area, which is used to observe bird activities.
Wintering Birds	Bird species which spend the winter in the United Kingdom.

Bibliography

Bibby, C.J., Burgess, N.D., Hill D.A. and Mustoe, S.H. (2000) *Bird census techniques.* Academic Press, London.

Bowland Ecology (2021) *Identification of Functionally Linked Land supporting SPA waterbirds in the North West of England.* NERC361. Natural England

Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (No. 579). [online] Available at: https://www.legislation.gov.uk/uksi/2019/579/contents (Accessed: 13 June 2025).

Council of Europe (1979) *Convention on the Conservation of European Wildlife and Natural Habitats. Bern, Switzerland, 19 September 1979*. [online] Available at: https://rm.coe.int/1680078aff (Accessed: 16 June 2025).

European Parliament and Council (2009) *Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.* Official Journal of the European Union, L 20, pp. 7–25. [online] Available at: https://eur-lex.europa.eu/eli/dir/2009/147/oj (Accessed: 16 June 2025).

Gilbert, G., Gibbons, D.W. and Evans, J. (1998) *Bird Monitoring Methods: A manual of Techniques for UK Key Species.* The Royal Society for the Protection of Birds, Sandy, Bedfordshire, England.

Natural England (2025) *MAGIC: Multi-Agency Geographic Information for the Countryside.* [online] Available at: https://magic.defra.gov.uk (Accessed: 13 June 2025).

*Natural Environment and Rural Communities Act 200*6 (c.16). [online] Available at: https://www.legislation.gov.uk/ukpga/2006/16/contents (Accessed: 13 June 2025).

NatureScot (2016) *Guidance – Assessment and mitigation of impacts of power lines and guyed meteorological masts on birds.* [online] Available at: Guidance - Assessment and mitigation of impacts of power lines and guyed meteorological masts on birds | NatureScot (Accessed: 16 June 2025).

Ramsar Convention Secretariat (1971) *Convention on Wetlands of International Importance especially as Waterfowl Habitat.* Ramsar, Iran, 2 February 1971. [online] Available at: https://www.ramsar.org/sites/default/files/documents/library/current_convention_text_e.pdf (Accessed: 16 June 2025).

Scottish Natural Heritage (2017) *Recommended bird survey methods to inform impact assessment of onshore wind farms.* [online] Available at: Recommended bird survey methods to inform impact assessment of onshore windfarms | NatureScot (Accessed: 16 June 2025).

Stanbury, A.J., Eaton, M.A., Aebischer, N.J., Balmer, D., Brown, A.F., Douse, A., Lindley, P., McCulloch, N., Noble, D.G. and Win, I. (2021) *The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain.* British Birds, 114: 723 – 747.

Stanbury, A.J., Burns, F., Aebischer, N.J., Baker, H., Balmer, D., Brown, A.F., Dunn, T., Lindley, P., Murphy, M., Noble, D.G., Owens, R. & Quinn, L. (2024) *The status of the UK's breeding seabirds: an addendum to the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain.* British Birds, 117: Pages 471 – 487.

Wildlife and Countryside Act 1981 (c.69). [online] Available at: https://www.legislation.gov.uk/ukpga/1981/69 (Accessed: 13 June 2025).

Appendix A. Figures

See parts 2 to 4

Annex B. Designated Sites Information

Annex B
Designated Sites Information

Table A8.8.20 Summary of SPA and Ramsar sites within the bird Study Area

Site Name	Details (including qualifying features)
Abberton Reservoir SPA and Ramsar Site (Section D)	Abberton reservoir regularly supports a nationally important breeding population of cormorant, more than 20,000 wintering waterfowl. The site regularly supports internationally or nationally important wintering populations of wigeon, gadwall, great crested grebe, mute swan, shoveler, teal, pochard, tufted duck, goldeneye, and coot. In addition, the site regularly supports substantial concentrations of migratory mute swan, gadwall, shoveler, pochard and tufted duck in the late summer
Benfleet and Southend Marshes SPA and Ramsar Site (Section H)	Over winter the Benfleet and Southend Marshes SPA regularly supports important populations of dark-bellied brent goose, dunlin, knot, and grey plover as well as over 20,000 waterbirds.
Blackwater Estuary (Mid-Essex Coast Phase 4) SPA and Ramsar Site (Section D/E)	The Blackwater Estuary supports important breeding populations of little tern, pochard and ringed plover. It supports important wintering populations of hen harrier, dark-bellied brent geese, grey plover, dunlin, black-tailed godwit, cormorant, shelduck, gadwall, teal, goldeneye, ringed plover, curlew, and redshank. The estuary also regularly supports, in winter over, 20,000 waterfowl.
Breckland SPA (Section A)	Dry heath and grassland designated for internationally important populations of stone curlew, nightjar, and woodlark.
Broadland SPA and Ramsar Site (Section A)	During the breeding season, the SPA regularly supports important populations of bittern and marsh harrier. During the wintering or passage seasons, the SPA supports important populations of Bewick's Swan, whooper swan, hen harrier, ruff, wigeon, gadwall and shoveler.
Colne Estuary (Mid-Essex Coast Phase 2) SPA and Ramsar Site (Section D)	The Colne Estuary supports nationally important breeding populations of little tern and regularly supports a nationally important wintering population hen harrier. In summer, it supports nationally important populations of pochard, ringed plover. In winter, the site regularly supports over 20,000 waterfowl including dark-bellied brent goose and redshank. The Colne Estuary also supports nationally important wintering populations of a further ten species: cormorant, mute swan, shelduck, goldeneye, ringed plover, grey plover, sanderling, dunlin, black-tailed godwit, and curlew.

Site Name	Details (including qualifying features)
Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) SPA and Ramsar Site (Section G)	Crouch and Roach Estuaries SPA is classified for its importance for wintering dark-bellied brent goose and supporting an assemblage of over 20,000 waterbirds in winter.
Deben Estuary SPA and Ramsar Site (Section B/C)	The site regularly supports important numbers of avocet, golden plover, hen harrier, short-eared owl, dark-bellied geese, in winter. In addition, the site supports important numbers of migratory waterfowl including shelduck, grey plover, black-tailed godwit, and redshank. The site also supports a notable assemblage of breeding and wintering wetland birds. Breeding species include shelduck, gadwall, teal, shoveler, redshank, oystercatcher, ringed plover, and snipe. Wintering species include cormorant, teal, pintail, wigeon, goldeneye, coot, oystercatcher, ringed plover, dunlin, snipe, curlew, turnstone and twite.
Dengie (Mid-Essex Coast Phase 1) SPA and Ramsar Site (Section D)	The Dengie regularly supports a nationally important winter population of hen harrier. The Dengie qualifies as a wetland of international importance by regularly supporting, in winter, over 20,000 waterfowl including internationally important numbers of dark-bellied brent geese, grey plover and knot.
Hamford Water SPA and Ramsar Site (Section C)	Little terns nest on sand and shingle to the northeastern corner of Horsey Island. Extensive intertidal mudflats provide an abundant food resource for wintering waterbirds and areas of seagrass are exploited by large flocks of brent geese on their autumn arrival. Ducks, grebes and cormorants feed within the sub-tidal waters and little terns are frequently recorded foraging in the shallower water, along the edges and mouths of creeks and channels. There are shingle spits along the coastline between Pewit Island and Dovercourt and between Walton-on-the-Naze and Stone Point. Ringed plovers use these areas for nesting. The site qualifies for breeding populations of little tern and wintering populations of dark-bellied brent goose, shelduck, Teal, avocet, ringed plover, grey plover, black-tailed godwit, and common redshank.
Medway Estuary and Marshes SPA and Ramsar Site (Section H)	The Medway Estuary and Marshes SPA regularly supports important breeding populations of avocet and little tern and wintering population of avocet. It also supports over 20,000 waterbirds in winter and a diverse assemblage of breeding migratory waterfowl.
Outer Thames Estuary SPA (Marine) (All Sections)	The Outer Thames Estuary SPA is classified for the protection of the largest aggregation of wintering red-throated diver in the UK; it also protects foraging areas for common tern and little tern during the breeding season.
Sandlings SPA (Section C)	The heaths support both acid grassland and heather-dominated plant communities, with dependant invertebrate and bird communities of

Site Name	Details (including qualifying features)
	conservation value including nationally important populations of woodlark and nightjar.
Stour and Orwell Estuaries SPA and Ramsar Site (Section C)	The site supports important numbers of breeding avocet as well as important numbers of passage and wintering birds including qualifying numbers of redshank, dark-bellied brent goose, pintail, grey plover, knot, dunlin and black-tailed godwit. The site also qualifies as it supports over 20,000 waterbirds during the non-breeding season.
Thames Estuary and Marshes SPA and Ramsar Site (Section H)	The site supports important numbers of passage and wintering birds including qualifying numbers of avocet, hen harrier, ringed plover, grey plover, knot, dunlin, black-tailed godwit and redshank. The site also qualifies as it supports over 20,000 waterbirds during the non-breeding season.

Table A8.8. Statutory sites within 2 km of the Order Limits

Designated Site	Criteria
Hutton Country Park LNR (Section G)	Contains a large area of natural grassland, an area of ancient woodland, ponds, wetland and the River Wid, which forms the northerly border. The ponds are extremely valuable for conservation reasons and often support rare species of birds, including kingfisher.
Mucking Flats and Marshes SSSI (Section H)	The mudflats form the largest intertidal feeding area for wintering wildfowl and waders west of Canvey Island on the north bank of the Thames. Ringed plover occur in internationally important numbers, with nationally important populations of shelduck, grey plover, dunlin, black-tailed godwit, and redshank. Other species occur in good numbers, with avocet regularly present, sometimes in nationally important numbers. The mudflats and saltmarsh are also an important staging post for passage migrants, with significant numbers of waders such as curlew sandpiper and an important late summer flock of yellow-legged gulls. The saltmarshes provide important high tide roosts, as do the disused silt lagoons at Coalhouse Fort. The value of the site is enhanced by its proximity to Cliffs and Cooling Marshes SSSI and Higham Marshes SSSI across the Thames in Kent, with which there is an interchange of roosting and feeding birds.

Table A8.8.21 Non-statutory designated sites within 2 km of the Order Limits

Designated Site	Criteria
Thorington Street Pit and Reservoir CWS (Section C)	A complex of semi-natural habitat consisting of old gravel-workings colonised by dense scrub, acidic grassland and a steep-sided man-made lake which is leased to a private club for fishing. The willow and birch scrub which supports nesting birds, for example warblers and nightingale. The scrub is interspersed with patches of acid grassland which support a good range of flowering plants. The lake, although lacking in marginal vegetation, supports breeding ducks and in winter, the open water attracts large numbers of wintering wildfowl and rarer

Designated Site	Criteria
	species such as smew and goosander. Furthermore, a pair of kingfishers breed annually in the sandy cliff.
Wasses Marshes CWS (Section C)	A complex of low-lying grazing marshes which are grazed by cattle and are enclosed by old hedges. Breeding lapwing, redshank and yellow wagtail have been recorded and in winter, when wetter conditions allow, wildfowl and waders have roosted. The hedges provide shelter for wintering birds. The marshes are well connected to surrounding habitats including the River Stour, River Box, and a neighbouring woodland to the south.
Mucking Creek Wetlands LWS (Section H)	The site contains a mosaic of habitats that provide an extremely diverse wetland complex for birds, invertebrates, reptiles and plants. Small areas of dry woodland and scrub add to the habitat diversity. On the site there is an area of dense reedbed, a nationally scarce habitat. The reedbed at Stanford Warren (an area on the site) is one of the largest in Essex, with important populations of reed-feeding moths and other insects. The site is also of ornithological interest due to the regular presence of reed and sedge warbler, water rail and bearded tit. Cetti's warbler breed here. The other wetland habitats present are also a scarce county resource. Taken as a whole, this mosaic of wetland habitats, drier grassland, scrub and woodland, makes for a site rich in wildlife.

Annex C. Scientific Names of Species Mentioned in Text

Annex C
Scientific Names of Species Mentioned in Text

Table A8.8.22 Scientific names of species

Species	Scientific name	Species	Scientific name
Arctic Tern	*Sterna paradisaea*	Cormorant	*Phalacrocorax carbo*
Avocet	*Recurvirostra avosetta*	Crane	*Grus grus*
Barn Owl	*Tyto alba*	Curlew	*Numenius arquata*
Barnacle Goose	*Branta leucopsis*	Curlew Sandpiper	*Calidris ferruginea*
Bar-tailed Godwit	*Limosa lapponica*	Dunlin	*Calidris alpina*
Bewick's Swan	*Cygnus columbianus*	Gadwall	*Mareca strepera*
Bittern	*Botaurus stellaris*	Garganey	*Spatula querquedula*
Black Kite	*Milvus migrans*	Golden Plover	*Pluvialis apricaria*
Black Tern	*Chlidonias niger*	Goldeneye	*Bucephala clangula*
Black-headed Gull	*Chroicocephalus ridibundus*	Goosander	*Mergus merganser*
Black-tailed Godwit	*Limosa limosa*	Goshawk	*Accipiter gentilis*
Black-throated Diver	*Gavia arctica*	Great Black-backed Gull	*Larus marinus*
Brent Goose	*Branta bernicla*	Great Crested Grebe	*Podiceps cristatus*
Buzzard	*Buteo buteo*	Great White Egret	*Ardea alba*
Canada Goose	*Branta canadensis*	Green Sandpiper	*Tringa ochropus*
Caspian Gull	*Larus cachinnans*	Greenshank	*Tringa nebularia*
Common Gull	*Larus canus*	Grey Heron	*Ardea cinerea*
Common Sandpiper	*Actitis hypoleucos*	Grey Plover	*Pluvialis squatarola*
Common Scoter	*Melanitta nigra*	Greylag Goose	*Anser anser*
Common Tern	*Sterna hirundo*	Hen Harrier	*Circus cyaneus*
Coot	*Fulica atra*	Herring Gull	*Larus argentatus*
Hobby	*Falco subbuteo*	Mute Swan	*Cygnus olor*
Honey Buzzard	*Pernis apivorus*	Osprey	*Pandion haliaetus*

Species	Scientific name	Species	Scientific name
Jack Snipe	*Lymnocryptes minimus*	Oystercatcher	*Haematopus ostralegus*
Kestrel	*Falco tinnunculus*	Peregrine	*Falco peregrinus*
Kittiwake	*Rissa tridactyla*	Pink-footed Goose	*Anser brachyrhynchus*
Knot	*Calidris canutus*	Pintail	*Anas acuta*
Lapwing	*Vanellus vanellus*	Pochard	*Aythya ferina*
Lesser Black-backed Gull	*Larus fuscus*	Razorbill	*Alca torda*
Little Egret	*Egretta garzetta*	Red Kite	*Milvus milvus*
Little Grebe	*Tachybaptus ruficollis*	Red-breasted Merganser	*Mergus serrator*
Little Gull	*Hydrocoloeus minutus*	Red-crested Pochard	*Netta rufina*
Little Owl	*Athene noctua*	Red-necked Grebe	*Podiceps grisegena*
Little Ringed Plover	*Charadrius dubius*	Redshank	*Tringa totanus*
Little Stint	*Calidris minuta*	Red-throated Diver	*Gavia stellata*
Little Tern	*Sternula albifrons*	Ringed Plover	*Charadrius hiaticula*
Long-eared Owl	*Asio otus*	Roseate Tern	*Sterna dougallii*
Mallard	*Anas platyrhynchos*	Rough-legged Buzzard	*Buteo lagopus*
Mandarin Duck	*Aix galericulata*	Ruff	*Calidris pugnax*
Manx Shearwater	*Puffinus puffinus*	Sanderling	*Calidris alba*
Marsh Harrier	*Circus aeruginosus*	Scaup	*Aythya marila*
Mediterranean Gull	*Ichthyaetus melanocephalus*	Shag	*Gulosus aristotelis*
Merlin	*Falco columbarius*	Shelduck	*Tadorna tadorna*
Montagu's Harrier	*Circus pygargus*	Short-eared Owl	*Asio flammeus*
Moorhen	*Gallinula chloropus*	Shoveler	*Spatula clypeata*
Slavonian Grebe	*Podiceps auritus*	Velvet Scoter	*Melanitta fusca*
Smew	*Mergellus albellus*	Water Rail	*Rallus aquaticus*
Snipe	*Gallinago gallinago*	Whimbrel	*Numenius phaeopus*
Snowy Owl	*Bubo scandiacus*	White Stork	*Ciconia ciconia*
Sparrowhawk	*Accipiter nisus*	White-fronted Goose	*Anser albifrons*
Spoonbill	*Platalea leucorodia*	White-tailed Eagle	*Haliaeetus albicilla*

Species	Scientific name	Species	Scientific name
Spotted Redshank	*Tringa erythropus*	Whooper Swan	*Cygnus cygnus*
Tawny Owl	*Strix aluco*	Wigeon	*Mareca penelope*
Teal	*Anas crecca*	Wood Sandpiper	*Tringa glareola*
Tufted Duck	*Aythya fuligula*	Woodcock	*Scolopax rusticola*
Turnstone	*Arenaria interpres*	Yellow-legged Gull	*Larus michahellis*

Annex D.
Survey Dates

Annex D Survey Dates

Table A8.8.23 2022 / 23 survey dates (visit 1-4)

Survey Location	Visit 1	Visit 2	Visit 3	Visit 4
VP1	PM: 23/09/22	AM: 04/10/22	PM: 17/10/22	AM: 01/11/22
VP2	AM: 20/09/22	PM: 03/10/22	AM: 18/10/22	PM: 31/10/22
VP3	PM: 20/09/22	AM: 04/10/22	PM: 18/10/22	AM: 01/11/22
VP4	AM: 21/09/22	PM: 04/10/22	AM: 19/10/22	PM: 01/11/22
VP5	PM: 21/09/22	AM: 04/10/22	PM: 19/10/22	AM: 03/11/22
VP6	PM:23/09/22	PM: 05/10/22	PM: 19/10/22	AM: 02/11/22
TR7	PM: 20/09/22	AM: 06/10/22	AM: 20/10/22	PM: 02/11/22
TR8	AM: 23/09/22	PM: 06/10/22	PM: 20/10/22	AM: 10/11/22
VP9	AM: 27/09/22 LW	PM:04/10/22	AM: 19/10/22	AM: 10/11/22 LW
TR10	FD: 21/09/22	FD: 12/10/22	FD: 20/10/22	FD: 11/11/22
VP11	PM: 27/09/22	PM: 05/10/22	PM: 20/10/22	AM: 04/11/22
VP12	AM: 28/09/22	PM: 06/10/22	AM: 25/10/22	PM: 03/11/22
VP13	PM: 28/09/22	PM: 06/10/22	PM: 25/10/22	AM: 11/11/22
VP14	AM: 29/09/22	PM: 05/10/22	AM: 26/10/22	PM: 07/11/22
VP15	PM: 29/09/22	AM: 07/10/22	PM: 26/10/22	PM: 09/11/22
VP16	PM: 29/09/22	AM: 11/10/22	PM: 27/10/22	AM: 09/11/22
VP17	AM: 30/09/22	AM: 07/10/22	AM: 27/10/22	AM: 04/11/22
VP18	AM: 18/09/22	PM: 11/10/22	AM: 28/10/22	PM: 10/11/22

Table A8.8.24 2022 / 23 survey dates (visit 5-8)

Survey Location	Visit 5	Visit 6	Visit 7	Visit 8
VP1	PM: 17/11/22	AM: 01/12/22	PM: 14/12/22	AM: 04/01/23
VP2	AM: 17/11/22	PM: 01/12/22	AM: 14/12/22	PM: 04/01/23
VP3	PM: 14/11/22	AM: 02/12/22	PM: 15/12/22	AM: 05/01/23
VP4	AM: 15/11/22	PM: 05/12/22	AM: 15/12/22	PM: 05/01/23

VP5	PM: 15/11/22	AM: 06/12/22	PM: 13/12/22	AM: 09/01/23
VP6	PM: 24/11/22	PM: 06/12/22	AM: 13/12/22	PM: 09/01/23
TR7	AM: 24/11/22	PM: 07/12/22	AM: 13/12/22	PM: 11/01/23
TR8	AM: 25/11/22	AM: 07/12/22	PM: 13/12/22	AM: 10/01/23
VP9	AM: 16/11/22 LW	AM: 07/12/22 HW	PM: 19/12/22 LW	PM: 10/01/23 HW
TR10	FD: 23/11/22	FD: 08/12/22	FD: 13/12/22	FD: 10/01/23
VP11	PM: 15/11/22	AM: 06/12/22	PM: 22/12/22	AM: 11/01/23
VP12	AM: 15/11/22	PM: 06/12/22	AM: 16/12/22	PM: 11/01/23
VP13	PM: 16/11/22	AM: 07/12/22	PM: 20/12/22	AM: 12/01/23
VP14	AM: 16/11/22	PM: 07/12/22	AM: 20/12/22	PM: 12/01/23
VP15	AM: 17/11/22	AM: 06/12/22	PM: 21/12/22	AM: 04/01/23
VP16	PM: 22/11/22	PM: 06/12/22	AM: 21/12/22	AM: 05/01/23
VP17	PM: 16/11/22	PM: 07/12/22	AM: 14/12/22	PM: 12/01/23
VP18	AM: 22/11/22	PM: 08/12/22	AM: 12/12/22	PM: 04/01/23

Table A8.8.25 2022 / 23 survey dates (visit 9-12)

Survey Location	Visit 9	Visit 10	Visit 11	Visit 12
VP1	PM: 17/01/23	AM: 01/02/23	PM: 14/02/23	AM: 01/03/23
VP2	AM: 17/01/23	PM: 01/02/23	AM: 14/02/23	PM: 01/03/23
VP3	PM: 18/01/23	AM: 02/02/23	PM: 15/02/23	AM: 02/03/23
VP4	AM: 18/01/23	PM: 02/02/23	AM: 15/02/23	PM: 02/03/23
VP5	PM: 16/01/23	AM: 06/02/23	PM: 13/02/23	AM: 06/03/23
VP6	AM: 19/01/23	PM: 06/02/23	AM: 16/02/23	PM: 06/03/23
TR7	AM: 24/01/23	PM: 08/02/23	AM: 21/02/23	PM: 08/03/23
TR8	PM: 26/01/23	AM: 07/02/23	PM: 23/02/23	AM: 07/03/23
VP9	AM: 23/01/23	PM: 07/02/23 HW	AM: 21/02/23 HW	PM: 07/03/23 LW
TR10	FD: 25/01/23	FD: 07/02/23	FD: 22/02/23	FD: 07/03/23
VP11	PM: 24/01/23	AM: 08/02/23	PM: 21/02/23	AM: 08/03/23
VP12	AM: 25/01/23	PM: 08/02/23	AM: 22/02/23	PM: 08/03/23
VP13	PM: 25/01/23	AM: 09/02/23	PM: 22/02/23	AM: 09/03/23

VP14	AM: 26/01/23	PM: 09/02/23	AM: 23/02/23	PM: 09/03/23
VP15	PM: 17/01/23	PM: 30/01/23	PM: 14/02/23	AM: 01/03/23
VP16	PM: 18/01/23	AM: 31/01/23	PM: 15/02/23	AM: 02/03/23
VP17	AM: 19/01/23	PM: 09/02/23	AM: 16/02/23	PM: 28/02/23
VP18	AM: 17/01/23	PM: 31/01/23	AM: 14/02/23	PM: 01/03/23

AM: Morning Survey
PM: Afternoon Survey
FD: Full Day
LW: Low Water Tide
HW: High Water Tide

Table A8.8.26 2023 / 24 survey dates for Tilbury sites

Visit Number	Date	Survey Window	Tide	Weather Conditions	Crops / Features Present	Limitations
Survey Location 19						
1	08/11/2023	9:38 – 9:57	High Tide	**Cloud cover:** 100% **Precipitation:** light rain **Temperature:** 10°C **Wind speed:** up to 10 kph **Wind direction:** south **Visibility:** excellent	Overgrown grassland / mixed scrub.	Unable get into fields, resulting in limited vantage points for this survey location. There was also disturbance in the area from a lot of traffic including large lorries.
2	16/11/2023	15:36 – 15:46	High Tide	**Cloud cover:** 100% **Temperature:** 8°C **Precipitation:** light rain **Wind:** none **Visibility:** very good		
3	29/11/2023	14:47 – 15:01	High Tide	**Cloud cover:** 10% (bright) **Precipitation:** none **Temperature:** 5°C **Wind:** none **Visibility:** excellent		
4	08/12/2023	9:50 – 10:00	High Tide	**Cloud cover:** 20% (bright) **Precipitation:** none		

Visit Number	Date	Survey Window	Tide	Weather Conditions	Crops / Features Present	Limitations
				Temperature: 8°C **Wind:** none **Visibility:** excellent		
5	12/12/2023	12:27 – 13:02	High Tide	**Cloud cover:** 100% **Precipitation:** light rain for last 10 minutes **Temperature:** 11°C **Wind:** none **Visibility:** very good		
Survey Location 20						
1	20/10/2023	16:09 – 16:51	High Tide	**Cloud cover:** 75% **Precipitation:** none **Temperature:** 15°C **Wind speed:** up to 5 kph. **Wind direction:** south-west **Visibility:** excellent	Crop stubble.	There were viewing limitations on this survey and surveyors were positioned towards the edge of the survey location.

Visit Number	Date	Survey Window	Tide	Weather Conditions	Crops / Features Present	Limitations
2	08/11/2023	8:52 – 9:26	High Tide	**Cloud cover:** 100% **Precipitation:** light rain **Temperature:** 10°C **Wind speed:** up to 10 kph **Wind direction:** south **Visibility:** excellent		None.
3	16/11/2023	13:41 – 14:12	High Tide	**Cloud cover:** 100% **Precipitation:** light rain **Temperature:** 8°C **Wind:** none **Visibility:** excellent	Grass and crop stubble.	None.
4	29/11/2023	12:58 – 13:28	High Tide	**Cloud cover:** 20% (bright) **Precipitation:** none **Temperature:** 5°C – 6°C **Wind:** none **Visibility:** excellent		None.

Visit Number	Date	Survey Window	Tide	Weather Conditions	Crops / Features Present	Limitations
5	08/12/2023	8:02 – 8:32	High Tide	**Cloud cover:** 10% (bright) **Precipitation:** none **Temperature:** 8ºC **Wind:** none **Visibility:** excellent	Grass, crop stubble and ploughed fields.	Tractor ploughing the field, though this did not impact the ability to undertake the survey.
6	12/12/2023	11:02 – 11:27	High Tide	**Cloud cover:** 20% (bright) – 100% **Precipitation:** none **Temperature:** 11ºC **Wind:** none **Visibility:** excellent		None.
7	11/01/2024	11:36 – 12:23	High Tide	**Cloud cover:** 50% - 100% **Precipitation:** none **Temperature:** 1ºC **Wind speed:** up to 5 kph **Wind direction:** north-east **Visibility:** excellent		None.

Visit Number	Date	Survey Window	Tide	Weather Conditions	Crops / Features Present	Limitations
8	23/01/2024	10:14 – 11:22	High Tide	**Cloud cover:** 100% **Precipitation:** rain **Temperature:** 8ºC **Wind speed:** up to 11 kph **Wind direction:** south **Visibility:** excellent		None.
9	08/02/2024	10:38 – 11:28	High Tide	**Cloud cover:** 100% **Precipitation:** drizzle **Temperature:** 5ºC **Wind speed:** up to 14 kph **Wind direction:** east **Visibility:** good		Visibility was good, but the horizon view was reduced during this survey.
10	20/02/2024	8:47 – 9:51	High Tide	**Cloud cover:** 100% **Precipitation:** none **Temperature:** 6ºC **Wind speed:** up to 6 kph **Wind direction:** south **Visibility:** excellent		None.

Visit Number	Date	Survey Window	Tide	Weather Conditions	Crops / Features Present	Limitations
11	08/03/2024	10:14 – 11:20	High Tide	**Cloud cover:** 25% (bright) **Precipitation:** none **Temperature:** 9ºC **Wind speed:** up to 17 kph **Wind direction:** east **Visibility:** excellent		None.
12	22/03/2024	10:46 – 11:46	High Tide	**Cloud cover:** 100% **Precipitation:** drizzle during last half of survey **Temperature:** 11ºC **Wind:** none **Visibility:** very good		None.
Survey Location 21						
1	20/10/2023	17:15 – 18:15	High Tide	**Cloud cover:** 75% **Precipitation:** none **Temperature:** 15ºC **Wind speed:** up to 5 kph **Wind direction:** south-west **Visibility:** excellent	Crop stubble and ploughed fields.	There were viewing limitations on this survey and surveyors were positioned towards the edge of the survey location and on Public Rights of Way.

Visit Number	Date	Survey Window	Tide	Weather Conditions	Crops / Features Present	Limitations
2	08/11/2023	7:59 – 8:47	High Tide	**Cloud cover:** 100% **Precipitation:** light rain **Temperature:** 10ºC **Wind speed:** up to 10 kph **Wind direction:** south **Visibility:** excellent	Crop stubble.	None.
3	16/11/2023	14:16 – 15:25	High Tide	**Cloud cover:** 100% **Precipitation:** light rain **Temperature:** 8ºC **Wind speed:** up to 5 kph **Wind direction:** north **Visibility:** excellent	Grass and crop stubble.	None.
4	29/11/2023	13:33 – 14:25	High Tide	**Cloud cover:** 10% (bright) **Precipitation:** none **Temperature:** 5ºC **Wind:** none **Visibility:** excellent		None.

Visit Number	Date	Survey Window	Tide	Weather Conditions	Crops / Features Present	Limitations
5	08/12/2023	8:39 – 9:33	High Tide	**Cloud cover:** 10% (bright) **Precipitation:** none **Temperature:** 8°C **Wind:** none **Visibility:** excellent	Grass, crop stubble and ploughed fields.	None.
6	12/12/2023	11:31 – 12:15	High Tide	**Cloud cover:** 100% **Precipitation:** rain during the last 30 minutes **Temperature:** 11°C **Wind:** none **Visibility:** excellent		None.
7	11/01/2024	12:29 – 13:33	High Tide	**Cloud cover:** 100% **Precipitation:** none **Temperature:** 1°C **Wind speed:** up to 5 kph **Wind direction:** north-east **Visibility:** excellent		None.

Visit Number	Date	Survey Window	Tide	Weather Conditions	Crops / Features Present	Limitations
8	23/01/2024	11:34 – 12:22	High Tide	**Cloud cover:** 100% **Precipitation:** rain during the first 30 minutes **Temperature:** 8°C **Wind speed:** up to 11 kph **Wind direction:** south **Visibility:** excellent		None.
9	08/02/2024	11:29 – 12:28	High Tide	**Cloud cover:** 100% **Precipitation:** drizzle **Temperature:** 5°C **Wind speed:** up to 14 kph **Wind direction:** east **Visibility:** good		Visibility was good, but the horizon view was reduced during this survey.
10	20/02/2024	9:52 – 10:55	High Tide	**Cloud cover:** 100% **Precipitation:** none **Temperature:** 6°C **Wind speed:** up to 6 kph **Wind direction:** south **Visibility:** excellent		None.

Visit Number	Date	Survey Window	Tide	Weather Conditions	Crops / Features Present	Limitations
11	08/03/2024	11:21 – 12:26	High Tide	**Cloud cover:** 25% (bright) **Precipitation:** none **Temperature:** 9ºC **Wind speed:** up to 17 kph **Wind direction:** east **Visibility:** excellent		None.
12	22/03/2024	11:47 – 12:47	High Tide	**Cloud cover:** 100% **Precipitation:** drizzle during last half of survey **Temperature:** 11ºC **Wind:** none **Visibility:** very good		None.
Survey Location 22						
1	19/10/2023	17:26 – 18:06	High Tide	**Cloud cover:** 100% **Precipitation:** light rain **Temperature:** 12ºC **Wind speed:** up to 12 kph **Wind direction:** east / south-east **Visibility:** excellent	Ploughed fields.	There were access limitations on this survey location throughout the course of these surveys. The survey location was surrounded by gulleys with reeds, suggesting deep water. This resulted in limited vantage points.

Visit Number	Date	Survey Window	Tide	Weather Conditions	Crops / Features Present	Limitations
2	31/10/2023	13:15 – 15:15	High Tide	**Cloud cover:** 75% (bright) **Precipitation:** none **Temperature:** 15ºC **Wind speed:** up to 10 kph **Wind direction:** south-west **Visibility:** excellent		
3	17/11/2023	15:46 – 16:19	High Tide	**Cloud cover:** 100% **Precipitation:** none **Temperature:** 10ºC **Wind:** none **Visibility:** excellent	Grass.	
4	30/11/2023	14:45 – 15:31	High Tide	**Cloud cover:** 50% **Precipitation:** none **Temperature:** 3ºC **Wind speed:** up to 7 kph **Wind direction:** north-east **Visibility:** excellent	Grass and ploughed fields.	

Visit Number	Date	Survey Window	Tide	Weather Conditions	Crops / Features Present	Limitations
5	07/12/2023	8:35 – 9:15	High Tide	**Cloud cover:** 100% **Precipitation:** drizzle last 30 minutes **Temperature:** 7°C **Wind speed:** up to 6 kph **Wind direction:** south-east **Visibility:** very good		
6	11/12/2023	11:59 – 12:48	High Tide	**Cloud cover:** 50% (bright) **Precipitation:** none **Temperature:** 11°C **Wind speed:** up to 14 kph **Wind direction:** south-west **Visibility:** excellent		
7	12/01/2024	13:51 – 14:31	High Tide	**Cloud cover:** 100% **Precipitation:** none **Temperature:** 6°C **Wind:** none **Visibility:** excellent		

Visit Number	Date	Survey Window	Tide	Weather Conditions	Crops / Features Present	Limitations
8	22/01/2024	10:34 – 11:14	High Tide	**Cloud cover:** 0% - 70% **Precipitation:** none **Temperature:** 8ºC **Wind speed:** up to 26 kph **Wind direction:** west **Visibility:** excellent		
9	07/02/2024	10:53 – 11:33	High Tide	**Cloud cover:** 100% **Precipitation:** none **Temperature:** 6ºC **Wind speed:** up to 10 kph **Wind direction:** north-east **Visibility:** excellent		
10	21/02/2024	11:27 – 12:07	High Tide	**Cloud cover:** 100% **Precipitation:** light rain **Temperature:** 9ºC **Wind speed:** up to 10 kph **Wind direction:** south **Visibility:** very good		

Visit Number	Date	Survey Window	Tide	Weather Conditions	Crops / Features Present	Limitations
11	07/03/2024	10:29 – 11:09	High Tide	**Cloud cover:** 100% **Precipitation:** none **Temperature:** 9ºC **Wind speed:** up to 14 kph **Wind direction:** north-east **Visibility:** good – very good		
12	21/03/2024	11:28 – 12:08	High Tide	**Cloud cover:** 50% - 90% (bright) **Precipitation:** none **Temperature:** 14ºC – 16ºC **Wind speed:** up to 10 kph **Wind direction:** south-west **Visibility:** excellent		

Annex E. Peak Counts for Collision Risk Target and Secondary Species

Annex E
Peak Counts for Collision Risk Target and Secondary Species

Table A8.8.27 Peak counts for flocks of collision risk target species

Common name	Scientific Name	Status	Peak Count	No. of months (out of 7)
		VP01		
Primary Target Species				
Green Sandpiper	Tringa ochropus	Schedule 16 Amber-listed BoCC7	1	1
Herring Gull	Larus argentatus	Red-listed BoCC8	3	2
Kittiwake	Rissa tridactyla	Red-listed BoCC	1	1
Lapwing	Vanellus vanellus	Red-listed BoCC	19	1
Secondary Species				
Black-headed Gull	Chroicocephalus ridibundus	Amber-listed BoCC	200	5
Canada Goose	Branta canadensis	Not Listed9	35	3
Common Buzzard	Buteo buteo	Green List10	4	5
Greylag Goose (feral)	Anser anser	Not Listed	2	1
Kestrel	Falco tinnunculus	Amber-listed BoCC	2	5

[6] Schedule 1 – these bird species have additional protection from disturbance during the breeding season, as do their nests, eggs and dependent young.

[7] Amber-listed – Birds of Conservation Concern category for bird species showing population decline.

[8] Red-listed – Birds of Conservation Concern category for bird species showing severe population decline.

[9] Not listed – Birds of Conservation Concern category for bird species not assessed.

[10] Green-listed – Birds of Conservation Concern category for bird species showing population stability.

Common name	Scientific Name	Status	Peak Count	No. of months (out of 7)
Lesser Black-backed Gull	Larus fuscus	Amber-listed BoCC	30	2
Mallard	Anas platyrhynchos	Amber-listed BoCC	2	1
Snipe	Gallinago gallinago	Amber-listed BoCC	15	1
Sparrowhawk	Accipiter nisus	Amber-listed BoCC	2	2
		VP02		
Primary Target Species				
Barn Owl	Tyto alba	Schedule 1	1	1
Green Sandpiper	Tringa ochropus	Schedule 1 Amber-listed BoCC	1	1
Herring Gull	Larus argentatus	Red-listed BoCC	30	4
Lapwing	Vanellus vanellus	Red-listed BoCC	10	1
Whooper Swan	Cygnus cygnus	Annex I11 Schedule 1 Amber-listed BoCC	1	1
Secondary Species				
Black-headed Gull	Chroicocephalus ridibundus	Amber-listed BoCC	38	5
Canada Goose	Branta canadensis	Not Listed	6	1
Common Buzzard	Buteo buteo	Green List	2	7
Common Gull	Larus canus	Amber-listed BoCC	15	1
Greylag Goose (feral)	Anser anser	Not Listed	2	1
Kestrel	Falco tinnunculus	Amber-listed BoCC	1	5
Lesser Black-backed Gull	Larus fuscus	Amber-listed BoCC	200	3
Mallard	Anas platyrhynchos	Amber-listed BoCC	6	3
Sparrowhawk	Accipiter nisus	Amber-listed BoCC	2	3
Unidentified Gull	Larus sp.	Unknown	10	1

[11] Annex I – bird species listed under Annex I of the Birds Directive have special conservation measures, whereby Member States must classify Special Protection Areas (SPAs) for those species, in particular, paying attention to the protection of wetlands of international importance.

Common name	Scientific Name	Status	Peak Count	No. of months (out of 7)
		VP03		
Primary Target Species				
Herring Gull	Larus argentatus	Red-listed BoCC	1	1
Lapwing	Vanellus vanellus	Red-listed BoCC	20	1
Secondary Species				
Black-headed Gull	Chroicocephalus ridibundus	Amber-listed BoCC	10	5
Canada Goose	Branta canadensis	Not Listed	15	1
Common Buzzard	Buteo buteo	Green List	3	7
Egyptian Goose	Alopochen aegyptiaca	Not Listed	2	1
Greylag Goose (feral)	Anser anser	Not Listed	2	1
Kestrel	Falco tinnunculus	Amber-listed BoCC	1	5
Lesser Black-backed Gull	Larus fuscus	Amber-listed BoCC	33	2
Mallard	Anas platyrhynchos	Amber-listed BoCC	2	2
Sparrowhawk	Accipiter nisus	Amber-listed BoCC	2	3
		VP04		
Primary Target Species				
Herring Gull	Larus argentatus	Red-listed BoCC	6	1
Red Kite	Milvus milvus	Annex I Schedule 1	1	2
Secondary Species				
Black-headed Gull	Chroicocephalus ridibundus	Amber-listed BoCC	127	3
Common Buzzard	Buteo buteo	Green List	3	4
Kestrel	Falco tinnunculus	Amber-listed BoCC	1	2
Lesser Black-backed Gull	Larus fuscus	Amber-listed BoCC	11	1
Mallard	Anas platyrhynchos	Amber-listed BoCC	8	3
Sparrowhawk	Accipiter nisus	Amber-listed BoCC	1	1
		VP05		

Common name	Scientific Name	Status	Peak Count	No. of months (out of 7)
Primary Target Species				
Barn Owl	Tyto alba	Schedule 1	1	3
Golden Plover	Pluvialis apricaria	Annex I	14	1
Herring Gull	Larus argentatus	Red-listed BoCC	16	4
Lapwing	Vanellus vanellus	Red-listed BoCC	20	2
Little Egret	Egretta garzetta	Annex I	2	3
Red Kite	Milvus milvus	Annex I Schedule 1	1	3
Secondary Species				
Black-headed Gull	Chroicocephalus ridibundus	Amber-listed BoCC	40	5
Canada Goose	Branta canadensis	Not Listed	10	1
Common Buzzard	Buteo buteo	Green List	3	7
Common Gull	Larus canus	Amber-listed BoCC	35	1
Greylag Goose (feral)	Anser anser	Not Listed	3	1
Grey Heron	Ardea cinerea	Green List	5	1
Kestrel	Falco tinnunculus	Amber-listed BoCC	3	6
Lesser Black-backed Gull	Larus fuscus	Amber-listed BoCC	41	2
Pink-footed Goose	Anser brachyrhynchus	Amber-listed BoCC	2	1
Snipe	Gallinago gallinago	Amber-listed BoCC	1	1
		VP06		
Primary Target Species				
Herring Gull	Larus argentatus	Red-listed BoCC	12	3
Lapwing	Vanellus vanellus	Red-listed BoCC	16	2
Red Kite	Milvus milvus	Annex I Schedule 1	2	3
Secondary Species				
Black-headed Gull	Chroicocephalus ridibundus	Amber-listed BoCC	60	5
Canada Goose	Branta canadensis	Not Listed	10	2

Common name	Scientific Name	Status	Peak Count	No. of months (out of 7)
Common Buzzard	Buteo buteo	Green List	3	7
Cormorant	Phalacrocorax carbo	Green List	5	1
Grey Heron	Ardea cinerea	Green List	2	1
Kestrel	Falco tinnunculus	Amber-listed BoCC	1	2
Lesser Black-backed Gull	Larus fuscus	Amber-listed BoCC	11	2
Mallard	Anas platyrhynchos	Amber-listed BoCC	45	3
Sparrowhawk	Accipiter nisus	Amber-listed BoCC	1	1
Unidentified Gull	Larus sp.	Unknown	100	1
		VP11		
Primary Target Species				
Green Sandpiper	Tringa ochropus	Schedule 1 Amber-listed BoCC	2	3
Herring Gull	Larus argentatus	Red-listed BoCC	50	2
Hobby	Falco subbuteo	Schedule 1	1	1
Little Egret	Egretta garzetta	Annex I	1	3
Pochard	Aythya ferina	Red-listed BoCC	1	1
Wood Sandpiper	Tringa glareola	Annex I Schedule 1 Amber-listed BoCC	3	1
Secondary Species				
Black-headed Gull	Chroicocephalus ridibundus	Amber-listed BoCC	20	4
Canada Goose	Branta canadensis	Not Listed	14	5
Common Buzzard	Buteo buteo	Green List	1	2
Common Gull	Larus canus	Amber-listed BoCC	2	2
Common Sandpiper	Actitis hypoleucos	Amber-listed BoCC	1	1
Coot	Fulica atra	Green List	60	5
Cormorant	Phalacrocorax carbo	Green List	5	5
Dark-bellied Brent Goose	Branta bernicla	Amber-listed BoCC	1	1

Common name	Scientific Name	Status	Peak Count	No. of months (out of 7)
Egyptian Goose	Alopochen aegyptiaca	Not Listed	2	2
Gadwall	Mareca strepera	Amber-listed BoCC	25	3
Great Crested Grebe	Podiceps cristatus	Green List	2	1
Greylag Goose (feral)	Anser anser	Not Listed	22	3
Grey Heron	Ardea cinerea	Green List	1	3
Kestrel	Falco tinnunculus	Amber-listed BoCC	2	1
Little Grebe	Tachybaptus ruficollis	Green List	3	4
Mallard	Anas platyrhynchos	Amber-listed BoCC	50	6
Mandarin Duck	Aix galericulata	Not Listed	2	1
Moorhen	Gallinula chloropus	Amber-listed BoCC	4	3
Mute Swan	Cygnus olor	Green List	6	4
Shoveler	Spatula clypeata	Amber-listed BoCC	2	1
Sparrowhawk	Accipiter nisus	Amber-listed BoCC	1	3
Teal	Anas crecca	Amber-listed BoCC	7	3
Tufted Duck	Aythya fuligula	Green List	5	1
Unidentified Gull	Larus sp.	Unknown	2	1
Unidentified Wader	-	Unknown	180	1
		VP12		
Primary Target Species				
Green Sandpiper	Tringa ochropus	Schedule 1 Amber-listed BoCC	35	1
Herring Gull	Larus argentatus	Red-listed BoCC	40	1
Lapwing	Vanellus vanellus	Red-listed BoCC	15	1
Red Kite	Milvus milvus	Schedule 1	1	2
Secondary Species				
Black-headed Gull	Chroicocephalus ridibundus	Amber-listed BoCC	180	3
Canada Goose	Branta canadensis	Not Listed	3	2
Common Buzzard	Buteo buteo	Green List	3	4

Common name	Scientific Name	Status	Peak Count	No. of months (out of 7)
Cormorant	Phalacrocorax carbo	Green List	2	1
Greylag Goose (feral)	Anser anser	Not Listed	15	2
Grey Heron	Ardea cinerea	Green List	1	2
Lesser Black-backed Gull	Larus fuscus	Amber-listed BoCC	1	1
Mallard	Anas platyrhynchos	Amber-listed BoCC	2	2
Mute Swan	Cygnus olor	Green List	1	2
Snipe	Gallinago gallinago	Amber-listed BoCC	1	2
Sparrowhawk	Accipiter nisus	Amber-listed BoCC	1	2
		VP13		
Primary Target Species				
Green Sandpiper	Tringa ochropus	Schedule 1 Amber-listed BoCC	5	3
Herring Gull	Larus argentatus	Red-listed BoCC	100	3
Little Egret	Egretta garzetta	Annex I	10	3
Red Kite	Milvus milvus	Annex I Schedule 1	1	2
Secondary Species				
Black-headed Gull	Chroicocephalus ridibundus	Amber-listed BoCC	35	1
Common Buzzard	Buteo buteo	Amber-listed BoCC	22	6
Common Gull	Larus canus	Amber-listed BoCC	9	2
Common Sandpiper	Actitis hypoleucos	Amber-listed BoCC	2	2
Coot	Fulica atra	Green List	1	1
Cormorant	Phalacrocorax carbo	Green List	1	2
Grey Heron	Ardea cinerea	Green List	1	1
Kestrel	Falco tinnunculus	Amber-listed BoCC	20	4
Little Grebe	Tachybaptus ruficollis	Green List	45	2
Mallard	Anas platyrhynchos	Amber-listed BoCC	10	5
Snipe	Gallinago gallinago	Amber-listed BoCC	1	1

Common name	Scientific Name	Status	Peak Count	No. of months (out of 7)
Sparrowhawk	Accipiter nisus	Amber-listed BoCC	1	2
Tufted Duck	Aythya fuligula	Green List	10	1
		VP14		
Primary Target Species				
Green Sandpiper	Tringa ochropus	Schedule 1 Amber-listed BoCC	1	2
Herring Gull	Larus argentatus	Red-listed BoCC	100	1
Little Egret	Egretta garzetta	Annex I	1	1
Peregrine	Falco peregrinus	Annex I Schedule 1	1	1
Secondary Species				
Black-headed Gull	Chroicocephalus ridibundus	Amber-listed BoCC	150	5
Canada Goose	Branta canadensis	Not Listed	90	4
Common Buzzard	Buteo buteo	Green List	2	6
Coot	Fulica atra	Green List	6	2
Cormorant	Phalacrocorax carbo	Green List	12	2
Egyptian Goose	Alopochen aegyptiaca	Not Listed	2	3
Great Black-backed Gull	Larus marinus	Amber-listed BoCC	2	1
Great Crested Grebe	Podiceps cristatus	Green List	2	1
Greylag Goose (feral)	Anser anser	Not Listed	56	4
Grey Heron	Ardea cinerea	Green List	1	3
Kestrel	Falco tinnunculus	Amber-listed BoCC	2	5
Lesser Black-backed Gull	Larus fuscus	Amber-listed BoCC	3	1
Little Grebe	Tachybaptus ruficollis	Green List	2	2
Mallard	Anas platyrhynchos	Amber-listed BoCC	25	6
Mandarin Duck	Aix galericulata	Not Listed	1	1
Moorhen	Gallinula chloropus	Amber-listed BoCC	5	4

Common name	Scientific Name	Status	Peak Count	No. of months (out of 7)
Mute Swan	Cygnus olor	Green List	2	2
Shelduck	Tadorna tadorna	Amber-listed BoCC	5	1
Sparrowhawk	Accipiter nisus	Amber-listed BoCC	1	3
Tufted Duck	Aythya fuligula	Green List	21	2
Unidentified Goose	Anser sp.	Unknown	50	2
		VP15		
Primary Target Species				
Little Egret	Egretta garzetta	Annex I	1	1
Peregrine	Falco peregrinus	Annex I Schedule 1	1	1
Red Kite	Milvus milvus	Annex I Schedule 1	1	1
Secondary Species				
Black-headed Gull	Chroicocephalus ridibundus	Amber-listed BoCC	15	4
Canada Goose	Branta canadensis	Not Listed	6	1
Common Buzzard	Buteo buteo	Green List	2	6
Common Gull	Larus canus	Amber-listed BoCC	50	1
Common Sandpiper	Actitis hypoleucos	Amber-listed BoCC	2	1
Cormorant	Phalacrocorax carbo	Green List	1	1
Kestrel	Falco tinnunculus	Amber-listed BoCC	2	3
Mallard	Anas platyrhynchos	Amber-listed BoCC	8	1
Redshank	Tringa totanus	Amber-listed BoCC	1	1
Sparrowhawk	Accipiter nisus	Amber-listed BoCC	1	3
Unidentified Gull	Larus sp.	Unknown	10	2
VP16				
Primary Target Species				
Green Sandpiper	Tringa ochropus	Schedule 1 Amber-listed BoCC	1	2
Lapwing	Vanellus vanellus	Red-listed BoCC	45	1
Red Kite	Milvus milvus	Annex I	2	4

Common name	Scientific Name	Status	Peak Count	No. of months (out of 7)
		Schedule 1		
Secondary Species				
Black-headed Gull	Chroicocephalus ridibundus	Amber-listed BoCC	90	1
Canada Goose	Branta canadensis	Not Listed	10	2
Common Buzzard	Buteo buteo	Green List	15	7
Common Sandpiper	Actitis hypoleucos	Amber-listed BoCC	15	2
Greylag Goose (feral)	Anser anser	Not Listed	21	1
Grey Heron	Ardea cinerea	Green List	1	1
Kestrel	Falco tinnunculus	Amber-listed BoCC	15	3
Lesser Black-backed Gull	Larus fuscus	Amber-listed BoCC	80	1
Mallard	Anas platyrhynchos	Amber-listed BoCC	2	1
Mute Swan	Cygnus olor	Green List	2	1
Sparrowhawk	Accipiter nisus	Amber-listed BoCC	2	3
		VP17		
Primary Target Species				
Lapwing	Vanellus vanellus	Red-listed BoCC	3	2
Marsh Harrier	Circus aeruginosus	Annex I Schedule 1 Amber-listed BoCC	1	1
Red Kite	Milvus milvus	Annex I Schedule 1	1	1
Secondary Species				
Black-headed Gull	Chroicocephalus ridibundus	Amber-listed BoCC	80	3
Common Buzzard	Buteo buteo	Green List	2	3
Grey Heron	Ardea cinerea	Green List	1	1
Kestrel	Falco tinnunculus	Amber-listed BoCC	1	4
Moorhen	Gallinula chloropus	Amber-listed BoCC	1	2
Mute Swan	Cygnus olor	Green List	2	1

Common name	Scientific Name	Status	Peak Count	No. of months (out of 7)
Redshank	Tringa totanus	Amber-listed BoCC	1	1
Sanderling	Calidris alba	Amber-listed BoCC	1	1
Sparrowhawk	Accipiter nisus	BoCC5: Amber	1	3
		VP18		
Primary Target Species				
Herring Gull	Larus argentatus	Red-listed BoCC	50	2
Lapwing	Vanellus vanellus	Red-listed BoCC	26	1
Secondary Species				
Black-headed Gull	Chroicocephalus ridibundus	Amber-listed BoCC	100	3
Common Buzzard	Buteo buteo	Green List	1	2
Common Gull	Larus canus	Amber-listed BoCC	150	1
Grey Heron	Ardea cinerea	Green List	2	1
Kestrel	Falco tinnunculus	Amber-listed BoCC	15	4
Moorhen	Gallinula chloropus	Amber-listed BoCC	1	1
Redshank	Tringa totanus	Amber-listed BoCC	1	1
Sparrowhawk	Accipiter nisus	BoCC5: Amber	1	1

Annex F. Time Spent by Collision Risk Species in Impact Risk Zone

Annex F
Time Spent by Collision Risk Species in Impact Risk Zone

Table A8.8.28 Time spent by collision risk target and secondary species in height bands

Species	<10 m (minutes)	10-25 m (minutes)	25-50 m (minutes)	50-75 m (minutes)	>75 m (minutes)
		VP01			
Primary Target Species					
Herring Gull	0	0	0	0.75	6.75
Lapwing	0	0	2.75	14	0
Secondary Species					
Black-headed Gull	0	9.75	456.75	15.75	0
Canada Goose	0.5	20.5	29.5	0	0
Common Buzzard	3	5	14.25	8	1
Greylag Goose	0	1	0	0	0
Kestrel	19.75	5.5	1.75	0	0
Lesser Black-backed Gull	0	3	54.5	0	0
Mallard	0	0	1.25	0	0
Snipe	0	0	0	7.5	0
Sparrowhawk	1	1.5	0	0	0
		VP02			
Primary Target Species					
Barn Owl	2.25	0	0	0	0
Herring Gull	22.5	19	4	53	0
Lapwing	0	0	20.75	0	0
Whooper Swan	0	0	0.5	0	0
Secondary Species					
Black-headed Gull	0	38.25	23.75	14.75	28.5
Canada Goose	0	2.5	10	0	0
Common Buzzard	0.25	17.5	7	4.25	0.5

Species	<10 m (minutes)	10-25 m (minutes)	25-50 m (minutes)	50-75 m (minutes)	>75 m (minutes)
Common Gull	0	0	0	0	7.5
Greylag Goose	0	0	2	0	0
Kestrel	7.75	9.5	0.75	0	0
Lesser Black-backed Gull	0	0	7.25	200	0
Mallard	0.5	2	5.75	6	0
Sparrowhawk	3	2.25	0	0	0
Unidentified Gull	0	0	0	5	0
VP03					
Primary Target Species					
Herring Gull	0	0.75	0	0	0
Lapwing	0	0	0	17.5	0
Secondary Species					
Black-headed Gull	0	3.75	11.25	8.5	0
Canada Goose	0	7.5	11.25	0	0
Common Buzzard	3.5	12.5	8	2.25	4.5
Egyptian Goose	2	0.5	0.5	0	0
Greylag Goose	0	0	0	0	1
Kestrel	2.25	2.25	0.5	0	0
Lesser Black-backed Gull	0	0	102.25	0	0
Mallard	0	1.5	0	0	0
Sparrowhawk	0	1.25	4.75	0	0
VP04					
Primary Target Species					
Herring Gull	0	4.5	0	0	0
Red Kite	0	0	0.75	1.25	0
Secondary Species					
Black-headed Gull	0	50.5	311.5	3.5	0
Common Buzzard	2.75	10.75	0.5	0	0
Kestrel	2.5	0	0.5	0	0

Species	<10 m (minutes)	10-25 m (minutes)	25-50 m (minutes)	50-75 m (minutes)	>75 m (minutes)
Lesser Black-backed Gull	0	0	0	2.75	5.5
Mallard	0	17	0	6	0
Sparrowhawk	0	0.25	0	0	0
VP05					
Primary Target Species					
Barn Owl	1.75	0.75	0	0	0
Golden Plover	0	0	10.5	0	0
Herring Gull	0	0	85.75	9.75	0
Lapwing	0	4	15	0	0
Little Egret	0.5	0.75	1.5	0	0
Red Kite	0	0	0.5	2	0
Secondary Species					
Black-headed Gull	3.75	86	410.5	44	10
Canada Goose	0	0	0	12.5	0
Common Buzzard	3.25	7.25	10.25	18.5	0
Common Gull	0	0	35.25	0	0
Grey Heron	0.75	0	0	4.75	0
Greylag Goose	0	0.5	1	3	0
Kestrel	12.5	10	3.5	0	0
Lesser Black-backed Gull	0	0	128	38.25	0
Pink-footed Goose	0	0	0	0	2.5
Snipe	0.75	0.5	0	0	0
VP06					
Primary Target Species					
Herring Gull	0	0	15	0.75	0
Lapwing	0	0	34	0	0
Red Kite	0.75	2	0.25	1.5	0
Secondary Species					
Black-headed Gull	50.5	20.5	56	77.5	0

Species	<10 m (minutes)	10-25 m (minutes)	25-50 m (minutes)	50-75 m (minutes)	>75 m (minutes)
Canada Goose	11.5	8.5	0	7	0
Common Buzzard	7.75	12.25	19.5	2.5	1
Cormorant	2.5	0	0	0	0
Grey Heron	0.5	1	0	0	0
Kestrel	0.5	2.25	0	0	0
Lesser Black-backed Gull	0	0	0	30.25	0
Mallard	1	53.75	39.75	0	0
Sparrowhawk	0.25	1.5	0	0	0
Unidentified Gull	0	0	30	25	111
		VP11			
Primary Target Species					
Green Sandpiper	1.75	0	0	0	0
Herring Gull	0	0	0	122.5	0
Hobby	0	0	0.75	0	0
Pochard	0.25	0	0	0	0
Wood Sandpiper	2.5	0	0	0	0
Secondary Species					
Black-headed Gull	41	0	0	0	0
Canada Goose	0	1.5	28	0	0
Common Buzzard	0	0.25	4.75	0	0
Common Gull	0	0	5	0	0
Coot	10	0	0	0	0
Cormorant	0.5	2	0.75	0	0
Egyptian Goose	0	3.5	0	0	0
Grey Heron	0.25	0.25	0.25	0	0
Greylag Goose	0	4.25	50.25	0	0
Kestrel	0	1	0	0	0
Mallard	27.5	45	0	0	0
Mandarin Duck	0	0.5	0	0	0

Species	<10 m (minutes)	10-25 m (minutes)	25-50 m (minutes)	50-75 m (minutes)	>75 m (minutes)
Mute Swan	8.75	0	0	0	0
Sparrowhawk	1.25	0.25	3.75	0	0
Teal	10.75	0	0	0	0
Tufted Duck	1.25	0	0	0	0
Unidentified Gull	0	2	0	0	0
Unidentified Sandpiper	0.5	0	0	0	0
Unidentified Wader	0	5.25	0	0	585
VP12					
Primary Target Species					
Herring Gull	0	0	13	11.5	0
Lapwing	0	0	34.5	0	0
Red Kite	0.25	0.75	4.25	0	0
Secondary Species					
Black-headed Gull	135	195	1198.75	0	0
Canada Goose	2	0.5	0.75	3	0
Common Buzzard	1.25	3.75	3	4.25	5.25
Common Gull	0	0	12.5	0	0
Cormorant	0	0	3	0	0
Grey Heron	0.25	0.5	0.75	0	0
Greylag Goose	0	3.75	1.75	0	0
Kestrel	2.5	4.5	3.5	0.25	0
Lesser Black-backed Gull	1.5	0	10	0	0
Mallard	2.5	0	0	0	0
Mute Swan	1.25	1	0	0	0
Snipe	0.75	1	0	0	0
Sparrowhawk	1.75	1	1	0	0
VP13					
Primary Target Species					
Green Sandpiper	2.25	1	0	0	0

Species	<10 m (minutes)	10-25 m (minutes)	25-50 m (minutes)	50-75 m (minutes)	>75 m (minutes)
Herring Gull	0	47.5	25	0	0
Little Egret	5	1.25	1	0	0
Red Kite	0.25	1.75	0	0	0
Secondary Species					
Black-headed Gull	49.5	3	38.75	0	0
Common Buzzard	0	8	9.75	18	5
Common Gull	1	10.5	0	0	0
Coot	0	0.5	2.5	0	0
Cormorant	0.5	1.75	1	0	0
Grey Heron	0	0.25	0.25	0	0
Kestrel	2.5	0.5	3.25	1	0
Little Grebe	0	1	0	0	0
Mallard	1.75	39	4.5	0	0
Snipe	0	0.75	0	0	0
Sparrowhawk	0.5	0.25	0	0	0
Tufted Duck	2.5	2.5	0	0	0
		VP14			
Primary Target Species					
Herring Gull	0	0.5	0	0	0
Peregrine	0	0	0.75	0	0
Secondary Species					
Black-headed Gull	1581.25	1270.25	961.25	25	0
Canada Goose	228	10.75	1.75	0	0
Common Buzzard	2	4.25	6	0.5	0
Cormorant	0	0	15	3	0
Egyptian Goose	12	1	0	0	0
Grey Heron	0.25	0	0	0	0
Greylag Goose	179.5	1	0.75	1	0
Kestrel	1.5	9.5	1	0	0

Species	<10 m (minutes)	10-25 m (minutes)	25-50 m (minutes)	50-75 m (minutes)	>75 m (minutes)
Lesser Black-backed Gull	0	0	3	0	0
Mallard	0.75	12	15.25	0	0
Mute Swan	8.5	0.75	0	0	0
Shelduck	0	3.75	0	0	0
Sparrowhawk	2.25	0.5	0.5	0	0
Tufted Duck	0	0	4.5	0	0
Unidentified Goose	214	0	0	0	0
		VP15			
Primary Target Species					
Little Egret	3.25	0	0	0	0
Peregrine	0.5	0	0	0	0
Red Kite	0	1.25	0	0	0
Secondary Species					
Black-headed Gull	30	18.75	28	4.5	0
Canada Goose	0	0	12	0	0
Common Buzzard	1	3.5	25.25	5.25	8.5
Common Gull	2	87.5	26.25	0	0
Cormorant	0	0	0	0	0.25
Kestrel	1.75	4.75	0.25	0	0
Mallard	0	10.5	2.5	0	0
Redshank	0	0	1	0.25	0
Sparrowhawk	1.25	0.75	0	0	0
Unidentified Gull	10	2.5	0	0	0
		VP16			
Primary Target Species					
Lapwing	0	78.75	0	0	0
Red Kite	4.25	4.5	1.75	0.5	0
Secondary Species					
Black-headed Gull	0	7.5	2	83	0

Species	<10 m (minutes)	10-25 m (minutes)	25-50 m (minutes)	50-75 m (minutes)	>75 m (minutes)
Canada Goose	1	6.5	2.5	0	0
Common Buzzard	2.25	7.5	6.5	1	0
Common Gull	0.5	0.5	8.25	0	0
Grey Heron	0	0.25	0.5	0	0
Greylag Goose	2	1	34.25	0	0
Kestrel	0.25	1	0.5	0	0
Lesser Black-backed Gull	0	0	0	80	0
Mallard	0	1	0	0	0
Mute Swan	0	1	0	0	0
Sparrowhawk	0	2.25	2.25	0	0
VP17					
Primary Target Species					
Lapwing	0	6.75	0	0	0
Marsh Harrier	0	1	0	0	0
Red Kite	0	0	0	1.5	0
Secondary Species					
Black-headed Gull	0	18.25	154	0	0
Common Buzzard	2.5	1.75	0	3.5	0
Grey Heron	0.25	0.25	0	0	0
Kestrel	4.5	0.5	1	0	0
Mute Swan	0	0	1.5	0	0
Redshank	0.5	0	0	0	0
Sparrowhawk	0.5	2.5	0	0	0
VP18					
Primary Target Species					
Herring Gull	0	0	5	0	0
Lapwing	0	0	0	26	0
Secondary Species					
Black-headed Gull	125	151.25	310.5	88.25	0

Species	<10 m (minutes)	10-25 m (minutes)	25-50 m (minutes)	50-75 m (minutes)	>75 m (minutes)
Common Buzzard	0.75	2.5	1	0	0
Common Gull	0	0	397.5	0	0
Kestrel	1.5	4.5	2	2	8
Redshank	1	2.75	0.5	0	0
Sparrowhawk	0.5	0.5	0	0	0

Annex G. Peak Counts During Transect and Vantage Point Surveys for Stour and Orwell Estuaries SPA / Ramsar Site HRA

Annex G
Peak Counts During Transect and Vantage Point Surveys for Stour and Orwell Estuaries SPA / Ramsar Site HRA

Table A8.8.29 Peak counts during transect and VP surveys for Stour and Orwell Estuaries SPA / Ramsar site HRA (includes birds in flight)

Common name	Peak Count	No. of months (out of 7)
Survey Location 7		
Assemblage Species		
Golden Plover	1	1
Lapwing	3	3
Additional Wetland Species		
Black-headed Gull	15	2
Canada Goose	1	1
Common Gull	3	1
Herring Gull	4	2
Lesser Black-backed Gull	2	1
Survey Location 8		
Assemblage Species		
Lapwing	60	4
Additional Wetland Species		
Black-headed Gull	77	4
Canada Goose	3	1
Common Gull	50	2
Grey Heron	6	2
Herring Gull	7	1
Mallard	3	1
Survey Location 9		
Qualifying Species		
Black-tailed Godwit	4	1

Common name	Peak Count	No. of months (out of 7)
Assemblage Species		
Cormorant	1	1
Lapwing	54	4
Shelduck	3	1
Wigeon	5	1
Additional Wetland Species		
Black-headed Gull	70	5
Canada Goose	17	3
Egyptian Goose	2	2
Greylag Goose	4	3
Herring Gull	4	1
Little Egret	5	1
Mallard	36	4
Mute Swan	6	6
Snipe	12	1
Teal	4	3
Water Rail	1	1
White-fronted Goose	36	1
Survey Location 10		
Qualifying Species		
Brent Goose (Dark-bellied)	8	1
Assemblage Species		
Cormorant	21	4
Curlew	4	1
Gadwall	45	1
Golden Plover	70	1
Great Crested Grebe	3	2
Lapwing	60	3
Wigeon	1	1
Additional Wetland Species		

Common name	Peak Count	No. of months (out of 7)
Black-headed Gull	141	7
Canada Goose	39	4
Common Gull	43	2
Common Sandpiper	1	1
Coot	78	7
Egyptian Goose	2	2
Greylag Goose	17	2
Grey Heron	16	3
Herring Gull	13	4
Lesser Black-backed Gull	11	2
Little Egret	1	1
Little Grebe	4	2
Mallard	39	5
Moorhen	50	2
Mute Swan	12	3
Shoveler	2	1
Teal	61	2
Tufted Duck	6	2
Survey Location 11		
Qualifying Species		
Brent Goose (Dark-bellied)	1	1
Assemblage Species		
Cormorant	1	4
Gadwall	25	3
Great Crested Grebe	2	1
Additional Wetland Species		
Black-headed Gull	20	4
Canada Goose	14	5
Common Gull	2	2
Common Sandpiper	1	1

Common name	Peak Count	No. of months (out of 7)
Coot	60	5
Egyptian Goose	2	2
Green Sandpiper	2	3
Greylag Goose	22	3
Grey Heron	1	3
Herring Gull	50	2
Little Egret	1	3
Little Grebe	3	4
Mallard	50	6
Mandarin Duck	2	1
Moorhen	4	3
Mute Swan	6	4
Pochard	1	1
Shoveler	2	1
Teal	7	3
Tufted Duck	5	1
Wood Sandpiper	3	1

Annex H. Peak Counts During Vantage Point Surveys for Thames Estuary and Marshes SPA / Ramsar Site HRA

Annex H
Peak Counts During Vantage Point Surveys for Thames Estuary and Marshes SPA / Ramsar Site HRA

Table A8.8.30 Peak counts during VP surveys for Thames Estuary and Marshes SPA / Ramsar site HRA (includes birds in flight)

Common name	Count	No. of months (out of 6)
Survey Location 19		
Additional Wetland Species		
Black-headed Gull	52	2*
Common Gull	2	1*
Great Black-backed Gull	8	1*
Herring Gull	1	1*
Lesser Black-backed Gull	3	2*
Mallard	5	1*
Survey Location 20		
Assemblage Species		
Little Grebe	1	1
Pochard	1	1
Tufted Duck	5	3
Additional Wetland Species		
Black-headed Gull	80	5
Common Gull	1	3
Coot	32	5
Cormorant	3	2
Curlew	1	1
Great Black-backed Gull	1	2
Great Crested Grebe	2	4
Herring Gull	22	5
Lesser Black-backed Gull	2	2

Common name	Count	No. of months (out of 6)
Mallard	55	5
Moorhen	4	2
Mute Swan	1	1
Survey Location 21		
Assemblage Species		
Golden Plover	1	1
Lapwing	114	1
Additional Wetland Species		
Black-headed Gull	192	5
Canada Goose	37	1
Common Gull	7	4
Coot	6	3
Cormorant	1	1
Greylag Goose	61	2
Grey Heron	2	1
Herring Gull	4	4
Mallard	12	3
Mediterranean Gull	6	1
Moorhen	4	2
Pink-footed Geese	7	1
Survey Location 22		
Assemblage Species		
Lapwing	101	3
Additional Wetland Species		
Black-headed Gull	706	5
Canada Goose	49	1
Common Gull	3	3
Cormorant	4	2
Herring Gull	4	4

Common name	Count	No. of months (out of 6)
Lesser Black-backed Gull	3	2
Mallard	1	1
Moorhen	4	3

*Less than six months' worth of data was obtained here as Survey Location 19 was dropped from the survey schedule as habitats were unsuitable for HRA Target Species.

National Grid plc
National Grid House,
Warwick Technology Park,
Gallows Hill, Warwick.
CV34 6DA United Kingdom

Registered in England and Wales
No. 4031152
nationalgrid.com