# MORGAN AND MORECAMBE OFFSHORE WIND FARMS: TRANSMISSION ASSETS

## Outline Wildlife Hazard Management Plan

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# Glossary

| Term | Meaning |
|---|---|
| 400 kV grid connection cables | Cables that will connect the proposed onshore substations to the existing National Grid Penwortham substation. |
| 400 kV grid connection cable corridor | The corridor within which the 400 kV grid connection cables will be located. |
| Morecambe OWL | Morecambe Offshore Windfarm Limited is owned by Copenhagen Infrastructure Partners' (CIP) fifth flagship fund, Copenhagen Infrastructure V (CI V). |
| Morgan OWL | Morgan Offshore Wind Limited is a joint venture between JERA Nex bp (JNbp) and Energie Baden-Württemberg AG (EnBW). |
| Onshore Order Limits | Onshore Order Limits See Transmission Assets Order Limits: Onshore (below). |
| Onshore substations | The onshore substations will include a substation for the Morgan Offshore Wind Project: Transmission Assets and a substation for the Morecambe Offshore Windfarm: Transmission Assets. These will each comprise a compound containing the electrical components for transforming the power supplied from the generation assets to 400 kV and to adjust the power quality and power factor, as required to meet the UK Grid Code for supply to the National Grid. |
| Special Protection Areas | A site designation specified in the Conservation of Habitats and Species Regulations 2017, classified for rare and vulnerable birds, and for regularly occurring migratory species. Special Protection Areas contribute to the national site network. |
| Transmission Assets | The area within which all components of the Transmission Assets will be located, including areas required on a temporary basis during construction and/or decommissioning. |
| Transmission Assets Order Limits | The area within which all components of the Transmission Assets landward of Mean High Water Springs will be located, including areas required on a temporary basis during construction and/or decommissioning (such as construction compounds).<br>Also referred to in this report as the Onshore Order Limits, for ease of reading. |

# Acronyms

| Acronym | Meaning |
|---|---|
| CIEEM | Chartered Institute of Ecology and Environmental Management |
| CoCP | Code of Construction Practice |
| DCO | Development Consent Order |
| ECoW | Ecological Clerk of Works |
| ES | Environmental Statement |
| EMP | Ecological Management Plan |

| Acronym | Meaning |
|---|---|
| OEMP | Outline Ecological Management Plan |
| SPA | Special Protection Area |
| SSSI | Site of Special Scientific Interest |
| UK | United Kingdom |

## Units

| Unit | Description |
|---|---|
| % | Percentage |
| ha | Hectare |
| kV | Kilovolt |
| m | Metre |

# 1 Outline Wildlife Hazard Management Plan

## 1.1 Background and Aims

### 1.1.1 Introduction

1.1.1.1 This document comprises an Outline Wildlife Hazard Management Plan for the Transmission Assets ~~and forms an appendix to the Outline .Ecological Management Plan (OEMP) (document reference J6).~~ The document ~~will be~~has been used to support ~~ongoing~~ discussions between the Applicants, Blackpool Airport ~~and~~, BAE Systems ("BAE") and the Defence Infrastructure Organisation (DIO) on behalf of the Ministry of Defence (MOD) with regards to the safeguarding of Blackpool Airport and Warton Aerodrome associated with wildlife risk management. Other matters highlighted in BAE's Relevant Representation (RR) RR-208 relating to buildings/building heights and potential impacts on radar are considered in the Applicants' response to RR-028.

1.1.1.2 Blackpool Airport and BAE have both raised concerns that the construction of the Transmission Assets (in particular the establishment of the environmental mitigation and biodiversity benefit areas) would increase bird populations and change the patterns of bird abundance, distribution, or behaviour in the area, which could lead to an increase in bird strike risk.

1.1.1.3 Whilst 'designing-out' hazards (e.g. not having them within the 13 km wildlife hazard management zone around the airports) would be the preferred option for BAE and Blackpool Airport, when considering the requirements from Natural England to deliver mitigation and biodiversity benefit as close to the source of impact as possible, this Outline Wildlife Hazard Management Plan demonstrates that with commitments made by the Applicants to monitor and manage hazards that the proposed works can proceed without increasing bird strike risk at the airports. The contents of this plan will help inform discussions with the aerodromes to ensure the most appropriate solution is taken forward.

1.1.1.4 At Deadline 2, the Applicants described the process followed in the site selection of the environmental mitigation and biodiversity benefit areas (REP2-046) which took into account proximity to Blackpool Airport and Warton Aerodrome. The Applicants also set out the target species/enhancement measures for each environmental mitigation and biodiversity benefit area and provided further detail on the measures that would be implemented (Outline Ecological Management Plan (document reference J6)).

1.1.1.5 The Applicants also submitted a Baseline Bird Technical Note at Deadline 3 (S_D3_5) using data presented in Volume 3: Annex 4.2: Wintering and migratory birds technical report (APP-092 and APP-093) and Annex 4.3: Intertidal birds technical report (APP-094) from the Environmental Statement. The Baseline Bird Technical Note (S_D3_5) explains which bird species present a greater collision risk for aircraft (based on national and local data) and seeks to establish the baseline bird numbers and trends for these

species. The Applicants requested bird monitoring data from Blackpool Airport and BAE, which will be incorporated into the Baseline Bird technical note on receipt of the data.

1.1.1.6 This Outline Wildlife Hazard Management Plan follows on from the site selection of the environmental mitigation and biodiversity benefit areas (REP2-046) submitted at Deadline 2 and the Baseline Bird Technical Note submitted (S_D3_5) at Deadline 3 and is in line with the approach set out in the Strategy for Wildlife Hazard Management Plan (REP2-047). The Outline Wildlife Hazard Management Plan also follows the Safety Management System set out in CAP795 and includes:

- An indicative wildlife attractant habitat risk assessment (based on the early design work on the environmental mitigation and biodiversity benefit areas) identifies the bird species that may be attracted to the works areas (including the environmental mitigation and biodiversity benefit areas) due to an increase in potential food sources, standing water or any other factor which may attract birds. The wildlife attractant habitat risk assessment will focus on the bird species which have been identified in the Baseline Bird Technical Note as presenting the greatest risk of collision with aircraft.
- Alongside the wildlife attractant risk assessment, the Outline Wildlife Hazard Management Plan explains how the mitigation measures within the OEMP (J6) and the Onshore Biodiversity Benefit Statement (J11) will manage the risk of bird strike. This is based on a series of practicable measures supported by a strategy for monitoring and reporting the effectiveness of the measures. A key element of the strategy is the procedure for identifying how management measures will be adapted according to results from the monitoring and to reflect other changes in the local area (where required). These management measures will aim to reduce any increased bird strike risk and reduce the risks to As Low As Reasonably Possible (ALARP) based on CAP 738 guidance (Safeguarding of Aerodomes) are also presented.

1.1.1.7 At Deadline 5, this document has beenwas updated to include a draft Wildlife Attractants Habitat Risk Assessment (Appendix A) and an assessment of bird strike risk at Blackpool Airport (Appendix B). These documents have been developed in consultation with BAE Systems / the DIO and Blackpool Airport respectively. Note that the Applicants expect BAE and the DIO to provide comment and feedback on the draft Wildlife Attractants Habitat Risk Assessment post Deadline 5. Amendments will be incorporated into an update of the oWHMP at Deadline 6.

1.1.1.8 Blackpool Airport have confirmed that they are satisfied that the management plan references sufficient design constraints for the mitigation areas, assesses the works areas and provides suitable mitigations by species-combined with an ongoing monitoring programme and escalation process (should hazardous bird flight lines appear and/or bird numbers become excessive). Minor amendments have been

1.1.1.9 The Outline Wildlife Hazard Management Plan was updated at Deadline 6 with the following:

- Updates to Appendix A (draft Wildlife Attractants Habitat Risk Assessment) to reflect comments from the Examining Authority during the Issue Specific Hearing 4 (Hearing Action Point ISH4_14) and ongoing discussions with BAE Systems/DIO;

~~1.1.1.8~~- The inclusion of the minor amendments to Appendix B (assessment of bird strike risk at Blackpool Airport) to reflect the comments requested by BAOL in order to make the risk assessment appropriate to integrate into the existing Blackpool Airport WHMP~~. These updates will be completed for submission at Deadline 6.~~;

- Details on the interlinked management plans and the update process;
- Inclusion of Requirement 27 from the draft DCO; and
- Clarity related to onshore site preparation works and relevant controls.

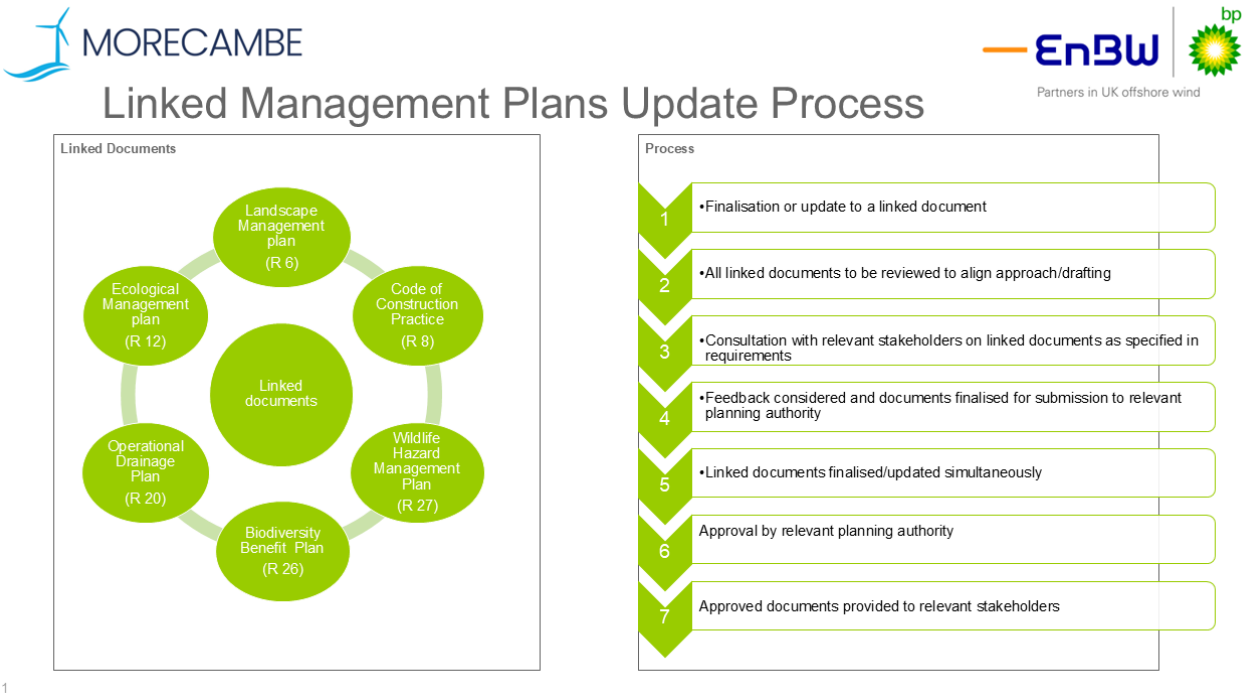
## 1.1.2 Interlinked Management Plans and the Update Process

1.1.2.1 The Outline Wildlife Hazard Management Plan forms part of a suite of interlinked outline management plans relating to the design, management and monitoring of environmental mitigation and biodiversity areas and management of construction impacts associated with the Transmission Assets Project. These interlinked plans are as follows:

- Code of Construction Practice
- Wildlife Hazard Management Plan
- Landscape Management Plan
- Ecological Management Plan
- Biodiversity Benefit Plan
- Operational Drainage Management Plan

1.1.2.2 The outline management plans form part of the Transmission Asset DCO application. Each outline management plan is secured by a requirement of the draft DCO; detailed management plans will be prepared in accordance with the outline plan and approved by the relevant planning authority. The approved plans must be implemented as approved.

1.1.2.3 Each management plan has its own purpose and objectives specific to the subject of the plan, but there is cross-over in the objectives of the different plans. The outline plans have been prepared to ensure that the objectives of each management plan can be delivered and that the management measures are aligned between the interlinked plans. The Applicants will adopt a structured approach in the preparation of the detailed management plans to ensure continued alignment of management measures across the interlinked management plans. The interlinked management plans will remain as 'live' documents during the construction and operation stages to reflect the adaptive management approach. Where a review/update of a management plan is required (e.g. in response to monitoring results), the review/updates will be undertaken in the context of the other interlinked plans and will follow the staged approach set out below.

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## 1.2 Implementation

### 1.2.1 DCO Requirements

1.2.1.1 Following the granting of the consent for the Transmission Assets, bespoke detailed Wildlife Hazard Management Plan(s) will be prepared for and agreed with Blackpool Airport and BAE and DIO (on behalf of Warton Aerodrome) prior to the commencement of the relevant stage of works and will follow the principles established in this Outline Wildlife Hazard Management Plan. The Applicants and all appointed contractors will be responsible for the implementation of the detailed Wildlife Hazard Management Plans.

*27.—(1) No works shall be carried out in connection with the Project [A/B] construction activities until a detailed wildlife hazard management plan (which shall be in accordance with the outline wildlife hazard management plan) has, following consultation with the statutory nature conservation body, the Ministry of Defence, BAE and BAOL, been submitted to and approved by the relevant planning authority.*

*(2) Any detailed wildlife hazard management plan approved under paragraph (1) must be implemented as approved and continue to be complied with for the lifetime of [Project A/B]. (3) For the purposes of this requirement only, 'Project [A/B] construction activities' means—(a) the works and activities set out in Table 1.1 of Appendix A (Wildlife Attractants Habitat Risk Assessment) to the outline wildlife hazard management plan; and*

*(b) any onshore site preparation works (excluding site clearance, demolition, archaeological investigations, environmental surveys, surveys and investigations for the purpose of assessing ground*

*conditions, remedial work in respect of any contamination or other adverse ground conditions, the diversion and laying of utilities and services, site security works, the erection of any temporary means of enclosure, the erection of temporary hard standing, the erection of welfare facilities and compounds for welfare facilities, creation of site accesses and the temporary display of site notices or advertisement (together, the 'excluded onshore site preparation works')) which are associated with Project [A/B] and which are proposed to take place within the 13km wildlife hazard management zone in respect of Blackpool Airport and Warton Aerodrome.*

*(4) The excluded onshore site preparation works which are referred to in paragraph (3)(b) must only take place in accordance with the outline wildlife hazard management plan.*

## 1.2.2 Onshore site preparation works

1.2.2.1 The Outline CoCP (document reference J1) and its supporting appendices sets out the standards and measures that will be implemented during the onshore site preparation works and Transmission Assets (located landward of MLWS) construction process. Onshore site preparation works are defined in article 2 of the draft DCO (document reference C1 (REP3-009)).

1.2.2.2 Onshore site preparation works will be undertaken prior to the commencement of construction. These works will be undertaken in accordance with the Outline CoCP as certified through the DCO. Table 1-1 of the outline CoCP explains how each outline management plan relates to the onshore site preparation works.

1.2.2.3 Requirement 27 of the draft DCO excludes certain onshore site preparation works from the definition of 'construction activities', but only for the purposes of that requirement. This exclusion is based on the fact that these activities are controlled by the detail and commitments contained within this outline WHMP. The excluded onshore site preparation activities are unlikely to lead to any material change in bird activity within the 13 km wildlife hazard management zone, as shown in Table 1 below. This approach is considered reasonable and proportionate when considering the small, localised changes and the context of Warton Aerodrome within the existing dynamic environment whereby it manages the ongoing aviation risk within their existing wildlife hazard management procedures..

1.2.2.4 The measures within the outline CoCP and its supporting appendices provide the appropriate control mechanisms for managing onshore site preparation works. These mechanisms provide the reassurance to aviation stakeholders that any onshore site preparation works will be carried out in accordance with these documents.

1.2.2.5 The Applicants have proposed this proportionate approach to onshore site preparation works in discussion with BAE and DIO and have confirmed this approach with BAOL.

1.2.2.6 The Applicants have provided further clarity to BAE and DIO at technical meetings in relation to the definition of onshore site preparation works. A

summary of each onshore site preparation work to be excluded from Requirement 27, the context of the environment where these activities will be undertaken, and their consideration relative to ornithological features is provided in Table 1-1 below:

**Table 1-1 Onshore site preparation works descriptions and ornithological considerations**

| Activity | Summary | Context | Ornithological consideration |
|---|---|---|---|
| Site clearance | Grubbing / above ground vegetation clearance (no excavation) of localised areas (not entire cable corridor) typically associated with other onshore site preparation works | This type of activity will occur regularly within the 13km zone. Any impacts will be localised in scale | Potentially short term and very localised disturbance. |
| Demolition (not of buildings) | Removal of boundary features, such as wall or fences | This type of activity will occur regularly within the 13km zone. Any impacts will be localised in scale | Potentially short term and very localised disturbance, |
| Archaeological investigations | Localised stripping back of soils and trial trenching along the cable route and onshore substations at targeted and discrete locations within the Order Limits | The 13km safeguarding zone is in an area characterised by intensive agricultural activity. The intensive nature of farming, including regular ploughing (of entire fields simultaneously), sowing harvesting and fertilisation creates a dynamic landscape that is highly attractive to birds. | Short term and very localised disturbance.<br>In the context of the baseline intensive farming environment impossible to distinguish any material change within the 13km safeguarding zone. |
| Environmental surveys | Personnel and small-scale machinery surveying at targeted and localised locations (environmental) within the Order Limits. | 13km safeguarding zone is in an area characterised by intensive agricultural activity, villages and infrastructure. Small scale disturbance and movement within the fields occur regularly. | Potentially short term and very localised disturbance. |
| Surveys and investigations for the purpose of assessing ground conditions | Personnel and small-scale machinery carrying out targeted and discreet remedial works. | 13km safeguarding zone is in an area characterised by intensive agricultural activity, villages and infrastructure. Small scale disturbance and movement within the fields occur regularly. | Potentially short term and very localised disturbance. |

| Activity | Summary | Context | Ornithological consideration |
|---|---|---|---|
| Remedial work in respect of any contamination or other adverse ground conditions | Personnel and small-scale machinery carrying out targeted and discreet remedial works. | 13km safeguarding zone is in an area characterised by intensive agricultural activity. villages and infrastructure General agricultural activities and movement within the area occur regularly. | Short term and very localised disturbance. In the context of baseline intensive farming environment impossible to distinguish any material change within the 13km safeguarding zone. |
| Diversion and laying of utilities and services | Personnel and small-scale machinery carrying out targeted and discreet remedial works. | 13km safeguarding zone is in an area characterised by intensive agricultural activity, villages and highways infrastructure General highways activities occur regularly. | Short term and very localised disturbance. In the context of baseline intensive farming environment impossible to distinguish any material change within the 13km safeguarding zonw |
| Site security works | Portacabin, welfare and lights (powered by generator) | 13km safeguarding zone is in an area characterised by intensive agricultural activity, with a number of villages and associated infrastructure. Similar general activities occur regularly. | Potentially short term and very localised disturbance. |
| Erection of any temporary means of enclosure | Small-scale fencing (heras or similar) | 13km safeguarding zone is in an area characterised by intensive agricultural activity, with a number of villages and associated infrastructure. Similar general activities occur regularly. | Localised disturbance. In the context of baseline intensive farming environment impossible to distinguish any material change within the 13km safeguarding area. Fencing to be installed to avoid attracting birds. |
| Erection of temporary hard standing | Creation of hard standing areas at localised and discreet locations within the Order Limits | 13km safeguarding zone is in an area characterised by intensive agricultural activity, with a number of villages and associated infrastructure and other local developments. Similar activities occur regularly. | Localised disturbance. In the context of baseline intensive farming environment impossible to distinguish any material change within the 13km safeguarding zone. |
| Erection of welfare facilities and compounds for welfare facilities | Creation of hard standing areas at localised and discreet locations within the Order Limits | 13km safeguarding zone is in an area characterised by intensive agricultural activity, with a number of villages and associated infrastructure. Similar activities occur regularly. | Localised disturbance. In the context of baseline intensive farming environment impossible to distinguish any material change within the 13km safeguarding zone. |

| Activity | Summary | Context | Ornithological consideration |
|---|---|---|---|
| Creation of site accesses | Alterations to the highway and associated drainage and utilities, similar to existing highway works | 13km safeguarding zone is in an area characterised by intensive agricultural activity, villages and highways infrastructure General highways activities occur regularly. | Localised disturbance. In the context of current intensive farming environment impossible to distinguish any material change within the 13km safeguarding zone. |
| Temporary display of site notices of advertisements | Installation of signage for health and safety, access and other notices to inform personnel and public of works. | Signage and notices throughout 13km safeguarding area around villages and infrastructure. | None |

1.2.2.7 The Applicants note that the excluded onshore site preparation works are *de minimis* and akin to activities undertaken by existing agricultural land practices, highway works and construction sites within the 13 km wildlife hazard management zones(s).

1.2.2.8 Onshore site preparation activities that are subject to the controls contained within the outline WHMP are: early planting of landscape works, environmental mitigation works, and biodiversity benefit works. No onshore site preparation works in relation to these 'included' activities may be undertaken until the detailed WHMP has been discharged by the relevant planning authority in consultation with the relevant aviation stakeholders.

## ~~1.1.2~~1.2.3 Ongoing Management and Mitigation

~~The Applicants propose that the~~**Blackpool Airport**

~~1.1.2.1~~1.2.3.1 The risks and measures of this Outline Wildlife Hazard Management Plan ~~are~~have been reviewed by Blackpool Airport ~~and BAE. Whilst it is still to be agreed with both airports, any~~. Any additional mitigation measures required as a consequence of the Transmission Assets, would be adopted and ~~-~~incorporated into their existing Wildlife Attractant Habitats Risk Assessment and Management Plans following the identification of any additional potential bird strike risk above the current level already identified.

1.2.3.2 The Applicant will be responsible for any additional costs associated with the additional hazard management. ~~The principles of this approach have been verbally agreed with Blackpool Airport; discussions are ongoing with BAE.~~ The proposed approach would ensure ~~both airports'~~the airport operations were aligned with CAP 772 guidance and ensure bird strike risk at the aerodromes does not increase beyond its current level due to the Transmissions Assets. ~~Should either airport prefer not to adopt the monitoring and management of the additional hazards into their existing Wildlife Attractant Habitats Risk Assessment and Management Plans,~~

**Warton Aerodrome**

~~1.1.2.2~~1.2.3.3 It is likely that the Applicants will retain responsibility for managing any additional hazards associated with the Transmission Assets~~-~~ at Warton

Aerodrome. Monitoring, reporting and any updates to the Plan will be carried out in conjunction with BAE and DIO, including during any onshore site preparation works. The approach would ensure that Warton Aerodrome's operations were aligned with CAP 772 guidance and ensure bird strike risk at the aerodromes does not increase beyond its current level due to the Transmissions Assets.

1.2.3.4 The exact structure and set up will be confirmed with BAE/ DIO post consent and will be discussed as part of the finalisation of the WHMP, as per Requirement 27 of the DCO (shown in section 1.2.1 above).

## 1.3 Outline Wildlife Hazard Management Plan

### ~~1.21.1 Implementation~~

~~1.2.1.11.1.1.1~~ ~~This Outline Wildlife Hazard Management forms an appendix to the OEMP (document reference J6). Following the granting of the consent for the Transmission Assets, bespoke detailed Wildlife Hazard Management Plan(s) will be prepared for and agreed with Blackpool Airport and BAE (on behalf of Warton Aerodrome) as part of the detailed EMP prior to the commencement of the relevant stage of works and will follow the principles established in this Outline Wildlife Hazard Management Plan. The detailed Wildlife Hazard Management Plans will require approval by the relevant planning authority following consultation with relevant stakeholders. Blackpool Airport and BAE Systems (on behalf of Warton Aerodrome) are named consultees. The Applicants and all appointed contractors will be responsible for the implementation of the detailed Wildlife Hazard Management Plans.~~

~~1.2.1.2~~ ~~The Applicants have committed to implementation of detailed Ecological Management Plans via the following commitment, CoT76 (see Volume 1, Annex 5.3: Commitments Register, document reference F1.5.3), which is secured by inclusion of Requirement 12 of the draft Development Consent Order (DCO) (document reference C1) Schedules 2A & 2B.~~

~~1.2.1.3~~ ~~The requirement wording for Project A is set out below (Project B's requirement mirrors that for Project A and is therefore, not repeated):~~

~~*12) – (1) No stage of the Project A onshore works or Project A intertidal works may commence until for that stage a written ecological management plan in accordance with the OEMP as appropriate for the relevant stage, has, following consultation with –*~~

~~*(a) Natural England;*~~

~~*(b) the Environment Agency where works have the potential to impact wetland habitats; and*~~

~~*(c) BAE and BAOL in respect of the outline wildlife hazard management plan,*~~

~~*been submitted to and approved by the relevant planning authority.*~~

~~*(2) The ecological management plan submitted under sub-paragraph (1) must include an implementation timetable and must be implemented as approved.*~~

~~*(3) Onshore site preparation works must only take place in accordance with the relevant details set out in the OEMP.*~~

## ~~1.3 Indicative Wildlife Attractants Habitat Risk Assessment~~

~~1.3.1.1~~ ~~It is not possible to determine how the works will impact the wildlife strike risk at an airport with any degree of certainty. This is because a) it cannot be certain which species and how many individuals will be attracted to a development, b) it is not known with certainty how the wildlife attracted to the~~

~~development will behave (i.e. will they move onto or across an aerodrome thus generating a risk) and c) it is not known with certainty how a development will influence the behaviour of existing hazardous wildlife near an aerodrome, either in a way that might increase or, indeed, reduce the risk.~~

~~1.3.1.2 It is for this reason and reflecting that the Transmission Assets project is not at detailed design, that the wildlife attractant habitat risk assessment presented in the Outline Wildlife Hazard Management Plan is indicative and is based on expert evaluation. The wildlife attractant habitat risk assessment will be updated post consent during detailed design. The Applicants commit to on-going management of any attractions to hazardous wildlife, either through the incorporation of the management into the aerodromes' own existing Wildlife Attractant Habitats Risk Assessment and Management Plans, or in consultation with the two aerodromes should the Applicants retain responsibility for managing any additional hazards associated with the Transmission Assets.~~

## ~~1.3.2~~1.3.1 Approach

~~1.3.2.1~~1.3.1.1 The approach taken by the Applicants in the identification of hazardous wildlife and their habitats follows the approach set out in the CAP 795 guidance (as set out Figure 1-1).

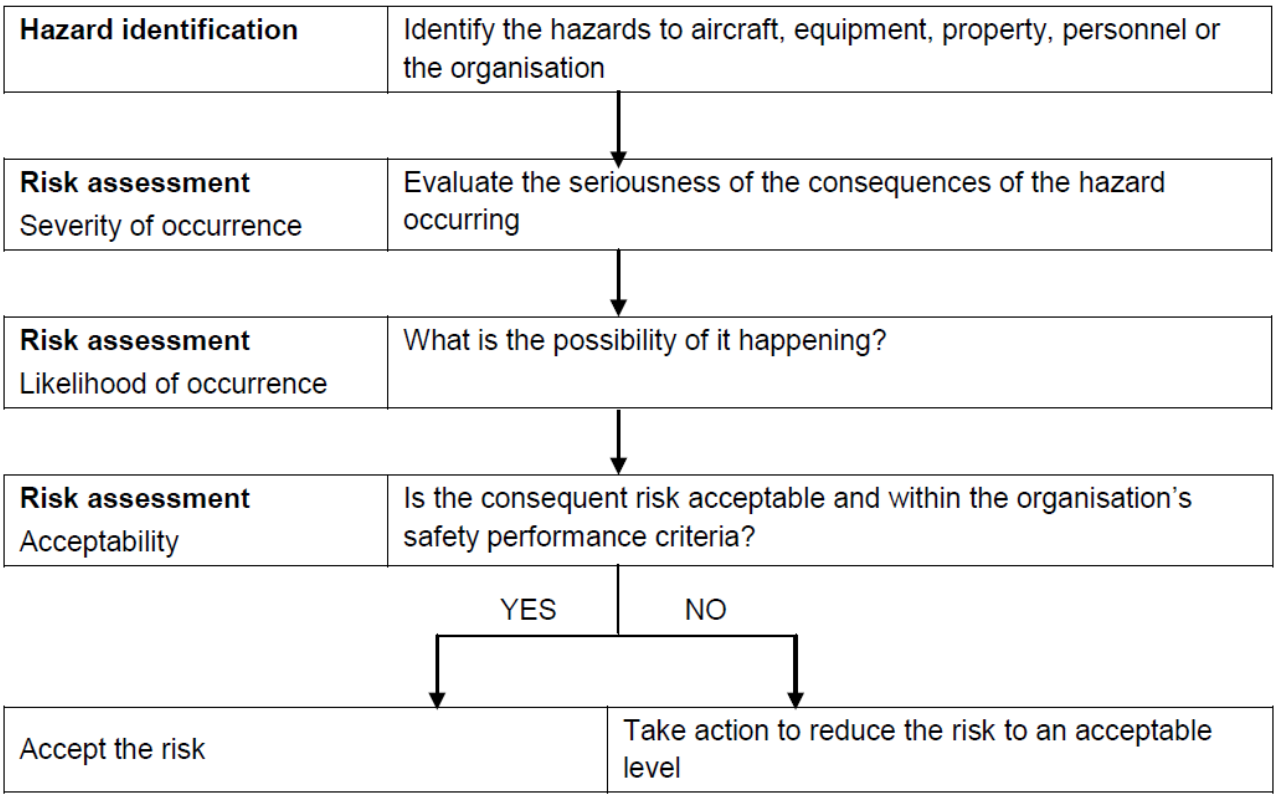


**Figure 1-1: The process to identify hazards and assess risks as taken from CAP 795**

1.3.1.2 The Applicants have completed the initial stage of this process by ~~undertaking the wildlife attractant habitats risk assessment in this~~ setting out

the bird species that are considered in the Outline Wildlife Hazard Management Plan and the wildlife habitat attractants associated with the Transmission Assets Project. The information from this initial stage has been used to prepare a Draft Wildlife Attractant Habitat Risk Assessment for Warton Aerodrome (Appendix A) and to assess the bird strike risk at Blackpool Airport (Appendix B).

~~1.3.2.2~~1.3.1.3 ~~Outline Wildlife Hazard Management Plan.~~ For the purposes of this assessment, the attractants are defined as any aspect of the Transmission Assets that has the potential to cause a change in abundance, distribution, or behaviour of birds within the 13km ~~safeguarding~~wildlife hazard management zone (as shown on Figure 1-2). This includes the mitigation areas as set out in **Section 1.3.3** as well as the general risks associated with bird attraction due to earthworks and construction activities related to the Transmission Assets.

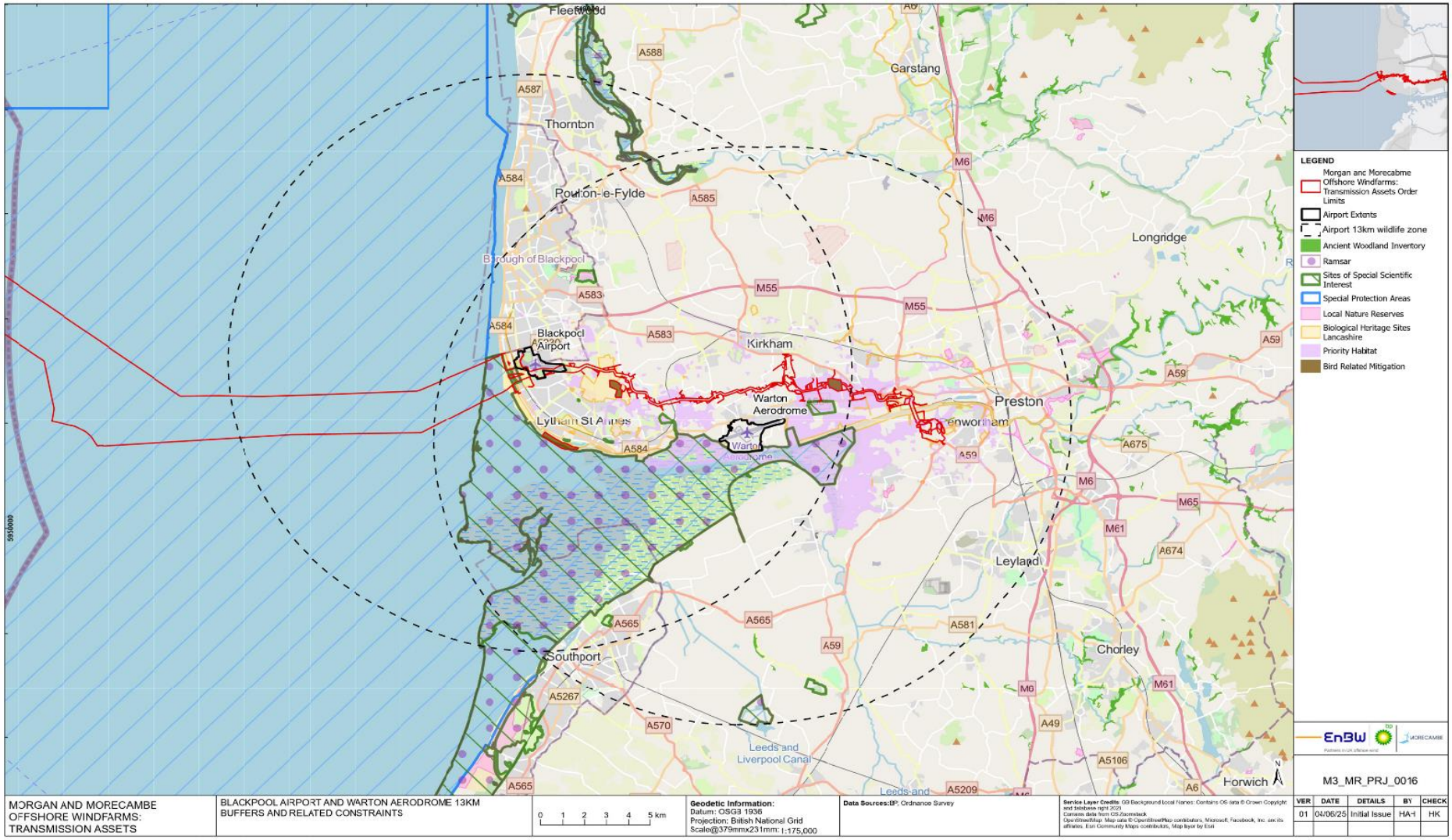


**Figure 1-2: Wildlife Hazard Management Zones around Blackpool Airport and Warton Aerodrome**

## ~~1.3.3~~1.3.2 Species considered in the ~~wildlife attractant habitats risk assessment~~Outline Wildlife Hazard Management Plan

1.3.2.1 The Applicants are aware that the Transmission Assets may affect bird distribution on a localised scale, however it is important that these potential changes in distribution are set in context of the existing baseline.

1.3.2.2 The Ribble Estuary is of international importance for wintering and passage waterbirds. It is the second most important site in the UK after the Wash and, due to its limited size in comparison with the Wash, it probably has the highest densities of waterbirds anywhere in the UK making it one of the most important wetland areas in Europe. In any given year up to 250,000 birds' winter in the Ribble Estuary (Calbrade, et al., 2025).

1.3.2.3 Many of these birds spend the entire non-breeding season within the confines of the estuary, feeding and roosting on the saltmarsh and intertidal habitats. However, many other species, whilst reliant upon the safe roosting habitats found on the saltmarsh and intertidal habitats, are dependent upon the surrounding low-lying farmland for food. Waders such as lapwing and golden plover feed primarily upon invertebrates found in the nutrient enriched soils whereas many of the wildfowl such as pink-footed goose and whooper swan are reliant upon vegetable matter from the arable land. Many tens of thousands of birds currently make daily return movements from roost sites within the Ribble Estuary to fields at the north and south of the Ribble, including through the airspace of Warton Aerodrome and Blackpool Airport. The construction of the Transmission Assets and its associated mitigation areas is not likely to alter that either in terms of frequency or magnitude due to the design of the mitigation areas and management of the construction process.

1.3.2.4 It is predicted that a number of these birds will be displaced short distances during construction due to temporary habitat loss and disturbance from construction activities, with much lower numbers being displaced permanently from the operation of the onshore substations (see S_D3_5 Baseline Bird Technical Report - Rev F01 (REP3-060) for further details on the trends and distribution of birds within the Applicants' study area). Due to the wider available habitats in the area, any displaced birds are anticipated to undertake only limited local movements, and the bird mitigations have been designed, and located, to minimise this distance for suitable nearby habitats. In the case of Fairhaven Saltmarsh the measure will reduce disturbance pressures on the existing birds using the area. The design has taken into account the number of birds displaced, the location of the impact, and the current distribution of birds (see S_D2_13 Site Selection of the Environmental Mitigation and Biodiversity Benefit Areas - Rev F01 (REP2-046) for further detail). The mitigations are therefore designed to provide a safe refuge for displaced birds in areas which they currently use. As such it is not predicted that there will be either, an increase in bird numbers within the area, or material changes to the existing daily flight patterns of birds.

1.3.2.5 Not all species of birds that occur in the wildlife hazard management zone are present in high enough numbers to materially increase the risk to aviation, and many of those that are, present extremely low risk due to their

small size and generally solitary habits. This follows the approach set out in CAP772 whereby heavier and/or flocking species are rated higher in terms of severity of damage to aircraft. CAP772 recognises that single strikes from species similar in size to a swift would not raise the overall bird strike risk to high, therefore, these species are not considered further in this document. However, small birds that exhibit flocking behaviour can present a bird strike risk and are considered.

~~1.3.3.1~~1.3.2.6 The Baseline Bird Technical Report (S_D3_5) sets out the species ~~at risk of collision with aircraft~~that could credibly increase bird strike risk within the 13 km wildlife hazard management ~~area.~~ zones around Blackpool Airport and Warton Aerodrome. These species are set out in Table 1-2 below and have been agreed with Blackpool Airport~~. The Applicants await comment from~~ and BAE ~~following a request submitted on 29th May 2025.~~Systems.

**Table 1-2: Species ~~at risk of collision with aircraft~~with the potential to increase the bird strike risk within the 13km wildlife ~~attractant~~hazard management ~~area~~zones around Blackpool Airport and Warton Aerodrome**

| Group | Species |
|---|---|
| ~~Swan~~ | ~~Bewick's swan,~~ |
| Swans | Whooper swan |
| | Mute swan |
| Geese | Canada goose |
| | Greylag goose |
| | Pink-footed goose |
| Ducks | Shelduck |
| | Mallard |
| | Wigeon |
| | Teal |
| Waders | Oystercatcher |
| | Golden plover |
| | Lapwing |
| | Redshank |
| | Black-tailed godwit |
| | Curlew |
| Gulls | Black-headed gull |
| | Common gull |
| | Herring gull |
| | Lesser black-backed gull |

| Group | Species |
|---|---|
| | ~~Great black-backed gull~~ |
| Corvids | ~~Magpie~~Jackdaw |
| | ~~jackdaw~~ |
| | Rook |
| | Carrion crow |
| Pigeons | Woodpigeon |
| | Feral pigeon |
| Starling | Starling |
| Winter thrushes | Redwing |
| | Fieldfare |
| Raptors | Buzzard |
| | Kestrel |
| | Barn owl |

### 1.3.3 Baseline summary

1.3.3.1 The following section provides a summary of the general ecology and local distribution of bird species (listed in Table 1-2) recorded within the wildlife hazard management zones around Warton Aerodrome and Blackpool Airport. The summary is based on the Applicants' bird survey data. More detailed information (including maps) on the local distribution, and national and regional trends, for these species are provided in the Baseline Bird Technical Report (S_D3_5).

#### Geese

#### Distribution

1.3.3.2 The distribution of geese is skewed toward the pink-footed goose, which is the most numerous species of geese in the area. Pink-footed geese were primarily located around Lytham Moss, with scattered flocks observed in arable fields between Lytham and Kirkham. Canada and greylag geese were generally found within the estuary, on Newton Marsh SSSI adjacent to Warton Aerodrome, or on Lea Marsh.

#### Ecology

1.3.3.3 Of the three abundant goose species present within the area, pink-footed geese are a fully wild and migratory species that breed in Iceland, whereas Canada geese are fully naturalised and sedentary and breed locally. Whilst there may be some wild migratory greylag geese that overwinter in the area (Calbrade, *et al.*, 2025), the majority of greylag geese in the Ribble Estuary are also sedentary.

1.3.3.4 The pink-footed geese generally start to arrive in the area during the months of September/October and leave again in March/April (Calbrade, *et al*., 2025). Pink-footed geese generally roost on intertidal and saltmarshes within the estuary at night and fly out from there to forage during the day (Johnson, *et al*., 2014). Within the Fylde area the most productive foraging area is the reclaimed arable land at Lytham Moss (Bowland Ecology, 2021) where the birds feed on crops such as potatoes.

1.3.3.5 The sedentary Canada and greylag geese have completely different foraging habits with greatly reduced daily movement patterns, compared to the wild geese. This may be in part due to their lack of need to build up sufficient fat reserves in order to undertake long migratory movements, unlike the wild pink-footed geese (Woog, 2013).

**Swans**

**Distribution**

1.3.3.6 Whooper swans were the most abundant species recorded during the Applicants' site-specific surveys, resulting in a biased distribution. Most whooper swans were found around Lytham Moss with additional records from the area south of the River Ribble. The remaining distribution consists of mute swans, which were present around deeper watercourses and scattered water bodies throughout the survey area.

**Ecology**

1.3.3.7 Similarly to the geese, the Ribble estuary swan population comprises of two species of both migratory and sedentary birds respectively, with the migratory whooper swans breeding in Iceland. Like the pink-footed geese, whooper swans generally arrive in September/October and leave again in March/April (Calbrade, *et al*., 2025). They also roost in safe areas within the estuary and make daily foraging trips out to productive farmland to feed (Johnson, *et al*., 2014).

1.3.3.8 Conversely, the mute swan is largely sedentary with many birds breeding in the local area. Mute swans are generally found in pairs or family groups, however on larger lakes and estuaries they can be found in larger groups. Mute swans do not normally venture far from water where they feed on plant material in the water or along the banks (e.g., Holm, 2002).

**Ducks**

**Distribution**

1.3.3.9 Wigeon were recorded as the most numerous duck species and, therefore, the distribution of ducks is heavily skewed toward this species, although teal were often present alongside them. Key areas for wigeon and teal include Newton Marsh SSSI and the River Ribble corridor. Significant numbers of were also observed within the proposed mitigation area at Newton with Scales. Mallard were found across all sizes of watercourses and water

bodies throughout the survey area and shelduck also had a scattered distribution with a bias towards areas close to the estuary.

### Ecology

1.3.3.10 Shelduck are a large duck that primarily feed upon marine gastropods in the estuary muds during the non-breeding period (Viain, *et al*., 2013). Despite being migratory, shelduck are also sedentary and both overwinter and breed in the Ribble estuary. Non-breeding birds will form larger flocks, but breeding birds will split into pairs and breed in secretive locations such as tree root cavities and abandoned mammal burrows. After the breeding period shelduck move back into the estuaries (Birdlife International, 2025). The higher numbers of shelduck recorded in 2024 by the Applicants probably represents birds exploiting the largely flooded landscape following an exceptionally wet winter in 2023/24.

1.3.3.11 Wigeon are fully migratory and do not breed in the Ribble estuary. They are present from September/October to March/April (Calbrade, *et al*., 2025) during which time they form large flocks. Wigeon feed extensively on grasses, and often at night, creating neatly cropped lawns in areas where they regularly feed. Like the geese they make movements between foraging grounds and roosting/loafing areas which are normally located on water. However, they will not travel far (a few km (Stroud, *et al*., 2016)). Wigeon also dabble for submerged vegetation by upending themselves in shallow water (Birdlife International, 2025).

1.3.3.12 Teal are often found with wigeon and are migratory as well, however low numbers of teal do also breed in the Ribble estuary. They are present in lower numbers than wigeon (Calbrade, *et al*., 2025) and mostly feed on the water by dabbling to reach vegetation and molluscs.

1.3.3.13 Mallard are present in the Ribble estuary all year round, however numbers increase during winter with northern migrants (Calbrade, *et al*., 2025). Mallard are usually found in small groups but migratory birds will form larger groups in the winter. Mallard feed extensively on plant matter that they obtain by dabbling for submerged vegetation.

## Waders

### Distribution

1.3.3.14 Lapwings were the most numerous wader species, and the areas that supported them also hosted other terrestrial feeding wader species. Key hotspots for wader activity included Lytham Moss, Newton Marsh SSSI, and the Ribble Estuary.

### Ecology

1.3.3.15 The waders of the Ribble estuary can be broadly split into two groups with similar ecological traits. The intertidal waders that spend most of their time within the intertidal habitats, and the terrestrial waders that are reliant upon terrestrial habitats.

1.3.3.16 Those intertidal waders primarily feed, roost and loaf within the estuary. These are birds of vast open expanses and accordingly avoid areas where their field of view is broken such as sand dunes and tall vegetation. These birds will mostly fly between their roost site and foraging areas by following the tideline and generally fly at low heights (often only skimming the sand or waves) to avoid detection by aerial predators. Whilst these birds behave differently to waders in terrestrial habitats, some species are reliant upon both intertidal and terrestrial environments. For example, certain wader species, such as curlew and black-tailed godwit, may prefer feeding in terrestrial habitats near estuaries under specific conditions. Additionally, some individuals may be forced to do so due to increased competition and reduced food availability in intertidal areas (Mander, *et al*., 2022). As a result, these birds might be excluded from the intertidal zone and forced to rely on terrestrial habitats to meet their daily energy requirements. Some species such as black-tailed godwit will also switch to foraging inland as the spring migration period advances (Jourdan, *et al*., 2022).

1.3.3.17 Potentially problematic wader species found exploiting terrestrial habitats are generally, oystercatcher, golden plover, lapwing, redshank, curlew and black-tailed godwit.

1.3.3.18 Golden plover and lapwing are the two species that are only found in terrestrial habitats. Both are migratory, however only lapwing breed in the Ribble estuary with golden plover breeding on bog habitats at higher altitudes and/or latitudes. Both species are reliant upon invertebrates found within wet grassland, and both species will forage at night when earthworms are more likely to be found on the surface (Gillings & Fuller, 1999).

1.3.3.19 The other species, oystercatcher, redshank, curlew and black-tailed godwit can be found inland in varying numbers throughout the year. Of these redshank are normally only found in very small groups, and they are quite small birds. Oystercatcher, curlew and black-tailed godwit are the larger waders (curlew are the largest at 632 – 1000 g and black-tailed godwit the smallest at 240 – 360 g (BTO, 2025)) and may be found in wet grassland habitats.

### Gulls

### Distribution

1.3.3.20 Gulls were observed loafing, roosting, and foraging throughout the survey area. Being mobile, especially during the non-breeding season, and generalists, they can exploit a wide range of habitats and food sources. As a result, their distribution is likely to change annually based on factors such as farm activity and land use.

### Ecology

1.3.3.21 All of the gull species with the exception of common gull can be found in the Ribble estuary year-round, with lesser black-backed gull being more abundant during the breeding season. Gulls are generalist species that can exploit a wide variety of resources and are increasingly exploiting

anthropogenic resources such as buildings for roosting and nesting and waste for food sources (Langley, *et al*., 2023). Gulls have large foraging ranges and will move around the country during the non-breeding period.

1.3.3.22 Gulls are capable of covering large distances in the search for food; they are lightweight for their size, streamlined, and can take advantage of soaring flight as well as flapping flight. Whilst soaring, gulls are reliant upon thermal uplifts they expend very little energy and combined with their physiology, they are able to stay in the air for long periods of time (Shamoun-Baranes & van Loon, 2006). This allows them to move over a landscape searching for food in a way that is not possible for other waterbirds that are reliant solely upon flapping flight.

**Corvids**

**Distribution**

1.3.3.23 Although corvids were widely distributed throughout the survey area, the Applicants, like Fylde Bird Club, found higher concentrations around Lytham Moss. This is likely due to the presence of a nearby rookery.

**Ecology**

1.3.3.24 A number of corvid species are widely present in the Ribble estuary throughout the year. Of these, jackdaws and rooks are communal birds, jackdaws roost communally in trees and cliffs during the non-breeding period whereas rooks' nest communally in small copses. Carrion crows are more solitary, although carrion crows do come together in loose groups during the non-breeding period.

Jackdaws, rooks and carrion crows can often be found feeding in mixed flocks in fields where they exploit a wide range of vegetable and animal matter (although mostly animal matter) such as seeds and invertebrates.

**Pigeons**

**Distribution**

1.3.3.25 Pigeons were widely distributed throughout the survey area with no clear pattern of usage.

**Ecology**

1.3.3.26 All of the pigeon species found in the Transmission Order limits are largely sedentary, although there may be an increase in woodpigeon numbers in the autumn and early winter (BTO Birdtrack, 2025). During the breeding season, stock dove and woodpigeon are solitary, indeed stock dove are largely sedentary throughout the year. However, woodpigeon numbers may increase during the autumn passage season when they may also form flocks, and they feed widely on arable land where they feed on grain and roost communally in trees. Feral pigeons live in colonies all year round and exploit agricultural and

urban habitats for food. Their colonies are often situated in roofs and abandoned buildings.

### Starlings

#### Distribution

1.3.3.27 Starlings were widely distributed throughout the survey area although with higher densities towards the coast.

#### Ecology

1.3.3.28 Starlings are present in the area year-round. However, during the breeding period they will generally be found in pairs or small family groups in open countryside where they nest in tree cavities, etc. Post breeding, starlings start to come together in flocks which can number tens of thousands of birds. They exploit a wide range of animal and vegetable matter and can come together in vast flocks in the evening to roost in communal areas (Birdlife International, 2025). These areas can be situated in man-made structures such as piers, but natural features such as reedbeds are also commonly used.

### Winter thrushes

#### Distribution

1.3.3.29 Winter thrushes were concentrated in the area north of Warton in the winter of 2023/24. This distribution and abundance can vary significantly based on resource availability (i.e., berry trees) and Scandinavian winter weather conditions in any given year (BTO Birdfacts, 2025)).

#### Ecology

1.3.3.30 Both redwing and fieldfare are largely winter migrants arriving in October and leaving by April (BTO Birdtrack, 2025). They form flocks and move over wide areas feeding on berry trees and seeds and invertebrates found in fields. They roost communally in woodlands, copses and in mature trees in hedgerows. Neither fieldfare nor redwing are present in the area during the breeding season.

### Raptors

#### Distribution

1.3.3.31 The site-specific surveys found a number of buzzard, kestrel, and barn owl holding territory in the area. These were well distributed throughout the area with the kestrel and barn owl generally found in open farmland whereas the buzzard territories were centred around woodland.

1.3.3.32 **Ecology**

1.3.3.33 The raptor species within the survey area display different behaviours. Buzzard are sedentary birds and use high soaring flight to search the

landscape for prey or items to scavenge, they eat a wide variety of prey from earthworms to rabbits (BTO Birdfacts, 2025).

1.3.3.34 Both kestrel and barn owl primarily feed on small mammals, the kestrel is most active diurnally whereas the barn owl is crepuscular and nocturnal. Both species are sedentary within the area and are often associated with nesting in abandoned buildings or nest boxes, although they will both nest in trees too. Kestrel hover from a relatively short distance above the ground whereas barn owl fly silently closer to the ground using their sensitive hearing to locate prey. Small mammals make up a large part of the prey items for both these species and voles are more abundant in areas with a well-developed thatch (Barn Owl Trust, 2025). The thatch is developed when grass is left to grow tall and then dieback at the end of the summer. The next summers' grass grows through this and then continues to add to the thatch. Areas where grass is grazed or hay and silage cuts taken do not build up thatch, so these areas contain lower densities of prey.

## 1.3.4 Areas considered in the ~~wildlife attractant habitat risk assessment~~Outline Wildlife Hazard Management Plan

### Transmission Assets Order Limits

1.3.4.1 Several areas and activities within the Transmission Assets Order Limits may contribute to an increased wildlife hazard and, therefore, are considered in the wildlife attractant habitats risk assessment

1.3.4.2 The key components of the Transmission Assets for both the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm include:

- Landfall:
  - landfall site: this is where the offshore export cables are jointed to the onshore export cables via the transition joint bays (TJBs). This term applies to the entire area between Mean Low Water Springs (MLWS) and the TJBs.
- Onshore elements:
  - onshore export cables: these export cables will be jointed to the offshore export cables via the TJBs at the landfall site, and will bring the electricity generated by the Generation Assets to the onshore substations;
  - onshore substations: the two electrically separate onshore substations will contain the components for transforming the power supplied via the onshore export cables up to 400 kV;
  - 400 kV grid connection cables: these export cables will bring the electricity generated by the Generation Assets from the two electrically separate onshore substations to the existing National Grid substation at Penwortham.
  - environmental mitigation areas – temporary and/or permanent areas, including accesses identified to provide environmental mitigation only.

– biodiversity benefit areas - temporary and/or permanent areas, including accesses identified to provide biodiversity benefit only

### Environmental mitigation and biodiversity areas

1.3.4.3 The environmental mitigation and biodiversity areas are shown on Figure 1-3 and Figure 1-4 and are summarised in Table 1-3. More information about the measures to be implemented at each area are provided in the oEMP (J6). ~~Table 1.2~~Table 1-3 also summarises the ~~indicative risk management areas~~habitat attractants for each of the areas. It should be noted that an Ecological Clerk of Works (ECoW) will be appointed during the construction of the Transmission Assets to liaise with an independently appointed team (appointed either via the Applicants or via the airport / aerodrome team). The appointed team's role will include the monitoring of birds to ensure that features potentially attracting them are managed appropriately so not to cause an increased hazard to the aerodromes.

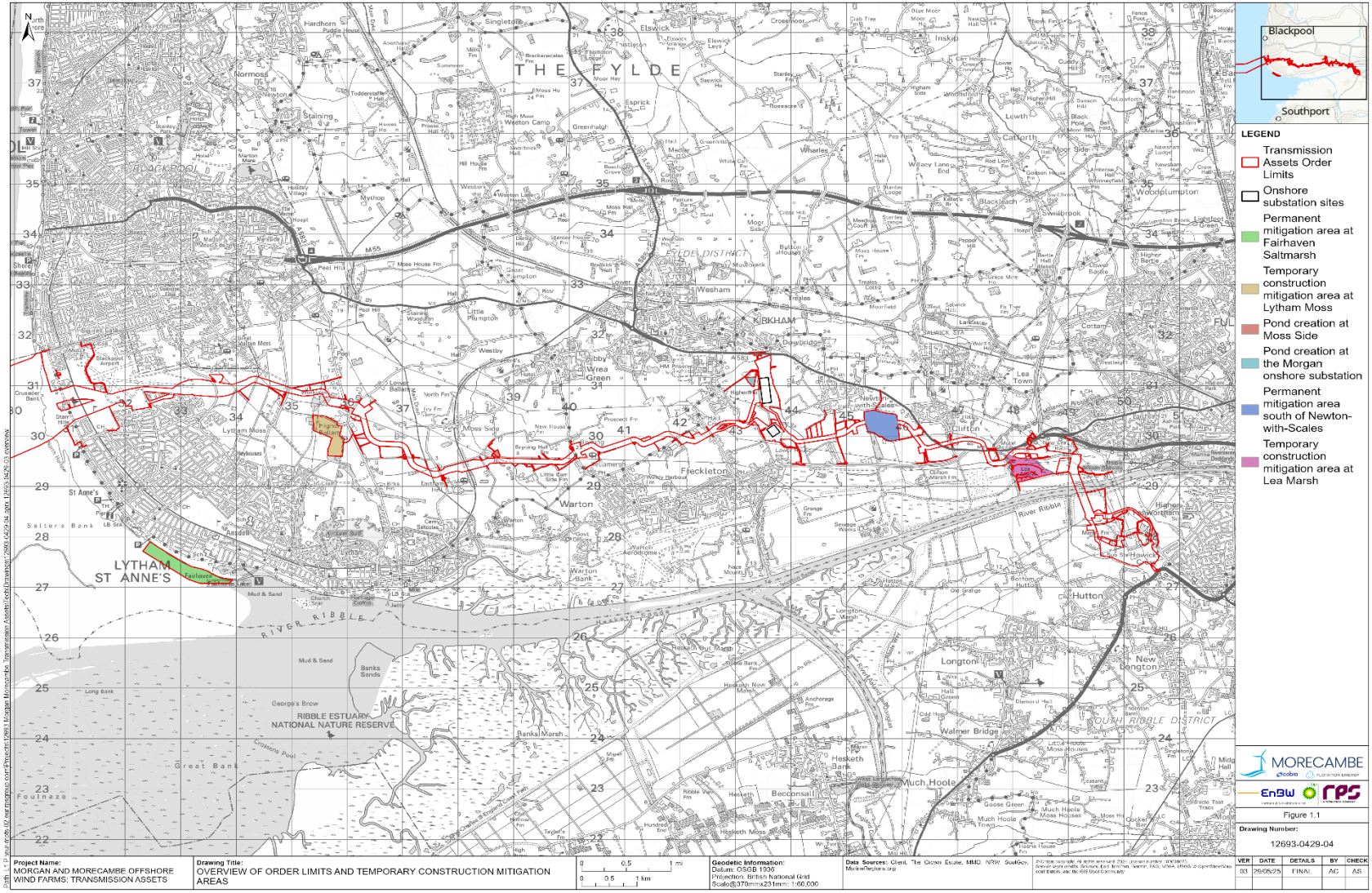


**Figure 1.3: Environmental mitigation areas considered in the wildlife attractant habitats risk assessment.**

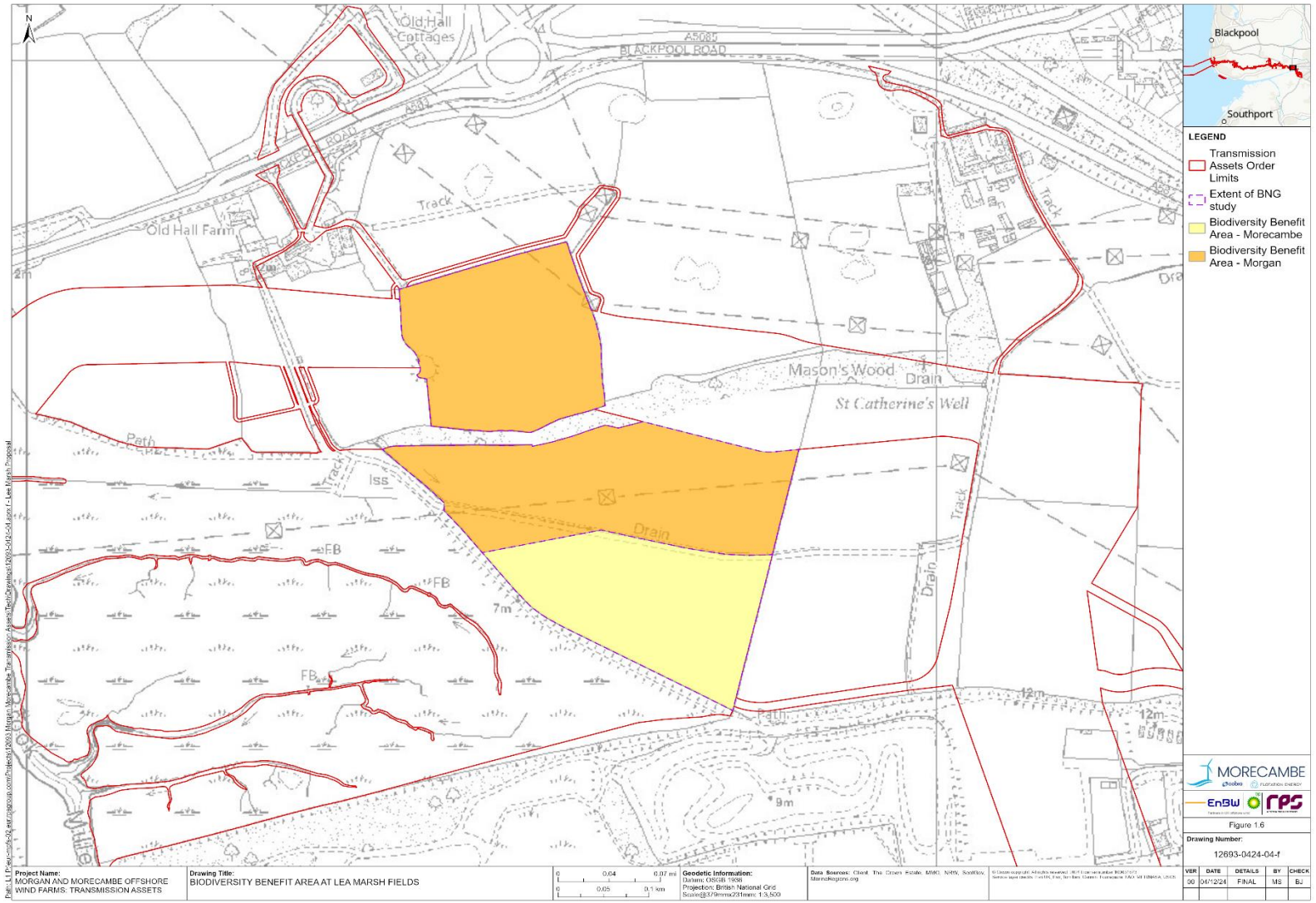


**Figure 1-4_ Biodiversity Benefit Area at Lea Marsh**

## Table 1-3: Environmental mitigation and biodiversity areas

| Name | Target species | Mitigation measures and habitat attractant | Potential habitat management measures |
|---|---|---|---|
| **Permanent environmental mitigation areas** | | | |
| Fairhaven Saltmarsh<br>(Work Area 49A/49B) | Intertidal waders | Management of recreational users at Fairhaven Saltmarsh to reduce disturbance of waders at existing roost site.<br>The mitigation measures may lead to a greater number of intertidal waders using the existing roost site as a result of reduced disturbance. | Those birds that currently roost in the area are known to be heavily disturbed due to users of Lytham St Annes beach. Therefore the birds could currently be spending a lot of time flying within wildlife hazard management area. By minimising the disturbance to the birds it will increase the time roosting flocks remains on the ground. It is possible that the current risk arising from roosting waders at this location, which is already being tolerated by the aerodrome, could reduce as a result of the proposed actions. Monitoring at the mitigation area will be undertaken. |
| Newton-with-Scales<br>(Work Area 49A/49B) | Non- breeding and breeding terrestrial waterbirds and farmland birds | The mitigation measures involve enhancing existing habitat features including:<br>• Controlling of existing ditches to retain water on the site<br>• Creation of permanent scrapes<br>• Creation of a mosaic of grassland habitats through reduction in nutrient levels<br>• Improvement of field margins through gapping up of hedgerows | The final design of the measures set out in the oEMP (document reference J6) would be developed in consultation with Blackpool Airport, BAE/DIO and Natural England<br>Grassland management will consider specific planting species and heights to ensure they are managed appropriately.<br>The planting mix for the field enhancement will limit the proportion of fruit and berry bearing species. |

| Name | Target species | Mitigation measures and habitat attractant | Potential habitat management measures |
|---|---|---|---|
| Pond creation at Morgan onshore substation<br>(Work Area 49A) | Aquatic invertebrates | The measures involve the creation of replacement ponds and planting of marginal vegetation<br>The ponds potentially could attract birds to feed or roost. | The ponds will be small and a similar size/number to those being lost at the Morgan onshore substation. The ponds will be designed to avoid attracting flocks of species such as dabbling and diving ducks, and shallow (< 50 cm), so that they periodically dry out to limit the establishment of fish populations, which may attract birds such as herons, and which would be undesirable from a conservation perspective because fish predate on aquatic insect and amphibian larvae.<br>Marginal vegetation cover will be managed to avoid creating extensive reedbeds that could promote excessive bird congregation. |
| Pond creation at Moss Side<br>(Work Area 49AB | Aquatic invertebrates | The measures involve the creation of replacement ponds and planting of marginal vegetation<br>The ponds potentially could attract birds to feed or roost. | The ponds will be small and a similar size/number to those being lost at the Morecambe onshore substation. The ponds will be designed to avoid attracting flocks of species such as dabbling and diving ducks, and shallow (< 50 cm), so that they periodically dry out to limit the establishment of fish populations, which may attract birds such as herons, and which would be undesirable from a conservation perspective because fish predate on aquatic insect and amphibian larvae.<br>Marginal vegetation cover will be managed to avoid creating extensive reedbeds that could promote excessive bird congregation. |
| **Temporary environmental mitigation areas** | | | |

| Name | Target species | Mitigation measures and habitat attractant | Potential habitat management measures |
|---|---|---|---|
| Lytham Moss<br>(Work Area 35A/35B) | Geese, swans, waders (e.g. pink footed geese and whooper swan) | • Creation of temporary scrapes -<br>– Creating very small scrapes can occasionally provide loafing opportunities for small numbers of non-breeding gulls, such as black-headed gulls, lesser black-backed gulls, and herring gulls. However, during the breeding season, these shallow scrapes will dry out, eliminating their potential to attract gulls. During the non-breeding season, gulls show a preference for large inland water bodies, where they congregate in large numbers at night.<br>• Supplementary feeding during the winter months<br>– The area where feeding is proposed to take place is located further away from Blackpool Airport than the current goose feeding, but it is out of the runway approach zone, and crucially it is to the south of this zone. This is closer to the pink-footed goose roost sites on the Ribble Estuary saltmarshes than the runway approach zone making it is less likely that geese will fly over the approach zone to access feeding areas further north. | The temporary scrapes will be designed to attract the target species only and will be monitored and managed during their creation.<br><br>Supplementary feeding will be provided at agreed rates and during the winter months only. it is proposed that feeding will take place during the winter only (November to March). This is to prevent additional passage geese from overwintering in the area. |

| Name | Target species | Mitigation measures and habitat attractant | Potential habitat management measures |
|---|---|---|---|
| Lea Marsh Biological Heritage Site (BHS) | Otters | The following mitigation measures will be implemented for otter:<br>Implementation of a meadow grassland regime – the frequency and intensity of grazing will be reduced to encourage the establishment of a taller and more diverse grassland sward. This would discourage roosting/ loafing flocks of large waterbird species such as geese that currently congregate at times in this habitat at times.<br>Reed bed management – sections of reedbed will be selectively reduced to reduce overall reedbed cover along the small ditches; this will reduce the coverage of reeds overall in this area and therefore will reduce the risk of congregations of birds such as roosting starlings. Invasive species control – removal of any invasive non-native plant species that may be recorded during pre-construction surveys such as Japanese knotweed. This measure would not increase the risk of attracting birds to the land parcel.<br>Artificial otter holt creation – this is to provide alternative resting habitat for otters that may be disturbed by construction works to the adjacent Savick Brook. It is not anticipated that this would result in any habitat attractants for birds. The adjacent Savick Brook is the main habitat supporting breeding otters within the Order Limits; there is evidence that otter is also already present on Lea Marsh BHS at times. | No specific risk management measures are considered necessary, as the mitigation measures would already reduce the risk of bird attractant habitats within the BHS. |
| **Biodiversity benefit area** | | | |

| Name | Target species | Mitigation measures and habitat attractant | Potential habitat management measures |
|---|---|---|---|
| Lea Marsh Fields | General Biodiversity Benefit | The measures ~~involves~~involve the removal of the existing cropland and the creation of species-rich grassland, woodland, scrub, ponds and new ditches.<br>These habitats could potentially attract birds to feed or roost. | The specifics of the planting and design will be agreed with both aerodromes and will be designed with wildlife hazard in mind. Examples of how this will be achieved are as follows:<br>The ponds will be designed to reduce areas favoured by waterbirds by being small in size (< 300 m2), to avoid attracting flocks of species such as dabbling and diving ducks, and shallow (< 50 cm), so that they periodically dry out to limit the establishment of fish populations, which may attract birds such as herons, and which would be undesirable from a conservation perspective because fish predate on aquatic insect and amphibian larvae.<br>Marginal pond vegetation cover will be managed to avoid creating extensive reedbeds that could promote excessive bird congregation.<br>The planting mix for woodland and scrub will limit the proportion of fruit and berry bearing species that may attract birds.<br>Species-rich grassland will be managed to encourage the establishment of a taller and more diverse grassland sward. This would discourage roosting/ loafing flocks of large waterbird species such as geese.<br>New ditches will not be planted with reeds, and management will ensure that substantial reedbeds do not become naturally established, to limit the potential for creating attractive habitats for flocks of roosting starlings. |

### Other activities and features of the Transmission Assets

1.3.4.4 The following section considers the other activities and features of the Transmission Assets that have the potential to attract greater number of birds to the area. Indicative measures have also been identified to manage these activities to ensure that bird numbers do not increase. An ECoW will be appointed during the construction of the Transmission Assets and will monitor the potential of construction activities inadvertently attracting hazardous bird species. Appropriate and pro-active management will be undertaken in coordination with the team appointed by the Applicants / aerodrome / airport to manage wildlife hazards.

**Table 1.4: Indicative habitat attractants and potential habitat management measures for other activities and features of the Transmission Assets.**

| Activity or feature | Habitat attractant | Bird species | Potential habitat management measures |
|---|---|---|---|
| **Permanent infrastructure** | | | |
| Onshore substations | Roofs of onshore substation buildings provide potential roosting sites and perching opportunities, particularly if the design includes flat roofs or sheltered ledges access holes and crevices. | Gulls<br>Pigeons | Detailed design of substation (e.g. avoid valleys or protruding features and to allow safe access to roof to allow regular checks during the breeding season. |
| Fencing | Creation of secure open spaces around the substations with areas of short grass or gravel may attract ground-nesting species | Gulls<br>Waders (e.g. Oystercatcher) | Bird management measures (e.g. regular inspection of the site in period leading up to nesting season) |
| Attenuation ponds | Attenuation ponds to manage surface water runoff at the onshore substations may attract birds to feed, roost or nest. | Gulls<br>Ducks | Detailed drainage design and bird management |
| Landscape planting | Tree and shrub planting can create dense vegetation that may provide roosting opportunities. Berry and fruit bearing species provide additional food source in autumn. | Pigeons<br>Corvids<br>Starling<br>Winter thrushes | Detailed planting design to limit the proportion of fruit and berry-bearing species and trees with less robust crowns. |
| **Construction activities** | | | |
| Vegetation clearance | The exposure of soils following vegetation clearance and stockpiling of soils may attract birds to feed on the invertebrates in the soil. Seeding of the stockpiles may also attract birds to feed. | Gulls<br>Corvids<br>Pigeons | Soil management (e.g. covering soils, selection of seed type), bird management during seeding. |
| Water and ponding | Areas of standing water within the construction areas may attract birds to feed (from invertebrates brought closer to the surface), drink or bathe. | Gulls | Management of surface water runoff to avoid accumulation of water. |

| Activity or feature | Habitat attractant | Bird species | Potential habitat management measures |
|---|---|---|---|
| Waste management | Discarded food waste or other edible waste, particularly from welfare units at temporary construction compounds may attract birds to feed. | Gulls<br>Corvids<br>Starlings<br>Pigeons | Secure storage of waste at construction compounds, regular collection of waste, good housekeeping policies. These measures will be |

## 1.4 Proposed risk management measures

### 1.4.1 Introduction

1.4.1.1 The following sections describe the measures required to ~~mitigate~~manage the ~~potential bird hazards~~habitat attractants identified in section 1.3.4 above.

1.4.1.2 Bird strike management is a continuous process that is composed of different elements. These can be broadly grouped into different categories as presented below.

1.4.1.3

~~1.4.1.1~~1. **Communications Protocol-** A communication protocol will be finalised within the Wildlife ~~Attractant Habitats Risk Assessment above~~Hazard Management Plan, the interim protocol as identified below ensures that lines of communication protocols are agreed ahead of any works happening.

2. **Passive measures** – These are routine management and design-based measures that are incorporated into the components of the Transmission Assets for both the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm. The purpose of passive measures is to ensure that attraction of problematic species and/or numbers of birds does not exceed an agreed trigger level. This trigger level will vary by location, species and associated risk.

3. **Active measures** – These are reactive measures to quickly and safely reduce bird strike risk if the passive measures have not contained the risk below the agreed trigger level. No active measures will be undertaken without the express consent of Blackpool Airport or BAE Systems/DIO as appropriate.

4. **Monitoring** – Regular monitoring will be undertaken to record the number of birds and species of birds using the environmental mitigation and biodiversity areas and construction areas within the Transmission Order Limits. Monitoring will also record the habitat features and the management operations undertaken. Monitoring will inform if any active measures need to be employed whilst also providing the evidence base to feed into the adaptive management. In the case that active measures are required, the monitoring frequency would be increased to reflect the rise in risk.

5. **Adaptive management** – Adaptive management reacts in the longer term, using the monitoring data to inform changes in design and management. If, for example, there was an unintended increase in a problematic species at a particular area, following an immediate reduction in risk through deployment of active measures, adaptive management would inform any changes in passive measures that are needed to ensure that the risk was being effectively managed in the long-term.

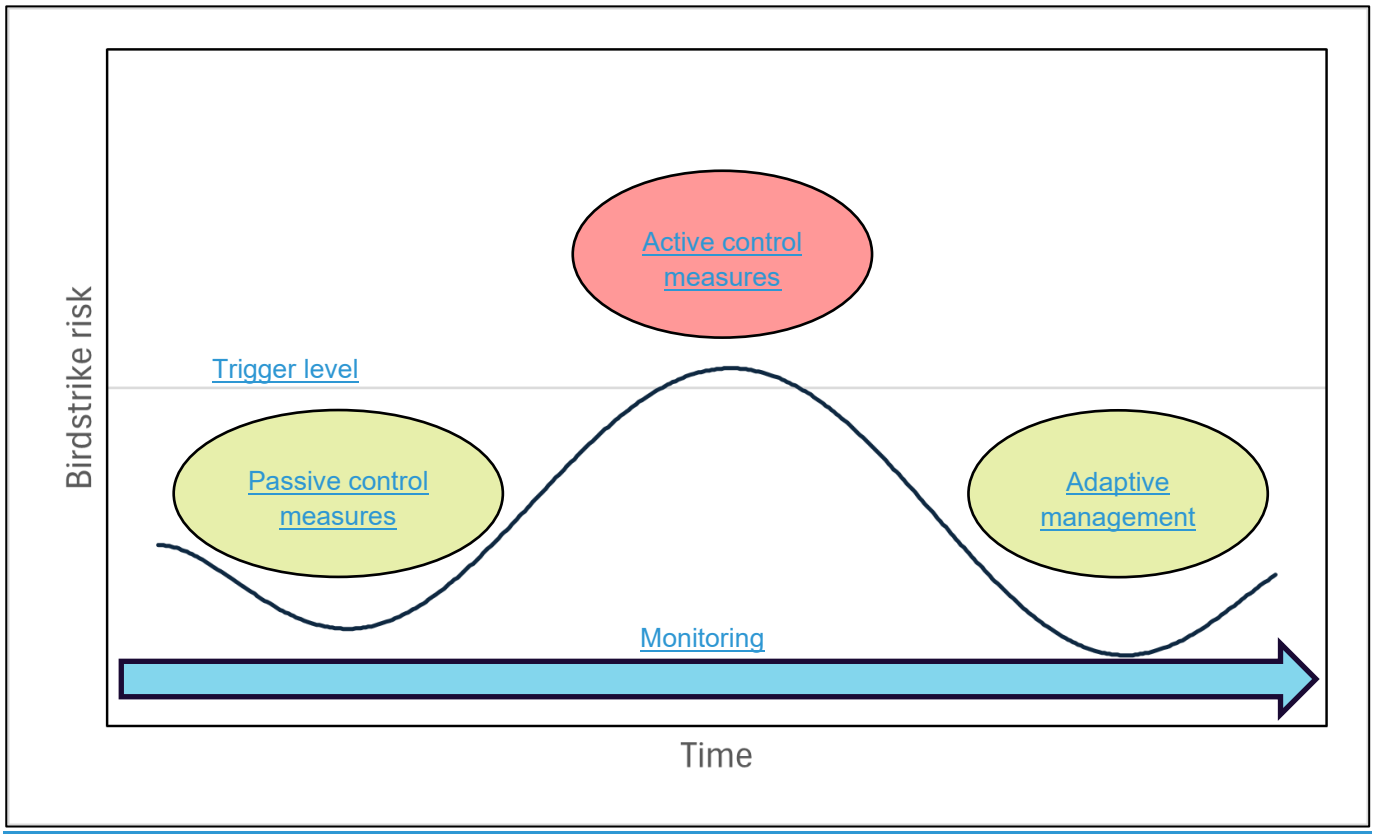


**Figure 1-5: Bird strike management measures**

## 1.4.2 Communication Protocol

1.4.2.1 A finalised communication protocol will be developed in consultation with Blackpool Airport and Warton Aerodrome. The protocol will ensure that clear lines of communication and reporting channels are agreed and documented. This is to ensure that there is an effective means of communication between all parties.

1.4.2.2 The communication protocol will identify the following:

- Roles and Responsibilities;
- Communication channels and methods;
- Key protocols;
- Emergency Response Plan; and
- Review and update mechanism

1.1.1 An outline of this is identified below in Table 1-5

**Table 1-5: Outline Communications Protocol**

| Activity Phase | Frequency | Responsible Parties |
|---|---|---|
| Pre-construction and onshore site preparation works planning:<br><br>To agree on communication channels | Pre onshore site preparation works | Applicants<br>• Project Manager,<br>Airport/Aerodrome<br>• Airfield Operations Managers |
| Onshore site preparation works | Monthly updates of activities | Applicants<br>• Site Manager<br>• ECoW<br>Airport/Aerodrome<br>• Airfield Operations Managers |
| Construction | Weekly updates of activities | Applicants<br>• Site Manager<br>• ECoW<br>Airport/Aerodrome<br>• Airfield Operations Managers<br>• Air Traffic Control Supervisors |
| Incident, concern or emergency response requirements | Immediate | Applicants<br>• Site Manager<br>• ECoW<br>Airport/Aerodrome<br>• Airfield Operations Managers,<br>• Air Traffic Control Supervisors<br>• Safety Officers |

## ~~1.4.2~~1.4.3 Passive measures

~~1.4.2.1~~1.4.3.1 Indicative passive management measures are included in Table 1-3 and Table 1-4. Further detail on these measures is provided below.

~~1.4.2.2~~1.4.3.2 The most effective long-term deterrent for the majority of flocking birds will be to reduce their line of sight (LOS). Most flocking birds prefer open areas when foraging, loafing or roosting, as any hidden areas can hide mammalian and avian predators. This means that flocking birds are much more likely to avoid areas where the LOS is interrupted. Construction areas will be managed to reduce LOS through the use of fencing to reduce the attractiveness of these areas to birds. The type of fencing during the construction period will be set out in the Construction Fencing Plan (document reference J1.10) which forms part of the Outline Code of Practice~~.~~ (document reference J1).

~~1.4.2.3~~1.4.3.3 The onshore substations will be designed to prevent access to breeding and roosting birds. This could include preventative netting of any roofs and soffits.

~~1.4.2.4~~1.4.3.4 Where construction work has been completed the ground will be reinstated, or covered, and re-seeded as soon as is practically possible.

~~1.4.2.5~~1.4.3.5 Waste will be managed so that no food consumed on site will become available to scavenging birds such as gulls. These measures include the provision of a designated site cabin where all food is to be consumed, self-closing skips and bins, and regular emptying of all skips and bins that contain food waste. ToolBox talks will be given to operatives on site on managing waste and bird attractants.

~~1.4.2.6~~1.4.3.6 Additional passive measures that would be considered include, rotating devices, humming lines, flags, etc. However, the effects of these measures are acknowledged to be short-lived and may need to be changed and rotated regularly. The location and need for these would be advised by the ECoW in coordination with the independently appointed team for wildlife hazard management.

## ~~1.4.3~~1.4.4 Active measures

~~1.4.3.1~~1.4.4.1 For areas where supplementary feeding is being provided for ~~ducks~~geese and ~~geese~~swans the most effective immediate deterrent will be to remove the food source. The disturbance created by this action will cause birds to leave the area and the lack of food will deter them from returning. A ~~target~~trigger level for the numbers of geese and swans using the mitigation area will be set and agreed by all parties prior to construction. If these ~~targets~~trigger levels are exceeded ~~by the agreed number~~, additional management will be implemented, such as the reduction / removal of supplementary feeding, change in food type, or ~~habitats~~habitat amendments.

~~1.4.3.2~~1.4.4.2 The following are standard measures from CAP772 guidance and are employed by Blackpool Airport and taken from their Wildlife Hazard Risk Assessment and Management Plan (submitted at Deadline 1 (REP1-115). On this basis, the measures are also likely be applicable at Warton Aerodrome. The measures may be used, subject to legal restrictions and the protocol to avoid impacts on SPA species. The choice of method depends on its effectiveness for the target species, considerations of health and safety for operators and the public, impacts of neighbours and impacts on other wildlife. The measures are listed in (increasing) order of impact, with the intention that an escalation of techniques should be used by trained staff, with the lowest impact techniques being tried first. Not all techniques are appropriate for all species or situations, and sometimes it may be less disturbing to use a high-impact method sparingly rather than repeatedly use a low-impact method. Nevertheless, the principle is one of escalation.

- Arm-waving
- Lure
- ~~Raptor/predator decoys~~

- Bio-acoustics (e.g. distress calls)
- Use of bird scaring lasers
- ~~Falconry~~
- ~~Radio-controlled "falcons"~~
- Bird-scaring rockets and cartridges
- ~~Trapping and humane disposal~~
- Shooting.

## 1.5 Surveillance and monitoring

1.5.1.1 A monitoring strategy will be prepared and agreed with Blackpool Airport and BAE Systems/DIO. Monitoring will focus on the key species listed in Table 1-2 and will be undertaken primarily during the construction process. Monitoring of the permanent environmental mitigation and biodiversity benefit areas will also continue post construction. The purpose of the monitoring will be to assess the implementation of the measures described in the oEMP (document reference J6) and the Onshore Biodiversity Benefit Statement (document reference J11) and to ensure the effectiveness of the habitat management measures within the Wildlife Hazard Management Plan. ~~Thresholds~~Trigger levels will be set and agreed with the relevant aviation stakeholder for habitat management measures; where bird numbers are recorded above these levels, appropriate action will be taken in a timely manner agreed with the aviation stakeholder to adjust the habitat management measures being implemented.

1.5.1.2 Monitoring will include basic surveillance and acute surveillance methods. Basic surveillance will be undertaken at regular intervals at agreed locations within the Transmission Assets Onshore and Intertidal Order Limits; and implemented by the independently appointed team for wildlife hazard management in coordination with the Transmission Assets ECoW.

1.5.1.3 Bird monitoring techniques, locations, timing and frequency will be agreed with Blackpool Airport and BAE, with the methods likely to vary across mitigation and infrastructure areas but may include vantage points, walkover surveys, etc. If risks (bird numbers or changes in flight patterns) are seen to increase to unacceptable levels, ~~then~~the adaptive management techniques (including the active controls) will ~~need to~~ be ~~used~~implemented to reduce the risk~~.~~ to an acceptable level. Where an escalation of measures has been employed, the frequency or monitoring will be increased accordingly, until the results demonstrate that the risk level has been reduced.

## 1.6 Conclusion

1.6.1.1 The development of the Transmission Assets includes ecological mitigation and biodiversity benefit areas designed to ~~compensate for~~mitigate habitat loss and disturbance impacts during construction and operation. The development of these areas may result in ~~turn~~localised changes in bird distribution which potentially could increase the risk of bird strike at both

Blackpool Airport and Warton ~~Aerodromes~~Aerodrome. In order to manage this risk to an acceptable level ~~an initial wildlife attractant habitats risk assessment has been carried out.~~ the Applicants have prepared this Outline Wildlife Hazard Management Plan. This identifies the potential hazards related to changes in bird abundance, distribution, and behaviour due to the Transmission Assets around Blackpool Airport and Warton Aerodrome.

1.6.1.2 Whilst 'designing-out' hazards (e.g. not having them within the 13km wildlife hazard ~~zone~~management zones around the airports) would be the preferred option for BAE and Blackpool Airport, when considered in light of the requirements to deliver mitigation and biodiversity benefit as close to the source of impact as possible this Outline Wildlife Hazard Management Plan demonstrates that with commitments made by the Applicants to monitor and manage hazards that the proposed works can proceed without increasing bird strike risk at the airports.

1.6.1.3 The Applicant has identified proposed mitigation ~~measure~~measures—such as the employment of an ECoW to work in coordination with an independently appointed team responsible for wildlife hazard management, seasonal supplementary feeding, habitat management, reducing line of sight, and active monitoring to keep bird strike risk within current acceptable levels.

1.6.1.4 Overall, the plan supports the safeguarding of Blackpool Airport and Warton Aerodrome operations by aligning with CAP 772 and CAP 795 guidance, maintaining bird strike risk at or below current levels

1.6.1.5 The draft Wildlife Attractants Habitat Risk Assessment (Appendix A) concludes that with the implementation of design commitments and an adaptive management approach (supported by a detailed monitoring strategy) the Transmission Assets would not cause a material change in the abundance, species and patterns of use within Warton Aerodrome's 13 km safeguarding ~~area~~zone. Whilst there may be some localised redistribution of birds within the Order Limits, the Applicants have designed their mitigations to limit additional movements of birds or alter existing patterns of use. The Applicants ~~expect to receive comments back~~ still await feedback from BAE Systems ~~and the~~ /DIO ~~at a proposed technical meeting~~ on 3rd ~~October. Any feedback will be incorporated into an updated~~the draft Wildlife Attractants Habitat Risk Assessment ~~at Deadline 6~~.

1.6.1.6 The Assessment of Bird Strike Risk at Blackpool Airport (Appendix B) concludes that due to the design features and proposed management controls, the elements of the Transmission Assets (identified in Table 1-3 and Table 1-4 will not cause an increase to the current operational risk level to Blackpool Airport.

1.6.1.7 The Applicants received comments back from Blackpool Airport prior to Deadline 5 who have confirmed that they are satisfied that the management plan references sufficient design constraints for the mitigation areas, assesses the works areas and provides suitable mitigations by species-combined with an ongoing monitoring program and escalation process (should hazardous bird flight lines appear and / or bird numbers become excessive). Minor amendments have been ~~requested by~~made in response to feedback received from BAOL in order to make the risk assessment

appropriate to integrate into the existing Blackpool Airport WHMP. ~~These updates will be completed for submission at Deadline 6.~~

## 1.7 References


CAP 738, Civil Aviation Publications 738 Safeguarding of Aerodromes, Civil Aviation Authority (2020)

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CAP 795, Civil Aviation Publications 795 Safety Management Systems (SMS) guidance for organisations, Civil Aviation Authority (2014)

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# Appendix A: Draft Wildlife ~~Habitats Attractant~~Attractants Habitat Risk Assessment

# 1 ~~Outline~~Draft Wildlife Habitat Attractants Risk Assessment

## ~~1.1.1~~1.1 Introduction

1.1.1.1 In response to BAE Systems' submissions at ISH 2 and 3 (REP4-128) the Applicants have prepared ~~an outline~~a draft Wildlife Habitat Attractants Risk Assessment. This document~~-~~ follows on from section 1.3 (Wildlife Attractants Risk Assessment) of the outline Wildlife Hazard Management Plan (S_D3_8~~/F02~~/F03) and takes into consideration the approach set out in CAP 795 guidance. ~~Specifically,~~

1.1.1.2 The draft Wildlife Habitat Attractant Risk Assessment has been updated at Deadline 6 to include the ~~outline~~following:

- minor amendments to the structure of the risk assessment
- removal of baseline data (to avoid duplication with information provided in the Outline Wildlife Hazard Management Plan)
- updates to reflect ongoing discussions with BAE Systems and DIO (on behalf of the MoD).

## 1.2 Purpose and scope

1.2.1.1 The draft Wildlife Habitat Attractants Risk Assessment considers those elements of the Transmission Assets, as identified in

~~1.1.1.1~~1.2.1.2Table 1.1, with the potential to cause a change in the abundance, species and patterns of use of birds within Warton Aerodrome's 13 km ~~safeguarding~~wildlife hazard management zone. It also considers construction activities associated with the Transmission Assets as set out in Table 1.4.

~~1.1.1.2~~1.2.1.3The ~~outline~~draft Wildlife Habitat Attractants Risk Assessment focuses on the bird species that are at risk of collision (highlighted in Table 1.3), as agreed with BAE Systems. The Transmission Assets comprise environmental~~/ecological~~ mitigation and biodiversity benefit areas, as well as the construction activities ~~associated with the~~and infrastructure features required for the Transmission Assets. The environmental~~/ecological~~ mitigation and biodiversity benefit areas are identified in the Outline Ecological Management Plan (oEMP) (document reference J6) and the Outline Biodiversity Benefit ~~Statement~~Management Plan (document reference J11/~~F05~~F06) and the construction activities are described in Volume 1, Chapter 3: Project Description (document reference F1.3).

**Table 1-.1: Areas and Features Considered**

**:Transmission Assets areas/features considered within the draft Wildlife Habitat Attractant Risk Assessment**

| AreaTransmission Assets Areas/ Feature/ Construction Design Feature* |
|---|
| Fairhaven Saltmarsh Mitigation Area (Work AreaNo 49A/49B) |
| Newton- with-Scales (Work AreaNo 49A/49B) |
| Pond creation at Morgan onshore substation (Work AreaNo 49A) |
| Pond creation at Moss Side (Work AreaNo 49AB) |
| Lytham Moss (Work AreaNo 35A/35B) |
| Lea Marsh Biological Heritage Site (BHS) |
| Lea Marsh Fields Biodiversity Benefit Area (Work No 44A/44B) |
| Onshore Substationsubstations (Work No 21A/21B) |
| Attenuation ponds at Substationsonshore substations (Work Nos 20A/20B and 21A/21B) |
| Landscape planting at onshore substations (Work Nos 20A/20B and 21A/21B) |

**further detail on each feature contained in table 1.4*

1.1.1.31.2.1.4 Post consent, the Applicants will prepare a detailed Wildlife Habitat Attractants Risk Assessment(s) to reflect the detailed design of the Transmission Assets. The detailed Wildlife Habitat Attractants Risk Assessment(s) will be in accordance with the Outlinedraft Wildlife Habitat Attractants Risk Assessment and will form part of the detailed Wildlife Hazard Management Plan(s) for Warton Aerodrome.

1.1.1.4 The detailed Wildlife Habitat Attractants Risk Assessment will include the results of pre-construction surveys reflecting the existing baseline (at the time of construction). The surveys will be undertaken in accordance with the Outline Breeding Bird Protection Plan of the oEMP (document reference J6) and will be aligned with existing monitoring undertaken by BAE and DIO to ensure comparative results and to maximise efficiencies in monitoring.

## 1.3 Approach

### 1.3.1 Definitions

1.1.1.51.3.1.1 This Outlinedraft Wildlife Habitat Attractants Risk Assessment uses the definitions listed in Table 1.2 for the likelihood of the feature increasing the number of the target species, attracting other species or changing patterns of use of birds (listed within Table 1.3)1.3) within Warton Aerodrome's 13 km wildlife hazard management (safeguarding) area. A qualitative approach has been used rather than assigning a numerical value.

**Table 1-.2: ~~Outline~~Draft Wildlife Habitat Attractants Risk assessment definitions**

| Rating | Description |
|---|---|
| 1 - Unlikely | Bird species are unlikely to be attracted, or change, in numbers exceeding the existing baseline. |
| 2 - Possible | Bird species may be attracted, or change, in numbers slightly above the existing baseline. |
| 3 - Likely | Bird species are likely to be attracted, or change, in numbers noticeably above the existing baseline. |
| 4 - Almost Certain | Bird species will almost certainly be attracted, or change, in significantly greater numbers than the existing baseline. |

## ~~1.1.2~~1.3.2 Species ~~at risk of collision with aircraft~~considered within ~~Warton Aerodrome's 13km safeguarding area~~the draft Wildlife Habitat Attractant Risk Assessment

1.3.2.1 ~~Table 1-3 sets out~~The draft Wildlife Habitat Attractant Risk Assessment focuses on the bird species ~~at risk of collision~~ with ~~aircraft~~potential to increase bird strike within Warton Aerodrome's 13km ~~safeguarding area. These~~wildlife hazard management zone. The species have been agreed with BAE~~. The~~ Systems and the Applicants have presented data on these species with the Baseline Bird Technical Report (S_D3_5).

1.3.2.2 The Baseline Bird Technical Report compiles national, regional, and site-specific data (2022–2024) from multiple sources, including Wetland Bird Survey (WeBS), Fylde Bird Club, and the Applicants' survey data to establish baseline bird abundance and trends.

~~1.1.2.1~~1.3.2.3 The species at risk of collision will be kept under review in discussion with ~~Warton Aerodrome~~BAE Systems/DIO and will be based on monitoring results and will be reflected in the detailed Wildlife Habitat Attractants Risk Assessment and detailed Wildlife Hazard Management Plan(s).~~-~~ In addition to the detailed trends outlined within the Baseline Bird Technical Report (S_D3_5), the Applicants have summarised the distribution and ecology of these species in the Outline Wildlife Hazard Management Plan (S_D3_8/F03).

**Table 1-.3: Species ~~at~~with the potential to increase the birdstrike risk ~~of collision with aircraft~~ within Warton Aerodrome's 13km wildlife hazard management (safeguarding-) area**

| Group | Species |
|---|---|
| ~~Swan~~ | ~~Bewick's swan~~ |
| Swan | Whooper swan |
| | Mute swan |
| Geese | Canada goose |
| | Greylag goose |

| Group | Species |
|---|---|
| | Pink-footed goose |
| Ducks | Shelduck |
| | Mallard |
| | Wigeon |
| | Teal |
| Waders | Oystercatcher |
| | Golden plover |
| | Lapwing |
| | Redshank |
| | Black-tailed godwit |
| | Curlew |
| Gulls | Black-headed gull |
| | Common gull |
| | Herring gull |
| | Lesser black-backed gull |
| | ~~Great black-backed gull~~ |
| Corvids | ~~Magpie~~Jackdaw |
| | ~~jackdaw~~ |
| | Rook |
| | Carrion crow |
| Pigeons | Woodpigeon |
| | Feral pigeon |
| Starling | Starling |
| Winter thrushes | Redwing |
| | Fieldfare |
| Raptors | Buzzard |
| | ~~Marsh harrier~~ |
| | ~~Red kite~~ |
| | ~~Sparrowhawk~~ |
| | Kestrel |
| | ~~Peregrine~~ |
| | ~~Merlin~~ |
| | Barn owl |

## 1.1.3 Baseline Summary

### Introduction

1.1.3.1 The following section provides a summary of the general ecology and local distribution of bird species (listed in Table 1-3) recorded within Warton's 13km safeguarding area. The summary is based on the Applicants' bird survey data. More detailed information (including maps) on the local distribution, and national and regional trends, for these species are provided in the Baseline Bird Technical Report (S_D3_5).

### Geese

### Distribution

1.1.3.2 The distribution of geese is skewed toward the pink-footed goose, which is the most numerous species of geese in the area. Pink-footed geese were primarily located around Lytham Moss, with scattered flocks observed in arable fields between Lytham and Kirkham. Canada and greylag geese were generally found within the estuary, on Newton Marsh SSSI adjacent to Warton Aerodrome, or on Lea Marsh.

### Ecology

1.1.3.3 Of the three abundant goose species present within the area, pink-footed geese are a fully wild and migratory species that breed in Iceland, whereas Canada geese are fully naturalised and sedentary and breed locally. Whilst there may be some wild migratory greylag geese that overwinter in the area, the majority of greylag geese in the Ribble Estuary are also sedentary.

1.1.3.4 The pink-footed geese generally start to arrive in the area during the months of September/October and leave again in March/April, and numbers fluctuate wildly during these migratory periods. However, during the winter months between November and March numbers are more stable. Pink-footed geese generally roost on the intertidal and saltmarshes areas within the estuary at night, and fly out from there to forage during the day. Despite this species being recorded making long daily foraging trips, most birds will forage on productive farmland as close to the roost site as possible in order to save energy. Within the Fylde area the most productive foraging area is the reclaimed arable land at Lytham Moss where the birds feed on crop waste such as potatoes, moving from field to field as food sources become depleted.

1.1.3.5 The sedentary Canada and greylag geese have completely different foraging habits. With greatly reduced daily movement patterns, compared to the wild geese, and are normally loafing, roosting and grazing on grassy habitats in the same area without undertaking energetically expensive daily flights to foraging grounds. This may be in part due to their lack of need to build up sufficient fat reserves in order to undertake long migratory movements, unlike the wild pink-footed geese.

1.1.3.6 Geese must rely upon flapping flight and do not soar; this comes at a high energetic cost. Therefore, although in the case of pink-footed geese they do fly long distances, they only fly if there is a good reason to do so, such as a rich and abundant food source or a perceived threat, but it means that geese generally fly from A – B, although they can be wary on approach.

**Swans**

**Distribution**

1.1.3.7 Whooper swans were the most abundant species recorded during the Applicants' site specific surveys, resulting in a biased distribution. Most whooper swans were found around Lytham Moss with additional records from the area south of the River Ribble. The remaining distribution consists of mute swans, which were present around deeper watercourses and scattered water bodies throughout the survey area.

**Ecology**

1.1.3.8 Similarly to the geese, the Ribble estuary swan population comprises of two species of both migratory and sedentary birds, with most of the migratory whooper swans breeding in Iceland. Like the pink-footed geese, whooper swans generally migrate in September/October and again in March/April, with the Ribble population being more stable during the November – March period. They also roost in safe areas within the estuary and make daily foraging trips out to productive farmland to feed on crops and grass shoots.

1.1.3.9 Conversely, the mute swan is largely sedentary with many birds breeding in the local area. Mute swans are generally found in pairs or family groups, however on larger lakes and estuaries they can be found in larger groups. Mute swans do not normally venture far from water where they feed on plant material in the water or along the banks.

1.1.3.10 Like geese, swans rely upon flapping flight and do not soar so flights are undertaken only when necessary.

**Ducks**

**Distribution**

1.1.3.11 Wigeon was recorded as the most numerous duck species and, therefore, the distribution of ducks is heavily skewed toward this species, although teal were often present alongside them. Key areas for ducks include Newton Marsh SSSI and the River Ribble corridor. Significant numbers of ducks were also observed within the proposed mitigation area at Newton with Scales. Mallard were found across all sizes of watercourses and water bodies throughout the survey area and shelduck also had a scattered distribution with a bias towards areas close to the estuary.

## Ecology

1.1.3.12 The identified duck species have various life histories and ecology.

1.1.3.13 Shelduck are a large duck that primarily feed upon marine gastropods in the estuary muds during the non-breeding period, in years when there is extensive flooding they will also exploit flooded fields for invertebrates. Despite being migratory, shelduck are also sedentary and both overwinter and breed in the Ribble estuary. Non-breeding birds will form larger flocks but breeding birds will split into pairs and breed in secretive locations such as tree root cavities and abandoned mammal burrows. After the breeding period shelduck move back into the estuaries. The higher numbers of shelduck recorded in 2024 by the Applicants probably represents birds exploiting the largely flooded landscape following an exceptionally wet winter in 2023/24.

1.1.3.14 Wigeon are fully migratory and do not breed in the Ribble estuary. They are present from September/October to March/April during which time they form large flocks. Wigeon feed extensively on grasses, and often at night, creating neatly cropped lawns in areas where they regularly feed. Like the geese they make movements between foraging grounds and roosting/loafing areas which are normally located on water. However, they will not travel far (a few km) and often choose areas where they can safely rest on water and feed along the banks. Wigeon can also dabble for submerged vegetation by upending themselves in shallow water.

1.1.3.15 Teal are often found with wigeon and are migratory as well, however low numbers of teal do also breed in the Ribble estuary. They form much smaller flocks than wigeon and mostly feed on the water by dabbling to reach vegetation and molluscs. As teal are a small duck they generally forage in very shallow waters.

1.1.3.16 Mallard are present in the Ribble estuary all year round, however numbers increase during winter with northern migrants. Mallard are usually found in small groups but migratory birds will form larger groups in the winter. Mallard feed extensively on plant matter that they obtain by dabbling for submerged vegetation. Although mallard are larger than wigeon and teal, they are also constrained by water depth when foraging.

1.1.3.17 Ducks are reliant upon flapping flight and do not soar.

## Waders

## Distribution

1.1.3.18 Lapwings were the most numerous wader species, and the areas that supported them also hosted other terrestrial feeding wader species. Key hotspots for wader activity included Lytham Moss, Newton Marsh SSSI, and the Ribble Estuary.

## Ecology

1.1.3.19 The waders of the Ribble estuary can be broadly split into two groups with similar ecological traits. The intertidal waders that spend most of their time within the intertidal, and the terrestrial waders that are reliant upon terrestrial habitats.

1.1.3.20 Those intertidal waders primarily feed, roost and loaf within the estuary. These are birds of vast open expanses and accordingly avoid areas where their field of view is broken such as sand dunes and tall vegetation. These birds will mostly fly between their roost site and foraging areas by following the tideline and generally fly at low heights (often only skimming the sand or waves) to avoid detection by aerial predators. Whilst these birds behave differently to waders in terrestrial habitats, some species are reliant upon both intertidal and terrestrial environments. For example, certain wader species, such as curlew and black-tailed godwit, may prefer feeding in terrestrial habitats near estuaries under specific conditions. Additionally, some individuals may be forced to do so due to increased competition and reduced food availability in intertidal areas. As a result, these birds might be excluded from the intertidal zone and forced to rely on terrestrial habitats to meet their daily energy requirements. Some species such as black-tailed godwit will also switch to foraging inland as the spring migration period advances.

1.1.3.21 Waders found exploiting terrestrial habitats are generally, oystercatcher, golden plover, lapwing, redshank, ruff, snipe, jack snipe, woodcock, curlew and black-tailed godwit.

1.1.3.22 Snipe, jack snipe and woodcock are usually found singly or in small groups, they are commonly referred to as being cryptic species due their heavily camouflaged plumage and their habit of not flushing until almost stepped upon. These birds do not form flocks and generally roost and forage in the same area, with most foraging activity occurring at night.

1.1.3.23 Golden plover and lapwing are the two species that are only found in terrestrial habitats. Both are migratory, however only lapwing breed in the Ribble estuary with golden plover breeding on bog habitats at higher altitudes and/or latitudes. During the breeding season lapwing are found in pairs over a wider area. Due to their short (for waders) bills, both species are reliant upon invertebrates found within wet grassland, and both species will forage at night when earthworms are more likely to be found on the surface (mostly during full moon periods for lapwing).

1.1.3.24 The other species, oystercatcher, redshank, ruff, curlew and black-tailed godwit can be found inland in varying numbers throughout the year, although generally in very low numbers during the breeding season. Of these redshank and ruff are normally only found in very small groups, and they are quite small birds. Oystercatcher, curlew and black-tailed godwit are the larger waders (curlew are the largest at 632 – 1000 g and black-tailed godwit the smallest at 240 – 360 g) and may be found in wet grassland habitats. Oystercatcher and curlew are generally found in small flocks in terrestrial habitats with black-tailed

godwits forming larger flocks, particularly as they switch to field feeding pre-spring migration. Some of these birds will move from safe roosting sites to foraging sites on a daily basis, however, if there are safe roosting locations close to food sources then these will be favoured.

1.1.3.25 Waders are reliant upon flapping flight and do not soar.

**Gulls**

**Distribution**

1.1.3.26 Gulls were observed loafing, roosting, and foraging throughout the survey area. Being mobile, especially during the non-breeding season, and generalists, they can exploit a wide range of habitats and food sources. As a result, their distribution is likely to change annually based on factors such as farm activity and land use.

**Ecology**

1.1.3.27 All of the gull species with the exception of common gull can be found in the Ribble estuary year-round, however lesser black-backed gull are more abundant during the breeding season. All of the gull species present are capable of exploiting marine, aquatic and terrestrial habitats; however, the great black-backed gull favours the marine and is only infrequently found inland. Gulls are generalist species that can exploit a wide variety of resources and are increasingly exploiting anthropogenic resources such as buildings for roosting and nesting and waste for food sources. Gulls have large foraging ranges and will move around the country during the non-breeding period, especially during cold snaps when gull numbers will increase at the coast if inland and upland areas are frozen.

1.1.3.28 Gulls are capable of covering large distances in the search for food; they are lightweight for their size, streamlined, and can take advantage of soaring flight. Whilst soaring, gulls are reliant upon thermal uplifts they expend very little energy and combined with their physiology, they are able to stay in the air for long periods of time. This allows them to move over a landscape searching for food in a way that is not possible for birds reliant solely upon flapping flight.

**Corvids**

**Distribution**

1.1.3.29 Although corvids were widely distributed throughout the survey area, the Applicants, like Fylde Bird Club, found higher concentrations around Lytham Moss. This is likely due to the presence of a nearby rookery.

**Ecology**

1.1.3.30 A number of corvid species are widely present in the Ribble estuary throughout the year. Of these, jackdaws and rooks are communal birds, jackdaws roost communally in trees and cliffs during the non-breeding

period whereas rooks nest communally in small copses. Jays, magpies, and carrion crows are solitary, although carrion crows do come together in groups during the non-breeding period.

1.1.3.31 Jays and magpies are mostly birds of woodland and hedgerow, although magpies often feed in fields as well. Jackdaws, rooks and carrion crows can often be found feeding in mixed flocks in fields where they exploit a wide range of vegetable and animal matter (although mostly animal matter) such as seeds and invertebrates. Despite preferring to save energy and loaf where possible, rooks and jackdaws can be quite active in their flights around breeding and roosting colonies.

**Pigeons**

**Distribution**

1.1.3.32 Pigeons were widely distributed throughout the survey area with no clear pattern of usage.

**Ecology**

1.1.3.33 All of the pigeon species found in the Transmission Order limits are sedentary, although there may be an increase in woodpigeon numbers in the winter. During the breeding season, collared dove, stock dove and woodpigeon are solitary, indeed collared dove and stock dove are largely sedentary throughout the year. However, woodpigeon numbers may increase during the non-breeding season when they may also form flocks, and they may feed widely on arable land where they feed on grain and roost communally in trees. The feral pigeons live in colonies all year round and exploit agricultural and urban habitats for food. Their colonies are often situated in roofs and abandoned buildings.

1.1.3.34 Pigeons are reliant upon flapping flight and will save energy where possible, however they are easily spooked and take to the air if threatened.

**Starlings**

**Distribution**

1.1.3.35 Starlings were widely distributed throughout the survey area although with higher densities towards the coast.

**Ecology**

1.1.3.36 Starlings are present in the area year-round. However, during the breeding period they will generally be found in pairs or small family groups in open countryside where they nest in tree cavities, etc. Post breeding, starlings start to come together in flocks which can number tens of thousands of birds. They generally forage in smaller flocks and exploit a wide range of animal and vegetable matter, however they can come together in vast flocks in the evening to roost in communal areas.

These areas can be situated in man-made structures such as piers, but natural features such as reedbeds are also commonly used.

**Winter thrushes**

**Distribution**

1.1.3.37 Winter thrushes were concentrated in the area north of Warton likely due to the high availability of berries in the winter of 2023/24. This distribution is expected to vary significantly in the future based on resource availability and Scandinavian winter weather conditions in any given year.

**Ecology**

1.1.3.38 Both redwing and fieldfare are largely winter migrants arriving in October and leaving in March. The numbers of birds that come depends upon the availability of berries and the weather in Scandinavia. They form flocks and move over wide areas feeding on berry trees and seeds and invertebrates found in fields. They roost communally in woodlands, copses and in mature trees in hedgerows. Neither fieldfare nor redwing are present in the area during the breeding season.

**Raptors**

1.3.2.4 DistributionThe detailed Wildlife Habitat Attractants Risk Assessment(s) will include the results of pre-construction surveys reflecting the existing baseline (at the time of construction). The surveys will be undertaken in accordance with the Outline Breeding Bird Protection Plan of the oEMP (document reference J6) and will be aligned with existing monitoring undertaken by BAE and DIO to ensure comparative results and to maximise efficiencies in monitoring.

## 1.3.3 Draft Wildlife Habitat Attractants Risk Assessment

1.3.3.1 The

Table 1.4

1.1.3.39 The site-specific surveys found a number of buzzard, kestrel, sparrowhawk and barn owl holding territory in the area. These were well distributed throughout the area with the kestrel and barn owl generally found in open farmland whereas the buzzard and sparrowhawk territories were centred around woodland. Red kite, marsh harrier, peregrine and merlin were not thought to breed in the area but were recorded infrequently during the non-breeding season.

**Ecology**

1.1.3.40 The raptor assemblage within the survey area display different behaviours. Red kite and buzzard are both sedentary birds, although red kite are relatively rare in the area, and both use high soaring flight to search the landscape for prey or items to scavenge. Buzzard can hunt

birds and small mammals up to the size of rabbits, they normally take prey from the ground as they are agile enough for aerial pursuit, red kite will also take these prey items but also scavenge a lot on road kill, etc. The smallest prey taken by buzzards are earthworms.

1.1.3.41 Marsh harrier generally patrol the landscape at a lower level (tens of metres) where they flush birds and mammals which are then pursued. Marsh harrier are present in the area in higher numbers over the winter when birds use communal roost sites in the extensive saltmarshes of the Ribble estuary, they feed on mammals and birds up to the size of rabbits and pheasants. Peregrine are also more abundant in the winter, although do also breed nearby, and merlin are only present in winter moving to the uplands to breed. Peregrine can stoop from a height to catch prey but generally spend more time searching for prey from a vantage point (perch) rather than in flight. Peregrine also use low level dashing flight to chase avian prey, this is the style that merlin use to hunt too. Birds observe from a suitable perch before undertaking low level aerial pursuits. Peregrine and merlin all primarily feed on birds with peregrines capable to take down larger prey such as woodpigeon whereas merlin tend to feed on smaller passerines. Sparrowhawk are also a bird predator although these birds are stealthy hunters of woodland and hedgerow and, although common, are rarely seen.

1.1.3.42 Both kestrel and barn owl primarily feed on small rodents, the kestrel is most active diurnally whereas the barn owl is crepuscular and nocturnal. Both species are sedentary within the area and are often associated with nesting in abandoned buildings or nest boxes, although they will both nest in trees too. Kestrel hover from a relatively short distance above the ground (e.g., less than 100 m) whereas barn owl fly silently closer to the ground using their sensitive hearing to locate prey. Voles make up a large part of the prey items for both these species and voles are more abundant in areas with a well-developed thatch. The thatch is developed when grass is left to grow tall and then dieback at the end of the summer. The next summers' grass grows through this and then continues to add to the thatch. Areas where grass is grazed or hay and silage cuts taken do not build up thatch, so these areas contain lower densities of prey.

## 1.1.4 Outline Wildlife Habitat Attractants Risk Assessment

1.1.4.1 1.3.3.2 Table 1-4 addresses whether elements of the Transmission Assets are likely to increase the number of birds or change the patterns of use of habitats within Warton Aerodrome's 13km safeguarding area. wildlife hazard management zone . These are shown on Figure 1.3 and Figure 1.4 of the Outline Wildlife Hazard Management Plan (S_D3_8). This Outline Draft Wildlife Habitat Attractants Risk Assessment focuses on the bird species within Table 1.3 1.3 as these represent the species with the greatest risk of collision. The Applicants note that baseline numbers of these species fluctuate both seasonally and annually. The Applicants' Baseline Bird Technical Report (S_D3_5) provides information on the national, regional and local trends, taking into account potential fluctuations. The Applicants note that, if future monitoring identifies that

other species are attracted to the Transmission Assets, the detailed Wildlife Habitat Attractants Risk Assessment (including the management measures) will be updated accordingly.

1.1.4.2 1.3.3.3 The Outline Draft Wildlife Habitat Attractants Risk Assessment sets out a series of design commitments/management measures that will be implemented at each of the areas/features identified in Table 1.4. The Applicants will undertake appropriate monitoring at each of these areas/features to record the implementation of the design commitments/management measures and to identify potential changes in bird number/species of birds/patterns of use of the area. Monitoring frequency and intensity will vary on a case-by-case basis, but all monitoring frequencies and intensities are to be agreed in consultation with BAE Systems/DIO and Natural England.

1.1.4.3 1.3.3.4 The Applicants will also follow an adaptive management approach that will be informed by evidence from monitoring and trigger levels (see below). If any trigger levels are exceeded, the management measures will be escalated in accordance with to next level of measures that will be defined in the detailed Wildlife Attractants Habitat Risk Assessment. These measures may comprise passive habitat management measures and/or active controls and will be specific to the bird species and the element of the Transmission Assets works. Any changes are to be agreed in consultation with BAE Systems/DIO and Natural England.

1.3.3.5 The adaptive management approach comprises the key stages below and described in further detail in the Outline Wildlife Hazard Management Plan (document reference S_D3_8/F03):

1. **Passive Design and Management** – Inbuilt design or management features to reduce attractiveness for numbers/species composition of birds.
2. **Active Management** – Reactive measures designed to immediately control risk.
3. **Monitoring** – Regular monitoring informs of any increase in numbers/species composition of birds.
4. **Adaptive Management** – Alteration of the passive measures based upon changes in numbers/species composition.

1.1.4.4 1.3.3.6 The design commitments/management measures within Table 1.4 are based on the construction management measures within the Outline Code of Construction Practice (oCoCP (document reference J1)) and its supporting appendices, the oEMP (document reference J6) and measures within the CAP 772 guidance. The measures will include habitat management measures and active controls. The measures will be implemented to reduce the likelihood that the Transmission Assets will increase the number of target bird species in the wider area, attract non target bird species or change the pattern of use to an unacceptable level.

1.1.4.5 1.3.3.7 The Applicants will set out in the detailed Wildlife Habitat Attractants Risk Assessment the decision-making procedure for applying the trigger

levels and escalating the management measures that will be implemented. The Applicants will also establish a Communication Protocol, based on the principles identified in the oWHMP (section 1.4.2) with BAE Systems/DIO to communicate when the management measures are escalated. As part of the procedure, no measures to disperse birds will be implemented without express permission from Warton Aerodrome. Conversely, there will also be an emergency protocol whereby Warton Aerodrome can communicate with the Applicants if there is the need for emergency active measures to be employed.

### Trigger levels

~~1.1.4.6~~1.3.3.8 Trigger levels are a key element of the Applicants' adaptive management approach and provide an agreed ~~threshold~~trigger level above which additional management measures will be implemented. Data from monitoring of bird species, numbers and patterns of use (e.g. flight lines) will provide the evidence for assessing when the trigger levels are exceeded.

~~1.1.4.7~~1.3.3.9 Trigger levels will be set for each of the areas and species identified in ~~the Outline Wildlife Habitat Attractants Risk Assessment (~~Table 1.4~~)~~ and will include:

- Bird numbers within target species above the agreed baseline
- Change in pattern of use (e.g. flight lines)
- Bird numbers within non-target species above the agreed baseline
- Specific triggers relating to areas/features of the Transmission Assets. These measures include:
  - Detection of nests on the roofs of the onshore substations
  - Birds attracted to areas of standing water in the construction areas, water bodies, attenuation ponds at the onshore substations or vegetation.

~~1.1.4.8~~1.3.3.10 The trigger levels ~~will~~will be determined in consultation with BAE and ~~the~~ DIO ~~(as an operating arm of the MoD)~~ and will be set out in the detailed Wildlife Habitat Attractants Risk Assessment. If any trigger levels are exceeded, an escalation of the management measures (listed in Table 1.4) will be implemented.

### Monitoring and review

~~1.1.4.9~~1.3.3.11 The Applicants commit to undertaking ongoing monitoring of all aspects of the onshore Transmission Assets to ensure that the number/species/patterns of use of birds within Warton Aerodrome's 13km safeguarding ~~area~~zone do not increase beyond an acceptable level as a result of the Transmission Assets and to ensure that the passive management and design-based measures are still fit for purpose. This will include monitoring of temporary areas during the construction phase and monitoring of permanent areas during the operational phase of the Project.

~~1.1.4.10~~1.3.3.12 The Applicants will prepare a detailed monitoring strategy prior to construction that will set out the types, location, frequency, and reporting of monitoring. The monitoring strategy will form part of the detailed Wildlife Habitat Attractants Risk Assessment(s) and will be developed in consultation with BAE/DIO to ensure that the Transmission Assets' monitoring aligns with BAE's monitoring. The strategy will also agree procedures for communicating with Warton Aerodrome regarding active management measures and aircraft movements. -The Applicants will fund the monitoring (as set out in the monitoring strategy) via a commercial or cooperation agreement. In addition, the Applicants will also cover the costs associated with the implementation of the design commitments and additional measures.

~~1.1.4.11~~1.3.3.13 The monitoring strategy will set out roles and responsibilities of the Applicants' team for undertaking monitoring, the frequency of monitoring, and the reporting ~~the~~of results and ~~liaising~~liaison with Warton Aerodrome. The strategy will also set out the trigger levels (see paragraphs 1.3.3.8 to 1.3.3.10) and the decision-making process for when additional measures should be implemented.

~~1.1.4.12~~1.3.3.14 The detailed- Wildlife Habitat Attractants Risk Assessment(s) will be subject to regular review to ensure that it reflects that management measures being implemented. The risk assessment will be updated to reflect any changes to the proposed management measures identified from the ongoing monitoring.

## Table 1-.4: ~~Outline~~Draft Wildlife Habitat Attractants Risk Assessment

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| Fairhaven Saltmarsh (Work Area 49A/49B)<br><br>**Purpose**: Bird mitigation | SD 33934 27153<br>Approx. 6.5 km | Reducing disturbance impacts to waders using the existing high tide roost site | Intertidal waders | Passive **Design ~~features~~**and Management Measures<br><br>The measures at Fairhaven Saltmarsh are designed to reduce disturbance to intertidal waders that use the area as a high tide roost. The proposed measures aim to minimise the time birds spend flying due to disturbance, thereby maximising their roosting time. Since birds pose a risk to aircraft safety only when airborne, reducing their flight time may also help decrease the risk of birdstrike.<br><br>Measures focus on managing the interaction of the bird roost and recreational users of Fairhaven Saltmarsh (e.g. wardens, soft fencing and education boards). Further information is provided in the oEMP (document reference J6).<br><br>**Monitoring**<br><br>The bird abundance and behaviour will be regularly monitored at a frequency to | 1 – Unlikely | Primarily this area was chosen as it currently houses large numbers of intertidal waders. The intention of this mitigation area is to reduce recreational disturbance pressures on the birds that are currently ~~using~~present in the area.<br><br>During the passage period, there is a high turnover of birds moving through the Ribble Estuary, with individuals stopping only briefly. Although reducing disturbance at roost sites benefits the daily energy balance and fitness of individual birds, it is unlikely to influence the overall number of birds passing through the estuary. Therefore, this mitigation is highly unlikely to cause an increase in the number of intertidal waders within the 13 km safeguarding zone.<br><br>The intertidal waders that use this area are also low flying (often within metres of the ground/sea surface) and are therefore of low risk to aircraft at this distance from the airfield. This area is on the edge of a |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | be agreed with BAE/DIO and Natural England.<br><br>If ~~bird numbers and behaviours directly attributable to this mitigation are seen to cause an unacceptable increase in risk (~~the agreed trigger levels ~~to be agreed in consultation with BAE and Natural England),~~are reached, then the management measures below may be implemented.<br><br>**~~Active management measures~~Adaptive Management Measures**<br><br>Active management measures would aim to further reduce disturbance to the birds using Fairhaven Saltmarsh. This may include more stringent restrictions on public access during particularly sensitive times of the year. | | congested urban area and adjacent/partly within a wildlife site.<br><br>The typical species assemblage currently using this area for roosting is oystercatcher, ringed plover, grey plover, dunlin, knot, sanderling, bar-tailed godwit and curlew. This area is currently used by high numbers of birds with counts of 10,000 – 20,000 waders made during a number of surveys, these numbers fluctuate but are not predicted to increase as a result of the mitigation, this is due to wintering waders being site faithful to roost sites, and the mitigation measures having no influence over the numbers of passage birds moving through.<br><br>**Changes to bird flight pattern**<br><br>The mitigation in this area is being proposed to reduce the flight times of the birds already present. In addition, the proposed mitigation will not alter the birds predictable approach paths to this site (along the tideline). Therefore, it is predicted that there would be no significant changes to existing flight patterns to and from the existing intertidal roost. If anything, there would be a reduction in flight activity caused when |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | | | birds are flushed by the currently high levels of recreational disturbance events at Fairhaven Saltmarsh. |
| | | | Ducks | ~~N/A~~ | 1 – Unlikely | While small numbers of shelduck and pintail forage in the shallow waters, the area is predominantly used by intertidal waders and does not attract ~~large numbers of~~roosting ducks. This is not predicted to change as a result of the proposed mitigations. |
| | | | Gulls | ~~N/A~~ | 1 – Unlikely | Gulls, unlike waders, are not dependent upon tidal state for foraging and can utilise a wide number of marine, coastal and terrestrial (frequently urban) habitats and resources. As such they tend not to roost around high water in the same way that waders do~~.~~ but instead roost at night. They are also tolerant of disturbance, so this mitigation measure is unlikely to benefit gulls, and whilst gulls currently use the area for loafing, this area is predominantly used by intertidal waders and the proposed improvements pose no additional risk of attracting gulls. |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | Raptors | N/A | 1 – Unlikely | The proposed mitigation at Fairhaven Saltmarsh is not likely to attract ~~new~~problematic terrestrial raptors as there will be no increase in prey abundance for them. ~~The area is currently used occasionally by non-breeding peregrine, there is not predicted to be a change in peregrine activity caused by the proposed mitigations.~~ |
| | | | All other species (in Table 1.2) | N/A | 1 – Unlikely | The proposed mitigation at Fairhaven Saltmarsh is not suitable to benefit the remaining terrestrial species |
| Newton-with-Scales (Work Area 49A/49B)<br><br>**Purpose**: Bird mitigation | SD 45388 30064<br><br>Approx. 2.6 km | Enhancement and restoration of existing habitat features e.g. stopping up hedgerows, managing water levels within existing ditches, creating mosaic of grassland, | Ducks<br><br>Waders | **Passive Design ~~Features~~and Management Measures**<br><br>The scrapes and management of ditches will be designed to enhance and restore existing habitat features which have been affected by recent land management practices and will not seek to provide additional or create new habitat features. | 2 – Possible (numbers)<br><br>1 – Unlikely (change in pattern of use) | Primarily this area was chosen as it currently houses high numbers of waterbirds, and it is very close the area of impact (onshore substations). The intention of this mitigation is not to increase overall bird numbers in the area, but simply to enhance the area for the birds currently present and provide a safe space for birds displaced at the substation sites. |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | creation of permanent scrapes | | Measures to be undertaken include fitting existing drains with a sluice to control water levels within the site to enhance the existing scrapes and wet grassland habitats, reducing livestock levels, and creating heterogenous sward height through selective mowing/grazing to stop scrub or rush encroachment.<br><br>**Monitoring**<br><br>The bird abundance and behaviour will be regularly monitored (e.g., monthly) at a frequency to be agreed with BAE and Natural England.<br><br>If ~~bird numbers and behaviours directly attributable to this mitigation are seen to cause an unacceptable increase in risk (~~the agreed trigger levels ~~to be agreed in consultation with BAE and Natural England),~~are reached, then the agreed management measures ~~below may~~shall be implemented.<br><br>**Active Management Measures**<br><br>~~Monitoring of birds will determine whether additional targeted management measures are needed to~~ | | Site-specific survey data collected by the Applicants over the last three years indicates that this area has recently been used by high numbers of waterbirds such as wigeon, teal and black-tailed godwit.<br><br>Recent land management practices have involved draining the area for agricultural purposes. The proposed measures aim to enhance existing habitats to their pre-drained condition to benefit birds using the area and to retain this area for these birds in perpetuity.<br><br>As the target species are those currently using the area, it is unlikely that there will be an increase in the number of birds, changes to the species assemblage, or changes to existing behaviours in the area. In addition, the appropriate monitoring, active management measures and adaptive management practices are in place to ensure that this risk remains controllable.<br><br>**Changes to bird flight pattern**<br><br>Whilst there are unknowns surrounding current flight paths in this area, it is likely that most waterbirds present in the area either overwinter in this area, or switch |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | ~~ensure that the bird risk does not exceed acceptable levels. The~~The final active measures are to be agreed in consultation with BAE and Natural England but could include the following in order of escalation:<br><br>1. ~~Temporarily reducing~~Arm-waving<br>2. Lure<br>3. Bio-acoustics (e.g. distress calls)<br>4. Use of bird scaring lasers<br>5. Bird-scaring rockets and cartridges<br>6. Shooting.<br><br>**Adaptive Management Measures**<br><br>These would be informed by monitoring and tailored to be species specific where necessary but could include:<br><br>1. Reducing water levels.<br>2. Altering livestock and/or mowing regimes to control sward height.<br>3. Temporarily increasing hedge height (artificially) to reduce line of sight~~.~~ and shrink the area usable by waterbirds. | | between Newton Marsh SSSI and this site. As the proposal's sole aim is to improve the area for the bird species that currently use the site, there are not predicted to be any significant changes in the flight patterns of waders and ducks. It is not predicted that the larger waterbirds such as geese and swans will be attracted to the area.<br><br>In addition, the appropriate management measures are in place to respond to any increase in risk caused by unexpected increases in bird numbers or changes in species composition and/or behaviour.<br><br>~~As the area will be unsuitable for most non-waterbird species, it is unlikely that this would cause an increase in flight activity for non-waterbirds in the area.~~ |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | Pigeons<br><br>Starlings<br><br>Winter thrushes | ~~**Design Features**~~<br><br>**Passive design and management measures**<br><br>Hedgerow species used for gapping up of hedgerows will avoid fruit bearing species thus reducing attraction to pigeons, starlings and winter thrushes.<br><br>Habitat management e.g. pruning of hedgerows and trees to ensure they do not exceed 4.5m and 5.5m in height (respectively)<br><br>**Monitoring ~~and~~, Active Management and Adaptive Management Measures**<br><br>See above | 1 – Unlikely | No attractants are available for these species, and it is therefore not predicted to cause significant changes in the abundance of these birds using this area or their use of this area<br><br>As the area will be unsuitable for most non-waterbird species, it is unlikely that this would cause an increase in flight activity for non-waterbirds in the area. |
| | | | Raptors | **Design Features**<br><br>The area will be designed as favourable for waders and wildfowl, this will include increasing line of site and removing raptor perches, this will make it less favourable for peregrine, marsh harrier and merlin. | 1 – Unlikely | The waterlogged nature of the ground will make it unsuitable to support prey such as rabbits, or voles which in turn may attract birds such as buzzard, red kite, barn owl and kestrel. Therefore, it is not predicted that there will be attraction for non-intended species. |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | **Monitoring ~~and~~, Active Management and Adaptive Management Measures**<br><br>See above | | As the area will be unsuitable for most non-waterbird species, it is unlikely that this would cause an increase in flight activity for non-waterbirds in the area. |
| | | | All other species (in Table 1.2) | N/A | 1 – Unlikely | The proposed mitigation at Newton-with-Scales is not suitable to benefit the remaining terrestrial species. |
| Pond creation at Morgan onshore substation (Work Area 49A)<br><br>**Purpose:** Aquatic invertebrate mitigation | SD 43685 30564<br><br>Approx. 2.1 km | Creation of replacement ponds and planting of marginal vegetation could attract birds to feed or roost | Ducks | **Passive Design ~~Features~~and Management Measures**<br><br>Ducks may be attracted to the created ponds. To reduce this attraction the ponds will be comparable to those lost and small, and planting around the pond margins would be designed to discourage birds, particularly wigeon, from roosting in the area. Bank profiles will be steep and ongoing weed management will be carried out as appropriate.<br><br>Despite these measures, small numbers of mallard and teal may still use the ponds.<br><br>**Monitoring** | 1 – Unlikely | These ponds are a replacement for ponds that will be lost as a result of the Morgan onshore substation. The size will be similar to the ponds being lost and will therefore not have the capacity to increase duck numbers in the area. The pond creation is intended to compensate for a loss of ponds in the area. Therefore, while there may be some minor redistribution of mallard and teal, it is unlikely to result in an increase in the number of ducks within the 13 km safeguarding zone. In addition, this area is not required for bird mitigation so can be designed to repel birds.<br><br>**Changes to bird flight pattern**<br><br>These ponds simply represent moving a small discrete habitat from one area to another close by. This will not increase carrying capacity for any bird species and |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | Regular monitoring<br><br>**Active Management Measures**<br><br>1. Arm-waving<br>2. Lure<br>3. Bio-acoustics (e.g. distress calls)<br>4. Use of bird scaring lasers<br>5. Bird-scaring rockets and cartridges<br>6. Shooting.<br><br>**Adaptive Management Measures**<br><br>If bird numbers associated with this mitigation proved to be a risk, netting could be deployed to deter birds further. | | the ponds will be designed ~~as~~to be unattractive to waterbirds. Therefore, there are not predicted to be any significant changes to bird flight patterns in the area. |
| | | | Waders<br><br>Gulls | **Passive Design and Management Measures**<br><br>These ponds will be permanent and designed specifically to avoid attracting waders and gulls, including the planting of marginal fringing vegetation. Since the ponds to be created serve as mitigation for the loss of existing ponds, they are unlikely to attract additional waders and gulls to the area. | 1 – Unlikely | No attractants are available for these species, and it is therefore not predicted to cause significant changes in the abundance of these birds using this area or their use of this area. |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | **Monitoring ~~and~~, Active Management and Adaptive Management Measures**<br><br>See above | | |
| | | | Raptors | N/A | 1 – Unlikely | It is not predicted that these ponds will be of value for any raptor species. |
| | | | All other species (in Table 1.2) | N/A | 1 – Unlikely | The proposed Pond creation at Morgan onshore substation is not suitable to benefit the remaining terrestrial species. |
| Pond creation at Moss Side<br><br>(Work Area 49AB)<br><br>**Purpose**: Aquatic invertebrate mitigation | SD 38758 29607<br><br>Approx. 2.4 km | Creation of replacement ponds and planting of marginal vegetation could attract birds to feed or roost | Ducks | **Passive Design ~~Features~~and Management Measures**<br><br>Ducks may be attracted to the created ponds. To reduce this attraction the ponds will be comparable to those lost and small, and planting around the pond margins would be designed to discourage birds, particularly wigeon from roosting in the area. Bank profiles will be steep and ongoing weed management will be carried out as appropriate. | 1 – Unlikely | These ponds are a replacement for ponds that will be lost as a result of the Morecambe onshore substation. The size will be similar to the ponds being lost and will therefore not have the capacity to increase duck numbers in the area. The pond creation is intended to compensate for a loss of ponds in the area. Therefore, while there may be some minor redistribution of mallard and teal, it is unlikely to result in an increase in the number of ducks within the 13 km safeguarding zone. In addition, this area is |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | Despite these measures, small numbers of mallard and teal may still use the ponds<br><br>**Monitoring**<br><br>Regular monitoring<br><br>**Active Management Measures**<br><br>1. Arm-waving<br>2. Lure<br>3. Bio-acoustics (e.g. distress calls)<br>4. Use of bird scaring lasers<br>5. Bird-scaring rockets and cartridges<br>6. Shooting.<br><br>**Adaptive Management Measures**<br><br>If bird numbers associated with this mitigation proved to be a risk, netting could be deployed to deter birds further. | | not required for bird mitigation so can be designed to repel birds.<br><br>**Changes to bird flight pattern**<br><br>These ponds simply represent moving a small discrete habitat from one area to another close by. This will not increase carrying capacity for any bird species and the ponds will be designed as unattractive to flocking waterbirds. Therefore, there are not predicted to be any significant changes to bird flight patterns in the area. |
| | | | Waders<br><br>Gulls | ~~**Design Features**~~<br><br>**Passive design and management measures** | 1 – Unlikely | No attractants are available for these species, and it is therefore not predicted to cause significant changes in the abundance of these birds using this area or their use of this area |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | These ponds will be permanent and designed specifically to avoid attracting waders and gulls, including the planting of marginal fringing vegetation. Since the ponds to be created serve as mitigation for the loss of existing farm ponds, they are unlikely to attract additional waders and gulls to the area.<br><br>**Monitoring ~~and~~, Active Management and Adaptive Management Measures**<br><br>See above | | |
| | | | Raptors | N/A | 1 – Unlikely | It is not predicted that these ponds will be of value for any raptor species. |
| | | | All other species (in Table 1.2) | N/A | 1 – Unlikely | The proposed Pond creation at Moss Side is not suitable to benefit the remaining terrestrial species. |
| Lytham Moss (Work Area 35A/35B) | SD 35915 29597<br><br>Approx. 4.9 km | Temporary scrape and feeding during the winter months | Geese<br><br>Swans | ~~**Design Features**~~<br><br>**Passive design and management measures** | 2 – Possible (numbers)<br><br>1 – Unlikely (~~numbers and~~ | Primarily this area was chosen as it currently houses high numbers of geese and other waterbirds, and it is very close the greatest area of impact (i.e., the highest densities of affected birds). The intention of this mitigation is not to |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| **Purpose**: Bird mitigation | | | | The indicative location and size of the feeding area and scrape has been refined following discussion with Blackpool Airport.<br><br>Supplementary feeding will be provided at agreed rates and during the winter months only (November to March). Feeding rates will be agreed in consultation with Natural England and BAE (see section B2.5.2 of the oEMP).<br><br>Agree cropping patterns with landowner during construction period.<br><br>**Monitoring**<br><br>~~Weekly monitoring of the~~ The bird abundance and behaviour ~~in the area~~ will be ~~undertaken during its implementation.~~<br><br>~~If bird numbers and behaviours directly attributable to this mitigation are seen to cause an unacceptable increase in risk (levels~~ regularly monitored (e.g., weekly or when food is provided) at a frequency to be agreed ~~in consultation~~ with BAE and ~~NE),~~Natural England. | change in pattern of use) | increase overall bird numbers in the area, but simply to provide food and safe space for the birds currently present at Lytham Moss that will be temporarily displaced during construction.<br><br>Whilst this area will see an increase in bird numbers this will not represent an increase in goose and swan numbers within the 13 km safeguarding zone or Lytham Moss but will instead be a redistribution of birds displaced by the Transmission Assets infrastructure during construction.<br><br>**Changes to bird flight pattern**<br><br>The majority of these displaced birds currently feed in the vicinity of the proposed mitigation at Lytham Moss, and the current goose and swan feeding scheme is situated in the adjacent field. ~~Therefore,~~As numbers are not predicted to increase, and the area where they feed is only being moved by a few fields distance, the current flight patterns are not predicted to change, and the level of risk will remain predictable with birds transiting north to the feeding site in the morning and south |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | If the agreed trigger levels are reached, then the agreed management measures ~~below may~~shall be implemented.<br><br>**Active Management Measures**<br><br>~~In the case that the mitigation in this area causes Warton Aerodrome's risk level to rise beyond an acceptable level (as defined as red in CAP 772) measures will be undertaken to immediately reduce the risk:~~<br>1. The final active measures are to be agreed in consultation with BAE and Natural England but could include the following in order of escalation:Arm-waving<br>2. Lure<br>3. Bio-acoustics (e.g. distress calls)<br>4. Use of bird scaring lasers<br>5. Bird-scaring rockets and cartridges<br>6. Shooting.<br>In addition:<br>• Reduction /removal of supplementary feeding<br>• Modify design/ infill of scrapes | | to the roost site in the evening. This is the same as the existing baseline risk.<br><br>In addition, the appropriate management measures are in place to respond to any increase in risk caused by unexpected increases in bird numbers or changes in species composition and behaviour. |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | ~~Following this the targets set will be reviewed with Natural England, Blackpool Airport and Warton Aerodrome.~~<br><br>**Adaptive Management Measures**<br><br>These would be informed by monitoring and tailored to be species specific where necessary but could include:<br><br>7. Reducing water levels.<br>8. Altering the quantity of food provided<br>9. Altering the type of food provided<br>10. Altering the frequency that food is provided. | | |
| | | | Ducks<br><br>Waders | ~~**Design Features**~~<br><br>**Passive design and management measures**<br><br>The temporary scrapes will be designed to attract the target species only (ducks and waders)and will be regularly monitored and managed during their creation. | 2 – Possible (numbers)<br><br>1 ~~-~~ – Unlikely (change in pattern of use) | Whilst this area will see an increase in bird numbers this will not represent an increase in duck and wader numbers within the 13 km safeguarding zone but will instead be a redistribution of birds displaced by the Transmission Assets infrastructure during construction. The majority of these displaced birds currently feed in the vicinity of the proposed mitigation at Lytham Moss so flight patterns are not predicted to change |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | **Monitoring ~~and~~, Active Management and Adaptive Management Measures**<br><br>See above. | | |
| | | | Raptors | ~~**Design Features**~~<br><br>**Passive design and management measures**<br><br>The area will be designed as favourable for waders and wildfowl, this will include increasing line of site and removing raptor perches, this will make it less favourable for ~~peregrine, marsh harrier and merlin~~raptors. No long grass or thatch will be provided.<br><br>**Monitoring ~~and~~, Active Management and Adaptive Management Measures**<br><br>See above. | 1 – Unlikely | No attractants are available for these species, and it is therefore not predicted to cause significant changes in the abundance of these birds using this area or their use of this area. |
| | | | All other species (in Table 1.2) | N/A | ~~2 – Possible~~<br><br>1 – Unlikely | No attractants are available for these species, and it is therefore not predicted to cause significant changes in the abundance of these birds using this area or their use of this area. |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| Lea Marsh Biological Heritage Site (BHS)<br><br>**Purpose**: Otter mitigation | SD 47885 29616<br><br>Approx. 4.7 km | The grazing regime of the existing grassland areas will be modified to allow grassland to reach a longer sward height by reducing the annual livestock grazing density.<br><br>Existing reed bed habitats and ditches will be enhanced with the planting of marginal vegetation along the spurs of the tributaries.<br><br>Artificial holt creation. It is not anticipated that the creation of the artificial otter holt would result in any habitat | Geese<br><br>Swans<br><br>Ducks<br><br>Waders<br><br>Gulls | ~~**Design Features**~~<br><br>**Passive design and management measures**<br><br>Implementation of a temporary meadow grassland regime would discourage roosting/ loafing flocks of large waterbird species that currently congregate at times in this habitat at times due to the increased sward height.<br><br>The sward would be managed with low level grazing and/or an annual hay cut with the arisings removed to prevent thatching.<br><br>The area of reedbeds will not be increased above existing levels.<br><br>**Monitoring**<br><br>Regular monitoring<br><br>**Active Management Measures**<br><br>1. Arm-waving<br>2. Lure | 1 – Unlikely | Habitat enhancements in this area will make this area less suitable for flocking waterbirds due to the longer length of the grass that is proposed, this is to be grazed so that a thatch doesn't build up. The existing birds that are largely composed of naturalised Canada and greylag geese are predicted to move into the main Ribble channel where a significant population already exists.<br><br>**Changes to bird flight pattern**<br><br>Whilst there are many unknowns surrounding current flight paths in this area, it is likely that most waterbirds currently present will relocate into the River Ribble corridor, so flight patterns in the general area are predicted to remain at current levels, whereas flight activity within this specific area is likely to decrease. |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | attractants for birds | | 3. Bio-acoustics (e.g. distress calls)<br>4. Use of bird scaring lasers<br>5. Bird-scaring rockets and cartridges<br>6. Shooting.<br>**Adaptive Management Measures**<br><br>Monitoring will determine whether additional targeted management measures are needed to ensure that the bird risk does not exceed acceptable levels. The measures are to be agreed in consultation with BAE and NE but could include:<br><br>If reedbeds start to encroach then management will be undertaken to ensure that these are ~~managed~~returned to baseline levels<br><br>Grassland management or livestock levels could be ~~adjusted.~~<br><br>altered. | | |
| | | | Raptors | ~~**Design Features**~~ | 1 – Unlikely | There has been some suggestion that discarded fish carcasses could increase |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | Passive design and management measures<br><br>Whilst sward height will be taller, this will be managed by grazing and/or mowing (e.g., hay cut). This will prevent a thatch building up and keep raptor prey populations at a low density.<br><br>**Monitoring ~~and~~, Active Management and Adaptive Management Measures**<br><br>See above. | | bird scavenging activity in the area. This is highly unlikely as outlined below:<br><br>Otters are wide ranging carnivorous mammals with male territories being up to 40 linear km of river habitat (females are smaller but still up to 20km).<br><br>Within this they will have a number of safe resting sites and they will hunt in between as resources dictate.<br><br>Otters mostly eat fish but will often take crustaceans (e.g., crayfish) and amphibians too. They mostly take small to medium sized prey which are eaten whole with no discards.<br><br>Only occasionally will half eaten larger fish carcasses be left on the bankside.<br><br>These occasions will be random occurrences, both spatially and temporally, and in no way represent a reliable or predictable food source for birds.<br><br>The artificial holt is to be created by an existing shallow pool of water that is unlikely to contain any significant fish numbers. This will mean that any otters |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | | | will have to move up or downstream to locate reliable food sources.<br><br>In addition, the creation of an artificial holt and a safe space for resting otters will not increase the otter population in the area, just mitigate for the potential loss of other safe spaces due to disturbance.<br><br>Therefore, the risk level of widescale scavenging of fish carcasses by birds will remain extremely low, entirely ~~random~~unpredictable, and completely unchanged from that the level that currently exists.<br><br>The waterlogged nature of the ground will make it unsuitable to support prey such as rabbits, or voles which in turn may attract birds such as buzzard, ~~red kite,~~ barn owl and kestrel. Therefore, it is not predicted that there will be attractants for non-intended species. |
| | | | All other species (in Table 1.2) | N/A | 1 – Unlikely | The slight modifications in habitat (increased sward height and marginal vegetation) are unlikely to significantly increase attraction for the flocking species such as corvids, starlings and pigeons. It is therefore not predicted to cause |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | | | significant changes in the abundance of these birds using this area or their use of this area. |
| Lea Marsh Fields Biodiversity Benefit Area<br><br>**Purpose**: Habitats and plant mitigation | SD 48391 29555<br><br>Approx. 5.2 km | These measures involve the removal of the existing cropland and the creation of species-rich grassland, woodland, scrub, ponds and new ditches. These habitats could potentially attract birds to feed or roost. | Starlings<br><br>Pigeons<br><br>Winter thrushes<br><br>Corvids | ~~**Design Features**~~<br><br>**Passive design and management measures**<br><br>Seed mixes and tree species will be carefully chosen to limit attraction by starlings and winter thrushes.<br><br>**Monitoring**<br><br>Regular monitoring<br><br>**Active Management Measures**<br><br>1. Arm-waving<br>2. Lure<br>3. Bio-acoustics (e.g. distress calls)<br>4. Use of bird scaring lasers<br>5. Bird-scaring rockets and cartridges<br>6. Shooting.<br><br>**Adaptive Management Measures** | 1 – Unlikely | Whilst the creation of species-rich grassland, woodland, scrub, ponds and new ditches may increase the suitability of the area for small breeding and wintering passerines such as warblers and finches, these species pose a negligible risk to aircraft safety. Corvids, pigeons and starlings tend to show greater attraction to intensive land use and thus may even show increased avoidance of the area. Winter thrush use will be limited due to the lack of berry trees.<br><br>**Changes to bird flight pattern**<br><br>There are many unknowns surrounding current flight paths in this area, however it is likely that as this land is not currently used by large numbers of birds, and as the change in management is not predicted to increase attraction, there are not predicted to be any significant changes to bird flight patterns. |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | Monitoring will determine whether additional targeted management measures are needed to ensure that the bird risk does not exceed acceptable levels. The measures are to be agreed in consultation with BAE and NE but could include:<br><br>Grassland management or livestock levels could be ~~adjusted~~altered.<br><br>Scrub and woodland management.<br><br>Pond design could be altered. | | |
| | | | All other species (in Table 1.2) | ~~**Design Features**~~<br><br>**Passive design and management measures**<br><br>The proposed Pond creation at mitigation at Lea Marsh Fields are not suitable to support the remaining large flocking waterbird species. This is due to these ponds being created within a matrix of tall grassland and scrub. These habitats provide cover for predators and are generally avoided by | 1 – Unlikely | No attractants are available for these species, and it is therefore not predicted to cause significant changes in the abundance of these birds using this area or their use of this area. |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | waterbirds who prefer more open habitats with a clear line of site.<br><br>**Monitoring ~~and~~, Active Management and Adaptive Management Measures**<br><br>See above. | | |
| | | | Raptors | ~~**Design Features**~~<br><br>**Passive design and management measures**<br><br>Whilst sward height will be taller, this will be managed by grazing and/or an annual hay cut with the arisings removed to prevent thatching. This will prevent a thatch building up and keep raptor prey populations at a low density.<br><br>**Monitoring ~~and~~, Active Management and Adaptive Management Measures**<br><br>See above | 1 – Unlikely | No attractants are available for these species, and it is therefore not predicted to cause significant changes in the abundance of these birds using this area or their use of this area. |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| Onshore Substations<br><br>Permanent structure | | Roofs of onshore substation buildings provide potential roosting sites and perching opportunities, particularly if the design includes flat roofs or sheltered ledges access holes and crevices | All species (in Table 1.2) | ~~**Design Features**~~<br><br>**Passive design and management measures**<br><br>Design of the onshore substation to avoid flat roofs, valleys or protruding features, anti-roosting features, allow safe access for checks.<br><br>**Monitoring**<br><br>Regular inspections<br><br>**Active Management Measures**<br><br>1. Arm-waving<br>2. Lure<br>3. Bio-acoustics (e.g. distress calls)<br>4. Use of bird scaring lasers<br>5. Bird-scaring rockets and cartridges<br>6. Nest and egg removal under licence. (1,2,3 stages)<br>7. ~~e.g., CAP 772 escalation measures.~~ Shooting. | 1 – Unlikely | Birds will be monitored and actively deterred. |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| Fencing<br><br>Permanent feature | N/A | Creation of secure open spaces around the substations with areas of short grass or gravel may attract ground-nesting species | All species (in Table 1.2) | **Active Management Measures**<br><br>Bird management measures (e.g. regular inspection of the site in period leading up to nesting season.<br><br>**Monitoring**<br><br>Regular inspections<br><br>**Active Management Measures**<br><br>~~Additional deterrents if early nesting signs observed~~<br><br>1. ~~e.g., CAP 772 escalation measures.~~Arm-waving<br>2. Lure<br>3. Bio-acoustics (e.g. distress calls)<br>4. Use of bird scaring lasers<br>5. Bird-scaring rockets and cartridges<br>11. Shooting. | 1 - Unlikely | Birds will be monitored and actively deterred. |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| Attenuations ponds<br><br>Permanent feature | | Attenuation ponds to manage surface water runoff at the onshore substations may attract birds to feed, roost or nest. | All species (in Table 1.2) | ~~**Design Features**~~<br><br>**Passive design and management measures**<br><br>The design of the attenuation ponds will principally reflect its function to manage surface water run off (i.e. temporarily store to allow discharge at an agreed rate). Therefore, the ponds will not hold water in the long term.<br><br>**Monitoring**<br><br>Regular inspections<br><br>**Active Management Measures**<br><br>1. Arm-waving<br>2. Lure<br>3. Bio-acoustics (e.g. distress calls)<br>4. Use of bird scaring lasers<br>5. Bird-scaring rockets and cartridges<br>6. Shooting.<br><br>**Adaptive Management Measures**<br><br>Potential netting of the ponds | 1 – Unlikely | The proposed attenuation ponds will be designed to deter birds from using the ponds. |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | ~~e.g., CAP 772 escalation measures.~~ | | |
| Landscape planting<br><br>Permanent feature | | Tree and shrub planting can create dense vegetation that may provide roosting opportunities. Berry and fruit bearing species provide additional food source in autumn. | All species (in Table 1.2) | ~~**Design Features**~~<br><br>**Passive design and management measures**<br><br>Detailed planting design to avoid the proportion of fruit and berry bearing species and trees with less robust crowns<br><br>**Monitoring**<br><br>Regular inspections<br><br>**Active Management Measures** | 1 – Unlikely | No attractants are available for these species, and it is therefore not predicted to cause significant changes in the abundance of these birds using this area or their use of this area. |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | 1. ~~e.g., CAP 772 escalation measures.~~Arm-waving<br>2. Lure<br>3. Bio-acoustics (e.g. distress calls)<br>4. Use of bird scaring lasers<br>5. Bird-scaring rockets and cartridges<br>6. Shooting. | | |
| Vegetation clearance<br><br>Construction activity | N/A | The exposure of soils following vegetation clearance and stockpiling of soils may attract birds to feed on the invertebrates in the soil. Seeding of the stockpiles may also attract birds to feed. | All species (in Table 1.2) | ~~**Design Features**~~<br><br>**Passive design and management measures**<br><br>Soil management (e.g. covering soils, selection of seed type), bird management during seeding.<br><br>**Monitoring**<br><br>Regular monitoring during construction<br><br>**Active Management Measures**<br><br>1. ~~e.g., CAP 772 escalation measures.~~Arm-waving<br>2. Lure<br>3. Bio-acoustics (e.g. distress calls)<br>4. Use of bird scaring lasers | 1 – Unlikely | Birds will be monitored and actively deterred. |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| | | | | 5. Bird-scaring rockets and cartridges<br>6. Shooting. | | |
| Water and ponding<br><br>Construction activities | N/A | Areas of standing water within the construction areas may attract birds to feed (from invertebrates brought closer to the surface), drink or bathe. | All species (in Table 1.2) | ~~**Design Features**~~<br><br>**Passive design and management measures**<br><br>Management of surface water runoff to avoid accumulation of water.<br><br>**Monitoring**<br><br>Regular monitoring during construction<br><br>**Active Management Measures**<br><br>1. ~~e.g., CAP 772 escalation measures.~~Arm-waving<br>2. Lure<br>3. Bio-acoustics (e.g. distress calls)<br>4. Use of bird scaring lasers<br>5. Bird-scaring rockets and cartridges<br>6. Nest and egg removal under licence. (1,2,3 stages)<br>7. Shooting. | 1 – Unlikely | Birds will be monitored and actively deterred. |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| Waste management<br><br>Construction activities | N/A | Discarded food waste or other edible waste, particularly from welfare units at temporary construction compounds may attract birds to feed. | All species (in Table 1.2) | ~~Design Features~~<br><br>**Passive design and management measures**<br><br>Secure storage of waste at construction compounds, regular collection of waste, good housekeeping policies.<br><br>**Monitoring**<br><br>Regular monitoring during construction<br><br>**Active Management Measures**<br><br>1. ~~e.g., CAP 772 escalation measures.~~Arm-waving<br>2. Lure<br>3. Bio-acoustics (e.g. distress calls)<br>4. Use of bird scaring lasers<br>5. Bird-scaring rockets and cartridges<br>6. Nest and egg removal under licence. (1,2,3 stages)<br>7. Shooting. | 1 – Unlikely | These species will be monitored and actively deterred. |
| General construction activities | N/A | This area will be subject to displacement with | All species (in Table 1.2) | See above areas/features for attractants and management measures. | | The greatest numbers of birds to be displaced are made up of waterbirds, this |

| Area/ feature | National grid reference and distance from Warton Aerodrome[1] | Wildlife attractant | Species | Design commitments/management measures (to control attraction) | Likelihood of attractant | Justification |
|---|---|---|---|---|---|---|
| throughout the corridor | | the exception of a few generalist and disturbance tolerant species (e.g., gulls) that are dealt with by vegetation clearance and waste management above. | | | | is the reason why the bird mitigations have been suggested.<br><br>The bird mitigations suggested above are to house displaced birds and thereby maintain the status quo of bird numbers and distribution in the area. The mitigations have been sited as close to the areas of greatest impact (in this case the areas with the highest densities of birds) in order to minimise disruption to the birds daily and seasonal routines. It is predicted that birds displaced by construction will be able to relocate at the proposed mitigation areas thereby minimising any changes in bird abundance, distribution or activity, therefore there is predicted to be no significant change in bird flight activity other than minor relocation. |

*Likelihood considers how likely the feature of the development will attract more birds, change the distribution or alter their behaviour within the 13km safeguarding buffer.

## ~~1.1.5~~1.3.4 ~~Aerodrome~~ Engagement

~~1.1.5.1~~1.3.4.1 The Applicants will establish an engagement procedure with Blackpool Airport and Warton Aerodrome prior to construction. The procedure will include sharing of monitoring data and identifying the lines of communication with the relevant roles at Blackpool Airport and / or Warton Aerodrome.

~~1.1.5.2~~1.3.4.2 The Applicants will prepare an annual report which will provide a detailed account of all surveillance and active bird control undertaken during the previous year.

1.3.4.3 Communication protocols will be developed for Blackpool Airport and Warton Aerodrome based on the principles in the Outline Wildlife Hazard Management Plan which commits the Applicants to regular communication with Blackpool Airport and / or Warton Aerodrome including results from monitoring and escalation of management measures . within the respective 13km wildlife hazard management zones.

## 1.3.5 Next Steps

1.3.5.1 The next and final step in this process is to produce a full bird strike risk assessment. This has already been produced for Blackpool Airport in accordance with their existing risk assessment (see Appendix B of S_D3_8/F03 the Outline Wildlife Hazard Management Plan).

1.3.5.2 The Blackpool Airport Wildlife Hazard Risk Assessment and Management Plan follow the guidance set out in CAP772. This calculates risk as a product of the severity of a strike and the likelihood of a strike as shown in Table 1.5 below. All red risks are considered unacceptable, amber is tolerable and needs monitoring with additional measures taken if needed, green is acceptable.

**Table 1.5: Risk assessment matrix as taken from CAP772**

| | | Likelihood | | | | |
|---|---|---|---|---|---|---|
| | | Very High | High | Moderate | Low | Very Low |
| Severity | Very High | 25 | 20 | 15 | 10 | 5 |
| | High | 20 | 16 | 12 | 8 | 4 |
| | Moderate | 15 | 12 | 9 | 6 | 3 |
| | Low | 10 | 8 | 6 | 4 | 2 |
| | Very Low | 5 | 4 | 3 | 2 | 1 |

1.3.5.3 The severity of a strike is fixed in the CAP772 guidance and is based upon the weight or flocking behaviour of the bird, the severity examples as taken from CAP772 are shown below in Table 1.6.

**Table 1.6: The severity or damage probability percentages of birdstrike with examples as taken from CAP772**

| | Very high | High | Moderate | Low | Very low |
|---|---|---|---|---|---|
| Probability of damage | >20% | 10 - 20% | 6 - 10% | 2 - 6% | <2% |
| Species groups | Swans, geese | Large gulls | Waders, small gulls, corvids, pigeons, ducks | Starling, winter thrushes | Other passerines |

1.3.5.4 Therefore, the only remaining data needed to run a full risk assessment is the probability of a strike. The CAP772 guidance and Blackpool Airport's risk assessment are clear that the approach needed to estimate the probability of a strike is the airport's own strike rate from the last five years. An example is shown below in Table 1.7.

**Table 1.7: The probability of a strike as taken from CAP772**

| | Very high | High | Moderate | Low | Very Low |
|---|---|---|---|---|---|
| Birdstrike per 10,000 flights | >10 | 3 - 10 | 1 - 3 | 0.3 - 1 | 0 - 0.3 |

1.3.5.5 The Applicants have not received the strike rate data from BAE Systems and therefore are unable to complete the final step in the risk assessment process. However, the Applicants have provided all of the detail needed in order to carry out a robust risk assessment.

1.3.5.6 As is demonstrated above, the Applicants have identified passive and active control measures that are recognised to be effective in controlling and managing bird numbers and distribution. Whilst the Applicants do not believe that these will all be required to ensure the continued safeguarding at Warton Aerodrome, commitment to implementing the measures (as required) as well as monitoring and reporting are secured through the DCO. This will ensure that any unintended changes to bird populations or distributions can be managed within agreed and acceptable levels and therefore there will be no increase in bird strike risk. As such the Applicants have clearly identified a robust and CAP772 compliant process to monitor and take the necessary measures to reduce bird strike risk in a timely manner in all of the construction and environmental mitigation areas that are proposed as part of the Morgan and Morecambe Transmission Assets.

1.3.5.7 While the Applicants are confident that the Transmission Assets will not lead to an increased risk of bird strike, they acknowledge that the findings of this wildlife habitat attractants risk assessment must be carried through into the aerodrome's own bird strike risk assessment. This approach is demonstrated in the case of Blackpool Airport, as shown in Appendix B of the Outline Wildlife Hazard Management Plan (oWHMP).

1.3.5.8 As can be seen in this assessment, for all species, the bird strike risk, once control measures are implemented, returns to existing baseline levels. Therefore, if Warton Aerodrome applies the same assessment methodology as Blackpool Airport (in line with CAP 772), the commitments made by the Applicants will ensure that bird strike risk remains at current levels, regardless of any operational differences between the two facilities.

1.3.5.9 This will be confirmed once the necessary information to complete the bird strike risk assessment is made available.

## ~~1.1.6~~1.3.6 Conclusion

~~1.1.6.1~~1.3.6.1 Following on from the Outline Wildlife Hazard Management Plan submitted at Deadline 4 (S_D3_8) the Applicants have undertaken ~~an outline~~a Draft Wildlife Habitat Attractants Risk Assessment for Warton Aerodrome. The risk assessment focuses on the bird species at risk of collision (as set out in ~~Table 1-2)~~Table 1.3) which have been agreed with BAE Systems/DIO. The risk assessment takes into account the Applicants' survey results, and national, regional and local data to establish the patterns of use as reported in the Baseline Bird Technical Report (S_D3_5).

~~1.1.6.2~~1.3.6.2 The Applicants' approach considers the likelihood of the specific elements of the Transmission Assets to potentially cause a change in abundance, species and patterns of use of birds within Warton Aerodrome's 13 km safeguarding area. The approach is in accordance with the CAP 795 guidance.

~~1.1.6.3~~1.3.6.3 The areas of the Transmission Assets set out in Table 1.4 are designed to provide (both temporary and permanent) alternative resources for birds that may be impacted through habitat loss and disturbance as a result of the construction and/or operation of the Transmission Assets. The Baseline Bird Technical Report (S_D3_5) provides evidence that these birds are currently present within Warton Aerodrome's 13km safeguarding area and provides trends of bird populations. The ~~Outline~~Draft Wildlife Habitat Attractants Risk Assessment concludes that with the~~-~~ implementation of design commitments and an adaptive management approach (supported by a detailed monitoring strategy) the Transmission Assets would not cause a ~~significant~~material change in abundance, species and patterns of use by birds within ~~Warton Aerodrome's 13 km~~ the wildlife hazard management (safeguarding) area around Warton Aerodrome.

~~1.1.6.4~~1.3.6.4 Whilst there may be some localised redistribution of birds within the Transmission Assets Order Limits, the Applicants have designed their

mitigations to limit additional movements of birds or alter existing patterns of use.

1.3.6.1 Although the final bird strike risk assessment for Warton Aerodrome is still pending, the Applicants have clearly demonstrated that such an assessment is not essential to confirm that any unintended changes in bird numbers or distribution resulting from the Transmission Asset can be effectively managed to agreed and acceptable levels. As a result, there will be no increase in bird strike risk beyond the current, managed baseline.

# Appendix B: Assessment of Bird Strike Risk at Blackpool Airport

# 1 Assessment of Bird Strike Risk at Blackpool Airport

## 1.1 Introduction

1.1.1.1 The purpose of this document is to set out the Applicants' assessment of the potential bird strike risk at Blackpool Airport as a result of the construction of the proposed Transmission Assets project. The assessment is based on Blackpool Airport's Wildlife Hazard Risk Assessment and Management Plan (submitted at Deadline 1 (REP1-115)) and considers the potential change in the level of bird strike risk as a result of the construction of the Transmission Assets project. The document forms an appendix to the Outline Wildlife Hazard Management Plan and follows on from the Baseline Bird Technical Note submitted at Deadline 3 (REP3-060)). The wildlife attractants habitat risk assessment is appended to the outline Wildlife Hazard Management Plan submitted at Deadline ~~5~~6 (S_D3_8/~~F02).~~F03).

1.1.1.2 The document focuses on the species category groups set out in Table 1-1, which are consistent with those presented in Blackpool Airport's Wildlife Hazard Risk Assessment and Management Plan.

**Table 1-1: Species category groups**

| Species group | Species |
|---|---|
| Swans | Mute Swan |
| | Bewick's Swan |
| | Whooper Swan |
| Geese | Canada Goose |
| | Greylag Goose |
| | Pink-footed Goose |
| Waders | Oystercatcher |
| | Golden Plover |
| | Lapwing |
| | Redshank |
| | Black-tailed Godwit |
| | Curlew |
| Gulls | Black-headed Gull |
| | Common Gull |
| | Herring Gull |
| | Lesser Black-backed Gull |
| | Great Black-backed Gull |
| Corvids | Magpie |

| Species group | Species |
|---|---|
| | Jackdaw |
| | Rook |
| | Carrion Crow |
| Pigeons | Feral Pigeon |
| | Woodpigeon |
| Starling | Starling |

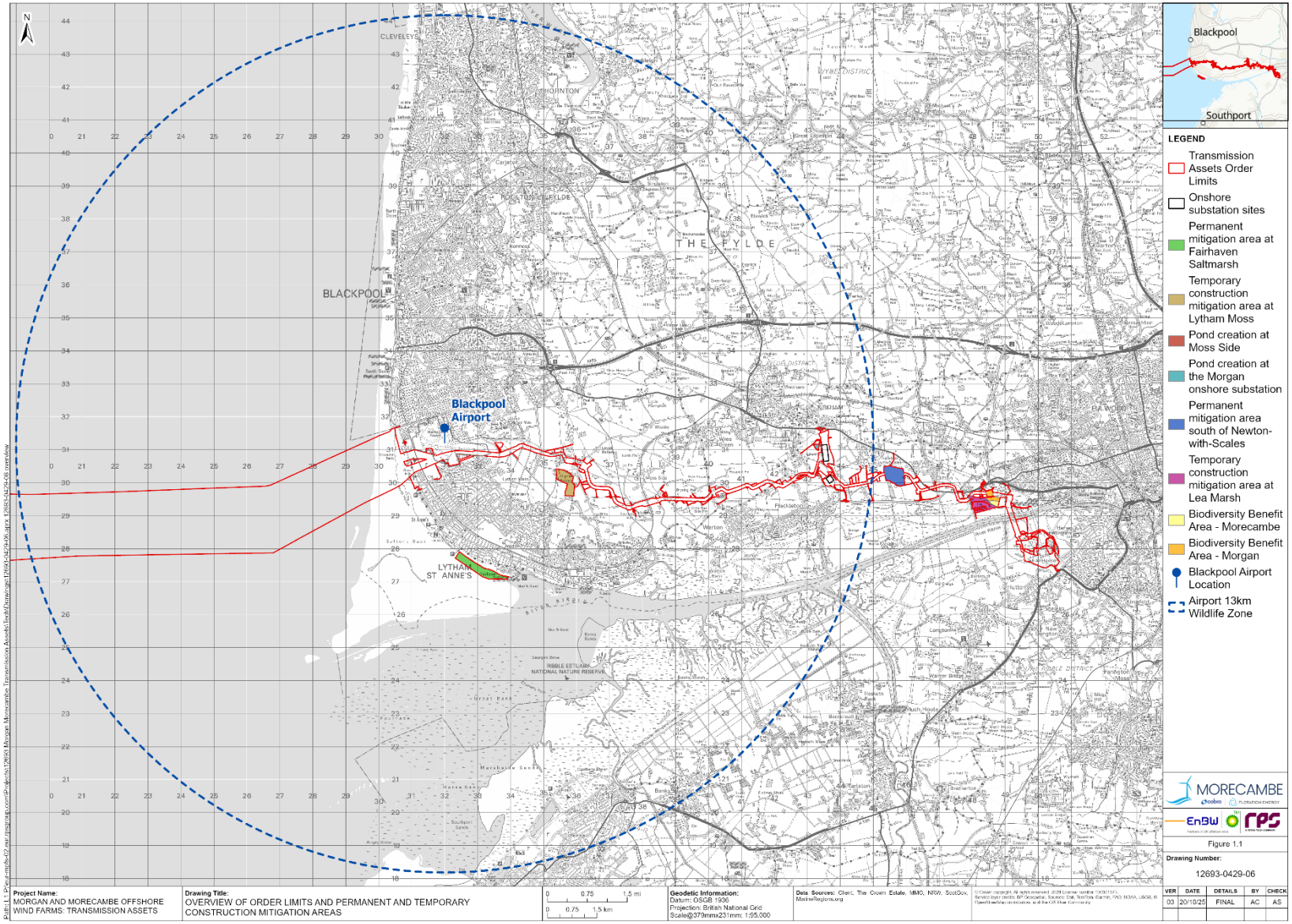



**Figure 1.1: Overview of the order limits and permanent and temporary construction mitigation areas**

## 1.2 Methodology

1.2.1.1 This wildlife hazard assessment identifies bird strike risk within the airport, within the areas of final approach and take off and out to 13km and also includes details of proposed or ongoing developments (including the Queensway housing development, associated open space and nature conservation proposals and the Morgan and Morecambe Transmission Assets).

1.2.1.2 The assessment sets out what measures can be put in place, through design and management, to reduce risk of hazardous bird activity in the airport boundary, flightpath and out to 13km where risk is identified. It includes control measures during construction and management phases of development activities.

1.2.1.3 The bird hazard assessment considers all bird species potentially associated with birdstrike in accordance with literature on the subject and the results of monitoring by Blackpool Airport and TEP and survey by the Transmission Assets Project, as well as any data available regarding actual bird strikes or near misses as appropriate.

1.2.1.4 Species considered include gulls, corvids, starlings, small passerines (including Hirundines), waders, wildfowl and wild swans. Whooper swan and Bewick's swan and pink-footed geese are also considered since these species are a Nature Conservation priority for the Lytham Moss therefore it is appropriate to prepare a species-specific hazard assessment for these species.

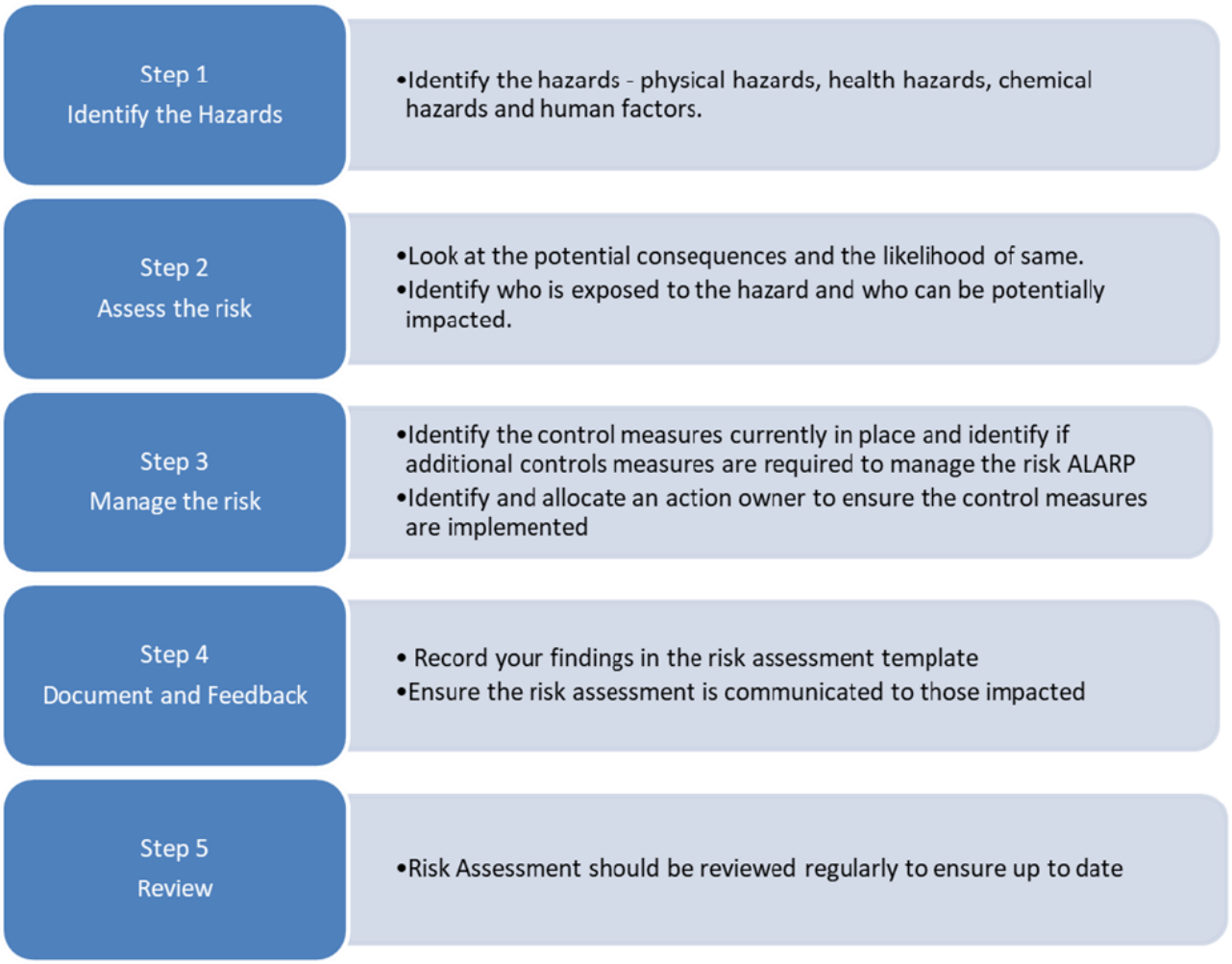
### 1.2.2 Consultation

1.2.2.1 The Assessment of Bird Strike Risk at Blackpool Airport has been prepared in consultation with Blackpool Airport. Meetings have been held with Blackpool Airport in July and August 2025 to discuss the approach and updates have been incorporated to reflect Blackpool Airport's comments. The document is also cognisant of Blackpool Airport's Bird Strike Risk Assessment and Management Plan 2025 which includes updated bird strike data and geese locations from their 2024/2025 surveys.

1.2.2.2 The Applicants note that the Assessment of Bird Strike Risk at Blackpool Airport report was not shared with Blackpool Airport prior to submission at Deadline 5 due to time constraints. Therefore, the report may be updated post Deadline 5 to address Blackpool Airport's comments.

### 1.2.3 Identification of Wildlife Hazard and Risk Assessment

1.2.3.1 For the purposes of this document the risk assessment process follows the 5-step process as listed within Blackpool Airports Safety Management System (SMS). The permanent and temporary ecological mitigation and biodiversity benefit areas of the Transmission Assets Project in relation to Blackpool Airport's 13km safeguard zone are shown on Figure 1.1.




**~~Figure 1~~Figure 1.2: The 5-step process to identify hazards and assess risks**

### 1.2.4 Hazard Identification of Common Species

1.2.4.1 Assessment of known species by size (weight) and flocking tendency to identify extent of hazard(s) based on the expected worst-case severity of a bird strike on aircraft using bird data by type, known previous strike data and outcomes

| Score | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| **Impact Definition (Bird Hazard Potential)** | **Neglible-** Confirmed birdstrike /wildlife strike (No aircraft damage) | **Minor -** Confirmed birdstrike with light damage | **Major -** Aircraft damage-major within airworthiness tolerances | **Hazardous -** Aircraft significantly damaged outside airworthiness tolerance-accident crash narrowly avoided | **Catastrophic -** Extensively damaged aircraft beyond repair/ Aircraft accident / Loss of Life / High number of serious injures |
| Species | Linnet<br>Skylark<br>Grasshopper warbler<br>Tree sparrow<br>Reed bunting<br>Grey partridge<br>Corn bunting | **Single Strike** -<br>Starling, Kestrel | **Single Strike:**<br>Woodpigeon | **Single Strike:**<br>**Corvids**-Rook, Magpies, Carrion Crow, Jackdaw<br>Starling<br>**Waders** – Lapwing, Oystercatcher, Curlew , black-tailed Godwit<br>**Gulls:** Herring Gull, Lesser black-backed gull, Common Gull, Black-headed gull<br><br>**Multiple Strike:** Woodpigeon | **Single or Multipe Strike:**<br>Geese- Pink-footed, Greylag, Canada<br>Whooper Swan, Bewick's Swan<br><br>**Multiple Strike:**<br>**Corvids**-Rook, Magpies, Carrion Crow, Jackdaw<br>**Starling**<br>**Waders** – Lapwing, Oystercatcher, Curlew , black-tailed Godwit<br>**Gulls:** Herring Gull, Lesser black-backed gull, Common Gull, Black-headed gull |

**~~Figure 2~~Figure 1.3: The Severity of consequences of birdstrike as taken from Blackpool Airport Wildlife Hazard Risk Assessment and Management Plan using bird data by type, known previous strike data and outcomes.**

### 1.2.5 Risk Assessment of Hazard Species Methodology (Step 2)

1.2.5.1 The product of the risk probability and risk severity score derives the risk rating.

Likelihood * Severity = Risk rating

1.2.5.2 The risk assessment is then calculated through a matrix where the risk is the product of the Severity and Likelihood (~~**Figure 4).**~~Figure 1.4).

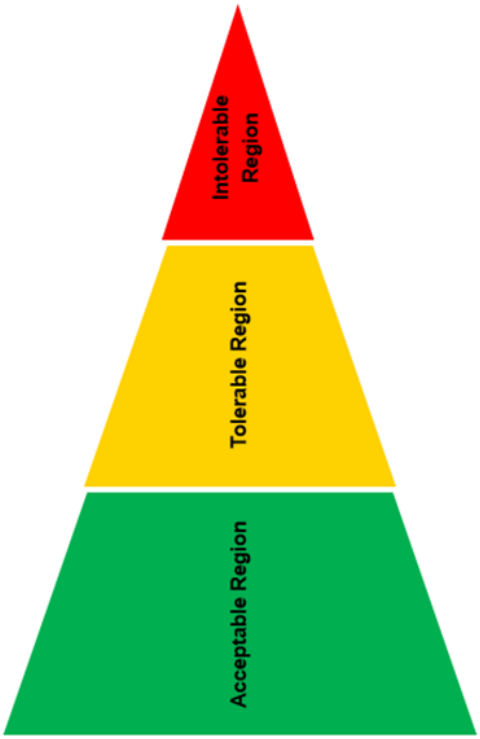
- Scores below 6 (highlighted in green below) are considered **Acceptable**
- Scores between 8 and 12 (highlighted in amber below) are considered **Tolerable**
- Scores above 15 (highlighted in red below) are considered **Unacceptable**

| Likelihood | Severity | | | | |
|---|---|---|---|---|---|
| | Negligible 1 | Minor 2 | Major 3 | Hazardous 4 | Catastrophic 5 |
| 5 – Frequent | 5 | 10 | 15 | 20 | 25 |
| 4 – Occasional | 4 | 8 | 12 | 16 | 20 |
| 3 – Remote | 3 | 6 | 9 | 12 | 15 |
| 2 – Improbable | 2 | 4 | 6 | 8 | 10 |
| 1 – Extremely Improbable | 1 | 2 | 3 | 4 | 5 |

**Figure ~~3~~1.4: Risk assessment matrix**

1.2.5.3 The current risk assessment levels in **Table 1-2**, Table 1-4, Table 1-6, Table 1-8, Table 1-10, Table 1-12, and Table 1-14 are taken from existing bird survey data, bird strike records and mitigation plans as listed in the latest version of Blackpool Airport Bird Strike Risk Assessment and Management Plan and re-assessed based on the project risks alongside agreed mitigations which are expected to bring the residual risk back down to the original levels for all species.

### 1.2.6 Risk tolerability

| Risk Tolerability | Description | Action Required |
|---|---|---|
|  | *The risk level is unacceptable under the existing circumstances. Additional mitigations must be implemented or event or associated activities must be cancelled* | **Where an Intolerable risk is identified which cannot be brought to an acceptable level by the Risk Owner, a risk group should convene within a 24-hour period to identify further actions to bring the risk to an acceptable level. Action/operation must cease until sufficient mitigation is introduced to reduce to amber level risk** |
| | *The risk level is acceptable based on the identified risk mitigations in place.* | *Tolerable risks must be reviewed by Risk owner / risk assessment group and the Safety Manager to ensure ALARP. Must be captured on risk register for sign off* |
| | *Acceptable risk – No immediate action / further action required* | *Risk owner / risk assessment group must ensure control measures in place remain in place.* |

~~Figure 4~~Figure 1.5: Risk tolerability rating

1. Depending on the likelihood and severity of a risks, they may be red risks (Intolerable), amber risks (Tolerable) and green risks (Acceptable).
2. Reduce risks to ALARP and to manage the risk accordingly.
3. This is outlined in the previous table: Risk tolerability.
4. Risks are assessed on both an inherent (as is status with controls already in place) and residual basis (after additional mitigation measures have been incorporated).
5. Once the risk has been rated, it is assessed with a view to deciding whether the level of residual risk is tolerable and what further action is required.

## 1.2.7 Ongoing monitoring commitment

1.2.7.1 The Transmission Assets will appoint an organisation to support BAOL with monitoring of the mitigation areas. With particular regard to the mitigation area at Lytham Moss, ongoing weekly monitoring of bird numbers between

September and April will be conducted between BAOL and nominated organisation for as long as the mitigation area is in use.

**Table 1-2: Risk Assessment: Geese**

| Severity of bird strike risk | Presence and locations birds recorded | Existing Mitigation | Location | L | S | Current risk level | Transmission Asset area and habitat attractant | Re-assessed risk level | Additional control measures | Monitoring | Risk level with management |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Heavy (2.2 – 4.95 kg)<br>Potential for flocks of up to 500<br>Responsive to scaring | Pink-footed geese were primarily located around Lytham Moss with scattered flocks observed in arable fields between Lytham and Kirkham. Canada and greylag geese were generally found within the estuary, on Newton Marsh SSSI adjacent to Warton Aerodrome, or on Lea Marsh. | Winter bird surveys -Numbers counted and managed with FCA by TEP and airport.<br><br>Cropping plan distributed annually- crops assessed/approved on a risk basis (food source) regular meetings with TEP and a level of control over crop choice, cropping times, ploughing and rotation.<br><br>Airport information plan lists warning for geese for Runway 10 climb out/28 Approach-Sep-April<br><br>ATC inform aircraft of any increased bird activity/BCU permanent presence on airfield<br>Regular meetings with all parties<br><br>Airfield long grass policy to deter bird habituation on the airfield<br><br>Ongoing monitoring of Winter numbers<br><br>Observation and patrolling by permanent Bird Control Unit on airfield combined with visual observation by ATC from Visual Control Room of approach/departure path for runway 28 (FCA)<br>Recent improvement in FCA and airfield drainage removing standing water on approach/departure path Rwy 28/10 and southern side of Airfield/Runway 10/28 | Airport | 1 | 5 | 5 | Lytham Moss<br>• Supplementary feeding of pink-footed geese on a temporary basis<br>• Creation of temporary scrape for waders | 10 | • Supplementary feeding<br>– Indicative location and size of the feeding area has been refined following discussion with Blackpool Airport (see Figure 1.12 of the oEMP)<br>– Feeding will be provided during the winter months only (Nov to March) and in line with targets agreed in consultation with Natural England, BA and BAE (see section B2.5.2 of the oEMP).<br>– If risk rises beyond an acceptable agreed level then there could be a reduction /removal of supplementary feeding<br>• Temporary scrapes<br>– Indicative location and size of the scrape has been refined following discussion with Blackpool Airport (see Figure 1.12 of the oEMP)<br>– Scrapes will be designed to attract the target species only<br>– If risk rises beyond an acceptable agreed level then there could be a modification of design/ infill of scrapes<br>• Dispersal of birds from the site following the principle of escalation | Coordinate weekly monitoring with ~~BA~~BAOL and share data.<br>Ongoing weekly monitoring of bird numbers between September and April<br>- Blackpool Airport and TEP are to be informed well in advance with dates prior to feeding to allow for accurate on-site monitoring as soon as feed is put out. | 5 |
| | | | QFCA | 1 | 5 | 5 | | 10 | | | 5 |
| | | | | | | | All other areas associated with Transmission Assets<br>• No habitat attractants | 5 | No additional control measures required | | 5 |

L – Likelihood

S – Severity

### Table 1-3: Justification of measures for geese

| Transmission Assets elements | Justification of measures |
|---|---|
| Lytham Moss | The Applicant has considered the seasonality of supplementary feeding, the spatial configuration of the feeding zone, impact of transmission construction work and implemented regular monitoring protocols to mitigate risks to aviation safety.<br>Transmission construction work impact - The Applicant's data, together with QCFA data, highlight that large numbers of geese currently utilize fields at Lytham Moss. Construction of the Transmission Assets will result in considerable temporary habitat loss and disturbance in these areas. Consequently, it is predicted that the displaced geese will relocate to the proposed feeding area. This shift is expected to redistribute the birds away from the runway approach zone, thereby potentially reducing the overall risk.<br>Seasonality of feeding – As there is much movement of geese between sites during the autumn migration period, it is proposed that feeding will take place during the winter only (November to March). This is to prevent additional passage geese from deciding to overwinter in the area due to accessible resources being available. By November the population will be more stable, so the addition of food is much less likely to increase the Ribble Estuary population.<br>Monitoring of geese numbers and cessation of feeding – In addition, there will be regular monitoring of geese numbers in the area and a mitigation strategy put in place to de-escalate any increase in risk. The measures employed will start with the removal of food, followed up with scaring tactics. This will decrease the number of geese using the mitigation area quickly and they will not return until additional food is supplied. Feed quantities are to be based upon pre-construction surveys and adjusted according to the number of geese using the area. |
| Fairhaven Saltmarsh | Although geese do roost upon saltmarsh and intertidal habitats they do so at night and not around high tide. The proposed measures at Fairhaven are to reduce the high levels of mostly diurnal disturbance around the high tide period. Therefore, the mitigations will not improve or diminish the attraction of this area for geese. |
| Pond creation at Moss Side and ponds at the Morgan onshore substation | The proposed ponds are far too small to support roosting pink-footed geese, and they will not provide additional food sources. |
| Newtown-with-Scales | Geese feed mostly on arable land switching to pasture only when the spring grass starts to grow. The proposed mitigations at Newton-with-Scales will not provide suitable roosting or foraging habitats for pink-footed geese. |
| Lea Marsh BHS | The grazing regime of the existing grassland areas will be modified to allow grassland to reach a longer sward height by reducing the annual livestock grazing density. The implementation of a temporary meadow grassland regime would not enhance the suitability of this area for goose species. |
| Lea Marsh Fields Biodiversity Benefit Area | The grassland and scrub creation at Lea Marsh Fields are not suitable for goose species, and no increase in their abundance is projected |
| Permanent and temporary construction areas | Geese will not be attracted by construction activities. |

**Table 1-4: Risk assessment: Swan**

| Severity of bird strike risk | Presence and locations birds recorded | Existing Mitigation | Location | L | S | Current risk level | Transmission Asset area and habitat attractant | Re-assessed risk level | Additional control measures | Monitoring | Risk level with management |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Heavy (Berwick swan up to 6kg Whooper swan 9 – 11kg)<br>Potential for small flocks<br>Responsive to scaring | . | 1. Cropping plan distributed annually- crops assessed/approved on a risk basis (food source) regular meetings with The Environmental Partnership and a level of control over crop choice, cropping times and rotation.<br>2. ATC inform aircraft of any increased bird activity/BCU permanent presence on airfield<br>3. Regular meetings with all parties<br>4. Airfield long grass policy to deter bird habituation on the airfield<br>5. Ongoing monitoring of Winter numbers<br>6. Recent improvement in FCA and airfield drainage removing standing water on approach/departure path Rwy 28/10 and southern side of Airfield/Runway 10/28. EWS East and West are netted to prevent swans.<br>7. Observation and patrolling by permanent Bird Control Unit on airfield combined with visual observation by ATC from Visual Control Room of approach/departure path for runway 28 (FCA) | Airport | 1 | 5 | 5 | Lytham Moss<br>• Supplementary feeding of whooper swans on a temporary basis<br>• Creation of temporary scrape for waders | 10 | • Supplementary feeding<br>– Indicative location and size of the feeding area has been refined following discussion with Blackpool Airport (see Figure 1.12 of the oEMP)<br>– Feeding will be provided during the winter months only (Nov to March) and in line with targets agreed in consultation with Natural England, BA and BAE (see section B2.5.2 of the oEMP).<br>– If risk rises beyond an acceptable agreed level then there could be a reduction /removal of supplementary feeding<br>• Temporary scrapes<br>– Indicative location and size of the scrape has been refined following discussion with Blackpool Airport (see Figure 1.12 of the oEMP)<br>– Scrapes will be designed to attract the target species only<br>– If risk rises beyond an acceptable agreed level then there could be a modification of design/ infill of scrapes<br>• Dispersal of birds from the site following the principle of escalation | Coordinate weekly monitoring with ~~BA~~BAOL and share data.<br>Ongoing weekly monitoring of bird numbers between September and April<br>Blackpool Airport and TEP are to be informed well in advance with dates prior to feeding to allow for accurate on-site monitoring as soon as feed is put out. | 5 |
| | | | QFCA | 1 | 5 | 5 | | 10 | | | 5 |
| | | | | | | | All other areas associated with Transmission Assets<br>• No habitat attractants | 5 | No additional control measures required | | 5 |

### Table 1-5: Justification of measures for Swans

| Transmission Assets elements | Justification of measures |
|---|---|
| Lytham Moss | The Applicant has considered the seasonality of supplementary feeding, the spatial configuration of the feeding zone, impact of transmission construction work and implemented regular monitoring protocols to mitigate risks to aviation safety.<br>Transmission construction work impact - The Applicant's data, together with QCFA data, highlight that swans currently utilize fields at Lytham Moss. Construction of the Transmission Assets will result in considerable temporary habitat loss and disturbance in these areas. Consequently, it is predicted that the displaced swans will relocate to the proposed feeding area. This shift is expected to redistribute the birds away from the runway approach zone, thereby potentially reducing the overall risk.<br>Seasonality of feeding – As there is much movement of swans between sites during the autumn migration period, it is proposed that feeding will take place during the winter only (November to March). This is to prevent additional passage swans from deciding to overwinter in the area due to accessible resources being available. By November the population will be more stable, so the addition of food is much less likely to increase the Ribble Estuary population.<br>Monitoring of swans numbers and cessation of feeding – In addition, there will be regular monitoring of swans numbers in the area and a mitigation strategy put in place to de-escalate any increase in risk. The measures employed will start with the removal of food, followed up with scaring tactics. This will decrease the number of swans using the mitigation area quickly and they will not return until additional food is supplied. Feed quantities are to be based upon pre-construction surveys and adjusted according to the number of swans using the area. |
| Fairhaven Saltmarsh | Although swans do roost upon saltmarsh and intertidal habitats they do so at night and not around high tide. The proposed measures at Fairhaven are to reduce the high levels of mostly diurnal disturbance around the high tide period. Therefore, the mitigations will not improve or diminish the attraction of this area for swans. |
| Pond creation at Moss Side and ponds at the Morgan onshore substation | The proposed ponds are far too small to support roosting swans, and they will not provide additional food sources. |
| Newtown-with-Scales | Swans feed mostly on arable land switching to pasture only when the spring grass starts to grow. The proposed mitigations at Newton-with-Scales will not provide suitable roosting or foraging habitats for swans. |
| Lea Marsh BHS | The grazing regime of the existing grassland areas will be modified to allow grassland to reach a longer sward height by reducing the annual livestock grazing density. The implementation of a temporary meadow grassland regime would not enhance the suitability of this area for swan species. |
| Lea Marsh Fields Biodiversity Benefit Area | The grassland and scrub creation at Lea Marsh Fields are not suitable for swan species, and no increase in their abundance is projected |
| Permanent and temporary construction areas | Swans will not be attracted by construction activities. |

**Table 1-6: Risk assessment: Gulls**

| Severity of bird strike risk | Presence and locations birds recorded | Existing Mitigation | Location | L | S | Current risk level | Transmission Asset area and habitat attractant | Re-assessed risk level | Additional control measures | Monitoring | Risk level with management |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Heavy<br>Herring Gull (weight: 690-1440g) Lesser black-backed gull (weight 620- 1,000g) Skeins range from 10 to 500 birds<br>Responsive to scaring | . | 1. Cropping plan distributed annually- crops assessed/approved on a risk basis (food source) regular meetings with TEP and a level of control over crop choice, cropping times and rotation.<br>2. ATC inform aircraft of any increased bird activity/BCU permanent presence on airfield<br>3. Regular meetings with all parties<br>4. Airfield long grass policy to deter bird habituation on the airfield<br>5. Airport information plan lists warning for Gulls mainly Sep-Apr transiting N-S / S-N.<br>6. Ongoing monitoring of numbers during Winter bird surveys<br>7. Recent improvement in FCA and airfield drainage removing standing water on approach/departure path Rwy 28/10 and southern side of Airfield/Runway 10/28<br>8. Regular visits to FCA for monitoring during Spring/Summer months<br>9. Approved culling to reduce should numbers increase enough to present a significant risk of strikes (CL12 Air Safety Class Licence Registration)<br>10. Observation and patrolling by permanent Bird Control Unit on airfield combined with visual observation by ATC from Visual Control Room of approach/departure path for runway 28 (FCA)<br>11. Use of Falconry (including Hawks) as a deterrent during high gull activity periods- Mainly July-September | Airport | 2 | 5 | 10 | Lytham Moss<br>• Supplementary feeding during winter months<br>• Creation of temporary scrapes | 15 | • Design of scrapes to be shallow and not include islands.<br>• Type of supplementary feed to avoid use of grain<br>• Scaring techniques<br>• Infill of scrapes | ~~Regular monitoring of gulls~~<br>Coordinate weekly monitoring with ~~BA~~BAOL and share data.<br>Ongoing weekly monitoring of bird numbers between September and April<br>Blackpool Airport and TEP are to be informed well in advance with dates prior to feeding to allow for accurate on-site monitoring as soon as feed is put out. | 10 |
| | | | QFCA | 1 | 5 | 5 | | 10 | | | 5 |
| | | | Airport | 2 | 5 | 10 | Fairhaven Saltmarsh -not likely to attract gulls (see below) | 10 | No additional control measures | | 10 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 2 | 5 | 10 | Pond creation at Moss Side and Morgan onshore substation to replace existing ponds – not likely to attract gulls | 10 | • Design of ponds will be small to reflect size of ponds being lost and not include islands.<br>• Marginal planting around ponds to disrupt LOS | | 10 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 2 | 5 | 10 | Newtown-with-Scales:<br>Enhancement and restoration of existing habitat features – not likely to attract gulls | 10 | • Design of scrapes to be shallow and not include islands.<br>• Use of temporary fencing and opening sluices to reduce water levels | | 10 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 2 | 5 | 10 | Lea Marsh BHS -not likely to attract gulls | 10 | No additional control measures | | 10 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 2 | 5 | 10 | Lea Marsh Fields Biodiversity Benefit Area | 10 | Annual hay cut and removal of cuttings | | 10 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 2 | 5 | 10 | | 10 | | | 10 |

| Severity of bird strike risk | Presence and locations birds recorded | Existing Mitigation | Location | L | S | Current risk level | Transmission Asset area and habitat attractant | Re-assessed risk level | Additional control measures | Monitoring | Risk level with management |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | QFCA | 1 | 5 | 5 | Other areas of Transmission Assets<br>• Roofs of onshore substations<br>• Fencing<br>• Attenuation ponds<br>• Water management<br>• Waste management | 5 | • No flat roofs, regular inspections, removal of nests<br>• Fencing as a line of sight (LOS) interference deterrent<br>• Design of ponds, netting<br>• Control runoff to avoid standing water<br>• Secure compounds, regular collection of waste | | 5 |

### Table 1-7: Justification of measures for Gulls

| Transmission Assets elements | Justification of measures |
|---|---|
| Lytham Moss | Creating very small scrapes can occasionally provide loafing opportunities for small numbers of non-breeding gulls, such as black-headed gulls, lesser black-backed gulls, and herring gulls. However, during the breeding season, these shallow scrapes will dry out, eliminating their potential to attract gulls. During the non-breeding season, gulls show a preference for large inland water bodies, where they congregate in large numbers at night.<br>The birdstrike hazard associated with waterbirds, such as gulls, primarily arises from their movements between waterbodies or between waterbodies and terrestrial feeding sites - such as arable fields - rather than from their presence on the water. |
| Fairhaven Saltmarsh | The mitigation at Fairhaven Saltmarsh is designed to reduce disturbance upon the passage waders that use this area as a high tide roost. The mitigation is designed to reduce the amount of time that birds spend flying due to disturbance and maximise their time spent roosting with birds only posing a risk to aircraft safety when they are both in the air. Therefore, measures to reduce the time spent in the air by birds may be beneficial in also reducing birdstrike risk.<br>Gulls, unlike waders, are not dependent upon tidal state for foraging and can utilise a wide number of marine, coastal and terrestrial (frequently urban) habitats and resources. As such they tend not to roost around high water in the same way that waders do. They are also tolerant of disturbance so this mitigation measure is unlikely to benefit gulls, and whilst small numbers of gulls currently use the area for loafing, this area is predominantly used by intertidal waders and poses no additional risk of attracting large numbers of gulls |
| Pond creation at Moss Side and ponds at the Morgan onshore substation | As the ponds to be created serve as mitigation for the loss of existing farm ponds, they are unlikely to attract non-breeding gulls. These ponds will be permanent and designed specifically to avoid attracting non-breeding gulls, including the planting of vegetation (e.g. marginal vegetation and scrub) around the pond. By introducing barriers that obstruct lines of sight and flight paths, the open aspect perceived by the birds will be disrupted, undermining their sense of security. These line-of-sight (LOS) deterrents can effectively exclude gulls or significantly reduce the site's attractiveness |
| Newtown-with-Scales | Creating very small scrapes can occasionally provide loafing opportunities for small numbers of non-breeding gulls, such as black-headed gulls, lesser black-backed gulls, and herring gulls. However, during the breeding season, these shallow scrapes will dry out, eliminating their potential to attract gulls. |
| Lea Marsh BHS | The grazing regime of the existing grassland areas will be modified to allow grassland to reach a longer sward height by reducing the annual livestock grazing density. The implementation of a temporary meadow grassland regime would not enhance the suitability of this area for gull species. |
| Lea Marsh Fields Biodiversity Benefit Area | The grassland and scrub creation at Lea Marsh Fields are not suitable for gull species, and no increase in their abundance is projected |
| Permanent and temporary construction areas | It is recognised that as generalist scavengers' gulls may be attracted to areas of construction and earthworks. |

**Table 1-8: Risk Assessment - Corvids**

| Severity of bird strike risk | Presence and locations birds recorded | Existing Mitigation | Location | L | S | Current risk level | Transmission Asset area and habitat attractant | Re-assessed risk level | Additional control measures | Monitoring | Risk level with management |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Heavy (weight 200-340g) Potential for flocks of up to 500 although rarely such high numbers on the aiport Responsive to scaring | Numbers within the region of 400 plus within whole area of FCA Mainly crow, with rooks, Jackdaws and Magpies Minimum of 20 up to 100 within airfield boundary- Mainly Rooks with crows, Magpies and occasional Jackdaws | 1. Cropping plan distributed annually within FCA- crops assessed/approved on a risk basis (food source) regular meetings with TEP and a level of control over crop choice, cropping times, ploughing and rotation. 2. ATC inform aircraft of any increased bird activity/BCU permanent presence on airfield 3. Regular meetings with all parties 4. Airfield long grass policy to deter bird habituation on the airfield 5. Ongoing monitoring of numbers 6. Removal/lopping of trees within airport boundary 7. Observation and patrolling by permanent Bird Control Unit on airfield combined with visual observation by ATC from Visual Control Room of approach/departure path for runway 28 (FCA) 8. Recent improvement in FCA and airfield drainage removing standing water on approach/departure path Rwy 28/10 and southern side of Airfield/Runway 10/28 9. Regular visits to FCA for monitoring during Spring/Summer months | Airport | 1 | 5 | 5 | Lytham Moss<br>• Supplementary feeding during winter months<br>• Creation of temporary scrapes | 5 | No additional control measures | Coordinate weekly monitoring with ~~BA~~BAOL and share data.<br>Ongoing weekly monitoring of bird numbers between September and April<br>Blackpool Airport and TEP are to be informed well in advance with dates prior to feeding to allow for accurate on-site monitoring as soon as feed is put out. | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 1 | 5 | 5 | Fairhaven Saltmarsh -not likely to attract corvids (see below) | 5 | No additional control measures | | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 1 | 5 | 5 | Pond creation at Moss Side and Morgan onshore substation to replace existing ponds – not likely to attract corvids | 5 | No additional control measures | | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 1 | 5 | 5 | Newtown-with-Scales:<br>Enhancement and restoration of existing habitat features – not likely to attract corvids | 5 | No additional control measures | | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 1 | 5 | 5 | Lea Marsh BHS<br>Modification of grazing regime, enhancement of reed bed habitats and artificial other holt -not likely to attract corvids | 5 | No additional control measures | | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 1 | 5 | 5 | Lea Marsh Fields Biodiversity Benefit Area | 5 | Annual hay cut and removal of cuttings | | 5 |
| | | | QFCA | 1 | 5 | 5 | Removal of existing cropland, creation of species-rich grassland, woodland, scrub | 5 | | | 5 |

| Severity of bird strike risk | Presence and locations birds recorded | Existing Mitigation | Location | L | S | Current risk level | Transmission Asset area and habitat attractant | Re-assessed risk level | Additional control measures | Monitoring | Risk level with management |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Airport | 1 | 5 | 5 | Permanent and temporary construction areas<br>• Roofs of onshore substations<br>• Fencing<br>• Attenuation ponds<br>• Water management<br>• Waste management | 10 | • No flat roofs, regular inspections, removal of nests<br>• Fencing as a line of sight (LOS) interference deterrent<br>• Design of ponds, netting<br>• Control runoff to avoid standing water<br>• Secure compounds, regular collection of waste | | 5 |
| | | | QFCA | 1 | 5<br>5 | 5 | | 5 | | | 5 |

### Table 1-9: Justification of measures – Corvids

| Transmission Assets elements | Justification of measures |
|---|---|
| Lytham Moss | Several rookeries (i.e., breeding colonies) are present within the Lytham Moss area. Supplementary feeding of potatoes to geese and swans, as well as the creation of scrapes, would not provide feeding or roosting opportunities for corvids, as there is no evidence that potatoes constitute a key resource in the corvid diet. Furthermore, scrapes would not attract corvids, since these species roost in trees. |
| Fairhaven Saltmarsh | Although corvids do sometimes loaf upon saltmarsh and intertidal habitats they do so infrequently and in low numbers. The proposed measures at Fairhaven are to reduce the high levels of mostly diurnal disturbance around the high tide period. Therefore, the mitigations will neither improve or diminish the attraction of this area for corvids. |
| Pond creation at Moss Side and ponds at the Morgan onshore substation | Ponds are not suitable habitats for corvid species, and therefore no increase in their abundance is projected |
| Newtown-with-Scales | Wet areas created at Newton-with-Scales are not suitable habitats for corvid species, and no increase in their abundance is anticipated. Furthermore, no mature trees, which could support rookeries, are planned for planting. |
| Lea Marsh BHS | The grazing regime of the existing grassland areas will be modified to allow grassland to reach a longer sward height by reducing the annual livestock grazing density. The implementation of a temporary meadow grassland regime would not enhance the suitability of this area for corvid species. |
| Lea Marsh Fields Biodiversity Benefit Area | The grassland and scrub creation at Lea Marsh Fields are not suitable for corvid species, and no increase in their abundance is projected |
| Permanent and temporary construction areas | Exposed soil attracts corvids, which primarily feed on earthworms and larvae found in such areas. Corvids are also notably attracted to discarded food and are frequently observed entering waste bins and skips to extract discarded items, often including their packaging. |

**Table 1-10: Risk Assessment - Pigeons**

| Severity of bird strike risk | Presence and locations birds recorded | Existing Mitigation | Location | L | S | Current risk level | Transmission Asset area and habitat attractant | Re-assessed risk level | Additional control measures | Monitoring | Risk level with management |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Heavy (weight 480-550g) Responsive to scaring | Within FCA 0 – 10 with flocks up to 30 Within Airfield boundary- less common, generally individuals or pairs with some flocks up to 10 mainly transiting | Cropping plan distributed annually- crops assessed/approved on a risk basis (food source) regular meetings with TEP and a level of control over crop choice, cropping times and rotation.<br>ATC inform aircraft of any increased bird activity/BCU permanent presence on airfield<br>Regular meetings with all parties<br>Airfield long grass policy to deter bird habituation on the airfield.<br>Ongoing monitoring of numbers<br>Recent improvement in FCA and airfield drainage removing standing water on approach/departure path Rwy 28/10 and southern side of Airfield/Runway 10/28.<br>Observation and patrolling by permanent Bird Control Unit on airfield combined with visual observation by ATC from Visual Control Room of approach/departure path for runway 28 (FCA) | Airport | 1 | 5 | 5 | Lytham Moss<br>• Supplementary feeding during winter months<br>• Creation of temporary scrapes | 5 | No additional control measures | ~~Continue to monitor numbers and cropping plan.~~Coordinate weekly monitoring with BAOL and share data. | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | Ongoing weekly monitoring of bird numbers between September and April<br>Blackppol Airport and TEP are to be informed well in advance with dates prior to feeding to allow for accurate on-site monitoring as soon as feed is put out. | 5 |
| | | | Airport | 1 | 5 | 5 | Fairhaven Saltmarsh -not likely to attract pigeons (see below) | 5 | No additional control measures | | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 1 | 5 | 5 | Pond creation at Moss Side and Morgan onshore substation to replace existing ponds – not likely to attract pigeons | 5 | No additional control measures | | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 1 | 5 | 5 | Newtown-with-Scales:<br>Enhancement and restoration of existing habitat features – not likely to attract pigeons | 5 | No additional control measures | | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 1 | 5 | 5 | Lea Marsh BHS<br>Modification of grazing regime, enhancement of reed bed habitats and artificial other holt -not likely to attract pigeons | 5 | No additional control measures | | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 1 | 5 | 5 | Lea Marsh Fields Biodiversity Benefit Area | 5 | Annual hay cut and removal of cuttings | | 5 |

| Severity of bird strike risk | Presence and locations birds recorded | Existing Mitigation | Location | L | S | Current risk level | Transmission Asset area and habitat attractant | Re-assessed risk level | Additional control measures | Monitoring | Risk level with management |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | QFCA | 1 | 5 | 5 | Removal of existing cropland, creation of species-rich grassland, woodland, scrub - not likely to attract pigeons | 5 | | | 5 |
| | | | Airport | 1 | 5 | 5 | Permanent and temporary construction areas<br>• Roofs of onshore substations<br>• Fencing<br>• Attenuation ponds<br>• Water management<br>• Waste management | 10 | • No flat roofs, regular inspections, removal of nests<br>• Fencing as a line of sight (LOS) interference deterrent<br>• Design of ponds, netting<br>• Control runoff to avoid standing water<br>• Secure compounds, regular collection of waste | | 5 |
| | | | QFCA | 1 | 5<br>5 | 5 | | 5 | | | 5 |

### Table 1-11: Justification of measures for Pigeons

| Transmission Assets elements | Justification of measures |
|---|---|
| Lytham Moss | Woodpigeons and feral pigeons are already present in high numbers within the Lytham Moss area (see Baseline Bird Technical Note). Supplementary feeding of potatoes to geese and swans, as well as the creation of scrapes, would not provide feeding or roosting opportunities for pigeons, as there is no evidence that potatoes constitute a key resource in the pigeon diet. Furthermore, scrapes would not attract pigeons, since these species roost in trees. |
| Fairhaven Saltmarsh | The proposed mitigation at Fairhaven Saltmarsh is unsuitable for supporting pigeons. |
| Pond creation at Moss Side and ponds at the Morgan onshore substation | Ponds are not suitable habitats for pigeon species, and therefore no increase in their abundance is projected |
| Newtown-with-Scales | Wet areas created at Newton-with-Scales are not suitable habitats for pigeon species, and no increase in their abundance is anticipated. Although hedgerow enhancement (i.e. gap-filling and thickening) may provide isolated nesting opportunities for woodpigeons, it is unlikely to result in flocking behaviour as birds are territorial during the breeding season. In parallel, mature trees will be removed as part of the habitat enhancement and thus the suitability of the area will be reduced. |
| Lea Marsh BHS | The grazing regime of the existing grassland areas will be modified to allow grassland to reach a longer sward height by reducing the annual livestock grazing density. The implementation of a temporary meadow grassland regime would not enhance the suitability of this area for pigeon species. |
| Lea Marsh Fields Biodiversity Benefit Area | The grassland and scrub creation at Lea Marsh Fields are not suitable for pigeon species, and no increase in their abundance is projected |
| Permanent and temporary construction areas | Potential sources of attraction for pigeons during the construction phases of this project include pioneer plant species colonisation that inevitably germinate following soil disturbance, re-seeding of bare soils, drinking and bathing provided by exposed water and exposed grit (primarily woodpigeons). |

**Table 1-12: Risk assessment – Starlings**

| Severity of bird strike risk | Presence and locations birds recorded | Existing Mitigation | Location | L | S | Current risk level | Transmission Asset area and habitat attractant | Re-assessed risk level | Additional control measures | Monitoring | Risk level with management |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Light<br>(weight: 75-90g) -<br>potential (currently low) for flocking in large numbers (murmurations)<br><br>Responsive to scaring | 0 – 2000 transit throughout fields within FCA, generally flocks of up to 100 observed however.<br>Small numbers observed within airfield boundary- generally 20 or less and less frequent | 1. Cropping plan distributed annually- crops assessed/approved on a risk basis (food source) regular meetings with TEP and a level of control over crop choice, cropping times and rotation.<br>2. ATC inform aircraft of any increased bird activity/BCU permanent presence on airfield<br>3. Regular meetings with all parties<br>4. Airfield long grass policy to deter bird habituation on the airfield<br>5. Ongoing monitoring of numbers during Winter bird surveys<br>6. Recent improvement in FCA and airfield drainage removing standing water on approach/departure path Rwy 28/10 and southern side of Airfield/Runway 10/28<br>7. Regular visits to FCA for monitoring during Spring/Summer months<br>8. Observation and patrolling by permanent Bird Control Unit on airfield combined with visual observation by ATC from Visual Control Room of approach/departure path for runway 28 (FCA | Airport | 1 | 5 | 5 | Lytham Moss<br>• Supplementary feeding during winter months<br>• Creation of temporary scrapes | 5 | No additional control measures | ~~Continue to monitor numbers and cropping plan.~~Coordinate weekly monitoring with BAOL and share data. | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | Ongoing weekly monitoring of bird numbers between September and April<br>Blackpool Airport and TEP are to be informed well in advance with dates prior to feeding to allow for accurate on-site monitoring as soon as feed is put out. | 5 |
| | | | Airport | 1 | 5 | 5 | Fairhaven Saltmarsh -not likely to attract starling (see below) | 5 | No additional control measures | | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 1 | 5 | 5 | Pond creation at Moss Side and Morgan onshore substation to replace existing ponds – not likely to attract starling | 5 | No additional control measures | | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 1 | 5 | 5 | Newtown-with-Scales:<br>Enhancement and restoration of existing habitat features – planting up hedgerows | 5 | Species used for gapping up of hedgerows will avoid fruit bearing species thus reducing attraction to pigeons, starlings and winter thrushes.<br>Habitat management e.g. pruning of hedgerows and trees to ensure they do not exceed 4.5m and 5.5m in height (respectively) | | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 1 | 5 | 5 | Lea Marsh BHS<br>Modification of grazing regime, enhancement of reed bed habitats and artificial other holt - | 5 | Width of reed beds will be controlled to limit the potential habitat for starling | | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 1 | 5 | 5 | Lea Marsh Fields Biodiversity Benefit Area | 5 | Seed mixes and tree species will be carefully chosen to | | 5 |

| Severity of bird strike risk | Presence and locations birds recorded | Existing Mitigation | Location | L | S | Current risk level | Transmission Asset area and habitat attractant | Re-assessed risk level | Additional control measures | Monitoring | Risk level with management |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | QFCA | 1 | 5 | 5 | Removal of existing cropland, creation of species-rich grassland, woodland, scrub - not likely to attract starlings | 5 | limit attraction by starlings and winter thrushes | | 5 |
| | | | Airport | 1 | 5 | 5 | Permanent and temporary construction areas<br>• Roofs of onshore substations<br>• Fencing<br>• Attenuation ponds<br>• Water management<br>• Waste management | 10 | • No flat roofs, regular inspections, removal of nests<br>• Fencing as a line of sight (LOS) interference deterrent<br>• Design of ponds, netting<br>• Control runoff to avoid standing water<br>• Secure compounds, regular collection of waste<br>• Phase reseeding | | 5 |
| | | | QFCA | 1 | 5<br>5 | 5 | | 5 | | | 5 |

### Table 1-13: Justification of measures for Starlings

| Transmission Assets elements | Justification of measures |
|---|---|
| Lytham Moss | Supplementary feeding of potatoes to geese and swans does not provide feeding opportunities for starlings. Consequently, the mitigation measure will not result in an increase in starling abundance. Small scrapes have the potential to attract small numbers of starling, which may use these areas to bath or drink. However, the scrapes are only required for mitigation during autumn and winter, when the surrounding low-lying area already contains an abundance of pools. Therefore, they are unlikely to draw additional birds to the area |
| Fairhaven Saltmarsh | The mitigation measures at Fairhaven Saltmarsh are not benefiting starling, as these birds do not use the area. |
| Pond creation at Moss Side and ponds at the Morgan onshore substation | Although the ponds will be planted with marginal vegetation, and thus will not attract feeding starling |
| Newtown-with-Scales | Wet areas created at Newton-with-Scales are not suitable habitats for pigeon species, and no increase in their abundance is anticipated. Although hedgerow enhancement (i.e. gap-filling and thickening) may provide isolated nesting opportunities for starlings, it is unlikely to result in flocking behaviour as birds are territorial during the breeding season. In parallel, mature trees will be removed as part of the habitat enhancement and thus the suitability of the area will be reduced. |
| Lea Marsh BHS | The grazing regime of the existing grassland areas will be modified to allow grassland to reach a longer sward height by reducing the annual livestock grazing density. The implementation of a temporary meadow grassland regime would not enhance the suitability of this area for starling species. |
| Lea Marsh Fields Biodiversity Benefit Area | The grassland and scrub creation at Lea Marsh Fields may provide additional feeding opportunities for starling at certain times of year, i.e., when there is seed available. However, this limited food source will have no bearing on their overall abundance in the local area and will involve temporary re-distribution of starlings only at certain times of the year |
| Permanent and temporary construction areas | Potential sources of attraction for starling during the construction phases of this project include increased access to soil invertebrates (earthworms, insect larvae, etc.) during the “earthworks” and bare earth phases, pioneer plant species colonisation that inevitably germinate following soil disturbance, re-seeding of bare soils, and drinking and bathing provided by exposed water. Starlings are also highly attracted to discarded food and are frequently observed entering waste bins and skips to extract scraps, often along with the packaging. |

**Table 1-14: Risk assessment – Waders**

| Severity of bird strike risk | Presence and locations birds recorded | Existing Mitigation | Location | L | S | Current risk level | Transmission Asset area and habitat attractant | Re-assessed risk level | Additional control measures | Monitoring | Risk level with management |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Heavy<br>Lapwings (weight 140-320g) flocks- up to 100. .<br>Curlew (weight 575-1,000g) Flocks- up to 100.<br>Black-tailed Godwit (weight 280-340g) Flocks 40+ (Mainly in FCA and not airport).<br>Oystercatcher (Weight: 430-650g) Flocks up to 100<br>Responsive to scaring | **Within FCA:** The arable and pasture mixture of farmland within the FCA provides ideal wintering habitats for Lapwing, Curlew and Oystercatcher and Black Tailed Godwit. In general these wading species are seen during most visits to the FCA by TEP and Blackpool Airport<br>**Within Airport Boundary**: Curlews and Oystercatchers , can occur on the airport in significant flocks (100+ birds) in the autumn and winter months and present a significant birdstrike hazard due to their large size, flocking behaviour and their habit of occasionally settling in flocks on runways. The football fields around the airport boundary also provide food | 1. Cropping plan distributed annually- crops assessed/approved on a risk basis (food source) regular meetings with TEP and a level of control over crop choice, cropping times, ploughing and rotation.<br>2. ATC inform aircraft of any increased bird activity/BCU permanent presence on airfield<br>3. Regular meetings with all parties<br>4. Airfield long grass policy to deter bird habituation on the airfield<br>5. Ongoing monitoring of numbers<br>6. Recent improvement in FCA and airfield drainage removing standing water on approach/departure path Rwy 28/10 and southern side of Airfield/Runway 10/28<br>7. Regular visits to FCA for monitoring during Spring/Summer months<br>8. Winter bird surveys by TEP and Blackpool Airport<br>9. Observation and patrolling by permanent Bird Control Unit on airfield combined with visual observation by ATC from Visual Control Room of approach/departure path for runway 28 (FCA | Airport | 1 | 5 | 5 | Lytham Moss<br>• Supplementary feeding during winter months<br>• Creation of temporary scrapes | 5 | No additional control measures | ~~Continue to monitor numbers and cropping plan.~~Coordinate weekly monitoring with BAOL and share data. | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | Ongoing weekly monitoring of bird numbers between September and April<br>Blackpool Airport and TEP are to be informed well in advance with dates prior to feeding to allow for accurate on-site monitoring as soon as feed is put out. | 5 |
| | | | Airport | 1 | 5 | 5 | Fairhaven Saltmarsh<br>Reducing disturbance impacts on waders using the existing high tide roost site | 5 | Measures focus on managing the interaction of the bird roost and recreational users of Fairhaven Saltmarsh (e.g. wardens, soft fencing and education boards | | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 1 | 5 | 5 | Pond creation at Moss Side and Morgan onshore substation to replace existing ponds – not likely to attract starling | 5 | No additional control measures | | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 1 | 5 | 5 | Newtown-with-Scales:<br>Enhancement and restoration of existing habitat features –<br>• stopping up hedgerows<br>• managing water levels within existing ditches,<br>• creating mosaic of grassland,<br>• creation of permanent scrapes | 10 | The scrapes and management of ditches will be designed to enhance and restore existing habitat features at the onshore and will not seek to provide additional or create new habitat features.<br>Monitoring of birds will determine whether additional targeted management measures are needed to ensure that the bird risk does not exceed acceptable levels. | | 5 |
| | | | QFCA | 1 | 5 | 5 | | 5 | | | 5 |
| | | | Airport | 1 | 5 | 5 | Lea Marsh BHS | 5 | | | 5 |

| Severity of bird strike risk | Presence and locations birds recorded | Existing Mitigation | Location | L | S | Current risk level | Transmission Asset area and habitat attractant | Re-assessed risk level | Additional control measures | Monitoring | Risk level with management |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | and roosting areas, and, when these are disturbed for football games, this causes an influx of birds onto the airfield. | | QFCA | 1 | 5 | 5 | Modification of grazing regime, enhancement of reed bed habitats and artificial other holt - | 5 | No additional control measures | | 5 |
| | | | Airport | 1 | 5 | 5 | Lea Marsh Fields Biodiversity Benefit Area | 5 | No additional control measures | | 5 |
| | | | QFCA | 1 | 5 | 5 | Removal of existing cropland, creation of species-rich grassland, woodland, scrub - not likely to attract starlings | 5 | | | 5 |
| | | | Airport | 1 | 5 | 5 | Permanent and temporary construction areas<br>• Roofs of onshore substations<br>• Fencing<br>• Attenuation ponds<br>• Water management<br>• Waste management | 5 | No additional control measures | | 5 |
| | | | QFCA | 1 | 5<br>5 | 5 | | 5 | | | 5 |

### Table 1-15: Justification of measures for Waders

| Transmission Assets elements | Justification of measures |
|---|---|
| Lytham Moss | The aim of the temporary scrapes is to redistribute waders already present within the Lytham Moss area. Wader distribution is widespread around the Ribble Estuary, although high densities of oystercatcher, lapwing, curlew, and golden plover remain in Lytham Moss. The creation of very small scrapes would only provide limited foraging and roosting resources for low numbers of non-breeding waders. |
| Fairhaven Saltmarsh | The mitigation measures at Fairhaven Saltmarsh are designed to reduce disturbance to passage waders that use the area as a high tide roost.<br>These measures aim to minimize the time birds spend flying due to disturbance, thereby maximizing their roosting time. Since birds pose a risk to aircraft safety only when airborne, reducing their flight time may also help decrease the risk of birdstrikes.<br>During the passage period, there is a high turnover of birds moving through the Ribble Estuary, with individuals stopping only briefly. Although reducing disturbance at roost sites benefits the daily energy balance and fitness of individual birds, it is unlikely to significantly influence the overall number of birds passing through the estuary. Therefore, this mitigation is highly unlikely to cause an increase in the number of intertidal waders using the Ribble Estuary. |
| Pond creation at Moss Side and ponds at the Morgan onshore substation | These ponds will be permanent and designed specifically to avoid attracting waders, including the planting of marginal fringing vegetation. Waders that use terrestrial habitats typically prefer shallow, seasonal scrapes no deeper than 45 cm, with gently sloping edges. |
| Newtown-with-Scales | The wet areas at Newton-with-Scales are designed to benefit waders, however, there are already high numbers of waders using the area and any enhancements will be made to improve the area for these birds or house birds that have been displaced by habitat loss and disturbance caused by construction. Therefore, although there may be a slight redistribution of waders in this area, there will be no significant changes in population size, distribution, or daily and seasonal activity patterns caused by the habitat improvements at Newton-with-Scales. |
| Lea Marsh BHS | Currently Lea Marsh holds numbers of lapwing. The grazing regime of the existing grassland areas will be modified to allow grassland to reach a longer sward height by reducing the annual livestock grazing density. The implementation of a temporary meadow grassland regime would not enhance the suitability of this area for non-breeding waders with any displaced waders expected to relocate to within the River Ribble corridor. |
| Lea Marsh Fields Biodiversity Benefit Area | The grassland and scrub creation at Lea Marsh Fields may provide additional feeding opportunities for waders. |
| Permanent and temporary construction areas | Waders show no attraction to earthworks, discarded food waste from construction workers, or building roofs (with the exception of oystercatcher and green roofs). |

## 1.3 Summary

1.3.1.1 A summary of the Hazard Species and Risk Assessment is set out Figure 1.6.

| Species | Current Risk Rating | Adequately Controlled | Further Actions |
|---|---|---|---|
| Geese- Pink-footed, Greylag, Canada | 5 | Y | Continue to monitor |
| Swan -Whooper Swan, Bewick's Swan, Mute Swan | 5 | Y | Continue to monitor |
| Corvids- Rook, Carrion Crow, Magpie | 5 | Y | Continue to monitor |
| Waders- Lapwing Oystercatcher Curlew Black Tailed Godwit | 5 | Y | Continue to monitor |
| Gulls- Herring, Lesser black-backed, Common, Black-headed. | 10 | Y | Continue to monitor |
| Starlings | 4 | Y | Continue to monitor |
| Woodpigeon | 4 | Y | Continue to monitor |

**~~Figure 5~~Figure 1.6: Summary of the Hazard Species and Risk Assessment**

1.3.1.2 Although the Transmission Assets represents a localised relocation of birds due to disturbance and habitat loss during construction, the design of the mitigation areas close to the areas of impact mean that there will be no significant changes to the numbers of birds, their distribution, or their behaviour and flight activity.

1.3.1.3 In addition, where mitigations for these species pose a potential for future risk to rise, appropriate measures have been put in place to ensure that these risks can be reduced quickly following any future escalation.

1.3.1.4 Therefore, the risks posed by geese, swans and waders will remain the same as current risk levels which is Acceptable.

1.3.1.5 Currently the only risk rating above this level is for gulls which is currently at a Tolerable level. The Transmission Assets have put measures in place to ensure that gull numbers do not rise as a result of construction and to ensure that any escalation in risk can be reduced quickly following any potential future escalation. Therefore, this risk remains Tolerable.

1.3.1.6 Due to the design features and proposed controls, it is concluded that the Transmission Assets individual components, and the Project in its entirety, will not cause an increase to the current operational risk level to Blackpool Airport.