



Galileo 03 Ltd.

Mynydd Ty-talwyn Energy Park - Environmental Statement Volume II

Main Written Statement, Chapter 11: Ornithology

Project Reference: 663870

This chapter is summarised within the Non-Technical Summary in Volume I of this Environmental Statement. A Welsh translation of the Non-Technical Summary is also available as part of the application.

Crynoir y bennod hon yng Nghrynodeb Annhechnegol y Datganiad Amgylcheddol hwn. Mae cyfieithiad Cymraeg o'r Crynodeb Annhechnegol hefyd ar gael fel rhan o'r cais.

JUNE 2026

RSK

RSK Environment Ltd (RSK) has prepared this report for the sole use of the client, showing reasonable skill and care, for the intended purposes as stated in the agreement under which this work was completed. The report may not be relied upon by any other party without the express agreement of the client and RSK. No other warranty, expressed or implied, is made as to the professional advice included in this report.

Where any data supplied by the client or from other sources have been used, it has been assumed that the information is correct. No responsibility can be accepted by RSK for inaccuracies in the data supplied by any other party. The conclusions and recommendations in this report are based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.

No part of this report may be copied or duplicated without the express permission of RSK and the party for whom it was prepared.

Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Environment Ltd.

CONTENTS

11	ORNITHOLOGY	11-1
11.1	Introduction.....	11-1
11.2	Consultation and Scope	11-1
11.3	Methodology	11-21
11.4	Baseline Conditions	11-33
11.5	Mitigation Embedded into the Design	11-42
11.6	Assessment of Likely Effects (Without Additional Mitigation).....	11-43
11.7	Additional Mitigation Measures	11-54
11.8	Assessment of Residual Effects	11-58
11.9	Opportunities for Environmental Enhancement	11-70
11.10	Difficulties and Uncertainties	11-71
11.11	Inter-Project Cumulative Effects	11-72
11.12	References	11-78

TABLES

Table 11.1	Summary of Scoping Direction Comments Relevant to this Ornithology Assessment.....	11-2
Table 11.2	PAC Comments and Responses.....	11-6
Table 11.3	Summary of Additional Consultation/ Information Requests (PEDW)	11-11
Table 11.4	Features/Matters Scoped into the Assessment.....	11-13
Table 11.5	Features/Matters Scoped out of the Assessment.....	11-20
Table 11.6	Activities Likely to Generate Ornithological Effects	11-23
Table 11.7:	Ornithological Surveys, Dates and Summary of Survey Methodology	11-24
Table 11.8	Defining Importance of Key Ornithological Features	11-30
Table 11.9	Assessment of Bird Species Diversity	11-32
Table 11.10	Summary of Designated Sites.....	11-33
Table 11.11	Summary of Ornithology Desk Records within 2 km	11-34

Table 11.12 Summary of Survey Results Between 2021 – 2026 and assessment of importance of key ornithological features	11-36
Table 11.13 Embedded Mitigation Relevant to the Ornithological Assessment ...	11-42
Table 11.14 Assessment of Likely Effects (Without Additional Mitigation) During the Construction Phase	11-45
Table 11.15 Assessment of Likely Effects (without Additional Mitigation) During the Operational Phase.....	11-49
Table 11.16 Additional Mitigation	11-55
Table 11.17 Area Habitat Losses for the Proposed Development (Before Mitigation/Offsetting)	11-59
Table 11.18 Linear Habitat Losses for the Proposed Development (Before Mitigation/Offsetting)	11-59
Table 11.19 Summary of Collision Risk Modelling for Raptors	11-67
Table 11.20 Summary of Collision Risk Modelling for Waders.....	11-69
Table 11.21 Summary of Collision Risk Modelling for Teal	11-70
Table 11.22 Relevant Approved Developments within the Ornithology Zol	11-72
Table 11.23 Summary of Wind Farms Relevant for Cumulative Effects	11-76

Volume III: Supporting Technical Appendices

- Appendix 11.1: 2021 – 2023 Ornithology Report
- Appendix 11.2: 2024 – 2025 Wintering Bird Survey Report
- Appendix 11.3: Ornithology Collision Risk Modelling Report
- Appendix 11.4: 2025 – 2026 Wintering Bird Survey Report

Volume IV: Supporting Figures and Plans

- Figure 11.1: Key Ornithological Features (KOF) – Designated Sites
- Figure 11.2: Key Ornithological Features (KOF) – Breeding Target Species (**Confidential**)
- Figure 11.3.1: Key Ornithological Features (KOF) – Flight Activity YR1 Breeding
- Figure 11.3.2: Key Ornithological Features (KOF) – Flight Activity YR1 Wintering
- Figure 11.3.3: Key Ornithological Features (KOF) – Flight Activity YR2 Breeding
- Figure 11.3.4: Key Ornithological Features (KOF) – Flight Activity YR2 Wintering
- Figure 11.4: Impacts and Mitigation

11 ORNITHOLOGY

11.1 Introduction

- 11.1.1 This chapter presents an assessment of likely significant effects arising from the construction, operation and decommissioning of the Proposed Development upon ornithology. The full description of the Proposed Development is provided within **Environmental Statement (ES) Volume II, Chapter 2: Proposed Development Description**.
- 11.1.2 This chapter is supported by the following appendices presented in **ES Volume III**:
- **Appendix 11.1: 2021 – 2023 Ornithology Report;**
 - **Appendix 11.2: 2024 – 2025 Wintering Bird Survey Report;**
 - **Appendix 11.3: Ornithology Collision Risk Modelling Report;** and
 - **Appendix 11.4: 2025 – 2026 Wintering Bird Survey Report.**
- 11.1.3 This chapter is supported by the following figures presented in **ES Volume IV**:
- **Figure 11.1: KOF – Designated Sites;**
 - **Figure 11.2: KOF – Breeding Target Species (Confidential);**
 - **Figure 11.3: KOF – Flight Activity;** and
 - **Figure 11.4: Impacts and Mitigation.**
- 11.1.4 This chapter should be read in conjunction with the following chapters in **ES Volume II**:
- **Chapter 6: Water;**
 - **Chapter 9: Noise and Vibration;**
 - **Chapter 10: Terrestrial Ecology;**
 - **Chapter 12: Traffic and Movement;** and
 - **Chapter 14: Climate.**

11.2 Consultation and Scope

Scoping Direction

- 11.2.1 The scope of this assessment has been established through an ongoing scoping process. This has involved the production of an EIA Scoping Report (provided in **ES Volume III, Appendix 1.1: EIA Scoping Report**), which was submitted to Planning and Environment Division Wales (PEDW) on 27 November 2023. Further information on the scoping process can be found in **ES Volume II, Chapter 4: Approach to the EIA**.
- 11.2.2 The Scoping Direction, a copy of which is included in **ES Volume III, Appendix 1.2: Scoping Direction**, was received on 11 April 2024. **Table 11.1** summarises the key Scoping Direction comments related to this assessment and sets out how these have been addressed.

Table 11.1 Summary of Scoping Direction Comments Relevant to this Ornithology Assessment

ID no.	Issue	Summary of Comment Raised	Applicant Response
ID.31	Ornithology	A large part of the Site is not covered by vantage points (VP) and the Scoping Report does not include the rationale for this choice. The Environmental Statement (ES) should explain why a large part of the Site was not surveyed.	The Applicant considers the viewshed of VP to be sufficient. Full coverage of turbines and suitable target species habitat was achieved. Habitats outside of the viewshed within the Site boundary would be unlikely to significantly influence the assessment of the bird populations present within the Site, as coverage is already provided by VPs 1-3 of habitats likely to be of significant value to species susceptible to collision effects (e.g., raptors).
		Natural Resources Wales (NRW) further notes that 'breeding birds' are included as a topic, but it would be more appropriate for these species to be defined, i.e., ground nesting birds, raptors, passerines etc.	This assessment has considered raptors, wildfowl and waders and passerines (included within wintering and breeding bird assemblages) separately.
		The Applicant should seek to agree with NRW and the relevant LPAs a detailed methodology for ensuring all ornithology receptors are properly surveyed and assessed. This should include a proportionate, potentially targeted effort to survey any potential habitats on-site for ground nesting birds that could be subject to impacts from non-wind elements of the scheme.	A letter was sent by the Applicant to NRW on 8 November 2022 detailing the scope of the ornithology surveys to be undertaken in 2023. The full scope of survey work is outlined in ES Volume III, Appendix 11.1: 2021 – 2023 Ornithology Report, ES Volume III, Appendix 11.2: Appendix 2024 - 2025 Wintering Bird Survey Report and ES Volume III, Appendix 11.4: 2025 - 2026 Wintering Bird Survey Report .

ID no.	Issue	Summary of Comment Raised	Applicant Response
ID.32	Method for Impact Assessment	The Applicant's attention is drawn to NRW's detailed comments under the subheading 'Impact Assessment'. Evaluation of the impacts of the scheme should include: • Direct and indirect; • Cumulative; • Short, medium, and long term; • Permanent and temporary; • Positive and negative; and • Construction, operation, and decommissioning/post operational phases and impacts on long-term site security of the nature conservation resource.	The Ornithological assessment outlined in this chapter has taken account of all of the points raised under method for impact assessment. See Section 11.3 for the full impact assessment methodology.
ID.33 Also, NRW individual response Appendix 1	Further advice	The Applicant's attention is drawn to NRW's comments, which provide detailed advice on: • <u>European Protected Species (EPS) licences</u>; Where an EPS is identified and the development proposal will contravene the legal protection they are afforded, a licence should be sought from NRW. The EIA must include consideration of the requirements for a licence and set out how the works will satisfy the three requirements as set out in the Conservation of Habitats and Species Regulations 2017 (as amended). Where an EPS is present and a development proposal is likely to contravene the legal protection, they are afforded,	No EPS licences are considered to be required in relation to ornithology.

ID no.	Issue	Summary of Comment Raised	Applicant Response
		the development may only proceed under licence issued by NRW, having satisfied the three requirements set out in the legislation • <u>Local biodiversity interests and green infrastructure</u> We recommend that the Applicant consults the local planning authority's ecologist on the scope of the work to ensure that county and local biodiversity issues are adequately considered, particularly those habitats and species listed in the relevant Local Biodiversity Action Plan, and that are considered important for the conservation of biological diversity in Wales. Finally, we advise that the development incorporates robust green infrastructure that will remain unlit to allow protected species (particularly bats and otters) to continue to inhabit the Site and move through it. Developments should be designed to incorporate robust green infrastructure corridors. • <u>Biodiversity enhancements.</u> We also advise that, in accordance with the Environment (Wales) Act 2016 and Planning Policy Wales, the application should demonstrate how it can deliver biodiversity enhancements and thus contribute to promoting ecological resilience. This is reaffirmed in the Welsh Government letter, 'Securing Biodiversity Enhancements', dated of 23 October 2019.	Bridge County Borough Council (BCBC) and Neath Port Talbot Council (NPTC) ecologists have been consulted to ensure local biodiversity priorities considered and robust green infrastructure provision has been outlined. Details are presented in ES Volume III, Appendix 10.4 Net Benefit for Biodiversity Report and the Green Infrastructure Statement, the latter of which is submitted as a separate planning document. Mitigation measures outlined in Table 11.13 and Table 11.16 will deliver considerable biodiversity benefit, enhancing ecosystem resilience, whilst Section 11.9 considers enhancements over and above proposed mitigation.

ID no.	Issue	Summary of Comment Raised	Applicant Response
ID.33	Consultation	BCBC also highlights that no consultation has been undertaken with the LPAs prior to scoping. The Applicant should liaise with relevant stakeholders as early as possible in the process. It is acknowledged that the Scoping Report states NRW, NPTC and BCBC will be consulted post-scoping.	BCBC and NPTC required a Planning Performance Agreement (PPA) be agreed prior to consultation. Once one was agreed with BCBC, most of the bird survey work had been completed. Whilst sought, a PPA was not formally concluded with NPTC and therefore consultation with the relevant officers was not possible. To date, no objections in respect to the Proposed Development have been raised by either Local Planning Authority. A call was held with the BCBC Ecologist - during which a summary of the ecology survey work undertaken and the mitigation proposals were discussed.
Appendix 1 NPTC individual response	Breeding bird surveys	The topic of “ <i>breeding birds</i> ” encapsulates all breeding birds. It would be more appropriate for the ornithological receptors to be more defined, for example, but not necessarily restricted to, ground nesting birds, raptors, passerines.	Breeding and non-breeding assemblages for non-target species (inc. passerines) have been included within the assessment. Raptors, waders and wildfowl are also assessed separately.
Appendix 1 NPTC individual response	Golden plover	It is not agreed to scope out golden plover from the EIA.	Golden plover has been scoped into the assessment.
Appendix 1 NPTC individual response	Secondary Raptor Species	It is not agreed to scope out secondary raptor species from the EIA.	Legally protected raptors have been scoped into the assessment as has kestrel. Buzzards and sparrowhawk have not been included as they are considered widespread

ID no.	Issue	Summary of Comment Raised	Applicant Response
			species and unlikely to be significantly affected by the proposals.
ID.31 Appendix 1 NPTC individual response And NRW individual response	Passerines	Based on the information provided in the Scoping Report, it is not possible to scope out potential displacement of passerines assessment from the EIA, as the limited breeding bird survey conducted at year 1 is not robust enough to exclude significant effects.	Passerines have been scoped into the assessment within the wider breeding and wintering bird assemblages.

Statutory Pre-application Consultation (PAC)

11.2.3 **Table 11.2** provides a summary of the responses received, in relation to ornithology, following the statutory PAC process, and the necessary action taken to update the assessment, where relevant. Where appropriate the PAC responses have been summarised. The full consultee comments are set out in the standalone **Pre-application Consultation Report**, which is submitted as part of the DNS Application.

Table 11.2 PAC Comments and Responses

Consultee	Summary of Consultee Comments	Applicant Response
NRW	We have concerns regarding the impacts of the proposals on breeding lapwing. A total of 4 pairs of breeding lapwing were observed over 2 breeding seasons and all 4 pairs utilised different fields over the 2 seasons. All fields appear on aerials to be in open habitats, consistent with the species reluctance to nest in habitats where tall tree, hedges and other tall vegetation is present.	In response to NRW's concerns in relation to lapwing the design proposals have changed to reduce the potential impact to nesting lapwing within the Site. As shown in ES Volume IV, Figure 2.1: Proposed Development Layout the solar array in the west of solar field G has been reduced with panels sited elsewhere, away from the previous nesting sites to reduce the likelihood of disturbance to known lapwing breeding sites. Subsequently, with the current proposals only one territory

Consultee	Summary of Consultee Comments	Applicant Response
	The pairs utilised parts of the proposed 'bird mitigation area' in year 1 but preferred other fields in year 2 assuming the breeding birds were the same each year. However, the proposed solar panel array G (<i>now solar fields G and F</i>) appears to be directly impacting the most recent nesting sites of 2 pairs and could indirectly impact a third pair to the east. The proposal for woodland planting around solar array G (<i>now solar fields G and F</i>), J and K (<i>now solar fields H and I</i>) could impact their future breeding success due to the species preference for nesting sites in open habitats with minimal trees and low vegetation to minimise predation of their eggs and chicks from predatory bird species. These proposals could have a dramatic impact on this species by reducing suitable habitats available for their preferred breeding sites which could be further impacted by any alterations to future agricultural management of fields across the Site. Tree planting around any existing surface ditches could also impact their ability to forage and feed their chicks.	within the second year of surveys would be within the direct footprint of the development with only one other territory within 100 m of the Proposed Development. In addition, habitat creation/enhancement proposals have been altered to reduce the proposed woodland planting around known nesting locations and the proposed bird mitigation area to reduce the likelihood of exacerbating the potential effects from predation to nesting lapwing. The final layout and the PAC layout are illustrated in ES Volume IV, Figure 3.2: Design Iterations. Given the embedded and additional mitigation discussed in this chapter, which includes best practice construction mitigation measures, presence of an Ecological Clerk of Works (ECoW) and lapwing habitat creation, it is considered sufficient to mitigate the potential impacts from the Proposed Development.
NRW	There is a concentration of skylark and meadow pipits breeding records shown in the fields impacted by solar arrays G (<i>now solar fields G and F</i>), H, and I (<i>now solar fields J, K and L</i>) and to a lesser extent, J and K (<i>now solar fields H and I</i>), as shown within the 2-year breeding bird survey data across both years. In addition, the nest sites of both species appear to be present in the fields impacted by solar arrays B, D	As discussed above, habitat creation in relation to lapwing will be provided within the 'bird mitigation area' discussed in this chapter. It is intended that these areas will be managed as wet pasture grassland and will provide suitable nesting habitat for both species to mitigate the potential effects from the Proposed Development. Habitat within the bird mitigation area will provide a short grassy sward managed by livestock with occasional patches of

Consultee	Summary of Consultee Comments	Applicant Response
	<i>(now removed from the Proposed Development)</i>, H, and I <i>(now solar fields J, K and L)</i>, as well as the fields planned for turbines 1-6. The documents reflect that disturbances will occur, and breeding habitat will be reduced. Within the Environmental Statement Volume II Main Written Statement, Chapter 11: Ornithology, I Table 11:14, it states, ‘additional mitigation measure Securing mechanism Non-target Breeding bird assemblage (nesting) Non-target Wintering bird assemblage (foraging) features and breeding/wintering bird assemblage species which would utilise grassland and wet grassland habitat (e.g., lapwing, snipe and skylark) for both nesting and foraging.’ We have concerns that the additional marshy grassland habitat stated above, primarily being created as mitigation for marsh fritillary butterfly will not be preferred habitat chosen by breeding lapwing, due to the small field patterns, surrounding hedgerows and hedgerow trees. It is not clear from the document and maps provided, where other grassland habitat is being created.	bare ground early in the season for both lapwing and skylark to occupy as nesting sites with occasional tussocks of grassland for juvenile lapwing to hide and/or nesting meadow pipit to occupy. Both the additional mitigation areas of meadow grassland for fungi and wet grassland for marsh fritillary will provide further tussocky open grassland to benefit both skylark and meadow pipit. Although birds are not the specific mitigation prescription for the fungi and marsh fritillary mitigation areas it is intended the habitat will also benefit the lapwing, skylark and meadow pipit populations present within the Site. It is anticipated the mitigation proposals as a collective whole will sufficiently mitigate the potential impacts from the solar elements of the Proposed Development. In respect to the wind farm element of the designs, wind farms typically provide limited impacts to populations of skylark and meadow pipit throughout the lifespan of the development across construction, operation and decommission in upland environments (Pearce-Higgins J. , Stephen, Douse, & Langston, 2012).
NRW	The currently apportioned mitigation habitat for birds is focussed for mitigating losses for skylark, meadow pipit, foraging species, and foraging raptors. This area has shown to have been used by breeding lapwing and the management of this area for the proposed target species, may be detrimental to future	See responses above in regard to the ‘bird mitigation area’ and its management in relation to breeding lapwing.

Consultee	Summary of Consultee Comments	Applicant Response
	use of this area for breeding lapwing, especially given the proposed tree planting areas around the solar panel arrays. Our experience from other solar schemes is that mitigation/compensation that relies on land near to fields currently used by the species is largely unsuccessful in retaining breeding lapwing within the landscape. Clarification is needed to understand which fields within the development site are being enhanced to allow lapwing to prospect for breeding sites, given their specific breeding requirements.	
NRW	We note the winter bird surveys only appear to comprise two visits. We advise that such a restricted winter survey may not properly characterise the winter use of the Site. We recommend further surveys are undertaken or if not further justification for this is provided.	As discussed in ES Volume III, Appendix 11.2: 2024 - 2025 Wintering Bird Survey Report, only two survey visits were undertaken as the overall scope of the survey effort was considered sufficient for assessing the bird assemblage present within the Site. The Proposed Development has available data from multiple years of VP surveys across the entire Site in combination with additional surveys for key receptors identified in this chapter. These VP surveys provided a high level of coverage across the entire Site during the VP survey duration. Any notable observations of key species of conservation concern (i.e. non-breeding waders/raptors etc.) would be recorded during these surveys and have been considered in the assessment of the ornithological receptors identified.

Consultee	Summary of Consultee Comments	Applicant Response
		To verify the 2024-2025 survey, the Applicant has undertaken a further suite of winter bird surveys reported in ES Volume III, Appendix 11.4: 2025 - 2026 Wintering Bird Survey Report which concluded that the assemblage present in the 2025-2026 season was consistent with the previous survey findings. In addition, the nearest designated Special Site of Significant Importance (SSSI) to any non-breeding bird species or assemblage were recorded >4.5 km from the Site in the desk study. The overall survey effort is sufficient for characterising and assessing the wintering bird assemblage present within the Site.
Wildlife Trust of South and West Wales	The proposed Energy Park lies in an important landscape for breeding Lapwing. Other ground-nesting species such as Skylark also occur and should be assessed. Barn Owl and Goshawk have been recorded in the local area, both are protected under Schedule 1 of the Wildlife and Countryside Act. Others may also occur.	These comments are noted. Potential impacts of the Proposed Development on these bird species have been suitably assessed within this ES Chapter.

Additional Consultation / Information Request

11.2.4 **Table 11.3** provides a summary of the factor specific comments and information requests received by PEDW following a review of the ES.

Table 11.3 Summary of Additional Consultation/ Information Requests (PEDW)

Consultee	Summary of matters	Applicant response
PEDW	Detailed explanation for both ES Chapters 10 and 11 as to why the surveys which are now over 2 years old are still considered to provide robust evidence for the baseline conditions of the site	Surveys completed between 2021 - 2026 provide sufficient survey effort to exceed best practice guidance from NatureScot (2025) that requests a minimum of two survey years. Although surveys older than 3 years could be considered out of date from CIEEM's (2017) guidance, the condition and habitats within and adjacent to the Site have not significantly changed since these surveys. The most valuable habitats for ornithological receptors identified in this assessment have continued to be managed in the same way, this includes pasture grassland, managed plantation woodland and heathland. Between the completion of these surveys and further update surveys in 2024/25 and 2025/26 there has been consistent survey effort each year with surveyors noting no significant difference in the habitat condition of the Site for the bird assemblage already recorded. From the results of the 2024/25 and 2025/26 there has been limited variation in the ornithological assemblages during the non-breeding season, any such changes to the breeding assemblage are also similarly likely to be of limited value to the overall assessment. For these reasons, we do not believe further surveys are likely to provide a material difference to the ornithological assemblage currently assessed. Therefore, as the Site has not notably changed between the completion of these surveys, we deem the ornithological assemblage and the subsequent assessment of effects suitable for appropriately assessing the potential impacts from the Proposed Development.

Scope of the Assessment

- 11.2.5 The technical scope of this assessment has been established through an ongoing scoping process. In reference to the data provided in **ES Volume III, Appendix 11.1: 2021 – 2023 Ornithology Report**, **ES Volume III, Appendix 11.2: 2024 - 2025 Wintering Bird Survey Report** and **ES Volume III, Appendix 11.4: 2025 - 2026 Wintering Bird Survey Report** a summary is provided in **Table 11.4** which presents the ornithological features recorded that are scoped into this ES, together with appropriate justification.
- 11.2.6 **Table 11.4** sets out the features/matters scoped out of the assessment, together with justification as to why significant effects are not anticipated.

Table 11.4 Features/Matters Scoped into the Assessment

Ornithological features	Conservation status	Justification
Eglwys Nunydd Reservoir SSSI	Nationally important site	Reservoir supports wintering wildfowl and passage migrants and is considered of National Importance. Given the distance from the Site (4.6 km), displacement effects are considered unlikely but there is the potential for collision risk to waterfowl and passage birds during the operational phase.
Aberbaiden Farm Meadows Site of Importance for Nature Conservation (SINC)	Site of County Importance	Wet grassland habitat supports a notable population of breeding lapwing (<i>Vanellus vanellus</i>). The conservation status of lapwing within Wales is assessed as a declining species. The proximity to the Proposed Development and presence of a notable breeding population of lapwing would be of potential collision risk to the Proposed Development. Therefore, the potential for likely significant effects through disturbance/displacement during construction, operation and decommissioning and collision-related mortality of qualifying features during construction phase cannot be excluded and so further assessment of potential likely significant effects is required.
Lletty Brongu SINC	Site of County Importance	Designated for its ancient woodland, wet valley bottom and rare breeding birds Lletty Brongu SINC is located within 806 m of the Proposed Development. The limited information available on available for the avian interest features of and the potential for notable raptor species to be present within ancient woodland and wader species within the wet valley habitat would potentially be at risk to collision from the Proposed Development. Therefore, the potential for likely significant effects through disturbance/displacement during construction, operation and decommissioning and collision-related mortality of qualifying features during the construction phase cannot be excluded and so further assessment of potential effects is required.

Ornithological features	Conservation status	Justification
Tylacoch South SINC	Site of County Importance	Limited information is available for the avian interest features of Tylacoch South SINC designated for its 'rare breeding birds' assemblage. Despite the limited information available there is the potential for the Site to support notable populations of species at potential risk to the Proposed Development through collision risk. Therefore, the potential for likely significant effects through disturbance and displacement during construction, operation and decommissioning and collision-related mortality of qualifying features during construction phase cannot be excluded and so further assessment of potential effects is required.
Red kite	Annex 1 Birds Directive, Schedule 1 WCA and BoCC4 Wales Green List	Nationally regarded as a resident species of conservation concern to Wales due to its inclusion on Annex 1 of the Birds Directive and Schedule 1 of the WCA. Locally considered to be an infrequent breeding species to East Glamorganshire. Red kite (<i>Milvus milvus</i>) was frequently observed during the surveys in the breeding and wintering seasons within the Site, confirmed to be breeding and frequently flew within collision risk height and therefore could potentially be impacted by the Proposed Development. Therefore, the potential for likely significant effects through disturbance/displacement during construction, operation and decommissioning and collision-related mortality during Construction Phase cannot be excluded and so further assessment of potential effects is required.
Merlin	Annex 1 Birds Directive, Schedule 1 WCA, Section 7 of the Environment (Wales) Act 2016 (as amended) and BoCC4 Wales Red List	Nationally regarded as a scarce resident species of conservation concern to Wales due to its inclusion on Annex 1 of the Birds Directive, Schedule 1 of the WCA, Section 7 of the Environment (Wales) Act 2016 (as amended) and BoCC4 Wales Red List. Locally considered to be a rare resident during the breeding and non-breeding species (Glamorgan Bird Club, 2022). Flights of individual birds were recorded on six occasions between 2021 - 2023. No evidence of breeding and no suitable breeding habitat was recorded within the Site. Local records typically included between one - two individuals at all surveyed sites throughout the year following a similar trend to the activity observed within the Site. Therefore, the potential for likely significant effects through disturbance/displacement during construction, operation and decommissioning and collision-related mortality during construction phase cannot be excluded and so further assessment of potential effects is required.

Ornithological features	Conservation status	Justification
Kestrel	Section 7 of the Environment (Wales) Act 2016 (as amended) and BoCC4 Wales Red List	Kestrel is nationally regarded as a common resident species of conservation concern to Wales due to its inclusion on Section 7 of the Environment (Wales) Act 2016 (as amended) and BoCC4 Wales Red List. Locally considered to be a common resident breeding species with records across c. 118 locations within Glamorganshire (Glamorgan Bird Club, 2022). Occasionally observations of one - two birds perching, hunting and flying within the Site during the VP, moorland breeding bird and wintering bird surveys within the Site. No evidence of breeding despite suitable habitat being present. Therefore, the potential for likely significant effects through disturbance/displacement during construction, operation and decommissioning and collision-related mortality during construction phase cannot be excluded and so further assessment of potential effects is required.
Goshawk	Schedule 1, Section 7 of the Environment (Wales) Act 2016 (as amended) and BoCC4 Wales Amber List	Goshawk (<i>Accipiter gentilis</i>) is nationally and locally regarded as an uncommon but increasing resident species of conservation concern despite its inclusion on Schedule 1 of the WCA, Section 7 of the Environment (Wales) Act 2016 (as amended) and BoCC4 Wales Amber List. Increasingly common within Glamorganshire with reports across 75 locations of between one – three individuals but with only one - two records of confirmed breeding (Glamorgan Bird Club, 2022). Goshawk was infrequently recorded within the survey period with one potential observation in 2024/25 and no activity during the VP surveys. Goshawk activity within the survey period is likely to be underrepresented due to their cryptic nature with activity typically observed in early spring (e.g., February – April) where males individuals will be displaying for mates. Evidence of this was observed during the breeding raptor and owl searches where a nest with chicks was confirmed within plantation woodland adjacent to the Site. Therefore, the potential for likely significant effects through disturbance/displacement during construction, operation and decommissioning and collision-related mortality during construction phase cannot be excluded and so further assessment of potential effects is required.
Hen harrier	Annex 1 of the Birds Directive, Section 7 of the Environment	Hen harrier (<i>Circus cyaneus</i>) is nationally regarded as a resident species of conservation concern to Wales due to its inclusion on Annex 1 of the Birds Directive, Section 7 of the Environment (Wales) Act 2016 (as amended) and BoCC4 Wales Red List. Locally considered a scarce winter visitor and passage migrant to Glamorganshire with limited observations of one -

Ornithological features	Conservation status	Justification
	(Wales) Act 2016 (as amended) and BoCC4 Wales Red List	two individuals across seven sites (Glamorgan Bird Club, 2022). Observations within the Site were limited with an individual observation of a female flying low hunting over grassland within the Site on 28 August 2023. Therefore, the potential for likely significant effects through disturbance/displacement during construction, operation and decommissioning and collision-related mortality during construction phase cannot be excluded and so further assessment of potential effects is required.
Peregrine	Annex 1 of the Birds Directive, Schedule 1 of the WCA and BoCC4 Wales Green List	Peregrine (<i>Falco peregrinus</i>) is nationally and locally regarded as an increasingly common resident species of conservation concern due to its inclusion on Annex 1 of the Birds Directive, Schedule 1 of the WCA and BoCC4 Wales Green List. Locally increasing populations are present within Glamorganshire with a confirmed 29 breeding territories with observations recorded across c. 111 locations within 2021/22(Glamorgan Bird Club, 2022). Observations within the Site consisted of single records of individual birds flying over the Site during the VP surveys (August 2023) and winter transect surveys (December 2024). Therefore, the potential for likely significant effects through disturbance/displacement during construction, operation and decommissioning and collision-related mortality during construction phase cannot be excluded and so further assessment of potential effects is required.
Barn owl	Schedule 1 of the WCA and BoCC4 Wales Green List	Barn owl (<i>Tyto alba</i>) is nationally and locally regarded as an uncommon but increasing resident species of conservation concern due to its inclusion on Schedule 1 of the WCA, Section 7 of the Environment (Wales) Act 2016 (as amended) and BoCC4 Wales Green List. Observations within Glamorganshire consisted of 26 observations of individual birds across 17 locations within 2022(Glamorgan Bird Club, 2022). Observations within the Site consisted of single records of an individual bird flying within the Site during the VP surveys (December 2021). The Site was also suitable for breeding Barn owl with two potential nest sites identified within 2 km of the Site, but no evidence observed. Therefore, the potential for likely significant effects through disturbance/displacement during construction, operation and decommissioning and collision-related mortality during construction phase cannot be excluded and so further assessment of potential effects is required.

Ornithological features	Conservation status	Justification
Lapwing	Annex 1 of the Birds Directive, Section 7 of the Environment (Wales) Act 2016 (as amended) and BoCC4 Wales Red List	Lapwing is nationally regarded as a resident species of conservation concern to Wales due to its inclusion on Annex 1 of the Birds Directive, Section 7 of the Environment (Wales) Act 2016 (as amended) and BoCC4 Wales Red List. Locally recognised as a common winter visitor with infrequent breeding records within Glamorganshire with records within 2022 across 36 locations but only three sites potentially supporting breeding populations (Glamorgan Bird Club, 2022). Lapwing was regularly observed during the surveys between 2021 – 2023, 2024/25 and 2025/26 consisting of a peak count of four pairs and conclusive evidence of at least two breeding pairs within the Site during the moorland breeding bird surveys and small flocks of up to 37 individuals during the winter transect surveys in 2025/26. Therefore, the potential for likely significant effects through disturbance/displacement during construction, operation and decommissioning and collision-related mortality during construction phase cannot be excluded and so further assessment of potential effects is required.
Golden plover	Annex 1 of the Birds Directive, Section 7 of the Environment (Wales) Act 2016 (as amended) and BoCC4 Wales Red List	Golden plover (<i>Pluvialis apricaria</i>) Nationally regarded as an abundant but declining wintering species with infrequent breeding records and of conservation concern to Wales due to its inclusion on Annex 1 of the Birds Directive, Section 7 of the Environment (Wales) Act 2016 (as amended) and BoCC4 Wales Red List. Common in the winter within East Glamorganshire with records within 2022 across 22 locations with wintering peak counts of up to 1000 individuals at Kenfig National Nature Reserve (Glamorgan Bird Club, 2022). Golden plover were only observed on a single occasion during the VP surveys in December 2022 whereby a flock of four birds flew over the Site. Therefore, the potential for likely significant effects through disturbance/displacement and collision-related mortality during the construction, operational and decommissioning phases cannot be excluded, and so further assessment of potential effects is required.
Snipe	Section 7 of the Environment (Wales) Act 2016 (as amended),	Snipe (<i>Gallinago gallinago</i>) is nationally regarded as an abundant wintering but declining breeding species and recognised as a species of conservation concern to Wales due to its inclusion on BoCC4 Wales Amber List. Widespread in the winter within Glamorganshire with records within 2022 across 53 locations with wintering peak counts of up to 31 individuals at Peterston/Pendoylan Moors (Glamorgan Bird Club, 2022). Snipe were only observed on two

Ornithological features	Conservation status	Justification
	BoCC4 Wales Amber List	occasions during the moorland breeding bird surveys in 2022 and winter transect surveys in 2024/25 and 2025/26. During the moorland breeding bird surveys snipe were observed (no peak count recorded) but no breeding activity recorded. Whilst during the winter transect surveys, snipe were recorded within marshy grassland north-east, centrally and to the north-west of the Site with a peak count of up to five birds recorded. Therefore, the potential for likely significant effects through disturbance/displacement during construction, operation and decommissioning and collision-related mortality during the construction phase cannot be excluded and so further assessment of potential effects is required.
Teal	Section 7 of the Environment (Wales) Act 2016 (as amended), BoCC4 Wales Amber List	Teal (<i>Anas crecca</i>) is nationally and locally regarded as a wintering species of conservation concern with an infrequent breeding population due to its inclusion on Section 7 of the Environment (Wales) Act 2016 and BoCC4 Wales Amber List. Locally recorded across 50 sites, it is a widely distributed and abundant species within East Glamorganshire with wintering records typically ranging between 5-60 individuals, but no evidence of breeding identified in 2022 (Glamorgan Bird Club, 2022). Teal were recorded foraging on waterbodies c. 150 m south of the Site within Park Slip Nature Reserve whereby flocks of between six to nine birds would commute over the airspace of the Site. No evidence of use of the Site was recorded, although teal are nocturnally active, whereby they forage on damp grassland and may not have been present during the survey timings. No suitable breeding habitat or evidence of breeding was identified with no activity recorded within the breeding season. Therefore, the potential for likely significant effects through habitat loss, disturbance/ displacement and collision-related mortality during the construction, operational and decommissioning phases cannot be excluded, and so further assessment of potential effects is required.
Nightjar	Annex 1 of the Birds Directive and BoCC4 Wales Green List	Nightjar (<i>Caprimulgus europaeus</i>) is nationally and locally regarded as an increasing breeding migrant species of conservation concern due to its inclusion on Annex 1 of the Birds Directive and BoCC4 Wales Green List. Within Glamorganshire exclusively confined to clear-fell areas in conifer plantations with records across 13 locations (nine possible, three probably and one confirmed breeding populations) with a peak count of 7 individuals. Activity within the survey area extending 2 km beyond the Site for the targeted nightjar surveys in 2023 was confined to

Ornithological features	Conservation status	Justification
		adjacent heathland and coniferous woodland within Craig-yr-Aber Woodland along the western boundary. Activity consisted of six singing males, of which four were within 500 m of the Site, with an additional two female individuals also recorded. Therefore, the potential for likely significant effects through habitat loss and disturbance/displacement during the construction, operational and decommissioning phases cannot be excluded, and so further assessment of potential effects is required.
Non-target breeding bird assemblage	-	The breeding bird assemblage within the Site was assessed during the breeding VP surveys between 2021 - 2023 and moorland breeding bird surveys in 2022 and 2023 whereby a total of 47 non-target species were recorded, of which 24 are considered notable species. Of the assemblage identified within the survey area there were a total of 35 species with recorded breeding evidence within the survey area, of which 17 were notable species. Notable territories of breeding species included species such as cuckoo, skylark, willow warbler, song thrush, mistle thrush, spotted flycatcher, meadow pipit and tree pipit. As per good practice guidance, these species are not considered target species for proposed wind farm developments (Scottish Natural Heritage, 2017). Therefore, the potential for likely significant effects through habitat loss and disturbance/ displacement during the construction, operational and decommissioning phases cannot be excluded, and so further assessment of potential effects is required.
Non-target wintering bird assemblage	-	The wintering bird assemblage within the Site was assessed during the VP wintering bird surveys between 2021 – 2023 and winter transect surveys in 2024/25 and 2025/26 whereby a total of 51 non-target species, of which 30 are considered notable species. Non-target species typically occupied habitats throughout the Site including woodland, hedgerows, grassland and waterbodies. Notable species included crossbill, fieldfare, grey wagtail, herring gull (<i>Larus argentatus</i>), marsh tit (<i>Poecile palustris</i>) meadow pipit, mistle thrush, redwing, skylark, song thrush, starling and stock dove. As per good practice guidance, these species are not considered target species for proposed wind farm developments and are assessed as an assemblage (Scottish Natural Heritage, 2017), but could potentially be impacted through disturbance and displacement by the proposed solar PV farm. Therefore, the potential for likely significant effects through habitat loss and disturbance/displacement during the construction, operational and

Ornithological features	Conservation status	Justification
		decommissioning phases cannot be excluded, and so further assessment of potential effects is required.

Table 11.5 Features/Matters Scoped out of the Assessment

Ornithological features	Conservation status	Justification
Grey Heron	BoCC4 Wales Green List	Grey Heron is common and widespread in Wales with infrequent flight activity recorded within the Site. No suitable breeding habitat was identified through the surveys. Therefore, the potential for likely significant effects arising from disturbance and displacement during construction, collision risk during operation and from disturbance and displacement during decommissioning phases of the Proposed Development are unlikely to occur and these features are scoped out of the assessment.
Little egret and cormorant	Annex 1 of the Birds Directive, Section 7 of the Environment (Wales) Act 2016 (as amended) and BoCC4 Wales Green List	Both little egret and cormorant are nationally and locally regarded as common resident species to Wales with little egret listed on Annex 1 of the Birds Directive and both species listed on the BoCC4 Wales Green List. Activity was limited within the Site with individual little egret and cormorant flying over the Site in December 2021 and August 2023 respectively. No breeding activity or suitable breeding habitat is available. Therefore, the potential for likely significant effects arising from disturbance and displacement during construction, collision risk during operation and from disturbance and displacement during decommissioning phases of the Proposed Development are unlikely to occur and these features are scoped out of the assessment.

11.3 Methodology

- 11.3.1 This assessment has been undertaken in accordance with the following legislation, and with regard to the following planning policy and guidance. It should be noted that this chapter does not assess the compliance of the Proposed Development against relevant planning policy. Such an assessment is presented in the standalone **Planning, Design and Access Statement**, which is submitted as part of the DNS Application.
- 11.3.2 It should be noted that much of the guidance related to ornithology and wind turbines/wind farms was developed in Scotland as this was where the majority of wind farms were developed and are located, but the guidance has been accepted by NRW as being relevant to the assessment of developments with wind turbines.

Legislation

- The Conservation of Habitats and Species Regulations 2017 (as amended) (HMSO, 2017);
- Birds Directive (Commission, 2009);
- Ramsar Convention 1971 (Ramsar Convention Secretariat, 1971);
- Wildlife and Countryside Act (WCA) 1981 (as amended) (HMSO, 1981);
- Environment (Wales) Act 2016 (HMSO, 2016); and
- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) 1979 (Bern Convention 1979) (Council of Europe, 1979).

National Planning Policy

- Planning Policy Wales (Welsh Government Llywodraeth Cymru, 2024) – section 6.4 – Biodiversity and Ecological Networks;
- Future Wales – the National Plan 2040 – Outlines how Wales will grow and develop including developing strong ecosystems and protecting the environment (Welsh Government, 2021); and
- Technical Advice Note (Wales) 5, Nature Conservation and Planning – September 2009 – Provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. (Welsh Assembly Government, 2009).

Local Planning Policy

- BCBC Replacement Bridgend Local Development Plan 2018 – 2033 (Bridgend County Borough Council, 2024);
- NPTC Local Development Plan 2011 – 2026 (Neath Port Talbot County Borough Council, 2016);
- Bridgend Biodiversity Action Plan (BBAP 2014);
- NPTC Biodiversity Action Plan (NPTC 2015); and

- NPTC Biodiversity Duty Plan (Neath Port Talbot Council, 2023).

Guidance

- Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.3 – Updated September 2024. (CIEEM, 2018 updated 2024);
- Wind energy development and Natura 2000 (European Commission, 2012);
- Recommended bird survey methods to inform impact assessment of onshore wind farms (Scottish Natural Heritage, 2017);
- Evidence review of the impact of solar PV farms on birds, bats and general ecology (Harrison, Lloyd, & Field, 2016); and
- The status of our bird populations: the fourth Birds of Conservation Concern in Wales (Johnstone, et al., 2022).
- The status of the UK's breeding seabirds (Stanbury, et al., 2024)¹.

Baseline Characterisation

Extent of the Study Area

- 11.3.3 The baseline information presented within this chapter is focused on the 'study area', which is the Site boundary (**ES Volume IV, Figure 1.2: Planning Application Boundary**) together with a Zone of Influence (Zol). The Zol is defined within the CIEEM Guidance as *"the area over which features may be affected by biophysical changes as a result of the Proposed Development and associated activities"* (CIEEM, 2018 updated 2024).
- 11.3.4 The Zol is likely to differ between different ornithological features depending on their characteristics and likely sensitivities. For individual ornithological features, the Zol was assessed following available good practice guidance (Scottish Natural Heritage, 2017) (Harrison, Lloyd, & Field, 2016). The Zol for statutory designated sites with ornithological interest features was 10 km and 2 km for non-statutory sites, whilst for the desk study the Zol was considered to be 2 km.
- 11.3.5 For raptor surveys the Zol was the Site and a 2 km radius whilst nightjar surveys were focused on suitable habitat both with and within 500 m radius of the Site boundary. For other ornithological surveys the Zol was focused on the area within the Site boundary.
- 11.3.6 Potential construction and operational effects from the Proposed Development on ornithological features within this assessment are outlined in **Table 11.5**.

¹ Provides an update to BoCC4 for the conservation status of common gull and great black-backed gull in Chapter 11: Ornithology. For the purposes of this report, when referring to BoCC conservation status as 'BoCC4 Wales' this term encompasses conservation status' for bird species from both Johnstone *et al.*, 2022 and Stanbury *et al.*, 2024.

Table 11.6 Activities Likely to Generate Ornithological Effects

Activity	Potential effect
Construction Phase	
Site clearance	• Possible loss of roost/nesting sites for birds due to removal of trees for access routes; • Loss of on-site habitats; • Noise/lighting disturbance to vulnerable species; • Individual mortality/injury to species; • Dust and other pollutants; and • Habitat fragmentation.
Assembly and storage of machines and materials	• Loss of on-site habitats; • Noise/lighting disturbance to vulnerable species; and • Water-borne pollution including the risk of chemical and fuel spills.
Movement of construction vehicles	• Noise/lighting disturbance to vulnerable species; and • Individual mortality/injury to species.
Lighting of works area	• Disturbance to vulnerable species.
Earthworks, excavation and piling	• Noise disturbance to vulnerable species.
Erection of new buildings	• Potential disturbance to vulnerable species.
Operational Phase	
Lighting	• Disturbance to vulnerable species.
Noise	• Disturbance to vulnerable species.
Habitat creation	• Potential positive biodiversity benefit.
Operational infrastructure	• Collision risk with the Energy Park blades or solar photovoltaics (PVs); • Barrier effects from presence of infrastructure for wind and solar PV farms; and • Habitat fragmentation and isolation from infrastructure, e.g., turbines, solar PV panels, substation and access roads.
Decommissioning Phase	
Activities likely to be similar to construction phase.	• Range of impacts similar to construction phase.

Desk Study

- 11.3.7 In order to establish the baseline conditions within the study area, data of relevance to ornithological features has been obtained from the following sources:
- A data records search was requested from South East Wales Biodiversity Records Centre, which included a search for nationally and locally designated sites (both statutory and non-statutory) and protected or otherwise notable species records (e.g., birds listed on Schedule 1 of the WCA 1981 (as amended), Annex 1 of the Birds Directive, species listed in Section 7 of the Environment (Wales) Act 2016 (as amended) (as amended) and Birds of Conservation Concern in Wales (BoCC) Red and Amber list species).
- 11.3.8 Online data resources that have been reviewed comprise:
- Multi-Agency Geographic Information Centre (Multi-Agency Geographic Information for the Countryside, 2025) for the location (and details) of international and national statutory designated sites, locally designated sites, ancient woodland and notable habitats; and
 - Joint Nature Conservation Committee website (Joint Nature Conservation Committee, 2025) for details of Special Protection Areas (SPAs) and Ramsar sites, including site information and designation details.

Field Studies

- 11.3.9 Field surveys to inform the ornithological baseline within the Site have been undertaken between November 2021 to November 2023 with additional surveys to update the ornithological baseline between October 2024 and February 2025. **Table 11.7** provides a summary of the ornithological surveys undertaken and the survey methodologies, making reference to good practice guidance, where relevant. Further details detail on survey methodologies and limitations is provided in **ES Volume III, Appendix 11.1: 2021 – 2023 Ornithology Report, ES Volume III, Appendix 11.2: 2024 – 2025 Wintering Bird Survey Report** and **ES Volume III, Appendix 11.4: 2025 – 2026 Wintering Bird Survey Report**.
- 11.3.10 Note that due to the evolution of the Proposed Development design, the height bands used to record flight lines of target bird species during the VP surveys altered between years. This is discussed further in **Section 11.10**.

Table 11.7: Ornithological Surveys, Dates and Summary of Survey Methodology

Survey	Survey dates	Summary methodology
Vantage Point (VP) flight activity surveys	November 2021 to October 2022 November 2022 to October 2023	Five VP locations were used over the two survey seasons. In both years, the survey effort exceeded the minimum of 72 hours per VP, per survey season as per good practice guidance (Scottish Natural Heritage, 2017). Target species for the surveys comprised: Annex 1/Schedule 1 raptors, waders, swans, geese, ducks

Survey	Survey dates	Summary methodology
		(excluding mallard and feral species). In addition, kestrel (<i>Falco tinnunculus</i>) was included from September 2022 following the species moving onto the Birds of Conservation Concern (BoCC) Red List in Wales (Johnstone, et al., 2022). In accordance with good practice guidance (Scottish Natural Heritage, 2017), flight lines were mapped for all 'target species' (i.e., species potentially susceptible to likely significant effects from wind farm developments) and details of species, number of birds, flight height in bands, duration and direction were noted. Secondary species (referred to as 'non-target species' in this assessment) were also recorded during the surveys but flight lines not mapped, other than kestrel, these comprised more common raptors (e.g., buzzard (<i>Buteo buteo</i>) and sparrowhawk (<i>Accipiter nisus</i>)), all gulls, feral species, mallard (<i>Anas platyrhynchos</i>), raven (<i>Corvus corax</i>), and grey heron (<i>Ardea cinerea</i>), along with any large concentrations of Schedule 1 or BoCC Red List passerines). Secondary species were noted in approximately fifteen-minute summary intervals.
Moorland breeding bird surveys (MBBS)	April to July 2022 April to July 2023	The MBBS survey area comprised the Site and accessible areas of open habitats within 500 m. Four monthly visits were carried out each survey year between the 2022 and 2023 breeding seasons. The methodology followed good practice methodology (Brown & Shepherd, 1993) for censusing upland breeding waders, based upon the recommendations set out in additional literature (Calladine, Garner, Wernham, & Thiel, 2009) and as recommended in NatureScot guidance (Scottish Natural Heritage, 2017). During each visit, a pre-determined route was walked through the survey area, with birds seen or heard, and their behaviours (e.g., displaying, carrying food etc.) mapped. Species recorded included waders, gulls, red grouse (<i>Lagopus lagopus</i>) and wildfowl species; however, incidental observations of any raptors, owls or notable passerines (i.e. Schedule 1, BoCC Red List and species listed in Section 7 of the Environment (Wales) Act 2016 (as amended)) were also recorded.

Survey	Survey dates	Summary methodology
Annex 1/Schedule 1 breeding raptor and owl searches	April to June 2022 March to July 2023	The breeding raptor and owl survey area comprised suitable forestry habitat within the Site and accessible areas within 2 km. Six visits between April and June were carried out in 2022 and eight visits between March and July were carried out in 2023. The methodology followed species-specific methodologies outlined in good practice guidance (Hardey, et al., p. 2013).
Nightjar surveys	June 2023	The nightjar survey area comprised the Site and accessible areas of suitable habitat (including clear-fell and regenerating plantation) within 500 m, where accessible. Two surveys were carried out in June 2023. The surveys followed species-specific methodologies outlined in good practice guidance (Gilbert, Gibbons, & Evans, 1998)). The survey was undertaken along a pre-determined transect through the survey area and stopping at listening points adjacent to suitable breeding habitats, where singing ('churring') males were listened for.
Winter transect surveys	December 2024 to January 2025 November 2025 to February 2026	The winter transect survey area comprised areas planned to be affected by either the construction or operational phase of the Proposed Development. During each visit, a pre-determined route was walked through the survey area. The transect route was interspersed with stops, to scan for birds, with birds seen or heard, and their behaviours mapped.

Assessment Methodology

11.3.11 The assessment approach prescribed by the CIEEM guidelines (CIEEM, 2018 updated 2024) has been followed and is summarised as follows:

- Prediction of the activities associated with a Proposed Development that are likely to generate biophysical changes which may lead to significant effects (either positive or negative) upon ornithological features and resources of importance;
- Identification of the likely Zol of the Proposed Development;
- Scoping to select the ornithological features and resources that are likely to fall within the potential Zol of the Proposed Development, to be considered within the assessment;
- Evaluation of ornithological features likely to be affected;

- Assessment of the significance of effects on ornithological features (including assessment of cumulative and residual effects); and
- Refinement of the Proposed Development to incorporate mitigation to avoid significant negative effects on ornithological features, and to incorporate enhancements where possible.

Determining the Potential Effects Associated with Proposed Development

- 11.3.12 The design of the Proposed Development, as shown on **ES Volume IV, Figure 2.1: Proposed Development Layout**, requires consideration of the potential effects associated with the construction, operational and decommissioning phases for both wind and solar PV farm developments.
- 11.3.13 As per SNH guidance and as outlined in **Table 11.6**, wind farms present the following potential effects to ornithological features (Drewitt & Langston, 2006) (Band, Using a collision risk model to assess bird collision risks for onshore wind farms, 2024) though:
- **Direct habitat loss and alteration:** through construction and (generally to a lesser extent) operational maintenance and decommissioning of wind farm infrastructure;
 - **Disturbance and displacement:** the construction, operational and decommissioning phases of the wind farm have the potential to cause disturbance of birds using habitats within/near to the wind farm. This may lead to birds avoiding the wind farm and its surrounding area (displacement). Displacement may also include barrier effects, in which birds are deterred from using normal routes to/from feeding or roosting grounds; and
 - **Mortality/injury:** through collision or interaction with turbine blades and other infrastructure.
- 11.3.14 In addition, solar PV farms may present the following potential effects to ornithological features:
- **Direct habitat loss and alteration:** Direct loss or alteration of habitat through the construction of Solar PV panel arrays and placement of Solar PV panels over habitat resulting in likely significant loss of suitable foraging and nesting bird habitat beneath these structures;
 - **Habitat degradation:** A reduction in the quality or extent of habitat could occur due to existing pollution, increased human disturbance through trampling or biophysical changes; and
 - **Disturbance and displacement:** the construction and operational phases of the solar PV farm have the potential to cause disturbance of birds using habitats within/near to the solar PV farm. This may lead to birds avoiding the solar PV farm and its surrounding area (displacement). Displacement may also include barrier effects, in which birds are deterred from using normal routes to/from feeding or roosting grounds.

- 11.3.15 For each of these risks, detailed knowledge of bird distribution and flight activity within and adjacent to the Site gained from the field surveys has been used to predict the potential effects of the Proposed Development on birds. Effects have been assessed with regard to the construction phase, the operational phase, the decommissioning phase and cumulatively in consideration with other plans and projects.

Collision Risk Modelling

- 11.3.16 Detailed collision risk modelling has been undertaken in order to identify the potential effects of the wind farm component of the Proposed Development on target bird species through collisions with new wind turbines. Full details of methods for collision risk modelling are described in **ES Volume III, Appendix 11.3: Ornithology Collision Risk Modelling Report**.

Assessment Criteria

- 11.3.17 The assessment of potential effects from the Proposed Development on ornithological features has comprised the following steps:
- Identify relevant ecological features (e.g., designated sites, habitats, species or ecosystems) that may be impacted;
 - Determine the ecological importance of features using geographic frames of reference; and
 - Provide a scientifically rigorous and transparent assessment of the likely ecological impacts and resultant effects. Impacts and effects may be positive or negative.
- 11.3.18 Criteria that have been taken into account when determining significance comprise:
- Duration (short term, medium term or long term);
 - Permanence (permanent or temporary) and changes in significance (increase or decrease); and
 - Reversibility, e.g., is the change reversible or irreversible.
- 11.3.19 The geographic frames of reference used for this assessment to help determine the ecological importance of features in accordance with the CIEEM guidelines (CIEEM, 2018 updated 2024) are as follows:
- International;
 - National;
 - County; and
 - Local.
- 11.3.20 Note that as Wales is a Region of the UK and is classed as a separate Nation, and the fact that Wales does not in general have District Authorities, Regional and District level importance, as defined in the CIEEM guidelines (CIEEM, 2018 updated 2024), are not used in this assessment.

- 11.3.21 The ecological importance of species populations is based on their size, recognised status (such as through published lists of species of conservation concern and designation of Biodiversity Action Plan (BAP) status) and legal protection.
- 11.3.22 When assigning ecological importance to species populations, the following has been considered: legal protection, distribution, rarity, population trends and population size. The assessment of ecological importance relies on the professional opinion and judgment of experienced ecologists, informed by relevant population information and scientific research.
- 11.3.23 When describing ecological impacts and effects, reference is made to the following characteristics as required:
- Positive or negative: Positive represents a change that improves the quality of the environment, e.g., by increasing species diversity, extending habitat or improving water quality. This may also include halting or slowing an existing decline in the quality of the environment. Negative represents a change which reduces the quality of the environment, e.g., destruction of habitat, removal of foraging habitat, habitat fragmentation, pollution;
 - Extent: The spatial or geographical area over which the impact/effect may occur under a suitably representative range of conditions (e.g., noise transmission under water);
 - Magnitude: The size, amount, intensity and volume - this should be described on a quantitative basis where possible;
 - Duration: Defined in relation to ecological characteristics (such as the lifecycle of a species) as well as human timeframes;
 - Frequency and timing: The number of times an activity occurs; and
 - Reversibility: An irreversible effect is one from which recovery is not possible within a reasonable timescale or there is no reasonable chance of action being taken to reverse it. A reversible effect is one from which spontaneous recovery is possible or which may be counteracted by mitigation. In some cases, the same activity can cause both reversible and irreversible effects.
- 11.3.24 The CIEEM guidelines (CIEEM, 2018 updated 2024) requires a clear statement as to whether or not an effect is significant and at what geographical scale, for example 'significant at the national level'. In accordance with the CIEEM guidelines (CIEEM, 2018 updated 2024) a significant effect is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. A significant effect can be either positive or negative. Throughout the assessment regard has been paid to the Biodiversity Mitigation Hierarchy comprising avoid, minimise, mitigate and offset.

Importance of Ornithological Features

- 11.3.25 Example criteria for receptor importance with regard to the CIEEM guidelines (CIEEM, 2018 updated 2024) are presented in **Table 11.8**.

Table 11.8 Defining Importance of Key Ornithological Features

Importance	Example criteria
International	An internationally designated site or candidate/proposed site (SPA, potential SPA, SAC, candidate SAC and/or Ramsar site) designated for its ornithological assemblage/species. Sustainable population of an internationally important species, site-supporting a regular population of such a species and/or land supplying a critical element of their habitat requirement i.e.: • IUCN Red List species that is listed as critically endangered, endangered or vulnerable; • Species listed in Annex I of the Birds Directive; or • Sites supporting 1% or more of an international population of a species.
National	A nationally designated site (SSSI or National Nature Reserve) or a discrete area which meets the selection criteria for national designation (e.g., SSSI selection criteria) designated for its ornithological assemblage/species. Sustainable population of a nationally important species, site-supporting a regular population of such a species and/or land supplying a critical element of their habitat requirement i.e.: • Species listed on Schedule 1 of the WCA 1981 (as amended); • UK Red Data Book species; • Species listed as occurring in 15 or fewer 10 km squares in the UK; or • Sites supporting 1% or more of a national population of a species.
County	Some designated sites (including Sites of Importance for Nature Conservation, County Wildlife Sites or Sites of Metropolitan Importance) of relevance to ornithological assemblages/species. Sustainable populations of the following species: • Species listed in a County/Metropolitan 'red data book' or BAP on account of its rarity/localisation in a county context; or • Sites supporting 1% or more of a county population of a species.
Local	Very low importance and rarity, local scale: A small population of a species of conservation concern, i.e., listed in the Local BAP.

11.3.26 The methodology for assessment has followed a precautionary approach with regard to the identification of ecological features which will be carried forward for impact assessment. Therefore, any feature which is assessed as being of 'Local importance' or higher has been included within the assessment, unless it can be proven without any reasonable scientific doubt that impacts would be negligible. Features assessed as being of less than Local importance have not been considered within this assessment.

11.3.27 The importance of an ornithological feature (using the geographical scale of importance defined above) can also be assessed based on the following factors:

Conservation status

11.3.28 The assessment of the importance of the bird populations took into consideration the conservation statuses of the species recorded. Species afforded special statutory protection or included on lists of species of conservation interest were evaluated. These included:

- EC Birds Directive (2009/147/EC) Annex I species (HMSO, 2017);
- Schedule 1 of the WCA 1981 (as amended) (HMSO, 1981);
- Section 7 of the Environment (Wales) Act 2016 (as amended)² (HMSO, 2016);
- BoCC4 Wales Red and Amber listed species (Johnstone, et al., 2022); and
- The status of the UK's breeding seabirds (Stanbury, et al., 2024)

Species Abundance

11.3.29 The assessment of the importance of bird populations took into consideration their sizes relative to international and national population estimates for the species in question. International population estimates used for this analysis were as presented by the International Union for the Conservation of Nature (IUCN) (IUCN, 2024). Importance at a national level was assessed against available national population estimates such as those published by the British Trust of Ornithology (Woodward, et al., 2020). Assessment of county or local importance to the Site was based on professional judgement and in reference to county population estimates of relevance to Bridgend and Neath Port Talbot from the East Glamorgan County bird report (Glamorgan Bird Club, 2022).

Species Diversity

² It should be noted, Section 7 of the Environment (Wales) Act 2016 (as amended) in this Chapter refers to updates provided by the Welsh Government in March 2026. As these updates were issued following completion of the appendices supporting this Chapter there are differences between the Section 7 designations of certain species in **ES Volume II, Chapter 11: Ornithology** and the supporting **ES Volume III, Ornithology Appendices**. Within this Chapter, the importance / conservation status of all species affected by these changes have been updated and assessed accordingly using the most recent conservation and legislative information available to inform the assessment of importance and subsequently determine the outcome of the assessment of effects. For these reasons, the information presented within the supporting appendices remains valid.

- 11.3.30 The overall diversity of the non-breeding and breeding bird assemblages were assessed, taking into consideration the number of species recorded and their conservation statuses.
- 11.3.31 Further consideration for the importance of the breeding bird assemblage recorded was assessed according to its level of species diversity, in reference to the criteria described by Fuller (1980) as summarised in **Table 11.9**.
- 11.3.32 It should be recognised that breeding birds have undergone widespread decline since these criteria were devised. As such, the qualifying number of species for a given importance category proposed in the guidance (Fuller, 1980) is now considered to be relatively high. This disparity is taken into account within the ‘adapted importance criteria’ detailed below.

Table 11.9 Assessment of Bird Species Diversity

Breeding bird assemblage importance category (Fuller, 1980)	Assemblage importance category used in this assessment	Number of breeding species recorded	
		Fuller (1980) criteria	Adapted criteria
National	National	More than 85	More than 85
		70-84	70-84
County	County	50-69	50-69
		-	25-49
Local	Local	25-49	Fewer than 25

Mitigation Hierarchy

- 11.3.33 In accordance with the CIEEM guidelines (CIEEM, 2018 updated 2024), a sequential process has been adopted to avoid, mitigate, and compensate negative ecological effects, otherwise known as the ‘mitigation hierarchy’. As part of the Proposed Development, avoidance, mitigation, offsetting (or compensation) and enhancement measures have been identified as part of the impact assessment process:
- **Avoidance:** seek options that avoid harm to ecological features. For example, by locating infrastructure away from sensitive habitats/species where likely significant effects could occur where possible;
 - **Mitigation:** negative effects should be avoided or minimised through mitigation measures, either through the design of the Proposed Development or subsequent measures that can be guaranteed, e.g., through a condition of planning obligation;
 - **Offsetting:** where there are significant residual negative ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures; and

- **Enhancement:** seek to provide benefits for biodiversity over and above requirements for avoidance, mitigation, or offsetting. Enhancement measures have not been taken into account when undertaking the assessment.

11.3.34 Wherever possible, strategies of avoidance have been implemented to minimise any impacts on key ornithological features. If avoidance is not possible, mitigation measures will be required.

11.4 Baseline Conditions

Existing Baseline and Importance of Key Ornithological Features

- 11.4.1 The following section provides a summary of the current ornithological baseline conditions. Further detail of the ornithological baseline is presented in **ES Volume III, Appendix 11.1: 2021 – 2023 Ornithology Report** and **ES Volume III, Appendix 11.2: 2024 – 2025 Wintering Bird Survey Report**.
- 11.4.2 A full description of the habitat available within the Site is also provided in **ES Volume III, Appendix 10.1: Ecological Baseline Report**.

Desk Study

- 11.4.3 No internationally designated sites (e.g., SPAs or Ramsar sites) are present within 10 km of the Site.
- 11.4.4 One SSSI which is designated for ornithological features lies within 10 km of the Site, this being Eglwys Nunydd Reservoir SSSI which supports wintering and passage bird species. Three non-statutory designated sites of relevance to ornithology lie within 2 km of the Site, namely: Aberbaiden Farm Meadows SINC, Lletty Brongu SINC and Tylacoch South SINC.
- 11.4.5 **Table 11.10** provides a summary of the desk study results and statement of the importance for designated sites of relevance to ornithological features scoped into this assessment. Designated sites scoped into the assessment are also presented on **ES Volume IV, Figure 11.1: Key Ornithological Features – Designated Sites**.

Table 11.10 Summary of Designated Sites

Site name	Reason for ornithological designation	Distance from Site at closest point	Importance
Eglwys Nunydd Reservoir SSSI	The reservoir attracts large numbers of wintering waterfowl and passage migrants. Notable species including Great Crested and Little Grebes, Mallard, Gadwall and Coot now breed.	4.6 km southwest	National

Site name	Reason for ornithological designation	Distance from Site at closest point	Importance
Aberbaiden Farm Meadows SINC	Wet grassland habitat supports a notable population of breeding lapwing.	384 m south	County
Lletty Brongu SINC	Ancient woodland, wet valley bottom, rare breeding birds (bird assemblage not specified).	806 m north	County
Tylacoch South SINC	Rare breeding birds (bird assemblage not specified).	1.4 km northeast	County

Ornithology Desk Study Records

- 11.4.6 The desk study returned a number of ornithological records within 2 km of the Site boundary.
- 11.4.7 **Table 11.11** provides a summary of the desk study results of avian species records from the past five years. The majority of avian species recorded are wetland or coastal species, so are unlikely to use the habitats present within the Site. The raptor species recorded will use the habitats present on-site, whilst brambling redwing and fieldfare are winter visitors only.

Table 11.11 Summary of Ornithology Desk Records within 2 km

Latin name	Common name	Designation	Most recent record
<i>Tyto alba</i>	Barn Owl	WCA1.1	2021
<i>Phoenicurus ochruros</i>	Black Redstart	WCA1.1, S7, Amber, GB RDB(EN)	2021
<i>Fringilla montifringilla</i>	Brambling	WCA1.1	2021
<i>Melanitta nigra</i>	Common Scoter	WCA1.1, S7, Amber, GB RDB(CR)	2021
<i>Loxia curvirostra</i>	Crossbill	WCA1.1	2022
<i>Turdus pilaris</i>	Fieldfare	WCA1.1, S7, Amber, GB RDB(CR)	2021
<i>Bucephala clangula</i>	Goldeneye	WCA1.2, S7, Amber, GB RDB(VU)	2023
<i>Accipiter gentilis</i>	Goshawk	WCA1.1, S7, Amber	2022
<i>Falco subbuteo</i>	Hobby	WCA1.1	2021
<i>Alcedo atthis</i>	Kingfisher	WCA1.1	2021
<i>Charadrius dubius</i>	Little Ringed Plover	WCA1.1	2022

Latin name	Common name	Designation	Most recent record
<i>Circus aeruginosus</i>	Marsh Harrier	WCA1.1, S7, Amber	2022
<i>Falco columbarius</i>	Merlin	WCA1.1, S7, Red, GB RDB(EN)	2022
<i>Falco peregrinus</i>	Peregrine	WCA1.1	2022
<i>Anas acuta</i>	Pintail	WCA1.2, S7, Amber, GB RDB(CR)	2021
<i>Milvus milvus</i>	Red Kite	WCA1.1	2022
<i>Turdus iliacus</i>	Redwing	WCA1.1, GB RDB(CR)	2022
<i>Numenius phaeopus</i>	Whimbrel	WCA1.1, S7, Amber, GB RDB(CR)	2021
WCA1.1 - Schedule 1 of the WCA 1981 (as amended). S7 - listed on Section 7 of the of the Environment (Wales) Act 2016. Red - species listed on BoCC4 Wales Red list. Amber - listed on BoCC4 Wales Amber list Red GB - Data Book as critically RBB – Listed on UK Red data book as endangered (CR)/ endangered (EN) or vulnerable (VU).			

Field Survey

- 11.4.8 Baseline information on the individual species and breeding and wintering assemblages identified during the surveys for the Proposed Development and scoped into the assessment with a statement of the importance of the feature are outlined in **Table 11.12**.
- 11.4.9 Detailed results of the surveys completed for the Proposed Development between 2021 – 2025 are provided in **ES Volume III, Appendix 11.1: 2021 – 2023 Ornithology Report, ES Volume III, Appendix 11.2: 2024 – 2025 Wintering Bird Survey Report** and **ES Volume III, Appendix 11.4: 2025 – 2026 Wintering Bird Survey Report**
- 11.4.10 A summary of the breeding results for key ornithological features scoped into this assessment is presented on **ES Volume IV, Figure 11.2: Key Ornithological Features – Breeding Target Species (Confidential)**. A summary of flight activity by key ornithological features scoped into this assessment is provided in **ES Volume IV, Figures 11.3.1 – 11.3.4: Key Ornithological Features – Flight Activity**.
- 11.4.11 **Table 11.12** below presents a summary of the results ornithological studies undertaken, focused on those features that have been scoped into the assessment.

Table 11.12 Summary of Survey Results Between 2021 – 2026 and assessment of importance of key ornithological features

Ornithological Features and survey activity	Summary	Importance
Red kite		
VP surveys	The Site and adjacent land within the survey area supports suitable habitat for breeding and foraging red kite. Red kite was the most regularly recorded target species. A highest peak count of four birds was observed on several occasions, with up to two birds regularly recorded throughout the surveys within the Site and across the survey area, including a displaying pair during February and March visits in 2023.	County (all seasons)
Annex 1/Schedule 1 breeding raptor and owl searches	In 2022, a potential red kite breeding territory was recorded, with a suspected nest site in woodland habitat close to the Site. In 2023, the Site was found to support one red kite breeding territory.	
Winter transect surveys	Individuals were recorded throughout the survey effort predominantly to the eastern side of the Site with a peak count of 21 individuals observed during the surveys in Winter 2024/2025 with frequent activity of individuals and groups of up to six birds also recorded across the Site in winter 2025/26.	
Merlin		
VP surveys	The Site and adjacent land provides suitable foraging habitat for merlin (<i>Falco columbarius</i>). Flights of single foraging birds were recorded in April, May and July in 2022 in addition to March and August 2023. Although males and females were recorded no breeding behaviour was noted.	Local (all seasons)
Annex 1/Schedule 1 breeding raptor and owl searches	Not recorded.	
MBBS	A male merlin was recorded in 2022; however, there was no evidence of breeding, and no suitable breeding habitat was identified for this species within the Site.	
Winter transect surveys	Not recorded.	

Ornithological Features and survey activity	Summary	Importance
Kestrel		
VP surveys	The Site and adjacent land supports suitable habitat for breeding and foraging kestrel. Kestrel were recorded once during the VP surveys with a single individual in January 2023.	Local (all seasons)
MBBS	Kestrel was recorded occasionally foraging and flying within the Site. Although suitable habitat was present within the Site, no evidence of breeding was identified.	
Winter transect surveys	One bird was recorded flying north from the centre of the Site in December 2024.	
Goshawk		
VP surveys	Not recorded.	County (all seasons)
Annex 1/Schedule 1 breeding raptor and owl searches	A confirmed goshawk nest with chicks was identified in the plantation woodland in close proximity to the Site.	
Winter transect surveys	Unconfirmed sighting of an individual flying south-west in the centre of the Site in December 2024.	
Hen harrier		
VP surveys	The Site and adjacent land supports suitable habitat for foraging hen harrier. Hen harrier was only recorded once during the VP surveys. The single female/juvenile hen harrier was seen flying low, hunting and landing in a field to south of the VP location in August 2023.	Local (all seasons)
Annex 1/Schedule 1 breeding raptor and owl searches	Not recorded.	
Winter transect surveys	Not recorded.	
Peregrine		
VP surveys	The Site and adjacent land supports suitable habitat for foraging peregrine. Peregrine was only recorded once during the VP surveys. An individual peregrine was observed flying over the Site in August 2023.	Local (all seasons)
Annex 1/Schedule 1 breeding raptor and owl searches	Not recorded.	

Ornithological Features and survey activity	Summary	Importance
Winter transect surveys	One peregrine was recorded flying over the Site in December 2024.	
Barn owl		
VP surveys	The Site and adjacent land supports suitable habitat for breeding and foraging barn owl. A single adult female was recorded in December 2021 hunting in paddocks.	Local (all seasons)
Annex 1/Schedule 1 breeding raptor and owl searches	Two possible barn owl nest/roost sites were identified within 2 km of the Site (with one close to the Site boundary) in 2022 and 2023. No barn owls were observed during the surveys.	
Winter transect surveys	Not recorded.	
Golden plover		
VP surveys	The Site and adjacent land supports suitable habitat for foraging golden plover. A single flock of four golden plover was recorded flying over the Site in December 2022.	Local (wintering season)
Winter transect surveys	Not recorded.	
Lapwing		
VP surveys	The Site and adjacent land supports suitable habitat for breeding and foraging lapwing. Lapwing were recorded in the breeding season between March, May and June in 2022 and 2023, with up to four birds regularly recorded throughout the breeding VP surveys. During the winter, small flocks were recorded in December (peak count of 34 birds).	County (all seasons)
MBBS	Lapwing was the only ground-nesting wader recorded as breeding during the MBBS, with four breeding pairs in 2022 and 2023. Of these, conclusive evidence of breeding (nest site and/or young recorded) was identified for two and one lapwing pairs respectively in 2022 and 2023. Only one breeding pair was identified outside of Site in 2023.	
Winter transect surveys	Four birds were recorded feeding in fields located south of the Site in 2024/25. Individual observations of seven birds within grassland to the south-western extent of the Site and up to 37 birds commuting	

Ornithological Features and survey activity	Summary	Importance
	through the south-eastern extent of the Site during surveys in 2025/26.	
Snipe		
VP surveys	Not recorded.	Local (all seasons)
MBBS	The Site and adjacent land supports suitable habitat for foraging snipe. Snipe was recorded during the moorland breeding bird surveys in 2022, no record of breeding was observed during the surveys.	
Winter transect surveys	Groups of up to three individuals were recorded within marshy grassland within the Site with a peak count of four observed during the winter transect surveys in 2024/25. Similar observations of individuals and small groups of snipe were recorded in patches of marshy grassland across the Site in 2025/26.	
Teal		
VP surveys	The Site and adjacent land supports suitable habitat for foraging teal, no breeding habitat is available. Teal were recorded in December, January and February in small flocks of between six and nine birds between 2022 and 2023. The majority of sightings were recorded in the vicinity of Park Slip Nature Reserve.	Local (wintering season)
Winter transect surveys	Not recorded.	
Nightjar		
Nightjar surveys	Adjacent heathland and coniferous woodland within the Craig-yr-Aber Woodland bordering the western boundary of the Site provides suitable foraging and breeding habitat for nightjar. The 2023 nightjar surveys recorded six singing male nightjars in mixed heathland and forestry within the survey area with the nearest records within 100 m of the Site. Furthermore, five nightjar flights and two female nightjars were also recorded in habitat associated with the singing males.	County importance (breeding season)

Ornithological Features and survey activity	Summary	Importance
Non-target breeding bird assemblage		
VP surveys	The Site and adjacent land supported suitable habitats for a wide variety of species during the breeding season. Buzzard, sparrowhawk, lesser black-backed gull (<i>Larus fuscus</i>), herring gull, black-headed gull (<i>Choroicocephalus ridibundus</i>) and raven were recorded as secondary species during the VP surveys between 2022 and 2023. It is unclear whether these records were within the breeding/wintering season and so the species mentioned above have been included of relevance on a precautionary basis.	County importance (breeding season)
MBBS	In addition to the nine species outlined above, 41 non-target species were recorded during the surveys between April – July in 2022 and 2023. In addition, of the 41 non-target species there were 21 notable species, including 21 Section 7 Species of Principal Importance, 11 BoCC4 Wales Red list species, 10 BoCC4 Amber list species and two species within the Bridgend BAP and NPT BAP. Of the 41 species identified there were a total of 34 species considered to be breeding within or adjacent to the Site. Breeding populations of notable species included estimated numbers of territories for cuckoo (<i>Cuculus canorus</i>) (c. 4), skylark (<i>Alauda arvensis</i>) (c. 43), willow warbler (<i>Phylloscopus trochilus</i>) (c. 18), song thrush (<i>Turdus philomelos</i>) (c. 9), mistle thrush (<i>Turdus viscivorous</i>) (c. 5), spotted flycatcher (<i>Muscicapa striata</i>) (c. 1), meadow pipit (<i>Anthus pratensis</i>) (c. 19) and tree pipit (<i>Anthus trivialis</i>) (c. 1).	
Non-target wintering bird assemblage		
VP surveys	The Site and adjacent land supported suitable habitats for a wide variety wintering species. Buzzard, sparrowhawk, lesser black-backed gull, great black-backed gull, herring gull, common gull, black-headed gull and raven were recorded as secondary species during the VP surveys between 2022 and 2023.	County importance (wintering season)
Winter transect surveys	In addition to the nine secondary species outlined in the assessment above (including non-target wintering bird assemblage from VP surveys), 43 species were	

Ornithological Features and survey activity	Summary	Importance
	recorded during the surveys in the 2024/25 and 2025/26 wintering season. Of these species, 25 notable non-target species were recorded including 3 WCA Schedule 1 species, 24 Section 7 Species of Principal Importance, 7 BoCC4 Wales Red list species, 13 BoCC4 Amber list species and 2 species within the Bridgend BAP. Wintering populations of notable species included peak counts of crossbill (<i>Loxia curvirostra</i>) (7), fieldfare (<i>Turdus pilaris</i>) (126), grey wagtail (<i>Motacilla cinerea</i>) (3), herring gull (<i>Larus argentatus</i>) (178), meadow pipit (40), marsh tit (1), mistle thrush (14), redwing (<i>Turdus iliacus</i>) (213), skylark (21), song thrush (29), starling (<i>Sturnus vulgaris</i>) (1,247) and stock dove (<i>Columbus oenas</i>) (25).	

Future Baseline in the Absence of the Proposed Development

- 11.4.12 Due to the land use of habitat within the Site as farmland and expected management activities associated with this land use, it is anticipated that the future baseline will be relatively similar to the existing baseline, as agricultural operations would be expected to continue and the value of the ornithological features would be relatively similar to that of the existing baseline conditions described above, with exception to natural successional changes for unmanaged habitats (e.g., scrub to woodland).
- 11.4.13 Long-term climactic predictions suggest that warmer, wetter winters and drier summers will become more frequent, with more extreme weather events likely. Combined with changes in land management, increased urbanisation, and increased biotic pressures, climate change may lead to long term changes in the population and distribution of some species in the UK. The climate projections forecast for Wales (Met Office, 2022) would favour those habitats present that are more tolerant of extreme water conditions (i.e. floods or drought). However, no significant changes in the future baseline when compared to the existing baseline assessed herein are envisaged in the short-term, and there is considerable uncertainty about how in any national changes in abundance and distribution of ornithological species would affect the existing baseline. Should climactic changes occur in this region, it may lead to an increase in the populations of some species in Wales (e.g., mistle thrush, nightjar), but a decrease in other species (e.g., Cuckoo, golden plover, lapwing and snipe).

11.5 Mitigation Embedded into the Design

- 11.5.1 This assessment has been based on the principle that measures have been ‘embedded’ into the design of the Proposed Development to remove potential significant effects as far as practicable, for example by the considered placement of infrastructure. The embedded mitigation relevant to this assessment is detailed in **Table 11.13**.

Table 11.13 Embedded Mitigation Relevant to the Ornithological Assessment

Embedded mitigation measures relevant to ornithology	Function
Construction	
Habitat offsetting for woodland, hedgerows and watercourses	Woodland: Minimum 15 m offset from the built development to existing woodland. 15 m is considered sufficient to protect the tree root protection area of woodlands to maintain these habitats during development. Hedgerows: 10 m offset from existing hedgerows (with the exception of where access tracks and/ or cable routes are required to cross an existing feature; however, crossings will be kept to a minimum and mitigated for where practical). A 10 m buffer is considered sufficient to avoid the root protection area of hedgerows and hedgerow trees. Watercourses: 10 m offset from watercourses (with the exception of where access tracks are required to cross an existing feature; however, crossings width will be kept to a minimum and mitigated for where practical).
Lighting design	Not envisaged that construction will require significant lighting. If required, a lighting design will minimise spillage onto adjacent habitat.
Construction practice	Where possible there will be no night-time working. Working hours for construction will be from 07:00 to 19:00 Monday to Friday and 07:00 to 13:00 on Saturday.
Operation	
Lighting design	No additional lighting will be added to areas that are currently dark. The lighting design would limit impact on key ornithological features by directing lighting downward and away from the Site boundary and

Embedded mitigation measures relevant to ornithology	Function
	existing vegetation. During operation, limited aspects of the Proposed Development would need to be continuously lit; aviation lighting and manually operated and motion detection lighting would be utilised for operational, safety and security purposes. Passive infrared detectors (PID) would be implemented around Solar PV modules, and lighting sensors implemented around the substation compound.
Aviation Lighting	The installation of warning lights on turbines will help to increase their visibility, thereby reducing the risk of bird collision. All the turbines will be fitted with an infra-red light in accordance with Military of Defence requirements in advance of Project operation. While three of the turbines (T01, T05 and T06) will be fitted with Civil Aviation Authority (CAA) CAP764 compliant red air navigation order lights in accordance with the requirements of the CAA.
Noise mitigation	Serrated trailing edge to turbine blades. Reduction of noise emission from the candidate turbine model for the Proposed Development would reduce noise pollution whereby turbines are placed near to high activity habitats (e.g., woodland/hedgerows).
Woodland planting	Woodland planting (19.05 ha) proposed around infrastructure including the solar PVs and substation.
Hedgerow planting	Hedgerow planting (3.26 km) proposed around infrastructure including the solar PVs, along access tracks and substation.

11.6 Assessment of Likely Effects (Without Additional Mitigation)

Construction

- 11.6.1 The assessment of likely effects on key ornithological features during the construction phase of the Proposed Development is described in this section and takes into account the embedded mitigation measures described in **Section 11.5**. The construction phase is anticipated to last up to 24 months. The following likely effects have been identified during this phase:

- Direct habitat loss: permanent reductions in the extent of habitats present within the Site boundary; and
- Disturbance/displacement: disturbance of protected and/or priority species from additional noise, dust, light, vibration, and human presence, with the possibility of causing displacement.

11.6.2 **Table 11.14** identifies the likely effects of the Proposed Development (without additional mitigation) during the construction phase.

Table 11.14 Assessment of Likely Effects (Without Additional Mitigation) During the Construction Phase

Impact category	Receptor / receptor groups	Importance	Description of impact	Impact classification	Description of effect	Likely significant effect?	Additional mitigation measures required?	Receptors requiring additional mitigation?
Disturbance and displacement	Raptors	County/ Local	Disturbance during construction activities associated with the development resulting in increased noise, human presence, lighting and pollution effects	Adverse, temporary and reversible	Potential disturbance to known territories of red kite and goshawk within the Site and disturbance to commuting/foraging behaviour for other raptor species	Yes	Yes	Raptors
	Waders	County/ Local		Adverse, temporary and reversible	Potential disturbance to existing lapwing territories from construction based activities.	Yes	Yes	Lapwing
	Teal	Local		Adverse, temporary and reversible	Potential disturbance to site usage from nocturnal foraging and commuting	No	No	N/A

Impact category	Receptor / receptor groups	Importance	Description of impact	Impact classification	Description of effect	Likely significant effect?	Additional mitigation measures required?	Receptors requiring additional mitigation?
	Nightjar	County		Adverse, temporary and reversible	Potential disturbance from noise, light and increased human presence around suitable habitat potentially influencing breeding success for nightjar	No	No	N/A
	Non-target breeding bird assemblage	County		Adverse, temporary and reversible	Potential disturbance from noise, light and increased human presence around suitable breeding bird habitat potentially influencing breeding success for notable species identified	Yes	Yes	Non-target breeding bird assemblage
	Non-target wintering bird assemblage	County		Adverse, temporary and reversible	Potential disturbance from noise, light and increased human presence around suitable wintering	Yes	Yes	Non-target wintering bird assemblage

Impact category	Receptor / receptor groups	Importance	Description of impact	Impact classification	Description of effect	Likely significant effect?	Additional mitigation measures required?	Receptors requiring additional mitigation?
					bird habitat potentially influencing foraging and commuting for notable species identified			
	Statutory and Non statutory designated sites	National/ County		Adverse, temporary and reversible	Potential disturbance from noise, light and increased human presence could influence qualifying populations of nearby designated sites.	No	No	N/A

Operational

- 11.6.3 The assessment of likely effects on ecological features during the operational phase of the Proposed Development is described in this section. They are as follows:
- Direct habitat loss: permanent reductions in the extent of habitats present within the Site boundary as a result of maintenance activities;
 - Habitat degradation: permanent reduction in the extent of habitat available due to habitat change and degradation associated with infrastructure presence;
 - Disturbance/displacement: disturbance of protected and/or priority species from additional noise, dust, light, vibration, and human presence, with the possibility of causing displacement; and
 - Bird fatalities and/or injuries through collisions with turbines whilst flying over the Site.
- 11.6.4 **Table 11.15** below identifies the likely effects of the Proposed Development (without additional mitigation) during the operational phase

Table 11.15 Assessment of Likely Effects (without Additional Mitigation) During the Operational Phase

Impact	Receptors / Receptor Groups	Importance	Description of impact	Impact Classification	Description of effect	Significant effect?	Additional mitigation?	Receptors requiring additional mitigation?
Direct habitat loss	All key ornithological features	County/ Local	Habitat loss associated with small-scale vegetation management	Adverse, temporary and reversible	Reduction in suitable habitat for nesting, commuting and foraging species from ongoing management during operational phase.	No	No	N/A
Habitat degradation	All key ornithological features	County/ Local	Reduction in quality of habitat due to existing infrastructure	Adverse, long-term and reversible	Potential for reduction in foraging availability for passerine and raptor species alongside reduction in suitable nesting habitat for key ornithological species associated with grassland habitats.	Yes	Yes	Raptors, waders, breeding bird assemblage and wintering bird assemblage

Impact	Receptors / Receptor Groups	Importance	Description of impact	Impact Classification	Description of effect	Significant effect?	Additional mitigation?	Receptors requiring additional mitigation?
Disturbance and displacement	Raptors	County/ Local	Presence of proposed wind turbines and solar PV panels during operational phase have the potential to cause disturbance and displacement through presence of unfamiliar infrastructure in suitable habitat and increased human presence during the operational phase	Adverse, long-term and reversible	Infrastructure and operation activities could reduce the availability of suitable foraging habitat for raptor species through direct disturbance barrier effects.	Yes (Red kite only)	Yes	Red kite
	Waders	County/ Local		Adverse, long-term and reversible	Infrastructure and operation activities could reduce the availability of suitable breeding and foraging habitat for raptor species through direct disturbance or barrier effects.	Yes (Lapwing only)	Yes	Lapwing
	Teal	Local		Negligible	Limited potential effects from Infrastructure providing barrier effects for commuting routes for teal through the	No	No	N/A

Impact	Receptors / Receptor Groups	Importance	Description of impact	Impact Classification	Description of effect	Significant effect?	Additional mitigation?	Receptors requiring additional mitigation?
					Site and potential nocturnal foraging.			
	Nightjar	County		Negligible	Limited potential effects from operation lighting, noise disturbance and increased human presence to disturb existing nightjar population.	No	No	N/A
	Non-target breeding bird assemblage	County		Negligible	Limited potential effects from operation disturbance from additional noise, vibration, light and human activity could disturb or displace existing breeding bird population within suitable nesting habitat within the Site.	No	No	N/A

Impact	Receptors / Receptor Groups	Importance	Description of impact	Impact Classification	Description of effect	Significant effect?	Additional mitigation?	Receptors requiring additional mitigation?
	Non-target wintering bird assemblage	County		Negligible	Limited potential effects from operation disturbance from additional noise, vibration, light and human activity could disturb or displace existing wintering bird population from suitable foraging/ commuting habitat within the Site.	No	No	N/A
	Designated sites	County		Negligible	Limited potential effects from operation disturbance from additional noise, vibration, light and human activity could disturb or displace qualifying populations of designated sites.	No	No	N/A

Impact	Receptors / Receptor Groups	Importance	Description of impact	Impact Classification	Description of effect	Significant effect?	Additional mitigation?	Receptors requiring additional mitigation?
Collision mortality	Raptors	County/ Local	Presence of turbines could create collision risk to key ornithological features	Adverse, permanent and irreversible	Collision risk with proposed wind turbine infrastructure can lead to mortality and injury. Raptor species particularly vulnerable to effects.	Yes	Yes	Barn owl, hen harrier, kestrel, merlin, peregrine and red kite
	Waders and waterfowl	County/ Local			Collision risk with proposed wind turbine infrastructure can lead to mortality and injury to waders	Yes	Yes	Golden plover, lapwing and teal
	Designated sites	County			Collision risk with proposed wind turbine infrastructure can lead to mortality and injury to qualifying features of SINC.	Yes	Yes	Qualifying target species for SINC (e.g., lapwing)

Decommissioning

- 11.6.5 The assessment of likely effects on key ornithological features during the decommissioning phase of the Proposed Development are likely to be broadly similar to construction:
- Direct habitat loss: permanent reductions in the extent of habitats present within the Site boundary; and
 - Disturbance/displacement: disturbance of protected and/or priority species from additional noise, dust, light, vibration, and human presence, with the possibility of causing displacement.

11.7 Additional Mitigation Measures

- 11.7.1 **Table 11.16** sets out the additional mitigation measures required to mitigate the likely effects identified in **Section 11.6**.
- 11.7.2 In accordance with ecological good practice and the requirement to achieve net benefits for biodiversity, all mitigation will be delivered to ensure the Proposed Development has an overall positive effect on ornithological features. This is provided within the Outline Habitat Management Plan (HMP) for the Proposed Development within **ES Volume III, Appendix 10.4: Net Benefit for Biodiversity Report**, which presents the objectives and targets of the enhancement plan along with prescriptions for management and monitoring to achieve such aims.
- 11.7.3 Consideration has been given to the location of habitat creation with regard to potential collision impacts; for example, features habitat targeting species susceptible to collisions with turbines will be located away from turbines and in areas that would not encourage commuting routes through the Energy Park area.

Table 11.16 Additional Mitigation

Ref	Relevant Key Ornithological Feature	Phase	Description of additional mitigation measure	Securing mechanism
1	Key ornithological features Lapwing, red kite (foraging), merlin (foraging), kestrel (foraging), hen harrier (foraging), peregrine (foraging), barn owl (foraging), teal (foraging) Non-target breeding bird assemblage (nesting) Non-target wintering bird assemblage (foraging)	Construction/ Operational	Creation of bird mitigation area (12.2 ha) in the centre of the Site which will be managed to provide dedicated habitat for ground nesting birds to mitigate loss of habitat and potential disturbance (e.g., lapwing, skylark and meadow pipit), foraging species within the breeding and wintering passerines and foraging raptors (red kite, merlin, hen harrier, peregrine, barn owl and teal) within the Site. Monitoring will be required to ensure successful implementation of habitat creation. Monitoring will also be required during the operational phase to ensure lapwing and breeding bird assemblage using mitigation areas for nesting. Preconstruction surveys during the breeding season (March to August inclusive) will highlight any Schedule 1 nesting bird species (such as Red Kite and Goshawk) and other species such as nightjar and demarcation fencing will ensure appropriate standoff distances maintained to avoid disturbance and contravention of legislation. If suitable buffer distances cannot be maintained from Schedule 1 nesting species then works will have to cease temporarily until any young birds have fledged.	Habitat Management Plan (via planning condition) Construction Environmental Management Plan (via planning condition)

Ref	Relevant Key Ornithological Feature	Phase	Description of additional mitigation measure	Securing mechanism
			Measures outlined in the ES Volume III, Appendix 2.1: Outline Construction Environmental Management Plan (OCEMP) will ensure vegetation removal occurs outside of the bird breeding season (March to August inclusive) or where this is not an ECoW will be provided at the construction to supervise site works and conduct nesting bird checks before vegetation removal occurs. If nesting birds are identified, then appropriate buffer distances will be maintained to enable young to hatch and fledge. The ECoW give regular toolbox talks to make site personnel aware of the ornithological sensitivities on-site. Good practice measures to be implemented in the OCEMP for the management of additional noise, dust and vibration. With the development complying with specific noise, dust and vibration legislation	
2	Key ornithological features Lapwing, snipe, red kite (foraging), merlin (foraging), kestrel (foraging) hen harrier (foraging), peregrine (foraging), barn owl (foraging), teal (foraging) Non-target Breeding bird assemblage (nesting)	Construction/ Operational	Additional grassland habitat to be created for terrestrial ecology receptors, as outlined in ES Volume II, Chapter 10: Terrestrial Ecology including grassland enhancement for fungi (47.9 ha) and wet grassland enhancement for marsh fritillary (13.8 ha). Both areas would also provide additional benefit for key ornithological features and breeding/wintering bird assemblage species which would utilise grassland and wet grassland habitat (e.g., lapwing, snipe and skylark) for both	Habitat management Plan (via planning condition)

Ref	Relevant Key Ornithological Feature	Phase	Description of additional mitigation measure	Securing mechanism
	Non-target Wintering bird assemblage (foraging)		nesting and foraging. Monitoring will be required to ensure successful implementation of habitat creation. Monitoring will also be required during the operational phase to ensure lapwing and breeding bird assemblage using mitigation areas for nesting.	
5	Key ornithological features Lapwing, red kite (foraging), merlin (foraging), kestrel (foraging), hen harrier (foraging), peregrine (foraging), barn owl (foraging), teal (foraging) Breeding bird assemblage (nesting) Wintering bird assemblage (foraging)	Decommissioning	Dependent upon exact timing of works likely to require similar mitigation as outlined for construction phase.	Decommissioning Ecological Management Plan.

11.8 Assessment of Residual Effects

- 11.8.1 The assessment of residual effects assumes the implementation of the embedded and additional mitigation measures mentioned in **Table 11.13** and **Table 11.16** respectively. Embedded and additional mitigation measures discussed are also presented in **ES Volume IV, Figure 11.4: Impacts and Mitigation**.
- 11.8.2 Likely significant effects to relevant key ornithological features identified during the construction (e.g., direct habitat loss and disturbance and displacement) and operational (e.g., habitat degradation) phases are anticipated to be sufficiently offset by the additional mitigation measures proposed. Therefore, **no significant residual effects** are anticipated for any key ornithological features identified. A detailed characterisation of residual effects is given for the construction, operational and decommissioning phases below:

Construction

Direct Habitat Loss

- 11.8.3 Direct habitat loss due to the development of wind farms tends to be relatively small (Drewitt & Langston, 2006). The permanent land take will be largely limited to the area of the turbine bases, new access tracks, electrical substation and bridge crossings. Temporary land take during construction will additionally include temporary access tracks for site vehicles and machinery, crane hard standing areas and lay down areas for each turbine, site compounds with associated car parking.
- 11.8.4 Similarly, solar PV farms experience similar levels of direct habitat loss during construction from the erection of required infrastructure (e.g., solar PV modules), transmission networks, material storage, on-site substations, electrical cabling and access tracks.
- 11.8.5 As described within **ES Volume II, Chapter 10: Terrestrial Ecology**, habitats on-site are largely dominated by agricultural land, within which the turbines and solar PV panels will be constructed. The proposed site substation and construction compounds will additionally sit within agricultural land. These habitats are highly modified and are of low ecological value, thus limiting impacts on ornithological features. In overview, the Proposed Development would result in the loss of 84.59 ha of area habitats and 4.8 km of linear habitats as a result of permanent infrastructure as detailed in **Table 11.17** and **Table 11.18**.

Table 11.17 Area Habitat Losses for the Proposed Development (Before Mitigation/Offsetting)

Habitat type	Area – Retained (ha)	Area - Loss (ha)
Semi-natural broadleaved woodland	26.87	0.07 (0.3%)
Plantation Coniferous Woodland	3.80	0.01 (0.3%)
Semi – Natural Mixed Woodland	0.7	0.00
Plantation – Mixed Woodland	2.81	0.00
Scrub – Dense/continuous	6.87	0.00
Semi-improved Acid Grassland	6.95	0.00
Semi-improved Neutral Grassland	5.02	0.01 (0.2%)
Improved Grassland	267.04	32.51 (10.9%)
Marsh / Marshy Grassland	0.32	0.00
Poor Semi-Improved Grassland	116.87	37.24 (24.2%)
Bracken – Continuous	26.16	0.23 (0.9%)
Standing Water	0.35	0.00
Cultivated / Disturbed land – arable	18.08	12.17 (40.23%)
Building	0.99	0.00
Bare Ground	4.85	0.07 (1.42%)
Hardstanding	5.45	2.28 (29.5%)

Table 11.18 Linear Habitat Losses for the Proposed Development (Before Mitigation/Offsetting)

Habitat type	Length – Retained (km)	Length - Loss (km)
Line of Broadleaved trees	1.55	0.04 (2.5%)
Running water	7.8	0.13 (1.61%)
Intact Hedge – native species – rich	0.56	0.00
Intact Hedge – species-poor	8.39	1.47 (14.9%)
Defunct Hedge – Species-poor	0.34	0.12 (26.1%)
Hedge with trees – native species-rich	0.15	0.00
Hedge with trees – species poor	1.59	0.10 (5.96%)
Fence	30.92	2.85 (8.4%)
Wall	2.36	0.09 (3.7%)
Dry ditch	0.10	0.00

- 11.8.6 The Proposed Development would result in the loss of suitable nesting or foraging habitat during construction including woodland, grassland, hedgerows and minor losses to localised sections of a watercourse (limited to embankment associated with a roadside watercourse). With the implementation of the additional mitigation measures, any residual effects from the loss of nesting or foraging habitat would be **adverse, short term** (for the duration of the construction phase) but **largely reversible** except for permanent infrastructure such as tracks, turbine bases, substation etc. The effect would be **temporary, small scale** and therefore **not significant** at the **Local** level.

Disturbance and Displacement

- 11.8.7 Site clearance and construction activities associated with the Proposed Development would result in increased human presence, environmental pollutants or introduction of new infrastructure influencing site usage by ornithological species. Construction activities could directly disturb nesting birds or influence existing commuting routes and produce a barrier effect for key ornithological features whereby fragmentation could occur between vital foraging habitats during the construction phase. Further discussion for how this would impact key ornithological features in the absence of additional mitigation is provided below.

Statutory and Non-Statutory Designated Sites

- 11.8.8 There is only one designated site in close proximity to the Site, Aberbaiden Farm SINC which is discussed under Waders below.
- 11.8.9 For Eglwys Nunydd Reservoir SSSI and the other two SINC, given that the designated sites are located more than 800 m away from the Site and that very few wader and wildfowl species were recorded on-site it is considered highly unlikely that any significant effects would occur due to displacement caused by disturbance and therefore no fragmentation would be likely to occur. Therefore, taking into consideration the distance from the Site boundary and the additional mitigation measures, any residual effects arising from disturbance or displacement to birds associated with designated sites would be **adverse, short term** (for the duration of the construction phase) but **reversible**. The effect would be **temporary, small scale** and therefore **not significant** at the **Local** level.

Raptors

- 11.8.10 Red kite and goshawk were recorded breeding within or adjacent to the Site and therefore could be significantly affected by the Proposed Development due to disturbance. Disturbance/displacement has the potential to affect the ability of birds to hold territories and breed successfully. Additionally, other raptor species including merlin, kestrel, hen harrier, peregrine and barn owl were all recorded foraging or commuting within or adjacent to the Site. Disturbance/displacement could also influence the behaviour of birds utilising the Site, impacting prey availability, commuting patterns and foraging habitat utilisation.

- 11.8.11 Given the current levels of disturbance due to common agricultural practices within the Site it is likely that the red kite is somewhat habituated to existing noise and visual disturbance. However, as disturbance due to common agricultural practices is likely to be infrequent, it is anticipated that disturbance associated with the construction phase could potentially disturb/displace birds within territories closest to the Site.
- 11.8.12 Goshawks are more likely to be disturbed due to their preference for undisturbed woodland for nesting. There are two potential routes for noise to disturb red kites and goshawk during construction: masking noise and sudden noises. Masking noise is sustained noise during construction which provides a consistent raise in ambient volume due to ongoing construction practices. Sudden noises created during construction from Heavy Goods Vehicles (HGV) movement or other plant are considered to be sudden, loud and ‘percussive’ noises that have the greatest potential to cause disturbance. Considering the residual impacts identified in **ES Volume II, Chapter 9: Noise and Vibration** it is anticipated that noise levels within the Site during construction would be raised above a 65 dB threshold by activities during construction, including access road construction, installation of infrastructure (e.g., substation, solar PV panels and wind turbines) would result in an overall noise activity level of between 78-86 dB. As noise levels are measured and weighted towards human receptors and as avian receptors may hear noise differently to humans, it is difficult to indicate what noise levels in dB may constitute disturbance. Therefore, a focus has been given to considering appropriate buffer distances over which disturbance effects are considered unlikely to occur.
- 11.8.13 NatureScot provides suggested buffer distances between development and nest sites for a range of avian species (Goodship & Furness, 2022), the implication being that these buffer distances should prevent undue disturbance to bird species. As the proximity of the Proposed Development construction activities would be within a recommended buffer distance proposed by NatureScot for avoiding disturbance to nesting goshawk (300-500 m) and red kite (150-300 m), there would be potential for disturbance due to ongoing construction from noise and increased human presence. However, additional mitigation, as outlined in **Table 11.16** would include preconstruction surveys and nesting bird checks by an ECoW prior to and during the construction phase, and implementation of appropriate buffer distances to ensure compliance with relevant legislation.
- 11.8.14 With the implementation of the additional mitigation measures, any residual effects from the arising from disturbance or displacement to nesting red kite and goshawk are likely to be **adverse, short term** (for the duration of the construction phase) but **reversible**. The effect would be **temporary, small scale** and therefore **not significant** at the **Local** level.

- 11.8.15 Potential disturbance to other raptor species not identified to be nesting within the Site boundary would be limited to foraging and commuting individuals. Considering that, activity levels for all the remaining raptor species identified as key ornithological features (merlin, hen harrier, kestrel, peregrine and barn owl), and with the implementation of the additional mitigation measures, the effect of residual disturbance/displacement during construction is likely to be **adverse, temporary and short-term** but **reversible** for these species. Therefore, the effect of disturbance/displacement of other raptors is also considered to be **not significant** at the **Local** level.

Waders and Wildfowl

- 11.8.16 Lapwing was recorded breeding within the Site. Whilst snipe and golden plover were both identified only foraging or commuting over the Site.
- 11.8.17 Lapwing were recorded breeding within and adjacent to the Site (Aberbaiden SINC). Lapwing was present nesting on arable fields and improved grassland within the Site with a total of between 2-4 territories recorded within the southern extent of the Site during the moorland breeding bird surveys. Of these, only one territory would be within a field proposed for infrastructure (Field G), while another lies within 100 m of proposed infrastructure. The remaining territories are either well outside the Site boundary, at a considerable distance from infrastructure, or located nearby areas designated for additional bird mitigation. The construction of solar infrastructure has the potential to displace established breeding territories through functional habitat loss, increased human activity and elevated noise levels. Nevertheless, with the application of the proposed mitigation measures, the residual effect of disturbance or displacement on lapwing during construction is expected to be **adverse, temporary and short-term** but **reversible** and considered to be **not significant** at the **Local** level.
- 11.8.18 Given the lack of roosting golden plover recorded within the Site, the absence of breeding and relatively limited level of activity within the Site for golden plover and snipe there is limited potential for disturbance of these species during construction of the Proposed Development. The area of suitable habitat subject to disturbing activities will be relatively small, particularly in the context of retained areas of suitable habitat within the wider landscape. Considering the levels of golden plover and snipe activity within the Site and the abundance of suitable retained habitat should displacement occur, any disturbance/displacement effects from construction are likely to be negligible for both species. With the implementation of the additional mitigation measures the residual effect of disturbance/displacement on golden plover during construction is likely to be **adverse, temporary and short-term** but **reversible** and considered to be **not significant** at the **Local** level.

- 11.8.19 Teal was infrequently observed with small flocks of between 6-9 individuals flying over the Site in the south-eastern extent, with presence limited to the wintering season. Despite the lack of evidence of nocturnal activity recorded within the Site, and therefore the potential to be underrepresented, the area of suitable habitat subject to disturbing activities will be relatively small, particularly in the context of retained areas of suitable habitat within the wider landscape. Whilst construction activities in winter could cause minor disturbance to birds flying over the Site (i.e., birds deviating in their flight lines to avoid construction areas), given the limited site usage and available habitat the impact magnitude is anticipated to be negligible. Therefore, considering the potential level of construction disturbance, observed habitat usage, levels of teal activity on-site and the implementation of the additional mitigation measures the residual effect of disturbance/displacement on teal during construction is likely to be **adverse, temporary and short-term** but **reversible** and considered to be **not significant** at the **Local** level.

Nightjar

- 11.8.20 Nightjar was present within plantation woodland and heathland within Craig-yr-Aber Woodland with an estimated six territories established during the surveys. No territories were present within the Site, while four were present within 500 m of the Proposed Development with the nearest being within 50 m of the development footprint. Disturbance to nesting nightjar during construction in the absence of additional mitigation could result from increased noise during the day-time construction activities. There is likely to be little in the way of construction activities occurring during the night whereby nightjar would be most active, but in exceptional circumstances if nighttime working is required, a sensitive construction lighting regime is proposed, and any lighting would minimise spillage into adjacent areas. In addition to this, woodland habitat and the topography of the Site would likely provide a screening effect for any potential noise, light or visual disturbance during construction. Therefore, despite the proximity of the construction activity to nightjar territories, with the implementation of the additional mitigation measures the residual effect of disturbance/displacement on nightjar during construction is likely to be **adverse, temporary and short-term** but **reversible** and considered to be **not significant** at the **Local** level.

Non-Target Breeding Bird Assemblage

- 11.8.21 The non-target breeding bird assemblage is recognised to be of up to County importance (e.g., cuckoo, skylark and meadow pipit). However, as set out in the additional mitigation outlined in **Section 11.7**, clearance of habitats within the Site of potential value for the breeding bird assemblage would be undertaken outside the nesting bird season (March to August) to avoid impacts on nesting birds. Or, failing this, nesting bird checks would be undertaken by the ECoW.
- 11.8.22 Construction activities associated with the Proposed Development within the breeding season would result in increased noise during the 24-month construction phase. Noise level increases would be variable, with the potential to disturb/displace breeding birds. There is also potential for visual disturbance from increased vehicle presence/movement and increased human presence.

- 11.8.23 Disturbance/displacement has the potential to affect the ability of birds to hold territories and breed successfully. With the implementation of the additional mitigation measures the residual effect of disturbance/displacement on the breeding bird assemblage during construction is likely to be **adverse, temporary** and **short-term** but **reversible** and considered to be **not significant** at the **Local** level.

Non-target Wintering Bird Assemblage

- 11.8.24 The non-target wintering bird assemblage is recognised to be of up to County importance (e.g., pied wagtail and starling). As set out in the additional mitigation outlined in **Section 11.7**, clearance of habitats within the Site of potential value for the breeding bird assemblage would be undertaken within the wintering bird season (September to February). The area of suitable habitat subject to disturbing activities will be relatively small, particularly in the context of retained areas of suitable habitat present within the wider landscape. There is nonetheless potential for disturbance and displacement of wintering bird species commuting through the Site or utilising foraging habitat during the construction phase of the Proposed Development from increased noise and human presence. With the implementation of the additional mitigation measures the residual effect of disturbance/displacement on the wintering bird assemblage during construction is likely to be **adverse, temporary** and **short-term** but **reversible** and considered to be **not significant** at the **Local** level.

Operational

Disturbance and Displacement

Statutory and Non-Statutory Designated Sites

- 11.8.25 Operation disturbance (e.g., noise, light and human activity) within the Site is anticipated to be small-scale and disturbance effects are expected to be localised within the Site with limited opportunity or impact routes outside of the Site. Given the additional mitigation measures the residual effect of disturbance/displacement of disturbance or displacement on designated sites during operation is likely to be **adverse, long term** (for the duration of the operational phase) but **reversible** and considered to be **not significant** at the **Local** level.

Raptors

- 11.8.26 The proposed wind turbines have the potential to cause disturbance and displacement of raptor populations using the Site. The effect of disturbance and displacement to raptors during operation of the Proposed Development would be adverse and long-term. Whilst there is evidence of raptors avoiding the area within 500 m of turbines (Pearce-Higgins J. , Stephen, Langston, Bainbridge, & Bullman, 2009) there is limited evidence available in regard to disturbance and displacement for solar PV farm infrastructure (Harrison, Lloyd, & Field, 2016)). Limited activity was observed within the Site for barn owl, kestrel, hen harrier, merlin and peregrine.

- 11.8.27 Considering this, the conservation statuses of these species and the relatively low suitability of habitat within the Site in comparison with suitable raptor habitat within the wider landscape, and the additional mitigation measures the residual effect of disturbance/displacement of disturbance or displacement on raptor species during operation is likely to be **adverse, long term** (for the duration of the operational phase) but **reversible** and considered to be **not significant** at the **Local** level.

Waders and Wildfowl

- 11.8.28 Disturbance during the operational phase (i.e. noise, light or increased human activity) would be associated with maintenance of the Proposed Development and could result in barrier effects and displacement of foraging or breeding waders.
- 11.8.29 Given the lack of roosting golden plover and snipe recorded within the Site, absence of breeding and relatively limited level of activity within the Site there is limited potential for disturbance of these species during the operational phase of the Proposed Development. The main species likely to be directly affected would be lapwing with between 1-2 potential breeding territories recorded inside or within 100 m of the development footprint for the Proposed Development. However, the combination of embedded and additional mitigation proposals discussed are anticipated to provide sufficient measures to avoid potential disturbance to nesting lapwing pairs where possible through design, mitigate potential impacts from the development through best practice construction methods and provide sufficient compensatory habitat for lapwing within the breeding and non-breeding seasons of the operational phase. With regards wildfowl, only teal were recorded and given the results discussed in **Section 11.4**, limited site usage and flight activity in the context of the retained habitat and available habitat within the surrounding area teal are unlikely to be directly affected.
- 11.8.30 Given the additional mitigation measures the residual effect of disturbance/displacement on waders and wildfowl bird species during operation is likely to be **adverse, long term** (for the duration of the operational phase) but **reversible** and considered to be **not significant** at the **Local** level.

Nightjar

- 11.8.31 Considering the information discussed in **Section 11.6**, disturbance associated with the Proposed Development to nesting nightjar during the operational phase in the absence of additional mitigation would involve the presence of on-site vehicles (e.g., light, noise and vibrations and increased human presence within the Site). However as there would likely be very little nighttime activity during the operational phase and any security lighting would be on demand not continuous, taking account of the additional mitigation measures the residual effect of disturbance/displacement of disturbance or displacement on nightjar during operation is likely to be **adverse, long term** (for the duration of the operational phase) but **reversible** and considered to be **not significant** at the **Local** level.

Non-target Breeding Bird Assemblage

- 11.8.32 Farmland bird species (e.g., skylark and meadow pipit) for which the Site is considered to be of County importance are considered to be relatively tolerant to potential disturbances from additional noise, vibration, light, and human activity that could be associated with the Proposed Development and are likely to quickly habituate to new levels of 'background' disturbance within the Site, especially when considering the availability of retained habitat. Taking account of the additional mitigation measures the residual effect of disturbance/displacement on the breeding bird assemblage during operation is likely to be **adverse, long term** (for the duration of the operational phase) but **reversible** and considered to be **not significant** at the **Local** level.

Non-target Wintering Bird Assemblage

- 11.8.33 Similarly to the breeding bird assemblage, operational disturbance to the wintering bird assemblage, is anticipated to be small-scale and such species are unlikely to be considerably impacted by operational phase disturbance from the Proposed Development. Taking account of the additional mitigation measures the residual effect of disturbance/displacement on the wintering bird assemblage during operation is likely to be **adverse, long term** (for the duration of the operational phase) but **reversible** and considered to be **not significant** at the **Local** level.

Collision Risk

Statutory and Non-Statutory Designated Sites

- 11.8.34 Potential effects associated with the operational phase would be collision mortality of species associated with designated sites which may be commuting over the Site. However, taking account of the results of the collision risk modelling presented below the residual effect of collision risk species associated with the statutory and non-statutory designated sites during operation is likely to be **adverse, long term** (for the duration of the operational phase) and considered to be **not significant** at the **Local** level.

Raptors

- 11.8.35 Due to their size and typical flight patterns, raptor species can be particularly susceptible to impacts from collisions with new turbines which may result in injury or fatalities. Subsequently, collision impacts from the operation of the Proposed Development are considered to be adverse, direct and long-term. Therefore, collision risk modelling was undertaken for all raptor key ornithological features identified with flight seconds at collision height for the proposed turbine layout. Key ornithological features identified as being at potential risk of collision mortality and therefore included within modelling included: barn owl, hen harrier, kestrel, merlin, peregrine and red kite. A summary of the results of the collision risk modelling for these raptor species is provided in **Table 11.19**. Further details are provided in **ES Volume III, Appendix 11.3: Ornithology Collision Risk Modelling Report**.

Table 11.19 Summary of Collision Risk Modelling for Raptors

Species	Period	Avoidance rate (%)	Estimated collision fatalities	
			Per year	50 years
Barn owl	Year 1 (2021-2022)	98	0.002	0.105
	Year 2 (2022-2023)	98	0.000	0.000
	Average	N/A	0.001	0.052
Hen harrier	Year 1 (2021-2022)	99	0.000	0.000
	Year 2 (2022-2023)	99	0.003	0.040
	Average	N/A	0.001	0.020
Kestrel	Year 1 (2021-2022)	95	0.000	0.000
	Year 2 (2022-2023)	95	0.019	0.966
	Average	N/A	0.010	0.483
	Year 1 (2021-2022)	95	0.000	0.000
Merlin	Year 1 (2021-2022)	98	0.002	0.075
	Year 2 (2022-2023)	98	0.001	0.058
	Average	N/A	0.001	0.067
Peregrine	Year 1 (2021-2022)	98	0.000	0.000
	Year 2 (2022-2023)	98	<0.001	0.023
	Average	N/A	<0.001	0.012
Red kite	Year 1 (2021-2022)	99	0.072	3.610
	Year 2 (2022-2023)	99	0.321	16.035
	Average	N/A	0.196	9.822

11.8.36 Modelled red kite collision fatalities are estimated as an average of 0.196 birds per year, equating to 9.8 birds across the 50-year lifespan of the Proposed Development. Recent population estimates are not available for this species for the local area; however, this species is considered to be a locally increasing species in Wales with an estimated 2,000 to 2,500 pairs, and 6,000 pairs within the UK as a whole (<https://www.rspb.org.uk/birds-and-wildlife/red-kite>).

- 11.8.37 In addition, modelling by the British Trust for Ornithology (Hereward, et al., 2024) suggested that currently proposed levels of windfarm development in Wales are unlikely to prevent the continued growth of the Welsh red kite population.
- 11.8.38 Collision fatalities over the operational lifespan of the Proposed Development would likely equate to less than 1% of the Welsh and UK populations. The resultant increases in bird mortality would not be significant when compared against the annual background mortality for this species, which for red kite are stated to be 39% (based on the mortality rates taken from the BTO Bird Facts website (British Trust for Ornithology, 2025). Based on the methods adopted in collision risk modelling, it should be noted that estimated numbers of fatalities are precautionary and are considered likely to be greater than the actual number of collision fatalities that occur. Therefore, taking account of this and the additional mitigation the residual effect of collision risk for red kites during operation is likely to be **adverse, long term** (for the duration of the operational phase) and considered to be **not significant** at the **Local** level.
- 11.8.39 Observations for barn owl, hen harrier, kestrel, merlin and peregrine were infrequent, consisting of individual observations only for barn owl, hen harrier and peregrine, with only merlin and kestrel identified with a total of six and four observations respectively. As a result of the limited observations, all the species were recorded with less than 1,000 total flight seconds at potential collision risk height across the survey periods in 2021–2023. This subsequently produces low average estimated mortalities across the 50-year lifespan of the Proposed Development for barn owl (0.052), hen harrier (0.020), kestrel (0.483) merlin (0.067) and peregrine (0.012). Due to the limited activity and low collision fatality estimates, the magnitude of effect on these species is considered to be negligible. Therefore, taking account of this and the additional mitigation the residual effect of collision risk for raptor species during operation is likely to be **adverse, long term** (for the duration of the operational phase) considered to be **not significant** at the **Local** level.

Waders and Wildfowl

- 11.8.40 Collision risk modelling was also undertaken for all wader key ornithological features identified with potentially significant flight seconds at collision height for the proposed turbine layout. Species identified as being of potential risk of collision and therefore included within modelling included: golden plover and lapwing. A summary of the results of the collision risk modelling for wader species is provided in **Table 11.20**. Further details are provided in **ES Volume III, Appendix 11.3: Ornithology Collision Risk Modelling Report**.

Table 11.20 Summary of Collision Risk Modelling for Waders

Species	Period	Avoidance rate (%)	Estimated collision fatalities	
			Per year	50 years
Golden plover	Year 1 (2021-2022)	98	0.000	0.000
	Year 2 (2022-2023)	98	0.003	0.136
	Average	N/A	0.001	0.068
Lapwing	Year 1 (2021-2022)	98	0.023	1.127
	Year 2 (2022-2023)	98	0.002	0.112
	Average	N/A	0.012	0.620

- 11.8.41 No flight activity within the collision risk zone was recorded for snipe during the surveys undertaken between 2021-2023. As such, collision risk modelling was not undertaken for this species and based on the field data, there would be no anticipated snipe collision fatalities during the operation of the Proposed Development. As such, collision impacts on snipe during the operation of the Proposed Development are considered likely to be **adverse, long term** (for the duration of the operational phase) but considered to be **not significant** at the **Local** level.
- 11.8.42 Modelled golden plover and lapwing collision fatalities are estimated as an average of 0.001 and 0.012 birds per year, equating to 0.068 and 0.620 birds across the 50-year lifespan of the Proposed Development. Due to the limited activity and low collision fatality estimates, the magnitude of effect on these species is considered to be negligible. Therefore, taking account of this and the additional mitigation the residual effect of collision risk for lapwing and golden plover during operation is likely to be **adverse, long term** (for the duration of the operational phase) considered to be **not significant** at the **Local** level.
- 11.8.43 Collision risk modelling was undertaken for teal using survey data collected between 2021-2023. A summary of the results of the collision risk modelling for teal is provided in **Table 11.21**. Further details are provided in **ES Volume III, Appendix 11.3: Ornithology Collision Risk Modelling Report**.

Table 11.21 Summary of Collision Risk Modelling for Teal

Species	Period	Avoidance rate (%)	Estimated collision fatalities	
			Per year	50 years
Teal	Year 1 (2021-2022)	98	0.046	2.283
	Year 2 (2022-2023)	98	0.000	0.000
	Average	N/A	0.023	1.141

- 11.8.44 Modelled teal collision fatalities are estimated as an average of 0.023 birds per year, equating to 1.141 birds across the 50-year lifespan of the Proposed Development. Due to the limited activity and low collision fatality estimates, the magnitude of effect on teal is considered to be negligible. Therefore, taking account of this and the additional mitigation the residual effect of collision risk for teal during operation is likely to be **adverse, long term** (for the duration of the operational phase) considered to be **not significant** at the **Local** level.

Decommissioning

- 11.8.45 The likely significant effects of decommissioning of the Proposed Development are likely to be similar to those for the construction phase outlined above. Bird species are likely to be subject to temporary loss of habitat and disturbance/displacement during decommissioning activities and appropriate measures detailed in **ES Volume III, Appendix 2.1: Outline Construction Environmental Management Plan** and secured by a DEMP would mitigate any significant adverse effects.
- 11.8.46 Given the likely mitigation measures to be included in the DEMP, it is considered that residual effects on bird species due to temporary loss of habitat and disturbance would be **short-term, temporary, reversible** and **not significant** at the **Local** level.

11.9 Opportunities for Environmental Enhancement

- 11.9.1 Bird box provision throughout pockets of existing woodland to increase nesting opportunities for bird species. Bird boxes will be positioned sensitively so as to avoid increasing the risk of collisions.

11.10 Difficulties and Uncertainties

11.10.1 The following difficulties and uncertainties have been encountered during the undertaking of this ornithological assessment:

- During the vantage point surveys there were limitations involved with: the re-location of vantage point locations (e.g., VP2 and VP3), vantage point coverage of the Site, differing flight band usage due to evolving project requirements and target species for collision risk modelling. The vantage point location changes remained similar to the previous location, maximised visibility and provided a comparable viewshed from the previous locations. Therefore, any changes are unlikely to provide a material difference in the detectability of ornithological features. The viewshed coverage of the Site was considered sufficient for a robust assessment and habitat that was not visible due to topographic variations and screening from vegetation is likely to be relatively low value for target species identified in this assessment. This is therefore not considered to be a significant limitation to the detectability of key ornithological features, as evidenced in the findings of the updated wintering bird surveys, which identified a similar bird assemblage in 2024/25 and 2025/26;
- During the 2022 MBBS, only waders and BoCC for Wales Red list passerines were subject to survey. During the 2023 MBBS, the target species of the surveys was extended to include all species, and included ground-nesting wetland species and all passerines. Despite the reduction in available information during the first year of MBBS, the second year provides sufficient information for informing a robust assessment of effects for the relevant key ornithological features identified in this assessment;
- Collision risk modelling has been assumed on a 'reasonable worst-case scenario' through the use of a candidate turbine model (Nordex 163). The candidate turbine model is expected to be materially similar to the final design and therefore should any minor change in turbine specifications occur, it is anticipated to be insignificant in respect to the collision risk for key ornithological features identified in this assessment; and
- Flight bands used differ between the lower swept range of the candidate turbine model and therefore require all flight lines recorded within 0-60 m (HT1) to be included within the collision risk modelling. This is not considered to be a limitation to the assessment of effects as the inclusion of these flight lines would likely result in an over-estimate in the collision risk assessment.

11.11 Inter-Project Cumulative Effects

- 11.11.1 The inter-project cumulative effects assessment has been undertaken in accordance with Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment (Planning Inspectorate, 2024), as detailed in **ES Volume II, Chapter 4: Approach to the EIA. Table 11.22** sets out the other developments located within 10 km of the Site. This Zol has been determined as appropriate for this cumulative assessment as agreed through the Scoping Direction.

Table 11.22 Relevant Approved Developments within the Ornithology Zol

Other development	Development description	Distance (km) from the Site
CAS-02505-N3T6M4 - Foel Trawsnant Windfarm Connection	66 kV electricity network infrastructure comprising overhead lines and underground cables which will start at Foel Trawsnant Wind Farm (grid ref: 283941 , 194161) in the north, heading south through the western edge of Maesteg (grid ref: 284482 , 191458) to a connection point with the existing overhead line approximately 2 km south west of the settlement of Llangynwyd (grid ref: 284175 , 187428).	0.32 north
P/24/753/SOR - WEPA Vesta (Paper Machine)	New plant producing tissue paper machine at Bridgend and decommissioning and dismantling of old machine.	0.52 east
DNS CAS-03613-S7Y6S4 Prosiect Egni Glan Llynfi (Modular Nuclear)	The project will include 4 PWR-20 Modular Nuclear Reactor units, which will provide clean, carbon-free baseload electricity and heat to local industrial users. There will also be Grid, as well as private electricity & steam connections. There will be no air or water emissions from the plant.	0.8 east
CAS-01977-L5K6R7 - Eirlys Solar Farm	Solar PV development.	0.92 west
DNS/3264571 — Y Bryn Wind Farm	Wind Farm - 18 turbines, 250 m in height.	1.78 north
P/23/218/FUL - HyBont Green Hydrogen	Development of a green hydrogen production facility with electrolyzers, hydrogen storage, hydrogen refuelling station, admin building, substation and	2.55 south east

Other development	Development description	Distance (km) from the Site
	back-up generator; with access, circulation, parking, lighting, 8-metre-high wall, security fencing, hard and soft landscaping, and drainage infrastructure.	
DNS CAS-04421-B8S4Q5 Y Bryn Wind Farm Grid Connection	An up to 132 kV (kilovolt) electricity connection comprising underground cables and overhead lines between Y Bryn Wind Farm and the National Grid Substation at Margam.	3.7 north west
P/22/225/FUL - Great Western Avenue, Coity Road, Battery Energy Storage	Battery -Installation of a battery energy storage facility, substation, underground cabling and ancillary infrastructure and equipment to include security fence, CCTV and gates.	4.15 south
DNS/3279521 - Ty'n Y Waun Solar	Solar PV development.	4.69 east
P2021/1255 - Land West of Junction 38 M4	Full planning application of the development of a metal processing facility totalling 28,500sq.m of floorspace comprising a powder processing plant (17,377sq.m), warehouse and store (5,428 sq.m) office building (1,442 sq.m), amenity building (776 sq.m), laboratory (200 sq.m), services building (470 sq.m), substation (107 sq.m), phase 2 (2,700 sq.m), CCTV, storage tanks and plant, parking, servicing and roads and associated works. (Additional and Revised information including details of diversion of water main, Boundary treatment and Acoustic Fencing details, external lighting scheme, revised Noise Impact Assessment, Revised Health Impact Assessment, Revised Health Impact Assessment and Air Quality Clarification Information).	4.83 west
P2022/0372 - Land At Kenfig Industrial Estate Margam	Wind Farm - 1 turbine, 100 m in height.	5.31 south west

Other development	Development description	Distance (km) from the Site
P2022/1048 - Cefn Gwrgan Road	Wind Farm - 1 turbine, 21 m in height.	5.86 west
P2018/0153 and P2022/0517 - Foel Trawsnant	Wind Farm - 11 turbine, 145 m in height.	6 north
DNS CAS-03678-M4Y0G7 – Upper Ogmre Wind Connection	Grid Connection (overhead line and underground cabling)	6 north
DNS/3213662 - Upper Ogmre	Wind Farm - 7 turbines, 130 m in height.	6.7 east
CAS-01773-Z5L1D0 - Mynydd y Gaer Wind Farm	Wind Farm - 9 turbines, 180 m – 230 m in height.	6.7 east
DNS/3213704 - Felindre Road - STOR	Installation of a stand-by energy generating station that when constructed will have an installed generating capacity of approximately 40MW.	8 north
P/20/42/FUL - Pant y Wal Extension (Phase 2)	Wind Farm - 2 turbines, 125 m in height.	8.43 north east

11.11.2 Discussion of the potential for key ornithological features to experience inter-project cumulative effects from the Proposed Development and the other developments listed in **Table 11.22** are provided in the following paragraphs.

Grid Connections

11.11.3 The proposed Foel Trawsnant Windfarm Connection (CAS-02505-N3T6M4), Y Bryn Wind Farm Connection and Upper Ogmre Wind Farm Connection projects respectively consist of 66 kV (kilovolt), 132 kV and 66 kV electricity network infrastructure developments comprising overhead lines and underground cables. Foel Trawsnant Wind Farm grid connection will start to the north, heading south through the western edge of Maesteg to a connection point with the existing overhead line approximately 2 km south west of the settlement of Llangynwyd. Y Bryn Wind Farm Connection is currently at EIA Scoping stage and is proposed to be connected to the National Grid Substation at Margam via NRW forestry before reaching open farmland. Finally, Upper Ogmre Wind Farm Connection is also at EIA Scoping stage and is proposed to extend beyond the Upper Ogmre Wind Farm to a connection point along the proposed Foel Trawsnant Wind Farm grid connection.

- 11.11.4 Should consent for Foel Trawsnant Wind Farm Connection be given, the project would be constructed within 0.32 km of the Proposed Development. Construction for the Foel Trawsnant Wind Farm Connection will begin in January 2028 and will take nine months to complete so both projects are not likely to overlap. Similarly, it is possible for the Y Bryn Wind Farm Connection and Upper Ogmere Wind Farm Connection to be constructed within the consent period of the Proposed Development. However, given the distance between the Site and the other developments (3.7 km and 6 km), and the nature of the developments, cumulative effects are not anticipated.
- 11.11.5 In the short-term it is anticipated there will be temporary habitat loss (e.g., woodland/grassland) during the construction phase from Foel Trawsnant Wind Farm Connection with additional mitigation anticipated to mitigate any potential long-term residual effects from the Foel Trawsnant Connection development. Further surveys in relation to Foel Trawsnant Windfarm Connection were proposed for 2025 to assess the bird assemblage present which could be affected by the project. Given the amount of suitable habitat within the wider landscape and lack of woodland removal/small amount of hedgerow removal within the Proposed Development, no significant cumulative effect on key ornithological features is anticipated, despite similar key ornithological features being identified during the baseline surveys for the project (e.g., red kite, goshawk and nightjar).

Nuclear energy developments

- 11.11.6 One project, namely Egni Glan Llynfi (Modular Nuclear), is proposed within 0.8 km of the Proposed Development. This other development relates to the provision of up to four modular nuclear reactor units with no emissions anticipated from the plant. PEDW has adopted a Scoping Direction for the Egni Glan Llynfi development, which recommends breeding bird surveys be undertaken. Given the land use as a previous coal fired power station and as stated in the scoping report, it would be anticipated the bird assemblage present would reflect a re-colonising bird assemblage to the urbanised environment with limited extents of mature trees, ancient woodland and the River Llynfi in proximity to the development. Therefore, despite more notable habitat in proximity of the Egni Glan Llynfi development it would be anticipated the site proposed for development would be of limited diversity and be largely restricted in the assemblage of species recorded. Additionally, the proposed nuclear power station utilises modular reactors and with the stated 5.5 hectares development footprint size the Egni Glan Llynfi development is unlikely to be of sufficient size to sustain notable populations of target species that could influence the populations present within the Site during the Proposed Development's operational phase. The wider ZOI for Egni Glan Llynfi is likely to be restricted to its immediate extents during operation as emissions are not anticipated from the proposed nuclear power plant. Therefore, despite the proximity, cumulative impacts are unlikely to significantly impact the bird assemblage present within the Site given the information currently available from the scoping direction.

Solar PV Developments

- 11.11.7 Two solar PV developments were identified within 10 km of the Site including Eirlys Solar Farm (CAS-01977-L5K6R7) and Ty'n Y Waun Solar (DNS/3279521). The closest of these is Eirlys, which proposes photovoltaic panels, a substation, underground cabling, Battery Energy Storage System and other associated infrastructure. Both other developments are situated >5 km from the Proposed Development and therefore outside of the core foraging areas for many key ornithological features, except for raptors (e.g., peregrine and hen harrier). These species were mainly recorded in low numbers within the Site and significant residual effects are unlikely from the Proposed Development. Furthermore, a relatively small raptor population was recorded during the baseline surveys for both Eirlys (red kite, scoped out) and Ty'n Y Waun (red kite, no evidence of breeding). Therefore, it is considered unlikely there would be significant cumulative effects from these solar PV farms with the Proposed Development.

Wind Farm Developments

- 11.11.8 Wind farms, and proposed wind farms, in the vicinity of the Proposed Development have been considered for the potential to give rise to cumulative effects. The proximity of the wind farms and whether they are operational, permitted, or pending (proposed) has been considered within this assessment. Wind farm projects with the potential to give rise to cumulative effects are presented below in **Table 11.23**.

Table 11.23 Summary of Wind Farms Relevant for Cumulative Effects

Development	Status	Distance (km)	Number of turbines	Tip height
Y Bryn Wind Farm	Submitted, not determined	1.78 north	18	206 - 250
Land At Kenfig Industrial Estate	Operational	5.31 south-west	1	100
Margam Wind Farm				
Cefn Gwrgan Road Wind Farm	Consented	5.86 north-west	1	21
Foel Trawsnant Wind farm	Consented	6 north	11	145
Mynydd y Gaer Wind Farm	Pre-application Consultation	6.7 east	11	180/198/230
Upper Ogmore Wind Farm	Consented	6.7 east	7	130

Development	Status	Distance (km)	Number of turbines	Tip height
Pant y Wal Extension (Phase 2) Wind Farm	Consented	8.43 north-east	2	125

- 11.11.9 Other developments within 10 km of the Proposed Development have the potential to cumulatively impact on the local ecology, particularly through increased fragmentation of the landscape, increased habitat disturbance, barrier effects, intensification of collision or displacement impacts on sensitive bird species.
- 11.11.10 Each additional turbine erected in the landscape can potentially increase the cumulative risk of collision for birds foraging and commuting through a landscape. For most species, their ecology and in particular their pattern of movement means that they will not experience an incremental increase in collision risk for each turbine erected (e.g., passerine species). For species with large home ranges, or those commuting long distances, there is a potential for individuals to experience a cumulative collision risk. Information from recovery of ringed and tagged birds indicates that losses associated with collision with road traffic and buildings, along with hunting and predation fatalities, are the most significant source of bird mortality (Wernham, et al., 2002) as opposed to collision with turbines. Observations of flightlines of key target species made during the breeding and wintering VP surveys indicate that the Site is not situated along any regular commuting routes for these species with no significant residual effects anticipated due to collision risk or disturbance/displacement. Therefore, significant cumulative displacement/barrier and collision risk effects are not anticipated.

Other Developments

- 11.11.11 Other developments identified in **Table 11.22** were considered for their potential to cause likely significant cumulative effects on the key ornithological features considered within this assessment, including decommissioning and construction of a tissue paper plant (WEPA Vesta), hydrogen production facility (HyBont Green Hydrogen), battery energy storage facility (Great Western Avenue, Coity Road, Battery Energy Storage), metal processing facility (Land West of Junction 38 M4) and energy generating station (Felindre Road – STOR). These developments either lie beyond the core ranges of the key ornithological features associated with the Site and/or are not of a sufficient scale whereby significant cumulative effects with the Proposed Development would be likely.

11.12 References

Avian Ecology. (2023). Appendix 11.1, Mynydd ty-Talwyn - 2021-2023 Ornithology Report.

Band, W. (2024). Using a collision risk model to assess bird collision risks for onshore wind farms. NatureScot.

Bridgend County Borough Council. (2014). Local Biodiversity Action Plan. Retrieved March 3, 2025, from <https://www.bridgend.gov.uk/council/plans-and-strategies/local-biodiversity-action-plan/#:~:text=The%20Local%20Biodiversity%20Action%20Plan,as%20organisms%20living%20in%20soil.>

Bridgend County Borough Council. (2014, July). Supplementary Planning Guidance 19 - Biodiversity and Development. Retrieved February 14, 2025, from <https://www.bridgend.gov.uk/media/a3fou4rh/spg-19-biodiversity-and-development.pdf>

Bridgend County Borough Council. (2024, March 31). Replacement Bridgend Local Development Plan 2018 to 2033. Retrieved February 14, 2025, from <https://www.bridgend.gov.uk/media/izcfgp1f/written-statement.pdf>

British Trust for Ornithology. (2025). BTO Bird Facts. Retrieved March 18, 2025, from <https://www.bto.org/understanding-birds/welcome-birdfacts>

Brown, A., & Shepherd, K. (1993). A method for censusing upland breeding waders. *Bird Study*, 40, 189-195.

Calladine, J., Garner, G., Wernham, C., & Thiel, A. (2009). The influence of survey frequency on population estimates of moorland breeding birds. *Bird Study*, 56, 381-388.

CIEEM. (2018 updated 2024). Guidelines for Ecological Impact Assessment (EclA). Retrieved March 07, 2025, from <https://cieem.net/resource/guidelines-for-ecological-impact-assessment-ecia/>

Commission, E. (2009). Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (Codified version).

Council of Europe. (1979). Convention on the Conservation of Migratory Species of Wild Animals. Retrieved February 5, 2025, from <https://rm.coe.int/1680078aff>

Drewitt, A., & Langston, R. (2006). Assessing the impacts of wind farms on birds. *IBIS*, 148, 29-42.

European Commission. (2012). Wind energy development and Natura 2000. European Commission.

Fuller, R. (1980). A method for assessing the ornithological interest of sites for conservation. *Biological Conservation*(17(3)), 229-239.

Gilbert, G., Gibbons, D., & Evans, J. (1998). Bird monitoring methods: a manual of techniques for key UK species. Sandy, Bedfordshire: RSPB.

Glamorgan Bird Club. (2022). East Glamorgan Bird Report.

Goodship, N., & Furness, R. (2022). Disturbance Distances Review: an updated literature review of disturbance distances of selected bird species. NatureScot.

Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B., & Thompson, D. (2013). Raptors: a field guide to survey and monitoring (3rd ed.). Edinburgh: The Stationary Office.

Harrison, C., Lloyd, H., & Field, C. (2016). Evidence review of the impact of solar farms on birds, bats and general ecology. Manchester: Manchester Metropolitan University on behalf of Natural England.

Hereward, H., Macgregor, C., Gabb, O., Connell, A., Thomas, R., Cross, A., & Taylor, R. (2024). Modelling population-level impacts of windfarm collision risk on Welsh Red Kites. BTO Research Report 766. British Trust for Ornithology.

HMSO. (1981). Wildlife and Countryside Act. Retrieved February 5, 2025, from <https://www.legislation.gov.uk/ukpga/1981/69>

HMSO. (2016). Environment (Wales) Act (as amended). Retrieved April 2026, from <https://www.legislation.gov.uk/anaw/2016/3/contents>

HMSO. (2017). The Conservation of Habitats and Species Regulations. Retrieved February 5, 2025, from <https://www.legislation.gov.uk/uksi/2017/1012/contents>

IUCN. (2024). The IUCN Red List of Threatened Species. Retrieved March 11, 2025, from <https://www.iucnredlist.org/>

Johnstone, I., Hughes, J., Balmer, D., Brenchley, A., Facey, R., Lindley, P., . . . Taylor, R. (2022). Birds of Conservation Concern Wales 4: the population status of birds in Wales. Milvus.

Joint Nature Conservation Committee. (2025). Retrieved February 5, 2025, from <https://jncc.gov.uk/>

Met Office. (2022). UKCP18 Key results (Excel spreadsheet). Retrieved from <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/summaries/index>

Multi-Agency Geographic Information for the Countryside. (2025). Retrieved February 5, 2025, from <https://magic.defra.gov.uk/MagicMap.aspx>

NatureScot. (2024). Guidance on using an updated collision risk model to assess bird collision risk at onshore wind farms. Retrieved March 14, 2025, from <https://www.nature.scot/doc/guidance-using-updated-collision-risk-model-assess-bird-collision-risk-onshore-wind-farms>

Neath Port Talbot Council. (2023). Biodiversity Duty Plan 2023-2026. Retrieved from <https://www.npt.gov.uk/culture-and-tourism/countryside-and-wildlife/wildlife-law-and-advice/biodiversity-duty-plan/>

Neath Port Talbot County Borough Council. (2016, January). Neath Port Talbot County Borough Council Local Development Plan (2011-2026). Retrieved February 14, 2025, from https://media.npt.gov.uk/media/ca2fbumd/ldp_written_statement_jan16.pdf?v=20240823155047

Pearce-Higgins, J., Stephen, L., Douse, A., & Langston, R. (2012). Greater impacts of windfarms on bird populations during construction than subsequent operation: results of a multi-site and multi-species analysis. *Journal of Applied Ecology*(49), 386-394.

Pearce-Higgins, J., Stephen, L., Langston, R., Bainbridge, I., & Bullman, R. (2009). The distribution of breeding birds around upland wind farms. *Journal of Applied Ecology*(46), 1323-1331.

Planning Inspectorate. (2024, September 20). Guidance, Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment. Retrieved from <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-cumulative-effects-assessment>

Ramsar Convention Secretariat. (1971). Convention on Wetlands of International Importance. Retrieved February 5, 2025, from https://www.ramsar.org/sites/default/files/documents/library/original_1971_convention_e.pdf

RSK Biocensus. (2025a). Appendix 11.2, 2024 - 2025 Wintering Bird Survey report.

RSK Biocensus. (2025b). Appendix 11.3, Ornithology Collision Risk Modelling report.

RSK Biocensus. (2025d). Ecological Baseline Report. Cardiff: RSK Biocensus.

Scottish Natural Heritage. (2000). Wind farms and birds: Calculating a theoretical collision risk assuming no avoiding action. Inverness: Scottish Natural Heritage.

Scottish Natural Heritage. (2016). Assessing Connectivity with Special Protection Areas (SPAs).

Scottish Natural Heritage. (2017). Recommended brd survey methods to inform impact assessment of onshore wind farms. Perth: Scottish Natural Heritage.

Scottish Natural Heritage. (2018). Avoidance Rates for the onshore SNH Wind Farm Collision Risk Model. September 2018 v2. Inverness: Scottish Natural Heritage.

Stanbury, A., Burns, F., Aebischer, N., Baker, H., Balmer, D., Brown, A., . . . Quinn, L. (2024). The status of the UK's breeding seabirds. *British Birds*, 471-487.

Welsh Assembly Government. (2009, September 30). Planning Policy Wales: Technical Advice Note - 5: Nature Conservation and Planning. Retrieved February 14, 2025, from <https://www.gov.wales/sites/default/files/publications/2018-09/tan5-nature-conservation.pdf>

Welsh Government. (2021, February 24). Future Wales - the National Plan 2040. Retrieved February 14, 2025, from <https://www.gov.wales/sites/default/files/publications/2021-02/future-wales-the-national-plan-2040.pdf>

Welsh Government Llywodraeth Cymru. (2024, February). Planning Policy Wales. Retrieved February 14, 2025, from <https://www.gov.wales/sites/default/files/publications/2024-07/planning-policy-wales-edition-12.pdf>

Wernham, C., Toms, M., Marchat, J., Clark, J., Siriwardena, G., & Baillie, S. (2002). The Migration Atlas: Movements of the birds of Britain and Ireland. Edinburgh: T & AD Poyser Ltd (A & C Black).

Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., . . . Noble, D. (2020). Population estimates of birds in Great Britain and the United Kingdom. British Birds, 113, 69-104.