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Bird Survey Report

Land at Higher Biscovillack,

St Austell, Cornwall

November 2025

A report by

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Report details

Site address:	Land at Higher Biscovillack, Trenance Downs, Saint Austell PL25 5RH
Central Grid reference:	SW997544
Report date:	14th November 2025
Report author:	James Gilroy BSc (Hons), MSc
Report reviewer:	Colin Hicks BSc (Hons), MCIEEM

Report reference: WOR-5806

Declaration of compliance
BS 42020:2013

This study has been undertaken in accordance with British Standard 42020:2013 Biodiversity, Code of practice for planning and development.

Code of Professional Conduct

The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

Validity of survey data and report

The findings of this report are valid for 24 months from the date of survey. If work has not commenced within this period, an updated survey by a suitably qualified ecologist will be required.

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1. Introduction

1.1. Background

Western Ecology have been commissioned to undertake combined summer and winter bird vantage point surveys (VP) and breeding bird surveys for proposed wind turbine development.

1.2. Proposed development

The proposed development concerns construction and operation of a single Vestas 117 (4.3MW) turbine with blade tip height of 135m and a hub height of 76.5m. Associated infrastructure includes a temporary construction compound, new access tracks and hardstanding areas.

1.4. Survey aims

This report considers potential impacts of the proposed development on ornithological receptors at this site, associated with construction, operational and decommissioning phases.

This report determines the existing ornithological baseline associated with the site, identifies potential effects of predicted impacts on ornithological receptors, describe any mitigation measures required to address likely significant effects and assess the cumulative impacts associated with other operational or proposed wind farms in the local area.

1.5. Site location

The location of the proposed turbine is within an existing agricultural field located approximately 1.3km to the east of Blackpool pit, and approximately 2km to the north of the town of St Austell.

2. Survey Methodology

2.1. Desktop survey

A desktop survey was commissioned from the Environmental Records Centre for Cornwall & the Isles of Scilly (ERCCIS) - records were provided of non-statutory nature conservation sites and birds within 1km.

GIS datasets available from Natural England were assessed to determine the number and nature of statutory nature conservation sites within 5km.

2.2. Habitat assessment

Habitats within the footprint of the proposed development and at its immediate margins have been assessed for their potential to support roosting, breeding and foraging birds.

2.3. Vantage point surveys

A breeding season Vantage Point Survey (VPS) is currently underway with completed survey effort covering May to August to date. A passage/winter VPS is also currently on-going and covers the period from October 2025 to February 2026. The survey methodology followed that given by Scottish Natural Heritage (SNH, 2000) in their guidance 'Recommended bird survey methods to inform impact assessment of onshore wind farms'.

The surveys were completed by Martin Rule (MR), an experienced ornithologist with experience of wind turbine developments. Surveys were undertaken from a single location (see Map 1), designed to provide sufficient coverage of the turbine envelopes and scheduled to capture a variety of times and weather conditions. Surveys lasted for 3hrs each (Table 1).

During each VPS, the surveyor recorded the species, number of individuals, duration and direction for each flight. The height of each flight was recorded at 15 second intervals using a system of four height bands:

- Band A – 0-10m – below blade sweep;
- Band B – 11-50m –blade sweep for smaller turbines;
- Band C – 51-135m – blade sweep for taller turbines; and
- Band D - >130m – above blade sweep.

The survey area of the VPS included the proposed turbine locations and visible land to all sides within a prescribed buffer (blade length + 500m) and are shown in Map 1.

Table 1. VPS times and conditions for breeding season period

Survey No.	Duration (hrs)	Surveyor	Date	Time	Weather
1	3	MR	25.05.25	18:15 – 21:15	Dry and overcast. 18°C, cloud cover: 100%, wind force: 1-2 SW
2	3	MR	29.05.25	17:30 – 20:30	Dry and patchy sun. 18°C, cloud cover: 60%, wind force: 3-4 SW
3	3	MR	04.06.25	09:00 – 12:00	Overcast with occasional light showers. 14°C, cloud cover: 95%, wind force: 2-3 WSW
4	3	MR	10.07.25	12:05 – 15:05	Dry with sunny spells. 22°C, cloud cover: <10%, wind force: 1-2SE
5	3	MR	29.07.25	15:35 – 18:35	Dry and overcast. 21°C, cloud cover: 70-90%, wind force: 2-3 NW
6	3	MR	19.08.25	14:45 – 17:45	Dry, overcast with sunny spells. 16°C, cloud cover: 70%, wind force: 0-1 S
7	3	MR	28.08.25	09:45 – 12:45	Patchy sun and dry. 15°C, cloud cover: 50-75%, wind force: 2-3 WSW
To be continued in March to April 2026					

This level of survey effort has provided a total of 21hrs of the required 36hrs during the breeding bird period.

Table 2. VPS times and conditions for winter/passage period

Survey No.	Duration (hrs)	Surveyor	Date	Time	Weather
1	Currently on-going October 2025 to February 2026				
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

This level of survey effort will provide a minimum of 36hrs during the passage/wintering period.

Target species for vantage point surveys

The target bird species for the VPS were based on those species which are identified by *Natural England TIN 069 – Assessing the effects of onshore wind farms on birds*. Other secondary species included raptors, wildfowl, gulls and waders, with particular attention paid to Schedule 1/NERC s41/BoCC 5 Red/Amber species.

Table 3. List of bird Target species for VPS at Dubbers

Common name	Natural England TIN 069	Local records
Arctic tern	Y	Y
Barnacle Goose	Y	Y
Bean goose	Y	

Bewick's swan	Y	
Bittern	Y	Y
Black Grouse	Y	
Common Crane	Y	Y
Common Tern	Y	Y
Curlew	Y	Y
Dark-bellied Brent Goose	Y	
Dunlin	Y	Y
Golden Plover	Y	Y
Grey Heron	Y	Y
Hen Harrier	Y	Y
Honey Buzzard	Y	
Kestrel	Y	Y
Lapwing	Y	Y
Little Egret	Y	Y
Little Tern	Y	Y
Marsh Harrier	Y	Y
Merlin	Y	Y
Montagu's Harrier	Y	Y
Nightjar	Y	
Osprey	Y	Y
Peregrine Falcon	Y	Y
Pink-footed Goose	Y	Y
Red kite	Y	Y
Roseate Tern	Y	
Sandwich Tern	Y	
Shelduck		Y
Snipe		Y
Stone curlew	Y	Y
Tufted Duck		Y
White-fronted Goose	Y	Y
Whooper Swan	Y	Y

Wind turbine collision risk for target species has been estimated using the method outlined by NatureScot (2024), based on the report by Band (2024). Collision risk estimates have been made based on the turbine parameters of the existing turbine and the proposed turbine to enable a comparison between to the two scenarios.

Species that are not included in the collision risk analysis are either not of conservation concern or are at low collision risk due to their flight behaviour, and/or are species which are infrequently present within the study area.

The model estimates the number of collisions through a process of five stages:

- *Stage A* uses bird survey data to establish the density of flying birds in the vicinity of the turbines, and the proportion flying at a risk height, between the lowest and highest points of the rotors;
- *Stage B* provides an estimate, based on the bird density and proportion at risk height, of the potential number of bird passages through rotors in the period in question;
- *Stage C* calculates the probability of collision during a single bird rotor transit;
- *Stage D* estimates the potential collision rate for a bird species, assuming current levels of bird use of the site, allowing for the proportion of time that turbines are not operational;
- *Stage E* takes account of the proportion of birds likely to avoid the wind farm or its turbines, either because they have been displaced from the site or because they take

evasive action or are attracted to the wind farm, e.g. in response to changing habitats.

This approach is undertaken using a standardised 'master' spreadsheet into which all required data is entered and which presents the collision risk output.

Full details of this method and the master spreadsheet are available at: https://www.nature.scot/doc/guidance-using-updated-collision-risk-model-assess-bird-collision-risk-onshore-wind-farms.

Bird species biometric data for inputting into the master spreadsheet was obtained from BTO BirdFacts website (available at https://www.bto.org/learn/about-birds/birdfacts). Flight speed data was obtained using published sources, or where unavailable, using published data for comparable species. Hours of daylight during the survey periods were calculated by the master spreadsheet using the latitude of the proposed turbine.

2.5 Breeding Bird Survey

A Breeding Bird Survey (BBS) is currently underway with a single visit completed to date. The survey visit was completed by Martin Rule in May 2025. Full survey details are contained in Table 4 below. The survey methodology was based on a combination of the standard Common Bird Census (CBC) methodology (Bibby et al. 2000), and the breeding bird survey methodology published by the Bird Survey & Assessment Steering Group (BSAG) (2025)[1]. CBC is a territory mapping approach used to estimate the quantity and distribution of the breeding territories of each species encountered within the survey area – in this case, land inside the red line boundary and within a 50 m buffer area around it. The breeding bird survey methodology is intended for the purpose of assessing ornithological impacts from development proposals.

Table 4 – breeding bird survey timings and weather conditions

Survey no.	Date	Start time	Finish time	Weather
1	17/06/2025	05:30	07:15	Temp: 13-16°C, Wind: F0-1, Cloud cover: <10%, Precipitation: none
2	To be completed in March/April 2026			
3	To be completed in April/May 2026			

The conservation status of each species recorded was determined based on the following criteria:

Birds of Conservation Concern 5

Commonly referred to as the UK Red List for birds, this is the fourth review of the status of birds in the UK, Channel Islands and Isle of Man, and updates the last assessment in 2009. Using standardised criteria, 244 species with breeding, passage or wintering populations in the UK were assessed by experts from a range of bird NGOs and assigned to the Red, Amber or Green lists of conservation concern.

[1] Bird Survey & Assessment Steering Group. (2025). Bird Survey Guidelines for assessing ecological impacts

Red list species are those that are Globally Threatened according to IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and not shown a substantial recent recovery.

Amber list species are those with an unfavourable conservation status in Europe.

Species on the Green List fulfil none of the above criteria and are of least conservation concern.

Schedule 1 of the Wildlife and Countryside Act (1981)
The Wildlife and Countryside Act 1981 (as amended) affords greater protection to certain breeding species and are as such listed as specially protected under Schedule 1 of the Act.

Biodiversity Action Plan species
Species of bird are listed as Local Biodiversity Action Plan Priority Species and species are listed as species of principal importance (Section 7 of the Environment (Wales) Act 2016).

Classification of breeding status
The results of the breeding bird surveys were assessed against the European Ornithological Atlas Committee (EOAC) criteria for breeding bird status as follows:

Non-breeding
- Flying over
- Species observed but suspected to be still on Migration
- Species observed but suspected to be summering non-breeder

Possible breeder
- Species observed in breeding season in suitable nesting habitat
- Singing male present (or breeding calls heard) in breeding season in suitable breeding habitat.

Probable breeding
- Pair observed in suitable nesting habitat in breeding season
- Permanent Territory presumed through registration of territorial behaviour (song etc) on at least two different days a week or more part at the same place or many individuals on one day
- Courtship and Display (judged to be in or near potential breeding habitat; be cautious with wildfowl)
- Visiting probable Nest site
- Agitated behaviour or anxiety calls from adults, suggesting probable presence of nest or young nearby
- Brood patch on adult examined in the hand, suggesting Incubation
- Nest Building or excavating nest-hole

Confirmed breeding

- Distraction-Display or injury feigning
- Used Nest or eggshells found (occupied or laid within period of survey)
- Recently Fledged young (nidicolous species) or downy young (nidifugous species). Careful consideration should be given to the likely provenance of any fledged juvenile capable of significant geographical movement. Evidence of dependency on adults (e.g. feeding) is helpful. Be cautious, even if the record comes from suitable habitats
- Adults entering or leaving nest-site in circumstances indicating Occupied Nest (including high nests or nest holes, the contents of which cannot be seen) or adults seen incubating Adult carrying Faecal sac or Food for young
- Nest containing Eggs
- Nest with Young seen or heard.

2.6. Nightjar surveys

A walked transect was conducted across the site and immediate surroundings. (Map 1). This transect route gave optimal coverage of the Site, allowing any potential Nightjar to be clearly seen displaying or heard churring.

Following standard RSPB guidelines, surveys were carried out by Martin Rule in the period mid-May to late July, between 30 mins before sunset to 1.5 hours after sunset and in suitable weather conditions (dry and wind less than Beaufort 3). Survey conditions are detailed below in Table 5.

Table 5. Nightjar survey dates and weather conditions.

Survey no.	Date	Time	Weather
1	29.05.25	20:50 – 23:15 (sunset 21:15)	Dry, calm and overcast. Temp: 15° C, cloud cover: 80-100% and wind force: 2-3SW
2	26.06.25	21:00-23:05 (sunset 21.34)	Dry, overcast and calm. Temp: 17°C, cloud cover: 100% and wind force: 0-1SW
3	29.07.25	20:40-22.40 (sunset 21.07)	Dry, patchy cloud and calm. Temp: 17°C, cloud cover: 76% and wind force: 1-2NW

2.7. Survey constraints

Weather conditions were suitable for all VP surveys, with sufficient visibility for adequate coverage of the survey area.

The survey effort for the breeding season VP survey that has been undertaken to date provides 21hrs of survey effort out of the required 36hrs and is therefore incomplete. The collision estimates provided here are based on data representative of this shorter survey effort and give an indication of likely magnitude of impact but which may change once analysis has been conducted using the complete dataset. The remaining survey effort will be completed in March to April 2026.

The passage/winter VP survey is currently on-going and will cover the period October 2025 to February 2026. Estimates of predicted collision mortality will be provided once this dataset is complete.

The collision risk model used here is based on a variety of standardised assumptions such as biometric data and turbine parameters and therefore provides a mathematical estimate of likely collision, rather than predicting factual scenarios. These estimates must then be used as a tool to inform impact assessments, while associated errors and limitations are recognised.

All areas of the site were readily accessible for the BBS. The BBS was carried out at suitable times and during favourable weather conditions. Although the current guidelines recommend six visits which is considered necessary for complex habitats such as woodland, the three visits undertaken here provide a sound representation of bird activity at this site given the relatively simple habitat composition.

There are no significant constraints to the results of this survey.

2.6. Study area

The study area of the biological records search is within a 5km radius of the site for bird species. The survey area of the VPS included visible land to all sides within 500m+ blade length from the turbine and shown in Map 1. The survey area for the breeding bird survey and nightjar covers all land within 250-500m of the proposed turbine location, as shown in Map 1.

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Legend

Survey areas

- VP - 559m
- BBS & Nightjar
- Proposed turbine location
- VP surveyor location

Title: Map 1. Bird survey map

Project: Land at Higher Biscovillack, St Austell, Cornwall

Checked by: CDH
Version: 01
Date: 12/11/2025

3. Results

3.1. Desktop survey

The record search returned numerous records for birds, many of which are common widespread species. Records for notable species are shown in Table 6 below.

Table 6. Notable bird species records within 1km

Species	National Designation	National Status	Count
Barn Owl	WACA-Sch1_part1		8
Black-headed Gull		Bird-Amber, Bird_RedList_GB_post2001-LC_Breeding,Bird_RedList_GB_post2001-VU_NonBreeding	2
Brambling	WACA-Sch1_part1		1
Common Gull		Bird-Amber	2
Common Sandpiper		Bird-Amber, Bird_RedList_GB_post2001-VU_Breeding	1
Dartford Warbler	WACA-Sch1_part1	Bird-Amber, Bird_RedList_GB_post2001-VU_Breeding	2
Dipper		Bird-Amber, Bird_RedList_GB_post2001-NT_Breeding	10
Dunnock		Bird-Amber	106
Fieldfare	WACA-Sch1_part1	Bird-Red, Bird_RedList_GB_post2001-CR(PE)_Breeding,Bird_RedList_GB_post2001-LC_NonBreeding	16
Firecrest	WACA-Sch1_part1		4
Gadwall		Bird-Amber	1
Goldeneye	WACA-Sch1_part2	Bird-Red, Bird_RedList_GB_post2001-VU_Breeding,Bird_RedList_GB_post2001-VU_NonBreeding	1
Great Black-backed Gull		Bird-Amber, Bird_RedList_GB_post2001-EN_NonBreeding,Bird_RedList_GB_post2001-LC_Breeding	3
Green Sandpiper	WACA-Sch1_part1	Bird-Amber, Bird_RedList_GB_post2001-EN_Breeding,Bird_RedList_GB_post2001-EN_NonBreeding	3
Greenfinch		Bird-Red, Bird_RedList_GB_post2001-EN_Breeding	178
Grey Heron		Bird_RedList_GB_post2001-LC_NonBreeding,Bird_RedList_GB_post2001-NT_Breeding	9
Grey Wagtail		Bird-Amber, Bird_RedList_GB_post2001-NT_Breeding	19
Hen Harrier	WACA-Sch1_part1	England_NERC_S.41, Bird-Red, Bird_RedList_GB_post2001-VU_Breeding	1
Herring Gull		Bird-Red, Bird_RedList_GB_post2001-DD_Breeding,Bird_RedList_GB_post2001-EN_NonBreeding	257
Hobby	WACA-Sch1_part1		2
House Martin		Bird-Red, Bird_RedList_GB_post2001-VU_Breeding	69
Kestrel		Bird-Amber, Bird_RedList_GB_post2001-VU_Breeding	12
Lapwing		England_NERC_S.41, BAP-2007, Bird-Red, Bird_RedList_GB_post2001-EN_Breeding,Bird_RedList_GB_post2001-VU_NonBreeding	2

Lesser Black-backed Gull		Bird-Amber, Bird_RedList_GB_post2001-DD_Breeding	4
Lesser Spotted Woodpecker		Bird-Red, Bird_RedList_GB_post2001-EN_Breeding	1
Linnet		Bird-Red, Bird_RedList_GB_post2001-NT_Breeding	19
Mallard		Bird-Amber, Bird_RedList_GB_post2001-LC_Breeding,Bird_RedList_GB_post2001-NT_NonBreeding	7
Marsh Tit		Bird-Red, Bird_RedList_GB_post2001-VU_Breeding	9
Meadow Pipit		Bird-Amber	27
Mistle Thrush		Bird-Red, Bird_RedList_GB_post2001-VU_Breeding	10
Nightjar		England_NERC_S.41, BAP-2007, Bird-Amber	18
Pochard		Bird-Red, Bird_RedList_GB_post2001-EN_Breeding,Bird_RedList_GB_post2001-EN_NonBreeding	2
Red Kite	WACA-Sch1_part1		4
Redwing	WACA-Sch1_part1	Bird-Amber, Bird_RedList_GB_post2001-CR_Breeding,Bird_RedList_GB_post2001-LC_NonBreeding	59
Reed Bunting		England_NERC_S.41, BAP-2007, Bird-Amber	11
Ring Ouzel		England_NERC_S.41, BAP-2007, Bird-Red, Bird_RedList_GB_post2001-VU_Breeding	3
Rook		Bird-Amber, Bird_RedList_GB_post2001-NT_Breeding	238
Scaup	WACA-Sch1_part1	England_NERC_S.41, BAP-2007, Bird-Red, Bird_RedList_GB_post2001-EN_NonBreeding	1
Skylark		England_NERC_S.41, Bird-Red	14
Snipe		Bird-Amber, Bird_RedList_GB_post2001-LC_Breeding,Bird_RedList_GB_post2001-NT_NonBreeding	3
Song Thrush		Bird-Amber	53
Sparrowhawk		Bird-Amber, Bird_RedList_GB_post2001-NT_Breeding	12
Spotted Flycatcher		England_NERC_S.41, BAP-2007, Bird-Red	1
Starling		Bird-Red, Bird_RedList_GB_post2001-LC_NonBreeding,Bird_RedList_GB_post2001-VU_Breeding	55
Stock Dove		Bird-Amber	1
Tawny Owl		Bird-Amber, Bird_RedList_GB_post2001-NT_Breeding	130
Teal		Bird-Amber	7
Tree Pipit		England_NERC_S.41, BAP-2007, Bird-Red	2
Wheatear		Bird-Amber	1
Willow Tit		Bird-Red, Bird_RedList_GB_post2001-EN_Breeding	1
Woodcock		Bird-Red, Bird_RedList_GB_post2001-LC_NonBreeding,Bird_RedList_GB_post2001-VU_Breeding	4
Woodpigeon		Bird-Amber	271
Wren		Bird-Amber	166
Yellow Wagtail		Bird-Red, Bird_RedList_GB_post2001-NT_Breeding	1
Yellowhammer		England_NERC_S.41, BAP-2007, Bird-Red	5

Statutory Nature Conservation Sites (SNCS)

There are two Sites of Special Scientific Interest (SSSI) located within 2km of the Site, both of which are designated for geological value. St Mewan Beacon SSSI is located approximately 1.6km to the south (at the closest point), while Wheal Martyn SSSI is located approximately 1.1km to the south-east of the cable route (at the closest point).

Impact Risk Zones

The Site is not within an area identified as a SSSI Impact Risk Zone for this type of development.

SSSIs do not need to be considered further and can be screened out at this stage.

Non-statutory Nature Conservation Sites (NNCS)

There are three County Wildlife Sites located within 2km of the Site.

A small section of Burngullow Common and Glover Valley CWS is located within the Site and is adjacent to the south of the site. This CWS is designated for presence of priority habitats such as lowland heathland.

Longstone Downs CWS is located 1.2km north-west of the cable route, which is designated as an area containing the priority habitat Lowland Heathland.

Hensbarrow CWS is located approximately 1.9km to the north of cable route (at the closest point). This CWS is designated for presence of priority habitats such as lowland heathland and priority species such as pale dog-violet, grasshopper warbler and skylark.

Due to limited transboundary effects, Longstone Down CWS, and Hensbarrow CWS can be screened out at this stage.

Burngullow Common and Glover Valley CWS is brought forward for further assessment

3.2. Habitat assessment

The site of the proposed turbine predominantly concerns a group of three agricultural fields situated within a broadly rural area. The fields are grazed by livestock and comprise short sward grassland. One of the fields (in which the turbine would be sited) is relatively large and open while the other fields are small and enclosed. Cornish hedgebanks provide the field boundaries while other semi-natural habitats (such as scrub, heathland, rough grassland and woodland) are present beyond the field boundaries.

The larger field features sufficient size and openness to provide suitability for ground nesting species such as skylark, however the agricultural management (i.e stocking density) may constrain overall suitability. The Cornish hedgebanks that enclose the fields, as well as scrub and woodland habitats will provide suitable nesting habitat for a variety of farmland and woodland species.

The larger field also provides potential for flocks of notable wintering species and they may also be active within/around the airspace of the proposed turbine.

A variety of raptor species are likely to be attracted to the semi-natural habitats in the local area as they will support prey items and as such are likely to be active within the airspace of the proposed turbine.

There are records for Nightjar in the local area. Habitats associated with the development footprint provide negligible suitability. An area within 500m to the south, which supports a mix of rough grassland, scattered scrub and heathland habitats, offers suitability for breeding nightjar.

The construction and operation of a single turbine therefore has the potential to impact local bird populations through impacts such as habitat loss, disturbance/displacement and collision mortality.

3.3. Bird VP surveys

VPS were completed from a location which overlooked the survey area (Map 1). This allowed robust coverage of birds transiting though the airspace of the wind farm from all directions.

Summary of breeding season flight activity

Bird flight activity recorded during the VP survey undertaken between May to August 2025 mostly concerned gulls and raptors. The species recorded and flight activity data are detailed in Table 8.

Gull species were the most frequently recorded species group and of that, herring gull was the most regularly occurring bird. Gull flights were mostly transiting through the survey area with some occasional soaring, particularly by herring gull. Gulls were mostly in small groups of several individuals, with a flock of six being the peak count (herring gull). Greater black-backed gull was only occasionally recorded while only a single lesser black-backed gull flight was recorded.

Buzzard was recorded during every survey visit and activity mostly involved foraging over the survey area (and wider area), with soaring activity frequently observed particularly associated with steeper topography to the east. Individual birds were also observed landing within and flying from habitats within the survey area (such as Cornish hedgebanks and grass fields). Buzzard was always recorded as individuals.

Kestrel was frequently recorded and was mostly as individuals although a pair was observed once. Kestrel activity concerned foraging flights and was particularly associated with two broad areas; the vegetated slopes of a large spoil tip to the east of the proposed turbine, and an area of rough grassland/bracken to the south of the proposed turbine.

Sparrowhawk was occasionally recorded, and activity involved a mixture of transiting through the survey area and hunting.

Single lesser black-backed gull and hobby flights were recorded and both species were transiting the through the survey area. Due to lack of data, collision estimates were not calculated out for these two species.

Table 8 – Provisional bird species recorded during breeding season VPS

Species	Total number of birds flights	Max count during single flight activity	Flight height bands
Buzzard	19	1	A-D
Greater black-backed gull	5	1	B-D
Herring gull	125	6	A-D
Hobby	1	1	C
Kestrel	9	2	B-D
Lesser black-backed gull	1	1	C
Sparrowhawk	7	1	A-D

Summary of winter flight activity

The passage/wintering VPS is currently on-going. This section of the report will be updated once the survey effort is completed.

Table 7 – Bird species recorded during winter VPS

Species	Total number of birds flights	Max count during single flight activity	Flight height bands
To be determined once survey effort is completed			

3.4. Collision risk calculation

Calculating flight activity

Areal bird density (D_A) is the number of birds, in flight at any height at a given point in time, per unit area. D_A is most often recorded in bird seconds, which is particularly appropriate where bird numbers are low, and is usually expressed per square kilometre (km^2). Areal bird density can be calculated using the following expression:

$D_A = b / (t \times A)$ bird-seconds m^{-2}

Where:

- b = number of flight seconds from a vantage point;
- t = time (in seconds) that the vantage point is watched; and

A = area of the vantage point viewshed (km^2).

Collision risk estimates have been calculated based on parameters of the existing turbine, as well as bird biometric data, assumed nocturnal activity and assumed operational period of the turbine.

The term bird flight is used to describe each individual bird observed in the survey area, such that a transit of the survey area by a flock of 50 birds would comprise 50 bird flights, and a transit by a single bird would be one bird flight.

Details of the collision risk estimates are presented in Tables 9-13 below. Appendix 1 provides flight maps for each of the Target species.

Table 9. Wind turbine parameters

Specification	Proposed turbine
Model	Vestas 117 4.3MW
No. of blades per turbines	3
Max chord	4m
Mean pitch angle	25°
Maximum rotor speed	15 rpm
Rotor diameter	117m
Hub height	76.5m
Maximum blade height	135m
Minimum blade height	18m

Table 10. Provisional bird flight data for breeding season

Species	VPS viewshed (km^2)	Total duration of VPS[4] (s)	Time in flight (bird-secs)	Areal bird density (bird-secs/km^2)	Proportion flying at risk height
	A	*t*	*b*	*DA = b / (t x A)*	Q_{2R}
Buzzard	0.965	75600	1250	0.01713	61.84%
Greater black-backed gull			155	0.00213	96.41%
Herring gull			5930	0.081	77.16%
Kestrel			900	0.01234	52.49%
Sparrowhawk			185	0.00254	58.69%

Table 11. Bird flight data for passage/winter period

Species	VPS viewshed (km^2)	Total duration of VPS (s)	Time in flight (bird-secs)	Areal bird density (bird-secs/km^2)	Proportion flying at risk height

[4] Survey effort to date comprises 21hrs. This will be updated once survey effort is completed.

	A	*t*	*b*	*DA = b / (t x A)*	Q_{2R}
To be determined	0.965	129600	To be determined		

Table 12. Biometric data for target species

Target Species	Assumed bird speed m/s[7]	Bird length (m)	Wingspan (m)
Buzzard	11.6	0.54	1.2
Greater black-backed gull	13.7	0.72	1.56
Herring gull	12.8	0.6	1.4
Kestrel	10.1	0.34	0.76
Sparrowhawk	11.3	0.33	0.73

Table 13. Provisional estimated collisions from proposed turbine

Bird species	**No. of predicted collisions during passage/winter**	**No. of predicted collisions during breeding period (provisional)[9]**	**Combined estimated collisions per year**	**Combined estimated collisions across operational lifetime**
Survey data	*With applied avoidance rate and operational time[10]*	*With applied avoidance rate and operational time*	*Estimated collisions over passage/winter and summer*	*Estimated collisions over 40 years*
Buzzard	TBC[11]	0.02	TBC	TBC
Greater black-backed gull	TBC	0.01	TBC	TBC
Herring gull	TBC	0.3	TBC	TBC
Kestrel	TBC	0.1	TBC	TBC
Sparrowhawk	TBC	0.02	TBC	TBC

3.4 Cumulative impact with nearby wind turbine developments

The cumulative impact has been considered between this proposed development with other approved and proposed turbines in the local area. This concerns the following wind turbine developments:

[7] Flight speed data obtained from data provided by Pennycuick, 2001 and Alerstam et al. 2007

[9] This will be updated once full breeding VP survey effort is completed

[10] Avoidance rate of 98% applied to all species except gulls. Avoidance rate of 99.5% applied to gulls (Cook *et al.* 2014). Operational rate of 85% applied to no. of collisions, as detailed in Section 2.4

[11] To be confirmed once full passage/winter VP survey efforted is completed.

- PA20/09318 – single wind turbine with maximum blade tip height of 135m, Lower Longstones;
- PA21/07216 – single wind turbine with maximum blade tip height of 135m, Wheal Martyn;
- PA21/12493 – single wind turbine with maximum blade tip height of 135m, East Karslake;
- PA23/09937 – single wind turbine with maximum blade tip height of 135m, Burngullow; and
- PA23/10069 - single wind turbine with maximum blade tip height of 135m, Higher Goonamarth
- Two wind turbines with maximum blade tip height of 135m, Land at Dubbers (proposed - submission of application pending).

This calculation has been obtained by summing the estimated number of collisions (including avoidance rates) for each turbine developments listed above, using historic data from vantage point surveys (carried out by Western Ecology). Cumulative impact is detailed in Table 14 below and is expressed as a total number of collisions per annum.

Table 14. Cumulative impact of collision risk for target species for onshore wind developments in local area.

Species	Total predicted collisions per annum from 5 permissioned turbines	Total predicted collisions per annum from Dubbers turbines[12]	Provisional predicted collisions per annum from Higher Biscovillack turbine[13]	Cumulative number of collisions per annum
Buzzard	0.81	0.6	0.02	1.43
Common gull	<0.001	0.04	Not recorded	0.041
Great black-backed gull	0.075	Not recorded	0.01	0.085
Green sandpiper	Not recorded	<0.001	Not recorded	<0.001
Herring Gull	2.08	0.3	0.3	2.68
Kestrel	0.88	1.9	0.1	2.88
Lesser black-backed gull	0.107	<0.001	Seldom active	0.108
Peregrine	0.007	<0.001	Not recorded	0.008
Mallard	0.031	<0.001	Not recorded	0.032
Sparrowhawk	0.008	<0.001	0.02	0.029

3.5. Breeding bird transect survey

A total of 18 species of birds were recorded during the breeding bird transect undertaken in June 2025. Of the 18 species recorded, 11 species are declining and included in the BoCC5 Red or Amber lists, whilst six are also species of principal importance The remainder were common and widespread passerines. The full survey results are detailed below in Table 15.

[12] The calculated number of collisions for the Dubbers turbines is based on estimates from the breeding season data. This will be updated once the full passage/winter survey effort has been completed.

[13] The calculated number of collisions for the Higher Biscovillack turbine is based on estimates from incomplete breeding season data and does not include the passage/winter survey results. This will be updated once the full breeding and passage/winter survey effort has been completed.

Although these results are only from a single survey visit, they give an indication of the likely breeding assemblage associated with the Assessment Site and surrounding land. The breeding assemblage is moderate, but one that is typical of the local china clay pits area. The areas that are associated with the proposed turbine footings and construction areas supported little activity.

Most of the bird activity was associated with the margins of the Assessment Site where habitats include Cornish hedgebanks, rough grassland, scattered and continuous scrub and woodland.

Table 15. Provisional breeding bird survey results.

Species	BBS#1	BBS#2	BBS#3	Conservation status
BC	1	To be completed	To be completed	Green
BZ	1			Green
CC	1			Green
CH	2			Green
D.	3			Amber; NERC s41
GH	1			Red; NERC s41
GO	1			Green
HS	2			Red; NERC s41
LI	9			Red; NERC s41
MP	4			Amber
R.	4			Green
S.	1			Red; NERC s41
SC	4			Green
SD	2			Amber
ST	2			Amber; NERC s41
WP	3			Amber
WR	6			Amber
WW	3			Amber

3.6. Nightjar survey

No Nightjar activity was recorded during any of the survey visits. The full results of the Nightjar survey are detailed below in Table 16.

Table 16. Nightjar survey results

Survey no.	Number of nightjar recorded	Activity recorded	Assessment

1 2 3	None	None	No nightjar present

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