
Chapter 6: Birds

Introduction

- 6.1 The potential effect of the proposed wind farm on birds was scoped as a primary issue. While the proposed site was not known to support any particularly scarce or rare species, there are areas of international importance for wintering waterfowl along the Medina and parts of the northern shoreline of the Isle of Wight, and it was important to determine whether individuals or flocks from these areas used the site or made regular flights across it. Birds are often perceived to be at particular risk from wind turbines due to the risk of collision with moving blades, as well as possible habitat loss and disturbance effects.
- 6.2 Birds cannot sensibly be considered in isolation from other elements of the ecology of the site and surroundings, and the assessment has been integrated with that outlined in chapter 14 for habitats and other wildlife, which were considered of secondary significance in scoping. Due to the particular emphasis on birds, the extensive studies undertaken and the large volume of data collected and analysed, the bird assessment is reported in this separate chapter for clarity.
- 6.3 The scope of work was determined through the two scoping exercises, and through discussions and meetings in November 2005 with Nikki Hiorns of English Nature and Dr Colin Pope of the Isle of Wight Council (IoWC).
- 6.4 The bird surveys were carried out by qualified and experienced surveyors in optimum conditions in the recommended seasons during 2003 (Jonathan Cox Associates), 2003/2004 (Jonathan Cox Associates) and 2005/2006 (Terence O'Rourke).
- 6.5 The sources of data and references used for this chapter are set out in table 6.1.

Methodology

Baseline

- 6.6 Two related strands of survey work have been carried out to establish the baseline conditions at the site of the proposed wind farm and in the surrounding area:
- a desktop survey and consultation to collate existing available information
 - field surveys to identify and describe the range of species using the site and the wider area.

English Nature website: www.english-nature.org.uk
JNCC website: www.jncc.gov.uk
www.magic.gov.uk
IoWC website: www.iwight.com/living%5Fhere/planning/Countryside/Ecology/
UK BAP website: www.ukbap.org.uk/lbap.aspx?ID=452-4
Isle of Wight Biodiversity Action Plan Steering Group, July 2000. <i>Wildlife of the Isle of Wight – an audit and assessment of its biodiversity</i> .
Jonathan Cox Associates, October 2003. Breeding bird survey 2003, Manor Farm, Wellow, Isle of Wight. Unpublished report.
Jonathan Cox Associates, May 2004. Wintering bird survey 2003/2004, Manor Farm, Wellow, Isle of Wight. Unpublished report.
SNH, 2000. Windfarms and Birds: calculating a theoretical collision risk.
Thomas, R., (1999) An assessment of the impacts of wind turbines on birds at ten wind farm sites in the UK. <i>Sustainable Development International</i> : 215-220.
Langston, R.H.W. & Pullan, J.D., 2003, <i>Windfarms and Birds: an analysis of the effects of windfarms on birds, and guidance on environmental assessment criteria and site selection issues</i> . Report to the Convention on the Conservation of European Wildlife and Natural Habitats Standing Committee, 23 rd meeting, Strasbourg, 1 to 4 December 2003.
BTO: WeBS data for Newtown Harbour, 1994-1999 and 1999-2004
Table 6.1: references and sources of information

Desktop survey

- 6.7 Details of the statutory and non-statutory designations in the area were obtained from English Nature, the IoWC and the English Nature, JNCC and Magic websites (table 6.1). Information on biodiversity action plan bird species was obtained from the IoWC and the UK BAP website.
- 6.8 The Wetland Birds Survey data (WeBS) for local count sites along the coast was also obtained and analysed. Two data sets were obtained for Newtown Harbour from the British Trust for Ornithology. The first data set covers the period 1994-1999 and the second set the period 1999-2004. Data covering a ten-year period should be sufficient to detect trends in the wintering population.

Field surveys

- 6.9 A preliminary site visit, feedback from the scoping exercise and ongoing consultations, and the information from the desktop study were used to identify the detailed ornithological studies required at the site by:
- highlighting gaps in the available existing information where additional surveys were needed to provide a complete picture
 - identifying the limitations of available information where further surveys were required to enable an assessment to be undertaken using up-to-date and accurate information.

Breeding bird survey

- 6.10 Jonathan Cox Associates conducted the breeding bird survey between 10th April and 21st June 2003. The survey comprised 10 morning surveys between 06:00 and 12:00 and two evening surveys between 19:00 and 20:00. Surveys were carried out at 7 to 10-day intervals as determined largely by weather conditions.
- 6.11 The morning surveys were undertaken following a 10km route, taking the surveyor within sight and sound all birds within the boundaries of the study area. The evening surveys followed a shorter route taking in areas of the study area likely to be favoured by crepuscular and nocturnal species.
- 6.12 All field boundaries with suitable habitat were included within the survey route, notably hedgerows. The order in which the route was walked was intentionally varied between visits to ensure that peak bird activity was observed in each part of the land over the survey period.
- 6.13 Bird activity and behaviour was recorded onto 1:5,000 scale base maps during each survey using the BTO Common Bird Census nomenclature, with records subsequently transposed onto separate 1:5,000 scale base maps for each species or groups of species.

Wintering bird survey methodology, 2003/2004

- 6.14 Jonathan Cox Associates conducted the wintering bird survey between 18th November 2003 and 26th March 2004. The survey comprised eight visits, with six taking place monthly from November to February and two taking place in March. Each survey took place between dawn and early afternoon giving a total of 36 hours of field survey.
- 6.15 A 10km route was followed on each survey visit which included all field boundaries and ditches, bringing within sight and sound all birds within the boundaries of the study area.
- 6.16 Bird activity and behaviour was recorded onto 1:5,000 scale base maps during each survey using the BTO Common Bird Census nomenclature, with records subsequently transposed onto separate 1:5,000 scale base maps for each species or groups of species.

Review of survey results

- 6.17 The results of the desktop exercise and consultations with the RSPB, English Nature and the Isle of Wight Council ecologist following the first winter's surveys (2003/2004) suggested that further and more intensive surveys were required in the winter of 2005/2006. Due to the location and nature of the site, and the data previously collected, further breeding season data was not considered necessary, nor was any additional survey work in the spring or autumn migration period.
- 6.18 It was agreed that the winter bird survey should be repeated, as the status of some species of birds recorded from the site during 2003/04 was unclear.

Specific mention was made of a large flock of golden plover recorded on site in November 2003.

Wintering bird survey methodology, 2005/2006

- 6.19 Six visits were made to the site between November 2005 and March 2006. The total survey time was 43 hours and 50 minutes. The survey involved walking the whole site and recording all bird activity (seen or heard) on a large-scale map. The starting point for each of the six surveys was varied to ensure there was no bias relating to the time of day each part of the site was visited. All field boundaries and woodland on the site was walked.
- 6.20 The preliminary findings of the winter bird surveys were made available to IoWC, English Nature and the Royal Society for the Protection of Birds in January 2006. Due to the fact that golden plover were present on site in large numbers in both November and December, it was agreed that more intensive survey work was required. Therefore, a programme of weekly vantage point observations commenced in January 2006 to record flight activity of golden plover and other birds across the site. Vantage point watches were restricted to the winter period, as no populations of target species were considered vulnerable at other times of year. Questions were also raised about possible night-time use of the site by golden plover, so three night surveys were made in February and March. These involved walking around and across the site in good, moonlit conditions.
- 6.21 A total of 40 hours of vantage point observations were made on the site between 27th January and 30th March 2006. The purpose of this work was to map any flights of golden plover and other target species across the site during the period of observation. The site was checked briefly before the commencement of the vantage point work and the presence of any golden plover on site was recorded.
- 6.22 Other target species were considered to be those on Annex 1 of the EU Wild Bird Directive and all those species mentioned in the Ramsar and SPA citations for the Solent and Southampton Water.
- 6.23 Each vantage point watch lasted for two hours, with a maximum of eight hours observation undertaken in any one day. A short break was taken between the cessation of one set of observations and the commencement of another watch. The flight activity of target birds across the site was recorded in three flight bands: less than 20m above ground; 20-100m above ground; and above 100m. These correspond to flights below rotor height, at rotor height, and above rotor height. The duration of flights was also recorded. The main flight band in which activity was noted was recorded every 15 seconds.
- 6.24 It was also decided that some contextual information about use of this part of the Isle of Wight generally by golden plover would be useful, especially in relation to the birds more closely associated with protected coastal sites. Weekly survey work, aimed at locating golden plover feeding in the wider area, particularly around Newtown, was therefore undertaken between January

and March 2006. This survey was undertaken from footpaths and public roads and covered an area between Thorness, Yarmouth, Freshwater and Carisbrooke. The survey aimed to identify any golden plover flocks feeding within the survey area. The routes used during each of the surveys are shown on maps included in the Birds Technical Appendix.

Assessment of significance

- 6.25 The significance of potential effects has been determined using criteria developed from best practice techniques and expert knowledge. Significance has been derived from two measures: sensitivity of receptors (figure 6.1) and the magnitude of change (figure 6.2).
- 6.26 There are no known published ‘standard’ criteria for determining the significance of effects on birds, although the Institute for Ecology and Environmental Management (IEEM) is currently in the process of developing guidelines that will assist the standardisation of ecological impact assessment.
- 6.27 In the case of wind farm developments, birds can be affected through habitat loss, disturbance / displacement, and through mortality caused by collision. In the absence of any specific English guidance, the approach to collision risk assessment published by Scottish Natural Heritage has been used.
- 6.28 In determining whether an effect on a receptor is significant, reference has therefore been made to a wide range of criteria relating to bird populations such as productivity, growth, competitive ability and reproduction. Feeding the two sets of criteria (magnitude and sensitivity) into the significance matrix generates the generic definitions of the significance of potential effects as set out in figure 6.3.

Baseline

Results of desktop survey

- 6.29 Very little existing information about birds at the site was found. Most recorded field data is gathered by amateur ornithologists, who tend to concentrate on what are perceived to be the more interesting habitats such as the coastal wetlands. More information was available for the wider area, and in particular the coastal habitats covered by the Wetland Bird Surveys (WeBS).
- 6.30 Details of the statutory and non-statutory designations in the area were obtained from English Nature, the IoWC and the English Nature, JNCC and Magic websites (table 6.1). Information on biodiversity action plan habitats and species was obtained from the IoWC and the UK BAP website. The desktop study identified a number of statutory and non-statutory sites of nature conservation importance in the general area of the wind farm site. Most of these are considered in chapter 12. Of most relevance to birds are the Newtown Harbour and the Yar Estuary SSSIs, which include waterfowl

amongst their features of interest. Both are included in the Solent and Southampton Water SPA and Ramsar sites, which are designated for supporting both breeding and wintering bird populations of European importance.

- 6.31 The Solent and Southampton Water SPA is a wetland of international importance, designated under Article 4.1 of the Birds Directive for breeding terns and Mediterranean gulls. It also qualifies under Article 4.2 of the Directive for its wintering populations of dark-bellied Brent geese, ringed plover, teal and black-tailed godwit. It also qualifies as it regularly supports in excess of 20,000 wintering waterfowl.

WeBS data

- 6.32 Two data sets were obtained for Newtown Harbour. The first covers the period 1994 to 1999 and the second from 1999 to 2004.
- 6.33 The Newtown area traditionally holds a significant proportion of the wintering golden plover found on the Isle of Wight. The presence of golden plover in the Newtown area follows a well-established pattern. Passage birds generally begin to arrive during August and numbers continue to build until November. Peak numbers occur between November and March and fall rapidly during April. Golden plover are generally absent from the Harbour between May and July. A summary of the high tide WeBS data is provided in tables 6.3 to 6.5. Full copies of the information provided by the BTO can be found in the Birds Technical Appendix.

	J	F	M	A	M	J	J	A	S	O	N	D
5yr av count	243	284	135	7	0	0	0	3	18	48	60	118
5yr peak count	707	565	376	20	0	0	0	7	37	115	184	205

Table 6.3: Peak monthly counts of golden plover at Newtown Harbour (1994/1995 – 1998/1999)

	J	F	M	A	M	J	J	A	S	O	N	D
5yr av count	527	377	317	3	1	0	0	4	5	105	409	593
5yr peak count	730	580	625	10	1	0	0	8	20	240	500	700

Table 6.4: peak monthly counts of golden plover at Newtown Harbour (1999/2000 – 2003/2004)

	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04
Peak count	75	128	157	169	707	637	730	378	700	500
Month	Dec	Mar	Dec	Mar	Jan	Jan	Jan	Jan	Dec	Nov

Table 6.5: peak winter counts of golden plover at Newtown Harbour (1999/2000 – 2003/2004)

- 6.34 WeBS counts are made at monthly intervals and cover the high tide period. For species such as golden plover, not reliant on inter-tidal areas, these counts may

not present an accurate picture of use of an estuary by this species. A series of low tide counts were made during the winter of 1999/2000. The peak counts of golden plover made at low-tide are shown in table 6.6.

	Nov	Dec	Jan	Feb
Peak count	801	483	1027	1449

Table 6.6: peak low-tide counts 1999/2000

6.35 The low-tide survey estimated there was a 262 hectares of preferred habitat for golden plover around Newtown estuary (inter-tidal and non-tidal habitat). The mean site count over the winter period was 940 birds, giving a site density of 3.59 birds per hectare. Golden plover was the second most abundant wader around Newtown Estuary during the low tide period. Golden plover were concentrated on the enclosed saltmarsh and the enclosed mudflats of Newtown National Nature Reserve (NNR) and the adjacent flats by the main Newtown River.

Isle of Wight bird reports (1998-2003)

6.36 The Isle of Wight bird reports class golden plover as a locally common winter visitor. Highest counts are generally obtained from Newtown NNR. The pattern at this site shows that the first wintering and passage birds appear in August and September. Numbers increase markedly during the early winter period (October to December) and remain high through until March. Typically only small numbers remain in the area in April and May. Table 6.7 shows the peak monthly counts obtained from Newtown NNR between 1998 and 2003.

6.37 Records away from the core site at Newtown NNR are rather sporadic with no regular concentrations of birds noted. The majority of records relate to small numbers of golden plover, typically less than 10 birds. However, high counts are occasionally made of birds at other sites including 400 birds at Thorness (Jan, 2001) and 275 birds in Thorness Bay (Dec, 2003). The only other three-figure counts made between 1998 and 2003 were from Guyers Heath near Shalfleet (245 birds, Feb, 1998) and from the Western Yar (100 birds, Jan, 2003).

Year	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May
1998	8	16	115	223	381	76	418	230	40	-
1999	8	16	212	465	650	800	700	600	-	-
2000	15	25	240	340	600	649	649	550	17	1
2001	1	16	194	400	450	730	550	-	1	2
2002	1	35	283	600	800	600	376	235	3	-
2003	4	25	230	513	550	500	150	20	60	-

Table 6.7: peak monthly counts of golden plover at Newtown NNR from bird reports

- 6.38 During the period 1998-2003 flocks of birds between 10 and 60 in number have been recorded at Wellow (1998), Atherfield (1998, 2001-2003), Thorness Bay (2002), Western Yar (2002), Bembridge (2002), Sandown Airfield (2002), Afton Down (2003) and the River Medina (2001).
- 6.39 The pattern of records from the Isle of Wight bird reports suggests that golden plover range widely over the Island during the winter months. It is notable that there are no regular records of large concentrations of golden plover away from Newtown Estuary. The wide scatter of records would indicate that the birds are not favouring particular areas of the Island during the winter months. This is interesting, as golden plover demonstrate a high level of site fidelity in feeding and roosting areas. The evidence available would indicate that Newtown is the key area for wintering golden plover on the island with limited movement away from this area over the winter. Flocks of golden plover away from Newtown may be either birds from the Newtown flock or from the wider population wintering along the Solent. It is likely that in some winters, the winter population is supplemented by birds moving in response to hard weather in northern and eastern England or on the Continent. These birds are more likely to be seen away from traditional wintering areas.
- 6.40 An element of caution must be applied when attempting to use data from bird reports to establish the use of areas by birds. Records are submitted to the local recorders on a voluntary basis by enthusiasts. Unless standard surveys such as WeBS or CBC work have been undertaken, the records submitted are essentially random observations by ornithologists. Across the Island, habitats such as farmland with a perceived low ornithological interest are likely to be little visited by ornithologists especially during the winter months. Other aspects of observer bias also need to be considered such as the accessibility of land from footpaths, or viewing from roads. It should also be borne in mind that large flocks of birds, or birds in unexpected areas, are more likely to attract an observer's attention and be considered noteworthy. Therefore it is possible that inland fields visited by golden plover are missed, and that small numbers of golden plover feeding in fields are under recorded.

Field survey results

Breeding birds

- 6.41 A total of 48 species were recorded during the breeding survey, of which 27 held breeding territories. Of those species holding breeding territories, seven are Red list and three Amber list species. Table 6.8 outlines the species recorded, their protection status and the number of occupied territories.

Species	Status	Number of territories
Blackbird	Not classified	16
Blackcap	Not classified	4
Blue tit	Not classified	8
Buzzard	Not classified	1

Carrion crow	Not classified	4
Chaffinch	Not classified	17
Collared dove	Not classified	1
Dunnoek	Amber	5
Goldfinch	Not classified	1
Great tit	Not classified	3
Greenfinch	Not classified	7
Grey Partridge	Red	3
House sparrow	Red	4
Lapwing	Amber	2
Linnet	Red	6
Magpie	Not classified	2
Red-legged partridge	Not classified	9
Reed bunting	Red	2
Robin	Not classified	7
Rook	Not classified	1
Skylark	Red	56
Starling	Red	1
Swallow	Amber	1
Whitethroat	Not classified	20
Wood pigeon	Not classified	13
Wren	Not classified	17
Yellowhammer	Red	25
Table 6.8: breeding bird survey results		

Wintering birds, 2003/2004

- 6.42 Fifty-one species of wintering birds were recorded during the wintering bird survey.
- 6.43 Table 6.9 outlines the species detected, the maximum count on any one visit and the number of surveys on which particular species were recorded. More detail is given in the Birds Technical Appendix.

Species	Max	Surveys
Blackbird	13	6
Black-headed gull	70	2
Blue tit	9	6
Buzzard	3	5
Canada goose	31	2
Carrion crow	6	6
Chaffinch	28	6
Chiffchaff	1	1
Collared dove	2	3
Curlew	3	1
Dunnoek	2	6

Feral pigeon	30	4
Fieldfare	175	4
Goldcrest	2	3
Golden plover	104	3
Goldfinch	4	3
Gt. spotted woodpecker	1	4
Great tit	11	5
Greenfinch	5	3
Grey heron	1	1
Grey partridge	4	3
Herring gull	2	1
House sparrow	2	2
Jackdaw	45	3
Jay	2	1
Kestrel	2	6
Linnet	1	1
Long-tailed tit	8	4
Magpie	2	4
Mallard	4	3
Meadow pipit	25	3
Merlin	1	1
Peregrine	3	1
Pheasant	21	6
Pink-footed goose	3	1
Raven	1	1
Red-legged partridge	45	6
Redwing	21	2
Reed bunting	2	3
Robin	11	6
Rook	118	6

Table 6.9: 2003/2004 wintering bird survey results

Wintering birds, 2005/2006

6.44 Six visits were made to the site between November 2005 and March 2006. The dates, times and weather conditions during each survey, along with the number of species recorded during each visit, are shown in the Birds Technical Appendix, along with more detailed notes and observations. Table 6.10 summarises the species recorded, the maximum number on any visit, and the number of surveys in which it was recorded.

Species	Max	Surveys
Barn owl	1	1
Barnacle goose	6	1
Black headed gull	85	4
Blackbird	43	6
Blue tit	26	6
Bullfinch	1	2
Buzzard	12	6
Canada goose	138	6

Carrion crow	45	6
Chaffinch	107	6
Collared dove	4	4
Common gull	1	1
Coot	2	3
Cormorant	1	2
Curlew	2	1
Dunnock	17	6
Feral pigeon	12	4
Fieldfare	83	6
Goldcrest	6	6
Golden plover	535	3
Goldfinch	9	4
Great spotted woodpecker	2	3
Great tit	19	6
Green woodpecker	1	1
Greenfinch	15	6
Grey heron	2	2
Grey partridge	3	3
Hen harrier	1	1
Herring gull	10	2
House sparrow	5	5
Jack snipe	1	1
Jackdaw	127	6
Jay	2	5
Kestrel	3	6
Lapwing	35	2
Linnet	46	6
Long-tailed tit	14	3
Magpie	6	6
Mallard	30	6
Meadow pipit	72	6
Merlin	1	2
Mistle thrush	2	3
Moorhen	1	1
Peregrine	1	3
Pheasant	20	6
Pied wagtail	8	6
Raven	2	3
Red-legged partridge	25	6
Redwing	12	2
Reed bunting	3	5
Robin	31	6
Rook	368	6
Skylark	43	6
Snipe	4	4
Song thrush	58	6
Sparrowhawk	2	4
Starling	120	6

Stock dove	4	4
Stonechat	13	5
Teal	2	3
Wood pigeon	1101	6
Wren	46	6
Yellowhammer	95	6

Table 6.10: 2005/2006 wintering bird survey results

- 6.45 A total of 63 species were recorded during the 2005/2006 winter bird survey, compared to 51 species in the winter of 2003/2004. 48 species are common to both lists. Whilst the majority of birds recorded on the site during the winter period are common and widespread species, a number of rarer species were recorded in both surveys including merlin, peregrine and golden plover.
- 6.46 The 15 species recorded during the winter of 2005/2006 that had not been recorded during the 2003/04 survey work included common species such as pied wagtail and green woodpecker as well as scarce wintering species such as hen harrier and jack snipe.
- 6.47 The three species recorded during 2003/2004 but not in 2005/06 were pink-footed goose, wheatear and chiffchaff. Pink-footed geese are an extremely scarce visitor to the Isle of Wight and it is not surprising that the exceptional record of three birds made during December 2003 was not repeated during this survey. It is likely that the prolonged period of bitter easterly and northerly winds during mid-to-late March slightly delayed the arrival of early spring migrants to the Isle of Wight, resulting in the absence of chiffchaff and wheatear during the winter bird surveys. Both species were recorded on or close to the site in late March, during the course of other survey work.
- 6.48 A number of non-passerines were recorded on site that are of conservation interest, particularly raptors and owls. A brief summary of the key species recorded during the 2005/06 winter bird surveys follows.

Barn owl

- 6.49 A single bird was flushed from a day roost in thick ivy during the final winter bird survey (21/03/06). Another surveyor had reported flushing this bird from the same copse on 20/3/06. The previous week a barn owl had been flushed from thick ivy in Hummet Copse and subsequently two birds were recorded hunting over rough grassland just west of Shalcombe Holdings for approximately one hour. Several incidental recorded of hunting barn owl close to the quarry on the southern edge on the site were also made in March. It is likely that there is a territorial pair breeding close to the site and using the small copses on site as roost sites. It is likely that the rough grassland bordering the ditches on the site will also be used by hunting barn owls.

Peregrine

- 6.50 Peregrines were recorded three times during the winter bird surveys. The large concentrations of prey species such as woodpigeons and game birds is likely to prove attractive to these birds. A bird was recorded hunting woodpigeons in

February, whilst the other records relate to birds that appeared to be transient across the site. The cliffs around the Isle of Wight support a number of breeding pairs of peregrine and the records are likely to relate to a resident breeding pair.

Merlin

- 6.51 Merlins were recorded twice during the winter bird survey. On both these occasions the birds were actively hunting passerines. Other records of this species were also made during the vantage point observations and during a preliminary site visit. At least two different birds were recorded during the winter, with an adult male recorded and a female bird present in late March. Merlins were also recorded during the 2003/2004 winter bird survey, suggesting that the presence of this species on site is a regular occurrence.
- 6.52 The presence of large numbers of prey species on the site, including large flocks of finches, buntings and pipits, is likely to explain the attractiveness of the site to this species. Merlins require extensive open ground for hunting and are likely to range widely over the whole island during the winter period. It is probable that the attractiveness of this site to hunting merlin will vary depending on the numbers of wintering passerines present each year.

Hen harrier

- 6.53 A ring-tail bird was recorded hunting along ditches and hedgerows in November. It is likely that this is also the bird that was recorded hunting over the site during the preliminary site visit in early November. This bird was not recorded again during the winter period.
- 6.54 A male hen harrier was recorded hunting over fields to the south and east of the site, around Shalcombe Holdings and Churchills Farm during a period of heavy snow in February. The main period of observed hunting activity took place outside the proposed site boundary. This bird was not recorded again during the survey work.
- 6.55 Hen harriers are a scarce winter visitor to the Isle of Wight and like merlin will range widely over open ground in search of prey. The areas of stubble and rough grassland along the ditches and around the quarry would provide suitable hunting habitat for this species, although there is no evidence to suggest that this species is regularly using this site for foraging.

Golden plover

- 6.56 The numbers of golden plover recorded during the winter bird surveys fluctuated widely, with birds absent from the site on 11 of the 20 vantage point surveys and three of the six wintering bird surveys. Larger numbers were recorded in November and December (with a flock of 350 birds recorded in late December), with no birds recorded during January, February or late March. The status of golden plover on the Isle of Wight has been discussed previously in the desktop results section of this chapter.

- 6.57 Many wader species feed both day and night as the energy intake during daylight hours is not sufficient to balance energy budgets for many species of shorebird. This is particularly prevalent in shorebirds feeding on inter-tidal areas, but has been little studied in species not dependent on inter-tidal feeding sites. Studies in Norfolk have shown that the diurnal habitat preferences of golden plover do not reflect nocturnal habitat choice and site selection.
- 6.58 Questions were raised during consultations about the possibility that the site was used by golden plover at night. Three night visits were therefore made during the survey period (details in Birds Technical Appendix). There was no evidence from these surveys that golden plover were using the site for nocturnal feeding or roosting. Therefore the risk to this species is considered to relate primarily to the daylight hours and the assessment is based solely on these records.

Wintering passerine records

- 6.59 The wintering bird community recorded at Manor Farm during 2005/06 was broadly similar to that recorded during the 2003/2004 survey. However, the total numbers recorded for some species were higher than the previous survey work.
- 6.60 A particular feature of the early winter period was the very high numbers of song thrushes and blackbirds present along the ditches and hedgerows of the site. It is possible that these were migrants from northern Britain or continental Europe temporarily using the site whilst conditions were mild. As numbers of both thrushes dropped in the late winter period it is probable that these birds moved further south and west as cooler conditions became established after Christmas. Large numbers of song thrushes and blackbirds regularly winter in Ireland, France and Iberia.
- 6.61 Good numbers of yellowhammer and chaffinch were also a notable feature of the winter bird surveys, with peak counts of 95 and 107 respectively. The chaffinches were predominantly associated with the strips of game cover sown between the copses on site. A flock of between 50-60 birds was regular here until early March. The farm buildings around Shalcombe Holdings also held a sizable concentration of chaffinches with 20-30 birds regular in this area.
- 6.62 The largest concentration of yellowhammers was found along the eastern boundary of the site, adjacent to Churchills Farm. The rough grassland strip and strips of stubble alongside the public footpath held a flock of 40-50 birds throughout the winter period. Smaller flocks of yellowhammer were recorded from the areas of game cover linking the copses on site and also around the barns south-east of Manor Farm.
- 6.63 The 2003/2004 winter bird survey recorded very few linnets on the site. During the 2005/2006 surveys a flock of approximately 35 linnet were regularly recorded in the north-eastern corner of the site. This flock was recorded foraging either on the remaining area of stubble or the fields of oilseed rape.

6.64 A feature of November and December surveys in 2005/2006 was the high number of stonechat present along the ditches and areas of rough grassland in and around the survey area. The numbers dropped steadily throughout the winter period and no birds were recorded during the final winter bird survey in late March. There is a general trend for inland breeders and those breeding in eastern England and northern Europe to move westwards to winter. It is possible that some of the birds recorded during the early winter periods were birds that moved westwards later in the winter period.

Vantage point observations

- 6.65 Full details of the vantage point surveys are set out in the Birds Technical Appendix.
- 6.66 Golden plover were recorded on site during nine of the 20 vantage point watches. No obvious pattern is discernible from the observations and the birds do not appear to use the site for feeding on a regular basis. Movements of golden plover across the site also do not show any regular pattern, suggesting that the area is not on a route used by birds moving between feeding and roosting areas. The sightings during the vantage point work would indicate that although birds move across the site and use the fields for feeding on occasions, the area is not particularly favoured by golden plovers for feeding or roosting. More detailed evaluation of the behaviour recorded during the vantage point observations support this evaluation.
- 6.67 Table 6.11 shows a summary of the flights of golden plover across the site during the vantage point watches. Only watches when golden plover were seen are included, and the flight times are split into three height bands. The pattern and direction of flights recorded during the vantage point observations are shown on maps in the Birds Technical Appendix.

Watch	No. records	No. birds	<20m	20-100m	>100m	Total
1	4	96	210	75	-	285
2	3	c99	135	-	-	135
9	4	32	45	420	210	675
10	1	1	15	45	-	60
11	3	81	45	45	-	90
12	1	7	15	-	-	15
14	2	c48	45	-	-	45
17	1	3	15	-	-	15
19	1	c50	30	-	-	30

Table 6.11: summary of golden plover flight times in vantage point watches (seconds)

6.68 The vantage point survey work totalled 40 hours of observation. Golden plover were recorded in flight for a total of 22 minutes. The vast majority of this time (18 minutes and 30 seconds) was on flights below 100 metres, suggesting localised movements between feeding and roosting areas. The few birds flying at greater heights could have been undertaking larger-scale movements. For

example, golden plover are known to move further south and west in the UK in response to freezing conditions.

- 6.69 Birds were recorded flying less than 20 metres above the ground for a total of 8 minutes and 45 seconds. The patterns of these flights varied. Some refer to small flocks flying straight through the site, other relate to birds coming into the site to feed or roost. These flocks or individuals tended to circle a number of times before alighting. This is typical behaviour for golden plover.
- 6.70 Birds were recorded flying between 20 metres and 100 metres above the ground for a total of 9 minutes 45 seconds. This height is nominally the flight band where birds are most at risk from collision with turbine blades. Most of the birds passing through at this height were passing through the site, presumably moving between feeding areas.
- 6.71 Records of flights of the other target species are summarised in table 6.12 and set out in more detail in the Birds Technical Appendix.

Species	No. records	No. birds	<20m	20-100m	>100m	Total
Merlin	2	1	15	60	45	120
Whooper swan	2	3	30	105	60	195
Peregrine	1	1	15	105	75	195

Table 6.12: summary of other target species flight times in vantage point watches (secs)

Evaluation

Annex 1 species

Whooper swan

- 6.72 Whooper swans are uncommon winter visitors to southern England, generally in response to harsh weather conditions in northern Britain or continental Europe. The vast majority on the UK wintering population occur in Scotland, northern Britain and Northern Ireland. The two records (same birds twice during a single watch) may relate to the small numbers of feral birds that are also present in southern England throughout the year.
- 6.73 Whooper swans do not regularly winter on the Isle of Wight, or indeed along the Solent. The occurrence of this species on the island is likely to be highly erratic and may be influenced by weather conditions on the main wintering grounds in both the UK and the near Continent. There are no features within the proposed wind farm site that would prove attractive to this species.

Merlin

- 6.74 Wintering merlin are widespread in lowland England, although significant concentrations of birds away from traditional roost sites are rare. Birds generally winter at low densities, typically 1-3 birds per 10km², with the most recent estimates putting the wintering population in the region of 1,300 individuals. The wintering population comprises British breeders and a

proportion of birds from the Icelandic breeding population. These birds hunt over coastal habitats and open farmland.

- 6.75 Hunting merlin were recorded from the proposed wind farm site on several occasions throughout the winter; at least two different individuals were identified during the surveys. Merlin is a scarce but regular winter visitor to the Solent and the presence of this species on site is not too surprising. These birds were presumably attracted by the large concentrations of wintering passerines on site and birds were recorded actively hunting passerines on two occasions. Merlin typically hunt low to the ground, relying on surprise to ambush potential prey, and are not considered to be at high risk of collision with turbines.

Peregrine

- 6.76 Peregrines are a resident breeder on the Isle of Wight and are increasingly widespread breeders along the coastal counties of southern England. This species is relatively sedentary with most ringing recoveries coming from within 100 kilometres of breeding sites. Juveniles do tend to move further than adults and will move to coastal location to winter.
- 6.77 A number of sightings of peregrine flying over and hunting on the site were made. The large flocks of woodpigeon were a focus for hunting birds over the winter. There is no evidence that peregrine are regularly using the site for hunting and the sightings of birds are likely to relate to resident pair breeding along the cliffs on the southern side of the Island. The flocks of woodpigeon recorded on site were not exceptional and similar large flocks were seen at many arable areas.

Hen harrier

- 6.78 Hen harriers regularly winter along the Solent coast and are also present in good numbers in the New Forest and on the Dorset heaths. The wintering population in England during a typical winter is estimated to be in the region of 300 birds. The wintering population comprises British breeders that move from moorland breeding areas to lowland sites to winter and also some Continental birds.
- 6.79 The birds observed on or close to the site (at least two individuals were recorded) were hunting along habitat features such as hedgerows, ditches and rough grassland. These are features that will support a higher density of prey compared to cultivated fields.

Golden plover

- 6.80 Golden plover will use inter-tidal areas, although they are more frequent on arable and pasture during the winter months. Surveys on the Humber Estuary have shown that wintering golden plover tend to be faithful to a few key areas for feeding and roosting around the estuary. These areas tend to be situated in either large tracts of arable land or on extensive mudflats. This pattern is similar to that shown on the Isle of Wight where the main wintering flock appears to demonstrate high site fidelity to the Newtown Estuary.

Schedule 1 species***Barn owl***

- 6.81 Barn owls are widespread on the Isle of Wight. The Island supports some of the highest densities of breeding barn owls in England (10-30 pairs per 100km²). An increase in activity in March suggested that there is a breeding pair close to the proposed wind farm site. Most foraging activity in the breeding season is within 1km of the nest site, though barn owls forage up to 4.5km away from breeding sites during winter.

Red list species

- 6.82 The majority of site wintering birds on the red list of Species of Conservation Concern are passerines (song thrush, skylark, starling, linnet, house sparrow, bullfinch and reed bunting). Grey partridge were also recorded.
- 6.83 Starlings were recorded in good numbers during the survey work. However, the most significant flocks recorded were using the pasture around Shalcombe Holdings and Tapnell Farm for feeding. Birds were also recorded from around the houses in Wellow and Thorley Street. Many pairs are likely to nest in these houses. Similarly, house sparrows were recorded around the periphery of the survey area, associated with human dwellings.
- 6.84 Only two records of bullfinch were made during the survey work, both came from areas with mature trees and dense hedgerows. This species forages within woodland and scrub and is not known to breed on the site. Due to the habitat requirements of this species, and the fact the turbines will be located in arable fields, the risk of collision with turbines is extremely low.
- 6.85 Song thrushes were widespread across the site in the early winter period, but numbers were significantly lower in the late winter. This species was strongly associated with the streams, ditches and areas of game cover on site. High numbers were recorded from the streams in particular. Due to the preference of habitats associated with the margins of the cultivated area, there is minimal risk of collision with turbines. The small numbers of reed buntings recorded during the survey work also favoured the rough grass strips alongside the streams. As with song thrushes the preference of this species for habitats associated with the margins of arable fields would suggest that the risk of collisions with turbines is low.
- 6.86 Skylark was recorded widely across the site and occurred mainly on arable fields and set-aside. The sightings show that this species was recorded from the majority of arable fields and it is considered that skylark will use all the fields within the survey area over the winter period for foraging.
- 6.87 Linnet and grey partridge were the other two species strongly associated with the open arable land. The linnet flock was regularly recorded from the area of set-aside in the north-west of the site. Small numbers were also recorded from the areas of game cover. A pair of grey partridge was noted regularly on arable

just south of Wellow (mainly during the vantage point work). Grey partridge will feed on arable land and is likely to nest in strips of rough grassland or hedgerows.

- 6.88 Linnets occur widely across the site taking advantage of seed sources as they become seasonally available. This species is particularly dependent on weed seeds such as those of Polygonaceae, Cruciferae, Caryophyllaceae and Compositae.

Other records

- 6.89 Few other species of note were recorded. The majority of other birds recorded during both breeding and winter bird surveys were passerines that are considered to have a low risk of collision with turbines due to their use of site vegetation and low level flights. While not recorded in baseline surveys at the site, flocks of migrating passerines are known to pass across the Island at certain times and this is considered later in the impact assessment section.
- 6.90 The pasture at Tapnell Farm regularly held a flock of feeding Canada geese. These birds were also recorded on the Yar and localised movements between the two sites appeared to occur. Only on one occasion was a small group of Canada geese recorded crossing the proposed wind farm site.
- 6.91 An unusual record of 6 barnacle geese occurred in February, co-inciding with the record of Whooper swan. This species is a rare winter visitor the southern England. However, the patterns of arrivals of wild birds is confused by the fact several feral populations are well established in southern England and this species has regularly been recorded breeding in Hampshire. It is likely that these birds were feral, although the fact they were not recorded subsequently, and the fact they arrived at the same time as Whooper swans raises the possibility these were wild birds. If so, this was an exceptional record for the Isle of Wight.
- 6.92 The ditches and streams on site were found to support small numbers of snipe, with a single record of jack snipe (probably a passage bird).
- 6.93 Common buzzard were regularly recorded around the site and it is likely that areas such as Brightstone Forest and Bouldner Copse support breeding pairs. The breeding survey showed that the site fell within the territory of a pair. Although regularly recorded across the site, no large counts were made and activity over the site appeared to be similar to that of the surrounding area. It is likely that hunting birds will be active across the site throughout the year, with birds using the woodland as well as hunting for rabbits, birds and invertebrates across the arable areas.

Potential effects

During construction

Habitat loss

- 6.94 The construction of the wind farm will involve only a very small area of ground that represents a tiny percentage of the arable habitat found in the study area. With the possible exception of skylark, the habitat that will be lost is of very low potential for nesting and feeding birds. Higher value habitat such as set-aside, field margins, hedgerows and woodland are not significantly affected. No significant effects are predicted.

Disturbance

- 6.95 Some species might be vulnerable to disturbance from construction works, especially during the breeding season. However, of the breeding birds recorded, only skylark would be vulnerable to construction works across the arable area. Grey and red-legged partridge would most likely nest in field margins and other peripheral parts of the site, away from the construction areas. The localised, temporary and very small-scale nature of the works is not considered to give rise to significant concern in this respect and no significant effects on the populations of these species is predicted.
- 6.96 Works to gain access to and across the site will require some very small scale crossings of some of the richer habitat types. Any nesting birds here could be vulnerable to disturbance. This would be a small change to a community of high value and without mitigation is a predicted impact of moderate significance.

During operation***Displacement***

- 6.97 The operation of a wind farm could create sufficient visual disturbance to some birds to cause them to avoid the site and be displaced elsewhere. The species present at the site are not known to be particularly susceptible to this, though with a large amount of similar alternative habitat in the general area, the activity of some of the more mobile species such as golden plover could decline on the site as a result. This would not affect the population and no significant impact is predicted.

Collision risk

- 6.98 Birds in flight have the potential to collide with the moving blades of wind turbines and there is evidence from wind farms around the world of fatalities as a result. The science is imperfectly understood, though more evidence is accumulating. Vulnerability varies between species and according to weather conditions, and some of the worst cases of repeated fatalities are at wind farms that have been sited on regular migration routes of vulnerable, slow flying species. Modern turbines present less risk than some of the older American types that had a lattice tower that offered good perching facilities for birds.
- 6.99 The vantage point watches were designed to provide data on the collision risk that could be expected at this site. Timed watches recorded the species flying across the site at rotor height, and the data were fed into the Scottish Natural Heritage model (Band *et al*) to make quantitative predictions of collisions. The

final stages of modelling were refined to reflect the specific wind conditions at the site. Monitoring has shown that windspeeds of 0, 1, 2 or 3 mph will occur on average for 20% of the year. The turbines will not turn at these windspeeds and therefore a correction factor of 80% has been applied to the predicted collision risk without avoidance. Above these wind speeds the rotor blades will turn at increasing speeds, but for the purpose of establishing worst case, the maximum rotation speed (at which collision risk is greatest) has been entered into the model.

- 6.100 The majority of species recorded are considered at no or minimal risk because of their behaviour or scarcity on the site. The risk assessment model was run for the key target species, golden plover, merlin and peregrine. Full details are set out in the Birds Technical Appendix and summarised here.

Golden plover

- 6.101 The flight behaviour of golden plover over and across the site suggests that they could be at some risk of collision, though they are agile fliers with good eyesight so are predicted to be reasonably adept at avoiding moving blades. Flights through the turbine swept zone were recorded during the vantage point watches. Maps and full details are set out in the Birds Technical Appendix. The collision risk assessment assumes that there will be no displacement of birds (see earlier section) to ensure that a precautionary worst case scenario is modelled. It also assumes that the blades will be at full speed whenever they are turning, which will not be the case. As there were no night time records, the model uses day time data only. Using the standard 95% avoidance allowance, the calculation predicts an annual collision rate of 16 golden plover. The corresponding theoretical total of collisions over the 25-year life of the wind farm is 368 to 450 birds (the model suggests considering +/- 10%, hence the range).
- 6.102 One of the vantage point records for a flight at risk height was of a single bird that exhibited very atypical behaviour and flight patterns. The flight was also entirely away from the actual turbine locations within the site (see Birds Technical Appendix for details). This record accounted for a significant proportion of the risk time entered into the model, and was not repeated at any other time during the vantage point watches. The bird was circling and repeatedly calling for an extended period, suggesting that it was attempting to regain contact with its flock. Several small groups had been recorded earlier that day, but exhibiting more normal behaviour as a group. On the assumption that this behaviour is most unlikely to be repeated on a regular basis, and was away from the immediate risk area, the collision risk model was run again without this flight record. The outcome was a reduced risk of collision, at 7 birds per annum, or 150 to 184 birds over the 25-year life of the wind farm.
- 6.103 This risk needs to be viewed in the context of the number of birds seen at the site, which ranged up to a maximum of 535 birds. There are no data for the golden plover population of the Island as a whole, though it is thought that the majority are based around Newtown Harbour. As a guide, therefore, a figure can be used that corresponds to the average peak count from the 1999/2000 to

2003/2004 WeBS data for the Harbour; this is in the region of 600 birds. While a best estimate, it is stressed that the surveys aimed at testing any relationship between the birds on site and those at Newtown Harbour were inconclusive and found no regular commuting of birds between the two areas.

- 6.104 Working with the theoretical annual collision rate and assuming that all collisions result in fatality, the resulting loss represents approximately 2.67% of the 600 birds, or 1.17% without the single aberrant flight. This represents a medium change in population caused by the development, on a receptor of medium importance. In practice, the species is expected to achieve a greater avoidance than allowed for in the model, and some local displacement away from the immediate vicinity of the turbines can be reasonably predicted. The comparative survey counts for winter 2003/2004 and 2005/2006 also suggest that the risk assessment has been done in a ‘worst case’ year. This is therefore considered a moderate adverse effect using the definitions set out in figure 6.3.
- 6.105 The surveys also found no relationship between the birds using the site and the waterfowl flock from the Solent and Southampton Water SPA.
- 6.106 While the link between the site and the SPA is not proven, and golden plover are not specifically mentioned in the SPA citation, (the species itself is not a qualifying feature, but golden plover numbers at Newtown Harbour and elsewhere can be assumed to form a small part of the regular total flock of 53,948 wintering waterfowl), the impact risk has nevertheless been calculated. Working with the theoretical annual collision rate and assuming that all collisions result in fatality, the resulting loss represents approximately 0.03% of the total SPA waterfowl flock, or 0.01% without the single aberrant flight. This represents a negligible change in population caused by the development, on a receptor of high importance (ie the SPA). For the reasons set out above, the real mortality rate can be realistically expected to be even lower, and no significant impact on the SPA waterfowl flock is therefore predicted.

Merlin

- 6.107 The installation of turbines on the site is considered unlikely to have a significant impact on wintering merlin using the site. This species generally hunts below turbine blade height, although occasionally pursuit flights may reach greater heights as passerines climb to avoid the pursuing merlin. There was one record of a flight at rotor height during the vantage point watches, so a collision risk assessment was undertaken. Using the standard 95% avoidance allowance, the calculation suggested an insignificant risk to this species (0.01 birds per annum), with a theoretical collision risk of 0.27 birds over the full 25-year life of the wind farm.

Peregrine

- 6.108 Peregrines are fast and agile fliers and are generally considered to be at a very low risk of collision with turbines. Nevertheless, there was one recorded flight during the vantage point watches and the collision risk has been calculated. Using the standard 95% avoidance allowance, the calculation suggested an insignificant risk to this species, with a theoretical collision risk of less than

0.05 birds/annum, or 1 bird over the 25-year life of the wind farm. While the sensitivity of peregrine is high, this predicted change in population is negligible and there will be no significant impact.

Whooper swan

- 6.109 There are no features within the proposed wind farm site that would prove attractive to this species. Records on the Island generally are extremely scarce. It is concluded that the proposed wind farm poses no significant risk to this species.

Hen harrier

- 6.110 Harriers typically hunt low to the ground, covering areas by systematic quartering of habitats searching for small mammals and passerines. This means harriers are generally well below the area swept by the turbine blades and have a very low collision potential when foraging. The main concern relating to hen harriers is the risk of displaying birds colliding with turbines during their display flights, known as ‘sky-dancing’, which involved birds flying at much greater heights than typical hunting flights. Hen harriers do not breed on the Isle of Wight so no significant collision risk is predicted.

Barn owl

- 6.111 Barn owls typically hunt low to the ground, so the risk of collision with turbines is very small. Only in exceptional circumstances will barn owls be flying at a height that would mean they were in danger of entering the area swept by the turbine blades. The survey results do not suggest any significant risk of collision.

Red data list birds

- 6.112 None of the red list species is considered to be at significant risk of collision with the turbines. With the exception of skylark and grey partridge, the wintering populations of these birds were found away from the arable parts of the fields where the turbines are to be located. The Birds Technical Appendix includes maps showing the winter distribution of all these species. Apart from commuting flights across the site there is no evidence to suggest that the proposed wind farm site is used to any significant degree by starlings. Similarly, house sparrows were recorded around the periphery of the survey area and are not considered to be at risk from this proposed development.
- 6.113 The habitat preferences of bullfinch, song thrush and reed bunting mean that there is a negligible risk of collision with turbines.
- 6.114 During the winter skylarks forage on the ground for seeds and plant material and most flights between feeding areas are below the area swept by the turbine rotors. This species may be at greater risk of collision with turbine blades during the spring, when males undertake territorial song-flights and will ascend to between 50 and 100 metres, though there is no known evidence of this at established wind farms. The song flights occur primarily in good, still weather, when visibility and hence avoidance potential would most likely be at its best, and when the blades would be moving slowly or not at all.

- 6.115 Thomas (1999) (reporting on his Master of Research thesis at University College, London) found no significant difference between bird abundance in wind farms and adjacent controls in his study of ten upland wind farm sites in the UK. He concluded that wind farms have a minimal impact on bird abundance. Specifically, he found no significant difference between breeding densities of skylark or meadow pipit. His study did not look at collisions, but demonstrated that skylark breeding densities were unaffected.
- 6.116 The need to hold territory means that skylark pairs are well spread, but it is possible that a territory could coincide with each of the six turbines. The actual risk of fatal collision is considered very low, but as a worst case, up to six pairs could be affected, assuming no displacement from the immediate area of each turbine. This represents 10% of the pairs recorded breeding on the site, but a negligible percentage of the population of the Island as a whole. The breeding success and viability of the population is most unlikely to be significantly affected. In terms of the breeding population on the Island this would be a negligible to small change to a receptor of medium importance, and at worst a slight adverse effect using the definitions set out in figure 6.3.
- 6.117 Grey partridge flight is low and rapid and birds rarely attain heights above 10 metres. Therefore the risk of collision with turbine blades is considered to be negligible.
- 6.118 Linnets undertake localised movements across the site in search of food but these are unlikely to be at rotor height and therefore the risk of collision is negligible.
- 6.119 Geese have good eyesight and are considered to be generally capable of avoiding turbines in good weather, though there is a risk of collision with moving turbine blades in poor conditions such as rain or fog. However, there is no evidence of regular flights across the site by the feral Canada geese. Most of the regular movements appeared to be between the Yar and Tapnell Farm. Therefore, although there is potential for collisions to occur, the risk is likely to be low, due to the low incidence of birds crossing the site. Canada geese are a receptor of negligible to low importance so no significant effects are predicted.
- 6.120 There is a possibility that the barnacle geese recorded were wild rather than feral birds. If so, this was an exceptional record for the Isle of Wight, it is considered that the long term risk of collision is negligible.
- 6.121 Snipe are considered to be at low risk of collision with turbines, except during the breeding season when drumming males climb up to 50 metres high during display flights. However, the species was not recorded breeding on site. The wintering birds will undertake localised movements between feeding areas, but these are likely to be below rotor height and the risk of collision, especially for birds capable of rapid twists and dives, is considered to be negligible.

6.122 The common buzzard is a relatively agile bird, and is not generally considered to be at high risk of collision with turbines. The highest risk of collision is likely to occur in autumn in the period immediately following post-fledging dispersal. Any losses to the population are likely to be negligible, representing no significant effect.

Migrating passerines

6.123 Migrating passerines could also be at some theoretical risk of collision. They are known to be attracted to certain man-made features such as lighthouses, especially during periods of poor weather, and significant mortality has been recorded at some coastal locations. The Isle of Wight is prominently located within a broad front on the south coast of England that is used by migrating passerines. Most are night migrants and could potentially be at risk from collision with turbines during migration periods when trying to make a landfall, or in poor visibility. It is not possible to carry out specific surveys to determine how important the site is for these birds in the context of the Island, as any activity would most likely be at night and not detectable. Instead, an analysis has been made of the likely use of the Island's habitats and the known typical behaviour of migrating passerines.

6.124 The proposed wind farm is situated to the north of the Island, away from prominent landscape features such as the Needles and St Catherine's Point, both of which have operational lighthouses. The turbines will also be unlit. In periods of poor weather, migrants heading north are likely to make landfall on the southern edge of the Island, and are unlikely to continue flying across the site. Once grounded on the southern coast of the Isle of Wight, migrant passerines are likely to filter across the Island using landscape features, such as woodland and hedgerows, taking the opportunity to feed before making the further water crossing to the mainland. Most of these birds will be flying at low levels or commuting along linear habitats, and are most unlikely to enter the rotor-swept area of the wind farm site, which is itself largely devoid of such features. The combination of these factors makes it very unlikely that significant numbers of migrating passerines will be flying at risk through the wind farm in poor weather.

6.125 In periods of fine weather passerines are likely to be flying at a height well above the swept area of the turbine blades.

6.126 Birds leaving the UK in autumn will await favourable conditions before leaving the south coast and are unlikely to be caught in particularly severe weather conditions whilst crossing the Solent.

6.127 Therefore it is considered that the potential for significant mortality of passerine migrants to occur is negligible, and no significant impact is predicted.

Mitigation measures

During construction

- 6.128 Works to gain access to and across the site will require some very small scale crossings of some of the hedgerow and grassy habitat types. To avoid disturbance, works to clear any vegetation that could be supporting nesting birds will be undertaken outside the nesting season (March to July). This would reduce the predicted moderate impact to none.

During operation

- 6.129 The theoretical collision risk for golden plover will tend to be partially mitigated by the cropping plan for the farm which is moving towards the increased planting of oil seed rape. Oil seed rape was seen to be far less attractive than other crops and bare ground to golden plover during the surveys. Although this crop is rotated around the site from one year to the next, it is likely that in any one year it will be planted around some of the turbines. The demand for rape for biodiesel use, supported by Government policy, strongly suggests that the farm will increase the amount of rape grown on the site and therefore this represents a reliable mitigation measure in the short to medium term. It is recognised that demand and economic circumstances may make the planting of oil seed rape a less certain mitigation measure in the long term.
- 6.130 The very small or negligible risk to merlin, hen harrier and barn owl of collision with moving turbine blades can be further reduced by ensuring areas likely to attract significant concentrations of passerines and small mammals, such as conservation headlands, set-aside and game cover strips, are situated well away from the turbines. This will ensure that all foraging activity of these birds will be directed away from the risk zone. So far as possible, the farm cultivation plan will be designed to ensure that this occurs.
- 6.131 In order to monitor the actual effects of the turbines in operation on birds (disturbance, avoidance and collision), YEL proposes to offer an ornithological monitoring programme that will help to identify any residual effects. This might allow other mitigation to be introduced if necessary, and it will inform impact predictions for other similar projects elsewhere. The details of this would be agreed with the IoWC and English Nature.

Residual effects

- 6.132 There are only two significant residual effects on birds, and these cannot be mitigated without major and unacceptable changes to land use at the site.
- 6.133 It is difficult to predict the effect of the wind farm on the behaviour of golden plover, but if there is no displacement effect, wintering birds are predicted to be at risk of collision and therefore some fatalities can be expected. The increased planting of oil seed rape will help to reduce this but it will

nevertheless remain as a moderate adverse effect on the Island's wintering population. No significant effect is predicted on the SPA waterfowl flock.

6.134 Similarly, breeding skylark will be at theoretical risk, with a potential slight adverse effect on the Island's population.

Significant residual effect	Importance of receptor	Magnitude of change	Nature	Duration	Significance	Level of certainty
Golden plover collision risk	Medium	Medium	Adverse	Long-term	Moderate	Uncertain
Skylark collision risk	Medium	Negligible to small	Adverse	Long-term	None to slight	Uncertain

Table 6.13: residual effects