NORTH FALLS

Offshore Wind Farm

ENVIRONMENTAL STATEMENT

Appendix 24.6 Onshore Cable Route: Non-breeding Bird Surveys 2022-23 Report

Document Reference:	3.3.45
Volume:	3.3
APFP Regulation:	5(2)(a)
Date:	July 2024
Revision:	0

Project Reference: EN010119

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Project	North Falls Offshore Wind Farm
Document Title	Environmental Statement Appendix 24.6 Onshore Cable Route: Non-breeding Bird Surveys 2022/23 Report
Document Reference	3.3.45
APFP Regulation	5(2)(a)
Supplier	Royal HaskoningDHV
Supplier Document ID	PB9244-RHD-ES-ON-RP-ON-0242

Revision	Date	Status/Reason for Issue	Originator	Checked	Approved
0	July 2024	Submission	MacArthur Green	NFOW	NFOW

North Falls Offshore Wind Farm

Onshore Cable Route Non-breeding Bird Surveys 2022-23

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Document Quality Record

Version	Status	Person Responsible	Date
0.1	Draft	R. Dewar	01/06/2023
0.3	Updated	R. Dewar	12/06/2023
1	Internal Approval	R. Dewar	12/06/2023

CONTENTS

1 INTRODUCTION

A series of non-breeding season bird surveys were undertaken from October 2022 to March 2023 to determine the non-breeding bird assemblage present within the search areas for the onshore transmission infrastructure of the proposed North Falls Offshore Wind Farm ('the project') (**Figure 1**), and to identify potential sensitivities associated with construction phase of the project's onshore cable routes and onshore substation location (herein the 'onshore project area'). The onshore project area is located within the Tendring peninsula, and extends from the coast at Clacton-on-Sea and Frinton-on-Sea inland towards the village of Ardleigh (**Figure 1**).

These surveys represent the second winter period covered, following on from similar surveys carried out within the onshore project area from October 2021 to March 2022 (see MacArthur Green, 2022a[1]). They also compliment the non-breeding season surveys undertaken in 2020-21 and 2021-22 within the cable landfall search area directly to the south, the results of which are also reported on separately (MacArthur Green, 2021[2]; 2022b[3]).

This report presents details of the survey methodology and results, which will be used to inform the layout and Environmental Impact Assessment (EIA) for the project.

2 METHODOLOGY

The 2022-23 non-breeding season surveys followed the same methodology as those conducted the previous winter, in 2021-22, albeit within a smaller survey area following refinements to the location and extent of the proposed onshore cable routes and other infrastructure (see **Figure 1**). Details of the methodology are provided below.

2.1 Determination of Target Species

The non-breeding season bird surveys were designed to cover functionally-linked land for ornithological qualifying features of surrounding designated sites, as well as habitats suitable for other identified target species, within an appropriate survey area (see section 2.2).

The following designated sites[4] with ornithological interests are within what is most likely to be potential connectivity range (c.10km) of the onshore project area:

- Holland Haven Marshes Site of Special Scientific Interest (SSSI) and Holland Haven Local Nature Reserve located within the cable landfall search area to the south of the onshore project area (**Figure 1**). This is an area of reclaimed saltmarsh and freshwater marsh which according to the Natural England SSSI citation[5], hosts during winter, a range of wader and wildfowl species, including passage migrants, as well as wintering raptors such as hen harrier and short-eared owl.

[1] MacArthur Green (2022a). North Falls Offshore Wind Farm - Onshore Cable Route: Non-breeding Bird Surveys 2021-22.
[2] MacArthur Green (2021). North Falls Offshore Wind Farm - Onshore Landfall Area : 2020/21 Non-breeding Bird Surveys.
[3] MacArthur Green (2022b). North Falls Offshore Wind Farm - Onshore Landfall Area : 2021/22 Non-breeding Bird Surveys.
[4] https://designatedsites.naturalengland.org.uk
[5] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1006349.pdf

- Hamford Water Special Protection Area (SPA) and associated Ramsar site and Site of Special Scientific Interest (SSSI) located c.500m northeast of the onshore project area. The SPA supports numbers of European importance of two species listed in Annex I to the EU Birds Directive (breeding little tern and wintering avocet) and seven regularly occurring migratory species of waterbirds (dark-bellied brent goose, shelduck, teal, ringed plover, grey plover, black-tailed godwit and redshank).
- Stour and Orwell Estuaries SPA with associated Stour and Orwell Estuaries Ramsar site and SSSI, and Cattawade Marshes SSSI, located 1.6km north of the onshore project area. The SPA supports breeding avocet in summer, and during winter supports dark-bellied brent goose, redshank, pintail, grey plover, knot, dunlin and black-tailed godwit, as well as a waterbird assemblage.
- Colne Estuary SPA and associated Ramsar site and SSSI, located c.5.5km southwest of the onshore project area. The SPA is designated for breeding pochard, ringed plover and little tern; and wintering dark-bellied brent goose, hen harrier and redshank as well as its wintering waterfowl assemblage.

The landscape where the onshore project area will be located is predominantly intensively managed agricultural land and based on cable landfall surveys undertaken since 2020, and locations of designated sites, the main impacts are considered most likely to be construction disturbance or displacement to wintering wildfowl and waders utilising the area for feeding or roosting. The target species most likely to be present within the onshore project area during the non-breeding season were therefore considered to be:

- Geese: particularly dark-bellied brent goose associated with designated sites in the wider area, and European white-fronted goose which was found in nationally important numbers during cable landfall surveys in 2020/2021; and
- Waders: particularly any that are qualifying features of nearby designated sites, but also those that are Red-listed Birds of Conservation Concern[6] that are known to utilise inland habitats in winter: primarily lapwing, curlew, and Annex I[7] listed golden plover.

Any other Annex I, Schedule 1 or rare Red-listed species were also considered as target species and recorded during surveys. A tally of all lower conservation value non-target species was also made on each survey, to allow the surveyor to focus on locating target species.

2.2 Scope and Aims

Natural England was consulted with on the scope and aims of the surveys (27 September 2021), and comments were received (letter dated 8 October 2021). Natural England supported the approach, albeit it was noted that they did not have sight of the survey area at the time of commenting.

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

[7] EU Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.

Surveys were undertaken twice each month from October 2022 to March 2023, covering the main ornithology non-breeding season. Surveys were designed to recorded bird numbers, distribution and activity within the onshore project area and a buffer of up to 400m (the 'survey area') to account for the spatial extent of any potential disturbance impacts to birds utilising any habitats of importance just outside of the onshore project area.

The aims of surveys were:

- To record the distribution of target species and the locations of potentially important areas for roosting and feeding within the survey area;
- To establish peak numbers of birds likely to utilise particular areas; and
- To establish when, and how frequently, such locations are used.

The survey area was split into discrete labelled mapping areas (see **Figure 1**) in order to avoid surveyor overlap as well as to aid determination of the distribution of non-target species within different parts of the survey area, with separate tally counts made in each mapping area. The extents of mapping areas in 2022-2023 were the same as those used during the 2021-2022 non-breeding season (despite changes in the onshore project area), to allow direct comparison of abundance and distribution between years.

2.3 Survey Methodology

Survey methodology was informed by the following sources:

- The British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS) Core Count methodology for waterbirds[8] which follows Bibby *et al.* (2000[9]); and Gilbert *et al.* (1998[10]); and
- Scottish Natural Heritage (2017[11]) guidance on bird survey methods for onshore wind farms, which includes a section on surveying wintering and migratory wildfowl.

A reconnaissance visit was made in September 2021 to gather the following information, in addition to recording birds:

- Suitable survey routes, including land access, Public Right of Ways (PRoWs), parking locations and health & safety issues;
- Location of suitable vantage points to cover larger areas of land more efficiently and record movements of birds within the survey area and across the wider area; and
- Land use and broad habitat types within the survey area.

Surveys focussed on areas of suitable habitat for target species, including:

- Any grassland habitat with short sward (e.g. <5cm), including golf course/amenity land;

[8] https://www.bto.org/sites/default/files/02_-_core_count_0.pdf
[9] Bibby, C.J., Burgess, N.D., Hill, D.A. & Mustoe, S. 2000. Bird Census Techniques. 2nd edition. Academic Press, London.
[10] Gilbert, G., Gibbons, D.W. & Evans, J. 1998. Bird Monitoring Methods. RSPB, Sandy.
[11] SNH (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms.

- Any arable land comprising oilseed rape, winter cereals, maize stubble or bare till;
- Any coastal, wetland or marsh habitat; and
- Any waterbodies which may be used by geese, waders or ducks.

The reconnaissance visit also determined any areas, generally small in extent, that could be reasonably excluded from further surveys due to low suitability, e.g. settlements, woodland.

The "look-see" methodology advised for WeBS core counts was followed during all surveys, which determines that efforts should be made to ensure all suitable areas should be surveyed to within 500m. This means that counts can be made for example, from a suitable location outside of a field boundary, either along a footpath or from a public road. This method helps ensure that the risk of disturbance to birds is minimised, and also enables the surveyor to record birds just outside of the survey area, which may still be subject to disturbance.

Surveyors scanned the survey area from a combination of walkovers and vehicles, from suitable vantage points for a suitable duration until it could be confidently determined that all birds present have been recorded.

The following information was recorded during each survey for target species:

- Counts of each species (including non-target species);
- Location(s) of target species;
- Date and time of each count;
- Behaviour of birds (e.g. roosting, feeding);
- Directions of any movements within or outside of the survey area; and
- Accuracy of counts should estimates be required, e.g. by access restrictions, continuous movements of birds.

In some cases when bird activity was high, tally counts of abundant non-target species such as woodpigeon or corvids were suspended to allow the surveyor to concentrate on recording target species. As such, these species may be under-recorded on some surveys.

For each survey, total counts per mapping area have been summed in order to give a total count within the whole survey area. Whilst this is likely to be a reasonable estimate of species populations at the time of survey, because each visit took place across four or five days, it is possible that some individuals were recorded in more than one mapping area, leading to overestimates of abundance. Nevertheless, the total counts are useful in providing comparisons of relative numbers through the non-breeding season.

3 RESULTS

3.1 Summary of Results

Overall, the survey area hosts a relatively wide range of wader, wildfowl and raptor species during the non-breeding season. A total of 106 species was recorded during the 2022-23 surveys (compared to 111 species recorded in 2021-22), and a full species list and breakdown of peak tally counts per mapping area, and peak total survey count in 2022-23 is presented in Annex A. Of these

species, a total of 54 were considered to be target species (compared with 51 in 2021-22). Table 3-1 below summarises the total counts per survey, and peak count, for these target species in 2022-23.

Species diversity is reasonably consistent across the survey area, with a range of 59-89 species recorded within a particular mapping area during a survey. Mapping area C (nearest to Hamford Water SPA, see **Figure 1**) hosted the most species.

The only wildfowl or wader species that was present in sufficient numbers to meet the BTO WeBS Report[12] threshold for national importance was green sandpiper, with counts of up to three individuals equalling the national threshold. Great egret and spotted redshank counts also met or exceeded the threshold for national importance, albeit in both cases this is a single individual.

Notable numbers of some species were however recorded, and may be of importance at a regional level. These include a flock of 350 brent geese, reasonably high peak counts of golden plover, lapwing, curlew and dunlin, and flocks of wintering corn bunting.

The sections below describe the temporal and spatial distribution, and abundance of the target species recorded during surveys.

3.2 Geese

In 2021-22, brent geese were largely absent from the survey area during the non-breeding season, but during the 2022-23 their presence was more regular, being recorded on every survey from November to March. Flocks were observed mainly within and adjacent to Hamford Water SPA (**Figure 2**), peaking at 350 individuals in February.

No European white-fronted geese were recorded during surveys (similar to 2021-22), despite some presence observed within the cable landfall search area to the south during the winter (see MacArthur Green, 2022b).

Greylag geese, and non-native Canada and Egyptian geese were commonly recorded, mainly to the north of the survey area. A peak count of 172 greylag geese was recorded in October and the species was present throughout the non-breeding season. Up to 92 Canada geese were recorded during any one survey.

3.3 Lapwing

Lapwings were present within the survey area from October to February, and similar to 2021-22 there was a clear peak in numbers in midwinter, with total counts of up to 668 individuals in late January. The largest flocks, and highest frequency of observations, were recorded near Hamford Water SPA (**Figure 3a**).

Other areas frequented by smaller numbers of lapwing were in the north at Horsley Cross and near Little Bromley. Most birds were recorded on arable farmland.

[12] https://app.bto.org/webs-reporting/numbers.jsp

Table 3-1 Total Counts of Target Species per Survey within Survey Area 2022-23. Counts that meet or exceed the BTO's national threshold of importance for the species are shaded.

Species	Early Oct	Late Oct	Early Nov	Late Nov	Early Dec	Late Dec	Early Jan	Late Jan	Early Feb	Late Feb	Early Mar	Late Mar	Peak Count
Avocet						1		1				5	5
Barn Owl								1					1
Black-tailed Godwit	16	1		5	61	195	77	73	19	4			195
Brent Goose (*bernicla*)			40	65	113	148	160	138	350	68	25		350
Buzzard	25	29	8	12	14	12	12	12	22	9	11	24	29
Canada Goose	8	160									2	1	160
Cetti's Warbler										1			1
Coot		2	2	4	2	1	2	5	11	13	15	14	15
Cormorant	7	8	2	141	51	3	2	2		2	1		141
Corn Bunting		12	2	3	39	57	58	59	14	2	18	6	59
Curlew	62	3	8	19	126	282	38	127	17	30	58	7	282
Dunlin			64		165	607	234	123	13			96	607
Egyptian Goose							2	6	2		1	2	6
Gadwall	3	4		2	1	11	33	26	40	63	2		63
Golden Plover			2		156	101	21	104	850		150	22	850
Goosander									1				1
Great Crested Grebe	1								1		3	5	5
Great Egret	8												8
Green Sandpiper				1			3	2					3

Species	Early Oct	Late Oct	Early Nov	Late Nov	Early Dec	Late Dec	Early Jan	Late Jan	Early Feb	Late Feb	Early Mar	Late Mar	Peak Count
Greenshank	1												1
Grey Heron	3	4	3	2	4	2	2	3	2	1		1	4
Grey Plover		1		4	21	38	18	17	7	4	4	4	38
Greylag goose	204	10				39		2	126		20	8	204
Jack Snipe									1				1
Kestrel	12	14	3	10	13	9	12	9	13	3	6	13	14
Kingfisher	1		1		1								1
Knot								12			23		23
Lapwing	68	36	205	139	207	288	241	668	471	40			668
Little Egret	18	1	4	4	5	1	2	5	5	2	3	2	18
Little Grebe	6	5	4	5	5	2	2	5	3	5	3	6	6
Mallard	9	107	62	77	67	64	53	24	38	59	58	48	107
Mandarin Duck										1			1
Marsh Harrier	2	2		2	3	3	1	2	3		3	4	4
Merlin								1					1
Moorhen	8	33	15	24	16	21	10	9	14	17	11	8	33
Mute Swan	4	2		2	4	2		8	4	5	3	4	8
Oystercatcher				18	5	21	28	32	25	26	11	34	34
Peregrine						1		1					1
Pintail	4										2		4
Pochard											2		2

Species	Early Oct	Late Oct	Early Nov	Late Nov	Early Dec	Late Dec	Early Jan	Late Jan	Early Feb	Late Feb	Early Mar	Late Mar	Peak Count
Red Kite	1	2	1	1	3		2	2	7			1	7
Redshank	45	2		15	36	80	37	16	32	34	16	29	80
Ringed Plover	2												2
Shelduck	27	5	10	22	23	29	16	2	13	1	12	23	29
Shoveler	4							15		5			15
Snipe	1			2		1				5	2		5
Sparrowhawk	3	6		3	1	3	1	2		2	2	2	6
Spotted Redshank	1												1
Tawny Owl									1				1
Teal	75	31	142	39	67	108	100	126	94	64	10	3	142
Tufted Duck				1	10	2		51	66	29	25	11	66
Turnstone							18	1		2	6		18
Wigeon	50			165	45	138	48	78	32	5	230		230
Woodcock												1	1

3.4 Curlew

Similar to 2021-22, curlew numbers were usually smaller than lapwing although there was a peak of 282 individuals within the survey area in late December. Birds were most commonly recorded around Hamford Water SPA which is used as a roost site. Away from the SPA, birds were recorded in lower numbers on arable and grassland fields, in the south at Great Holland, and in smaller numbers around Thorpe Green (**Figure 3b**).

3.5 Golden Plover

Golden plover numbers had a midwinter peak in early February, with a peak flock size of 850 individuals flushed from fields near Hamford Water SPA (**Figure 3c**). This was larger than the peak survey count of 484 individuals in 2021-22, which was also in midwinter.

As in 2021-22, most records were near Hamford Water SPA, but elsewhere golden plovers were less common, with records in the south of the survey area at Great Holland, and further north at Horsley Cross.

3.6 Other Waders

Similar to 2021-22, records of other wader species were mainly made in the area around Beaumont Quay, adjacent to Hamford Water SPA to the east of the central part of the survey area (**Figure 4**). These birds, which are likely to form part of the assemblage of the SPA, included relatively small numbers of a variety of species such as avocet, grey plover, redshank, black-tailed godwit, ruff and snipe. Larger flocks of up to 560 dunlin were also present (this species was not recorded during 2021-22 surveys).

Away from the SPA there was smaller concentrations of waders around a reservoir near Thorpe-Le-Soken, and another reservoir in the north of the survey area where green sandpiper and snipe were present.

3.7 Ducks

The main concentrations of duck species were found in similar locations to waders, namely at the edge of Hamford Water SPA and on the reservoir near Thorpe Le-Soken, but they were also associated with waterbodies throughout the rest of the survey area, including around Goose Green, and on Holland Brook in the south (**Figure 5**).

Similar to 2021-22, species found in largest numbers were mallard, teal and wigeon. Other species recorded included shelduck, shoveler and gadwall.

3.8 Raptors and Owls

Raptor and owl species were frequently recorded during surveys, mainly flying over or hunting within the survey area (**Figure 6**). The assemblage present was similar to 2021-22, although hen harrier was absent in 2022-23. Marsh harrier was more regularly observed, particularly near Hamford Water SPA, with up to four observations within the survey area during one survey. Red kites were also regularly recorded in flight. Other species such as merlin and peregrine were infrequently recorded. Barn owl was present and is likely to breed in the area.

3.9 Corn Bunting

Red-listed corn bunting was regularly recorded in similar sizes and distribution to 2021-22, with flocks of up to 46 individuals throughout the winter period, and a peak single survey count of 59 individuals across the survey area in January. Birds were recorded feeding in stubble fields and game cover crops, as well as on wires, trees and hedges. Flocks were recorded mainly in the north of the survey area around Little Bromley (**Figure 7**).

3.10 Other Species

Kingfishers were recorded at Hamford Water SPA but were not observed across the remainder of the survey area in 2022-23. Unlike 2021-22, grey partridge and woodlark were not recorded during surveys in 2022-23.

4 DISCUSSION

The results of the second round of non-breeding season surveys in 2022-23 were largely consistent with the previous year's findings. It is evident that from these two survey years, the central part of the survey area in closest proximity to Hamford Water SPA hosts the largest concentrations of target species, although the northern part of the survey area around Little Bromley is also important for some species, particularly corn bunting.

Waders and geese that may feed and roost within the central part of the survey area are likely to be part of the Hamford Water SPA assemblage, and so although not recorded in nationally important numbers (except for green sandpiper), may form an important part of the SPA population. It will therefore be important to seek to carefully consider the location of onshore cable route and construction programme in this area to avoid or minimise impacts on these species.

In the north of the survey area, fields may be used by geese and waders that form part of the assemblage of Stour and Orwell Estuaries SPA to the north, and possibly Hamford Water SPA. In addition, it is likely that Red-listed species such as corn bunting and Schedule 1 barn owl (as well as grey partridge, although absent in 2022-23 surveys) will breed in this area, and so careful consideration will be required for the placement of the onshore cable route and onshore substation, as well as potential mitigation measures, to minimise potential effects.

ANNEX A. 2022-23 SURVEY RESULTS

Table A-1 2022-23 non-breeding season survey results showing peak counts per species per mapping area, and per survey.

Species	A	B	C	D	Peak Survey Count
Avocet			5		5
Barn Owl			1		1
Blackbird	15	21	15	20	57
Blackcap	1				1
Black-headed Gull	460	410	302	196	1124
Black-tailed Godwit			195	1	195
Blue Tit	31	17	13	18	66
Brent Goose (bernicla)			350	9	350
Bullfinch			1		1
Buzzard	8	9	11	6	29
Canada Goose	160		8	1	160
Carrion Crow	77	70	70	62	215
Cetti's Warbler				1	1
Chaffinch	76	36	105	90	172
Chiffchaff				3	3
Coal Tit	1	1	2	1	2
Collared Dove	9	4	16	7	27
Common Gull	220	145	153	42	332
Coot	3	4	1	12	15
Cormorant	136	3	17	31	141
Corn Bunting	58	1		7	59
Curlew			257	25	282
Dunlin			607		607
Dunnock	9	8	11	7	35
Egyptian Goose	2	4		2	6
Feral Pigeon	3	35	6	20	35
Fieldfare	198	470	122	85	729
Gadwall	9	58		17	63
Goldcrest		2	1	4	4
Golden Plover		49	850	150	850
Goldfinch	180	12	106	100	376
Goosander			1		1
Great Black-backed Gull			5		5
Great Crested Grebe			2	3	5

Species	A	B	C	D	Peak Survey Count
Great Egret			8		8
Great Spotted woodpecker	1	2	4	1	8
Great Tit	20	14	13	11	41
Green Sandpiper	1			2	3
Green Woodpecker	4	3	3	4	8
Greenfinch	70		78	3	98
Greenshank			1		1
Grey Heron	2	1	3	2	4
Grey Plover			38		38
Greylag Goose	11		172	32	204
Herring Gull	67	30	60	35	143
House Sparrow	18	8	12		24
Jack Snipe	1				1
Jackdaw	87	90	110	122	286
Jay	2	5	3	4	8
Kestrel	5	4	5	4	14
Kingfisher			1		1
Knot			23		23
Lapwing	56	180	450	71	668
Lesser Black-backed Gull	11	10	12	4	35
Lesser Redpoll				2	2
Linnet	125	181	96	80	307
Little Egret	4	1	18	1	18
Little Grebe	1		2	5	6
Long-tailed Tit	11	13	10	16	26
Magpie	15	14	16	17	47
Mallard	25	44	15	38	107
Mandarin Duck				1	1
Marsh Harrier	2		3	1	4
Meadow Pipit	28	19	10	17	41
Mediterranean Gull			6	1	7
Merlin	1				1
Mistle Thrush	2	2	2	1	4
Moorhen	6	9	5	25	33
Mute Swan	8	2	3	2	8
Oystercatcher			34		34
Peregrine	1		1		1

Species	A	B	C	D	Peak Survey Count
Pheasant	48	8	10	10	58
Pied Wagtail (yarrellii)	7	7	4	7	20
Pintail			4		4
Pochard				2	2
Raven	2	4	1		4
Red Kite	3	4	2		7
Red-legged Partridge	49	8		18	64
Redshank			80	2	80
Redwing	16	48	42	55	95
Reed Bunting	26	1	5	2	26
Ringed Plover			2		2
Robin	25	14	10	18	62
Rook	132	108	140	216	452
Shelduck			29	1	29
Shoveler			15	4	15
Siskin			5	1	5
Skylark	90	53	23	68	158
Snipe	5		2	1	5
Song Thrush	3	3	2	5	8
Sparrowhawk	1	1	2	3	6
Spotted Redshank			1		1
Starling	250	180	180	290	615
Stock Dove	93	68	43	31	168
Stonechat	2		1		2
Swallow	1		1		1
Tawny Owl		1			1
Teal	4	2	120	80	142
Treecreeper				2	2
Tufted Duck	1			66	66
Turnstone			18		18
Wigeon			230		230
Woodcock				1	1
Woodpigeon	550	400	780	250	1450
Wren	5	8	5	12	24
Yellowhammer	22	5	6	1	24
PEAK SPECIES COUNT	**70**	**59**	**89**	**79**	**106**

610000 615000 620000 625000

230000 225000 220000

Stour and Orwell Estuaries (Ramsar & SPA) and Stour Estuary (SSSI)

Wrabness (LNR)

a

b

c

d

TENDRING DISTRICT

Hamford Water (Ramsar, SPA & SSSI)

Colne Estuary (Mid-Essex Coast Phase 2) (Ramsar, SPA & SSSI)

Holland Haven Marshes (SSSI)

Holland Haven (LNR)

Legend:

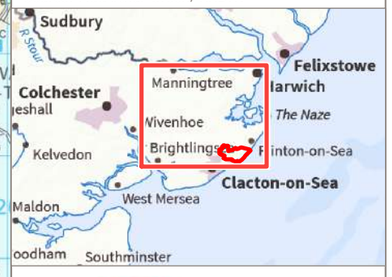
- Landfall Search Area
- Survey Area
- Survey Tile Extent

Ornithogical Designated Sites

Source: Natural England

- Ramsar
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)

Source: MacArthur Green, RHDHV



MacArthur Green

North Falls Onshore Cable Route

Figure 1

Onshore Cable Route: Survey Area 2022 - 2023

N

0 1 2 km

MAP SCALE: 1:60,000 @ A3

Map Author: LM Checked: LNF Approved: RD Status: Rev2

Document Path: S:\Projects\RHDHV\North Falls_NFA\03_Data\O_R_Annual_OnshoreCableRoute_Fig1_SvA_NFA.mxd

Datum: OSGB 1936, Projection: British National Grid

Date: 01/06/2023

610000 615000 620000 625000

230000

225000

220000

Stour and Orwell Estuaries (Ramsar & SPA) and Stour Estuary (SSSI)

Wrabness (LNR)

Hamford Water (Ramsar, SPA & SSSI)

Colne Estuary (Mid-Essex Coast Phase 2) (Ramsar, SPA & SSSI)

Holland Haven Marshes (SSSI)

Holland Haven (LNR)

TENDRING DISTRICT

Legend:

- Landfall Search Area
- Survey Area

Ornithogical Designated Sites

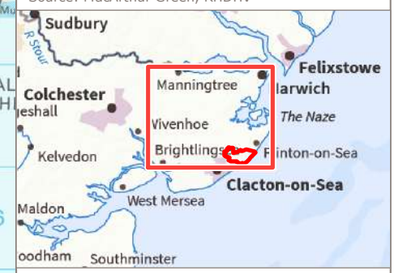
Source: Natural England

- Ramsar
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)

Brent Goose Observations

- 9 - 16
- 17 - 68
- 69 - 113
- 114 - 160
- 161 - 350

Source: MacArthur Green, RHDHV



MacArthur Green

North Falls Onshore Cable Route

Figure 2

Brent Goose 2022 - 2023

0 1 2 km

MAP SCALE: 1:60,000 @ A3

N

Map Author: LM Checked: LNF Approved: RD Status: Rev2

Document Path: S:\Projects\RHDHV\North Falls_NFA\03_Data\O_R_Annual_OnshoreCableRoute_Fig2_BG_NFA.mxd

Datum: OSGB 1936, Projection: British National Grid

Date: 01/06/2023

610000 615000 620000 625000

230000 225000 220000

Stour and Orwell Estuaries (Ramsar & SPA) and Stour Estuary (SSSI)

Wrabness (LNR)

Hamford Water (Ramsar, SPA & SSSI)

Colne Estuary (Mid-Essex Coast Phase 2) (Ramsar, SPA & SSSI)

Holland Haven Marshes (SSSI)

Holland Haven (LNR)

Legend:

- Landfall Search Area
- Survey Area

Ornithogical Designated Sites

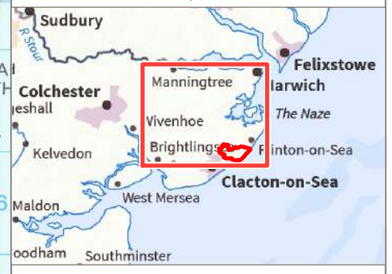
Source: Natural England

- Ramsar
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)

Lapwing Observations

- 1 - 22
- 23 - 45
- 46 - 87
- 88 - 186
- 187 - 400

Source: MacArthur Green, RHDHV



MacArthur Green

North Falls Onshore Cable Route

Figure 3a

Lapwing 2022 - 2023

0 1 2 km

MAP SCALE: 1:60,000 @ A3

N

Map Author: LM Checked: LNF Approved: RD Status: Rev2

Document Path: S:\Projects\RHDHV\North Falls_NFA\03_Data\O_R_Annual_OnshoreCableRoute_Fig3a_L_NFA.mxd

Datum: OSGB 1936, Projection: British National Grid

Date: 01/06/2023

610000 615000 620000 625000

230000 225000 220000

Stour and Orwell Estuaries (Ramsar & SPA) and Stour Estuary (SSSI)

Wrabness (LNR)

Hamford Water (Ramsar, SPA & SSSI)

Holland Haven Marshes (SSSI)

Holland Haven (LNR)

Colne Estuary (Mid-Essex Coast Phase 2) (Ramsar, SPA & SSSI)

Legend:

- Landfall Search Area
- Survey Area

Ornithogical Designated Sites

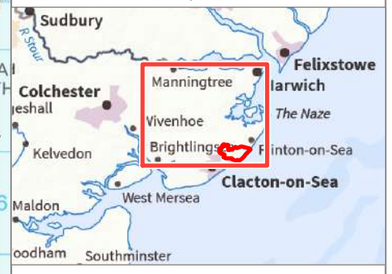
Source: Natural England

- Ramsar
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)

Curlew Observations

- 1 - 8
- 9 - 17
- 18 - 36
- 37 - 77
- 78 - 184

Source: MacArthur Green, RHDHV



MacArthur Green

North Falls Onshore Cable Route

Figure 3b

Curlew 2022 - 2023

0 1 2 km

MAP SCALE: 1:60,000 @ A3

Map Author: LM Checked: LNF Approved: RD Status: Rev2

Document Path: S:\Projects\RHDHV\North Falls_NFA\03_Data\O_R_Annual_OnshoreCableRoute_Fig3b_CU_NFA.mxd

Datum: OSGB 1936, Projection: British National Grid

Date: 01/06/2023

610000 615000 620000 625000

230000 225000 220000

Stour and Orwell Estuaries (Ramsar & SPA) and Stour Estuary (SSSI)

Wrabness (LNR)

Hamford Water (Ramsar, SPA & SSSI)

Colne Estuary (Mid-Essex Coast Phase 2) (Ramsar, SPA & SSSI)

Holland Haven Marshes (SSSI)

Holland Haven (LNR)

Legend:

- Landfall Search Area
- Survey Area

Ornithogical Designated Sites

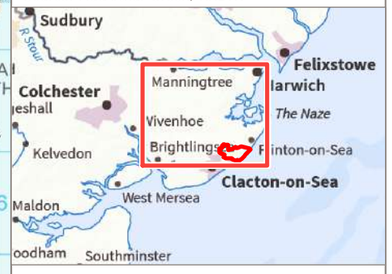
Source: Natural England

- Ramsar
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)

Golden Plover Observations

- 2
- 3 - 32
- 33 - 60
- 61 - 150
- 151 - 850

Source: MacArthur Green, RHDHV



MacArthur Green

North Falls Onshore Cable Route

Figure 3c

Golden Plover 2022 - 2023

0 1 2 km

MAP SCALE: 1:60,000 @ A3

N

Map Author: LM Checked: LNF Approved: RD Status: Rev2

Document Path: S:\Projects\RHDHV\North Falls_NFA\03_Data\O_R_Annual_OnshoreCableRoute_Fig3c_GP_NFA.mxd

Datum: OSGB 1936, Projection: British National Grid

Date: 01/06/2023

610000 615000 620000 625000

230000 225000 220000

Stour and Orwell Estuaries (Ramsar & SPA) and Stour Estuary (SSSI)

Wrabness (LNR)

Hamford Water (Ramsar, SPA & SSSI)

Colne Estuary (Mid-Essex Coast Phase 2) (Ramsar, SPA & SSSI)

Holland Haven Marshes (SSSI)

Holland Haven (LNR)

TENDRING DISTRICT

BRIGHTLINGSEA

FRINTON-ON-SEA

Legend:

- Landfall Search Area
- Survey Area

Ornithological Designated Sites

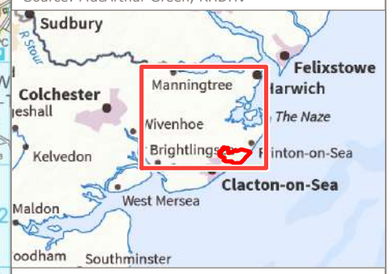
Source: Natural England

- Ramsar
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)

Other Wader Species Observations

- 1 - 26
- 27 - 96
- 97 - 234
- 235 - 560

Source: MacArthur Green, RHDHV



MacArthur Green

North Falls Onshore Cable Route

Figure 4

Other Waders 2022 - 2023

0 1 2 km

MAP SCALE: 1:60,000 @ A3

N

Map Author: LM Checked: LNF Approved: RD Status: Rev2

Document Path: S:\Projects\RHDHV\North Falls_NFA\03_Data\O_R_Annual_OnshoreCableRoute_Fig4_OtherWaders_NFA.mxd

Datum: OSGB 1936, Projection: British National Grid

Date: 01/06/2023

610000 615000 620000 625000

230000 225000 220000

Stour and Orwell Estuaries (Ramsar & SPA) and Stour Estuary (SSSI)

Wrabness (LNR)

Hamford Water (Ramsar, SPA & SSSI)

Colne Estuary (Mid-Essex Coast Phase 2) (Ramsar, SPA & SSSI)

Holland Haven Marshes (SSSI)

Holland Haven (LNR)

Legend:

- Landfall Search Area
- Survey Area

Ornithogical Designated Sites

Source: Natural England

- Ramsar
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)

Duck Species Observations

- 1 - 7
- 8 - 24
- 25 - 51
- 52 - 120
- 121 - 230

Source: MacArthur Green, RHDHV

MacArthur Green

North Falls Onshore Cable Route

Figure 5

Ducks 2022 - 2023

0 1 2 km

MAP SCALE: 1:60,000 @ A3

N

Map Author: LM Checked: LNF Approved: RD Status: Rev2

Document Path: S:\Projects\RHDHV\North Falls_NFA\03_Data\O_R_Annual_OnshoreCableRoute_Fig5_Ducks_NFA.mxd

Datum: OSGB 1936, Projection: British National Grid

Date: 01/06/2023

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230000 225000 220000

Stour and Orwell Estuaries (Ramsar & SPA) and Stour Estuary (SSSI)

Wrabness (LNR)

Hamford Water (Ramsar, SPA & SSSI)

Colne Estuary (Mid-Essex Coast Phase 2) (Ramsar, SPA & SSSI)

Holland Haven Marshes (SSSI)

Holland Haven (LNR)

TENDRING DISTRICT

BRIGHTLINGSEA

FRINTON-ON-SEA

Legend:

- Landfall Search Area
- Survey Area

Ornithological Designated Sites

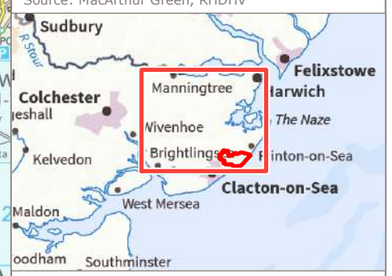
Source: Natural England

- Ramsar
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)

Raptor and Owl Species Observations

- Barn Owl
- Marsh Harrier
- Merlin
- Peregrine Falcon
- Red Kite

Source: MacArthur Green, RHDHV



MacArthur Green

North Falls Onshore Cable Route

Figure 6

Raptors and Owls 2022 - 2023

0 1 2 km

MAP SCALE: 1:60,000 @ A3

N

Datum: OSGB 1936, Projection: British National Grid

Date: 01/06/2023

Map Author: LM Checked: LNF Approved: RD Status: Rev2

Document Path: S:\Projects\RHDHV\North Falls_NFA\03_Data\O_R_Annual_OnshoreCableRoute_Fig6_Raptors_Owls_NFA.mxd

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230000 225000 220000

Stour and Orwell Estuaries (Ramsar & SPA) and Stour Estuary (SSSI)

Wrabness (LNR)

Hamford Water (Ramsar, SPA & SSSI)

Colne Estuary (Mid-Essex Coast Phase 2) (Ramsar, SPA & SSSI)

Holland Haven Marshes (SSSI)

Holland Haven (LNR)

TENDRING DISTRICT

BRIGHTLINGSEA

FRINTON-ON-SEA

Legend:

- Landfall Search Area
- Survey Area

Ornithogical Designated Sites

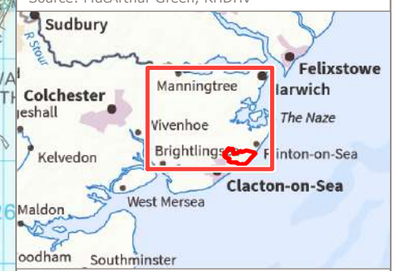
Source: Natural England

- Ramsar
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)

Corn Bunting Observations

- 1 - 3
- 4 - 7
- 8 - 12
- 13 - 17
- 18 - 46

Source: MacArthur Green, RHDHV



MacArthur Green

North Falls Onshore Cable Route

Figure 7

Corn Bunting 2022 - 2023

0 1 2 km

MAP SCALE: 1:60,000 @ A3

N

Datum: OSGB 1936, Projection: British National Grid

Date: 01/06/2023

Map Author: LM Checked: LNF Approved: RD Status: Rev2

Document Path: S:\Projects\RHDHV\North Falls_NFA\03_Data\O_R_Annual_OnshoreCableRoute_Fig7_Corn_Bunting_NFA.mxd

NORTH FALLS

Offshore Wind Farm

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HARNESSING THE POWER OF NORTH SEA WIND

North Falls Offshore Wind Farm Limited

A joint venture company owned equally by SSE Renewables and RWE.

To contact please email contact@northfallsoffshore.com

North Falls Offshore Wind Farm Limited Registered Address: Windmill Hill Business Park, Whitehill Way, Swindon, Wiltshire, SN5 6PB, United Kingdom

Registered in England and Wales Company Number: 12435947