



FIVE
ESTUARIES
OFFSHORE WIND FARM

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OFFSHORE WIND FARM
PRELIMINARY ENVIRONMENTAL
INFORMATION REPORT

VOLUME 5, ANNEX 4.11: NORTH FALLS
OFFSHORE WIND FARM ONSHORE
LANDFALL AREA: 2021/22 NON-BREEDING
BIRD SURVEYS

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A	May-22	Final for PEIR	MacArthur Green	GoBe	VE OWFL

In general, field survey data used to inform the Five Estuaries Offshore Wind Farm PEIR were gathered specifically for the Project. However, in instances where the North Falls Offshore Wind Farm Project held pertinent survey data and reports, these have been provided to the Five Estuaries Offshore Wind Farm Project for use in the PEIR.

This annex is an example of information that has been provided by the North Falls Offshore Wind Farm Project for use by the Five Estuaries Offshore Wind Farm Project. It should be noted that all relevant technical information is included in the Five Estuaries Offshore Wind Farm Project PEIR, regardless of initial source.



MacArthur
Green

North Falls Offshore Wind Farm

Onshore Landfall Area : 2021/22 Non-breeding Bird Surveys

Date: 24 May 2022

Tel: 0141 342 5404

Web: www.macarthurgreen.com

Address: 93 South Woodside Road | Glasgow | G20 6NT

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1 INTRODUCTION

A series of ornithological surveys were undertaken from August 2021 to March 2022, to determine the non-breeding bird assemblage present within the proposed area for cable landfall (the ‘cable landfall search area’) for the proposed North Falls Offshore Wind Farm (‘the project’) (**Figure 1**), and identify at an early stage, potential sensitivities associated with construction phase of the project’s landfall works and potential onshore cable routes. These surveys represent a second non-breeding season’s worth of coverage, following on from those undertaken from October 2020 to March 2021 (see MacArthur Green, 2021a¹ for details), as well as breeding season surveys undertaken from April to July 2021 (MacArthur Green, 2021b²).

At the time of the Year 1 surveys, onshore cable routes within the cable landfall search area had not yet been determined, as National Grid had not identified a grid connection point for North Falls Offshore Wind Farm. As such, the cable landfall search area covers all potential land up to and around the existing Little Clacton substation. For consistency, the Year 2 surveys have covered the same survey area.

2 METHODOLOGY

Survey work was undertaken during each month from August 2021 to March 2022, covering the autumn post-breeding (August – September) and migratory (October – November) periods, and the main non-breeding bird season through to March 2022. This comprised a series of monthly transects in August and September, and twice monthly transect walks from October to March (incorporating regularly-spaced vantage points) to record bird numbers, distribution and activity within the cable landfall search area, and a minimum buffer of 400m in suitable habitat (combined, 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 cable landfall search area (**Figure 1**).

The aims of surveys were:

- To locate target species’ roost and feeding sites within the survey area;
- To establish peak numbers of birds likely to utilise such areas; and
- To establish when, and how frequently, such locations are used.

The results of the surveys will be used to inform the final landfall and onshore cable route, subsequent Environmental Impact Assessment (EIA) and Habitats Regulations Assessment (HRA) if required.

2.1 Desk Study

A preliminary desk study was undertaken prior to commencement of surveys in Year 1, 2020-21, in order to identify likely key sensitivities, which were used to inform the scope of survey work (see MacArthur Green, 2021a for details).

¹ MacArthur Green (2021a). North Falls Offshore Wind Farm - Onshore Landfall Area : 2020/21 Non-breeding Bird Surveys.

² MacArthur Green (2021b). North Falls Offshore Wind Farm - Onshore Landfall Area: 2021 Breeding Bird Surveys.

Target species for winter surveys remain unchanged from Year 1, and are considered to be all wildfowl, wader and raptor species, although any other species of high conservation concern were also recorded. In some cases, seabirds were recorded from land, but these have not been considered as target species unless they were recorded utilising the survey area. Tally counts were made of these and all other more common species.

A further desk study will be undertaken to compile all available historic data at the EIA stage. Monthly WeBS count data for the Holland Marshes area will be obtained from the British Trust for Ornithology (BTO), which can potentially confirm whether the data collected in Years 1 and 2 are representative of the long-term situation. Other records from local birdwatchers, the local wildlife trust or biological information records centres will be obtained if available.

2.2 Survey Methodology

Survey methodology was informed by the following guidance;

- The BTO WeBS Core Count methodology for waterbirds³ which follows Bibby *et al.* (2000⁴); and Gilbert *et al.* (1998⁵); and
- NatureScot (SNH, 2017⁶) 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 2020, prior to the first survey to confirm walkover routes, suitable vantage point locations, access restrictions and health & safety issues.

A series of walkover surveys, following predetermined routes combined with scans from a number of vantage points was conducted twice per month, with landowner access being agreed beforehand. Where this was not possible, surveyors utilised Public Rights of Way (PROWs) and public roads within the survey area. The walkover routes and vantage point locations are shown on **Figure 1**.

Based on the desk study information, local surveyor knowledge and results from Year 1, surveys were focussed on areas of suitable habitat (e.g., wetlands, waterbodies, marshy fields and suitable winter crop fields) likely to be utilised by target species.

Since groups of birds may be highly mobile during survey periods, distinct parts of the cable landfall search area were compartmentalised into manageable areas largely visible at the same time, based on habitat type/field boundaries, so that peak counts per species, per survey could be made within each compartment, similar to a WeBS sector approach. This is shown as compartments A-E on **Figure 1**. Locations of target species were plotted onto a map to be able to identify key roost or feeding sites, whereas a tally of all non-target species within each compartment was made during each survey, to allow the surveyor to focus on target species.

The “look-see” methodology advised for WeBS core counts was followed, which determines that efforts should be made to ensure all suitable areas within the cable landfall search area should be

³ https://www.bto.org/sites/default/files/02_-_core_count_o.pdf

⁴ Bibby, C.J., Burgess, N.D., Hill, D.A. & Mustoe, S. 2000. Bird Census Techniques. Academic Press, London.

⁵ Gilbert, G., Gibbons, D.W. & Evans, J. 1998. Bird Monitoring Methods. RSPB, Sandy.

⁶ Scottish Natural Heritage (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms.

surveyed to within 500m. This means that counts can be made for example, from a suitable location outside of a field/compartment boundary, either along a footpath or from a public road. This method helped ensure that the risk of disturbance to birds is minimised, and also enabled the surveyor to record birds just outside of the cable landfall search area, which may still be subject to disturbance.

In order to establish the location of key roost sites, surveys were timed to overlap with dawn or dusk periods, as well as continuing through the day to determine feeding sites. Effort was made to schedule surveys during suitable weather conditions.

The surveyor scanned each compartment from walkover routes and suitable vantage points for a suitable duration until it was confidently determined that all birds present were recorded.

The following information was recorded within each compartment during each survey:

- Peak count of each species;
- Location(s) of target species within compartment;
- Date and time of each count;
- Behaviour of birds (e.g., roosting, feeding);
- Directions of any movements to and from compartments and survey area; and
- Accuracy of counts should estimates be required, e.g., by access restrictions, continuous movements of birds.

Evidence of actual, and possible, disturbance sources to birds (e.g., dog walkers, bird scarers) were also noted during surveys, to help inform baseline disturbance levels within the survey area.

3 RESULTS

3.1 Peak Counts

During the August 2021 to March 2022 survey period a total of 142 species were recorded within the survey area (refer to Annex A, **Table 2** for species list). This was an increase from 113 species recorded in October 2020 to March 2021. Of the species recorded in Year 2, 61 were considered to be target species (wildfowl, waders, raptors and rare BoCC Red-listed species), up from 52 in Year 1.

The distribution and flock sizes of target species and species groups across the whole search area are presented in **Figure 2** (brent goose and European white-fronted goose), **Figure 3** (other goose species), **Figure 4** (all duck species combined) and **Figure 5** (all wader species combined). In general, these species have been grouped based on similar habitat requirements and similar levels of conservation status.

A summary of peak counts recorded for each target species within compartments A-E in Year 1 and Year 2 is presented in **Table 1**. This represents the largest single count of a species during any survey within a particular compartment. It should be noted that it is possible that the same individuals were recorded in two or more compartments, and therefore population estimates for the whole survey area cannot be ascertained by summing peak counts within all compartments. Also shown

are the 1% national and international thresholds for wildfowl and waders provided in the BTO's WeBS reports (Frost *et al.* 2020⁷), used to identify important sites. Where counts exceed thresholds, this is highlighted. The detailed results obtained from each survey, separated into each of the five compartments (A-E) are presented in tables in Annex B. For each target species, the peak count of individuals recorded during each survey is shown. A summary of results for each compartment is provided below.

3.2 **Compartment A: Little Clacton**

The Little Clacton compartment comprises mainly flat arable farmland to the west of Holland Haven Marshes SSSI and is bordered by commercial and residential areas to the south and west.

Table 3 in Annex B provides a detailed breakdown of peak counts per survey for each target species in Year 2. Like Year 1, numbers of geese and waders were relatively low compared to those nearer to Holland Haven Marshes. There was a peak count of 20 curlew in late March, but otherwise peak counts for all species were fewer than ten individuals. Compared to Year 1, peak counts of wildfowl were lower, and species such as white-fronted goose and wigeon were absent.

Barn owls and little owls were regularly recorded in this compartment in Year 2. As recorded during the 2021 breeding bird surveys, barn owl breeds in this area, and it is likely that little owl also breeds within the compartment.

3.3 **Compartment B: Holland Brook**

Compartment B is centred around Holland Brook which leads into Holland Haven Marshes and forms part of the SSSI. The marsh and wetland habitats of Holland Brook have an extensive ditch system and are surrounded by arable farmland with a few small agricultural reservoirs.

Similar to the results from Year 1, the Compartment is favoured by duck species such as teal and wigeon, with peak counts of over 100 individuals in both cases. Other ducks present were gadwall, mallard, shelduck, shoveler and tufted duck, in smaller numbers. As in Year 1, Canada goose and greylag goose were also regularly recorded, with flocks of over 100 greylags through the winter.

In Year 2 more waders were recorded than the previous year, albeit sporadically, rather than consistently through the non-breeding season. Black-tailed godwit (peak of 16 individuals), curlew (39), golden plover (32), lapwing (66), oystercatcher (5) and snipe (2) were present.

Cetti's warbler was recorded from February 2022, and as recorded during breeding bird surveys, it is an abundant breeder within the Compartment (11 territories in 2021).

Unlike in Year 1, barn owl and little owl were absent, but marsh harrier and peregrine were recorded on occasion.

⁷ Frost, T.M., Calbrade, N.A., Birtles, G.A., Mellan, H.J., Hall, C., Robinson, A.E., Wotton, S.R., Balmer, D.E. and Austin, G.E. 2020. Waterbirds in the UK 2018/19: The Wetland Bird Survey. BTO/RSPB/JNCC. Thetford.

Table 1 Target species peak counts (individuals) per compartment (Cpt). Where species counts exceeded GB threshold this has been highlighted amber.

Species	Cpt A		Cpt B		Cpt C		Cpt D		Cpt E		GB Threshold	International Threshold
	Little Clacton		Holland Brook		Great Holland		Holland Marshes		Frinton Golf C.			
	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2		
Avocet							42	37			87	940
Barn owl	2		1				1	1			-	-
Bearded tit							2				-	-
Bar-tailed godwit								1			500	1,500
Black-tailed godwit (<i>islandica</i>)				16			5	21			390	1,110
Dark-bellied brent goose						1,100	110	100	770	14	980	2,100
Canada goose			34	20	1	1	28	15		2	-	-
Canada x greylag goose hybrid			1	3	7	2	7	4			-	-
Cetti's warbler	1		2	1	1		6	2	1		-	-
Common sandpiper								11		5	1	12,000
Common tern								10			-	1,800
Coot	2		1	1							2,000	15,550
Cormorant		2	5	7	1	4	96	232	1	52	-	-
Corn bunting						20		1	5	12	-	-
Curlew		20		39			53	54	6	4	1,200	7,600
Dartford warbler							1	1		1	-	-
Dunlin							2	6		2	3,400	13,300
Egyptian goose				2								
European W-f goose (<i>albifrons</i>)	101				101	5	50	40		1	21	12,000

Species	Cpt A		Cpt B		Cpt C		Cpt D		Cpt E		GB Threshold	International Threshold
	Little Clacton		Holland Brook		Great Holland		Holland Marshes		Frinton Golf C.			
Firecrest							1				-	-
Gadwall	4		7	18			4	7			310	1,200
Garganey						2					-	13,400
Golden plover			1	32	100	65			27		4,000	9,300
Great crested grebe							2	3			170	6,300
Great white egret			1				1				1	780
Green sandpiper			1				1	1			3	20,000
Grey plover								3		4	330	2,000
Greylag goose	25		45	107	220	201	223	238	1		910	980
Hen harrier								1			-	-
Hobby								1			-	-
Kingfisher							1	1			-	-
Knot								1			2,600	5,300
Lapwing				66	252	890	137	120	250	36	6,200	20,000
Little egret				1			2	2			110	1,100
Little grebe	1		1	4			3	1			150	4,700
Little owl	1	2	1						2		-	-
Little stint								1			1	3,000
Mallard	15	5	13	22	1	15	19	16	16	44	6,700	20,000
Marsh harrier	1			1				1			-	-
Merlin							1				-	-
Moorhen	3	3	13	25	2	2	4	8	11	11	3,000	20,000

Species	Cpt A		Cpt B		Cpt C		Cpt D		Cpt E		GB Threshold	International Threshold
	Little Clacton		Holland Brook		Great Holland		Holland Marshes		Frinton Golf C.			
Mute swan	2	1	6	12	8	6	7	4		2	500	500
Oystercatcher	1		2	5			6	22	3	20	2,900	8,200
Pale-bellied Brent (hrota)						1					-	-
Peregrine	1			1			1	2	1	2	-	-
Pink-footed goose							2				5,100	5,400
Pintail	32		8				3	16		8	200	600
Purple sandpiper							7	12		4	97	110
Red kite						1					-	-
Redshank							5	3			940	2,400
Ruff							1	4			9	20,000
Sanderling								1		4	200	2,000
Sandwich tern								45		1	1	1,700
Shag							1				1,100	2,000
Shelduck	8	5	11	3		3	19	13			470	2,500
Short-eared owl							1	1		1	-	-
Shoveler		8	3	14	4		38	29			190	650
Snipe			3	2		5	22	18			10000	20,000
Teal	45	61	305	136	30		216	324	76	2	4,300	5,000
Tufted duck	4			7		3					1,300	8,900
Tundra bean goose							2				3	5,500
Turnstone							7	8		8	400	1,400
Water rail					1		1	1			-	6,400

Species	Cpt A		Cpt B		Cpt C		Cpt D		Cpt E		GB Threshold	International Threshold
	Little Clacton		Holland Brook		Great Holland		Holland Marshes		Frinton Golf C.			
Whimbrel							2				1	6,700
Wigeon	120		115	120	16		288	370	200	30	4,500	14,000
Wood sandpiper							1				-	18,000
Woodcock	1								1	1	14,000	20,000
Yellow wagtail							1		1	3	-	-

3.4 **Compartment C: Great Holland**

Compartment C comprises an extent of flat, intensively managed arable farmland of generally large field sizes. There are two agricultural reservoirs present within the site. As in Year 1, species diversity was relatively low within this compartment, with a total of 17 species recorded across all surveys (**Table 5**).

Notable were the counts of over 1,000 brent geese in December, which exceeded the threshold for importance at a national level (**Table 1**). The flock was recorded on a winter wheat field at Dairy House Farm in mid-December, although the birds frequently took flight for short distances. On the following day the flock was also exceptionally mobile but spent parts of the day on the sea off Holland Haven as well as returning to Dairy House Farm occasionally. In late December the flock was again on winter wheat just north of Holland Haven. This flock was disturbed by a farm worker who fired firework rockets, and after taking flight the flock stayed within the bounds of Compartment C but was scattered.

White-fronted geese were present on only one occasion, with five individuals recorded in early January. A peak of over 200 greylag geese was recorded in November, but the species' presence was intermittent.

Relatively large numbers of lapwings were present in midwinter, with a peak flock size of 890 individuals recorded in early December. A flock of 65 golden plover was recorded on one occasion. Corn buntings were recorded occasionally in flocks, with a peak count of 20 individuals in October.

3.5 **Compartment D: Holland Marshes**

Compartment D forms the main part of the Holland Haven Marshes SSSI and comprises areas of reclaimed estuarine saltmarsh and freshwater marsh. The compartment is bisected by Holland Brook and contains a network of ditches, to produce a variety of suitable habitats for birds. The Compartment is the most species-rich within the survey area, with a total of 52 species recorded during the Year 2 non-breeding survey period.

As in Year 1, brent geese were sometimes present (up to 248 birds), and greylag geese were also regularly recorded in relatively large numbers, with a peak of 238 birds. Flocks of 40 white-fronted geese were recorded on two occasions, which as in Year 1, exceeds the threshold for national importance. Three other species were recorded in peak numbers on autumn passage which exceeded their national thresholds: common sandpiper (11 individuals), whimbrel (2 individuals) and Sandwich tern (45 individuals).

Ducks were again present in relatively large numbers within the compartment and just off the coast, with high counts of teal (up to 324 individuals), wigeon (370), shoveler (29) and shelduck (13), which are similar numbers to Year 1. Sixteen pintails were also recorded on one occasion.

The Compartment is notable for its diverse wader assemblage, with avocet present in most months apart from midwinter, with numbers peaking at 37 individuals in late March. Lapwing were regularly present although not in numbers as large as those flocks recorded in fields outside of Holland Marshes. No golden plovers were recorded within the Compartment.

Curlew and snipe were present in good numbers throughout the winter. Purple sandpipers (up to 12 individuals) were recorded beside the sea wall. Other wader species present in smaller numbers were black-tailed godwit, dunlin, green sandpiper, redshank, ruff and turnstone.

The marshes were occasionally used by barn owl, hen harrier, hobby, peregrine and short-eared owl. Also notable were Schedule 1 species Cetti's warbler and Dartford warbler, although bearded tit, recorded in Year 1, was absent.

3.6 **Compartment E: Frinton Golf Course**

Compartment E contains part of the Holland Haven SSSI which extends northeast from Holland Haven Local Nature Reserve which is comprised of Frinton Golf Course and rough grassland and scrub close to the sea. To the north of the golf course is a series of large, intensively managed arable fields. Species diversity was lower in this area compared to adjacent Compartment D, and peak counts of brent geese and lapwing did not reach those recorded in Year 1. Although a variety of species were recorded just off the coast, the area of SSSI within the golf course appears to be of relatively low importance for wintering birds compared to Holland Haven Marshes. A count of five common sandpipers on autumn passage did however exceed national significance level. Notable species observed were corn bunting and yellow wagtail utilising stubble fields. Both species were recorded breeding in the area in 2021.

4 **DISCUSSION**

Overall, the results of the Year 2 non-breeding season surveys within the cable landfall search area were largely consistent with those from Year 1. A reasonably large number of species were recorded within the survey area in both years. Spatial distribution within the survey area was however not even, although was consistent between years, with some areas more favoured by species, in particular within and around the wetland habitats within Holland Haven Marshes SSSI in Compartment D and to a lesser extent in Compartment B. These compartments are likely to form the areas of highest sensitivity to target species and are most likely to require specific mitigation/management to avoid/minimise impacts during the construction phase of the project, should the landfall and cable route be in proximity to sensitive locations.

Two geese species were recorded in numbers within the survey area that exceeded national thresholds: brent goose and European white-fronted goose. For the former, a large flock of over 1,000 birds was recorded in December on winter wheat within Compartment C, despite apparent deterrent attempts of local farmers. European white-fronted goose was recorded in nationally important numbers in both years, within Compartments A and C in Year 1, and Compartment C in Year 2. Compartment D also appears to be of some importance for birds on autumn passage, with nationally important numbers of Sandwich tern, common sandpiper and whimbrel recorded in 2021.

Geese and wader species utilise arable fields north of Holland Haven, although the presence of deterrents in Compartments A and C, as well as regular human presence throughout the cable landfall search area means that birds are likely to move frequently between locations in response to disturbance sources. Nevertheless, consideration of wildfowl, ducks and waders, particularly brent goose, European white-fronted goose and Red-listed wader species such as lapwing and curlew may be required further in any mitigation strategy for the project.

ANNEX A. FULL SPECIES LIST**Table 2 Full species list and frequency of presence per compartment (Aug 2021 to Mar 2022)**

Species	Frequency of Occurrence (Number of Surveys Recorded On – max = 14)				
	Cpt A	Cpt B	Cpt C	Cpt D	Cpt E
	Little Clacton	Holland Brook	Great Holland	Holland Marshes	Frinton Golf Course
Arctic Skua				1	
Avocet				9	
Barn Owl	7			1	
Bar-tailed Godwit				1	
Blackbird	13	13	10	14	10
Blackcap		2		1	1
Black-headed Gull	14	13	13	13	13
Black-tailed Godwit (islandica)		2		10	
Blue Tit	14	13	6	14	10
Brambling					1
Brent Goose (bernicla)			2	6	2
Bullfinch	1			1	
Buzzard	11	13	11	13	11
Canada Goose		7	2	7	1
Canada x Greylag Goose hybrid		1	1	3	
Carrion Crow	13	13	13	13	11
Cetti's Warbler		3		6	
Chaffinch	8	11	1	6	9
Chiffchaff	3	2	1	2	1
Coal Tit		1			
Collared Dove	14	6	6	9	3
Common Gull	5	5	5	7	6
Common Sandpiper				1	1
Common Tern				1	
Coot		3			
Cormorant	3	11	7	14	9
Corn Bunting			3	1	7
Curlew	1	5		9	2
Dartford Warbler				2	1
Dunlin				4	1
Duncock	13	8	13	10	9
Egyptian Goose		1			
Eider					1
European W-f Goose (albifrons)			1	3	1
Feral Pigeon	7	9	13	7	14
Fieldfare	2	1		1	1
Gadwall		2		2	
Gannet				4	4
Garganey			1		

Frequency of Occurrence (Number of Surveys Recorded On – max = 14)					
Goldcrest				1	
Golden Plover		1	1		
Goldfinch	2	8	4	6	8
Great Black-backed Gull		1	3	11	9
Great Crested Grebe				2	
Great Northern Diver				2	1
Great Skua				2	
Great Spotted Woodpecker	5	2	1	1	1
Great Tit	14	13	5	7	7
Green Sandpiper				1	
Green Woodpecker	7	9		6	9
Greenfinch	2	4	1	4	
Grey Heron	5	14	3	11	3
Grey Plover				1	1
Grey Wagtail		1		1	
Greylag Goose		10	5	9	
Guillemot				1	1
Hen Harrier				1	
Herring Gull	12	14	14	13	13
Hobby				2	
House Martin	1	1		3	1
House Sparrow	11	3	2		4
Jackdaw	14	14	6	12	10
Jay	8	10	2	4	4
Kestrel	10	12	10	10	13
Kingfisher				1	
Kittiwake					1
Knot				1	
Lapwing		6	5	11	1
Lesser Black-backed Gull	6	9	9	7	3
Lesser Redpoll		1			
Lesser Whitethroat				2	
Linnet		4	6	5	12
Little Egret		2		4	
Little Grebe		9		1	
Little Gull				1	
Little Owl	8				
Little Stint				2	
Long-tailed Tit	2	4	1	4	1
Magpie	14	12	8	14	12
Mallard	6	11	4	9	11
Manx Shearwater				1	
Marsh Harrier		2		5	
Meadow Pipit	1	8	9	9	9

Frequency of Occurrence (Number of Surveys Recorded On – max = 14)					
Mediterranean Gull	2	1		7	3
Mistle Thrush	1	1	1		
Moorhen	7	14	2	12	11
Mute Swan	2	12	4	1	1
Oystercatcher		2		4	1
Pale-bellied Brent (hrota)			1		1
Peregrine		1		3	3
Pheasant	11	12	10	13	7
Pied Wagtail (yarrellii)	10	3	10	11	9
Pintail				1	1
Pomarine Skua					1
Purple Sandpiper				5	2
Razorbill				1	
Red Kite			1		
Red-legged Partridge	4	4	6		7
Red-necked Grebe				1	1
Redshank				2	
Red-throated Diver				9	6
Redwing	1				
Reed Bunting		7	5	8	5
Reed Warbler		1		1	
Robin	14	13	7	12	9
Rock Pipit				5	2
Rook	14	13	9	5	10
Ruff				2	
Sand Martin				1	2
Sanderling				2	1
Sandwich Tern				3	1
Shelduck	1	6	1	11	
Short-eared Owl				2	1
Shoveler	3	6		13	
Siskin				1	
Skylark		7	10	6	12
Snipe		5	2	8	
Song Thrush	3	7	2		4
Sparrowhawk	4	4	1	8	4
Starling	5	12	8	14	10
Stock Dove	11	11	6	9	12
Stonechat		2	3	8	7
Swallow	2	3	2	3	2
Swift				1	1
Teal	3	11		14	1
Tree Sparrow				1	
Tufted Duck		3	1		

Frequency of Occurrence (Number of Surveys Recorded On – max = 14)					
Turnstone				10	1
Water Pipit				1	
Water Rail				3	
Wheatear			2	1	2
Whimbrel				1	
White Wagtail	1				
Whitethroat		1		1	1
Wigeon		6		13	1
Willow Warbler				1	
Wood Sandpiper				1	
Woodcock					1
Woodpigeon	12	13	13	12	11
Wren	10	7	1	4	3
Yellow Wagtail				2	1
Yellowhammer	3				1

ANNEX B. TARGET SPECIES PEAK COUNTS PER COMPARTMENT**Table 3 Target species peak counts per survey in Compartment A: Little Clacton**

Species	Aug	Sep	Oct 1	Oct 2	Nov 1	Nov 2	Dec 1	Dec 2	Jan 1	Jan 2	Feb 1	Feb 2	Mar 1	Mar 2
Barn Owl						2	1	2			2	2	2	2
Cormorant		1				2		1						
Curlew														20
Little Owl				1			1	1		1	2	2	2	1
Mallard			5			5	2	5	2					1
Moorhen	2	1				3	1		2			2	2	
Mute Swan									1		1			
Shelduck														5
Shoveler										8		4		7
Teal								61				2		1

Table 4 Target species peak counts per survey in Compartment B: Holland Brook

Species	Aug	Sep	Oct 1	Oct 2	Nov 1	Nov 2	Dec 1	Dec 2	Jan 1	Jan 2	Feb 1	Feb 2	Mar 1	Mar 2
Black-tailed Godwit (islandica)												16	15	
Canada Goose						8			18	18	12	17	20	2
Canada x Greylag Goose hybrid										3				
Cetti's Warbler					1							1	1	
Coot							1			1			1	
Cormorant	2		4	5	1	3	6	1		7		5	3	1
Curlew						1		1				36	39	11
Egyptian Goose											2			

Species	Aug	Sep	Oct 1	Oct 2	Nov 1	Nov 2	Dec 1	Dec 2	Jan 1	Jan 2	Feb 1	Feb 2	Mar 1	Mar 2
Gadwall													18	3
Golden Plover							32							
Greylag Goose	1		107	97	22				3	105	81	41	99	40
Lapwing			65		10			45	3				66	2
Little Egret	1							1						
Little Grebe					2	2	1	1	1	4	2		1	1
Mallard	7		19	4	2			2	5	13	2	12	12	22
Marsh Harrier			1	1										
Moorhen	6	2	2	2	3	12	5	2	14	25	15	14	13	13
Mute Swan			12	8	7	6	6	8	4	7	4	5	8	2
Oystercatcher													3	5
Peregrine							1							
Shelduck							2	3			2	3	2	2
Shoveler						3	3		1	1		2	14	
Snipe		1	1									1	2	1
Teal			1	2	8	22		136	27	94	37	82	29	17
Tufted Duck											1	7	6	
Wigeon				47		77				22	120	12	1	

Table 5 Target species peak counts per survey in Compartment C: Great Holland

Species	Aug	Sep	Oct 1	Oct 2	Nov 1	Nov 2	Dec 1	Dec 2	Jan 1	Jan 2	Feb 1	Feb 2	Mar 1	Mar 2
Brent Goose (bernica)								1000	1100					
Canada Goose											1			1
Canada x Greylag Goose hybrid											2			
Cormorant	1	1		1			4		1	1	3			
Corn Bunting			20									2	14	
European W-f Goose (albifrons)									5					
Garganey														2
Golden Plover						65								
Greylag Goose					201	24	12				105			7
Lapwing					16	326	55	890	44					
Mallard			7	15								3		3
Moorhen			1	2										
Mute Swan											6	3	5	4
Pale-bellied Brent (hrota)							1							
Red Kite					1									
Shelduck														3
Snipe		1					5							
Tufted Duck										3				

Table 6 Target species peak counts per survey in Compartment D: Holland Marshes

Species	Aug	Sep	Oct 1	Oct 2	Nov 1	Nov 2	Dec 1	Dec 2	Jan 1	Jan 2	Feb 1	Feb 2	Mar 1	Mar 2
Avocet	25	7	5					3	2		2	21	7	37
Barn Owl	1													
Bar-tailed Godwit		1												
Black-tailed Godwit (islandica)	11	21	1		7	1			1	11	11		1	9
Brent Goose (bernicla)			248		20	2			1	1				
Canada Goose	15					8	8	8		7			6	4
Canada x Greylag Goose hybrid							2	2	4					
Cetti's Warbler	2	2		1								1	1	1
Common Sandpiper	11													
Common Tern	10													
Cormorant	10	7	9	11	4	232	10	7	69	14	9	18	14	2
Corn Bunting										1				
Curlew	1	5					5		20	40	54	14	1	9
Dartford Warbler							1		1					
Dunlin	2		6					1					1	
European W-f Goose (albifrons)								4		40	40			
Gadwall	1													7
Great Crested Grebe					1		3							
Green Sandpiper									1					
Grey Plover	3													
Greylag Goose		3	1	192	72	238	103	228	200	143				
Hen Harrier			1											
Hobby			2											
Kingfisher	1													
Knot			1											

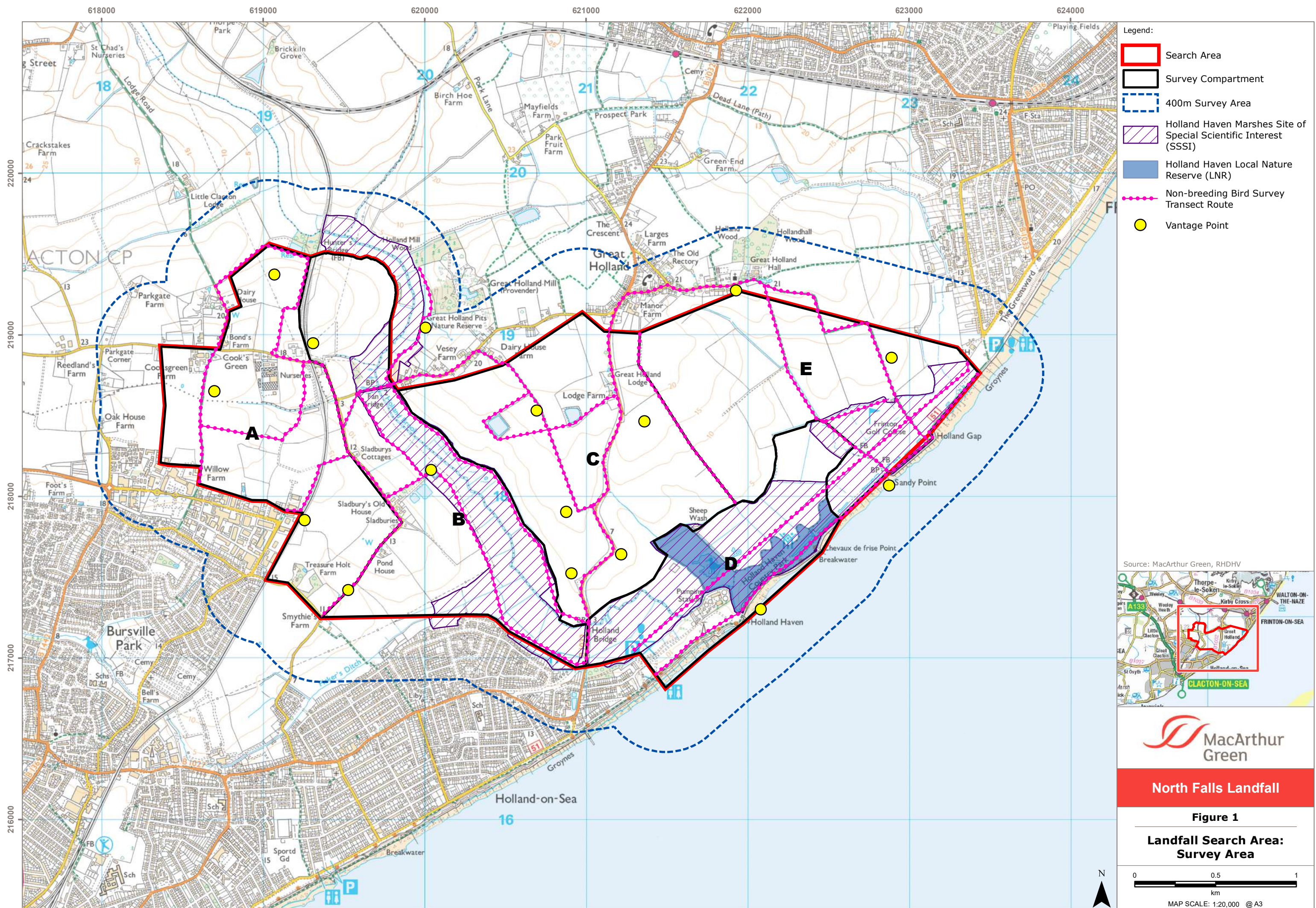
Species	Aug	Sep	Oct 1	Oct 2	Nov 1	Nov 2	Dec 1	Dec 2	Jan 1	Jan 2	Feb 1	Feb 2	Mar 1	Mar 2
Lapwing	9	120	13	42	70				62	107	2	44	39	12
Little Egret			2		1	1				1				
Little Grebe							1							
Little Stint	1	1												
Mallard	14	7	16						5	2	8	4	9	5
Marsh Harrier	1			1					1	1				1
Moorhen	7	5	5	3	3	5		6	7		3	6	8	6
Mute Swan				4										
Oystercatcher	22											4	6	4
Peregrine				1			1			2				
Pintail								16						
Purple Sandpiper				2		12	7			1				3
Red-necked Grebe					1									
Redshank	2													3
Ruff	3	4												
Sanderling			1			1								
Sandwich Tern	45	2	24											
Shelduck	5	1			8	4		3	4	3	5	9	6	13
Short-eared Owl			2											
Shoveler	4		9	8	26	12	25	29	11	13	1	20	21	21
Snipe	10	17	2	18				13	6		2			4
Teal	57	30	241	56	84	89	225	324	177	79	54	106	97	38
Turnstone		4	8	5	2	2		5	1	8	8	1		
Water Rail	1	1			1									
Whimbrel	2													
Wigeon		50	370	53	84	65	170	152	142	186	124	219	157	177

Species	Aug	Sep	Oct 1	Oct 2	Nov 1	Nov 2	Dec 1	Dec 2	Jan 1	Jan 2	Feb 1	Feb 2	Mar 1	Mar 2
Wood Sandpiper	1													
Yellow Wagtail	1		1											

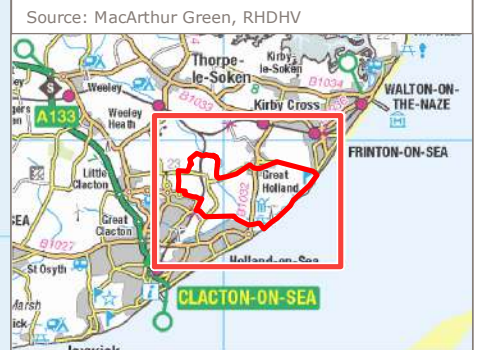
Table 7 Target species peak counts per survey in Compartment E: Frinton Golf Course

Species	Aug	Sep	Oct 1	Oct 2	Nov 1	Nov 2	Dec 1	Dec 2	Jan 1	Jan 2	Feb 1	Feb 2	Mar 1	Mar 2
Brent Goose (bernica)					14	6								
Canada Goose												2		
Common Sandpiper	5													
Cormorant		1			6	52	14	5	2	1			4	2
Corn Bunting					7		2	12	4		2		1	3
Curlew				1				4						
Dartford Warbler											1			
Dunlin	2													
European W-f Goose (albifrons)								1						
Grey Plover	4													
Lapwing								36						
Mallard	4	6			12		38	34	25	18	17	44	9	5
Moorhen		7			7	11	4	5	5	8	6	11	8	4
Mute Swan													2	
Oystercatcher	20													
Pale-bellied Brent (hrota)								1						
Peregrine						1			1				2	
Pintail		8												
Purple Sandpiper											2	4		

Species	Aug	Sep	Oct 1	Oct 2	Nov 1	Nov 2	Dec 1	Dec 2	Jan 1	Jan 2	Feb 1	Feb 2	Mar 1	Mar 2
Red-necked Grebe					1									
Sanderling	4													
Sandwich Tern		1												
Short-eared Owl				1										
Teal								2						
Turnstone	8													
Wigeon		30												
Woodcock					1									
Yellow Wagtail	3													

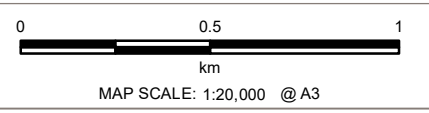


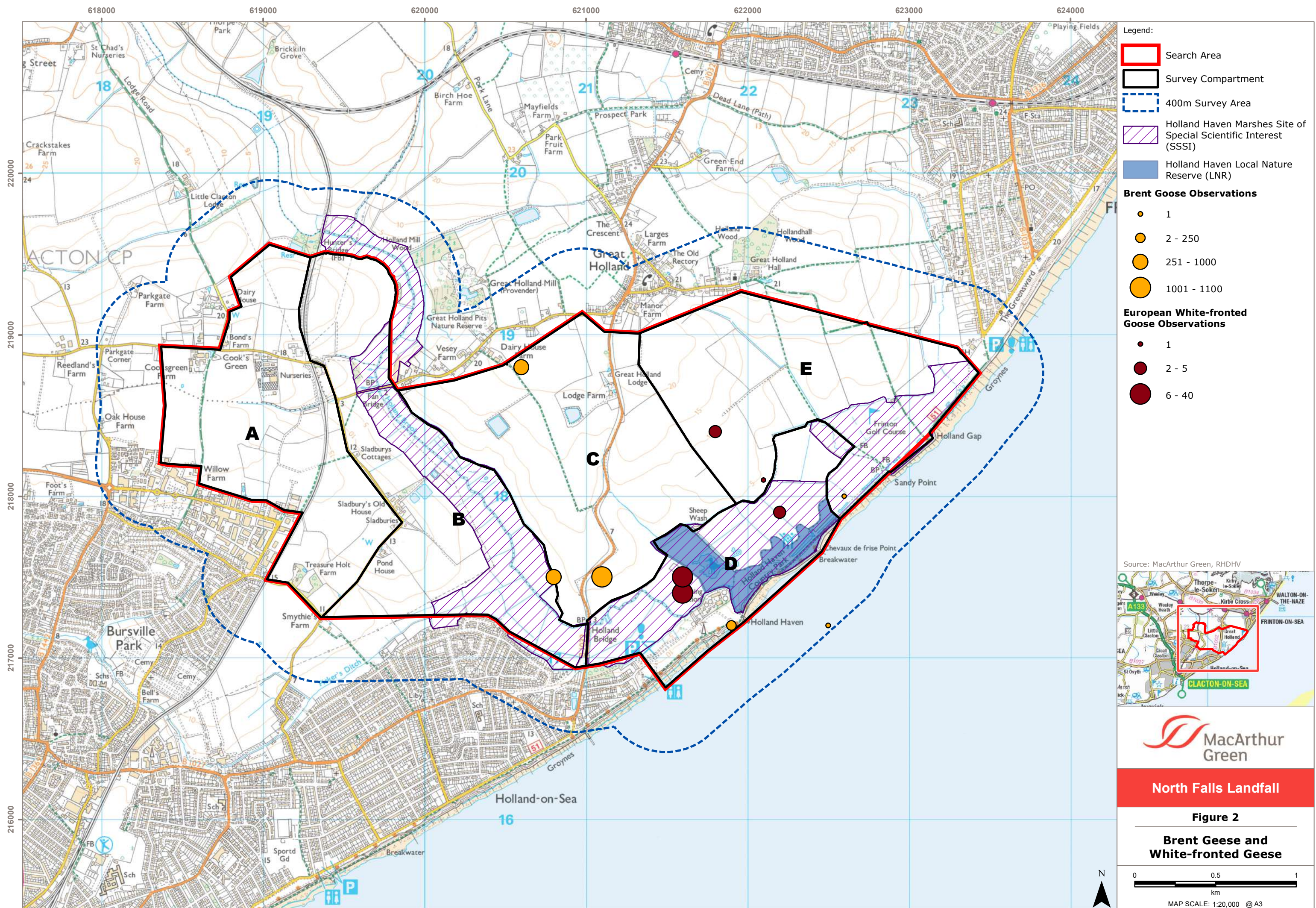
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- Search Area
 - Survey Compartment
 - 400m Survey Area
 - Holland Haven Marshes Site of Special Scientific Interest (SSSI)
 - Holland Haven Local Nature Reserve (LNR)
 - Non-breeding Bird Survey Transect Route
 - Vantage Point



North Falls Landfall

Figure 1
Landfall Search Area: Survey Area





Legend:

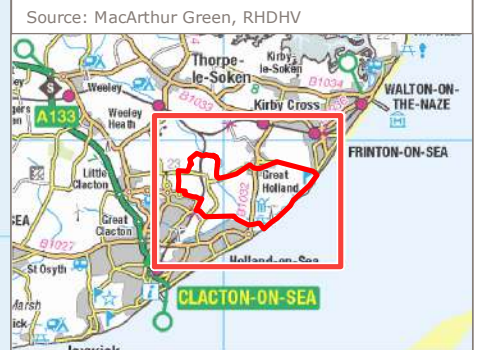
- Search Area
- Survey Compartment
- 400m Survey Area
- Holland Haven Marshes Site of Special Scientific Interest (SSSI)
- Holland Haven Local Nature Reserve (LNR)

Brent Goose Observations

- 1
- 2 - 250
- 251 - 1000
- 1001 - 1100

European White-fronted Goose Observations

- 1
- 2 - 5
- 6 - 40



North Falls Landfall

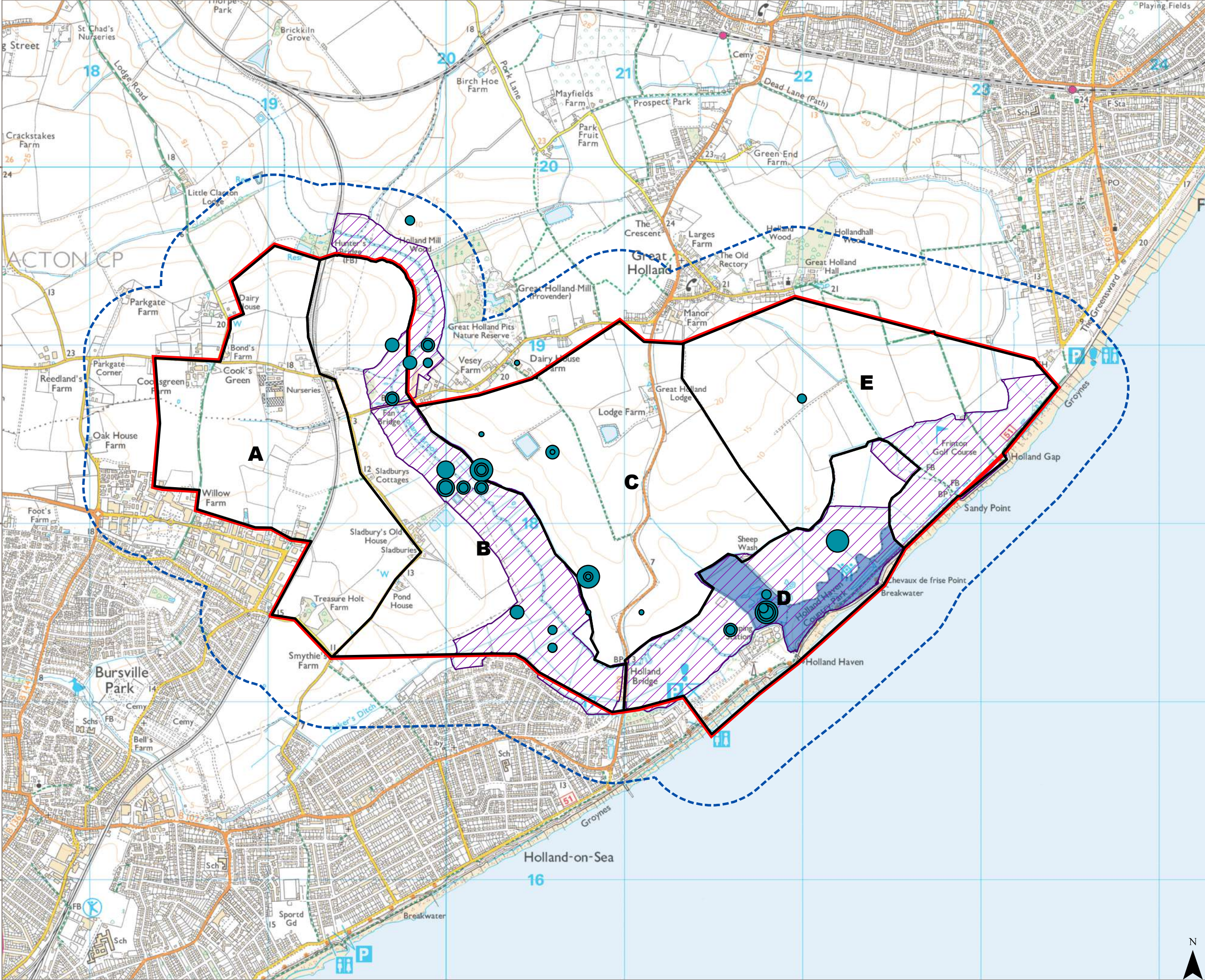
Figure 2

Brent Geese and White-fronted Geese

MAP SCALE: 1:20,000 @ A3

618000 619000 620000 621000 622000 623000 624000

220000
219000
218000
217000
216000



- Legend:**
- Search Area
 - Survey Compartment
 - 400m Survey Area
 - Holland Haven Marshes Site of Special Scientific Interest (SSSI)
 - Holland Haven Local Nature Reserve (LNR)

- Other Goose Species Observations**
- 1
 - 2 - 5
 - 6 - 50
 - 51 - 100
 - 101 - 228



North Falls Landfall

Figure 3

Other Goose Species

MAP SCALE: 1:20,000 @ A3

618000 619000 620000 621000 622000 623000 624000

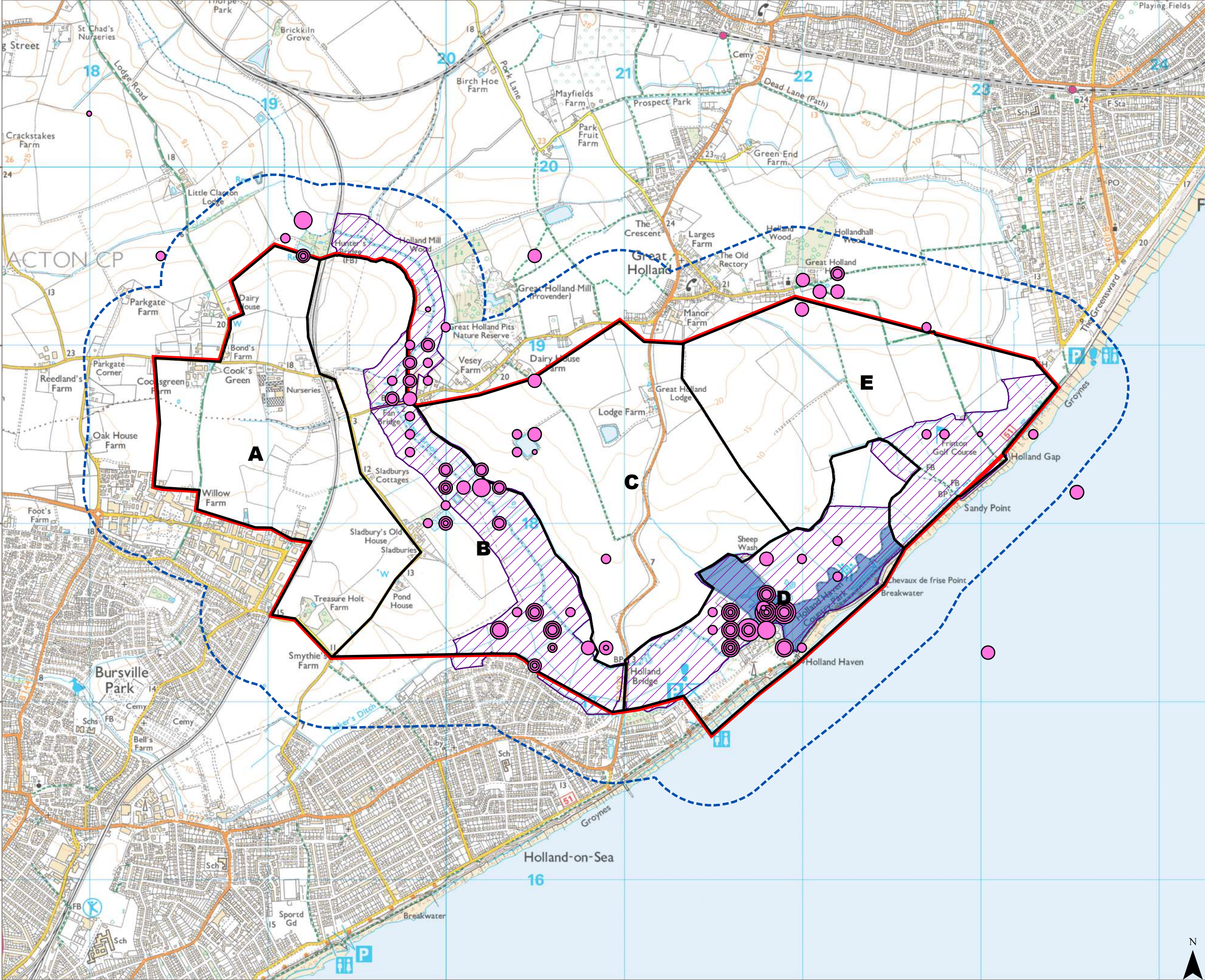
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217000

216000

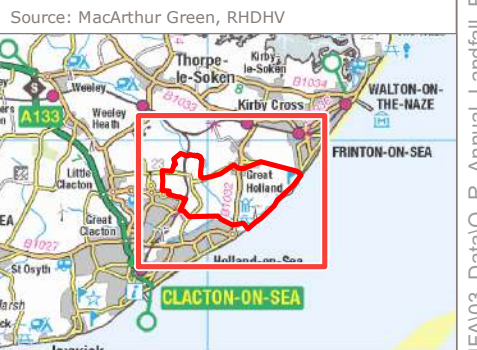


Legend:

- Search Area
- Survey Compartment
- 400m Survey Area
- Holland Haven Marshes Site of Special Scientific Interest (SSSI)
- Holland Haven Local Nature Reserve (LNR)

Duck Species Observations

- 1
- 2 - 5
- 6 - 50
- 51 - 150
- 151 - 282



North Falls Landfall

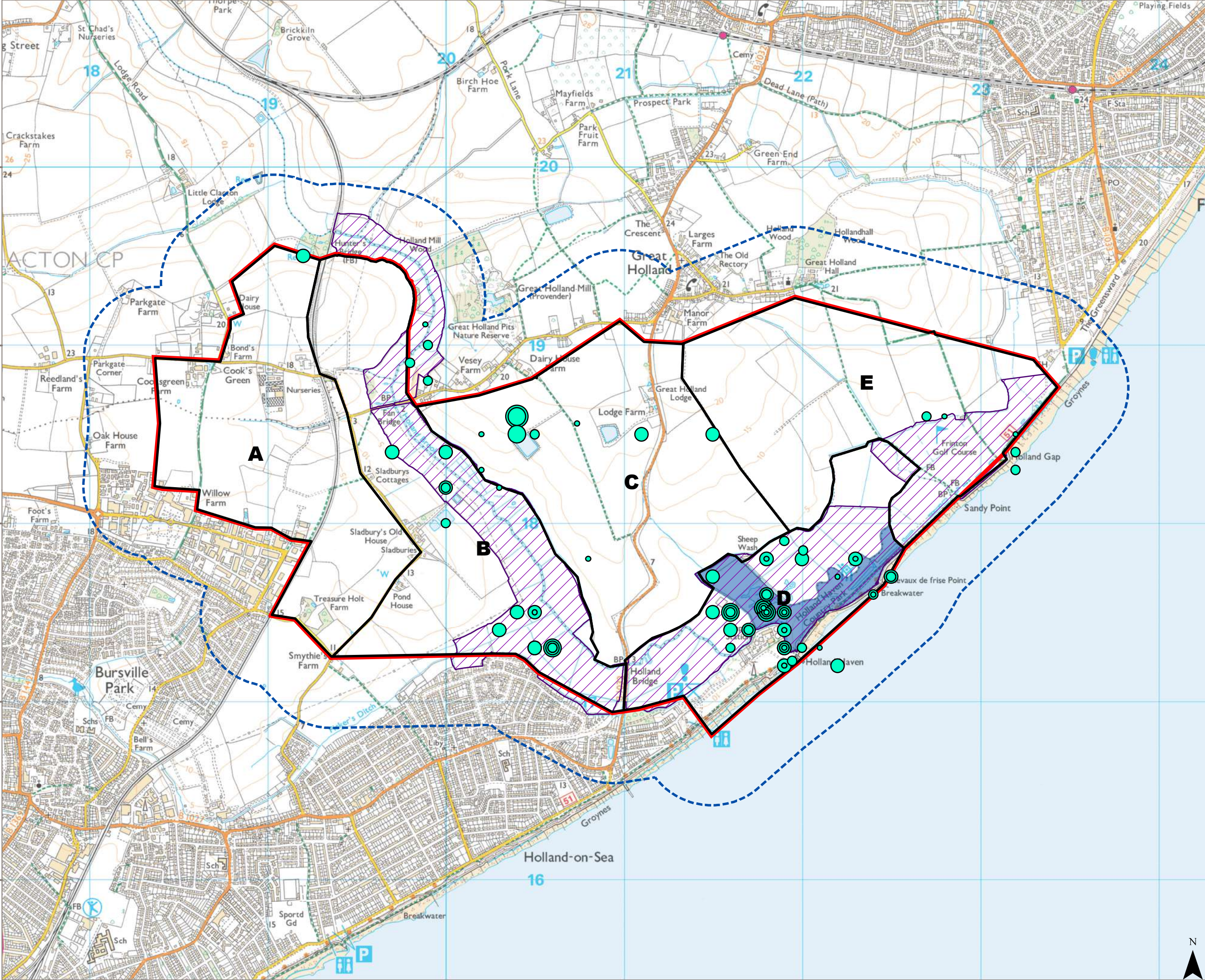
Figure 4

Duck Species

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218000
217000
216000

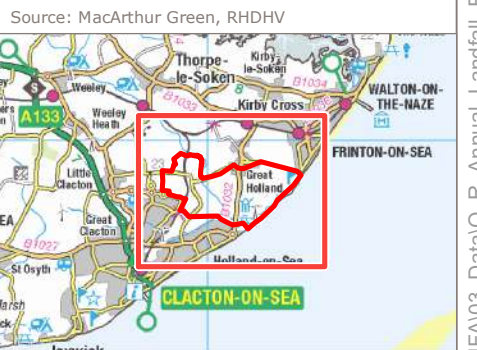


Legend:

- Search Area
- Survey Compartment
- 400m Survey Area
- Holland Haven Marshes Site of Special Scientific Interest (SSSI)
- Holland Haven Local Nature Reserve (LNR)

Wader Species Observations

- 1
- 2 - 5
- 6 - 50
- 51 - 200
- 201 - 890



North Falls Landfall

Figure 5

Wader Species

MAP SCALE: 1:20,000 @ A3



F I V E
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COMPANY NO

0333 880 5306

fiveestuaries@rwe.com

www.fiveestuaries.co.uk

Five Estuaries Offshore Wind Farm Ltd
Windmill Hill Business Park
Whitehill Way, Swindon, SN5 6PB
Registered in England and Wales
company number 12292474

