



# CLEVE HILL SOLAR PARK

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# Cleve Farm – Wintering Bird Survey Report 2013/2014 & 2014/2015



2014 & 2015

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## 1 Summary

AECOM was commissioned by Hive Energy Ltd in late December 2013 to carry out a series of wintering bird surveys at Cleve Farm near Graveney, Kent (hereafter referred to as the Site).

The Site comprises an extensive area of low lying arable land intersected with water filled drainage ditches, with tree lines, hedgerows, reedbed and areas of scrub and rough grassland around the site perimeter. The adjacent Swale Special Protection Area (SPA) and Ramsar site is in part designated for its wintering wildfowl populations. The aim of this survey was to record species and numbers of wintering birds on site and/or adjacent to the Site and to map all activity related to the habitats present within the proposed development area. Particular focus was made on specially protected species or ones for which the Swale Special Protection Area (SPA) and Ramsar sites have been designated.

Species were recorded over two winter seasons in a total of 22 site visits between January to March 2014 and November 2014 to February 2015. Monthly survey visits during the peak winter months were spread across three survey types per month to target differing species groups. Each month a winter farmland bird survey transect traversing the site was carried out, taking into account all habitat types and the majority of areas of the site. In addition, each month a low tide count and a high tide count were also undertaken viewing both activity on the Site areas closest to the Swale and activity adjacent to the site to include the mudflats of the Swale SPA.

Notable onsite records within the arable fields included peak counts of 3400 for brent goose (*Branta bernicla bernicla*), which is known to regularly forage in large numbers on arable land close to estuaries during the winter months (Rodwell, *et al*, 2005). Other species also recorded in high numbers included lapwing (*Vanellus vanellus*) (peak no. 715) and starling (*Sturnus vulgaris*) (peak no. 3400). The arable fields were also utilised by other species of wading birds, including golden plover (*Pluvialis apricaria*) and dunlin (*Calidris alpina*). The site also supports birds of prey throughout the winter including marsh harrier (*Circus aeruginosus*) and peregrine (*Falco peregrinus*).

## 2 Introduction

AECOM was commissioned by Hive Energy in late 2013 to carry out a wintering bird survey of the Site near Graveney, Kent.

The aim of this survey was to record species and numbers of wintering birds on site and to map all activity related to the habitats present within the proposed development area. Particular attention was paid to specially protected species or those for which the adjacent Swale Special Protection Area (SPA) and Ramsar sites have been designated. The Ramsar site is in part designated for its wintering wildfowl populations, whilst the SPA is designated both for several breeding water birds of note and its wintering wildfowl populations. The Ecological Desk Study and Phase 1 Habitat Survey Report (AECOM, 2016), sets out the designations and ecological interest of each of these important nature conservation sites.

The findings of this report will inform the need for further surveys, if required and provide information on any potential ecological constraints.

## 3 Legislation

### 3.1 Legislation

Birds are afforded protection under different tiers of legislation and policy in the UK.

All birds in the UK are protected under the EC Directive on the Conservation of Wild Birds 2009 (2009/147/EC) and Part 1 Section 1(1) of the Wildlife and Countryside Act 1981 (as amended). This gives protection to all species of wild bird from deliberate;

- killing, injuring or taking birds or their young and keeping in captivity;
- egg collecting or destroying eggs; and
- taking, damaging or destroying nests in use or being built.

Specially protected birds are listed in Annex 1 of the Directive. Many are afforded protection by designation of land as Special Protection Areas (SPA). Special protection is also afforded to species listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). These birds are rare, endangered, declining or vulnerable species. In addition to the protection afforded to all bird species, it is an offence to cause reckless or intentional disturbance to the specially protected Schedule 1 listed species when they are building nests, or when they are nesting.

Bird species are also listed as species of principal importance for conservation in England under Section 41 of the Natural Environment and Rural Communities Act (1996) (NERC s41). Bird species listed under NERC s41 are to be given material consideration during planning.

## 4 Methodology

### 4.1.1 Field surveys

Twenty-two wintering bird survey visits were undertaken by experienced ornithologists, with nine visits between January and March 2014 inclusive for the 2013-2014 winter season and 13 visits between November 2014 and February 2015 inclusive for the 2014-2015 winter season.

Each month surveyors undertook three surveys following transect routes that enabled:

- Low tide counts of birds immediately adjacent to the Site on the Swale Estuary and those within fields on Site adjacent to the Swale: these counts were undertaken one hour either side of low tide;
- High tide counts of birds immediately adjacent to the Site on the Swale Estuary and those within fields on Site adjacent to the Swale: these counts were undertaken one hour either side of high tide; and
- Winter Farmland Bird Survey of all areas and habitats on the Site.

The surveys follow an adaptation of the British Trust for Ornithology's (BTO) Wetland Bird Survey methodology for the wetlands and the BTO's Winter Farmland Bird Survey method for the farmland areas. A survey transect was devised that allowed observation of all areas of foreshore and the connecting habitats within and adjacent to the proposed areas. Monthly counts were undertaken focusing on the farmland areas of the site, whereby surveyors followed a transect route that enabled birds to be recorded from all areas of the Site and adjacent habitats.

Figure 1 illustrates the transects and survey areas for the three survey types. The farmland survey crisscrossed the Site covering all the arable areas of the Site, either with close distance observation by naked eye or with longer distance views utilising binoculars. The low tide count transect was maintained along the sea wall path with views across all areas of mudflats visible. The high tide count transect again maintained a route along the sea wall path with views both along the shoreline, the sea wall area itself and views down onto the Site within in the fields closest to the Site boundary. During the high tide counts, fields in the far southeast of the site (south of Cleve Farm) were not visible. Due to the extensive nature of the Site and long views both on and off Site, binoculars were relied upon for long distance views.

Surveys were undertaken under conditions of good visibility avoiding heavy rain and/or strong winds, fog or heavy snow, when bird behaviour may be atypical or when surveying may be impractical.

All birds present were identified by sight and/or call and recorded using standard BTO species codes (BTO, N.D).

The conservation status of recorded birds was assessed against the following criteria:

- EC Birds Directive 2009 Annex 1;
- Wildlife and Countryside Act 1981 (As Amended) Schedule 1; and
- Natural Environment and Rural Communities Act (2006) Section 41.

Birds are also categorised according to their level of conservation concern as indicated by their population status and stability. These are known as the Birds of Conservation Concern (BOCC) (Eaton *et al.*, 2015) Red, Amber and Green lists. The lists categorise species according to their level of conservation concern as indicated by their population status and stability. Where these species are present, their conservation status should be taken into account in determining the likely impacts of proposed projects and plans.

Red list species are;

- those that are 'Globally Threatened' according to IUCN (International Union for Conservation of Nature and Natural Resources) criteria;
- those whose population or range has declined rapidly in recent years, and;
- those that have declined historically and not shown a substantial recent recovery.

Amber list species are;

- those with an unfavourable conservation status in Europe;
- those whose population or range has declined moderately in recent years;
- those whose population has declined historically but made a substantial recent recovery;
- those with limited populations and low breeding rates, and;
- those with internationally important or localised populations.

Green list species are not of conservation concern and include all other commonly occurring birds in the UK. Several introduced species are not accorded Red, Amber or Green status.

Bird species listed as priority species under the Kent Biodiversity Action Plan (KBAP) are also considered.

**Table 1. 2013-2014 season winter bird survey dates and weather conditions record.**

Date	Time	Survey Type	Temperature (°C)	Weather	Wind Direction & Speed Beaufort Scale
09/01/2014	10:30 – 12:30	Low Tide	9	Cloudy	SW 5
13/01/2014	11:45 – 14:30	Farmland	9	Showers	SW 5
15/01/2014	11:00 – 13:40	High Tide	8	Overcast, drizzle	SW 5
07/02/2014	11:00 – 13:20	Low Tide	7	Rain clearing to sun and cloud	W 5
10/02/2014	12:00 – 14:40	Farmland	8	Cloudy, occasional rain	SW 3
12/02/2014	11:00 – 13:00	High Tide	9	Sun/Cloud	SW 5-6
01/03/2014	11:15 – 13:15	Low Tide	14	Sunny	Calm
05/03/2014	13:00 – 15:00	High Tide	12	Sunny	Var 1-2
07/03/2014	10:00 – 12:00	Farmland	8	Cloudy	SW 4

**Table 2. 2014-2015 season winter bird survey dates and weather conditions record.**

Date	Time	Survey Type	Temperature (°C)	Weather	Wind Direction & Speed Beaufort Scale
12/11/2014	12:20 – 15:30	Farmland	12	Sunny, rain showers	4
13/11/2014	09:45 – 11:35	Low Tide	11	Cloudy	5
21/11/2014	11:30 – 13:30	High Tide	9	Partly cloudy	3
09/12/2014	12:30 – 14:45	High Tide	4	Partly cloudy	3

10/12/2014	10:15 – 13:00	Farmland	6	Sunny	4
17/12/2014	12:00 – 14:00	Low Tide	12	Partly cloudy	4
14/01/2015	11:30 – 14:15	Low Tide	4	Sunny and cold	5
20/01/2015	12:30 – 15:15	Farmland	1-2	Partly cloudy	-
21/01/2015	11:00 – 13:00	High Tide	1	Cloudy	2-3
18/02/2015	11:50 – 13:50	High Tide – part site	9	Sunny	3-4
24/02/2015	14:30 – 16:30	High Tide – part site	10	Sunny with cloud, cold and breezy	4
25/02/2015	13:00 – 15:30	Farmland	10	Cloudy	3-4
26/02/2015	11:45 – 13:55	Low Tide	12	Cloudy but bright, cold and breezy	-

#### 4.1.2 Data request

In addition to field surveys, a data request was made to the British Trust for Ornithology to obtain data from their Wetland Bird Survey (WeBS) covering the winter periods (Oct-Mar) from 2009-2010 to 2013-2014. Data was requested for 'sectors' of the estuary adjacent to the Site, and was requested for both Core Counts (mostly made at high tide) and Low Tide Counts. A summary of the data is presented in Appendix B.

## 5 Results

The assessment of site usage is based on the presence of birds within open fields or internal features within the Site footprint. Due to the close proximity of designated sites there is potential that birds using the designated sites may move to and from the proposed development site during high or low tides. The results therefore include bird species utilising habitats adjacent to the proposed development site to enable assessment of the potential importance of the site for species.

### Year 1

#### 5.1 2013-2014 Winter Season Results

The results analysis for the 2013-2014 winter season is based on visits undertaken between January and March 2014.

##### 5.1.1 EC Directive on the Conservation of Wild Birds 2009 (2009/147/EC) Annex 1

Birds protected at a European level under the EC Directive on the Conservation of Wild Birds 2009 (2009/147/EEC) are given general protection from deliberate killing, taking from the wild, egg collecting, nest destruction and keeping in captivity. There were five species of bird recorded during the 2013-2014 season, which are specially protected under Annex 1 of the Birds Directive. **Avocet** (*Recurvirostra avosetta*) is listed as an Annex 1 species due to the decline in breeding, foraging and wintering habitat and is localised to the south east coast in the UK. Twenty two avocet were recorded offsite on the 1<sup>st</sup> March 2014 during a low tide survey, foraging on the mudflats of the Swale nature reserve. None were recorded within the site boundary. A single **marsh harrier** which is included in Annex 1 due to the loss of wetland habitat, which has caused a steep decline in numbers, was recorded flying over the site during the high tide survey on the 15<sup>th</sup> January 2014. A single **merlin** (*Falco columbarius*) was recorded within site boundary on the 15<sup>th</sup> January 2014 during the high tide survey. Merlin is listed as an Annex 1 species due to the loss habitat, contamination from agricultural pesticides and general human disturbance. **Short-eared owl** (*Asio flammeus*) was also recorded once within the north east corner of the site and **little egret** (*Egretta garzetta*) was recorded twice on 9<sup>th</sup> January 2014 (low tide survey) and the 5<sup>th</sup> March 2014 (high tide survey); however little egret was not recorded using the land within site boundary.

##### 5.1.2 Wildlife and Countryside Act 1981 (as amended) Schedule 1

Four Schedule 1 species were recorded on site. Avocet, marsh harrier, merlin, and **Cetti's warbler** (*Cettia cetti*) are all protected against intentional killing, injuring or taking, as well as taking, damaging or destroying nests in use or being built, and taking or destroying eggs. Cetti's warbler was recorded twice during the 2013-2014 surveys at low tide on the 9<sup>th</sup> January 2014 and at high tide on the 15<sup>th</sup> January 2014. Both records of this species were just outside the site boundary beyond the north eastern corner of the site. Schedule 1 protection is most relevant during the breeding season where it is an offence to intentionally disturb the bird at or around the nest.

##### 5.1.3 Natural Environment and Rural Communities Act (2006) Section 41 (England)

Nine NERC s41 species were recorded on site. These species are regarded as species of principal importance and are to be given material consideration during planning. **Curlew**, **lapwing** and **starling** were recorded during all three survey types (high tide, low tide and farmland survey). The number of starling on site peaked at 3400 during the low tide survey on the 7<sup>th</sup> February 2014. Lapwing also peaked in number on the 7<sup>th</sup> February 2014 with 135 individuals recorded on site. Curlew numbers peaked on the 15<sup>th</sup> January 2014 at 45 individuals within the site boundary. **Duncock** (*Prunella modularis*) (peak no. 2), **house sparrow** (peak no. 25), **linnet** (*Carduelis cannabina*) (peak number 40), **skylark** (*Alauda arvensis*) (peak number 21) and **song thrush** (*Turdus philomelos*) (peak no. 3) were all recorded within the site boundary. These species are recorded on NERC S41 due to a steep decline in breeding numbers.

##### 5.1.4 Birds of Conservation Concern (2015) Red and Amber Lists

Ten of the species recorded were BOCC Red List species. **Lapwing** as previously discussed in section 5.1.3 was recorded across all survey types. Lapwing were found on the adjacent east Graveney Marshes and Sheepfold during the farmland surveys and moving from The Swale reserve onto Nagden Marshes during the high tide surveys, as well as in Cleve Marshes during low tide surveys. Lapwing is listed as a bird of conservation concern and is also NERC priority species. In addition to declining breeding

populations, the species is also of importance due to the UK hosting an internationally important proportion (>20%) of the European non-breeding population. The other red list species recorded across the Site were low numbers of **curlew** close to the eastern boundary, house sparrow in few numbers close to perimeter houses, linnets in large numbers with a peak of 180 on Nagden Marshes on 13<sup>th</sup> January 2014, skylark in good numbers spread across the fields on Site, song thrush in low numbers scattered along perimeter vegetation, starling in good numbers with a peak of 3000 on 7<sup>th</sup> February 2014 at far eastern area of the Site and occasional herring gull. **Ringed plover** was also recorded adjacent to the Site on The Swale mudflats and merlin as discussed above.

Of the species recorded 23 were listed on the BOCC Amber List including, **Brent goose**, **oystercatcher** (*Haematopus ostralegus*), **dunlin** (*Calidris alpina*) and **grey plover** (*Pluvialis squatarola*). All five species were present at times within the site boundary. The curlew is Amber listed due to a non-breeding population decline of over 25% in the last 25 years. The UK also hosts an internationally important non-breeding population of over 20% of the European curlew population. The UK also has over 20% of the European Brent goose, oystercatcher and grey plover non-breeding population during the winter which are all localised to 10 or less sites. Brent goose was recorded in high numbers across all survey types during the 2013-2014 season peaking at 3000 individuals during the 9<sup>th</sup> January low tide survey. Oystercatcher peaked at 1176 individuals on the 9<sup>th</sup> January 2014 and grey plover at 34 on the 7<sup>th</sup> February 2014. All three species were recorded utilising the land within the site boundary, although the majority of oystercatcher and grey plover were recorded offsite, on the adjacent Swale Estuary. **Dunlin** (*Calidris alpina*) were recorded in small numbers utilising arable fields on site for foraging at high tides; this species is also BOCC Red listed due to a severe decline in the UK non-breeding population size since 1969. Dunlin is also listed due to international importance and localisation factors; at least 20% of its European non-breeding population is found in the UK, of which 50% of their numbers can be found within 10 or fewer sites.

#### 5.1.5 The Swale SPA

Five qualifying interest species of the Swale SPA were recorded during the 2013-2014 surveys. Avocet were recorded offsite on the 1<sup>st</sup> March 2014, with a peak count of 22. Grey plover were recorded at a peak count of 34 on the 7<sup>th</sup> February 2014. Knot were recorded at a peak count of 120 during the low tide survey on 9<sup>th</sup> January 2014, redshank were recorded both at high and low tide, with a peak count of 91 on the 7<sup>th</sup> February 2014 and shoveler were recorded during the high tide survey on 15<sup>th</sup> January 2014 with a peak count of 6.

## Year 2

### 5.2 2014-2015 Winter Season Results

The results analysis for the 2014-2015 season is based on visits undertaken between November 2014 and February 2015.

**EC Directive on the Conservation of Wild Birds 2009 (2009/147/EC) Annex 1** Eight Annex 1 species were recorded over the surveys during the 2014-2015 season. **Marsh harrier**, listed under Annex 1 due to the loss of wetland habitat causing a steep decline in numbers, was recorded using the proposed site on eleven surveys with a peak of three recorded on the 12<sup>th</sup> November (farmland survey). The site appears to offer valuable foraging habitat for marsh harrier, particularly along the network of ditches with associated grassland verges present. **Peregrine** (*Falco peregrinus*), listed as an Annex 1 species due to a widespread decline in the population caused by agricultural organochlorine insecticides in the food chain, was also recorded using the Site with a particular tendency to perch on pylons, with a peak number of three recorded on the 9<sup>th</sup> December (high tide survey). A peak of 303 **golden plover** was recorded on the 20<sup>th</sup> January (farmland survey). Large numbers were recorded using the arable fields for foraging within the north east of the Site and also on a parcel of arable land adjacent to the north east of the Site. Golden plover is listed under Annex 1 due to the loss and degradation of habitat from the abandonment of traditional agricultural practices and disturbances during the breeding period. Avocet listed due to the decline in breeding, foraging and wintering habitat, were also recorded in large numbers with a peak of 240 on the 17<sup>th</sup> December (low tide survey), however all individuals were recorded within the Swale Estuary. Other Annex 1 species of note recorded were short-eared owl, **kingfisher** (*Alcedo atthis*), **hen harrier** (*Circus cyaneus*) and little egret. A pair of short eared owls were recorded using reed beds and tussocky grassland adjacent to the north eastern corner of the Site during the February farmland survey and kingfisher peaked at three individuals on the 17<sup>th</sup> December (low tide survey) foraging in the reed beds adjacent to the northern edge of the site opposite the sea wall. Little egret was seen in low numbers on the proposed site with the majority being recorded within the Swale Estuary. A single hen harrier was recorded flying over the site on the 10<sup>th</sup> December (farmland survey). Hen harrier is listed as an Annex 1 species due to a significant decline resulting from widespread loss of breeding habitat and localised persecution and destruction of nests.

#### 5.2.1 Wildlife and Countryside Act 1981 (as amended) Schedule 1

Nine Schedule 1 bird species were recorded over the surveys during the 2014-2015 season. In addition to avocet, marsh harrier, peregrine, kingfisher and hen harrier discussed in section 4.2.1 the following species were also recorded; **bearded reedling** (*Panurus biarmicus*), Cetti's warbler, fieldfare and redwing. A peak of 50 fieldfare were recorded within arable fields in the south west of the site near to Nagden Cottages on the 20<sup>th</sup> January (high tide survey). Redwing were also recorded foraging across the south west of the Site on a number of occasions peaking at 19 on the 25<sup>th</sup> February (farmland survey). Three bearded reedling were recorded foraging within the reed beds adjacent to the north of the Site opposite the sea wall. On four occasions Cetti's warbler was also recorded within reed beds on the Site.

#### 5.2.2 Natural Environment and Rural Communities Act (2006) Section 41 (England)

Twelve NERC s41 species of principal importance for conservation in England were recorded during the 2014-2015 season. Curlew was recorded across all surveys using the proposed site and fields adjacent to the proposed site in the north east as well as within the Swale Estuary. Curlew numbers peaked at 206 during the high tide survey on the 21<sup>st</sup> November. **Lapwing** was also recorded across all surveys; the majority of which were foraging within the arable fields of the site, with their numbers peaking at 713 on the 12<sup>th</sup> November (farmland survey). Skylark and starling were recorded in high numbers foraging on arable fields within the proposed site. Skylark peak number was recorded on 10<sup>th</sup> December (farmland survey) with 100 individuals and starlings peaked at 1000 individuals on the 17<sup>th</sup> December (low tide survey).

#### 5.2.3 Birds of Conservation Concern (2015) Red and Amber Lists

Of the fourteen BOCC Red listed species, recorded during the 2014-2015 season, three are listed for their winter populations. As previously discussed in section 5.2.2 **lapwing** was recorded across all surveys in high numbers with a peak of 713 individuals. Lapwing are classified as a red list species due to the UK holding an internationally important proportion (>20%) of the wintering European population. Another red list species recorded were low numbers of **curlew** close to the eastern boundary of the Site, **Herring gull** (*Larus argentatus*) is also listed as a red list species for this reason as well as having a severe (>50%) decline in their wintering population within the last 25 years. Herring gulls were recorded in low numbers during the surveys peaking at nine individuals during the 26<sup>th</sup> February (low tide) survey. Fieldfare, grey wagtail, linnets, skylark, song thrush, starling, house sparrow, redwing and **yellowhammer** (*Emberiza*



*citronella*) were also recorded and are all red listed due to long term declines in their breeding populations and/or breeding rarity within the UK. Hen harrier is red listed due to historical declines in the breeding population. **Ringed plover** was also recorded adjacent to the Site on The Swale mudflats and merlin as discussed above.

Twenty nine BOCC Amber listed species were recorded during the 2014-2015 season of which 16 are listed due to the UK holding an internationally important proportion (>20%) of the European overwintering population. For seven of these species at least 50% of their population occurs in only ten or fewer sites around the UK. The most significant of these species for the proposed site is Brent goose. Brent geese were recorded in numbers up to 3400 on the farmland around Cleve Marshes. The geese were moving between and utilizing both the Swale and the arable land of the site during the surveys. Dunlin is classified as amber listed due to long-term declines. The UK also holds an internationally important proportion (>20%) of the European wintering population. Dunlin numbers peaked at 1000 individuals on the 20<sup>th</sup> January (farmland survey) and were recorded in flocks of several hundred on arable fields, though the greatest concentrations were encountered on fields in close proximity to, but not on the proposed development site.

#### 5.2.4 Kent BAP

Bird species listed as priority species under the Kent Biodiversity Action Plan (KBAP) relevant to the Site include dark-bellied Brent goose (*Branta bernicla bernicla*), lapwing (*Vanellus vanellus*), curlew (*Numenius arquata*) and house sparrow (*Passer domesticus*).

#### 5.2.5 The Swale SPA

Five qualifying interest species of the Swale SPA were recorded during the 2014-2015 surveys. Avocet were recorded off site, with a peak of 240 individuals during the low tide survey on the 17<sup>th</sup> December 2014. Golden plover were recorded using the arable fields, with a peak of 303 individuals on the 20<sup>th</sup> January 2015. Knot were recorded with a peak count of 180 individuals during the low tide survey on 26<sup>th</sup> February 2015, a peak of 335 redshank were recorded during the low tide survey on 13<sup>th</sup> November 2014 and a single hen harrier was recorded flying over the site on the 10<sup>th</sup> December 2014.

### 5.3 BTO Wetland Bird Survey (WeBS) Data

As part of the desk study for the scheme, data obtained from the BTO's Wetland Bird Survey for the sectors of the Swale Estuary adjacent to the site indicate a broadly similar pattern in species and numbers to those observed during field surveys. High numbers of Brent geese, golden plover, lapwing and other waders were noted. Results are summarized in Appendix B.

## 6 References

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## Appendix A. Winter bird survey results.

### Year 1

#### A.1 Bird species recorded during farmland survey 2013-2014 season

Species (code)	Numbers on 13 <sup>th</sup> January 2014 ( ) = birds flying over	Numbers on 10 <sup>th</sup> February 2014 ( ) = birds flying over	Numbers on 7 <sup>th</sup> March 2014 ( ) = birds flying over	Conservation status
Blackbird (B.)	6	7	3	
Black-headed gull (BH)	-	88	-	
Blue tit (BT)	2	-	-	
Brent goose (BG)	2000	350	-	
Buzzard (BZ)	-	(1)	-	
Carrion crow (C.)	7 (1)	8	8	
Chaffinch (CH)	4	5	4	
Common gull (CM)	-	8	-	
Curlew (CU)	-	14	-	NERCS41
Duncock (D.)	2	1	2	NERCS41
Great tit (GT)	-	1	-	
Green woodpecker (G.)	-	3	-	
Greenfinch (GR)	4	-	-	
Grey heron (H.)	1	-	1 (3)	
House sparrow (HS)	10	25	2	NERCS41
Jackdaw (JD)	350	-	-	
Kestrel (K.)	-	-	1	
Lapwing (L.)	(5)	-	4	NERCS41
Linnet (LI)	-	40	-	NERCS41
Magpie (MG)	-	-	(1)	
Mallard (MA)	-	-	2	
Meadow pipit (MP)	5	1	10	
Mute swan (MS)	24	4 (2)	-	

Oystercatcher (OC)	-	1	2	
Pheasant (PH)	3	2	1	None
Red-legged partridge (RL)	10	5	-	None
Robin (R.)	3	-	1	
Short-eared owl (SE)	-	-	1	Birds Dir
Skylark (S.)	2	17	21	NERCS41
Snipe (SN)	-	12	26	
Song thrush (ST)	2	1	3	NERCS41
Starling (SG)	2	700 (50)	(50)	NERCS41
Stock dove (SD)	-	13	6	
Stonechat (SC)	1	-	-	
Wood pigeon (WP)	11	54	22	
Wren (WR)	4	1	2	

#### A.2 Bird species recorded during high tide survey 2013-2014 season

Species (code)	Numbers on 15 <sup>th</sup> January 2014 ( ) = birds flying over	Numbers on 12 <sup>th</sup> February 2014 ( ) = birds flying over	Numbers on 5 <sup>th</sup> March 2014 ( ) = birds flying over	Conservation status
Black-headed gull (BH)	-	-	17	
Brent goose (BG)	2500 (60)	820	-	
Cetti's warbler (CW)	1	-	-	W&CA
Curlew (CU)	45	29	2 (2)	NERCS41
Dunlin (DN)	88 (30)	350 (50)	-	
Gadwall (GA)	1	-	-	
Great-crested grebe (GG)	-	-	1	
Grey heron (H.)	-	-	(1)	
Grey plover (GV)	6	4	(1)	The Swale SPA
Lapwing (L.)	6 (9)	100 (30)	--	NERCS41
Little egret (ET)	-	-	1	Birds Dir
Mallard (MA)	12	8	2	
Marsh harrier (MR)	(1)	-	-	Birds Dir; W&CA

Merlin (ML)	1	-	-	Birds Dir; W&CA
Mute swan (MS)	29	29	9	
Shoveler (SV)	6	-	-	
Oystercatcher (OC)	6	8	5	
Pied wagtail (PW)	-	1	-	
Red-breasted merganser (RM)	-	1	-	
Redshank (RK)	80	26	6	The Swale SPA
Ringed plover (RP)	8	11	-	
Shelduck (SU)	3 (3)	-	2	
Snipe (SN)	5	-	-	
Starling (SG)	500	1000	-	NERCS41
Stonechat (SC)	-	2	-	
Turnstone (TT)	61	92	57	
Wigeon (WN)	304	-	8	

### A.3 Bird species recorded during low tide survey 2013-2014 season

Species (code)	Numbers on 9 <sup>th</sup> January 2014 ( ) = birds flying over	Numbers on 7 <sup>th</sup> February 2014 ( ) = birds flying over	Numbers on 10 <sup>th</sup> March 2014 ( ) = birds flying over	Conservation status
Avocet (AV)	-	-	22	Birds Dir; W&CA; The Swale SPA
Black-headed gull (BH)	-	-	22	
Brent goose (BG)	3000	350	21	
Cetti's warbler (CW)	1	-	1	W&CA
Curlew (CU)	19	23	3	NERCS41
Dunlin (DN)	300	65	-	
Grey plover (GV)	33	34	-	The Swale SPA
Herring gull (HG)	4	-	1	NERCS41
Kestrel (K.)	-	-	1	
Knot (KN)	120	-	-	The Swale SPA
Lapwing (L.)	55	135	5	NERCS41
Little egret (ET)	1	-	-	Birds Dir

Mallard (MA)	12	3	2	
Mute swan (MS)	-	40	5	
Oystercatcher (OC)	1176	804	31	
Redshank (RK)	7	91	14	
Ringed plover (RP)	-	-	1	
Shelduck (SU)	17	11	-	
Starling (SG)	150	3400	-	NERCS41
Stock dove (SD)	-	-	3	
Turnstone (TT)	-	10	1	

## Year 2

### A.4 Bird species recorded during farmland survey 2014-2015 season

Species (code)	Numbers on 12 <sup>th</sup> November 2014 ( ) = birds flying over	Numbers on 10 <sup>th</sup> December 2014 ( ) = birds flying over	Numbers on 20 <sup>th</sup> January 2015 ( ) = birds flying over	Numbers on 25 <sup>th</sup> February 2015 ( ) = birds flying over	Conservation status
Bearded Reedling (BR)	-	-	3	-	W&CA
Black headed gull (BH)	151 (1)	-	27 (2)	-	
Blackbird (B.)	13	24	19	24	
Blue tit (BT)	2	2	-	5	
Brent goose (BG)	3400	504	-	1500	
Buzzard (BZ)	-	(1)	(3)	-	
Carrion crow (C.)	334 (5)	54 (35)	95	18	
Cetti's warbler (CW)	1	-	-	1	W&CA
Chaffinch (CH)	8	6	18	6	
Collard dove (CD)	-	9	-	5	
Coot (CO)	-	2	-	2	
Curlew (CU)	22 (2)	35	58 (2)	50	NERCS41
Dunlin (DN)	10	-	1000	801	
Dunnock (D.)	1	5	1	6	NERCS41
Fieldfare (FF)	-	-	-	22 (20)	W&CA

Goldcrest (GC)	-	-	-	2	
Golden plover (GP)	-	250	303	40	Birds Dir; The Swale SPA
Goldfinch (GO)	19	-	1	1	
Great spotted woodpecker (GS)	-	-	1	1	
Great tit (GT)	1	-	4	6	
Green woodpecker (G.)	-	-	2	1	
Greenfinch (GR)	-	-	-	1	
Grey heron (H.)	-	1	-	(1)	
Greylag goose (GJ)	-	-	-	(5)	
Hen harrier (HH)	-	(1)	-	-	Birds Dir; W&CA; NERCS41; The Swale SPA
Herring gull (HG)	(1)	(2)	-	-	NERCS41
House sparrow (HS)	-	24	12	36	NERCS41
Jackdaw (JD)	-	30	-	-	
Kestrel (K.)	(1)	3	3 (1)	1	
Kingfisher (KF)	-	1	-	(1)	Birds Dir; W&CA
Lapwing (L.)	713 (70)	88	332 (2)	251	NERCS41
Lesser black-backed gull (LB)	-	(1)	-	-	
Linnet (LI)	-	15	-	50	NERCS41
Little egret (ET)	(3)	3	1	(1)	Birds Dir
Long-tailed tit (LT)	1	-	-	-	
Magpie (MG)	5 (1)	3	2	9 (1)	
Mallard (MA)	-	-	3	6	
Marsh harrier (MR)	3 (1)	1	2 (2)	2 (2)	Birds Dir; W&CA
Meadow pipit (MP)	22	10	10	33	
Mistle thrush (M.)	-	-	2	-	
Moorhen (MH)	-	-	2	1	
Mute swan (MS)	1	15	2	-	
Peregrine (PE)	(1)	1	1	1	Birds Dir; W&CA

Pheasant (PH)	5	6	1	6	None
Pied wagtail (PW)	2 (1)	1 (1)	9 (1)	2	
Redshank (RK)	-	2	9 (2)	5	The Swale SPA
Redwing (RE)	-	3	4	19	W&CA
Reed bunting (RB)	2	1	6	11	NERCS41
Ringed plover (RP)	20	-	23	5	
Robin (R.)	9	4	1	8	
Shelduck (SU)	52	-	-	-	
Short-eared owl (SE)	-	-	-	2	Birds Dir
Skylark (S.)	50	100	47 (2)	86	NERCS41
Snipe (SN)	-	3	8	6	
Song thrush (ST)	5	17	7	7 (1)	NERCS41
Starling (SG)	742 (1)	160	70 (40)	111 (62)	NERCS41
Stock dove (SD)	-	50	(1)	-	
Stonechat (SC)	6 (4)	10	4	6	
Teal (T.)	40 (4)	-	-	5	
Wood pigeon (WP)	12	59	282	662 (70)	
Wren (WR)	8	7	5	10	
Yellowhammer (YH)	1	-	-	-	NERCS41

#### A.5 Bird species recorded during high tide survey 2014-2015 season.

Species (code)	Numbers on 21 <sup>st</sup> November 2014 ( ) = birds flying over	Numbers on 9 <sup>th</sup> December 2014 ( ) = birds flying over	Numbers on 21 <sup>st</sup> January 2015 ( ) = birds flying over	Number on 18/24 <sup>th</sup> February 2015 ( ) = birds flying over	Conservation status
Avocet (AV)	(1)	-	94	2	Birds Dir; W&CA; The Swale SPA
Bearded Reedling (BR)	-	1	-	-	W&CA
Black headed gull (BH)	48	3	5	33	
Blackbird (B.)	1	4	2	1	
Blackcap (BC)	-	2	-	-	
Blue tit (BT)	-	2	-	-	

Brent goose (BG)	934 (93)	449	7	903	
Buzzard (BZ)	(1)	-	1	-	
Carrion crow (C.)	45	84	47	22 (1)	
Cetti's Warbler	1	-	-	-	W&CA
Chaffinch (CH)	1	-	-	-	
Cormorant (CA)	(1)	(1)	-	1 (1)	
Curlew (CU)	206	7 (20)	52	151	NERCS41
Dunlin (DN)	456 (50)	96	317 (30)	430	
Dunnock (D.)	1	-	-	-	NERCS41
Fieldfare (FF)	(30)	-	-	50	W&CA
Golden plover (GP)	35	300	2	-	Birds Dir; The Swale SPA
Goldfinch (GO)	5	-	-	-	
Great crested grebe (GG)	1	1	-	6	
Green woodpecker (G.)	-	-	1	-	
Grey heron (H.)	3	-	1	1 (1)	
Grey plover (GV)	4	71	25	1	The Swale SPA
Herring gull (HG)	4	-	-	1	NERCS41
Kestrel (K.)	4 (1)	3	3 (1)	1 (2)	
Knot (KN)	-	-	50	-	The Swale SPA
Lapwing (L.)	120 (26)	154 (80)	159	41	NERCS41
Linnet (LI)	-	10	-	-	NERCS41
Little egret (ET)	15	6	4	4	Birds Dir
Little grebe (LG)	1	-	1	-	
Magpie (MG)	2	-	1	4	
Mallard (MA)	19	5	35	3	
Marsh harrier (MR)	1 (2)	(1)	1	(1)	Birds Dir; W&CA
Meadow pipit (MP)	5	16	27	20	
Moorhen (MH)	-	-	1	2	
Mute swan (MS)	10	7	7	2	
Oystercatcher (OC)	5 (5)	100	8	217 (2)	

Peregrine (PE)	-	3	(1)	1	Birds Dir; W&CA
Pheasant (PH)	1	-	1	-	None
Pied wagtail (PW)	3	2	4	1	
Redshank (RK)	193 (7)	49	157	152	
Reed bunting (RB)	3	2	6	1	NERCS41
Ringed plover (RP)	30	12	23	27	
Robin (R.)	-	1	-	-	
Sanderling (SS)	12	-	-	-	
Shelduck (SU)	(9)	1	44	4	
Short-eared owl (SE)	-	-	-	1	Birds Dir
Skylark (S.)	69 (10)	32	25	11	NERCS41
Song thrush (ST)	1	1 (2)	1	-	NERCS41
Starling (SG)	342 (60)	57 (22)	400 (57)	34 (20)	NERCS41
Stock dove (SD)	5 (1)	-	2	-	
Stonechat (SC)	5	4	1	1	
Teal (T.)	25	-	123	37	
Turnstone (TT)	113	68	40	15	
Wigeon (WN)	45	70	315	220	
Woodpigeon (WP)	-	-	-	600	
Wren (WR)	-	5	3	-	

#### A.6 Bird species recorded during low tide survey 2014-2015 season.

Species (code)	Numbers on 13 <sup>th</sup> November 2014 ( ) = birds flying over	Numbers on 17 <sup>th</sup> December 2014 ( ) = birds flying over	Numbers on 14 <sup>th</sup> January 2015 ( ) = birds flying over	Numbers on 26 <sup>th</sup> February 2015 ( ) = birds flying over	Conservation status
Avocet (AV)	130	240	150	207	Birds Dir; W&CA; The Swale SPA
Black headed gull (BH)	44 (53)	5	44	55	
Blackbird (B.)	6	-	2	4	
Brent goose (BG)	1012 (15)	162	(10)	980	

Carrion crow (C.)	2	18	16	24	
Cetti's warbler (CW)	1	-	-	-	W&CA
Chaffinch (CH)	-	-	-	2	
Common gull (CM)	1	-	-	-	
Coot (CO)	-	-	-	2	
Cormorant (CA)	-	2	-	(1)	
Curlew (CU)	10	126	7	20	NERCS41
Dunlin (DN)	372	88 (200)	10	259 (15)	
Golden plover (GP)	-	1	1	-	Birds Dir; The Swale SPA
Goldfinch (GO)	-	2	-	-	
Great black-backed gull (GB)	4	(2)	-	-	
Great crested grebe (GG)	-	2	-	-	
Grey heron (H.)	-	-	1	-	
Grey plover (GV)	1	2	22	13	
Grey wagtail (GL)	-	-	5	-	
Herring gull (HG)	5	4	4	9	NERCS41
Kestrel (K.)	2	-	2	-	
Kingfisher (KF)	-	3	-	-	Birds Dir; W&CA
Knot (KN)	-	-	-	180	The Swale SPA
Lapwing (L.)	650	362	500	356	NERCS41
Lesser black-backed gull (LB)	-	1	-	-	
Linnet (LI)	2	-	-	-	NERCS41
Little egret (ET)	12	1	3	5 (1)	Birds Dir
Magpie (MG)	-	-	-	2	
Mallard (MA)	43	5	11	14	
Marsh Harrier (MR)	(1)	(1)	(2)		Birds Dir; W&CA
Meadow pipit (MP)	4	12	11	-	
Mute swan (MS)	1	-	-	2	
Oystercatcher (OC)	6	586	7	27	
Pied wagtail (PW)	3	8	-	1	

Redshank (RK)	335	130	170	143	The Swale SPA
Reed bunting (RB)	1	-	-	1	NERCS41
Ringed plover (RP)	-	2	-	-	
Robin (R.)	-	-	1	-	
Rock pipit (RC)	2			-	
Shelduck (SU)	222	33	98	8	
Skylark (S.)	9	-	32	3	NERCS41
Starling (SG)	74 (94)	1000	135	80 (55)	NERCS41
Stock dove (SD)	-	-	(1)	-	
Stonechat (SC)	2	3	2		
Teal (T.)	-	2	15	124	
Turnstone (TT)	-	8	4	3	
Wigeon (WN)	25	55	120	-	
Woodpigeon (WP)	-	-	-	2	
Wren (WR)	-	1	-	1	

## Wintering bird results key:

Abbreviation	
Birds Dir	Annex 1 of the EC Directive on the Conservation of Wild Birds 1979 (79/409/EEC)
W&CA	Schedule 1 of the Wildlife and Countryside Act 1981 (as amended)
NERCS41	Section 41 of the Natural Environment and Rural Communities Act (2006)
The Swale SPA	Birds as qualifying interest species of The Swale SPA
	Birds of Conservation Concern (2015) Red Listed Species
	Birds of Conservation Concern (2015) Amber Listed Species
	Birds of Conservation Concern (2015) Green Listed Species
None	No Conservation Status – Introduced/Non-native species.

## Appendix B. British Trust for Ornithology wetland bird survey (WeBS) data

### B.1 BTO wetland bird survey (WeBS) data

Species	Peak Counts Oct-March 2009-10 to 2013-14 Graveney-Whitstable	Peak Counts Oct -March 2009-10 to 2013-14 South Swale NNR	Low tide peak sector count 2011-12 Swale Estuary Sectors DS 028, 029, 030, 031, 032, 039, 040, 041, 042, 049, 050
Mute swan	22 (March 13)	60 (Feb 13)	--
Bewick's swan	0	16 (Mar 13)	--
Whooper swan	0	2 (Dec 12)	--
Brent goose	1000 (Dec 12 and Oct 13)	3100 (Oct 11)	690
Shelduck	4 (Feb 14)	62 (Dec 11)	85
Wigeon	100 (Dec 12)	630 (Jan 14)	16
Gadwall	0	16 (Dec 12)	--
Teal	317 (Feb 13)	65 (Dec 13)	19
Mallard	70 (Oct 09)	28 (Dec 13)	14
Pintail	0	250 (Feb 13)	2
Shoveler	0	10 (Feb 14)	--
Common scoter	2 (Oct 13)	0	--
Red-breasted merganser	0	23 (Mar 10)	2
Little grebe	0	4 (Dec 11 and Jan 13)	4
Great crested grebe	6 (Oct 10)	20 (Jan 13)	2
Cormorant	41 (Oct 12)	3 (Mar 11 and Mar 14)	--
Little egret	17 (Oct 09)	75 (Oct 13)	3
Grey heron	4 (Jan 14)	2 (Mar 10, Nov 13 and Dec 13)	--
Moorhen	6 (Oct 10 and Dec 12)	2 (Feb 13)	--
Coot	97 (Jan 14)	2 (Feb 10 and Mar 10)	--
Oystercatcher	109 (Jan 14)	401 (Nov 10)	400
Avocet	0	6 (Dec 13)	80
Ringed plover	120 (Oct 10)	100 (Dec 13)	16
Golden plover	403 (Mar 13)	2000 (Nov 10)	1900

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Grey plover	121 (Feb 12)	221 (Nov 13)	119
Lapwing	320 (Feb 13)	630 (Nov 13)	200
Knot	0	500 (Feb 14)	180
Dunlin	280 (Nov 10)	500 (Dec 13 and Feb 14)	430
Black-tailed godwit	0	52 (Mar 12)	213
Bar-tailed godwit	0	10 (Feb 14)	108
Snipe	12 (Mar 14)	0	--
Curllew	500 (Mar 13)	56 (Nov 10)	141
Green sandpiper	4 (Oct 12)	0	--
Greenshank	0	2 (Nov 11, Nov 12, and Dec 13)	1
Redshank	32 (Jan 14)	221 (Dec 11)	75
Turnstone	394 (Oct 10)	140 (Feb 14)	32
Ruff	0	0	9
Black-headed gull	--	190 (Mar 12)	--
Common gull	--	40 (Nov 09)	--
Herring gull	--	30 (Jan 13)	--
Great black-backed gull	--	2 (Nov 11 and Nov 12)	--

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


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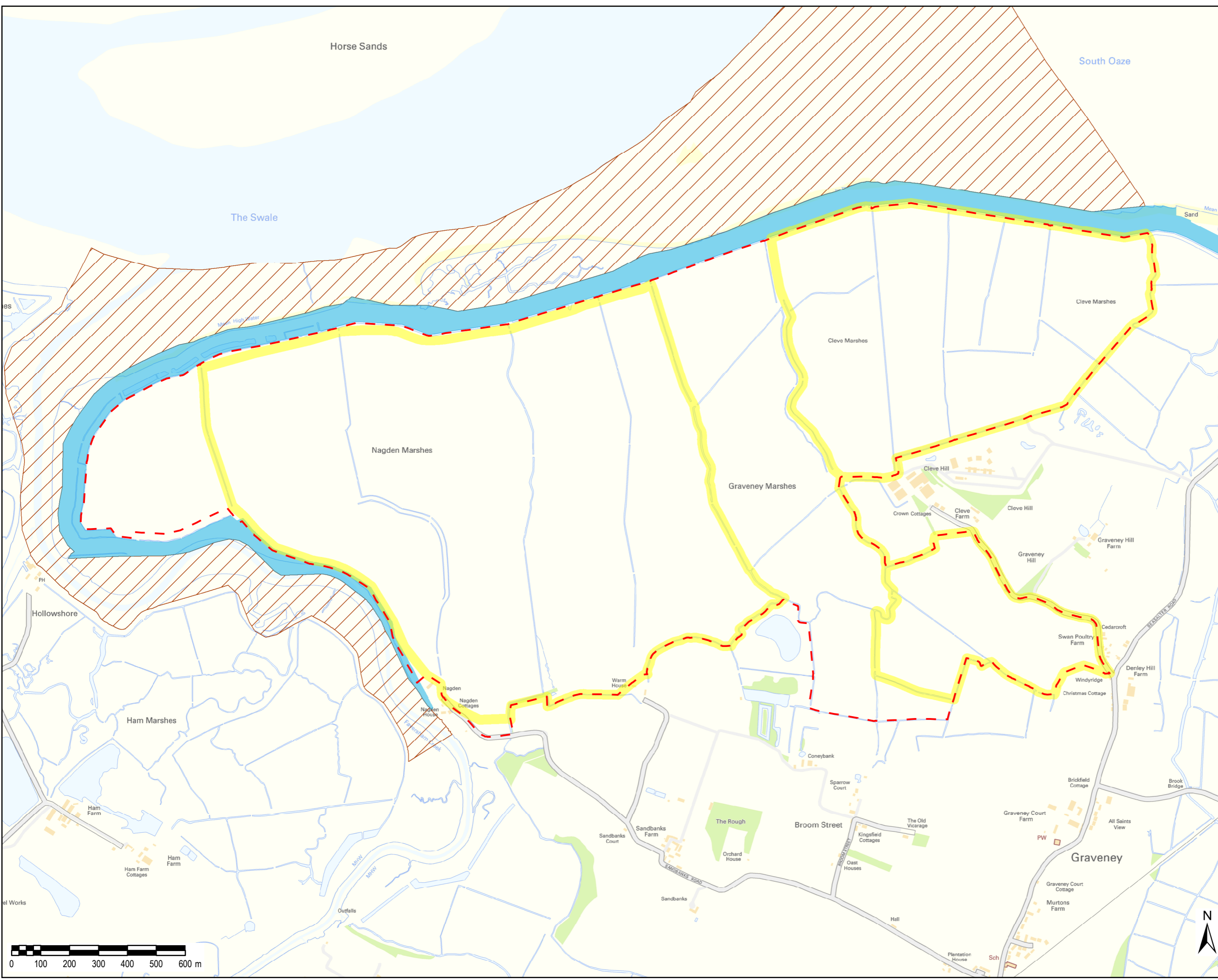
Figure 1. Wintering Bird Survey Transects and Survey Areas



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**LEGEND**

-  Site boundary
-  Winter Farmland Transect
-  Area surveyed at high tide (with observation also inland across the site)
-  Area surveyed at low tide



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Purpose of Issue **FINAL**

Client **CLEVE HILL SOLAR PARK LIMITED**

Project Title **CLEVE FARM**

Drawing Title **WINTERING BIRD TRANSECT**

Drawn SM	Checked AK	Approved AD	Date 25/07/2016
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