



CLEVE HILL SOLAR PARK

ENVIRONMENTAL STATEMENT
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ORNITHOLOGY TECHNICAL APPENDIX

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9 ORNITHOLOGY TECHNICAL APPENDIX

9.1 Introduction

1. This Technical Appendix provides details of the pre-development desk study and baseline bird surveys undertaken to inform the assessment of effects of the Cleve Hill Solar Park (CHSP, 'the Development') on birds that is presented in Chapter 9: Ornithology of the ES.
2. The information comes from three main sources:
 - A desk study carried out by Arcus Consultancy Services Ltd (hereafter 'Arcus') to provide context relating to protected sites and historical records of birds at or near the Development site;
 - Baseline bird surveys carried out by AECOM between January 2014 and July 2015; and
 - Baseline bird surveys carried out by Arcus between September 2015 and April 2018.
3. This Appendix is supported by three additional Appendices:
 - Appendix A9.2: Cleve Farm – Breeding Bird Survey Report 2014 & 2015 (AECOM);
 - Appendix A9.3: Cleve Farm – Passage Bird Survey Report 2015 (AECOM); and
 - Appendix A9.4: Cleve Farm – Wintering Bird Survey Report 2013/14 & 2014/15 (AECOM).

9.2 Terminology

4. The 'Core Survey Area' (CSA) is defined on Figure A9.1 and is broadly the area that was proposed to contain the solar farm infrastructure, before design iterations and development design mitigation began. The various survey and desk study areas have largely been based on varying extents around the CSA.
5. Terms used to define study or survey areas are defined in each Section below and displayed on the Figures.

9.3 Desk Study

6. A search was undertaken with the following data-providers for information relevant to the assessment of potential effects of the Development on birds:
 - Multi-Agency Geographic Information for the Countryside (MAGIC): statutory designated sites of ornithological interest within 5 km of the CSA (Figure A9.1), this was extended to 10 km for Special Protection Areas (SPA);
 - Kent & Medway Biological Records Centre (K&MBRC): designated sites (statutory and non-statutory) within 5 km and bird species records within 2 km of the CSA (Figure A9.1);
 - National Biodiversity Network (NBN): the NBN Gateway was interrogated for records of bird species records within 2 km of the CSA (Figure A9.1);
 - British Trust for Ornithology, Wetland Bird Survey (BTO, WeBS): summary WeBS Core Count data for the Swale Estuary for the most recently available 5-year period, detailed Core Count data for the South Swale NNR WeBS count sector for the most recently available 5-year period and WeBS Low-tide Count data for the Swale Estuary for any years in which WeBS Low Tide Counts were carried out;

- Kent Wildlife Trust (KWT): honorary warden monthly and annual reserve and WeBS reports for the South Swale LNR; and
- Kent Ornithological Society (KOS): known barn owl nest sites monitored by KOS within 5 km of the CSA. Ringing data from the South Swale reserve were also supplied.

9.3.1 Designated Sites

7. Statutory and non-statutory designated sites for nature conservation within 5 km (and SPAs within 10 km) of the Core Survey Area are identified in Chapter 9, Section 9.3.1 and Figure 9.2 in Volume 2: Figures of the ES.

9.3.2 Species Records

9.3.2.1 Kent & Medway Biological Records Centre

8. K&MBRC provided a summary of bird records for Ordnance Survey (OS) grid squares:
 - Tetrads (2 × 2 km) – TR06B, C, G, H, L, M, R & S (including the 1-km squares they contain; and
 - 1-km squares (1 × 1 km) – TQ9963, TQ9964, TR0161, TR0166, TR0261, TR0266, TR0361, TR0366, TR0461, TR0466, TR0561, TR0566, TR0661, TR0666 and TR0766.
9. The data provided summarise the 101,407 bird records for the search area. The very large number of records is a reflection of the proximity of some sites, such as Oare Marshes, that are very well covered by birdwatchers.
10. The summary data are not repeated here, but in the preliminary assessment in Chapter 9: Ornithology, reference is made in the baseline summary to the status of the species where it is identified as an Important Ecological Feature.
11. K&MBRC also provided additional details of breeding records of Wildlife & Countryside Act (WCA) Schedule 1 breeding birds. Information pertaining to locations of Schedule 1 breeding species is potentially sensitive and hence is not published within this Appendix; the records included avocet, barn owl, bearded tit, Cetti's warbler, garganey, hobby, kingfisher, little ringed plover, little tern, marsh harrier, marsh warbler, Mediterranean gull, Montagu's harrier, Savi's warbler and short-eared owl. Where relevant, information is included in the assessment in Chapter 9: Ornithology. However, the only relatively recent records provided (> 2010) were for avocet and bearded tit; all other records were dated pre-2005.

9.3.2.2 NBN

12. A search of the NBN Atlas was made in February 2018 for records of birds within 2 km of the CSA. This yielded over 125,000 records of 195 species. These were distilled down to records from Ordnance Survey (OS) 1-km grid squares within 1 km of the CSA:
13. The records were summarised for the breeding and non-breeding seasons (Tables A9.1 and A9.2).

Table A9.1: Summary of breeding season NBN Atlas records in OS 1-km squares or tetrads that overlap with the CSA

Species	Number of Records	Years Recorded
Arctic tern	2	2008-2011
Avocet	759	1998-2015
Bar-headed goose	17	2002-2008
Bar-tailed godwit	125	1989-2015
Black swan	4	2006-2014
Black tern	9	2007-2015
Blackbird	549	1998-2015
Blackcap	58	2004-2015
Black-headed gull	893	1989-2015
Blue Tit	186	2000-2015
Blue-headed wagtail	1	2011
Brent goose	35	2005-2015
Bullfinch	7	2010-2015
Buzzard	90	2005-2015
Canada goose	73	2006-2015
Carrion crow	406	2006-2015
Cetti's warbler	177	2006-2015
Chaffinch	184	2006-2015
Chiffchaff	56	2006-2015
Coal tit	9	2006-2015
Collared dove	256	2006-2015
Common gull	159	2006-2015
Common sandpiper	88	2006-2015
Common swift	160	2006-2015
Common tern	222	2006-2015
Continental goldcrest	2	2006-2015
Continental robin	129	2006-2015
Coot	548	2006-2015
Cormorant	477	2006-2015
Corn bunting	23	2006-2015
Cuckoo	63	2006-2015
Curlew	294	2006-2015
Curlew sandpiper	148	2006-2015
Dark-bellied brent goose	34	2006-2015
Dunlin	288	2006-2015
Duncock	160	2006-2015

Species	Number of Records	Years Recorded
Eider	2	2006-2015
Feral pigeon	21	2006-2015
French (red-legged) partridge	17	2006-2014
Gadwall	249	2006-2015
Garden warbler	2	2006-2014
Golden plover	178	2006-2015
Goldfinch	228	2006-2015
Grasshopper warbler	5	2007-2014
Great black-backed gull	136	2006-2015
Great crested grebe	122	2006-2015
Great spotted woodpecker	224	2006-2015
Great tit	84	2006-2015
Green plover (lapwing)	506	2006-2015
Green woodpecker	145	2006-2015
Greenfinch	123	2006-2015
Grey heron	504	2006-2015
Grey partridge	13	2006-2015
Grey plover	69	2006-2015
Grey wagtail	13	2006-2015
Greylag goose	451	2006-2015
Herring gull	403	2006-2015
House martin	114	2006-2015
House sparrow	436	2006-2015
Jack snipe	1	2006
Jackdaw	116	2006-2015
Jay	10	2006-2015
Kestrel	297	2006-2015
Kingfisher	21	2006-2015
Knot	58	2006-2015
Lesser black-backed gull	141	2006-2015
Lesser redpoll	3	2006-2013
Lesser whitethroat	21	2007-2015
Linnet	12	2006-2014
Little grebe	267	2006-2015
Long-tailed tit	7	2004-2013
Magpie	38	2004-2015
Mallard	14	2005-2018
Meadow pipit	5	2006-2015

Species	Number of Records	Years Recorded
Mistle thrush	3	2004-2005
Moorhen	14	2005-2015
Mute swan	9	2005-2015
Oystercatcher	12	2005-2014
Pheasant	6	2005-2007
Pied wagtail	3	2007-2011
Pied/white wagtail	2	2013-2015
Red-breasted merganser	1	2008
Redshank	11	2006-2016
Reed bunting	7	2006-2015
Reed warbler	8	2006-2014
Ringed plover	5	1993-2012
Rook	2	2005-2007
Sand martin	1	2006
Sedge warbler	3	2006
Shelduck	8	2005-2015
Snipe	2	2008-2009
Song thrush	1	2008
Sparrowhawk	1	2011
Spotted redshank	1	2007
Starling	25	2005-2015
Stock dove	9	2005-2011
Stonechat	5	2005-2008
Swallow	20	2005-2015
Teal	24	1993-2011
Tufted duck	15	2005-2011
Turnstone	5	2006-2015
Turtle dove	8	2005-2012
Water rail	2	2006-2011
Wheatear	3	2006-2010
Whimbrel	9	2006-2011
Whitethroat	7	2005-2011
Woodpigeon	26	2005-2013
Wren	9	2005-2013
Yellow wagtail	18	2005-2015
Yellowhammer	1	2006

Table A9.2: Summary of non-breeding season NBN Atlas records in OS 1-km squares or tetrads that overlap with the CSA

Species	Number of Records	Years recorded
Arctic skua	7	2005-2014
Arctic tern	2	2005-2008
Avocet	475	1998-2015
Bar-headed goose	5	2006
Barn owl	33	2006-2015
Barnacle goose	8	1988-2015
Bar-tailed godwit	202	1989-2015
Bean goose	1	2006
Bearded tit	196	2000-2015
Black brant	1	2012
Black swan	1	2009
Blackbird	449	1988-2015
Blackcap	4	2006-2015
Black-headed gull	659	1988-2015
Blue tit	246	2001-2015
Brambling	2	2004-2010
Brent goose	150	2004-2015
Bullfinch	5	2006-2013
Buzzard	65	2005-2015
Canada goose	18	1988-2015
Carrion crow	342	2006-2015
Cetti's warbler	133	2006-2015
Chaffinch	119	2006-2015
Chiffchaff	12	2006-2015
Collared dove	206	2006-2015
Common guillemot	3	2007-2013
Common gull	249	2006-2015
Common sandpiper	11	2006-2015
Common scoter	10	2007-2014
Common swift	2	2006
Common tern	19	2006-2015
Continental goldcrest	11	2007-2015
Continental robin	210	2006-2015
Coot	412	2006-2015
Cormorant	370	1990-2015
Corn bunting	14	2006-2015

Species	Number of Records	Years recorded
Curlew	355	2006-2015
Curlew sandpiper	73	2006-2015
Dark-bellied brent goose	100	1990-2015
Dunlin	391	2006-2015
Duncock	128	2006-2015
Eider	5	1990-2013
Feral pigeon	21	2006-2015
Fieldfare	42	2006-2015
Firecrest	3	2007-2015
French (red-legged) partridge	4	2006-2013
Gadwall	1376	2006-2015
Gannet	4	2007-2009
Golden plover	238	1990-2015
Goldeneye	6	1988-2013
Goldfinch	202	2006-2015
Goosander	3	2007-2015
Great black-backed gull	183	2006-2015
Great crested grebe	133	1990-2015
Great grey shrike	2	2007-2015
Great northern diver	18	2006-2013
Great skua	5	2007-2013
Great spotted woodpecker	15	2006-2015
Great tit	81	2006-2015
Green plover	434	1988-2015
Green sandpiper	25	2006-2015
Green woodpecker	121	2006-2015
Greenfinch	132	2006-2015
Greenshank	88	2006-2015
Grey heron	322	1988-2015
Grey partridge	5	2006-2013
Grey phalarope	1	2007
Grey plover (lapwing)	248	2006-2015
Grey wagtail	7	2006-2014
Greylag goose	281	2006-2015
Harris's hawk	2	2007
Herring gull	340	1990-2015
Hooded crow	2	2007
Horned grebe	6	2007-2013

Species	Number of Records	Years recorded
House martin	25	2006-2015
House sparrow	259	1990-2015
Jack snipe	10	2006-2014
Jackdaw	91	2006-2015
Jay	14	2006-2015
Kestrel	276	2006-2015
Kingfisher	77	2006-2015
Kittiwake	5	2006-2012
Knot	92	2006-2015
Lapland bunting	1	2007
Leach's petrel	1	2009
Lesser black-backed gull	91	1990-2015
Lesser redpoll	1	2012
Lesser whitethroat	9	2012
Linnet	7	2007-2014
Little auk	1	2015
Little egret	22	2001-2015
Little grebe	246	2006-2015
Little stint	4	2006-2015
Long-tailed tit	17	2004-2015
Magpie	36	2004-2015
Mallard	20	1992-2015
Meadow pipit	9	2006-2015
Mistle thrush	2	2013
Moorhen	7	2004-2014
Mute swan	14	1993-2014
Oystercatcher	66	1992-2015
Pheasant	6	2005-2015
Pied wagtail	8	2006-2015
Pied/white wagtail	2	2004-2015
Raven	1	2015
Red-breasted merganser	9	1992-1993
Redshank	80	1992-2015
Red-throated diver	1	1992
Redwing	1	2013
Reed bunting	9	2005-2015
Ringed plover	11	1993-2011
Rock pipit	1	2014

Species	Number of Records	Years recorded
Rook	6	2006-2015
Ruddy duck	1	2008
Sandwich tern	2	2006-2007
Shelduck	47	1992-2015
Skylark	6	
Snipe	5	2001-2010
Snow bunting	1	2005
Sparrowhawk	3	2007-2012
Spotted redshank	3	2008-2011
Starling	26	2005-2015
Stock dove	4	2006-2015
Stonechat	5	2005-2009
Swallow	8	2006-2008
Teal	14	1993-2015
Tufted duck	9	2006-2010
Turnstone	33	1993-2014
Turtle dove	8	2005-2012
Water rail	1	2006
Wheatear	5	2006-2010
Whimbrel	1	2007
Whinchat	1	2007
Whooper swan	1	2013
Willow warbler	2	2007-2008
Wood sandpiper	1	2007
Woodpigeon	19	2005-2015
Wren	5	2006-2010
Yellow wagtail	3	2006-2010

9.3.2.3 BTO – WeBS¹

Swale Estuary Core Counts

14. WeBS Core Counts for The Swale over the 5-year reporting period from winter 2011/12 to 2015/16 were extracted from the BTO WeBS Report Online². Table A9.3 provides the peak count for each species in each WeBS reporting year (July to June), the month in which the peak count occurs and the most recent 5-year mean peak count.

¹ Data were supplied by the British Trust for Ornithology, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee (the last on behalf of the statutory nature conservation bodies: Natural England, Natural Resources Wales and Scottish Natural Heritage and the Department of Agriculture, Environment and Rural Affairs, Northern Ireland) in association with the Wildfowl and Wetlands Trust.

² <https://blx1.bto.org/webs-reporting/>

† Species which are regularly present in the Swale Estuary in numbers exceeding the threshold for international importance.

* Species which are regularly present in the Swale Estuary in numbers exceeding the threshold for British national importance.

Table A9.3: WeBS Core Count summary for the Swale Estuary

Species	Peak Count					Month of peak count	5-yr mean peak count
	2012/13	2013/14	2014/15	2015/16	2016/17		
Mute Swan	86	122	45	44	133	Jun	86
Bewick's Swan	16	0	0	0	2	Jan	4
Whooper Swan	2	0	0	0	0		0
White-fronted Goose (European)*	210	35	50	[280]	180	Feb	151
Greylag Goose (British/Irish)	830	300	194	[728]		Nov	545
Bar-headed Goose	0	0	0	1	0		0
Canada Goose	172	[301]	230	124	564	Jan	278
Barnacle Goose (naturalised)	5	0	7	1	0		3
Brent Goose (Dark-bellied) †	2,497	2,288	1,418	3,326	2,979	Mar	2,502
Brent Goose (Light-bellied)	1	1	0	0	0		0
Brent Goose (Black Brant)	1	1	0	0	0		0
Red-breasted Goose	1	0	0	0	0		0
Egyptian Goose	0	0	0	2	1	Aug	1
Ruddy Shelduck	1	0	0	0	0		0
Shelduck*	672	568	[570]	[1,345]	1,892	Jan	1,119
Wigeon*	13,641	[10,441]	6,393	16,414	17,851	Dec	13,575
Gadwall	130	45	[126]	56	[91]	Nov	90
Teal*	6,005	[845]	[821]	[1,594]	2,743	Nov	4,374
Mallard	1,029	714	912	[408]	1,643	Nov	1,075
Pintail	292	[57]	65	133	[83]	Jan	163
Garganey	0	0	1	0	2	Apr	1
Shoveler	127	[186]	[110]	176	138	Feb	157
Red-crested Pochard	0	1	0	0	0		0
Pochard	85	158	[39]	48	54	Feb	86
Tufted Duck	166	223	[175]	98	126	Mar	158
Scaup	1	0	[2]	0	2	Jan	1
Common Scoter	2	[2]	[4]	0	[6]	Nov	3
Goldeneye	6	3	4	0	2	Jan	3
Red-breasted Merganser	18	21	7	[6]	9	Nov	14
Goosander	0	0	0	1	3	Feb	1
Red-throated Diver	15	2	0	[1]	3	Nov	5
Great Northern Diver	0	0	0	1	0		0
Little Grebe	47	[35]	[50]	32	81	Dec	53
Great Crested Grebe	47	38	33	31	25	Mar	35
Red-necked Grebe	0	1	0	0	0		0
Slavonian Grebe	1	0	0	0	0		0

Species	Peak Count					Month of peak count	5-yr mean peak count
	2012/13	2013/14	2014/15	2015/16	2016/17		
Black-necked Grebe	0	0	0	0	1	Nov	0
Cormorant	132	[64]	259	68	220	Oct	170
Little Egret*	83	131	139	97	95	Oct	109
Great White Egret	0	0	0	1	1	Sep	0
Grey Heron	24	[28]	18	26	42	Oct	28
Purple Heron	0	0	0	0	1	Sep	0
Spoonbill	0	0	0	1	3	Oct	1
Water Rail	5	3	6	2	[5]	Nov	4
Moorhen	13	[43]	13	19	42	Nov	26
Coot	757	859	387	677	628	Feb	662
Crane	0	0	0	0	1	Oct	0
Oystercatcher*	4,493	896	3,916	4,677	6,278	Oct	4,052
Avocet*	351	533	325	1,034	430	Oct	535
Ringed Plover	313	100	105	[314]	430	Sep	252
Golden Plover	1,863	[1,700]	[1,220]	[2,310]	2,300	Dec	2,158
Grey Plover*	1,936	704	964	975	783	Feb	1,072
Lapwing	7,282	[5,610]	1,825	[8,046]	6,794	Jan	5,987
Knot	2,430	1,958	320	4,670	[3,589]	Nov	2,593
Sanderling*	795	95	16	[6]	30	Jan	234
Little Stint	1	0	2	1	3	Sep	1
Curlew Sandpiper	0	0	11	1	3	Sep	3
Dunlin*	7,086	3,377	5,932	5,272	[7,156]	Nov	5,765
Ruff*	6	[15]	9	[27]	12	Oct	14
Jack Snipe	0	1	1	1	1	Nov	1
Snipe	55	24	103	50	31	Oct	53
Long-billed Dowitcher	0	0	0	0	1	Oct	0
Black-tailed Godwit†	756	2,402	1,320	2,777	1,760	Sep	1,803
Bar-tailed Godwit*	1,207	254	206	1,490	1,175	Feb	866
Whimbrel	15	2	13	62	20	Jul	22
Curlew	1,022	1,014	430	1,085	1,571	Oct	1,024
Common Sandpiper	8	8	5	9	5	Aug	7
Green Sandpiper	11	4	1	2	11	Sep	6
Spotted Redshank	16	[10]	19	7	17	Oct	15
Greenshank*	19	[29]	23	9	9	Oct	18
Redshank	812	[569]	932	[983]	881	Oct	902
Turnstone	423	360	226	358	418	Jan	357
Kittiwake	0	0	16	0	0		3
Black-headed Gull	1,792	3,660	3,970	2,400	1,960	May	2,756
Little Gull	0	0	[37]	0	0		7
Mediterranean Gull*	10	19	91	220	240	Apr	116
Common Gull	71	26	13	20	18	Oct	30

Species	Peak Count					Month of peak count	5-yr mean peak count
	2012/13	2013/14	2014/15	2015/16	2016/17		
Lesser Black-backed Gull	43	14	55	8	8	Aug	26
Herring Gull	439	25	44	13	38	Dec	112
Great Black-backed Gull	8	[5]	6	[18]	4	Dec	9
Little Tern	15	4	[4]	2	0		5
Sandwich Tern	92	6	2	5	9	Sep	23
Common Tern	31	8	[8]	9	4	May	13
Kingfisher	3	1	2	3	2	Dec	2

South Swale NNR WeBS Sector Core Counts

15. Monthly WeBS Core Counts for the South Swale NNR Count Sector over the 5-year reporting period from winter 2011/12 to 2015/16 were provided by WeBS in March 2018 through a data request to the BTO. Table A9.4 provides the peak count in the sector for each species in each WeBS reporting year (July to June) and the 5-year mean peak count.

† Species which are regularly present in the South Swale NNR WeBS Count Sector in numbers exceeding the threshold for international importance (the 5-year peak mean count exceeds the threshold).

* Species which are regularly present in the South Swale NNR WeBS Count Sector in numbers exceeding the threshold for British national importance (the 5-year peak mean count exceeds the threshold).

Table A9.4: WeBS Core Count summary for the South Swale NNR Count Sector

Species	Peak Count					5-yr mean peak count
	2011/12	2012/13	2013/14	2014/15	2015/16	
Mute Swan	27	60	36	8	4	27
Bewick's Swan	0	16	0	0	0	3
Whooper Swan	0	2	0	0	0	0
Greylag Goose (British/Irish)	3	0	1	0	0	1
Brent Goose (Dark-bellied)*	3100	2000	1750	770	1500	1824
Brent Goose (Light-bellied)	0	0	1	0	0	0
Brent Goose (Black Brant)	1	0	1	0	0	0
Red-breasted Goose	0	1	0	0	0	0
Shelduck	62	16	28	16	31	31
Wigeon	52	194	630	350	850	415
Gadwall	4	16	2	2	4	6
Teal	25	40	65	55	85	54
Mallard	14	27	28	14	24	21
Pintail	4	250	2	0	0	51
Shoveler	0	5	10	0	2	3
Tufted Duck	0	2	1	0	0	1

	Peak Count					
Species	2011/12	2012/13	2013/14	2014/15	2015/16	5-yr mean peak count
Common Scoter	0	2	0	1	0	1
Red-breasted Merganser	0	4	0	0	0	1
Goosander	0	0	0	0	1	0
Red-throated Diver	0	5	0	0	1	1
Little Grebe	4	4	3	1	2	3
Great Crested Grebe	17	26	10	16	28	19
Red-necked Grebe	0	0	1	0	0	0
Cormorant	4	5	4	3	4	4
Little Egret*	17	52	75	66	65	55
Grey Heron	1	3	2	5	2	3
Water Rail	1	1	1	0	1	1
Moorhen	0	2	1	0	4	1
Coot	0	0	1	2	1	1
Oystercatcher	302	276	303	400	1000	456
Avocet	3	10	6	6	7	6
Ringed Plover	71	32	100	16	115	67
Golden Plover	300	345	480	440	600	433
Grey Plover	17	65	221	85	56	89
Lapwing	260	115	630	140	300	289
Knot	2	1	500	4	1000	301
Sanderling	0	3	0	0	0	1
Dunlin	206	200	500	300	1500	541
Ruff	0	0	1	5	3	2
Snipe	0	0	0	1	2	1
Black-tailed Godwit	52	7	0	0	1	12
Bar-tailed Godwit	0	2	10	1	500	103
Whimbrel	2	10	2	13	1	6
Curlew	17	8	7	41	88	32
Common Sandpiper	6	5	8	5	4	6
Green Sandpiper	1	0	0	0	1	0
Spotted Redshank	0	0	0	1	0	0
Greenshank	2	2	2	3	1	2
Redshank	221	163	130	310	210	207
Turnstone	75	59	140	75	95	89
Black-headed Gull	390	518	445	0	0	271
Mediterranean Gull	0	3	1	3	1	2
Common Gull	20	21	20	0	1	12
Lesser Black-backed Gull	4	4	2	3	2	3
Herring Gull	8	40	4	23	2	15
Great Black-backed Gull	2	2	1	1	17	5
Little Tern	15	1	4	2	1	5
Sandwich Tern	3	11	6	2	5	5

	Peak Count					
Species	2011/12	2012/13	2013/14	2014/15	2015/16	5-yr mean peak count
Common Tern	3	15	4	9	0	6
Kingfisher	0	1	0	0	1	0

Swale Estuary Low Tide Counts

16. WeBS Low Tide Count data were provided in March 2018 through a data request to the BTO. Low Tide Counts were carried out at the Swale Estuary for WeBS in winters 1992/93, 2001/02 and 2011/12. WeBS Low Tide Counts are carried out monthly between November and February within the survey winter. The estuary is subdivided into smaller Low Tide Count sectors within which the numbers of birds of each species are recorded during the low tide period. Table A9.5 provides the maximum count in the Swale Estuary for each species in each survey winter.

Table A9.5: WeBS Low Tide Count maximum counts for the Swale Estuary in each survey winter

Species	1992/93	2001/02	2011/12
Mute Swan	64	20	40
Bewick's Swan	5	0	0
White-fronted Goose	3	0	0
Greylag Goose (re-established)	96	16	0
Canada Goose	0	1	12
Barnacle Goose	0	9	0
Brent Goose (Dark-bellied)	2,477	1,690	1,446
Brent Goose (Light-bellied)	0	12	4
Shelduck	2,873	2,039	1,546
Wigeon	369	1,187	6,036
Gadwall	4	6	16
Teal	270	692	1,701
Mallard	313	264	613
Pintail	339	503	219
Shoveler	15	166	2
Pochard	0	184	0
Tufted Duck	0	8	0
Eider	3	2	0
Common Scoter	1	2	0
Goldeneye	4	14	2
Red-breasted Merganser	59	21	7
Red-throated Diver	2	0	0
Little Grebe	6	64	25
Great Crested Grebe	19	311	29
Black-necked Grebe	0	1	0
Slavonian Grebe	0	0	1
Cormorant	61	51	39
Shag	1	0	0

Species	1992/93	2001/02	2011/12
Little Egret	0	19	30
Grey Heron	40	14	5
Water Rail	0	2	0
Moorhen	0	3	1
Coot	354	197	0
Oystercatcher	4,253	6,085	4,014
Avocet	53	118	310
Ringed Plover	191	206	172
Golden Plover	420	2,335	2,145
Grey Plover	1,648	1,567	770
Lapwing	6,170	1,941	3,159
Knot	1,303	1,110	2,370
Sanderling	0	47	11
Little Stint	1	0	1
Dunlin	17,279	9,189	9,621
Ruff	24	0	9
Jack Snipe	0	0	1
Snipe	105	82	1
Black-tailed Godwit	1,115	1,580	1,329
Bar-tailed Godwit	518	383	1,159
Whimbrel	0	0	8
Curlew	1,152	1,174	1,079
Green Sandpiper	0	0	1
Common Sandpiper	0	1	0
Spotted Redshank	1	7	7
Greenshank	0	0	4
Redshank	2,126	1,777	1,078
Turnstone	246	389	182
Black-headed Gull	3,352	1,661	2,009
Common Gull	650	437	125
Lesser Black-backed Gull	13	19	11
Herring Gull	546	613	259
Yellow-legged Gull	0	0	1
Great Black-backed Gull	133	63	21
Kingfisher	0	1	0

9.3.2.4 Kent Wildlife Trust

17. KWT provided a number of documents compiled by the South Swale Nature Reserve Honorary Warden including:

- Monthly WeBS reports providing additional detail of bird distribution within the South Swale NNR WeBS Core Count Sector, April 2008 to December 2017;
- Site visit reports for KWT's South Swale Local Nature Reserve carried out by the Honorary Warden providing details of bird abundance and distribution on and around the reserve, March 2008 to November 2017; and

- Annual Bird Reports for KWT's South Swale Local Nature Reserve compiling and summarising information from WeBS counts, wardens' site visits, bird ringing on the reserve and other contributory sightings of birds within the reserve, 2004 to 2017.
18. Information pertaining to Schedule 1 breeding species is sensitive and hence is not published within this Appendix; however, any information that is helpful to the assessment has been used where appropriate.

19. The information contained within these reports has primarily been used to identify the occurrence of specially protected Schedule 1 breeding species and to provide a longer-term historical context to the occurrence and distribution of dark-bellied brent goose, golden plover and lapwing within the arable land that comprises the Development site and is adjacent to KWT's reserve. Where possible the numbers of dark-bellied brent goose, golden plover and lapwing that were recorded in adjacent arable or pasture habitats during each survey visit for WeBS or for general reserve monitoring were extracted from each report. The maximum (peak) counts during each month of each non-breeding season (October to March) were then tabulated (Table A9.6 to A9.8).

Table A9.6: Peak monthly counts of dark-bellied brent goose as recorded by the honorary KWT South Swale LNR warden in arable habitats adjacent to the reserve between 2008/09 and 2016/17

Season	Oct	Nov	Dec	Jan	Feb	Mar	Peak mean count (Nov-Feb)	Notes
2008/09	0	0	0	800	0	16	200	Bird-scarers operating
2009/10	N/C	N/C	0	N/C	0	0	0	Bird-scarers operating
2010/11	0	0	N/C	400	0	0	133	Bird-scarers operating
2011/12	0	0	0	600	2,000	0	650	Bird-scarers operating
2012/13	0	80	0	0	0	0	20	
2013/14	0	1,700	0	1,500	0	0	800	
2014/15	0	770	0	0	900	600	418	
2015/16	0	550	0	0	0	N/C	138	
2016/17	0	1,300	N/C	N/C	2,400	2,000	1,850	

20. The mean average of the seasonal peak-mean counts between 2008/09 and 2016/17 was 468 dark-bellied brent geese.

Table A9.7: Peak monthly counts of golden plover as recorded by the honorary KWT South Swale LNR warden in arable habitats adjacent to the reserve between 2008/09 and 2016/17

Season	Oct	Nov	Dec	Jan	Feb	Mar	Peak mean count (Oct-Mar)	Notes
2008/09	35	0	38	0	0	0	12	Bird-scarers operating
2009/10	N/C	N/C	0	N/C	0	0	0	Bird-scarers operating
2010/11	1,000	175	N/C	0	0	0	235	Bird-scarers operating
2011/12	0	0	300	0	0	0	50	Bird-scarers operating
2012/13	3,000	2,500	23	600	0	450	1,096	
2013/14	480	2	0	0	0	0	80	
2014/15	0	440	0	220	420	0	180	
2015/16	1	0	0	0	0	N/C	0	
2016/17	1100	0	N/C	N/C	0	0	275	

21. The mean average of the seasonal peak mean counts between 2008/09 and 2016/17 was 214 golden plovers.

Table A9.8: Peak monthly counts of lapwing as recorded by the honorary KWT South Swale LNR warden in arable habitats adjacent to the reserve between 2008/09 and 2016/17

Season	Oct	Nov	Dec	Jan	Feb	Mar	Peak mean count (Oct-Mar)	Notes
2008/09	300	0	218	0	0	0	86	Bird-scarers operating
2009/10	N/C	N/C	0	N/C	0	0	0	Bird-scarers operating
2010/11	450	380	N/C	0	8	0	168	Bird-scarers operating
2011/12	118	700	260	0	0	0	180	Bird-scarers operating
2012/13	0	450	0	100	0	5	93	
2013/14	100	440	0	0	5	3	91	
2014/15	250	140	0	300	35	0	121	
2015/16	0	0	0	0	0	N/C	0	
2016/17	140	170	N/C	N/C	130	9	112	

22. The mean average of the seasonal peak mean counts between 2008/09 and 2016/17 was 95 lapwings.

9.3.25 Barn Owl Data

23. KOS provided details of the locations of ten barn owl nest sites monitored regularly within 5 km of the CSA up to 2017. Of these, nine are definitely active, one was last used in

2010 and one is unconfirmed. Two active sites and one unconfirmed site are within 1 km of the Core Survey Area.

24. KOS also provided details of the ringing recoveries of barn owl within 5 km of the CSA. These demonstrated that barn owls from the study area are capable of moving locations locally and more widely. Birds ringed within the study area have been recovered up to 98 km away.

9.3.26 Ringing Data

25. KOS provided detailed and summary data of birds ringed at the South Swale between 1990 and 2017. The summary data are presented in Table A9.9.

Table A9.9 Number of birds of each species ringed on the South Swale

	1990	1991	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	TOTAL
Mute Swan	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Mallard	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Marsh Harrier	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Sparrowhawk	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3
Kestrel	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	4	0	0	7
Water Rail	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Moorhen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Snipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Wood Pigeon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Barn Owl	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	7	5	4	8	0	4	0	0	0	1	8	39
Kingfisher	0	1	0	0	0	3	2	0	2	3	2	4	6	5	7	1	5	3	0	0	1	0	0	0	0	0	0	45
Skylark	0	1	1	0	0	2	5	1	0	2	1	1	0	1	0	0	3	0	2	5	2	0	2	2	0	0	2	33
Green Woodpecker	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Sand Martin	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	2	1	0	7
Swallow	1	22	8	0	16	28	10	23	10	4	1	25	0	3	24	35	9	0	1	15	0	4	0	0	13	0	0	252
House Martin	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	3
Tree Pipit	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Meadow Pipit	0	0	8	0	4	8	22	5	18	36	29	31	57	68	86	66	61	108	20	13	16	7	34	82	44	21	0	844
Rock Pipit	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Yellow Wagtail	0	0	0	0	0	10	7	0	10	0	15	34	14	7	10	3	4	1	7	0	1	0	1	7	1	2	1	135
Pied Wagtail	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Wren	0	0	2	1	1	0	2	0	2	7	3	2	5	7	4	10	16	6	5	4	3	1	4	7	10	12	1	115
Duncock	0	0	0	0	1	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	0	0	1	0	1	9	3	19



	1990	1991	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	TOTAL
Robin	0	0	0	0	0	0	0	0	0	0	2	0	0	1	1	2	2	0	0	1	0	0	2	2	0	11	2	26
Redstart	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Whinchat	2	0	0	0	0	6	3	3	2	9	2	7	6	1	1	2	5	0	1	4	0	0	2	6	0	5	0	67
Stonechat	0	0	0	0	1	0	0	0	0	0	1	1	4	4	4	3	11	2	4	1	0	0	0	5	3	3	3	50
Wheatear	0	0	0	0	0	0	0	0	0	3	3	4	2	1	1	1	7	2	0	0	1	0	0	0	0	0	0	25
Blackbird	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	6	4	2	6	1	22	
Song Thrush	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	
Cetti's Warbler	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	5	10	1	4	2	2	0	3	5	2	6	0	49
Grasshopper Warbler	0	0	0	0	2	1	0	2	0	0	0	0	0	1	0	0	2	0	0	0	0	0	1	1	0	0	1	11
Aquatic Warbler	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Sedge Warbler	11	6	25	0	26	114	92	111	76	184	89	128	97	112	169	80	130	29	55	108	64	75	126	47	76	87	50	2167
Paddyfield Warbler	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Reed Warbler	7	10	77	0	50	195	255	268	172	307	216	197	201	194	272	184	177	120	136	166	64	204	192	104	92	85	70	4015
Whitethroat	1	0	0	0	1	2	0	0	1	1	1	3	1	6	6	1	10	0	5	2	4	3	4	1	6	11	4	74
Blackcap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	0	4
Chiffchaff	0	0	0	0	0	1	0	3	0	2	0	0	0	8	0	1	1	2	7	3	1	1	3	1	7	10	1	52
Willow Warbler	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	7
Goldcrest	0	0	0	0	0	0	0	0	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5	1	1	12
Pied Flycatcher	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Bearded Tit	3	0	22	0	15	6	38	41	29	48	75	81	74	88	93	93	102	46	63	52	85	50	21	50	16	37	11	1239
Long-tailed Tit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5
Blue Tit	0	0	3	0	2	0	1	0	1	1	0	1	6	9	6	4	0	0	0	3	1	0	0	7	9	8	2	64
Great Tit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3
Carion Crow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2

	1990	1991	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	TOTAL
Starling	0	1	3	0	0	1	2	6	9	4	1	3	2	1	0	0	0	1	1	0	1	0	0	2	0	0	0	38
House Sparrow	0	0	0	0	0	1	0	0	0	1	8	35	1	60	14	0	14	0	24	3	9	0	0	41	4	4	56	275
Chaffinch	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	1	0	5
Greenfinch	0	0	0	0	0	0	72	60	67	19	20	55	88	22	1	45	1	0	0	0	0	0	2	0	0	0	0	452
Goldfinch	0	0	1	0	0	1	9	3	2	8	8	0	5	2	6	0	6	0	0	0	7	0	9	8	9	15	13	112
Siskin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Linnet	0	0	1	0	1	53	60	42	30	16	46	24	149	35	21	18	62	1	9	2	15	8	1	5	28	18	5	650
Redpoll	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Snow Bunting	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Yellowhammer	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
Reed Bunting	2	9	22	1	17	69	108	74	45	109	59	127	104	115	176	136	226	119	176	93	92	108	113	218	115	121	50	2604
Corn Bunting	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4
Lapland Bunting	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
51 species																												
TOTAL	27	50	174	2	141	504	691	647	476	772	587	768	824	757	918	696	874	447	525	485	371	465	532	608	452	488	287	13568

9.4 Breeding Bird Survey

26. Breeding bird surveys were undertaken over three seasons between 2014 and 2016. Surveys in 2014 and 2015 were carried out by AECOM; the survey in 2016 was carried out by Arcus.
27. Full details of the AECOM surveys in 2014 and 2015 are provided in Appendix A9.2. A summary of the survey methods and results is provided in Section 9.4.1.
28. Full details of the Arcus survey in 2016 are provided in Section 9.4.2.
29. The aim of the surveys was to establish the breeding bird populations and spatial distribution within the site and immediately adjacent habitats.
30. The AECOM surveys in 2014 and 2015 were carried out by two surveyors simultaneously covering different parts of the survey area. In 2016, the April survey was undertaken by two surveyors simultaneously, and then the subsequent three surveys in May and June were carried out by a single surveyor on two consecutive mornings. As the survey method maps registrations of birds during each different survey, which are analysed to identify clusters between surveys that represent breeding territory locations, this is not considered to have caused any discrepancy when comparing the results between the different years.
31. The survey results indicate that there were more territories of some species in 2016 than in 2014 or 2015. This is considered to be due to difference in the coverage of the survey area by the different transects used by Arcus and AECOM, where each Arcus survey was longer in duration and had more intensive spatial coverage within the survey area – i.e. the Arcus transect followed all of the ditches in the interior of the site, while the AECOM transect mostly followed the periphery of the survey area with coverage of two ditches running south-north through the interior of the survey area (Appendix A9.2). In terms of the assessment of effects, it is necessary to acknowledge that the Breeding Bird Surveys do not necessarily provide a complete census of all breeding birds within the survey area, but provide an indication of the population sizes of the species present. The 2016 survey, with its more complete coverage of habitats within the survey area, provides the more complete estimate of population sizes.

9.4.1 Breeding Bird Surveys 2014 and 2015

9.4.1.1 Method

32. Breeding Bird Surveys (BBS) were undertaken in 2014 and 2015 using an adapted version of the Common Bird Census (CBC) Methodology³.
33. Four BBS visits were made between May and July 2014 (Table A9.10) and four BBS visits were made between April and June 2015 (Table A9.11).
34. During each survey visit, a transect was followed within the CSA (Figure A9.2 and Figure 5 in Appendix A9.2) that allowed observation of all major areas of habitat within and immediately adjacent to the site. Appendix A9.2 provides further details of the area and route covered by the survey.

Table A9.10: BBS 2014 dates and weather conditions

Date	Time	Temperature °C	Weather	Wind Direction/ Speed <i>Beaufort Scale</i>
06/05/2014	09:00 – 12:00 (2x surveyors)	17	Cloudy turning sunny, with moderate wind	SW 3

³ Marchant, J. (1983). *Common Birds Census Instructions*. British Trust for Ornithology, Thetford.

Date	Time	Temperature °C	Weather	Wind Direction/ Speed <i>Beaufort Scale</i>
30/05/2014	08:00 – 11:00 (2x surveyors)	17	Cloudy	NE 3-4
20/06/2014	08:45 – 11:30 (2x surveyors)	22	Partly cloudy	N 3
14/07/2014	09:00 – 12:00 (2x surveyors)	17	Sunny	W 4

Table A9.11: BBS 2015 dates and weather conditions

Date	Time	Temperature °C	Weather	Wind Direction/ Speed <i>Beaufort Scale</i>
22/04/2015	08:00 – 11:00 (2x surveyors)	9	Sunny, cold and breezy	NE 3
12/05/2015	08:15 – 12:00 (2x surveyors)	15	Breezy, warm, sunny, cloudy towards the end	SW 4-5
03/06/2015	08:30 – 12:00 (2x surveyors)	15	Dry, partly sunny, breezy	SW 3-4
23/06/2015	08:30 – 11:30 (2x surveyors)	14	Warm, breezy, cloud, brightening to sun later	NW 4

35. Field records of all birds were plotted and used to compile territory maps for each species, based on a cumulative assessment of registrations made on all visits within the season. Where behaviour indicative of breeding territories was recorded (e.g. singing males, nest building, aggressive interactions) on two or more occasions in a suitably sized area ('suitable size' being dependent on species), a 'cluster' was drawn around these registrations and the centre point taken as the representative location of the territory. Territory locations were then plotted on a figure to illustrate each species' distribution within the survey area.
36. In addition to the general survey of breeding birds using the adapted CBC method, additional bespoke surveys were carried out for breeding barn owls.
37. Four survey visits were undertaken between April and June 2015 following the standard approach as set out in Gilbert *et al.* (1998)⁴ for surveying barn owl. All four visits focused around dusk when barn owls were likely to be most active, thereby maximising the chance of observing the majority of barn owl activity and territorial behaviour. Surveys commenced 30 minutes before dusk, until 1.5 hours after sunset during favourable weather conditions (Table A9.12).
38. A survey route combining walked transects and short vantage point watches was devised that allowed observation of all areas of suitable habitat within and adjacent to the CSA. Any presence of barn owl was recorded following the standard CBC notation³. There were no structures within or immediately adjacent to the CSA that were suitable for nesting barn owl, therefore no potential nest-site inspections were carried out.

⁴ Gilbert, G., Gibbons, D.W. and Evans, J. (1998). *Bird Monitoring Methods*. RSPB: Sandy.

Table A9.12: Barn owl survey 2015 dates and weather conditions

Date	Time	Temperature °C	Weather
21/04/2015	20:00 – 22:00 (2x surveyors)	9	Clear
11/05/2015	20:30 – 22:30 (2x surveyors)	15	Mild, windy, clear to partly cloudy later
02/06/2015	20:30 – 22:30 (2x surveyors)	15	Cool, dry, breezy, partly cloudy
22/06/2015	21:00 – 23:00 (2x surveyors)	12	Partly cloudy, cool and breezy

9.4.1.2 Breeding Bird Survey 2014 and 2015 Results

39. Table A9.13 provides a summary of the results of the BBS in 2014 and 2015, including the number of confirmed territories of species of conservation concern. Figures A9.3 and A9.4 show the confirmed territories of species of conservation concern.

- *B* = breeding (number of confirmed territories in brackets)
- *P* = possible breeding or breeding nearby (off site)
- *V* = visitor/resting/foraging only
- *F* = flying over the site only
- *I* = Introduced/Feral species

Table A9.13: BBS results summary 2014 and 2015

Species	Conservation Status*	Breeding 2014	Breeding 2015
Mute swan		P	P
Dark-bellied brent goose	NERC S41	V	
Greylag goose	Feral population	I	I
Shelduck		V	V
Mallard		P	P
Red-legged partridge	None	I	I
Pheasant	None	I	I
Grey heron		V	V
Little egret	Annex 1	V	V
Cormorant		F	F
Sparrowhawk		V	
Marsh harrier	Annex 1; Sch 1	B (1)	P
Buzzard		V	V
Moorhen		B	B
Coot			B
Oystercatcher		V	V
Lapwing	NERC S41	V	V
Ringed plover			V

Species	Conservation Status*	Breeding 2014	Breeding 2015
Curlew	NERC S41	V	V
Snipe		P	P
Black-headed gull		V	V
Herring gull	NERC S41	F	F
Lesser black-backed gull		F	F
Feral pigeon	None	I	
Stock dove		P	P
Woodpigeon		B	B
Turtle dove	NERC S41	P/V	P/V
Collared dove			P
Cuckoo	NERC S41	B (1)	P
Barn owl	Sch 1		P
Swift		F	F
Green woodpecker		B	B
Kestrel		V	V/P
Hobby	Sch 1	V	
Peregrine	Annex 1; Sch 1	P	P
Jay			P
Magpie		B	P
Jackdaw			V
Rook			V
Carrion crow		V	V
Blue tit		B	B
Great tit		B	B
Bearded tit	Sch 1		B (3)
Skylark	NERC S41	B (55)	B (35)
Swallow		V	F
House martin		V	F
Cetti's warbler	Sch 1	P	B (2)
Chiffchaff		B	B
Sedge warbler		B	B
Reed warbler		B	B
Blackcap		B	B
Garden warbler			P
Whitethroat		B	B
Wren		B	B
Starling	NERC S41	P	P
Blackbird		B	B

Species	Conservation Status*	Breeding 2014	Breeding 2015
Song thrush	NERC S41	P	
Robin		B	B
Stonechat		B	B
Wheatear			V
House sparrow	NERC S41	B (4)	B (4)
Dunnock	NERC S41	B (3)	B (3)
Yellow wagtail	NERC S41	B (10)	B (6)
Pied wagtail		B	B
Meadow pipit		B (1)	P
Chaffinch		B	B
Linnet	NERC S41	B (3)	B (3)
Goldfinch		B	B
Yellowhammer	NERC S41		P
Reed bunting	NERC S41	B (41)	B (32)

* Annex 1 = listed on Annex 1 of the European Birds Directive.
 Sch 1 = listed on Schedule 1 of the Wildlife and Countryside Act.
 NERC S41 = listed as a species of principal importance on Section 41 of the Natural Environment and Rural Communities Act.
 Colour = Red, Amber or Green listed in Birds of Conservation Concern 4⁵.

40. The barn owl survey detected a single barn owl hunting over rough grassland in the KWT reserve between the CSA and the sea wall to the north of the CSA. There were three further observations of single birds between July and September hunting along the ditches during the bat surveys undertaken for the ecological assessment.

9.4.2 Breeding Bird Survey 2016

9.4.2.1 Method

41. A BBS was undertaken between April and June 2016 (Table A9.14) covering the same CSA and following the same method of survey and analysis outlined in Section 9.4.1 for the 2014 and 2015 breeding seasons. Spatial coverage of the CSA was more complete in 2016 than in 2014 and 2015, as all of the ditches crossing the CSA were walked by the surveyor.
42. Some visits were completed by a single surveyor over two consecutive days, with the east and west sections of the site surveyed separately during visits lasting up to 4.5 hours.

⁵ Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R.D., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D.A. & Gregory, R.D. (2015). Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. *British Birds* 108, pp. 708-746 (<http://www.britishbirds.co.uk/wp-content/uploads/2014/07/BOCC4.pdf>).

Table A9.14: Breeding Bird Survey (BBS) 2016 dates and weather conditions

Date	Time	Temperature °C	Weather	Wind Direction/ Speed <i>Beaufort Scale</i>
20/04/2016	06:30 – 10:35 (2x surveyors)	9	Sunny, cold and breezy	ESE 1-3
12/05/2016	05:40 – 10:10	13	Mostly cloudy, cool breeze	NE 1-3
13/05/2016	05:35 – 10:00	14	Early cloud, later sunny	NE 3
26/05/2016	05:35 – 10:15	7-15	Mostly sunny, some cloud	SW/W/NW 0-2
27/05/2016	05:35 – 10:10	10-14	Overcast	ENE/NE 2-3
09/06/2016	05:35 – 10:25	13	Overcast, cool breeze	NE 2-3
10/06/2016	05:30 – 10:15	17	Cloudy, some hazy sun	NE change SW 0-1

43. The general breeding bird survey was supplemented by specific searches for breeding raptors and owls between April and August 2016 (Table A9.15), covering accessible land within 2 km of the CSA, but excluding the Isle of Sheppey. A total of six surveys were carried out although, given the large size of the survey area, some visits were completed over two consecutive days.
44. The aim of these surveys was to establish whether any raptors of conservation concern were breeding within or near the CSA based on looking for evidence of breeding/territory holding, as described in Hardey *et al.* (2013)⁶. The surveys were carried out using a series of short VP-style watches suitable areas of habitat to detect signs of breeding raptors and owls. Surveys focussed on marsh harrier and other Annex 1 or Schedule 1 listed species, although observations of common raptor species: buzzard, sparrowhawk and kestrel were also recorded. Local farm buildings/trees or other potential barn owl nest sites were not closely investigated.

Table A9.15: Breeding raptor/owl survey 2016 dates and weather conditions

Date	Time	Weather	Wind Direction/ Speed <i>Beaufort Scale</i>
21/04/2016	13:20 – 18:00	Hazy, misty. Gusty cold wind	E to NE 3-4 (gust 5)
22/04/2016	06:00 – 11:00	Cold wind	NE 3 (gust 4)
11/05/2016	12:00 – 16:00	Humid, 17°C	E/ENE 1-3
12/05/2016	10:20 – 14:40	Misty, hazy, warm	NE 4 (gust 5)
25/05/2016	11:00 – 18:30	Cold breeze, overcast, later drizzle	NW 1-2 (gust 3)
07/06/2016	11:05 – 16:00	Hazy, warm, part cloudy	N/NNE 2
08/06/2016	13:00 – 15:30	Hazy, humid, some cloud	NE 2 (gust 3)
21/07/2016	06:15 – 13:05	Cloudy, humid, warm	W 2-3
09/08/2016	11:30 – 18:30	Heat haze, cloud increasing	NW 2-3

⁶ Hardey, J., Crick, H.Q.P., Wernham, C.V., Riley, H.T., Etheridge, B. and Thompson, D.B.A. (2013). *Raptors: a Field Guide to Surveys and Monitoring*. 3rd Edition. Stationery Office. Edinburgh.

9.4.2.2 Breeding Bird Survey 2016 Results

45. A total of 72 species were recorded during the 2016 BBS. Of these, thirteen species of conservation concern were recorded holding territory (Table A9.16; Figure A9.5).

Table A9.16: BBS results summary 2016

Species	Conservation Status*	Confirmed Territories	Notes
Oystercatcher		2	Two nesting pairs were identified, both on arable fields in the north of the CSA.
Lapwing	NERC S41	9	A minimum of nine territory holding birds were recorded with display flights frequently observed. Most territories were situated in arable fields in the north and east of the CSA.
Cuckoo	NERC S41	1	One male held territory to the south of the CSA, ranging widely between Nagden Cottage and Coney Banks.
Bearded tit ⁷	Sch 1	4	Small numbers of bearded tit were recorded from the reed-filled ditches on all BBS visits, mostly in the KWT nature reserve between the CSA and the seawall. A juvenile was observed on 10 th June suggesting at least one pair bred successfully. Territories of this species are not shown on Figure A9.5.
Skylark	NERC S41	75	A common and widespread breeding species within suitable habitat throughout the CSA.
Cetti's warbler	Sch 1	7	Seven territory-holding males were recorded, all at the southern boundary of the CSA.
Song thrush	NERC S41	3	Three territory-holding males were identified, all to the south of the CSA.
Dunnock	NERC S41	9	A minimum of nine territories were recorded, all at or outside the southern boundary of the CSA.
House sparrow	NERC S41	4	A minimum of four, all around buildings to the south of the CSA.
Yellow wagtail	NERC S41	25	A minimum of 25 territories were identified within ditches and arable fields throughout the CSA.
Meadow pipit		5	Five territories were identified, all at the border of the CSA associated with ditch margin or grassland in the KWT nature reserve.
Linnet	NERC S41	3	Four locations, including two in scrub at the west end of the CSA, one in the KWT reserve and one between fields in the southeast of the CSA.
Reed bunting	NERC S41	60	A common species within the CSA. Most territories were in the KWT reserve surrounding the north and west of the CSA, with others scattered around the field boundaries and ditches within the CSA.

⁷ Bearded tit do not sing and are a non-territorial species. This figure represents an estimate of the minimum number of pairs within the BBS Area. A full census of this species is outside the scope of the CBC Methodology and detailed territory mapping has not been completed

46. A further 24 territory-holding species not listed as species of conservation concern were also observed during the BBS: water rail, moorhen, little owl, woodpigeon, collared dove, blue tit, great tit, chiffchaff, sedge warbler, reed warbler, blackcap, whitethroat, lesser whitethroat, wren, blackbird, robin, stonechat, chaffinch, greenfinch and goldfinch.
47. Non-breeding species of Birds of Conservation Concern recorded included; mute swan, greylag goose, shelduck, mallard, gadwall, little egret, marsh harrier, kestrel, peregrine, ringed plover, avocet, black-tailed godwit, greenshank, whimbrel, green sandpiper, common gull, Mediterranean gull, black-headed gull, lesser black-backed gull, common tern, little tern, swift, mistle thrush and starling.
48. Eight species of raptors and owls were recorded by the breeding raptor/owl survey. The observations below are a culmination of all sightings during the survey period (including information from other survey types). Raptors, by nature, are scarce and seen less frequently in comparison to passerines, with specific territory holding behaviour rarely observed. Combining the results of all surveys gives the best indication to their local populations.
49. Details of all Schedule 1 and Annex 1 raptor and owl species recorded during the breeding season are summarised in Table A9.17.

Table A9.17: Schedule 1 and Annex 1 Raptor and Owl Species Recorded During the 2016 Breeding Season.

Species	Territories 2016	Notes
Marsh harrier	1 probable	Marsh harrier was recorded frequently on all surveys. There was a probable territory southwest of the CSA, in Ham Marshes, where an adult male was observed feeding recently fledged young. Additionally, a pair was observed 'food passing' over Graveney Marshes, to the east of the CSA in April, but not seen subsequently and are not thought to have bred in this area.
Hobby	0	Hobby was recorded occasionally, mostly to the south and west of the CSA. Up to six were recorded together (Oare Marshes, 12th May) but there was no evidence that they bred within the breeding raptor/owl survey area.
Peregrine falcon	0	Up to two adult birds were seen regularly throughout the breeding season. Birds were observed hunting and perching on pylons within the CSA but there was no evidence of nesting within the breeding raptor/owl survey area.
Barn owl	Unknown – buildings/trees not searched	One was observed hunting at dusk on 19th April, to the west of Cleve Hill Substation. There were no further observations during the breeding season.
Short-eared owl	0	One was observed hunting by the sea wall, in the east of the breeding raptor/owl survey area, between Seasalter and the CSA on 21st April. Additional breeding season observations were made during the FAS on 19th April and 20th July but no territorial behaviour was noted and there was no evidence that this species held territory or bred within the breeding raptor/owl survey area.

50. Kestrel and buzzard were recorded frequently within the breeding raptor/owl survey area. It is likely that both these species bred locally although there was no evidence of either species nesting within the CSA.

51. Tawny owl was recorded during the non-breeding season Nocturnal Surveys. It is likely that this species breeds within the breeding raptor/owl survey area but, due to its nocturnal habits, detecting this species was outside the scope of the baseline surveys.

9.5 Passage/Winter Bird Survey

52. Surveys of birds using the site and surrounding area during the non-breeding season were undertaken during four passage/winter seasons between 2013/14 and 2017/18. Surveys in the 2013/14 and 2014/15 seasons were carried out by AECOM; the surveys in 2015/16 and 2017/18 were carried out by Arcus (Table A9.18).

Table A9.18 Number of survey visits during each non-breeding/passage season; monthly survey summary

Survey	2014								2015								2016								2017			
	Jan	Feb	Mar	Apr	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
AECOM Winter Farmland Bird Survey	1	1	1				1	1	1	1																		
AECOM Low/High Tide Count Survey	2	2	2				2	2	2	2																		
AECOM Passage Bird Survey						3																						
Arcus High/Low Tide Walkover Survey															2	4	4	4	2	1								
Arcus Passage Bird Survey													1	3														
Arcus Intertidal Walkover Survey															2	4	4	2	2	2								
Arcus Nocturnal Bird Survey																1	1	1	1									

53. There was no survey coverage of winter 2016/17. Arcus consulted with Natural England in December 2016 and there was agreement that coverage of the surveys completed between 2013/14 and 2015/16 was sufficient to enable a thorough assessment of the potential impacts on SPA/Ramsar birds, and other important bird species. However, due to extension of the project timescales following a change in the project partnership, a further winter of survey in 2017/18 was undertaken to provide more up-to-date baseline information on non-breeding bird interests at the site.
54. Full details of the AECOM surveys are provided in Appendix A9.3 and A9.4. A summary of the survey methods and results is provided in Section 9.5.1.
55. Full details of the Arcus surveys in 2015/16 and 2017/18 are provided in Sections 9.5.2 and 9.5.3.
56. The aim of the surveys was to provide baseline data to assess the non-breeding bird populations and spatial distribution within the site and immediately adjacent habitats.

57. During the consultation meeting on 16th December 2016, Arcus clarified to Natural England that the walkover surveys carried out by AECOM between January 2014 and February 2015 and by Arcus between September 2015 and October 2016 were compatible with each other, despite some noticeable discrepancies between maximum counts of some species. AECOM's 'Winter Farmland Bird Surveys' and Arcus' 'High/Low Tide Walkover Surveys', as well as the 'Passage Bird Surveys' carried out by both consultancies all followed similar methodologies – in summary, transects were walked ensuring that the CSA was covered and the number of birds of each species encountered in each field were plotted onto large-scale field maps. In addition to diurnal walkover surveys, Arcus undertook four nocturnal surveys to investigate the use of the CSA by wintering waterbirds at night. The AECOM Winter Farmland Bird Surveys, the Arcus High/Low Tide Walkover Surveys and both Passage surveys did not cover the intertidal area adjacent to the CSA, or at most, only covered a small part of the intertidal habitat. Intertidal count sectors have therefore been assigned a null count in the analyses for those types of survey.
58. AECOM's 'Low/High Tide Count Surveys' and Arcus' 'Intertidal Walkover Surveys' followed the same basic method – in summary, a transect was walked along the sea wall offering views across intertidal areas adjacent to the CSA, as well as views across the CSA. Whilst passerine species and birds foraging or loafing in the ditches and peripheral habitats in the south of the CSA would not have been recorded, accurate counts of larger flocking species including brent goose, golden plover and lapwing were made within the CSA, as well as the intertidal areas by this method.

9.5.1 Passage/Winter Bird Survey Method 2013/14 and 2014/15

59. Winter Bird Surveys were carried out following an adaptation of the British Trust for Ornithology's (BTO) Wetland Bird Survey methodology⁸ for the intertidal areas and the BTO's Winter Farmland Bird Survey methodology⁹ for the farmland areas.
60. Nine survey visits were made between January and March 2014 for the 2013/14 winter season and 12 visits between November 2014 and February 2015 for the 2014/15 winter season (Table A9.18). In each month surveyed, three separate surveys were undertaken:
- AECOM Low Tide Counts of birds immediately adjacent to the CSA on the Swale Estuary and those in fields within the CSA – these counts were undertaken one hour either side of low tide; the transect followed/area surveyed is shown in Figure 1 of Appendix A9.4;
 - ACOM High Tide Counts of birds immediately adjacent to the CSA on the Swale Estuary and those in fields within the CSA – these counts were undertaken one hour either side of high tide; the transect followed/area surveyed is shown in Figure 1 of Appendix A9.4; and
 - AECOM Winter Farmland Bird Survey of all areas and habitats within the CSA; the survey did not cover adjacent intertidal habitats; the transect followed/area surveyed is shown in Figure 1 of Appendix A9.4.
61. The Passage Bird Surveys were undertaken also broadly following the BTO's Winter Farmland Bird Survey Methodology⁹. It was however, revised to focus on recording of passage and migratory birds.
62. Three Passage Bird Survey visits were made during October 2014. Each visit was conducted over two consecutive days totalling approximately 6-7 hours per survey. A survey transect was devised that allowed observation of all areas within the CSA and also included parts of the adjacent intertidal habitat (Figure 4 in Appendix A9.3).

⁸ <https://www.bto.org/volunteer-surveys/webs>

⁹ Gillings, S., et.al (2008) *BTO Research Report No. 494. Winter Farmland Bird Survey*. BTO, Thetford.

9.5.2 Passage/Winter Bird Survey Method 2015/16

63. Further passage/winter baseline bird surveys were undertaken by Arcus between September 2015 and April 2016. A series of surveys (Table A9.18) were undertaken to provide a sample of the numbers, diversity and spatial distribution of bird species within and adjacent to the CSA. Together the surveys covered an area shown as the 'Winter Bird Survey Area 2015/16 and 2017/18' in Figure A9.6. This area was subdivided into 61 count sectors.
- ##### 9.5.2.1 Passage Surveys
64. Four Passage Bird Survey visits were undertaken between September and October 2015. The aim of these surveys was to establish the bird interest and use of the CSA and immediate surrounds during the autumn passage period. All bird species observed were recorded.
65. Surveys lasted up to 2.5 hours to cover each half the CSA, using a transect route that covered all major areas of habitat. Passage Surveys were scheduled to cover various stages of the tidal cycle including both high and low tide periods and periods of rising and falling water and covered all areas within the Winter Bird Survey Area 2015/16 and 2017/18.
66. These surveys represent the equivalent of the Passage Bird Surveys conducted during by AECOM in 2015, although the Arcus surveys achieve more extensive coverage of the survey area.
- ##### 9.5.2.2 High & Low Tide Walkovers
67. High and Low Tide Walkover Surveys were undertaken between November 2015 and April 2016. The aim of these surveys was to establish the bird interest and spatial distribution within the farmland areas of the CSA and adjacent terrestrial habitats during the non-breeding season.
68. A total of nine High Tide Walkovers and eight Low Tide Walkovers were carried out. Each survey visit lasted for up to three hours and the east and west sections of the survey area were covered simultaneously by different observers. Survey times were stratified to cover various stages of the tidal cycle including both high and low tide periods and periods of rising and falling water immediately before/after these times.
69. The High and Low Tide Walkover Surveys represent the equivalent of the Farmland Bird Surveys undertaken by AECOM in the two previous winter seasons.
- ##### 9.5.2.3 Intertidal Walkover Surveys
70. Intertidal Walkover Surveys were undertaken between November 2015 and April 2016 inclusive. A total of 16 Intertidal Walkover Surveys were carried out. Each survey visit lasted for up to three hours and the east and west sections of the survey area were covered simultaneously by different observers. Survey times were stratified to cover various stages of the tidal cycle including both high and low tide periods and periods of rising and falling water immediately before/after these times.
71. A transect route was used which primarily followed the sea wall, allowing a good view across the Winter Bird Survey Area 2015/16 and 2017/18 in all directions. Coverage focussed on the intertidal areas on the seaward side of the transect route but birds observed within the fields and ditches of the survey area inland of the sea wall were also surveyed. This ensured that accurate counts were made of waterbirds within the fields of the CSA; however, passerines and birds low down in ditches distant from the sea wall were not recorded by this method.
72. These surveys represent the equivalent of the High and Low Tide Surveys conducted by AECOM in the two previous winter seasons.

9.5.2.4 Nocturnal Surveys

73. Nocturnal surveys were undertaken monthly between December 2015 and March 2016, totalling four survey visits. The aim of these surveys was to establish the use of the fields within the CSA by feeding and roosting birds during the night.
74. Observations were made using a combination of binoculars, night-vision optics, and a powerful spotlight. Care was taken to minimise disturbance and avoid the possibility of double-recording birds as they moved around the survey area. All nocturnal surveys were scheduled to coincide with the period over high tide, when the bird usage within the CSA was considered likely to be highest.
75. As during the diurnal Arcus surveys, birds were recorded onto large-scale field maps and assigned to count sectors.

9.5.3 Passage/Winter Bird Survey Method 2017/18

76. Following extension to the project timescales, further surveys were carried out by Arcus in winter 2017/18 to supplement the baseline data and provide the most up-to-date information.
77. During the initial consultation with Natural England in December 2016, it was established that the primary area of concern was the use of the Development site by waterbirds associated with The Swale SSSI/SPA/Ramsar site. It was therefore decided to complete surveys that would provide data on the number of waterbirds using the terrestrial habitats within the Development site, as well as the intertidal area adjacent to the Development site. This is similar to the Intertidal Walkover Surveys completed in 2015/16 and the AECOM High/Low Tide Count Surveys in 2013/14 and 2014/15.
78. A transect around the Winter Bird Survey Area 2015/16 and 2017/18 was followed during each survey. The transect followed the sea wall from the Sportsman at the northeast end of the survey area to Nagden in the southwest of the survey area, then around the southern perimeter of the CSA and across the arable Graveney marshes part of the CSA to Crown Cottages. From there the transect turned southeast between fields to meet the public footpath over Graveney Hill to the Seasalter Road, then along the footpath north by the side of Seasalter Road to the Sportsman. The direction of the transect was reversed between alternate surveys.
79. Between October 2017 and March 2018, surveys were carried out twice each month at low tide covering the period of approximately 2-2.5 hours either side of low tide and twice at high tide, covering the period of approximately 2-2.5 hours either side of high tide; the same was carried out once each month in September 2017 and April 2018.

9.5.4 Passage/Winter Bird Survey Results

80. Records of birds recorded on the field maps were digitised in a GIS and each record was assigned to one of the 61 count sectors. The counts of dark-bellied brent goose, golden plover and lapwing are provided at the end of this Technical Appendix in Section 9.8.
81. As a visual aid to understanding the distribution and abundance of waterbirds around the survey area, the mean numbers of bird-days of each important waterbird species (as well as mallard, ringed plover, turnstone and redshank) in each count sector in each season (2013/14, 2014/15, 2015/16 and 2017/18) has been calculated and shown in Figures A9.7 to A9.27. The mean number of bird-days in each count sector was calculated by taking the mean count of each species in each count sector from each relevant survey (dependent on survey type) in the season and multiplying by the number of days in the core season; for this purpose, the number of days in the season was 182 days (start of October to end of March).

9.5.4.1 Survey Results 2013/14 and 2014/15

82. A combined total of 52 species of conservation concern were recorded during the Winter Bird Surveys; 37 species in 2013/14 and 49 in 2014/15.
83. Table A9.19 provides a summary of the peak counts of all swans, all geese, all ducks, all waders, all gulls and all Annex 1 or Schedule 1 raptor and heron species recorded during the Winter Bird Surveys in 2013/14 and 2014/15. Numbers represent the highest total count made within the survey area during a single visit for each survey type¹⁰. Species in bold are important component species of The Swale SPA assemblage.
84. Most observations were from intertidal areas, however, fields to the north and northeast of Cleve Hill and Crown Cottages, in the east of the CSA, were used occasionally by foraging and roosting birds during the 2013/14 and 2014/15 winter seasons. Flocks of brent goose numbering up to 3,000 individuals were observed in this area. Small flocks of some wader species were also recorded here, particularly during high tide surveys. Species observed in these fields included ringed plover, golden plover, lapwing, grey plover, dunlin and curlew.

Table A9.19: Summary of peak counts in the survey area during the Winter Bird Surveys in winter 2013/14¹¹ and 2014/15.

Species	2013-14			2014-15		
	Low Tide	High Tide	Farmland	Low Tide	High Tide	Farmland
Mute swan	40	29	24	2	10	15
Greylag goose	0	0	0	0	0	5
Brent goose	3011	2500	2000	1006	931	3400
Shelduck	19	6	0	222	44	52
Wigeon	1	110	25	60	315	0
Gadwall	0	1	0	0	0	0
Teal	9	4	0	80	53	4
Mallard	12	11	8	28	17	4
Shoveler	0	6	0	0	0	0
Little egret	3	3	1	6	12	1
Marsh harrier	0	1	0	2	2	3
Hen harrier	0	0	0	0	0	1
Merlin	0	1	0	0	0	0
Peregrine falcon	0	0	0	0	3	1
Oystercatcher	959	20	2	85	213	0
Avocet	131	0	0	240	91	0
Ringed plover	0	29	0	2	29	0
Golden plover	0	2	0	3	0	40
Grey plover	14	6	0	22	65	0
Lapwing	431	400	8	660	92	713

¹⁰ Numbers reported here may differ from numbers quoted in Appendices A9.3 and A9.4 due to differing methods of analysis and extraction of count data from field sheets – e.g. flying birds are excluded in Table A9.19 and the area in which counts are reported differs slightly.

¹¹ Surveys started in January 2014.

Species	2013-14			2014-15		
	Low Tide	High Tide	Farmland	Low Tide	High Tide	Farmland
Knot	0	0	0	180	50	0
Dunlin	304	225	1	358	356	2
Snipe	0	5	26	0	0	8
Curlew	85	24	14	22	9	24
Redshank	207	218	0	329	189	4
Turnstone	6	72	0	2	84	0
Black-headed gull	22	17	88	55	48	151
Common gull	0	0	8	1	0	0
Lesser black-backed gull	0	0	0	1	0	1
Herring gull	4	0	0	9	4	2
Great black-backed gull	0	0	0	4	0	0
Short-eared owl	0	0	1	0	1	2

85. Additional species of conservation concern recorded included; little grebe, stock dove, kingfisher, bearded tit, skylark, Cetti's warbler, starling, song thrush, redwing, mistle thrush, fieldfare, dunnoek, house sparrow, grey wagtail, meadow pipit, rock pipit, linnet, yellowhammer and reed bunting.

9.5.4.2 Survey Results 2015/16

High & Low Tide Walkover

86. A total of 92 species were recorded during the High and Low Tide Walkover Surveys in winter 2015-16, including 63 species of conservation concern.
87. Table A9.20 provides a summary of all swans, all geese, all ducks, all waders, all gulls and all Annex 1 or Schedule 1 raptor and heron species recorded during the High and Low Tide Walkover Surveys in winter 2015/16. Species in bold are important component species of The Swale SPA assemblage.
88. In the arable/grazing marsh terrestrial habitats, observations were widely scattered throughout the CSA, although there were concentrations along the northern edge of the CSA, around Graveney Marshes.

Table A9.20: Summary of species recorded during the High & Low Tide Walkover Surveys in winter 2015/16.

Species	High Tide		Low Tide	
	Total no. of observations	Peak Flock count	Total no. of observations	Peak Flock count
Mute swan	14	7	19	3
Whooper swan	0	0	1	40
Greylag goose	2	4	0	0
Brent goose	9	340	9	370
Shelduck	19	3	14	3
Wigeon	6	19	-	-

Species	High Tide		Low Tide	
	Total no. of observations	Peak Flock count	Total no. of observations	Peak Flock count
Gadwall	2	4	1	8
Teal	34	25	26	20
Mallard	38	10	14	10
Goosander	-	-	1	1
Bittern	1	1	-	-
Little egret	35	2	33	2
Red kite	-	-	1	1
Marsh harrier	36	2	31	3
Merlin	5	1	2	1
Peregrine	13	3	4	1
Oystercatcher	32	140	2	2
Avocet	9	2	5	2
Ringed plover	-	-	3	1
Golden plover	38	800	18	1100
Grey plover	3	1	4	55
Lapwing	68	300	52	290
Knot	-	-	1	650
Dunlin	6	40	3	220
Snipe	59	28	52	3
Black-tailed godwit	-	-	1	1
Bar-tailed godwit	1	1	-	-
Whimbrel	1	3	-	-
Curlew	26	115	12	35
Green sandpiper	6	3	6	1
Greenshank	1	2	2	1
Redshank	129	64	132	16
Turnstone	-	-	1	1
Black-headed gull	17	550	22	500
Common gull	11	30	8	20
Lesser black-backed gull	1	2	-	-
Herring gull	5	1	5	2
Great black-backed gull	1	1	-	-
Short-eared owl	3	1	11	1

89. Additional species of conservation concern recorded included; kestrel, stock dove, bearded tit, skylark, shorelark, Cetti's warbler, starling, song thrush, redwing, mistle thrush, fieldfare, winchat, dunnoek, house sparrow, grey wagtail, yellow wagtail, meadow

pipit, rock pipit, house sparrow, brambling, bullfinch, linnet, redpoll, yellowhammer, reed bunting and corn bunting.

Intertidal Walkover Surveys

90. A total of 63 species were recorded during the Intertidal Walkover Surveys in winter 2015/16 including 49 species of conservation concern.
91. Table A9.21 provides a summary of all swans, all geese, all ducks, all waders, all gulls and all Annex 1 or Schedule 1 raptor and heron species recorded during the Intertidal Walkover Surveys in winter 2015/16. Species in bold are important component species of The Swale SPA assemblage.
92. Species diversity was broadly similar to the High/Low Tide Walkover Surveys although, for many species, the number of observations and flock sizes were higher during the Intertidal Walkover Surveys (because more birds used intertidal habitats than farmland habitats).

Table A9.21: Summary of species recorded during the Intertidal Walkover Surveys in winter 2015/16.

Species	Peak survey area count
Mute swan	7
Brent goose	556
Shelduck	151
Wigeon	571
Gadwall	4
Teal	239
Mallard	40
Tufted duck	2
Goldeneye	1
Goosander	1
Little egret	11
Marsh harrier	3
Merlin	1
Peregrine	2
Oystercatcher	845
Avocet	150
Ringed plover	23
Golden plover	2,300
Grey plover	262
Lapwing	898
Knot	1,280
Sanderling	1
Purple sandpiper	1
Dunlin	1,472
Snipe	57

Species	Peak survey area count
Black-tailed godwit	32
Bar-tailed godwit	2,000
Whimbrel	2
Curlew	253
Green sandpiper	5
Greenshank	2
Redshank	234
Turnstone	90
Black-headed gull	550
Mediterranean gull	1
Common gull	30
Herring gull	15
Lesser black-backed gull	2
Great black-backed gull	6
Short-eared owl	1

93. Additional species of Birds of Conservation Concern recorded included: bearded tit, skylark, shorelark, Cetti's warbler, redstart, meadow pipit, linnet, redpoll, corn bunting and snow bunting.

Passage Bird Surveys

94. A total of 59 species of were recorded during the Passage Bird Surveys in autumn 2015 including 34 species of conservation concern.
95. Overall, diversity and numbers were lower than the High/Low Tide Walkover and Intertidal Walkover Surveys but observations showed a similar spatial distribution with the majority of observations of waterbirds in the intertidal habitats and little use of farmland habitats.

Nocturnal Survey results

96. A total of 16 species of were recorded during the four Nocturnal Surveys in winter 2015/16.
97. Golden plover, lapwing and snipe were the most frequently recorded species. There were two observations of redshank and nine of dunlin (including a flock of 10 birds) in fields in the north of the CSA. Overall, observations during the Nocturnal Surveys were widely scattered around the farmland areas within the CSA.
98. Figure A9.28 provides an overview of species locations and numbers during the Nocturnal Surveys in winter 2015/16.

9.5.4.3 Winter Bird Survey Results 2017/18

99. The surveys in winter 2017/18 followed one type of survey method that provided counts of waterbirds using the arable habitats within the CSA, as well as adjacent grazing marsh at Cleve Marshes east of the CSA and the intertidal habitats of the Swale estuary within 500 m north of the CSA and along Faversham Creek.

100. Table A9.22 provides a summary of waterbirds (and little egret) recorded during the surveys in winter 2017/18. Species in bold are important component species of The Swale SPA assemblage.
101. In the arable/grazing marsh terrestrial habitats, observations were widely scattered throughout the CSA, although there were concentrations along the northern edge of the CSA, around Graveney Marshes.

Table A9.22: Peak counts of species recorded during the winter bird surveys in 2017/18.

Species	Peak Count
Mute swan	4
Brent goose	1,798 (in late Sept)
Pink-footed goose	4
Shelduck	115
Shoveler	9
Wigeon	690
Mallard	35
Pintail	1
Teal	160
Little grebe	6
Great crested grebe	6
Black-necked grebe	1
Grey heron	8
Little egret	22
Cormorant	15
Coot	6
Moorhen	2
Oystercatcher	1,187
Avocet	194
Ringed plover	35
Golden plover	1,776
Grey plover	150
Lapwing	1,183
Knot	1,660
Ruff	23
Sanderling	2
Dunlin	3,000
Woodcock	1
Snipe	3
Black-tailed godwit	380
Bar-tailed godwit	150

Species	Peak Count
Curlew	161
Common sandpiper	3
Green sandpiper	4
Greenshank	9
Redshank	370
Turnstone	91

9.6 Bird-days Calculation for Dark-bellied Brent Goose, Golden Plover and Lapwing

102. As a result of the Development and consequent loss of open farmland to solar panels, the assessment predicts that there is potential for negative effects on the wintering populations of dark-bellied brent goose, lapwing and golden plover that use the farmland for foraging or loafing/roosting.
103. This potential adverse effect was recognised at an early stage in the project, therefore the principle of maintaining an undeveloped area of the Development site was identified for habitat management mitigation to provide foraging and resting/roosting opportunities for geese and other waterbirds. This has been referred to as the Arable Reversion Habitat Management Area (AR HMA).
104. Baseline surveys comprised 'snapshot' counts of the number of birds of each species in each count sector. The number of surveys in each month and in each season has varied across the course of the survey period. A number of metrics were explored to describe bird-use of the site. Following consultation with Natural England and the HMSG, it was considered that the most appropriate metric to provide a precautionary measure of average use of the site each season is the 'inter-annual mean of the intra-annual mean of the peak monthly counts' derived from the survey data (hereafter called 'peak-mean'). Survey count data for brent goose, lapwing and golden plover are provided in of Section 9.8.
105. The approach to devising mitigation requirements for loss of foraging resources for wintering waterbirds is to calculate the amount of land and type of management that would be needed to support the number of foraging bird-days that the arable land within the Development site has supported in the four winters studied.
106. The total number of birds of each species in the arable parts of the CSA on each survey were obtained by summing the number of foraging birds in each arable count sector (Section 9.8) on each survey (made during baseline surveys as described in Section 9.5), taking action where necessary to remove double counts (when the same flock of birds was recorded in two different fields on the same survey). The peak-mean counts for the arable area were then calculated for each season (i.e. the intra-annual mean of the highest counts each month) and the means of those seasonal peak-means (i.e. 'inter-annual mean of the intra-annual mean of the peak monthly counts) were obtained for each species by averaging across the seasons (Table A9.23)¹². This was done to smooth out the variation in the number of surveys in each season.

¹² Preliminary data analysis carried out for the PEIR has been reviewed and revised to ensure consistency with appropriate criteria for the inclusion or exclusion of bird counts, e.g., where birds took off from one field within the Core Survey Area and landed in another, these are the same birds using the site and should be recorded as such. The detailed review of the analysis has led to the removal of such double counting, as well as other details, which has led to minor changes in the baseline data reported in the ES relative to that in the PEIR.

107. Metrics were calculated on the November to February period for brent goose because the number of birds recorded in the arable fields outside this period was almost zero. Metrics for golden plover and lapwing were based on the October to March period, because birds were recorded in the arable fields throughout those months.

Table A9.23: Daily diurnal peak-mean count metrics of brent goose, golden plover and lapwing within the arable part of the CSA

Metric	Brent Goose (Nov-Feb)	Lapwing (Oct-Mar)	Golden Plover (Oct-Mar)
Mean of seasonal monthly peak-means	849.5	307.8	158.3

108. These metrics represent an average number of birds per day within the arable fields of the Development site.

An alternative method to describe the average site use by each species was explored, whereby the highest count of a species in each month across seasons was averaged and summed over the months in the period under consideration. However, this method was dismissed because it was considered that the driving factor behind the variability in numbers was the crop type, which varies with season, rather than the month of the season; however, it is recognised that the month in the season also influences variability because crops have different stages of growth through the season which may make them more or less attractive at different times.

109. Figures A9.40, A9.41 and A9.42 display the crops grown in each season (the date shown being the harvesting year). These were examined to assess the representativeness of the baseline survey sample, particularly in the potential suitability of the crops in the site for geese. Brent geese forage particularly on winter cereal crops, as well as winter oil seed rape, but will also make use of other crops when suitable, for example when spring/winter beans 'chit' as the shoots emerge. In the 10 years between winter 2009/10 to 2018/19, the site has been dominated by (>80%) winter cereal crops during three winters (2009/10, 2011/12 and 2013/14), with smaller but substantive extents of winter cereal (>40%) in a further four winters (2014/15, 2015/16, 2016/17 and 2018/19). Dominance of winter oil seed rape has only been present in winter 2010/12. In the remaining two winters (2012/13 and 2017/18), the site has been dominated by spring cropping (i.e. no crops present during the winter – 2012/13) or a mixture of winter beans and spring cereal (2017/18).
110. Therefore 70% of the last ten years cropping have provided theoretically highly suitable winter cereal crops. These winters have coincided with some of the baseline sample in winters 2013/14, 2014/15 and 2016/17. 75% (three out of four winters) of the sample therefore includes conditions when very suitable foraging conditions were potentially present for geese, compared with 70% of the ten years of cropping information examined. Only in winter 2017/18 of the baseline sample (i.e. 25% of the sample) were conditions less suitable for geese (but appeared to be highly attractive to golden plover and lapwing), when half of the site was winter beans and half was uncropped until the spring. This compares with 20% of the ten years between 2009/10 and 2018/19. The baseline sample is therefore considered to have provided a representative sample of suitability of cropping for brent geese, as well as for golden plover and lapwing.

9.6.1 Bird-days

111. Seasonal bird-days for the arable part of the CSA were calculated by multiplying the peak-mean number of foraging birds by the number of days in the season (brent goose: 120 days; golden plover and lapwing: 182 days). This provides a measure of the utilisation of

the arable area of the Development site and a basis on which to establish an appropriate area within the site to manage for the benefit of birds that will be prevented from using other parts of the site that will be under the solar panels (Table A9.24).

Table A9.24: Brent goose, golden plover and lapwing bird-days (based on peak-mean count metric) within the arable CSA based

Metric	Brent Goose (Nov-Feb)	Lapwing (Oct-Mar)	Golden Plover (Oct-Mar)
Mean of seasonal monthly peak-means	101,940	56,023	28,802

112. In order to illustrate the variability between seasons, Figures A9.7, A9.15 and A9.16 display the seasonal distribution and relative abundance of the three species within the survey area. The metrics used in the figures are based on the mean number of bird-days per season in each count sector.

9.6.2 Mitigation Area

113. It has been agreed with Natural England in principle that loss of arable functionally linked habitat can be mitigated by the provision of an undeveloped area of permanent grassland. This is the provision of the AR HMA within the Development site that has specific management tailored towards enhancing foraging resources for these species – a 'waterbird refuge'. Further details of the location, management and monitoring of the refuge are set out in the Outline LBMP (Technical Appendix A5.2 of the ES).
114. Brent geese prefer to feed on intertidal algae and *Zostera* (Eel Grass) where it is available. However, following a rapid increase in their population and lack of traditional feeding areas, they have expanded their range of feeding sites in recent decades to include agricultural fields inland with a short sward height (e.g. Summers 1990; Rowcliffe & Mitchell 1996, Hassall *et al.* 2001)^{13,14,15}, where they feed on the vegetation. Golden plover and lapwing generally exhibit preference for feeding in grassland with a short sward height, but also use open arable habitats such as open ploughed land and young winter cereals, preferring large open fields providing good visibility for predators (e.g. Mason and Macdonald 1999; Gillings *et al.* 2007)^{16,17}. Lapwing and golden plover feed on surface and soil invertebrates, therefore there is no direct competition between these species and brent goose for foraging resources; the AR HMA is therefore designed in a way that the species can be co-located within the same area (i.e. the mitigation area needed for lapwing, golden plover and brent geese is not additional).

9.6.2.1 Brent Goose

115. In order to mitigate for the loss of foraging resources to brent geese, the waterbird refuge will need to provide for 101,940 brent goose bird-days of feeding potential. This resource for brent goose could be provided through some of the following management options:

¹³ Summers, R.W. (1990). The effect of grazing on winter wheat by brent geese *Branta. B. bernicla*. *Journal of Applied Ecology* **29**: 35-40.

¹⁴ Rowcliffe, J.M. and Mitchell, C. (1996). *The Conservation Management of Brent Geese in the UK*. WWT, Slimbridge.

¹⁵ Hassall, M., Riddington, R. and Helden, A. (2001). Foraging behaviour of brent geese, *Branta b. bernicla*, on grasslands: effects of sward length and nitrogen content. *Oecologia* **127**: 97-104.

¹⁶ Mason, C.F. and Macdonald, S.M. (1999). Habitat use by Lapwings and Golden Plover in a largely arable landscape. *Bird Study* **46**: No. 1: 89-99.

¹⁷ Gillings, S., Fuller, R.J. and Sutherland, W. (2007). Winter field use and habitat selection by Eurasian Golden Plovers *Pluvialis apricaria* and Northern Lapwings *Vanellus vanellus* on arable farmland. *Ibis* **149**: 509-520.

- Re-seeding grassland areas (e.g. Percival 1993)¹⁸;
 - Grassland cut to produce an optimal short sward of c. 5-7 cm (Hassall *et al.* 2001)¹⁹;
 - Grassland of higher sward height with an increased nitrogen content (Percival 1993; Hassall *et al.* 2001)^{18,19};
 - Sacrificial crops e.g. wheat (McKay *et al.* 1993)²⁰; or
 - Removal of bird scaring (Bos and Stahl 2003)²¹.
116. The optimal management for the refuge is considered to be the conversion of arable land to permanent pasture (grassland). The proposal and rationale for this is set out below and it also fits with the mitigation requirements outlined for golden plover and lapwing.
117. The *Solent Waders and Brent Goose Strategy* website²² cites an example of a successful refuge:
- "In 2009, Portsmouth College developed an area of their playing fields. The grassland area was used by Brent geese and therefore mitigating for the loss of feeding areas was made a condition of their planning permission. The mitigation involved creating a Brent goose "refuge" an area of fenced-off grassland close to the area being lost. The refuge area was a success and post-mitigation monitoring has shown that geese continue to use the site."*
118. The AR HMA is, in essence, a high quality managed refuge area mitigating for the loss of a larger lower quality area and, as such, should be as close as is possible to being disturbance free. There is a public footpath running along the sea wall at the northern perimeter of the site. However, the refuge will not be located further inland away from the footpath – the attraction of the proximity of the refuge to the estuary frontage outweighs the possibility of potential disturbance caused by users of the sea wall footpath; furthermore, the sea wall is separated from the Development site by a strip of grazing marsh approximately 50-70 m wide and there may be a high degree of habituation already in practice. Round (1982)²³, for example, studied the inland feeding habits of brent geese in Sussex and found that 70% of birds fed within 200 m of the coast through the winter, 68% of these being on grass.
119. The landowner does not currently employ any deliberate scaring activities to protect crop damage by birds, although this practice has been carried out in the past (e.g. 2008/09 – 2011/12). There would be a commitment to maintain an undisturbed (no scaring) area around the refuge in order to maximise its potential to provide resources for brent geese. This form of management has been proven to increase carrying capacity of land for brent geese; for example, Bos and Stahl (2003)²¹ reported a doubling of numbers of spring staging geese on the island in The Netherlands (Schiemonnikoog: Dutch Wadden Sea islands) in the years without scaring.
120. As well as being disturbance-free, it is essential that the refuge is an area known to be capable of supporting geese (as well as golden plover and lapwing). To take this into account in designing the refuge area, the distribution of geese in fields in the CSA were examined (Section 9.8, Figures A9.7, A9.15 and A9.16). Nearly 55% of the brent geese

¹⁸ Percival, S.M. (1993). The effects of reseedling, fertilizer application and disturbance on the use of grasslands by barnacle geese, and the implications for refuge management. *Journal of Applied Ecology* **30**: 437-433.

¹⁹ Hassall, M., Riddington, R. and Helden, A. (2001). Foraging behaviour of brent geese, *Branta b. bernicla*, on grasslands: effects of sward length and nitrogen content. *Oecologia* **127**: 97-104.

²⁰ McKay, H.V., Bishop, J.D. and Ennis, D.C. (1993). The possible importance of nutritional requirements for dark-bellied brent geese in the seasonal shift from winter cereals to pasture. *Ardea* **82**: 123-132.

²¹ Bos, D. and Stahl, J. (2003) Creating new foraging opportunities for Dark-bellied Brent *Branta bernicla* and Barnacle Geese *B. leucopsis* in spring – insights from a large-scale experiment. *Ardea* **91** (2): 153-166.

²² <https://solentwbgs.wordpress.com/> accessed 20/05/2017.

²³ Round, P. (1982). Inland feeding by brent geese *Branta bernicla* in Sussex, England. *Biological Conservation* **23**: 15-32.

- counted throughout the surveys were in the fields that will make up the 56 ha AR HMA, demonstrating that its location is highly appropriate.
121. Vickery *et al.* (1994)²⁴ conducted surveys of brent goose in a 20 ha grassland field in Norfolk in order to provide information for proposed Alternative Foraging Areas for the species. This study involved managing different areas with different management regimes (e.g. application of fertilizer, cutting patterns, grazed (cow/sheep), ungrazed etc.) and found that farmland can be managed in a number of ways and can sustain a large number of birds. Vickery *et al.* reported that grassland cut five times and fertilized was grazed at an intensity of 2,097 bird-days per ha, compared with 1,562 bird-days per ha on grass cut twice and left unfertilized.
122. There is other evidence that a managed grassland refuge would be able to support such densities of geese throughout the winter. Round (1982)²³ found that grassland habitat around Chichester Harbour in Sussex supported 1,908 goose-days per ha of heavy grazing. The grassland around Chichester Harbour was just the subject of the study, not habitat specifically managed to be beneficial for brent geese; it is likely therefore that grassland managed correctly as a refuge for geese could support more bird-days through the winter. Owen (1977)²⁵ reported a carrying capacity of 2,250 goose-days per ha of grassland and suggested that the grass within refuge areas should be mown or heavily grazed by farm stock in summer, though not in late autumn, winter or early spring, when there would be competition with geese for food.
123. Owen (1977)²⁵ suggested that applications of nitrogenous fertiliser would tend to increase the attractiveness of grass to geese, whilst Bachman (2008)²⁶ stated that fertilized plots support 200 more goose-days per ha than unfertilized plots and that grassland with fertiliser has the potential to attract and sustain more geese per ha if fertilized. The application of organic matter will be required to provide the best growth and suitable foraging conditions for brent geese. If organic matter, such as farmyard manure, is applied, this will also have benefit to golden plover and lapwing, as invertebrate populations in the AR HMA will be improved.
124. There is increasing evidence that clovers (*Trifolium* sp.) may be an effective way to attract geese to a site (Owens 1976; McKay *et al.* 1996; McKay *et al.* 2001)^{27,28,29}. Clovers are generally high in protein and are nitrogen-fixing plants which can enhance fertility of soil and increase the quality of pasture (Marriott 1988)³⁰. McKay *et al.* (2001)²⁹ found an overwhelming goose grazing response to clover during the first year after re-seeding of a field – with more protein, higher live matter and less fibre than several species of freshly planted grass. It is therefore considered that with the addition of clover into the grassland mix, the carrying capacity in the early life of the refuge can be increased; this may also benefit golden plover and lapwing through provision of appropriate habitat for their invertebrate prey.

²⁴ Vickery, J.A., Sutherland, W.J. and Lane, S.J. (1994). The management of grass pastures for brent geese. *Journal of Applied Ecology* **31**: 282-290.

²⁵ Owen, M. (1977). The role of wildfowl refuges on agricultural land in lessening the conflict between farmers and geese in Britain. *Biological Conservation*, **11**: 209-222.

²⁶ Bachman, D.C. (2008). *Managing grassland pastures at Humboldt Bay National Wildlife Refuge for Aleutian Geese*. Masters of Science In Natural Resources: Wildlife. A Thesis presented to Humboldt State University.

²⁷ Owens, M. (1976). The selection of winter food by white-fronted geese. *Journal of Applied Ecology* **13**: 715-729.

²⁸ McKay, H.V., Langton, S.D., Milsom, T.P. and Feare, C.J. (1996). Prediction of field use by brent geese to aid crop management. *Crop Protection* **15**: 259-268.

²⁹ McKay H.V., Milsom T.P. and Feare C.J. (2001). Selection of forage species and the creation of alternative feeding areas for dark-bellied brent geese *Branta bernicla bernicla* in southern UK coastal areas. *Agriculture Ecosystems & Environment* **84**: 99-113.

³⁰ Marriott, C.A. (1988). Seasonal variation in white clover content and nitrogen fixing (acetylene reducing) activity in a cut upland sward. *Grass and Forage Science* **43**: 253-262.

125. The current management of the site as arable crops typically renders the majority of the area unsuitable for foraging geese by late February, as the crop sward becomes too high. Winter 2015/16 was very mild and the surveyors noted that the height of the crop sward had already become unsuitable for plovers and geese by late December; hence the site supported comparably few geese during that winter. In winter 2017/18, the arable CSA comprised winter beans and fallow, which were barely used by brent geese at any time in that winter. The managed grassland in the refuge will be capable of sustaining geese for a longer period throughout the winter, until birds depart on northward migration. The refuge should therefore be beneficial in providing permanent resources for longer in the winter season and potentially helping geese to maintain better fitness for migration and productivity.
126. The evidence set out above demonstrates that improved grassland, even during early establishment, is capable of supporting high numbers of brent geese throughout the winter. On the basis of the synopsis above, the AR HMA will support 2,097 foraging brent-geese days per hectare. 101,940 bird-days will therefore require 48.6 ha of functionally available land within the AR HMA.
127. The total area of the AR HMA is approximately 56 ha. However, it is possible that brent geese will not forage close to the solar panels. A review of the literature available regarding goose avoidance of boundary features suggests that there would be lower density of foraging birds within 50 m of constructed boundary features (e.g. Larsen and Madsen, 2000; Harrison *et al.* 2017)^{31,32}. Assuming on a precautionary basis a reduction in density within 50 m of site infrastructure such as the solar PV arrays and the flood protection bund, approximately 50.1 ha of grassland remains functionally available for geese, which exceeds the requirements as set out above.

9.6.2.2 Golden Plover and Lapwing

128. In order to mitigate fully for the loss of foraging resources to lapwing and golden plover, the AR HMA needs to provide for 56,023 lapwing bird-days and 28,802 golden plover bird-days of feeding potential.
129. Gillings *et al.* (2007)¹⁷ reported golden plover densities of 1,560 bird-days per ha and 1,000 lapwing bird-days per ha from mixed arable farmland. However, golden plover and lapwing can be found on a variety of grassland types, including pastures and airfields (Gillings and Fuller 1999)^{Error! Bookmark not defined.}. Most studies of habitat use report a strong preference for feeding on grassland, particularly permanent pastures (e.g. Milsom *et al.* 1985, Fuller 1988 and Tucker 1992)^{33,34,35}. Gillings and Fuller (1999)³⁶^{Error! Bookmark not defined.} state that the abundance and availability of potential prey items present in different habitats is likely to be an important factor shaping the distribution of plovers between fields. Golden plover and lapwing both consume invertebrates found in field vegetation and just below the soil surface (e.g. earthworms, beetles etc.). Prey availability is probably higher in vegetated fields than bare till because the vegetation insulates the soil surface and creates a suitable microclimate for soil invertebrates which

³¹ Larsen, J.K. & Madsen, J. (2000). Effects of wind turbines and other physical elements on field utilization by pink-footed geese (*Anser brachyrhynchus*): A landscape perspective. *Landscape Ecol.* 15: 755–764

³² Harrison, A.L., Petkov, Mitev, D., Popgeorgiev, G., Gove, B. & Hilton, G.M. (2018). Scale-dependent habitat selection by wintering geese: implications for landscape management. *Biodiversity and Conservation* 27:1, 167-188.

³³ Milsom, T.P., Holditch, R.S. and Rochard, J.B.A. (1985). Diurnal use of an airfield and adjacent agricultural habitats by Lapwings *Vanellus vanellus*. *Journal of Applied Ecology* 22: 313-326.

³⁴ Fuller, R.J. (1988). Wintering golden plovers in central Buckinghamshire: annual variation in numbers and distribution. *Buckinghamshire Bird Report 1988*: 4-8.

³⁵ Tucker, G. M. (1992). Effects of agricultural practices on field use by invertebrate-feeding birds in winter. *Journal of Applied Ecology* 29:779-790.

³⁶ Gillings, S. and Fuller, R.J. (1999). *Winter Ecology of Golden Plovers and Lapwings: A Review and Consideration of Extensive Survey Methods*. BTO Research Report No. 224. BTO, Thetford.

- would otherwise be buried deeper below ground (Parr 1992)³⁷, especially during the winter months. Soil protected by a dense layer of insulating vegetation may remain unfrozen during periods of ground frost and thus render soil invertebrates relatively more surface-active and relatively more available to plovers foraging on grassland than those foraging on cultivated land. Barnard and Thompson (1985)³⁸ state that earthworms are a common dietary component for golden plover and lapwing and for whose abundance can be estimated. Permanent pastures are richest in earthworms, with less in winter cereals and the least in root crops. In grassland, worm biomass increases as a function of the time since last ploughing, hence permanent pastures attain a higher biomass of earthworms than temporary grasslands. Plover distribution is positively correlated both with the biomass of earthworms and with field age (Gillings and Fuller 1999)^{Error! Bookmark not defined.}. Furthermore, both species have higher net rates of energy intake in old compared with recent pasture (Barnard and Thompson 1985)³⁸. Tucker (1992)³⁵ reports that grassland feeding habitat has the potential to support a food biomass density about three-fold greater than arable, however this biomass level takes several years to be realised.
130. In the Lower Derwent Valley, North Yorkshire, lapwings generally preferred short swards and avoided swards more than 10 cm tall (Gregory 1987)³⁹. Milsom *et al.* (1998)⁴⁰ also demonstrated that both golden plovers and lapwings preferred to feed in fields that had been mown twice, rather than fields that had been mown only once, and unmown fields were virtually avoided. The optimum sward height appeared to be around 7 cm. However, heavy grazing can decrease the diversity and abundance of spiders, surface-active beetles and productivity of emergent flies (Keiller *et al.* 1995)⁴¹. Conversely, grazing may benefit foraging plovers through 'dunging'. Not only does dung harbour its own invertebrate fauna but soil productivity may be increased as grazing animals convert unavailable nutrients into simpler nutrients which soil invertebrates can readily assimilate (Keiller *et al.* 1995)⁴¹.
131. Based on the above evidence, it is considered reasonable to assume that an increased carrying capacity compared to the existing arable crop rotation can be reached by the introduction of permanent grassland under the correct management (e.g. application of organic matter, cutting regime etc.) when compared with arable farmland. Parr (1992)³⁷ suggests there is a greater prey availability in grassland; Tucker (1992)³⁵ suggests there is a three times greater biomass in grassland areas. However, for the purposes of this assessment and under the advice through consultation with Natural England, the precautionary assumption is applied, which is that the grassland would only have similar capacity to that of mixed arable farmland as recorded by Gillings *et al.* (2007)³⁵: 1,000 lapwing bird-days/ha and 1,560 golden plover bird-days/ha. These are the capacity values for both lapwing and golden plover within fields used in Gillings' study area and represent simultaneous use, rather than separate, additional usage (i.e., the AR HMA will have capacity for 2,560 lapwing+plover-days/ha over the winter). The four seasons of surveying at the Development site demonstrated that there was a great deal of evidence during the surveys of golden plover and lapwing utilising the same fields in the same season (Section 9.8).

³⁷ Parr, R. (1992). The decline to extinction of a population of Golden Plover in north-east Scotland. *Ornis Scandinavica* 23: 152-158.

³⁸ Barnard, C.J. and Thompson, D.B.A. (1985). *Gulls and plovers: the ecology and behaviour of mixed species feeding groups*. Croom Helm Ltd, London.

³⁹ Gregory, R.D. (1987). Comparative winter feeding ecology of Lapwings *Vanellus vanellus* and Golden Plovers *Pluvialis apricaria* on cereals and grassland in the Lower Derwent Valley. *Bird Study* 34: 244-250.

⁴⁰ Milsom, T.P., Ennis, D.C., Haskell, D.J., Langton, S.D. and McKay, H.V. (1998). Design of grassland feeding areas for waders during winter: the relative importance of sward, landscape factors and human disturbance. *Biological Conservation* 84: 119-129.

⁴¹ Keiller, S.W., Buse, A. and Cherrett, J.M. (1995). *Effects of sheep grazing on upland arthropods in Snowdonia and mid-Wales*, 6. ITE, Bangor.

132. 56,023 lapwing bird-days will therefore require 56.0 ha and 28,802 golden plover bird-days will require 18.5 ha of functionally available land within the AR HMA. These areas are not additional to each other.
133. Taking account of the same boundary restrictions described in paragraph 127 above, approximately 50.1 ha of grassland remains functionally available for lapwing and golden plover. This theoretically falls short of the requirement for lapwing, but well exceeds the requirement from golden plover. Lapwing and golden plover overlap to a large extent in their foraging requirements, feeding on similar invertebrate prey, and therefore assuming they are interchangeable, the AR HMA would support more lapwing-days if there are fewer golden plover-days to support. As there are more than 6 ha spare capacity in the AR HMA for golden plovers, these could be utilised by lapwing and the AR HMA will provide sufficient resources to accommodate the average Development site use based on the baseline survey counts.
134. The mitigation area proposed for golden plover and lapwing can be co-located in the same area and under the same management as that for brent goose. Plovers/lapwing and geese feed on different items, therefore there is not competition for resources between them. Based on the four seasons of baseline surveys, there was almost no coincidence between geese and lapwing/plovers in the same fields at the same time, although the same fields were utilised at different times. The AR HMA area for golden plover and lapwing will consequently be the same extent as for brent goose, at approximately 56 ha.

9.7 Flight Activity Survey

135. Flight Activity Survey (FAS) is usually carried out in relation to wind energy or other developments where collision risk to birds may be an issue if birds fly in the air space to be occupied by development structures. The purpose of the survey in this case was to quantify the use of the site by birds such as marsh harrier, which fly over the ground when hunting for ground-dwelling birds and other animals.
136. The FAS was carried out by Arcus between November 2015 and October 2016.

9.7.1 Method

137. The FAS was undertaken using an adapted version of the methodology described by Scottish National Heritage (2014)⁴² for onshore wind farms.
138. The aim of the surveys was to provide detailed data on the flight activity of key target species within the site. The FAS Area was defined as the CSA and any visible area up to 500 m around it (Figure A9.29). Two Vantage Point (VP) locations were selected to provide excellent visual coverage of the FAS Area (Table A9.25; Figure A9.29). The height of flights was recorded using three flight height bands, which provided an indication of how birds were using the survey area; e.g. hunting/foraging low over the ground (0-10 m), moving to/from locations on the site (often changing height bands to/from ground level) or transiting over (typically 10-50 m or > 50m and not changing in height).

Table A9.25: VP locations

VP	OS Grid Coordinates
1	TR 03461 63282
2	TR 04524 63951

⁴² Scottish Natural Heritage (SNH) (2014) Recommended bird survey methods to inform impact assessment of onshore wind farms. SNH. May 2014.

139. The primary focus of the surveys was marsh harrier although flight details were recorded for all target species, which included; all swans, all geese, all ducks, all herons, all raptors and owls listed on Annex 1 or Schedule 1, all waders, Mediterranean gull, all terns, and raven. Secondary species included cormorant, all other raptors and owls and selected gulls and passerines in noteworthy numbers.
140. A total of 89 hours of observation were made from each VP between November 2015 and October 2016 inclusive. A breakdown of monthly survey hours from each VP is shown in Table A9.26, with full details of each survey in Table A9.27.
141. Surveys were carried out at various times of day, at various stages of the tidal cycle and were undertaken in a variety of weather conditions, mostly during conditions of at least moderate visibility (1-2 km). Where surveys were undertaken in poor conditions, additional surveys were completed at a later date. Watches usually comprised sessions either two or three hours long, separated by a break of at least 20 minutes in order to avoid observer fatigue.
142. For each target species flight the following details were recorded:
- Unique ID number;
 - Species, age and sex (when identification of age and/or sex was possible);
 - Number of birds;
 - Time;
 - Duration of flight within the FAS Area;
 - Flying height in three defined height bands (0-10 m, 10-50 m and >50 m), per 15 second interval of the recorded flight duration;
 - Bird behaviour (foraging, transiting, display, carrying food/nest material); and
 - Reason for end of the flight (either the bird landed or flew out of sight)
143. All target species flight lines were digitised in a GIS and each flight line was cross-referenced to its unique ID number to permit analysis of species and seasonal patterns of activity.

Table A9.26: Monthly FAS breakdown (hours surveyed per VP per month)

VP	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Total
1	6	12	12	8	1	6	13	7	6	6	6	6	89
2	6	12	12	6	3	6	13	7	6	6	6	6	89

Table A9.27: FAS details

Date	VP	Observer	Start of Hour	End of Hour	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Vis	Frost	Snow
24-Nov-15	VP1	SH	13:00	14:00	3 (4)	W/WNW	4	8	1	2	0	0
24-Nov-15	VP1	SH	14:00	15:00	3 (2)	WNW	0	8	1	2	0	0
24-Nov-15	VP1	SH	15:00	16:00	3 (2)	WNW	0	8	1	2	0	0
24-Nov-15	VP2	MS	13:00	14:00	3 (4)	WNW/W	4	8	1	2	0	0
24-Nov-15	VP2	MS	14:00	15:00	3 (2)	WNW/W	0	8	1	2	0	0
24-Nov-15	VP2	MS	15:00	16:00	3 (2)	WNW	0	8	1	2	0	0
25-Nov-15	VP1	SH	08:00	09:00	2-3 (4)	NW	0	6	2	2	0	0

Date	VP	Observer	Start of Hour	End of Hour	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Vis	Frost	Snow
25-Nov-15	VP1	SH	09:00	10:00	3 (5)	NW	0	6-7	1	2	0	0
25-Nov-15	VP1	SH	10:00	11:00	4 (5)	NW	0	6	1	2	0	0
25-Nov-15	VP2	MS	08:00	09:00	3	NW	0	7	1	2	0	0
25-Nov-15	VP2	MS	09:00	10:00	3-4	NW	0	7	1	2	0	0
25-Nov-15	VP2	MS	10:00	11:00	3-4	NW	0	8	1	2	0	0
15-Dec-15	VP1	SH	13:00	14:00	2 (3)	SW/SSW	1-0	8	1	2	0	0
15-Dec-15	VP1	SH	14:00	15:00	2-3 (4)	SW	0	8	1	2	0	0
15-Dec-15	VP1	SH	15:00	16:00	2-3 (4)	SW	0	8	1	2	0	0
15-Dec-15	VP2	MS	13:00	14:00	3-4	SSE	2	8	2	2	0	0
15-Dec-15	VP2	MS	14:00	15:00	3	SSE	0	2	2	2	0	0
15-Dec-15	VP2	MS	15:00	16:00	3-4	SSW	0	8	2	2	0	0
16-Dec-15	VP1	SH	08:00	09:00	3 (4)	W	0	1-4	1	2	0	0
16-Dec-15	VP1	SH	09:00	10:00	3 (4)	W	0	4-7	1	2	0	0
16-Dec-15	VP1	SH	10:00	11:00	3 (4)	W	0	7-8	1	2	0	0
16-Dec-15	VP2	MS	08:00	09:00	4	SW	0	6	2	2	0	0
16-Dec-15	VP2	MS	09:00	10:00	3-4	SW	0	5	2	2	0	0
16-Dec-15	VP2	MS	10:00	11:00	3-4	SW	0	7	1	2	0	0
22-Dec-15	VP1	SH	13:00	14:00	5-6 (7)	WSW	0-5	8	1	2-1	0	0
22-Dec-15	VP1	SH	14:00	15:00	5-6 (7)	SW	5-0	8	1	2-1	0	0
22-Dec-15	VP1	SH	15:00	16:00	5-6 (7)	SW	2	8-7	1	2	0	0
22-Dec-15	VP2	MS	12:50	13:50	6-7	WSW	2	8	0	2	0	0
22-Dec-15	VP2	MS	13:50	14:50	6-7	WSW	4	8	0	1	0	0
22-Dec-15	VP2	MS	14:50	15:50	4-6	WSW	0	7	0-1	2	0	0
23-Dec-15	VP1	SH	08:00	09:00	2 (3)	SW	0	0	-	2	0	0
23-Dec-15	VP1	SH	09:00	10:00	2-3	SW	0	0	-	2	0	0
23-Dec-15	VP1	SH	10:00	11:00	2-3	SW	0	0	-	2	0	0
23-Dec-15	VP2	MS	08:00	09:00	2-3	SW	0	1	2	2	0	0
23-Dec-15	VP2	MS	09:00	10:00	3	SW	0	0	-	2	0	0
23-Dec-15	VP2	MS	10:00	11:00	3	SW	0	0	-	2	0	0
06-Jan-16	VP1	SH	14:30	15:30	1-2	N	0	8	0-1	2	0	0
06-Jan-16	VP1	SH	15:30	16:30	0-1	N	0	8	0-1	2	0	0
06-Jan-16	VP2	MS	14:30	15:30	1	NW	0	8	0	2	0	0
06-Jan-16	VP2	MS	15:30	16:30	0-1	NW	0	8	0	2	0	0
07-Jan-16	VP1	SH	07:40	08:40	4-5 (6)	SW	5	1	1	2	0	0
07-Jan-16	VP1	SH	08:40	09:40	4-2	SW/SSW	3	8-7	1	2	0	0
07-Jan-16	VP1	SH	10:00	11:00	2-5	WSW	3	7-8	1	2	0	0
07-Jan-16	VP1	SH	11:00	12:00	3-5	WSW/W	3	7-8	1	2	0	0

Date	VP	Observer	Start of Hour	End of Hour	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Vis	Frost	Snow
07-Jan-16	VP2	MS	07:40	08:40	6-7	S	5	8	0	1	0	0
07-Jan-16	VP2	MS	08:40	09:40	5-6	S	4-5	8	0	2	0	0
07-Jan-16	VP2	MS	10:00	11:00	5-6	SW	5	8	0	1	0	0
07-Jan-16	VP2	MS	11:00	12:00	4-5	W	0	8	0	2	0	0
20-Jan-16	VP1	SH	12:40	13:40	0	-	0	8	1	2	0	0
20-Jan-16	VP1	SH	13:40	14:40	0-1	W	0	8	1	2	0	0
20-Jan-16	VP1	SH	14:40	15:40	0-1	W	0	8	1	2	0	0
20-Jan-16	VP2	MS	12:40	13:40	1	SW	0	8	2	2	1	0
20-Jan-16	VP2	MS	13:40	14:40	0-1	SW-W	0	8	2	2	1	0
20-Jan-16	VP2	MS	14:40	15:40	0-1	SW-W	0	8	2	2	1	0
21-Jan-16	VP1	SH	07:30	08:30	0	-	0	6-7	1	2	1	0
21-Jan-16	VP1	SH	08:30	09:30	0-2	SSW	0	8	1	2	1	0
21-Jan-16	VP1	SH	09:30	10:30	2-3	SW/SSW	0	7	1	2	0	0
21-Jan-16	VP2	MS	07:30	08:30	1	SE	0	7	2	2	1	0
21-Jan-16	VP2	MS	08:30	09:30	1-2	SE	0	6	2	2	0	0
02-Feb-16	VP1	SH	14:30	15:30	5-7 (8)	WNW	0	2-3	1	2	0	0
02-Feb-16	VP1	SH	15:30	16:30	5-7	WNW	0	1-2	1	2	0	0
02-Feb-16	VP2	MS	14:35	15:35	6-7	W	0	1	1	2	0	0
02-Feb-16	VP2	MS	15:35	16:35	5-6	W	0	1	1	2	0	0
03-Feb-16	VP1	SH	13:15	14:15	4-5 (6)	NW	0	8	1	2	0	0
03-Feb-16	VP1	SH	14:15	15:15	3-4 (5)	NW	0	3	1	2	0	0
03-Feb-16	VP2	MS	13:15	14:15	3-4	NW	0	8	1	2	0	0
03-Feb-16	VP2	MS	14:15	15:15	3-4	NW	0	4	1	2	0	0
04-Feb-16	VP1	SH	10:00	11:00	3-4 (5)	W	0	7-8	1	2	0	0
04-Feb-16	VP1	SH	11:00	12:00	3-4 (5)	W	0-2	8	1	2	0	0
04-Feb-16	VP2	MS	10:00	11:00	4	W	4	8	1	2	0	0
04-Feb-16	VP2	MS	11:00	12:00	3-4	W	0	7-8	1	2	0	0
16-Feb-16	VP1	SH	12:40	13:40	3-4 (5)	SW	4-0	8	1	2	0	0
16-Feb-16	VP1	SH	13:40	14:40	3-4 (5)	WSW	0	8	1	2	0	0
01-Mar-16	VP2	MS	12:40	13:40	2-3	SW	5	8	0	1	0	0
01-Mar-16	VP2	MS	13:40	14:40	3	SW	0	8	0	2	0	0
02-Mar-16	VP1	SH	08:00	09:00	3-4 (5)	W	0	1-7	1-2	2	0	0
02-Mar-16	VP2	MS	08:00	09:00	3-4	SW	0	0-7	0	2	0	0
19-Apr-16	VP1	SH	14:00	15:00	2-3	E	0	1	2	2	0	0
19-Apr-16	VP1	SH	15:00	16:00	2-4	E/ESE	0	1	2	2	0	0
19-Apr-16	VP1	SH	16:20	17:20	2-3 (4)	E	0	0	-	2	0	0
19-Apr-16	VP1	SH	17:20	18:20	2-3 (4)	E	0	0	-	2	0	0

Date	VP	Observer	Start of Hour	End of Hour	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Vis	Frost	Snow
19-Apr-16	VP1	SH	18:40	19:40	2-3	E	0	0	-	2	0	0
19-Apr-16	VP1	SH	19:40	20:40	2 (1)	E	0	1-2	1	2	0	0
19-Apr-16	VP2	MS	14:00	15:00	3-4	NE	0	1	1	2	0	0
19-Apr-16	VP2	MS	15:00	16:00	3	ENE	0	0-1	1	2	0	0
19-Apr-16	VP2	MS	16:20	17:20	3	ENE	0	0	-	2	0	0
19-Apr-16	VP2	MS	17:20	18:20	3	ENE	0	0	-	2	0	0
19-Apr-16	VP2	MS	18:40	19:40	3	ENE	0	0	-	2	0	0
19-Apr-16	VP2	MS	19:40	20:40	3-2	E	0	1	1	2	0	0
11-May-16	VP1	MS	04:30	05:30	0-1	SE	0	8	0	1	0	0
11-May-16	VP1	MS	05:30	06:30	0-1	SE	0	8	0	1	0	0
11-May-16	VP1	MS	06:50	07:50	1	SE	0	8	0	0	0	0
11-May-16	VP1	MS	07:50	08:50	1	SE	4	8	0	0	0	0
11-May-16	VP1	MS	09:10	10:10	1	E	4	8	0	0-1	0	0
11-May-16	VP1	MS	10:10	11:10	0-2	E-SE	0	8	0	1	0	0
11-May-16	VP2	SH	04:30	05:30	0 (1)	NE	0-1	8	0	0	0	0
11-May-16	VP2	SH	05:30	06:30	0-2	NE	1	8	0	0	0	0
11-May-16	VP2	SH	06:50	07:50	1-2	NE	1	8	0	1	0	0
11-May-16	VP2	SH	07:50	08:50	1-2 (3)	NE	2-1	8	0	1-0	0	0
11-May-16	VP2	SH	09:10	10:10	1-2 (3)	NE	2-3	8	0	0-1	0	0
11-May-16	VP2	SH	10:10	11:10	1-2 (3)	NE	4-5	8	0-1	1	0	0
26-May-16	VP1	SH	13:30	14:30	4 (5)	ENE/E	0	2	2	2	0	0
26-May-16	VP1	SH	14:30	15:30	4 (5)	E	0	2-1	2	2	0	0
26-May-16	VP1	SH	15:30	16:30	4 (5)	E	0	0	-	2	0	0
26-May-16	VP1	SH	16:50	17:50	4-5 (6)	E	0	0-1	2	2	0	0
26-May-16	VP1	SH	17:50	18:50	3 (2)	E	0	0	-	2	0	0
26-May-16	VP1	SH	19:10	20:10	1 (2)	E	0	0	-	2	0	0
26-May-16	VP1	SH	20:10	21:10	1 (2)	E	0	0-2	2	2	0	0
26-May-16	VP2	MS	13:30	14:30	3	NE	0	1-2	1	2	0	0
26-May-16	VP2	MS	14:30	15:30	3	ENE	0	2	1	2	0	0
26-May-16	VP2	MS	15:30	16:30	3	ENE	0	2	1	2	0	0
26-May-16	VP2	MS	16:50	17:50	3	ENE	0	1	1	2	0	0
26-May-16	VP2	MS	17:50	18:50	2-3	ENE	0	0	-	2	0	0
26-May-16	VP2	MS	19:10	20:10	2-3	ENE	0	0	-	2	0	0
26-May-16	VP2	MS	20:10	21:10	2	ENE	0	3	1	2	0	0
08-Jun-16	VP1	MS	04:30	05:30	0	-	4	8	1	2	0	0
08-Jun-16	VP1	MS	05:30	06:30	0	-	0	8	1	2	0	0
08-Jun-16	VP1	MS	06:50	07:50	0	-	0	8	1	2	0	0

Date	VP	Observer	Start of Hour	End of Hour	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Vis	Frost	Snow
08-Jun-16	VP1	MS	07:50	08:50	1	W	0	4	1	2	0	0
08-Jun-16	VP1	MS	09:10	10:10	2	NE	0	1	2	2	0	0
08-Jun-16	VP1	MS	10:10	11:10	2	NE	0	0	-	2	0	0
08-Jun-16	VP1	MS	11:10	12:10	2	NW-NE	0	0	-	2	0	0
08-Jun-16	VP2	SH	04:30	05:30	0-1	NW	2+3	8	1+2	2	0	0
08-Jun-16	VP2	SH	05:30	06:30	0-1	NW	2	8	1+2	2	0	0
08-Jun-16	VP2	SH	06:50	07:50	0-1	N	0	8-6	1+2	2	0	0
08-Jun-16	VP2	SH	07:50	08:50	0-1	N	0	4	1+2	2	0	0
08-Jun-16	VP2	SH	09:10	10:10	1-2	NNE	0	2	1+2	2	0	0
08-Jun-16	VP2	SH	10:10	11:10	2 (3)	NNE/NE	0	1	2	2	0	0
08-Jun-16	VP2	SH	11:10	12:10	2 (3)	NE	0	1	1+2	2	0	0
20-Jul-16	VP1	SH	15:00	16:00	3 (4)	SSW	0	0	-	2	0	0
20-Jul-16	VP1	SH	16:00	17:00	3 (4)	SW	0	1	1+2	2	0	0
20-Jul-16	VP1	SH	17:20	18:20	3 (4)	SW	0	2	1+2	2	0	0
20-Jul-16	VP1	SH	18:20	19:20	3 (2)	SW	0	2	1+2	2	0	0
20-Jul-16	VP1	SH	19:40	20:40	3 (2)	SW	0	2	1+2	2	0	0
20-Jul-16	VP1	SH	20:40	21:40	3 (2)	SW	0	2	1+2	2	0	0
20-Jul-16	VP2	MS	15:00	16:00	2	SW	0	0	-	2	0	0
20-Jul-16	VP2	MS	16:00	17:00	2-3	SW	0	0	-	2	0	0
20-Jul-16	VP2	MS	17:20	18:20	2-3	SW	0	0	-	2	0	0
20-Jul-16	VP2	MS	18:20	19:20	2-3	SW	0	0	-	2	0	0
20-Jul-16	VP2	MS	19:40	20:40	2-3	SW	0	0	-	2	0	0
20-Jul-16	VP2	MS	20:40	21:40	2	SW	0	0	-	2	0	0
10-Aug-16	VP2	SH	05:00	06:00	3 (4)	NW	0	4	2	2	0	0
10-Aug-16	VP2	SH	06:00	07:00	2-3 (4)	NW	0	4	1	2	0	0
10-Aug-16	VP2	SH	07:20	08:20	4 (5)	NW	0	7-6	1+2	2	0	0
10-Aug-16	VP2	SH	08:20	09:20	4 (5)	NW	0	6	1+2	2	0	0
10-Aug-16	VP2	SH	09:40	10:40	4 (5)	NW	0	5-6	1+2	2	0	0
10-Aug-16	VP2	SH	10:40	11:40	4 (5)	NW	2	5-7	1+2	2	0	0
11-Aug-16	VP1	SH	05:00	06:00	2-3 (4)	WSW	0	8	1	2	0	0
11-Aug-16	VP1	SH	06:00	07:00	1-2 (3)	WSW	2	8	1	2	0	0
11-Aug-16	VP1	SH	07:20	08:20	2-3	SW/WSW	1	8	1	2	0	0
11-Aug-16	VP1	SH	08:20	09:20	2-3	W	2	8	1	2	0	0
11-Aug-16	VP1	SH	09:40	10:40	3 (4)	WSW	0	8	1	2	0	0
11-Aug-16	VP1	SH	10:40	11:40	3 (4)	SW/WSW	0	8	1	2	0	0
27-Sep-16	VP1	SH	12:20	13:20	3-4 (5)	SW	0	5-7	1+2	2	0	0
27-Sep-16	VP1	SH	13:20	14:20	3-4 (5)	SW	0	7-8	1	2	0	0

Date	VP	Observer	Start of Hour	End of Hour	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Vis	Frost	Snow
27-Sep-16	VP1	SH	14:40	15:40	3 (4)	SW	0	8	1	2	0	0
27-Sep-16	VP1	SH	15:40	16:40	3 (4)	SW	0	8	1	2	0	0
27-Sep-16	VP1	SH	17:00	18:00	2-3 (4)	SW	0	8	1	2	0	0
27-Sep-16	VP1	SH	18:00	19:00	2-3	SW	0-1	8-7	1+2	2	0	0
27-Sep-16	VP2	MA	12:20	13:20	5-6	SSW	0	7	2	2	0	0
27-Sep-16	VP2	MA	13:20	14:20	5	SSW	0	8	2	2	0	0
27-Sep-16	VP2	MA	14:40	15:40	4-5	SW	0	8	2	2	0	0
27-Sep-16	VP2	MA	15:40	16:40	4	SW	0	8	2	2	0	0
27-Sep-16	VP2	MA	17:00	18:00	5	SW	0	8	2	2	0	0
27-Sep-16	VP2	MA	18:00	19:00	3-4	SW	0	8	2	2	0	0
17-Oct-16	VP1	SH	06:45	07:45	0	-	0	1	2	2	0	0
17-Oct-16	VP1	SH	07:45	08:45	0-1	SW	0	1-2	2	2	0	0
17-Oct-16	VP1	SH	09:05	10:05	1-2	SW	2	5	1+2	2	0	0
17-Oct-16	VP1	SH	10:05	11:05	2-3	SW	0	5	1+2	2	0	0
17-Oct-16	VP1	SH	11:25	12:25	2-3	SW	2	5	1+2	2	0	0
17-Oct-16	VP1	SH	12:25	13:25	2-3	SW	2	5	1+2	2	0	0
17-Oct-16	VP2	MA	06:45	07:45	2	SSW	0	1	2	2	0	0
17-Oct-16	VP2	MA	07:45	08:45	2	SSW	0	1	2	2	0	0
17-Oct-16	VP2	MA	09:05	10:05	3	SSW	2	3	2	2	0	0
17-Oct-16	VP2	MA	10:05	11:05	4	SSW	0	4	2	2	0	0
17-Oct-16	VP2	MA	11:25	12:25	3	SSW	0	4	2	2	0	0
17-Oct-16	VP2	MA	12:25	13:25	3	SSW	2	5	2	2	0	0

Wind Speed: according to the Beaufort scale (0-12)

Wind Direction: according to 16-point compass

Rain: 0 = None; 1 = Drizzle/Mist; 2 = Light showers; 3 = Heavy showers; 4 = Light rain; 5 = Heavy rain

Cloud Cover: in eighths of sky (oktas)

Cloud Height: 0 = <150m; 1 = 150–500m; 2 = >500m

Vis: Visibility 0 = <1km; 1-2km; 2 = >2km

Frost: 0 = none; 1 = ground frost; 2 = all day frost

Snow: 0 = none; 1 = on site; 2 = high ground only

9.7.2 Results

144. A total of 818 flights were recorded from 30 target species (Table A9.28; Figures A9.30 to A9.38).

Table A9.28: Flight Activity Survey Results Summary

Species (Species Code)	Total Number of Flights	Maximum number of Birds in Flight	Mean Number of Birds per Flight	Figure Reference
Mute Swan (MS)	15	7	2.87	A9.30
Greylag goose (GJ)	9	13	4.44	A9.30
Brent Goose (DB)	26	250	27.27	A9.30

Species (Species Code)	Total Number of Flights	Maximum number of Birds in Flight	Mean Number of Birds per Flight	Figure Reference
Shelduck (SU)	12	2	1.92	A9.31
Shoveler (SV)	1	9	9	A9.31
Gadwall (GA)	2	12	7	A9.31
Wigeon (WN)	4	45	19	A9.31
Mallard (MA)	72	70	3.76	A9.31
Teal (T.)	4	160	65.75	A9.31
Little egret (ET)	41	3	1.12	A9.32
Grey heron (H.)	89	2	1.07	A9.32
Red kite (KT)	2	1	10	A9.33
Marsh harrier (MR)	239	2	1.03	A9.34 & A9.35
Hen harrier (HH)	2	1	1	A9.33
Merlin (ML)	4	1	1	A9.33
Hobby (HY)	7	1	1	A9.33
Peregrine (PE)	31	1	1	A9.33
Oystercatcher (OC)	14	22	2.76	A9.36
Golden plover (GV)	50	900	110.62	A9.36
Lapwing (L.)	119	450	45.61	A9.37
Dunlin (DN)	1	2	2	A9.38
Snipe (SN)	4	1	1	A9.38
Curlew (CU)	13	105	43.69	A9.38
Green sandpiper (GE)	12	2	1.25	A9.38
Redshank (RK)	9	2	1.11	A9.38
Mediterranean gull (MU)	9	2	1.78	A9.39
Common tern (CN)	1	1	1	A9.39
Barn owl (BO)	1	1	1	A9.40
Short-eared owl (SE)	10	1	1	A9.40
Raven (RN)	15	3	1.53	A9.40

145. Secondary Species recorded included: frequent cormorant flights transiting across the survey area, occasional buzzards and frequent kestrels hunting within the Core Survey Area and adjacent grazing marsh and South Swale reserve, and very occasional sparrowhawk.

146. Table A9.29 provides the details of all recorded target species flights.

Age: A = adult; I = immature; J = juv; 1W, 2W = 1st winter, 2nd winter etc; 1S, 2S = 1st summer, 2nd summer etc; 1Y, 2Y = 1st year, 2nd year etc

Sex: M = male; F = female; PR = pair

Flight ID = unique identifying reference number

Table A9.29: Flight Details

Species Code	Date	Time	VP	Flight ID	No. of Birds	Duration (s)	Age (if known)	Sex (if known)	Behaviour	% of Flight at 0-10 m	% of Flight at 10-50 m	% of Flight at >50 m
MS	25-Nov-15	09:58	VP1	154	1	16	A		Transit	100.0	0.0	0.0
MS	25-Nov-15	09:26	VP2	179	1	105	A		Transit	100.0	0.0	0.0
MS	25-Nov-15	09:58	VP2	182	1	45	A		Transit	100.0	0.0	0.0
MS	22-Dec-15	14:05	VP1	452	1	26	A		Transit	0.0	100.0	0.0
MS	06-Jan-16	14:55	VP2	287	1	90	A		Transit	100.0	0.0	0.0
MS	21-Jan-16	09:12	VP1	409	2	25	A		Transit	50.0	50.0	0.0
MS	02-Feb-16	16:15	VP2	540	1	30			Transit	100.0	0.0	0.0
MS	16-Feb-16	13:54	VP1	570	1	15	A		Transit	100.0	0.0	0.0
MS	17-Oct-16	07:48	VP1	926	2	26			Transit	100.0	0.0	0.0
MS	17-Oct-16	10:26	VP1	940	7	77			Transit	100.0	0.0	0.0
MS	17-Oct-16	07:41	VP2	931	2	87			Transit	100.0	0.0	0.0
MS	17-Oct-16	10:45	VP2	946	7	175			Transit	100.0	0.0	0.0
MS	17-Oct-16	08:30	VP2	934	7	45			Transit	100.0	0.0	0.0
MS	17-Oct-16	08:32	VP2	935	7	32			Transit	100.0	0.0	0.0
MS	17-Oct-16	12:28	VP2	963	2	60			Transit	100.0	0.0	0.0
GJ	25-Nov-15	09:15	VP2	177	13	135			Transit	0.0	30.0	70.0
GJ	07-Jan-16	07:57	VP1	256	1	266			Transit	0.0	88.9	11.1
GJ	21-Jan-16	08:25	VP2	298	1	84			Transit	0.0	0.0	100.0
GJ	16-Feb-16	12:57	VP1	564	3	15			Transit	100.0	0.0	0.0
GJ	19-Apr-16	19:02	VP1	627	4	201			Transit	35.7	64.3	0.0
GJ	19-Apr-16	19:38	VP2	896	3	142			Transit	0.0	70.0	30.0
GJ	08-Jun-16	07:22	VP1	747	6	54	A		Transit	0.0	100.0	0.0
GJ	08-Jun-16	07:25	VP1	750	6	156	A		Transit	0.0	0.0	100.0
GJ	17-Oct-16	12:55	VP1	951	3	84			Transit	0.0	0.0	100.0
DB	24-Nov-15	14:05	VP1	109	170	95				85.7	14.3	0.0
DB	24-Nov-15	14:23	VP1	110	8	39			Transit	66.7	33.3	0.0
DB	24-Nov-15	14:32	VP1	111	20	73			Transit	100.0	0.0	0.0
DB	24-Nov-15	15:36	VP1	115	75	43			Transit	66.7	33.3	0.0
DB	24-Nov-15	15:47	VP1	116	35	82			Transit	66.7	33.3	0.0
DB	24-Nov-15	15:34	VP2	132	45	135			Transit	70.0	30.0	0.0
DB	24-Nov-15	15:36	VP2	133	15	60			Transit	100.0	0.0	0.0
DB	25-Nov-15	09:19	VP1	146	2	18			Transit	100.0	0.0	0.0
DB	25-Nov-15	09:32	VP1	148	90	82			Transit	66.7	33.3	0.0
DB	25-Nov-15	09:34	VP1	150	150	25			Transit	100.0	0.0	0.0
DB	25-Nov-15	09:53	VP1	153	45	56			Transit	100.0	0.0	0.0
DB	25-Nov-15	10:31	VP1	158	3	53			Transit	0.0	100.0	0.0
DB	25-Nov-15	09:04	VP2	173	60	30			Transit	100.0	0.0	0.0
DB	25-Nov-15	09:38	VP2	180	40	75			Transit	0.0	100.0	0.0
DB	15-Dec-15	14:20	VP1	204	250	20			Transit	100.0	0.0	0.0
DB	15-Dec-15	15:58	VP1	212	250	33			Transit	100.0	0.0	0.0
DB	16-Dec-15	09:58	VP1	223	100	70			Transit	100.0	0.0	0.0
DB	16-Dec-15	10:03	VP1	224	13	16			Transit	100.0	0.0	0.0
DB	16-Dec-15	10:05	VP1	225	80	33			Transit	100.0	0.0	0.0
DB	16-Dec-15	10:59	VP1	229	70	66			Transit	80.0	20.0	0.0
DB	22-Dec-15	15:13	VP1	457	5	36			Transit	66.7	33.3	0.0
DB	22-Dec-15	12:59	VP2	423	31	102			Transit	0.0	100.0	0.0
DB	23-Dec-15	09:23	VP1	473	50	31			Transit	100.0	0.0	0.0
DB	07-Jan-16	09:13	VP2	272	90	80			Transit	0.0	100.0	0.0
DB	07-Jan-16	09:15	VP2	273	12	40				100.0	0.0	0.0
DB	07-Jan-16	11:34	VP2	279	40	40			Transit	100.0	0.0	0.0
SU	23-Dec-15	10:08	VP1	479	2	22	A	M+F	Transit	100.0	0.0	0.0
SU	11-May-16	09:51	VP1	704	2	39		M&F		33.3	66.7	0.0
SU	11-May-16	05:44	VP2	640	2	18	A	PR	Transit	50.0	50.0	0.0
SU	11-May-16	10:37	VP2	650	2	46	A	PR	Transit	100.0	0.0	0.0

Species Code	Date	Time	VP	Flight ID	No. of Birds	Duration (s)	Age (if known)	Sex (if known)	Behaviour	% of Flight at 0-10 m	% of Flight at 10-50 m	% of Flight at >50 m
SU	11-May-16	06:15	VP2	641	2	17	A	PR	Transit	50.0	50.0	0.0
SU	08-Jun-16	04:34	VP1	730	2	48		M&F	Transit	0.0	100.0	0.0
SU	08-Jun-16	11:40	VP1	771	2	97		M&F	Transit	28.6	42.9	28.6
SU	08-Jun-16	04:46	VP2	791	2	16	A	PR	Transit	100.0	0.0	0.0
SU	08-Jun-16	04:59	VP2	792	2	40	A	PR	Transit	100.0	0.0	0.0
SU	08-Jun-16	06:59	VP2	783	1	43	A		Transit	100.0	0.0	0.0
SU	08-Jun-16	05:06	VP2	793	2	15	A	PR	Transit	100.0	0.0	0.0
SU	08-Jun-16	07:31	VP2	785	2	44	A	PR	Transit	100.0	0.0	0.0
SV	25-Nov-15	10:59	VP2	195	9	45			Transit	0.0	100.0	0.0
GA	19-Apr-16	17:12	VP1	616	2	16	A	M&F	Transit	100.0	0.0	0.0
GA	17-Oct-16	08:39	VP2	936	12	62			Transit	0.0	0.0	100.0
WN	25-Nov-15	09:14	VP2	176	5	45			Transit	0.0	100.0	0.0
WN	16-Dec-15	08:26	VP2	243	20	40				33.3	66.7	0.0
WN	16-Dec-15	09:13	VP2	246	45	175			Transit	0.0	100.0	0.0
WN	23-Dec-15	10:08	VP2	446	6	45			Transit	0.0	100.0	0.0
MA	24-Nov-15	13:55	VP1	106	5	38			Transit	33.3	66.7	0.0
MA	24-Nov-15	14:32	VP2	125	4	15			Transit	100.0	0.0	0.0
MA	25-Nov-15	08:33	VP2	168	2	30			Transit	0.0	100.0	0.0
MA	25-Nov-15	09:12	VP2	175	70	69			Transit	0.0	100.0	0.0
MA	25-Nov-15	10:38	VP2	190	2	30			Transit	0.0	100.0	0.0
MA	25-Nov-15	10:59	VP2	194	24	45			Transit	0.0	100.0	0.0
MA	23-Dec-15	10:08	VP2	445	15	65			Transit	0.0	100.0	0.0
MA	07-Jan-16	08:40	VP1	260	2	23	A	M	Transit	0.0	100.0	0.0
MA	20-Jan-16	14:29	VP2	348	2	25			Transit	0.0	100.0	0.0
MA	16-Feb-16	13:44	VP1	568	3	24			Transit	50.0	50.0	0.0
MA	16-Feb-16	13:44	VP1	569	2	34			Transit	66.7	33.3	0.0
MA	01-Mar-16	12:58	VP2	581	2	47			Transit	100.0	0.0	0.0
MA	01-Mar-16	13:24	VP2	585	2	20			Transit	0.0	100.0	0.0
MA	01-Mar-16	13:43	VP2	589	2	25				50.0	50.0	0.0
MA	02-Mar-16	08:51	VP2	601	2	20		M&F	Transit	100.0	0.0	0.0
MA	02-Mar-16	08:52	VP2	602	2	62		M&F	Transit	60.0	40.0	0.0
MA	19-Apr-16	16:35	VP1	611	1	41	A	M	Transit	100.0	0.0	0.0
MA	19-Apr-16	16:52	VP1	612	1	29	A	M	Transit	100.0	0.0	0.0
MA	19-Apr-16	16:56	VP1	613	1	165	A	M	Transit	83.3	16.7	0.0
MA	19-Apr-16	19:42	VP1	631	3	75	A	M&F	Transit	16.7	83.3	0.0
MA	19-Apr-16	17:33	VP1	618	1	20			Transit	100.0	0.0	0.0
MA	19-Apr-16	20:16	VP1	634	3	29			Transit	50.0	50.0	0.0
MA	19-Apr-16	20:20	VP1	635	2	18	A	PR	Transit	50.0	50.0	0.0
MA	19-Apr-16	17:50	VP1	620	2	17	A	PR	Transit	100.0	0.0	0.0
MA	19-Apr-16	20:31	VP1	636	2	15	A	PR	Transit	50.0	50.0	0.0
MA	19-Apr-16	17:57	VP1	621	2	32	A	PR	Transit	100.0	0.0	0.0
MA	19-Apr-16	18:10	VP1	625	2	17	A	PR	Transit	50.0	50.0	0.0
MA	19-Apr-16	18:41	VP2	892	1	55			Transit	100.0	0.0	0.0
MA	19-Apr-16	19:17	VP2	893	1	23				100.0	0.0	0.0
MA	19-Apr-16	14:34	VP2	870	1	53			Transit	0.0	0.0	100.0
MA	19-Apr-16	14:42	VP2	872	3	48			Courtship	0.0	100.0	0.0
MA	19-Apr-16	17:59	VP2	891	1	25		M		100.0	0.0	0.0
MA	19-Apr-16	20:23	VP2	900	4	30			Courtship	100.0	0.0	0.0
MA	19-Apr-16	15:22	VP2	876	4	43			Courtship	0.0	0.0	100.0
MA	19-Apr-16	15:27	VP2	877	3	147			Courtship	0.0	30.0	70.0
MA	11-May-16	05:21	VP1	689	3	25		M&F	Courtship	0.0	100.0	0.0
MA	11-May-16	09:14	VP1	698	2	42		M&F		75.0	25.0	0.0
MA	11-May-16	09:29	VP1	699	2	40		M&F		75.0	25.0	0.0
MA	11-May-16	08:31	VP1	694	1	25		M		100.0	0.0	0.0
MA	11-May-16	09:39	VP1	701	2	36		M	Transit	0.0	100.0	0.0
MA	11-May-16	08:33	VP1	695	2	25		M		100.0	0.0	0.0

Species Code	Date	Time	VP	Flight ID	No. of Birds	Duration (s)	Age (if known)	Sex (if known)	Behaviour	% of Flight at 0-10 m	% of Flight at 10-50 m	% of Flight at >50 m
MA	11-May-16	09:45	VP1	702	1	20		M	Transit	0.0	100.0	0.0
MA	11-May-16	08:38	VP1	696	1	35		F		33.3	66.7	0.0
MA	11-May-16	09:49	VP1	703	6	16		M&F		100.0	0.0	0.0
MA	11-May-16	08:39	VP1	697	2	20		M		100.0	0.0	0.0
MA	11-May-16	04:42	VP2	638	2	26	A	PR	Transit	50.0	50.0	0.0
MA	11-May-16	06:59	VP2	642	4	27	A	M&F	Transit	100.0	0.0	0.0
MA	11-May-16	09:12	VP2	648	3	27	A	M&F	Transit	100.0	0.0	0.0
MA	11-May-16	05:36	VP2	639	2	42	A	PR	Transit	66.7	33.3	0.0
MA	11-May-16	07:06	VP2	643	4	20	A	M&F	Transit	100.0	0.0	0.0
MA	11-May-16	10:15	VP2	649	2	39	A	PR	Transit	100.0	0.0	0.0
MA	11-May-16	07:09	VP2	644	4	64	A	M&F	Transit	60.0	40.0	0.0
MA	11-May-16	07:10	VP2	645	2	24	A	M&F	Transit	0.0	100.0	0.0
MA	11-May-16	07:10	VP2	646	2	15	A	M	Transit	50.0	50.0	0.0
MA	11-May-16	07:23	VP2	647	1	43	A	M	Transit	66.7	33.3	0.0
MA	26-May-16	19:14	VP1	653	1	23	A	M	Transit	100.0	0.0	0.0
MA	26-May-16	17:10	VP1	681	2	50	A	M	Transit	50.0	50.0	0.0
MA	26-May-16	19:23	VP1	654	1	30	A	M	Transit	100.0	0.0	0.0
MA	26-May-16	20:47	VP1	663	2	62	A	PR	Transit	80.0	20.0	0.0
MA	26-May-16	20:09	VP2	724	2	32	A	M&F		100.0	0.0	0.0
MA	08-Jun-16	04:32	VP1	729	4	55			Transit	0.0	100.0	0.0
MA	08-Jun-16	05:28	VP1	732	2	50		M&F	Transit	50.0	50.0	0.0
MA	08-Jun-16	05:29	VP1	733	2	48		M&F	Transit	0.0	100.0	0.0
MA	08-Jun-16	11:16	VP1	769	1	65	A	M	Transit	0.0	100.0	0.0
MA	08-Jun-16	07:32	VP1	751	1	78		M	Transit	0.0	66.7	33.3
MA	08-Jun-16	08:38	VP1	757	2	61		M&F	Transit	60.0	40.0	0.0
MA	08-Jun-16	06:50	VP2	782	2	90	A	PR	Transit	85.7	14.3	0.0
MA	08-Jun-16	07:35	VP2	786	1	15		F	Transit	100.0	0.0	0.0
MA	10-Aug-16	06:11	VP2	823	2	33	A	PR	Transit	0.0	100.0	0.0
MA	27-Sep-16	17:34	VP1	919	5	38			Transit	100.0	0.0	0.0
MA	27-Sep-16	16:24	VP2	916	8	60			Hunting / Foraging	0.0	100.0	0.0
MA	17-Oct-16	07:38	VP2	929	6	50			Transit	0.0	100.0	0.0
T.	16-Dec-15	08:26	VP2	244	100	35				100.0	0.0	0.0
T.	16-Dec-15	09:13	VP2	247	160	190				100.0	0.0	0.0
T.	16-Feb-16	13:36	VP1	567	1	23		F	Transit	100.0	0.0	0.0
T.	19-Apr-16	20:32	VP1	637	2	16			Transit	100.0	0.0	0.0
ET	25-Nov-15	10:04	VP1	155	1	33	A		Transit	100.0	0.0	0.0
ET	25-Nov-15	10:38	VP1	159	1	29			Transit	100.0	0.0	0.0
ET	25-Nov-15	08:14	VP2	166	1	30			Transit	100.0	0.0	0.0
ET	15-Dec-15	13:06	VP1	196	1	26			Transit	100.0	0.0	0.0
ET	15-Dec-15	13:10	VP1	197	1	43			Transit	100.0	0.0	0.0
ET	15-Dec-15	14:40	VP1	207	1	37			Transit	100.0	0.0	0.0
ET	22-Dec-15	15:33	VP1	459	1	36			Transit	100.0	0.0	0.0
ET	22-Dec-15	12:52	VP2	422	1	27			Transit	100.0	0.0	0.0
ET	22-Dec-15	13:05	VP2	424	1	126			Transit	77.8	22.2	0.0
ET	20-Jan-16	12:50	VP1	361	1	65			Transit	80.0	20.0	0.0
ET	20-Jan-16	12:50	VP1	362	1	32			Transit	100.0	0.0	0.0
ET	20-Jan-16	14:44	VP2	352	1	53			Transit	0.0	100.0	0.0
ET	21-Jan-16	08:55	VP1	405	1	21			Transit	100.0	0.0	0.0
ET	04-Feb-16	10:43	VP1	515	1	28			Transit	100.0	0.0	0.0
ET	04-Feb-16	11:46	VP1	524	1	44			Transit	100.0	0.0	0.0
ET	16-Feb-16	12:50	VP1	563	1	49			Transit	100.0	0.0	0.0
ET	16-Feb-16	14:35	VP1	577	1	18			Transit	100.0	0.0	0.0
ET	19-Apr-16	14:18	VP1	605	1	15			Transit	100.0	0.0	0.0
ET	19-Apr-16	19:24	VP1	629	2	46			Transit	0.0	100.0	0.0
ET	19-Apr-16	15:38	VP1	608	1	27			Transit	100.0	0.0	0.0
ET	19-Apr-16	14:17	VP2	867	1	70			Transit	0.0	100.0	0.0

Species Code	Date	Time	VP	Flight ID	No. of Birds	Duration (s)	Age (if known)	Sex (if known)	Behaviour	% of Flight at 0-10 m	% of Flight at 10-50 m	% of Flight at >50 m
ET	19-Apr-16	14:48	VP2	873	1	30				100.0	0.0	0.0
ET	19-Apr-16	15:55	VP2	881	1	50			Transit	0.0	0.0	100.0
ET	26-May-16	14:21	VP1	667	1	91			Transit	100.0	0.0	0.0
ET	26-May-16	17:44	VP1	683	2	87			Transit	50.0	50.0	0.0
ET	26-May-16	18:14	VP2	717	1	50			Transit	0.0	0.0	100.0
ET	26-May-16	15:03	VP2	711	1	94			Transit	100.0	0.0	0.0
ET	26-May-16	20:28	VP2	726	3	97			Transit	0.0	0.0	100.0
ET	26-May-16	15:34	VP2	712	2	106			Transit	100.0	0.0	0.0
ET	08-Jun-16	09:10	VP1	758	1	40			Transit	0.0	0.0	100.0
ET	08-Jun-16	07:05	VP1	742	1	32	A		Transit	0.0	100.0	0.0
ET	08-Jun-16	07:17	VP1	746	1	80			Transit	0.0	0.0	100.0
ET	08-Jun-16	10:57	VP1	766	1	130			Transit	0.0	22.2	77.8
ET	08-Jun-16	07:23	VP1	748	1	85			Transit	0.0	0.0	100.0
ET	08-Jun-16	11:47	VP1	772	1	126			Transit	0.0	100.0	0.0
ET	08-Jun-16	09:34	VP2	775	1	44			Transit	0.0	100.0	0.0
ET	08-Jun-16	08:26	VP2	790	1	66			Transit	20.0	80.0	0.0
ET	08-Jun-16	06:23	VP2	801	1	168			Transit	0.0	100.0	0.0
ET	10-Aug-16	05:50	VP2	822	1	100			Transit	42.9	57.1	0.0
ET	10-Aug-16	09:01	VP2	830	1	102			Transit	28.6	71.4	0.0
ET	11-Aug-16	10:38	VP1	837	1	37			Transit	100.0	0.0	0.0
H.	24-Nov-15	13:24	VP2	119	1	30			Transit	100.0	0.0	0.0
H.	24-Nov-15	13:48	VP2	121	1	15			Transit	100.0	0.0	0.0
H.	24-Nov-15	13:54	VP2	122	1	15	A		Transit	100.0	0.0	0.0
H.	24-Nov-15	14:03	VP2	124	2	75	A+J		Hunting / Foraging	100.0	0.0	0.0
H.	24-Nov-15	15:17	VP2	129	1	60	A		Hunting / Foraging	40.0	60.0	0.0
H.	24-Nov-15	15:21	VP2	131	2	60	A+J		Transit	100.0	0.0	0.0
H.	15-Dec-15	13:02	VP2	230	1	33	1W		Transit	100.0	0.0	0.0
H.	15-Dec-15	13:17	VP2	231	1	37			Transit	100.0	0.0	0.0
H.	16-Dec-15	09:11	VP1	220	1	15			Transit	100.0	0.0	0.0
H.	22-Dec-15	15:17	VP1	458	1	74			Transit	40.0	60.0	0.0
H.	22-Dec-15	15:19	VP2	428	1	32			Transit	100.0	0.0	0.0
H.	23-Dec-15	09:02	VP1	471	1	75	A		Transit	100.0	0.0	0.0
H.	06-Jan-16	15:01	VP2	288	1	35	A		Transit	100.0	0.0	0.0
H.	07-Jan-16	11:33	VP1	266	1	15			Transit	100.0	0.0	0.0
H.	07-Jan-16	08:14	VP2	270	1	40			Transit	100.0	0.0	0.0
H.	21-Jan-16	08:09	VP1	396	1	47			Transit	100.0	0.0	0.0
H.	02-Feb-16	16:16	VP2	541	1	160			Transit	100.0	0.0	0.0
H.	02-Feb-16	16:16	VP2	542	1	135			Transit	100.0	0.0	0.0
H.	02-Feb-16	16:20	VP2	543	2	48			Transit	100.0	0.0	0.0
H.	04-Feb-16	10:51	VP2	561	1	50			Transit	100.0	0.0	0.0
H.	01-Mar-16	13:08	VP2	583	1	36			Transit	100.0	0.0	0.0
H.	01-Mar-16	13:17	VP2	584	1	140			Transit	0.0	100.0	0.0
H.	01-Mar-16	13:27	VP2	586	1	41			Transit	100.0	0.0	0.0
H.	19-Apr-16	18:45	VP1	626	1	18	A		Transit	100.0	0.0	0.0
H.	19-Apr-16	19:21	VP1	628	1	16	A		Transit	100.0	0.0	0.0
H.	19-Apr-16	18:04	VP1	622	1	46	A		Transit	0.0	100.0	0.0
H.	19-Apr-16	18:09	VP1	624	1	113	A		Transit	100.0	0.0	0.0
H.	19-Apr-16	16:20	VP2	886	1	63				20.0	40.0	40.0
H.	19-Apr-16	19:21	VP2	894	1	58				100.0	0.0	0.0
H.	19-Apr-16	19:33	VP2	895	2	90				100.0	0.0	0.0
H.	19-Apr-16	17:34	VP2	890	1	35				100.0	0.0	0.0
H.	19-Apr-16	20:00	VP2	897	1	98			Transit	28.6	71.4	0.0
H.	19-Apr-16	14:49	VP2	874	1	45				100.0	0.0	0.0
H.	19-Apr-16	15:49	VP2	880	1	63				20.0	80.0	0.0
H.	11-May-16	05:46	VP1	690	1	20			Transit	0.0	100.0	0.0
H.	11-May-16	09:38	VP1	700	2	29	A		Transit	0.0	100.0	0.0

Species Code	Date	Time	VP	Flight ID	No. of Birds	Duration (s)	Age (if known)	Sex (if known)	Behaviour	% of Flight at 0-10 m	% of Flight at 10-50 m	% of Flight at >50 m
H.	11-May-16	11:07	VP1	705	1	43				100.0	0.0	0.0
H.	26-May-16	13:33	VP1	665	1	65	A		Transit	100.0	0.0	0.0
H.	26-May-16	13:45	VP1	666	1	171	A		Transit	25.0	75.0	0.0
H.	26-May-16	19:33	VP1	655	1	40	A		Transit	0.0	100.0	0.0
H.	26-May-16	14:27	VP1	668	1	61	A		Transit	100.0	0.0	0.0
H.	26-May-16	17:59	VP1	684	1	61	A		Transit	40.0	60.0	0.0
H.	26-May-16	19:40	VP1	657	1	101	J		Transit	100.0	0.0	0.0
H.	26-May-16	20:03	VP1	660	2	134	A		Transit	0.0	100.0	0.0
H.	26-May-16	16:02	VP1	676	1	158	A			0.0	0.0	100.0
H.	26-May-16	16:04	VP1	677	1	120	A			0.0	100.0	0.0
H.	26-May-16	20:05	VP2	723	1	88			Transit	0.0	100.0	0.0
H.	26-May-16	18:19	VP2	718	1	104	A		Transit	28.6	28.6	42.9
H.	26-May-16	14:54	VP2	710	1	57	A		Transit	100.0	0.0	0.0
H.	26-May-16	21:08	VP2	728	1	75			Transit	0.0	0.0	100.0
H.	08-Jun-16	06:51	VP1	738	1	60	A		Transit	0.0	0.0	100.0
H.	08-Jun-16	06:53	VP1	739	1	35	A		Transit	0.0	0.0	100.0
H.	08-Jun-16	09:14	VP1	759	1	97	A		Transit	0.0	0.0	100.0
H.	08-Jun-16	07:06	VP1	743	1	35	A		Transit	0.0	100.0	0.0
H.	08-Jun-16	06:22	VP1	735	1	172			Transit	0.0	0.0	100.0
H.	08-Jun-16	07:23	VP1	749	1	85	A		Transit	0.0	0.0	100.0
H.	08-Jun-16	07:36	VP1	752	1	20	A		Transit	0.0	100.0	0.0
H.	08-Jun-16	08:05	VP1	754	1	25	A		Transit	0.0	100.0	0.0
H.	08-Jun-16	05:12	VP2	794	1	61	A		Transit	100.0	0.0	0.0
H.	08-Jun-16	05:50	VP2	795	1	118	A		Transit	0.0	100.0	0.0
H.	08-Jun-16	06:10	VP2	798	1	155	A		Transit	0.0	100.0	0.0
H.	08-Jun-16	06:20	VP2	800	1	63	A		Transit	0.0	100.0	0.0
H.	20-Jul-16	20:03	VP2	863	1	35	A		Transit	100.0	0.0	0.0
H.	20-Jul-16	21:38	VP2	866	1	48			Transit	100.0	0.0	0.0
H.	10-Aug-16	09:58	VP2	833	2	33			Transit	100.0	0.0	0.0
H.	10-Aug-16	08:31	VP2	828	1	242	A		Transit	76.5	23.5	0.0
H.	10-Aug-16	06:29	VP2	825	1	194	A		Transit	0.0	100.0	0.0
H.	10-Aug-16	06:41	VP2	826	1	171	A		Transit	66.7	33.3	0.0
H.	11-Aug-16	06:18	VP1	848	1	21	A		Transit	100.0	0.0	0.0
H.	11-Aug-16	08:33	VP1	843	1	21	A		Transit	100.0	0.0	0.0
H.	11-Aug-16	06:50	VP1	850	1	15	A		Transit	100.0	0.0	0.0
H.	27-Sep-16	17:14	VP1	918	1	75			Transit	83.3	16.7	0.0
H.	27-Sep-16	15:51	VP1	908	1	75			Transit	33.3	66.7	0.0
H.	27-Sep-16	13:03	VP1	903	1	15			Transit	100.0	0.0	0.0
H.	27-Sep-16	16:18	VP1	909	1	33			Transit	100.0	0.0	0.0
H.	27-Sep-16	18:43	VP1	920	1	37			Transit	100.0	0.0	0.0
H.	27-Sep-16	14:14	VP1	904	1	29			Transit	100.0	0.0	0.0
H.	27-Sep-16	18:47	VP1	921	1	51			Transit	100.0	0.0	0.0
H.	27-Sep-16	15:48	VP2	911	1	24			Transit	100.0	0.0	0.0
H.	27-Sep-16	17:14	VP2	922	1	135			Transit	70.0	30.0	0.0
H.	27-Sep-16	15:57	VP2	912	1	20			Transit	100.0	0.0	0.0
H.	27-Sep-16	15:58	VP2	913	1	48			Transit	100.0	0.0	0.0
H.	27-Sep-16	16:10	VP2	914	1	77			Transit	66.7	33.3	0.0
H.	27-Sep-16	16:12	VP2	915	1	105			Transit	100.0	0.0	0.0
H.	27-Sep-16	18:40	VP2	924	1	23			Transit	100.0	0.0	0.0
H.	17-Oct-16	09:05	VP1	937	1	127			Transit	100.0	0.0	0.0
H.	17-Oct-16	09:13	VP1	938	1	70			Transit	100.0	0.0	0.0
H.	17-Oct-16	09:05	VP2	942	1	55			Transit	75.0	25.0	0.0
H.	17-Oct-16	09:40	VP2	943	1	70			Transit	0.0	0.0	100.0
KT	08-Jun-16	10:04	VP1	763	1	198			Transit	0.0	0.0	100.0
KT	08-Jun-16	10:41	VP1	765	1	50			Transit	0.0	100.0	0.0
MR	24-Nov-15	14:04	VP1	107	1	183			Hunting / Foraging	69.2	30.8	0.0

Species Code	Date	Time	VP	Flight ID	No. of Birds	Duration (s)	Age (if known)	Sex (if known)	Behaviour	% of Flight at 0-10 m	% of Flight at 10-50 m	% of Flight at >50 m
MR	24-Nov-15	14:54	VP1	113	1	15			Hunting / Foraging	100.0	0.0	0.0
MR	24-Nov-15	15:24	VP1	114	1	34			Hunting / Foraging	66.7	33.3	0.0
MR	24-Nov-15	13:40	VP2	120	1	105	A	M	Transit	100.0	0.0	0.0
MR	24-Nov-15	15:19	VP2	130	1	15	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	24-Nov-15	15:37	VP2	134	1	120	A	M	Transit	0.0	100.0	0.0
MR	24-Nov-15	15:39	VP2	135	1	60			Transit	0.0	100.0	0.0
MR	25-Nov-15	08:06	VP1	136	1	58			Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	08:11	VP1	137	1	70	1W	M	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	08:27	VP1	138	2	37			Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	08:27	VP1	139	1	76			Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	08:27	VP1	140	1	288	1W	M	Hunting / Foraging	95.0	5.0	0.0
MR	25-Nov-15	08:41	VP1	141	1	29	1W	M	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	08:47	VP1	142	1	242	1W	M	Hunting / Foraging	82.4	17.6	0.0
MR	25-Nov-15	09:01	VP1	143	1	152	1W	M	Hunting / Foraging	72.7	27.3	0.0
MR	25-Nov-15	09:09	VP1	144	1	223	1W	M	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	09:26	VP1	147	1	25			Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	09:34	VP1	149	1	34	J	M	Transit	100.0	0.0	0.0
MR	25-Nov-15	09:42	VP1	151	1	40	J	M?	Transit	100.0	0.0	0.0
MR	25-Nov-15	09:43	VP1	152	2	78	J+I		Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	10:07	VP1	156	1	221	J	M	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	10:17	VP1	157	1	217	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	10:51	VP1	160	1	75	I	M	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	10:55	VP1	161	1	27			Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	08:00	VP2	162	1	180		F	Hunting / Foraging	0.0	100.0	0.0
MR	25-Nov-15	08:08	VP2	163	1	180	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	08:08	VP2	164	1	45	A	F	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	08:11	VP2	165	1	135	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	08:26	VP2	167	1	30	A	F	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	08:50	VP2	171	1	435	A	M	Hunting / Foraging	86.7	13.3	0.0
MR	25-Nov-15	09:19	VP2	178	1	330	A	F	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	09:54	VP2	181	1	135	A	M	Transit	100.0	0.0	0.0
MR	25-Nov-15	10:02	VP2	183	1	30				100.0	0.0	0.0
MR	25-Nov-15	10:04	VP2	184	1	165	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	10:07	VP2	185	1	90	I	M	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	10:11	VP2	186	1	45		M	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	10:15	VP2	187	1	30	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	10:21	VP2	188	1	255	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	10:27	VP2	189	1	300	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	10:40	VP2	191	1	30	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	10:44	VP2	192	1	285	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	25-Nov-15	10:50	VP2	193	1	120	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	15-Dec-15	13:25	VP1	200	1	105	I		Hunting / Foraging	100.0	0.0	0.0
MR	15-Dec-15	13:37	VP1	202	1	257	2Y	M	Hunting / Foraging	0.0	94.7	5.3
MR	15-Dec-15	14:29	VP1	205	1	191			Hunting / Foraging	7.7	7.7	84.6
MR	15-Dec-15	14:31	VP1	206	1	15			Hunting / Foraging	100.0	0.0	0.0
MR	15-Dec-15	14:42	VP1	208	1	255	2Y	M	Hunting / Foraging	0.0	94.4	5.6
MR	15-Dec-15	14:57	VP1	209	1	350	2Y	M	Hunting / Foraging	4.2	87.5	8.3
MR	15-Dec-15	15:10	VP1	211	1	189		F	Hunting / Foraging	100.0	0.0	0.0
MR	15-Dec-15	13:43	VP2	232	1	42	A	M	Transit	0.0	100.0	0.0
MR	15-Dec-15	14:09	VP2	233	1	340	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	15-Dec-15	14:29	VP2	234	1	234	A	M	Transit	0.0	56.3	43.8
MR	15-Dec-15	15:02	VP2	236	1	306	A	F	Hunting / Foraging	38.1	61.9	0.0
MR	15-Dec-15	15:30	VP2	237	1	210			Transit	0.0	100.0	0.0
MR	16-Dec-15	08:08	VP1	213	1	25			Hunting / Foraging	0.0	0.0	100.0
MR	16-Dec-15	08:18	VP1	215	1	269	I	F	Hunting / Foraging	11.1	83.3	5.6
MR	16-Dec-15	08:19	VP1	216	1	61	I	M	Hunting / Foraging	40.0	60.0	0.0

Species Code	Date	Time	VP	Flight ID	No. of Birds	Duration (s)	Age (if known)	Sex (if known)	Behaviour	% of Flight at 0-10 m	% of Flight at 10-50 m	% of Flight at >50 m
MR	16-Dec-15	08:29	VP1	217	1	80	I	M	Hunting / Foraging	100.0	0.0	0.0
MR	16-Dec-15	08:34	VP1	218	1	623	2Y	M	Hunting / Foraging	92.9	7.1	0.0
MR	16-Dec-15	08:55	VP1	219	1	281	I	M	Hunting / Foraging	21.1	63.2	15.8
MR	16-Dec-15	09:53	VP1	222	1	43	I		Hunting / Foraging	100.0	0.0	0.0
MR	16-Dec-15	10:16	VP1	227	2	311	I	M	Hunting / Foraging	95.2	4.8	0.0
MR	16-Dec-15	10:31	VP1	228	1	255			Transit	0.0	0.0	100.0
MR	16-Dec-15	08:08	VP2	240	1	260	1W		Transit	100.0	0.0	0.0
MR	16-Dec-15	08:08	VP2	241	1	410	1W		Transit	85.7	14.3	0.0
MR	16-Dec-15	08:22	VP2	242	1	233		M	Hunting / Foraging	75.0	25.0	0.0
MR	16-Dec-15	09:33	VP2	249	1	83	2W?	M	Hunting / Foraging	100.0	0.0	0.0
MR	16-Dec-15	10:01	VP2	250	1	292	2W?	M	Hunting / Foraging	90.0	10.0	0.0
MR	16-Dec-15	10:09	VP2	252	1	395	1W		Hunting / Foraging	100.0	0.0	0.0
MR	22-Dec-15	14:41	VP2	427	1	270	A	M	Hunting / Foraging	78.9	21.1	0.0
MR	23-Dec-15	08:11	VP1	461	1	415	I	M	Hunting / Foraging	42.9	57.1	0.0
MR	23-Dec-15	08:48	VP1	467	1	146	I	M	Hunting / Foraging	40.0	60.0	0.0
MR	23-Dec-15	08:48	VP1	468	1	18	J		Hunting / Foraging	100.0	0.0	0.0
MR	23-Dec-15	08:59	VP1	469	1	316	I		Hunting / Foraging	77.3	22.7	0.0
MR	23-Dec-15	09:01	VP1	470	1	183	I		Hunting / Foraging	100.0	0.0	0.0
MR	23-Dec-15	09:12	VP1	472	1	319	I		Hunting / Foraging	81.8	9.1	9.1
MR	23-Dec-15	09:28	VP1	474	1	165	J		Hunting / Foraging	100.0	0.0	0.0
MR	23-Dec-15	09:28	VP1	475	1	307	J		Hunting / Foraging	33.3	66.7	0.0
MR	23-Dec-15	09:31	VP1	476	1	60	I	M	Hunting / Foraging	60.0	40.0	0.0
MR	23-Dec-15	09:47	VP1	477	1	157	1W		Hunting / Foraging	81.8	18.2	0.0
MR	23-Dec-15	09:54	VP1	478	1	294	I	M	Hunting / Foraging	100.0	0.0	0.0
MR	23-Dec-15	10:14	VP1	480	1	181	I		Hunting / Foraging	76.9	23.1	0.0
MR	23-Dec-15	10:24	VP1	481	1	354	I	M	Hunting / Foraging	91.7	8.3	0.0
MR	23-Dec-15	10:40	VP1	482	1	75	I	M	Hunting / Foraging	100.0	0.0	0.0
MR	23-Dec-15	10:51	VP1	484	1	15			Hunting / Foraging	100.0	0.0	0.0
MR	23-Dec-15	10:55	VP1	485	1	170	I		Hunting / Foraging	83.3	16.7	0.0
MR	23-Dec-15	08:19	VP2	429	1	20			Hunting / Foraging	100.0	0.0	0.0
MR	23-Dec-15	08:20	VP2	430	1	354	1W		Hunting / Foraging	100.0	0.0	0.0
MR	23-Dec-15	08:34	VP2	433	1	307	2W	M	Hunting / Foraging	100.0	0.0	0.0
MR	23-Dec-15	08:36	VP2	434	1	160			Transit	27.3	72.7	0.0
MR	23-Dec-15	08:46	VP2	435	1	153	1W		Hunting / Foraging	100.0	0.0	0.0
MR	23-Dec-15	08:50	VP2	436	1	20			Hunting / Foraging	100.0	0.0	0.0
MR	23-Dec-15	08:50	VP2	437	1	25	1W		Hunting / Foraging	100.0	0.0	0.0
MR	23-Dec-15	08:53	VP2	438	1	377	2W	M	Hunting / Foraging	88.5	11.5	0.0
MR	23-Dec-15	08:56	VP2	439	1	60	1W		Hunting / Foraging	100.0	0.0	0.0
MR	23-Dec-15	09:10	VP2	442	1	686	1W		Hunting / Foraging	93.5	6.5	0.0
MR	23-Dec-15	09:38	VP2	443	1	38	1W		Hunting / Foraging	100.0	0.0	0.0
MR	23-Dec-15	10:12	VP2	447	1	212	1W		Transit	66.7	33.3	0.0
MR	23-Dec-15	10:15	VP2	449	1	80			Transit	0.0	50.0	50.0
MR	23-Dec-15	10:40	VP2	450	1	73	2W	M	Hunting / Foraging	100.0	0.0	0.0
MR	23-Dec-15	10:48	VP2	451	1	601	2W		Hunting / Foraging	14.6	80.5	4.9
MR	06-Jan-16	14:36	VP2	285	1	220	2W	M	Hunting / Foraging	80.0	20.0	0.0
MR	06-Jan-16	14:49	VP2	286	1	30	2W	M	Hunting / Foraging	0.0	100.0	0.0
MR	07-Jan-16	09:31	VP1	264	1	103			Hunting / Foraging	100.0	0.0	0.0
MR	07-Jan-16	10:55	VP2	276	1	95			Transit	0.0	100.0	0.0
MR	07-Jan-16	11:17	VP2	277	1	80	2W	M	Transit	50.0	50.0	0.0
MR	07-Jan-16	09:29	VP2	274	1	220	2W	M	Hunting / Foraging	93.3	6.7	0.0
MR	07-Jan-16	11:38	VP2	282	1	30	2W	M	Hunting / Foraging	100.0	0.0	0.0
MR	20-Jan-16	14:08	VP1	378	1	182			Hunting / Foraging	38.5	61.5	0.0
MR	20-Jan-16	14:17	VP1	379	1	44			Hunting / Foraging	100.0	0.0	0.0
MR	20-Jan-16	15:10	VP1	383	1	175			Hunting / Foraging	100.0	0.0	0.0
MR	20-Jan-16	15:21	VP1	385	1	67			Hunting / Foraging	100.0	0.0	0.0
MR	20-Jan-16	15:35	VP1	386	1	95	I		Hunting / Foraging	57.1	42.9	0.0

Species Code	Date	Time	VP	Flight ID	No. of Birds	Duration (s)	Age (if known)	Sex (if known)	Behaviour	% of Flight at 0-10 m	% of Flight at 10-50 m	% of Flight at >50 m
MR	20-Jan-16	14:20	VP2	346	1	20		F	Hunting / Foraging	100.0	0.0	0.0
MR	20-Jan-16	15:05	VP2	356	2	20			Transit	0.0	100.0	0.0
MR	21-Jan-16	07:46	VP1	388	1	19			Hunting / Foraging	50.0	50.0	0.0
MR	21-Jan-16	07:54	VP1	393	1	20			Hunting / Foraging	100.0	0.0	0.0
MR	21-Jan-16	08:09	VP1	397	1	16	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	21-Jan-16	08:12	VP1	399	1	85	3W		Hunting / Foraging	0.0	100.0	0.0
MR	21-Jan-16	08:29	VP1	400	1	196	2W	M	Hunting / Foraging	57.1	42.9	0.0
MR	21-Jan-16	08:50	VP1	403	1	146	2W	M	Hunting / Foraging	70.0	30.0	0.0
MR	21-Jan-16	08:51	VP1	404	1	109	2W	M	Hunting / Foraging	87.5	12.5	0.0
MR	21-Jan-16	08:59	VP1	406	1	511	I	M	Hunting / Foraging	71.4	28.6	0.0
MR	21-Jan-16	09:01	VP1	407	1	125			Hunting / Foraging	88.9	11.1	0.0
MR	21-Jan-16	09:35	VP1	413	1	111	I		Hunting / Foraging	100.0	0.0	0.0
MR	21-Jan-16	09:40	VP1	414	1	422	I	M	Hunting / Foraging	10.3	86.2	3.4
MR	21-Jan-16	07:35	VP2	289	1	65	2Y	M	Transit	0.0	100.0	0.0
MR	21-Jan-16	08:12	VP2	295	1	108			Hunting / Foraging	0.0	100.0	0.0
MR	21-Jan-16	08:32	VP2	299	1	330		M	Hunting / Foraging	60.9	39.1	0.0
MR	21-Jan-16	09:11	VP2	309	1	162	1W		Transit	36.4	63.6	0.0
MR	21-Jan-16	09:18	VP2	311	1	340	1W		Hunting / Foraging	100.0	0.0	0.0
MR	21-Jan-16	09:52	VP2	324	1	154	1W		Hunting / Foraging	100.0	0.0	0.0
MR	21-Jan-16	10:20	VP2	332	1	215	A	M	Hunting / Foraging	73.3	26.7	0.0
MR	02-Feb-16	15:36	VP2	532	1	48	A	M	Transit	0.0	100.0	0.0
MR	02-Feb-16	16:33	VP2	544	1	85	A	M	Hunting / Foraging	50.0	50.0	0.0
MR	03-Feb-16	13:23	VP1	486	1	612	2W	M	Hunting / Foraging	70.7	29.3	0.0
MR	03-Feb-16	13:44	VP1	487	1	452	1W		Hunting / Foraging	100.0	0.0	0.0
MR	03-Feb-16	13:58	VP1	488	1	268			Hunting / Foraging	50.0	50.0	0.0
MR	03-Feb-16	14:47	VP1	499	1	137			Hunting / Foraging	100.0	0.0	0.0
MR	03-Feb-16	15:06	VP1	502	1	186	2W	M	Hunting / Foraging	0.0	100.0	0.0
MR	03-Feb-16	13:21	VP2	545	1	246		M	Hunting / Foraging	94.1	5.9	0.0
MR	03-Feb-16	13:41	VP2	546	1	131	1W		Hunting / Foraging	100.0	0.0	0.0
MR	03-Feb-16	14:05	VP2	547	1	222			Transit	0.0	53.3	46.7
MR	03-Feb-16	14:26	VP2	550	1	510	1W		Hunting / Foraging	100.0	0.0	0.0
MR	03-Feb-16	14:41	VP2	552	1	240	1W		Hunting / Foraging	100.0	0.0	0.0
MR	03-Feb-16	15:10	VP2	553	1	36			Transit	0.0	100.0	0.0
MR	04-Feb-16	10:46	VP1	516	1	50	2W	M	Hunting / Foraging	100.0	0.0	0.0
MR	04-Feb-16	11:02	VP1	518	2	38			Hunting / Foraging	0.0	100.0	0.0
MR	04-Feb-16	11:02	VP1	519	1	60			Hunting / Foraging	60.0	40.0	0.0
MR	04-Feb-16	11:02	VP1	520	1	50			Hunting / Foraging	75.0	25.0	0.0
MR	04-Feb-16	11:12	VP1	521	1	49	I		Hunting / Foraging	100.0	0.0	0.0
MR	04-Feb-16	11:17	VP1	522	1	77			Hunting / Foraging	100.0	0.0	0.0
MR	04-Feb-16	11:21	VP1	523	1	420	A	M	Hunting / Foraging	82.8	17.2	0.0
MR	04-Feb-16	10:16	VP2	559	1	216	1W	F	Hunting / Foraging	66.7	33.3	0.0
MR	04-Feb-16	10:30	VP2	560	1	65		M	Transit	100.0	0.0	0.0
MR	04-Feb-16	11:20	VP2	562	1	222		M	Hunting / Foraging	100.0	0.0	0.0
MR	16-Feb-16	14:06	VP1	565	2	20	I	M?	Hunting / Foraging	100.0	0.0	0.0
MR	16-Feb-16	13:59	VP1	572	1	182	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	16-Feb-16	14:09	VP1	573	1	85	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	01-Mar-16	13:02	VP2	582	1	233	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	02-Mar-16	08:00	VP1	593	1	424		M	Hunting / Foraging	72.4	27.6	0.0
MR	02-Mar-16	08:01	VP1	594	1	30			Hunting / Foraging	100.0	0.0	0.0
MR	02-Mar-16	08:15	VP2	596	1	237	1W	M	Hunting / Foraging	43.8	56.3	0.0
MR	02-Mar-16	08:26	VP2	598	1	125	1W	M	Hunting / Foraging	100.0	0.0	0.0
MR	02-Mar-16	08:34	VP2	600	1	17			Hunting / Foraging	100.0	0.0	0.0
MR	19-Apr-16	14:18	VP1	604	1	423		F	Hunting / Foraging	3.4	6.9	89.7
MR	19-Apr-16	16:23	VP1	610	1	443	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	19-Apr-16	17:02	VP1	614	1	156	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	19-Apr-16	19:31	VP1	630	1	152	I	M	Hunting / Foraging	18.2	81.8	0.0

Species Code	Date	Time	VP	Flight ID	No. of Birds	Duration (s)	Age (if known)	Sex (if known)	Behaviour	% of Flight at 0-10 m	% of Flight at 10-50 m	% of Flight at >50 m
MR	19-Apr-16	15:50	VP1	609	1	354	I	F	Hunting / Foraging	70.8	29.2	0.0
MR	19-Apr-16	17:07	VP1	615	1	64	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	19-Apr-16	17:16	VP1	617	1	190	A/I	F	Hunting / Foraging	100.0	0.0	0.0
MR	19-Apr-16	17:43	VP1	619	1	122		F/I	Hunting / Foraging	100.0	0.0	0.0
MR	19-Apr-16	16:23	VP2	887	1	113		F	Hunting / Foraging	75.0	25.0	0.0
MR	19-Apr-16	17:21	VP2	888	1	187			Transit	0.0	100.0	0.0
MR	19-Apr-16	15:57	VP2	882	1	65		F	Hunting / Foraging	20.0	80.0	0.0
MR	26-May-16	13:30	VP1	664	1	235	I	M	Hunting / Foraging	100.0	0.0	0.0
MR	26-May-16	16:50	VP1	680	1	282	I	M	Hunting / Foraging	100.0	0.0	0.0
MR	26-May-16	17:23	VP1	682	1	609	I	M	Hunting / Foraging	100.0	0.0	0.0
MR	26-May-16	19:36	VP1	656	1	121	I	M	Hunting / Foraging	100.0	0.0	0.0
MR	26-May-16	14:27	VP1	669	1	220	I	M	Hunting / Foraging	100.0	0.0	0.0
MR	26-May-16	18:04	VP1	685	1	183	I	M	Hunting / Foraging	100.0	0.0	0.0
MR	26-May-16	18:07	VP1	686	2	101	I	M	Transit	100.0	0.0	0.0
MR	26-May-16	14:48	VP1	671	1	705	I	M	Hunting / Foraging	100.0	0.0	0.0
MR	26-May-16	18:08	VP1	687	1	25	I	M		100.0	0.0	0.0
MR	26-May-16	15:08	VP1	672	1	25			Hunting / Foraging	100.0	0.0	0.0
MR	26-May-16	18:20	VP1	688	1	361	I	M	Hunting / Foraging	100.0	0.0	0.0
MR	26-May-16	20:19	VP1	661	1	112			Hunting / Foraging	100.0	0.0	0.0
MR	26-May-16	15:11	VP1	673	1	1380	I	M	Hunting / Foraging	100.0	0.0	0.0
MR	26-May-16	20:37	VP1	662	1	150			Hunting / Foraging	100.0	0.0	0.0
MR	26-May-16	15:33	VP1	674	1	120		F	Hunting / Foraging	100.0	0.0	0.0
MR	26-May-16	15:35	VP1	675	2	186	I	M&F	Transit	7.7	92.3	0.0
MR	26-May-16	16:22	VP1	678	1	226			Hunting / Foraging	100.0	0.0	0.0
MR	26-May-16	16:57	VP2	715	1	338			Hunting / Foraging	100.0	0.0	0.0
MR	26-May-16	17:10	VP2	716	1	220			Hunting / Foraging	100.0	0.0	0.0
MR	26-May-16	13:44	VP2	708	1	18				100.0	0.0	0.0
MR	26-May-16	14:39	VP2	709	1	197			Hunting / Foraging	100.0	0.0	0.0
MR	26-May-16	16:10	VP2	713	1	413			Hunting / Foraging	100.0	0.0	0.0
MR	26-May-16	16:16	VP2	714	1	85	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	08-Jun-16	09:44	VP1	761	1	120	A	F		0.0	0.0	100.0
MR	08-Jun-16	09:46	VP1	762	1	240	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	08-Jun-16	10:34	VP1	764	1	447	A	F	Hunting / Foraging	73.3	26.7	0.0
MR	08-Jun-16	11:03	VP1	767	1	110	I	M	Transit	0.0	37.5	62.5
MR	08-Jun-16	11:03	VP1	768	1	50	I		Transit	0.0	0.0	100.0
MR	08-Jun-16	12:05	VP1	774	1	360	A	F	Hunting / Foraging	100.0	0.0	0.0
MR	08-Jun-16	08:10	VP1	756	1	18			Hunting / Foraging	100.0	0.0	0.0
MR	20-Jul-16	15:18	VP1	814	1	150	J		Hunting / Foraging	90.9	9.1	0.0
MR	20-Jul-16	15:25	VP1	815	1	369	J		Hunting / Foraging	88.0	12.0	0.0
MR	20-Jul-16	17:32	VP1	808	1	442	J		Hunting / Foraging	83.3	16.7	0.0
MR	20-Jul-16	19:54	VP1	803	1	79	I	M	Transit	100.0	0.0	0.0
MR	20-Jul-16	15:34	VP1	816	1	343	J		Hunting / Foraging	91.3	8.7	0.0
MR	20-Jul-16	17:57	VP1	809	1	119	J		Hunting / Foraging	100.0	0.0	0.0
MR	20-Jul-16	20:08	VP1	804	1	339	I	M	Hunting / Foraging	100.0	0.0	0.0
MR	20-Jul-16	15:54	VP1	817	1	77	J		Hunting / Foraging	100.0	0.0	0.0
MR	20-Jul-16	17:58	VP1	810	2	65	J		Hunting / Foraging	100.0	0.0	0.0
MR	20-Jul-16	16:23	VP1	818	1	162	I	M	Hunting / Foraging	100.0	0.0	0.0
MR	20-Jul-16	18:10	VP1	811	1	633	J		Hunting / Foraging	37.2	62.8	0.0
MR	20-Jul-16	20:34	VP1	806	1	314	J		Hunting / Foraging	100.0	0.0	0.0
MR	20-Jul-16	16:35	VP1	819	1	782	J		Hunting / Foraging	96.2	3.8	0.0
MR	20-Jul-16	18:59	VP1	812	1	86	J		Hunting / Foraging	100.0	0.0	0.0
MR	20-Jul-16	16:38	VP1	820	1	246	I	M	Hunting / Foraging	23.5	29.4	47.1
MR	20-Jul-16	19:11	VP1	813	1	254	J		Hunting / Foraging	88.9	11.1	0.0
MR	20-Jul-16	16:44	VP1	821	1	20	I	M	Hunting / Foraging	100.0	0.0	0.0
MR	20-Jul-16	15:29	VP2	851	1	170	A	F	Hunting / Foraging	100.0	0.0	0.0
MR	20-Jul-16	15:39	VP2	852	1	30	A	F	Hunting / Foraging	100.0	0.0	0.0

Species Code	Date	Time	VP	Flight ID	No. of Birds	Duration (s)	Age (if known)	Sex (if known)	Behaviour	% of Flight at 0-10 m	% of Flight at 10-50 m	% of Flight at >50 m
MR	20-Jul-16	15:44	VP2	853	1	515	A	F	Hunting / Foraging	94.3	5.7	0.0
MR	10-Aug-16	07:36	VP2	827	1	98	J	M	Hunting / Foraging	100.0	0.0	0.0
MR	11-Aug-16	06:08	VP1	847	1	266	J		Hunting / Foraging	100.0	0.0	0.0
MR	11-Aug-16	07:42	VP1	841	1	218	J		Hunting / Foraging	100.0	0.0	0.0
MR	11-Aug-16	06:28	VP1	849	1	115	J		Hunting / Foraging	100.0	0.0	0.0
MR	11-Aug-16	11:03	VP1	839	1	105	I	M	Hunting / Foraging	100.0	0.0	0.0
MR	27-Sep-16	16:23	VP1	910	1	447	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	27-Sep-16	13:05	VP2	906	1	92	A	M	Hunting / Foraging	100.0	0.0	0.0
MR	27-Sep-16	18:32	VP2	923	1	215	A	M	Transit	86.7	13.3	0.0
MR	17-Oct-16	10:54	VP1	941	1	180	J	M	Hunting / Foraging	100.0	0.0	0.0
MR	17-Oct-16	08:40	VP1	928	1	37	A	F	Hunting / Foraging	100.0	0.0	0.0
MR	17-Oct-16	07:40	VP2	930	1	150	J	M	Hunting / Foraging	100.0	0.0	0.0
MR	17-Oct-16	09:52	VP2	944	1	130	J	M	Hunting / Foraging	44.4	55.6	0.0
MR	17-Oct-16	10:47	VP2	947	1	310	J	M	Hunting / Foraging	100.0	0.0	0.0
HH	07-Jan-16	11:34	VP2	280	1	220	A	M	Hunting / Foraging	100.0	0.0	0.0
HH	07-Jan-16	11:45	VP2	283	1	113	A	M	Hunting / Foraging	100.0	0.0	0.0
ML	24-Nov-15	13:11	VP2	118	1	15		F	Hunting / Foraging	50.0	50.0	0.0
ML	25-Nov-15	09:10	VP1	145	1	37		F	Transit	100.0	0.0	0.0
ML	19-Apr-16	17:32	VP2	889	1	49			Hunting / Foraging	100.0	0.0	0.0
ML	17-Oct-16	06:48	VP1	925	1	18		F	Hunting / Foraging	100.0	0.0	0.0
HY	08-Jun-16	10:36	VP2	780	1	17			Hunting / Foraging	50.0	50.0	0.0
HY	08-Jun-16	08:21	VP2	789	1	73	A		Hunting / Foraging	60.0	40.0	0.0
HY	20-Jul-16	17:20	VP1	807	1	170	A		Hunting / Foraging	16.7	83.3	0.0
HY	20-Jul-16	19:48	VP1	802	1	16	A		Hunting / Foraging	0.0	100.0	0.0
HY	10-Aug-16	09:14	VP2	831	1	63	A		Hunting / Foraging	100.0	0.0	0.0
HY	11-Aug-16	05:50	VP1	846	1	119	A		Hunting / Foraging	12.5	87.5	0.0
HY	11-Aug-16	07:52	VP1	842	1	196	A		Hunting / Foraging	14.3	28.6	57.1
PE	15-Dec-15	15:10	VP1	210	1	58	A	M	Hunting / Foraging	100.0	0.0	0.0
PE	16-Dec-15	08:08	VP1	214	1	191	A	M	Hunting / Foraging	30.8	46.2	23.1
PE	16-Dec-15	09:26	VP1	221	1	63	A	M	Hunting / Foraging	80.0	20.0	0.0
PE	23-Dec-15	10:45	VP1	483	1	75	A	M	Hunting / Foraging	50.0	50.0	0.0
PE	06-Jan-16	15:34	VP1	253	1	26	A	M	Hunting / Foraging	100.0	0.0	0.0
PE	06-Jan-16	15:36	VP1	254	1	15	A	M	Transit	100.0	0.0	0.0
PE	06-Jan-16	15:44	VP1	255	1	25	A	M	Transit	50.0	50.0	0.0
PE	07-Jan-16	08:10	VP2	269	1	45		M	Transit	0.0	100.0	0.0
PE	21-Jan-16	09:58	VP1	416	1	127	A	M	Hunting / Foraging	0.0	77.8	22.2
PE	02-Feb-16	15:04	VP1	507	1	117	A	M	Hunting / Foraging	100.0	0.0	0.0
PE	03-Feb-16	14:26	VP1	494	1	65	A		Hunting / Foraging	80.0	20.0	0.0
PE	03-Feb-16	15:00	VP1	501	1	20	A		Transit	50.0	50.0	0.0
PE	03-Feb-16	15:06	VP1	503	1	110	A			50.0	50.0	0.0
PE	03-Feb-16	15:14	VP1	504	1	42	A		Transit	66.7	33.3	0.0
PE	16-Feb-16	14:21	VP1	574	1	214	A	M		60.0	40.0	0.0
PE	16-Feb-16	14:24	VP1	575	1	16	A	F?		0.0	100.0	0.0
PE	19-Apr-16	14:45	VP1	606	1	99	A	M	Hunting / Foraging	42.9	57.1	0.0
PE	19-Apr-16	15:00	VP2	875	1	187		M	Transit	0.0	38.5	61.5
PE	26-May-16	19:53	VP1	658	1	21	A	M	Hunting / Foraging	50.0	50.0	0.0
PE	26-May-16	13:42	VP2	707	1	30	A	M	Transit	0.0	100.0	0.0
PE	20-Jul-16	20:24	VP1	805	1	76	A	M	Transit	33.3	66.7	0.0
PE	20-Jul-16	16:56	VP2	855	1	62	A	M	Transit	0.0	100.0	0.0
PE	11-Aug-16	10:00	VP1	836	1	156	J	M	Hunting / Foraging	9.1	45.5	45.5
PE	11-Aug-16	10:48	VP1	838	1	77		M	Hunting / Foraging	0.0	100.0	0.0
PE	27-Sep-16	12:57	VP1	902	1	15	A	M	Transit	0.0	100.0	0.0
PE	27-Sep-16	12:31	VP2	905	1	300	J	F	Hunting / Foraging	28.6	71.4	0.0
PE	27-Sep-16	16:26	VP2	917	1	67	J	M	Hunting / Foraging	60.0	40.0	0.0
PE	17-Oct-16	12:45	VP1	950	1	115	A	M	Hunting / Foraging	0.0	87.5	12.5
PE	17-Oct-16	11:29	VP2	952	1	62	A	M	Transit	60.0	40.0	0.0

Species Code	Date	Time	VP	Flight ID	No. of Birds	Duration (s)	Age (if known)	Sex (if known)	Behaviour	% of Flight at 0-10 m	% of Flight at 10-50 m	% of Flight at >50 m
PE	17-Oct-16	10:11	VP2	945	1	131			Hunting / Foraging	22.2	44.4	33.3
PE	17-Oct-16	12:07	VP2	960	1	20	A	M	Transit	0.0	100.0	0.0
OC	11-May-16	07:07	VP1	691	2	23				100.0	0.0	0.0
OC	11-May-16	07:29	VP1	692	1	35			Transit	0.0	100.0	0.0
OC	11-May-16	11:06	VP2	652	2	26			Transit	100.0	0.0	0.0
OC	26-May-16	19:59	VP1	659	2	23	A		Transit	50.0	50.0	0.0
OC	26-May-16	19:15	VP2	722	1	18	A			100.0	0.0	0.0
OC	26-May-16	18:23	VP2	719	1	64	A			100.0	0.0	0.0
OC	26-May-16	20:24	VP2	725	1	50	A		Transit	0.0	25.0	75.0
OC	26-May-16	18:35	VP2	720	1	35	A		Transit	100.0	0.0	0.0
OC	26-May-16	20:30	VP2	727	1	35	A		Transit	100.0	0.0	0.0
OC	08-Jun-16	06:55	VP1	741	1	45	A		Transit	100.0	0.0	0.0
OC	08-Jun-16	07:14	VP2	784	1	18			Transit	100.0	0.0	0.0
OC	08-Jun-16	06:02	VP2	796	22	122			Transit	66.7	33.3	0.0
OC	08-Jun-16	06:07	VP2	797	1	27			Transit	100.0	0.0	0.0
OC	08-Jun-16	06:11	VP2	799	2	65			Transit	40.0	60.0	0.0
GP	24-Nov-15	13:11	VP2	117	70	45			Transit	0.0	100.0	0.0
GP	24-Nov-15	15:15	VP2	128	600	60			Transit	20.0	80.0	0.0
GP	15-Dec-15	14:31	VP2	235	6	65			Transit	0.0	100.0	0.0
GP	23-Dec-15	08:04	VP1	460	5	121			Transit	22.2	33.3	44.4
GP	23-Dec-15	08:17	VP1	462	100	75			Transit	33.3	16.7	50.0
GP	23-Dec-15	08:20	VP2	431	1	30			Transit	0.0	100.0	0.0
GP	07-Jan-16	08:39	VP1	259	5	46			Transit	25.0	25.0	50.0
GP	07-Jan-16	08:48	VP2	271	55	45			Transit	0.0	0.0	100.0
GP	07-Jan-16	11:52	VP2	284	45	53			Transit	0.0	0.0	100.0
GP	20-Jan-16	13:29	VP1	373	1	35			Transit	33.3	66.7	0.0
GP	20-Jan-16	13:36	VP1	374	70	32			Transit	66.7	33.3	0.0
GP	20-Jan-16	14:21	VP1	380	200	180				15.4	84.6	0.0
GP	20-Jan-16	12:45	VP2	340	90	155			Transit	0.0	100.0	0.0
GP	20-Jan-16	12:56	VP2	342	85	146				0.0	100.0	0.0
GP	20-Jan-16	13:37	VP2	344	45	50				0.0	100.0	0.0
GP	20-Jan-16	14:31	VP2	350	70	131			Transit	0.0	100.0	0.0
GP	20-Jan-16	14:35	VP2	351	9	24			Transit	0.0	100.0	0.0
GP	21-Jan-16	07:33	VP1	387	36	96			Transit	14.3	14.3	71.4
GP	21-Jan-16	07:54	VP1	392	35	46			Transit	25.0	75.0	0.0
GP	21-Jan-16	07:55	VP1	394	90	18			Transit	50.0	50.0	0.0
GP	21-Jan-16	10:05	VP1	417	280	206			Transit	0.0	100.0	0.0
GP	21-Jan-16	07:59	VP2	293	55	110			Transit	0.0	0.0	100.0
GP	21-Jan-16	08:35	VP2	300	60	50			Transit	0.0	0.0	100.0
GP	21-Jan-16	08:58	VP2	305	9	20			Transit	0.0	100.0	0.0
GP	21-Jan-16	09:04	VP2	307	9	55			Transit	0.0	0.0	100.0
GP	21-Jan-16	09:28	VP2	314	11	40			Transit	0.0	0.0	100.0
GP	21-Jan-16	09:29	VP2	315	310	265			Transit	0.0	0.0	100.0
GP	21-Jan-16	09:43	VP2	321	100	40			Transit	0.0	0.0	100.0
GP	21-Jan-16	10:00	VP2	327	7	50			Transit	0.0	0.0	100.0
GP	21-Jan-16	10:03	VP2	328	510	130			Transit	0.0	44.4	55.6
GP	21-Jan-16	10:08	VP2	330	47	45			Transit	0.0	25.0	75.0
GP	21-Jan-16	10:26	VP2	333	30	35			Transit	0.0	0.0	100.0
GP	21-Jan-16	10:28	VP2	336	30	30			Transit	0.0	100.0	0.0
GP	21-Jan-16	08:10	VP2	338	1	53			Transit	25.0	75.0	0.0
GP	21-Jan-16	08:37	VP2	339	3	55			Transit	0.0	50.0	50.0
GP	02-Feb-16	16:18	VP1	513	100	144			Transit	0.0	50.0	50.0
GP	02-Feb-16	15:21	VP2	531	4	65			Transit	40.0	60.0	0.0
GP	02-Feb-16	15:54	VP2	534	120	50			Transit	25.0	75.0	0.0
GP	02-Feb-16	16:09	VP2	537	280	50			Transit	0.0	50.0	50.0
GP	02-Feb-16	16:14	VP2	539	150	20			Transit	100.0	0.0	0.0

Species Code	Date	Time	VP	Flight ID	No. of Birds	Duration (s)	Age (if known)	Sex (if known)	Behaviour	% of Flight at 0-10 m	% of Flight at 10-50 m	% of Flight at >50 m
GP	03-Feb-16	14:06	VP1	490	9	96			Transit	0.0	71.4	28.6
GP	03-Feb-16	14:30	VP1	498	25	90			Transit	0.0	100.0	0.0
GP	04-Feb-16	10:04	VP2	555	120	95			Transit	0.0	100.0	0.0
GP	04-Feb-16	10:04	VP2	556	900	430			Transit	0.0	13.8	86.2
GP	01-Mar-16	13:33	VP2	587	80	124			Transit	33.3	66.7	0.0
GP	01-Mar-16	13:33	VP2	588	140	40			Transit	0.0	100.0	0.0
GP	01-Mar-16	14:08	VP2	590	160	35			Hunting / Foraging	100.0	0.0	0.0
GP	17-Oct-16	11:35	VP2	955	180	20			Transit	100.0	0.0	0.0
GP	17-Oct-16	11:52	VP2	956	180	30				66.7	33.3	0.0
GP	17-Oct-16	11:55	VP2	959	3	25			Transit	50.0	50.0	0.0
L.	24-Nov-15	13:23	VP1	104	15	20			Transit	50.0	50.0	0.0
L.	24-Nov-15	13:36	VP1	105	150	46			Transit	50.0	50.0	0.0
L.	24-Nov-15	14:04	VP1	108	200	25				100.0	0.0	0.0
L.	24-Nov-15	13:57	VP2	123	6	165			Transit	0.0	50.0	50.0
L.	24-Nov-15	15:11	VP2	126	180	60			Transit	0.0	100.0	0.0
L.	24-Nov-15	15:15	VP2	127	160	75			Transit	0.0	100.0	0.0
L.	25-Nov-15	08:57	VP2	172	120	75			Transit	0.0	100.0	0.0
L.	15-Dec-15	13:14	VP1	198	4	101			Transit	28.6	28.6	42.9
L.	15-Dec-15	13:22	VP1	199	2	26			Transit	50.0	50.0	0.0
L.	15-Dec-15	13:30	VP1	201	5	15			Transit	100.0	0.0	0.0
L.	15-Dec-15	13:48	VP1	203	150	122			Transit	88.9	11.1	0.0
L.	22-Dec-15	14:14	VP1	453	450	125			Transit	11.1	88.9	0.0
L.	22-Dec-15	14:16	VP1	454	85	105			Transit	62.5	37.5	0.0
L.	22-Dec-15	14:34	VP1	455	300	114			Transit	75.0	25.0	0.0
L.	22-Dec-15	14:49	VP1	456	100	47			Transit	75.0	25.0	0.0
L.	22-Dec-15	14:33	VP2	425	7	35			Transit	33.3	66.7	0.0
L.	22-Dec-15	14:35	VP2	426	330	40			Transit	33.3	66.7	0.0
L.	23-Dec-15	08:27	VP1	463	1	51			Transit	25.0	25.0	50.0
L.	23-Dec-15	08:31	VP1	464	430	75			Transit	0.0	100.0	0.0
L.	23-Dec-15	08:34	VP2	432	10	48			Transit	0.0	100.0	0.0
L.	23-Dec-15	09:04	VP2	441	40	80			Transit	0.0	100.0	0.0
L.	07-Jan-16	08:24	VP1	257	34	89			Transit	33.3	33.3	33.3
L.	07-Jan-16	08:34	VP1	258	12	55			Transit	25.0	25.0	50.0
L.	07-Jan-16	11:51	VP1	267	9	27			Transit	50.0	50.0	0.0
L.	07-Jan-16	11:52	VP1	268	40	130			Transit	11.1	33.3	55.6
L.	07-Jan-16	09:00	VP1	261	4	89			Transit	16.7	33.3	50.0
L.	07-Jan-16	09:20	VP1	263	1	82			Transit	33.3	16.7	50.0
L.	07-Jan-16	10:45	VP2	275	6	50			Transit	0.0	100.0	0.0
L.	07-Jan-16	11:38	VP2	281	2	20			Transit	100.0	0.0	0.0
L.	20-Jan-16	13:01	VP1	366	1	54			Transit	75.0	25.0	0.0
L.	20-Jan-16	13:19	VP1	371	3	22			Transit	0.0	100.0	0.0
L.	20-Jan-16	13:36	VP1	375	25	32			Transit	66.7	33.3	0.0
L.	20-Jan-16	13:58	VP1	377	1	79			Transit	16.7	83.3	0.0
L.	20-Jan-16	14:29	VP1	382	5	39			Transit	66.7	33.3	0.0
L.	20-Jan-16	12:56	VP2	341	40	35			Transit	33.3	66.7	0.0
L.	20-Jan-16	13:20	VP2	343	75	55				25.0	75.0	0.0
L.	20-Jan-16	14:00	VP2	345	2	38				33.3	66.7	0.0
L.	20-Jan-16	14:24	VP2	347	1	49			Transit	0.0	100.0	0.0
L.	20-Jan-16	14:31	VP2	349	200	120				11.1	88.9	0.0
L.	21-Jan-16	07:53	VP1	389	6	15			Transit	50.0	50.0	0.0
L.	21-Jan-16	07:53	VP1	390	36	95			Transit	0.0	100.0	0.0
L.	21-Jan-16	07:54	VP1	391	66	46			Transit	25.0	75.0	0.0
L.	21-Jan-16	07:55	VP1	395	7	18			Transit	50.0	50.0	0.0
L.	21-Jan-16	08:12	VP1	398	14	31			Transit	33.3	66.7	0.0
L.	21-Jan-16	08:44	VP1	401	26	38			Transit	0.0	33.3	66.7
L.	21-Jan-16	08:47	VP1	402	25	40			Transit	0.0	0.0	100.0

Species Code	Date	Time	VP	Flight ID	No. of Birds	Duration (s)	Age (if known)	Sex (if known)	Behaviour	% of Flight at 0-10 m	% of Flight at 10-50 m	% of Flight at >50 m
L.	21-Jan-16	09:03	VP1	408	10	36			Transit	33.3	33.3	33.3
L.	21-Jan-16	09:25	VP1	410	1	37			Transit	33.3	66.7	0.0
L.	21-Jan-16	09:42	VP1	415	2	15			Transit	100.0	0.0	0.0
L.	21-Jan-16	10:05	VP1	418	25	206			Transit	42.9	57.1	0.0
L.	21-Jan-16	10:17	VP1	419	1	100			Transit	0.0	100.0	0.0
L.	21-Jan-16	10:19	VP1	420	39	151			Transit	72.7	27.3	0.0
L.	21-Jan-16	07:38	VP2	290	23	50			Transit	0.0	100.0	0.0
L.	21-Jan-16	07:42	VP2	291	7	85			Transit	0.0	100.0	0.0
L.	21-Jan-16	07:43	VP2	292	45	80			Transit	0.0	100.0	0.0
L.	21-Jan-16	08:10	VP2	294	22	53			Transit	25.0	75.0	0.0
L.	21-Jan-16	08:20	VP2	296	100	96			Transit	0.0	100.0	0.0
L.	21-Jan-16	08:37	VP2	301	3	55			Transit	0.0	50.0	50.0
L.	21-Jan-16	08:42	VP2	302	6	90			Transit	0.0	100.0	0.0
L.	21-Jan-16	08:56	VP2	304	12	40				0.0	100.0	0.0
L.	21-Jan-16	09:03	VP2	306	3	35			Transit	0.0	100.0	0.0
L.	21-Jan-16	09:05	VP2	308	8	52			Transit	0.0	100.0	0.0
L.	21-Jan-16	09:25	VP2	312	2	37			Transit	33.3	66.7	0.0
L.	21-Jan-16	09:28	VP2	313	5	50			Transit	0.0	0.0	100.0
L.	21-Jan-16	09:47	VP2	323	1	80			Transit	0.0	0.0	100.0
L.	21-Jan-16	09:56	VP2	325	5	48			Transit	0.0	100.0	0.0
L.	21-Jan-16	10:12	VP2	331	9	35			Transit	0.0	100.0	0.0
L.	21-Jan-16	10:27	VP2	335	12	60			Transit	0.0	100.0	0.0
L.	02-Feb-16	14:35	VP1	505	65	60			Transit	0.0	40.0	60.0
L.	02-Feb-16	14:51	VP1	506	65	64			Transit	20.0	80.0	0.0
L.	02-Feb-16	15:04	VP1	508	190	257			Transit	0.0	100.0	0.0
L.	02-Feb-16	15:26	VP1	509	2	230			Transit	6.3	62.5	31.3
L.	02-Feb-16	15:26	VP1	510	20	105			Transit	0.0	100.0	0.0
L.	02-Feb-16	15:26	VP1	511	50	220			Transit	0.0	100.0	0.0
L.	02-Feb-16	15:41	VP1	512	60	58			Transit	0.0	100.0	0.0
L.	02-Feb-16	15:05	VP2	525	30	35				100.0	0.0	0.0
L.	02-Feb-16	15:05	VP2	526	30	30			Transit	100.0	0.0	0.0
L.	02-Feb-16	15:15	VP2	528	60	20				100.0	0.0	0.0
L.	02-Feb-16	15:19	VP2	529	70	100			Transit	71.4	28.6	0.0
L.	02-Feb-16	15:21	VP2	530	10	110			Transit	50.0	50.0	0.0
L.	02-Feb-16	15:39	VP2	533	29	45			Transit	50.0	50.0	0.0
L.	02-Feb-16	15:54	VP2	535	4	50			Transit	25.0	75.0	0.0
L.	02-Feb-16	16:08	VP2	536	100	132			Transit	11.1	44.4	44.4
L.	03-Feb-16	14:06	VP1	489	70	60			Transit	0.0	100.0	0.0
L.	03-Feb-16	14:07	VP1	492	50	36			Transit	33.3	66.7	0.0
L.	03-Feb-16	14:07	VP1	493	20	36			Transit	0.0	100.0	0.0
L.	03-Feb-16	14:30	VP1	495	56	90			Transit	0.0	100.0	0.0
L.	03-Feb-16	14:31	VP1	496	24	157			Transit	0.0	100.0	0.0
L.	03-Feb-16	14:31	VP1	497	32	100			Transit	28.6	71.4	0.0
L.	03-Feb-16	14:55	VP1	500	11	48			Transit	50.0	50.0	0.0
L.	03-Feb-16	14:06	VP2	548	30	120			Transit	44.4	55.6	0.0
L.	03-Feb-16	14:32	VP2	551	33	40			Transit	0.0	0.0	100.0
L.	04-Feb-16	10:53	VP1	517	4	103			Transit	0.0	28.6	71.4
L.	04-Feb-16	10:04	VP2	557	250	900			Transit	0.0	32.8	67.2
L.	16-Feb-16	13:58	VP1	571	40	22				100.0	0.0	0.0
L.	01-Mar-16	12:43	VP2	580	15	20			Transit	100.0	0.0	0.0
L.	01-Mar-16	14:08	VP2	591	40	20			Hunting / Foraging	100.0	0.0	0.0
L.	19-Apr-16	18:08	VP1	623	1	61	A		Transit	80.0	20.0	0.0
L.	19-Apr-16	14:30	VP2	868	1	40			Transit	0.0	100.0	0.0
L.	19-Apr-16	14:31	VP2	869	1	45			Transit	0.0	100.0	0.0
L.	19-Apr-16	15:29	VP2	878	2	40			Transit	0.0	100.0	0.0
L.	19-Apr-16	15:30	VP2	879	4	125				11.1	88.9	0.0

Species Code	Date	Time	VP	Flight ID	No. of Birds	Duration (s)	Age (if known)	Sex (if known)	Behaviour	% of Flight at 0-10 m	% of Flight at 10-50 m	% of Flight at >50 m
L.	11-May-16	11:04	VP2	651	2	35			Transit	0.0	100.0	0.0
L.	08-Jun-16	08:12	VP2	788	1	32	A		Transit	33.3	66.7	0.0
L.	17-Oct-16	11:54	VP1	949	14	84			Transit	100.0	0.0	0.0
L.	17-Oct-16	10:17	VP1	939	6	24			Transit	100.0	0.0	0.0
L.	17-Oct-16	08:36	VP1	927	3	35			Transit	0.0	0.0	100.0
L.	17-Oct-16	11:33	VP2	953	2	20			Transit	100.0	0.0	0.0
L.	17-Oct-16	11:35	VP2	954	16	30				66.7	33.3	0.0
L.	17-Oct-16	07:50	VP2	932	9	48			Transit	25.0	75.0	0.0
L.	17-Oct-16	11:54	VP2	957	14	25			Transit	50.0	50.0	0.0
L.	17-Oct-16	07:52	VP2	933	1	39			Transit	100.0	0.0	0.0
L.	17-Oct-16	11:55	VP2	958	41	25			Transit	50.0	50.0	0.0
L.	17-Oct-16	11:04	VP2	948	10	27			Transit	100.0	0.0	0.0
L.	17-Oct-16	12:15	VP2	961	50	25			Transit	50.0	50.0	0.0
L.	17-Oct-16	14:40	VP2	964	4	30			Transit	100.0	0.0	0.0
L.	17-Oct-16	13:00	VP2	965	40	20			Transit	100.0	0.0	0.0
L.	17-Oct-16	13:06	VP2	966	5	25			Transit	50.0	50.0	0.0
L.	17-Oct-16	13:14	VP2	967	14	37			Transit	66.7	33.3	0.0
DN	21-Jan-16	10:28	VP2	337	2	30			Transit	0.0	100.0	0.0
SN	20-Jan-16	13:11	VP1	370	1	43			Transit	0.0	100.0	0.0
SN	20-Jan-16	13:42	VP1	376	1	15			Transit	50.0	50.0	0.0
SN	20-Jan-16	15:18	VP1	384	1	38			Transit	0.0	100.0	0.0
SN	21-Jan-16	09:58	VP2	326	1	30			Transit	0.0	0.0	100.0
CU	25-Nov-15	08:40	VP2	169	18	30			Transit	100.0	0.0	0.0
CU	23-Dec-15	09:03	VP2	440	18	48			Transit	25.0	75.0	0.0
CU	23-Dec-15	10:14	VP2	448	18	65			Transit	60.0	40.0	0.0
CU	07-Jan-16	11:21	VP2	278	70	50			Transit	50.0	50.0	0.0
CU	21-Jan-16	09:13	VP2	310	35	30			Transit	100.0	0.0	0.0
CU	21-Jan-16	09:45	VP2	322	1	20			Transit	0.0	0.0	100.0
CU	02-Feb-16	15:15	VP2	527	20	20				100.0	0.0	0.0
CU	02-Feb-16	16:12	VP2	538	30	35				100.0	0.0	0.0
CU	04-Feb-16	10:04	VP2	554	100	54			Transit	50.0	50.0	0.0
CU	02-Mar-16	08:15	VP2	597	50	50				100.0	0.0	0.0
CU	02-Mar-16	08:31	VP2	599	105	53			Transit	50.0	50.0	0.0
CU	02-Mar-16	08:55	VP2	603	100	56			Transit	50.0	50.0	0.0
CU	19-Apr-16	15:19	VP1	607	3	68			Transit	0.0	100.0	0.0
GE	23-Dec-15	08:42	VP1	465	1	16			Transit	100.0	0.0	0.0
GE	23-Dec-15	08:42	VP1	466	1	27			Transit	50.0	50.0	0.0
GE	07-Jan-16	11:18	VP1	265	1	20			Transit	50.0	50.0	0.0
GE	07-Jan-16	09:15	VP1	262	1	15			Transit	100.0	0.0	0.0
GE	20-Jan-16	12:52	VP1	364	2	66			Transit	60.0	40.0	0.0
GE	20-Jan-16	12:53	VP1	365	1	27			Transit	0.0	100.0	0.0
GE	20-Jan-16	13:07	VP1	368	2	119			Transit	50.0	50.0	0.0
GE	20-Jan-16	13:07	VP1	369	1	39			Transit	66.7	33.3	0.0
GE	21-Jan-16	09:26	VP1	411	2	26			Transit	50.0	50.0	0.0
GE	21-Jan-16	09:29	VP2	320	1	30			Transit	0.0	100.0	0.0
GE	04-Feb-16	10:04	VP1	514	1	28			Transit	50.0	50.0	0.0
GE	16-Feb-16	13:16	VP1	566	1	15			Transit	100.0	0.0	0.0
RK	20-Jan-16	12:51	VP1	363	1	15			Transit	100.0	0.0	0.0
RK	20-Jan-16	13:02	VP1	367	1	16			Transit	100.0	0.0	0.0
RK	20-Jan-16	13:24	VP1	372	1	17			Transit	100.0	0.0	0.0
RK	20-Jan-16	14:29	VP1	381	2	39			Transit	66.7	33.3	0.0
RK	20-Jan-16	15:07	VP2	357	1	40			Transit	0.0	100.0	0.0
RK	21-Jan-16	09:26	VP1	412	1	26			Transit	50.0	50.0	0.0
RK	21-Jan-16	08:22	VP2	297	1	55			Transit	0.0	100.0	0.0
RK	03-Feb-16	14:06	VP2	549	1	120			Transit	44.4	55.6	0.0
RK	11-May-16	08:03	VP1	693	1	20			Transit	0.0	100.0	0.0

Species Code	Date	Time	VP	Flight ID	No. of Birds	Duration (s)	Age (if known)	Sex (if known)	Behaviour	% of Flight at 0-10 m	% of Flight at 10-50 m	% of Flight at >50 m
MU	08-Jun-16	09:15	VP1	760	1	45	A		Transit	0.0	0.0	100.0
MU	08-Jun-16	07:06	VP1	744	1	50	A		Transit	0.0	0.0	100.0
MU	08-Jun-16	06:28	VP1	737	2	85	A		Transit	0.0	0.0	100.0
MU	08-Jun-16	07:42	VP1	753	2	56	A		Transit	0.0	100.0	0.0
MU	08-Jun-16	09:35	VP2	776	2	183	2S		Hunting / Foraging	53.8	46.2	0.0
MU	08-Jun-16	09:44	VP2	777	2	243	2S		Hunting / Foraging	47.1	52.9	0.0
MU	08-Jun-16	10:04	VP2	778	2	90	A		Transit	71.4	28.6	0.0
MU	08-Jun-16	10:30	VP2	779	2	24	A		Hunting / Foraging	50.0	50.0	0.0
MU	08-Jun-16	10:59	VP2	781	2	68	A		Hunting / Foraging	60.0	40.0	0.0
CN	26-May-16	19:11	VP2	721	1	165	A		Transit	0.0	100.0	0.0
SE	20-Jan-16	14:49	VP2	353	1	40			Hunting / Foraging	100.0	0.0	0.0
SE	20-Jan-16	14:49	VP2	354	1	340			Hunting / Foraging	91.3	8.7	0.0
SE	20-Jan-16	15:03	VP2	355	1	190			Hunting / Foraging	84.6	15.4	0.0
SE	20-Jan-16	15:10	VP2	358	1	45			Hunting / Foraging	66.7	33.3	0.0
SE	20-Jan-16	15:14	VP2	359	1	502			Hunting / Foraging	100.0	0.0	0.0
SE	20-Jan-16	14:54	VP2	360	1	135				80.0	20.0	0.0
SE	19-Apr-16	20:00	VP1	632	1	15			Hunting / Foraging	100.0	0.0	0.0
SE	19-Apr-16	20:09	VP1	633	1	145			Hunting / Foraging	90.0	10.0	0.0
SE	20-Jul-16	20:28	VP2	864	1	251	A		Hunting / Foraging	100.0	0.0	0.0
SE	20-Jul-16	20:37	VP2	865	1	35	A		Hunting / Foraging	100.0	0.0	0.0
BO	19-Apr-16	20:22	VP2	899	1	25				100.0	0.0	0.0
RN	25-Nov-15	08:46	VP2	170	1	30			Transit	33.3	66.7	0.0
RN	25-Nov-15	09:06	VP2	174	1	45			Transit	0.0	100.0	0.0
RN	16-Feb-16	14:28	VP1	576	1	15			Transit	0.0	100.0	0.0
RN	02-Mar-16	08:21	VP1	595	2	82			Transit	33.3	66.7	0.0
RN	20-Jul-16	17:42	VP2	857	3	35			Transit	0.0	100.0	0.0
RN	20-Jul-16	17:46	VP2	858	2	38			Transit	0.0	100.0	0.0
RN	20-Jul-16	17:58	VP2	860	1	83				50.0	50.0	0.0
RN	20-Jul-16	17:58	VP2	861	1	50				0.0	100.0	0.0
RN	10-Aug-16	10:32	VP2	834	2	267			Courtship	0.0	11.1	88.9
RN	10-Aug-16	06:13	VP2	824	2	15			Transit	100.0	0.0	0.0
RN	10-Aug-16	10:37	VP2	835	2	27			Courtship	0.0	100.0	0.0
RN	11-Aug-16	07:31	VP1	840	1	24	J		Hunting / Foraging	100.0	0.0	0.0
RN	11-Aug-16	08:43	VP1	844	1	15	A		Transit	100.0	0.0	0.0
RN	11-Aug-16	08:56	VP1	845	1	16			Transit	0.0	100.0	0.0
RN	27-Sep-16	15:23	VP1	907	2	252			Transit	0.0	11.8	88.2

9.8 Passage/Winter Bird Survey Counts of Dark-bellied Brent Goose, Golden Plover and Lapwing

Table A9.30: Baseline field counts of foraging dark-bellied brent goose in intertidal (blue), grazing marsh at east end (green) and grazing marsh/reedbed coastal sectors (grey)

N.B. totals may not add up to the sum of field counts, as double-counting of flocks that moved during the survey will have been accounted for.

		Field Number			1	2	3	4	5	6	7	8	9	36	48	61	29	30	31	32	33	34	35	10	11	12	13	14	15	16	17	37		
		Field Area (ha)	TIDE	SURVEY	29.3	21.5	17.9	18.7	28.9	23.0	20.9	16.2	16.7	18.6	14.4	20.1	3.6	6.1	3.1	1.8	3.9	4.2	6.0	3.9	3.6	4.2	6.6	7.3	3.8	4.5	3.6	4.8		
SEASON 1 - WINTER 13/14		09/01/2014	LT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		13/01/2014	HT	WBS (Farm)											0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		15/01/2014	HT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		07/02/2014	LT	WBS	0	0	0	0	0	16	800	0	0	0	0	0	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		10/02/2014	LT	WBS (Farm)											0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		12/02/2014	HT	WBS	6	0	0	0	0	0	0	0	0	0	0	0	120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		05/03/2014	HT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		07/03/2014	LT	WBS (Farm)													0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		10/03/2014	LT	WBS	0	0	2	2	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		08/10/2014	HT	PBS (West)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SEASON 2 - WINTER 14/15		09/10/2014	HT	PBS (East)	0	0	0	0	0	400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		16/10/2014	LT	PBS (East)	0	0	0	0	3500	0	0	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	0	0	0	0	
		17/10/2014	LT	PBS (West)	0	2	49	280	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		22/10/2014	HT	PBS (West)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		23/10/2014	HT	PBS (East)	0	0	0	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		12/11/2014	HT	WBS (Farm)													0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		13/11/2014	LT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		21/11/2014	HT	WBS	0	0	0	0	130	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		09/12/2014	HT	WBS	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/12/2014	HT	WBS (Farm)													0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEASON 3 - WINTER 15/16		17/12/2014	LT	WBS	1	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		14/01/2015	LT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		20/01/2015	LT	WBS (Farm)													0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		21/01/2015	HT	WBS (East)	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		18/02/2015	HT	WBS (West)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		24/02/2015	HT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		25/02/2015	HT	WBS (Farm)													0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		26/02/2015	LT	WBS	0	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		30/09/2015	HT	PASS WO													0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		01/10/2015	LT	PASS WO													0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	28/10/2015	HT	PASS WO													0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	29/10/2015	LT	PASS WO													0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	23/11/2015	LT	LT INT	0	0	203	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	23/11/2015	LT	LT WO													0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	24/11/2015	HT	HT INT	0	5	135	1	0	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	24/11/2015	HT	HT WO													0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	14/12/2015	HT	HT INT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	14/12/2015	HT	HT WO													0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	15/12/2015	LT	LT INT	0	50	248	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	15/12/2015	LT	LT WO													0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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Field Number		1	2	3	4	5	6	7	8	9	36	48	61	29	30	31	32	33	34	35	10	11	12	13	14	15	16	17	37
Field Area (ha)		29.3	21.5	17.9	18.7	28.9	23.0	20.9	16.2	16.7	18.6	14.4	20.1	3.6	6.1	3.1	1.8	3.9	4.2	6.0	3.9	3.6	4.2	6.6	7.3	3.8	4.5	3.6	4.8
SEASON	DATE	HT	SURVEY	HT	WWS	HT	WWS	HT	WWS	HT	WWS	HT	WWS	HT	WWS	HT	WWS	HT	WWS	HT	WWS	HT	WWS	HT	WWS	HT	WWS	HT	WWS
	16/01/2018	LT	WWS	0	0	0	19	0	0	0	600	0	0	0	560	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	27/01/2018	LT	WWS	0	0	0	1	5	17	0	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	30/01/2018	HT	WWS	0	0	0	0	1	5	0	24	0	0	414	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	09/02/2018	LT	WWS	0	0	0	26	0	36	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	15/02/2018	HT	WWS	0	0	0	0	0	9	23	21	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	21/02/2018	LT	WWS	0	0	0	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	26/02/2018	HT	WWS	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01/03/2018	HT	WWS	14	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	06/03/2018	LT	WWS	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	16/03/2018	HT	WWS	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	27/03/2018	LT	WWS	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	06/04/2018	LT	WWS	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12/04/2018	HT	WWS	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Table A9.31: Baseline field counts of foraging dark-bellied brent geese in arable count sectors (yellow)

N.B. totals may not add up to the sum of field counts, as double-counting of flocks that moved during the survey will have been accounted for.

		Field Number		18	19	20	21	22	23	24	25	26	27	28	38	39	40	41	42	43	44	45	46	47	49	50	51	52	53	54	55	56	57	58	59	60	TOTAL	ARABLE
		Field Area (ha)		10.1	14.2	17.1	9.9	6.0	14.7	8.8	11.9	7.6	8.3	13.7	10.7	10.7	18.9	10.2	8.1	14.3	19.6	6.8	8.2	4.8	6.5	14.9	24.9	26.1	22.1	9.4	12.2	8.4	3.4	7.7	3.0	16.4		
SEASON	DATE	TIDE	SURVEY																																			
SEASON 1 - WINTER 13/14	09/01/2014	LT	WBS	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3011	3011	
	13/01/2014	HT	WBS (Farm)	0	0	0	0	0	0	0	0	0	0	2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2000	2000		
	15/01/2014	HT	WBS	0	0	0	0	0	0	0	0	2500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2500	2500		
	07/02/2014	LT	WBS	0	0	0	0	0	0	0	0	134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1150	134		
	10/02/2014	LT	WBS (Farm)	0	0	0	0	0	0	50	300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	350	350		
	12/02/2014	HT	WBS	0	0	0	0	0	0	0	0	0	0	700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	826	700		
	05/03/2014	HT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	07/03/2014	LT	WBS (Farm)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1		
	10/03/2014	LT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	0		
	08/10/2014	HT	PBS (West)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	400	0		
	09/10/2014	HT	PBS (East)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	16/10/2014	LT	PBS (East)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	17/10/2014	LT	PBS (West)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	22/10/2014	HT	PBS (West)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
23/10/2014	HT	PBS (East)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3916	0		
SEASON 2 - WINTER 14/15	12/11/2014	HT	WBS (Farm)	0	0	0	0	0	0	2000	1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	0	
	13/11/2014	LT	WBS	0	0	0	1000	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3400	3400		
	21/11/2014	HT	WBS	0	0	0	0	150	0	650	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	931	800		
	09/12/2014	HT	WBS	0	0	0	0	0	0	430	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	449	444		
	10/12/2014	HT	WBS (Farm)	0	0	0	0	0	4	0	500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	504	504		
	17/12/2014	LT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0		
	14/01/2015	LT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	20/01/2015	LT	WBS (Farm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	21/01/2015	HT	WBS (East)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	908	900		
	18/02/2015	HT	WBS (West)	0	0	0	0	0	0	900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	24/02/2015	HT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	25/02/2015	HT	WBS (Farm)	0	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	150	150		
	26/02/2015	LT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	980	900		
	30/09/2015	HT	PASS WO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
01/10/2015	LT	PASS WO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
28/10/2015	HT	PASS WO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
29/10/2015	LT	PASS WO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
SEASON 3 - WINTER 15/16	23/11/2015	LT	LT INT	0	0	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	299	95		
	23/11/2015	LT	LT WO	0	373	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	373	373			
	24/11/2015	HT	HT INT	0	250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	396	250			
	24/11/2015	HT	HT WO	3	290	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	293	293			
	14/12/2015	HT	HT INT	0	300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	300	300			
	14/12/2015	HT	HT WO	0	270	340	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	340	340			
15/12/2015	LT	LT INT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	306	0				
15/12/2015	LT	LT WO	0	220	0	0	0	0	0	0	0	0	0	0	390	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	390	390				
21/12/2015	LT	LT INT	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	100				

SEASON 4 - Winter 2017/18

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N.B. totals may not add up to the sum of field counts, as double-counting of flocks that moved during the survey will have been accounted for.

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[illegible]

		Field Number	18	19	20	21	22	23	24	25	26	27	28	38	39	40	41	42	43	44	45	46	47	49	50	51	52	53	54	55	56	57	58	59	60	TOTAL	ARABLE
		Field Area (ha)	10.1	14.2	17.1	9.9	6.0	14.7	8.8	11.9	7.6	8.3	13.7	10.7	10.7	18.9	10.2	8.1	14.3	19.6	6.8	8.2	4.8	6.5	14.9	24.9	26.1	22.1	9.4	12.2	8.4	3.4	7.7	3.0	16.4		
SEASON	DATE	TIDE	SURVEY																																		
	21/12/2015	HT	5	10	2	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	30	30	
	21/12/2015	LT	0	0	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45	
	22/12/2015	HT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	81	1	
	22/12/2015	HT	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	5	5		
	22/12/2015	HT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0		
	05/01/2016	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	05/01/2016	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	06/01/2016	HT	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	262	2		
	06/01/2016	HT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0		
	19/01/2016	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	0	0	0	0	0	0	0	86	38		
	19/01/2016	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	115	85	150	130	0	0	567	432		
	19/01/2016	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	16	32	16	100	2	40	8	0	10	0	3	228	228
	20/01/2016	HT	2	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69	14	
	20/01/2016	HT	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	131	131	30	110	0	45	155	0	646	606
	02/02/2016	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	03/02/2016	HT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	437	1	
	03/02/2016	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	600	300	
	03/02/2016	HT	0	2	30	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4	7	2	13	3	0	0	0	10	0	72	72	
	04/02/2016	HT	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	308	8	
	16/02/2016	LT	0	0	0	0	0	0	0	0	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	154	0	0	0	185	0	414	414	
	17/02/2016	HT	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	0	12	0	78	75
	01/03/2016	HT	180	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	189	189	
	02/03/2016	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	02/03/2016	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
02/03/2016	HT	0	0	1	0	0	1	4	0	12	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	20	20		
03/03/2016	HT	0	0	0	0	0	0	0	0	125	125	0	0	0	0	0	0	26	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	277	277	
20/04/2016	HT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
21/04/2016	HT	0	0	0	0	0	2	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	7	7		
21/04/2016	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
26/09/2017	HT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
27/09/2017	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
12/10/2017	HT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
13/10/2017	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
30/10/2017	LT	0	0	0	0	0	0	0	10	4	14	7	0	0	0	0	0	3	35	30	6	12	0	0	0	0	0	0	2	87	0	0	0	0	136	130	
31/10/2017	HT	0	0	0	0	0	0	0	0	6	20	8	0	0	0	0	0	0	49	19	14	9	0	0	0	0	0	0	37	55	0	0	0	219	217		
06/11/2017	HT	0	0	0	0	0	0	0	65	30	5	19	5	0	0	0	0	90	18	69	19	0	0	0	0	0	0	0	0	39	0	0	0	364	359		
07/11/2017	LT	0	0	0	0	0	0	0	38	5	19	24	0	0	0	0	0	3	52	24	38	29	0	0	0	0	0	0	0	0	22	0	0	257	254		
22/11/2017	HT	30	300	0	0	0	0	0	0	78	4	13	27	0	100	0	0	0	26	58	30	18	0	0	0	0	0	0	0	0	0	0	0	684	684		
23/11/2017	LT	160	85	0	0	0	0	7	44	7	13	19	0	0	0	0	0	0	88	55	14	15	0	0	0	0	0	0	67	0	0	0	749	574			
06/12/2017	HT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
07/12/2017	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0	0		
20/12/2017	HT	0	1	0	0	0	0	0	87	6	2	11	0	0	0	0	0	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	293	191		
28/12/2017	LT	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	53	0	155	2	0	0	0	0	0	0	0	0	0	0	0	105	451	316		
12/01/2018	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	371	1	1		
16/01/2018	HT	430	0	0	0	0	0	0	115	0	0	0	0	0	0	0	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	935	585			



Field Number		18	19	20	21	22	23	24	25	26	27	28	38	39	40	41	42	43	44	45	46	47	49	50	51	52	53	54	55	56	57	58	59	60	TOTAL	ARABLE		
Field Area (ha)		10.1	14.2	17.1	9.9	6.0	14.7	8.8	11.9	7.6	8.3	13.7	10.7	10.7	18.9	10.2	8.1	14.3	19.6	6.8	8.2	4.8	6.5	14.9	24.9	26.1	22.1	9.4	12.2	8.4	3.4	7.7	3.0	16.4				
SEASON	DATE	TIDE		SURVEY																																		
	27/01/2018	LT	WWO	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	460	165		
	30/01/2018	HT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120	0	0		
	09/02/2018	LT	WWO	0	0	5	0	0	0	0	0	35	0	0	0	0	0	0	270	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	361	311	0	
	15/02/2018	HT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	21/02/2018	LT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	
	26/02/2018	HT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	01/03/2018	HT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	06/03/2018	LT	WWO	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
	16/03/2018	HT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	27/03/2018	LT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0
	06/04/2018	LT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12/04/2018	HT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table A9.34: Baseline field counts of foraging golden plover in intertidal (blue), grazing marsh at east end (green) and grazing marsh/reedbed coastal sectors (grey)

N.B. totals may not add up to the sum of field counts, as double-counting of flocks that moved during the survey will have been accounted for.

Field Number	1	2	3	4	5	6	7	8	9	36	48	61	29	30	31	32	33	34	35	10	11	12	13	14	15	16	17	37
Field Area (ha)	29.3	21.5	17.9	18.7	28.9	23.0	20.9	16.2	16.7	18.6	14.4	20.1	3.6	6.1	3.1	1.8	3.9	4.2	6.0	3.9	3.6	4.2	6.6	7.3	3.8	4.5	3.6	4.8
SEASON	DATE	TIDE	SURVEY																									
SEASON 1 - WINTER 13/14	09/01/2014	LT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	13/01/2014	HT	WBS (Farm)																									
	15/01/2014	HT	WBS	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	07/02/2014	LT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10/02/2014	LT	WBS (Farm)																									
	12/02/2014	HT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	05/03/2014	HT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	07/03/2014	LT	WBS (Farm)																									
	10/03/2014	LT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	08/10/2014	HT	PBS (West)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEASON 2 - WINTER 14/15	09/10/2014	HT	PBS (East)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	16/10/2014	LT	PBS (East)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	17/10/2014	LT	PBS (West)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	22/10/2014	HT	PBS (West)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	23/10/2014	HT	PBS (East)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12/11/2014	HT	WBS (Farm)																									
	13/11/2014	LT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	21/11/2014	HT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	09/12/2014	HT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10/12/2014	HT	WBS (Farm)																									
SEASON 3 - WINTER 15/16	17/12/2014	LT	WBS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	14/01/2015	LT	WBS	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	20/01/2015	LT	WBS (Farm)																									
	21/01/2015	HT	WBS (East)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	18/02/2015	HT	WBS (West)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	24/02/2015	HT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	25/02/2015	HT	WBS (Farm)																									
	26/02/2015	LT	WBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	30/09/2015	HT	PASS WO																									
	01/10/2015	LT	PASS WO																									
SEASON 4 - WINTER 16/17	28/10/2015	HT	PASS WO																									
	29/10/2015	LT	PASS WO																									
	23/11/2015	LT	LT INT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	23/11/2015	LT	LT WO																									
	24/11/2015	HT	HT INT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	24/11/2015	HT	HT WO																									
	14/12/2015	HT	HT INT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	14/12/2015	HT	HT WO																									
	15/12/2015	LT	LT INT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	15/12/2015	LT	LT WO																									



Field Number	1	2	3	4	5	6	7	8	9	36	48	61	29	30	31	32	33	34	35	10	11	12	13	14	15	16	17	37
Field Area (ha)	29.3	21.5	17.9	18.7	28.9	23.0	20.9	16.2	16.7	18.6	14.4	20.1	3.6	6.1	3.1	1.8	3.9	4.2	6.0	3.9	3.6	4.2	6.6	7.3	3.8	4.5	3.6	4.8
SEASON	DATE	TIDE	SURVEY																									
SEASON 4 - Winter 2017/18	21/12/2015	LT	LT INT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	21/12/2015	HT	NOC																									
	21/12/2015	LT	LT WO																									
	22/12/2015	HT	HT INT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	22/12/2015	HT	HT WO																									
	05/01/2016	LT	LT INT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	05/01/2016	LT	LT WO																									
	06/01/2016	HT	HT INT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	06/01/2016	HT	HT WO																									
	19/01/2016	LT	LT INT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	19/01/2016	LT	LT WO																									
	19/01/2016	HT	NOC																									
	20/01/2016	HT	HT INT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	20/01/2016	HT	HT WO																									
	02/02/2016	LT	LT WO														95	0	0	0	0	0	0	0	0	0	0	0
	03/02/2016	HT	HT INT	0	0	0	0	0	0	0	0	0	0	0	250	0	250	0	0	0	0	0	0	0	0	0	0	0
	03/02/2016	LT	LT INT	0	0	0	0	0	0	0	0	0	0	0	350	0	350	0	0	0	0	0	0	0	0	0	0	0
	03/02/2016	HT	NOC												0	0	0	0	0	0	0	0	0	0	0	0	0	0
	04/02/2016	HT	HT WO												0	0	600	0	0	0	0	0	0	0	0	0	0	0
	16/02/2016	LT	LT WO												0	0	0	0	0	0	0	0	0	0	0	0	0	0
17/02/2016	HT	HT WO												0	0	0	0	0	0	0	0	0	0	0	0	0	0	
01/03/2016	HT	HT INT	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
02/03/2016	LT	LT INT	0	0	0	0	0	0	0	0	0	0	490	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
02/03/2016	LT	LT WO											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
02/03/2016	HT	NOC												0	0	0	0	0	0	0	0	0	0	0	0	0	0	
03/03/2016	HT	HT WO												0	0	0	0	0	0	0	0	0	0	0	0	0	0	
20/04/2016	HT	HT INT	0	0	0	0	0	0	0	0	0	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	
21/04/2016	HT	HT WO												0	0	0	0	0	0	0	0	0	0	0	0	0	0	
21/04/2016	LT	LT INT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
26/09/2017	HT	WWO	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27/09/2017	LT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/10/2017	HT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13/10/2017	LT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/10/2017	LT	WWO	0	0	0	0	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31/10/2017	HT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06/11/2017	HT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/11/2017	LT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22/11/2017	HT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23/11/2017	LT	WWO	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06/12/2017	HT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/12/2017	LT	WWO	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20/12/2017	HT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	200	0	0	0	0	0	0	0	0	0
28/12/2017	LT	WWO	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/01/2018	LT	WWO	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0

[illegible]

Table A9.35: Baseline field counts of foraging golden plover in arable count sectors (yellow)

N.B. totals may not add up to the sum of field counts, as double-counting of flocks that moved during the survey will have been accounted for.

[illegible]

SEASON 4 - Winter 2017/18

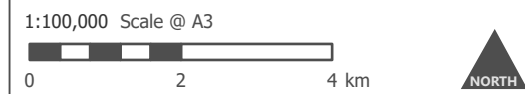
Cleve Hill Solar Park Ltd
November 2018

Figures

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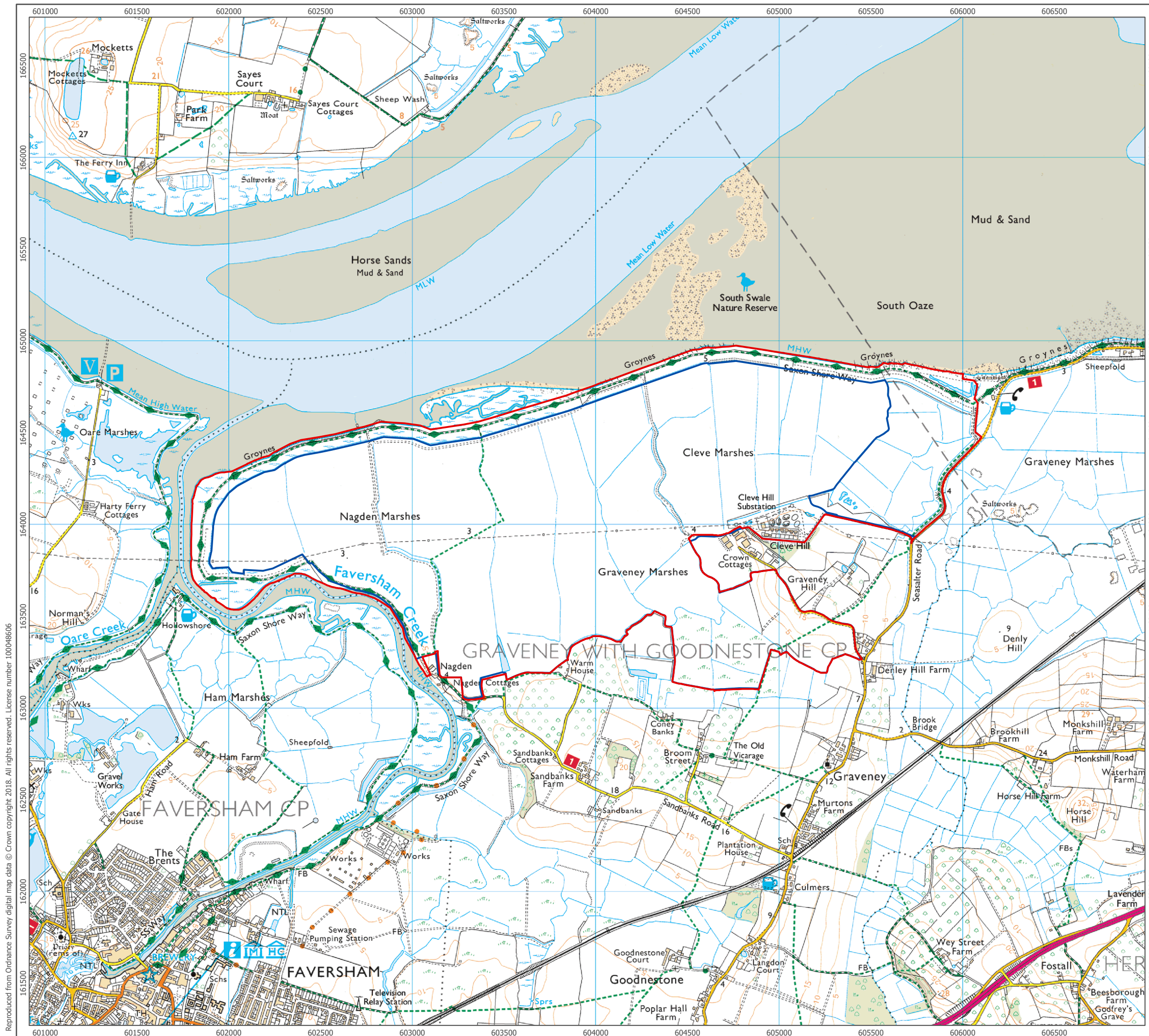
- Site Boundary
- Core Survey Area
- 2 km Desk Study Species Search Area
- Other Designated Site Search Area
- SPA Site Search Area



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Desk Study Areas Figure A9.1

Cleve Hill Solar Park Environmental Statement



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-  Site Boundary
-  Core Survey Area

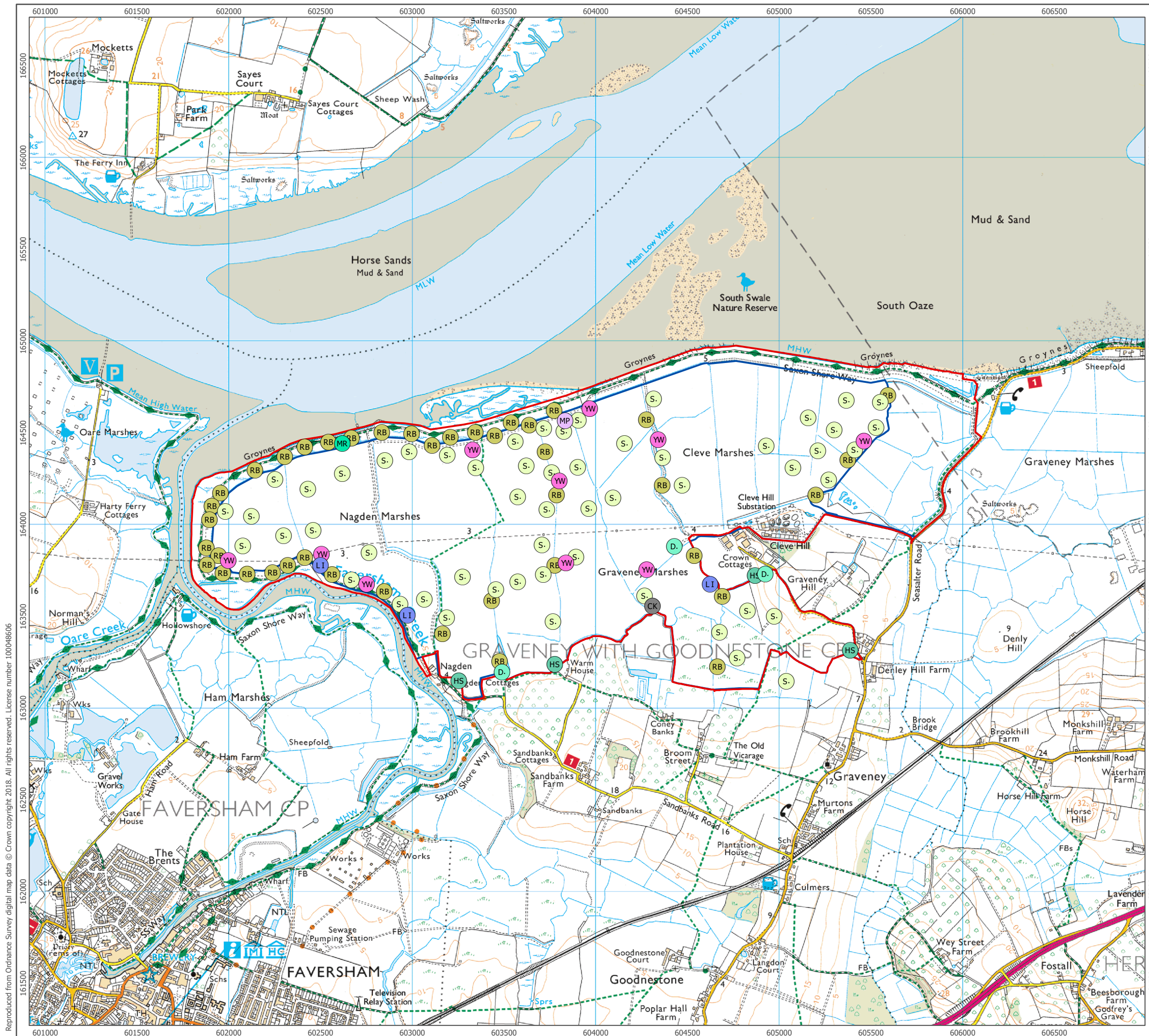
1:20,000 Scale @ A3

0 0.5 1 km 

Produced By: SC	Ref: 2238-REP-253
Checked By: MA	Date: 01/11/2018

Breeding Bird Survey Area Figure A9.2

Cleve Hill Solar Park Environmental Statement



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- Site Boundary
- Core Survey Area

Species

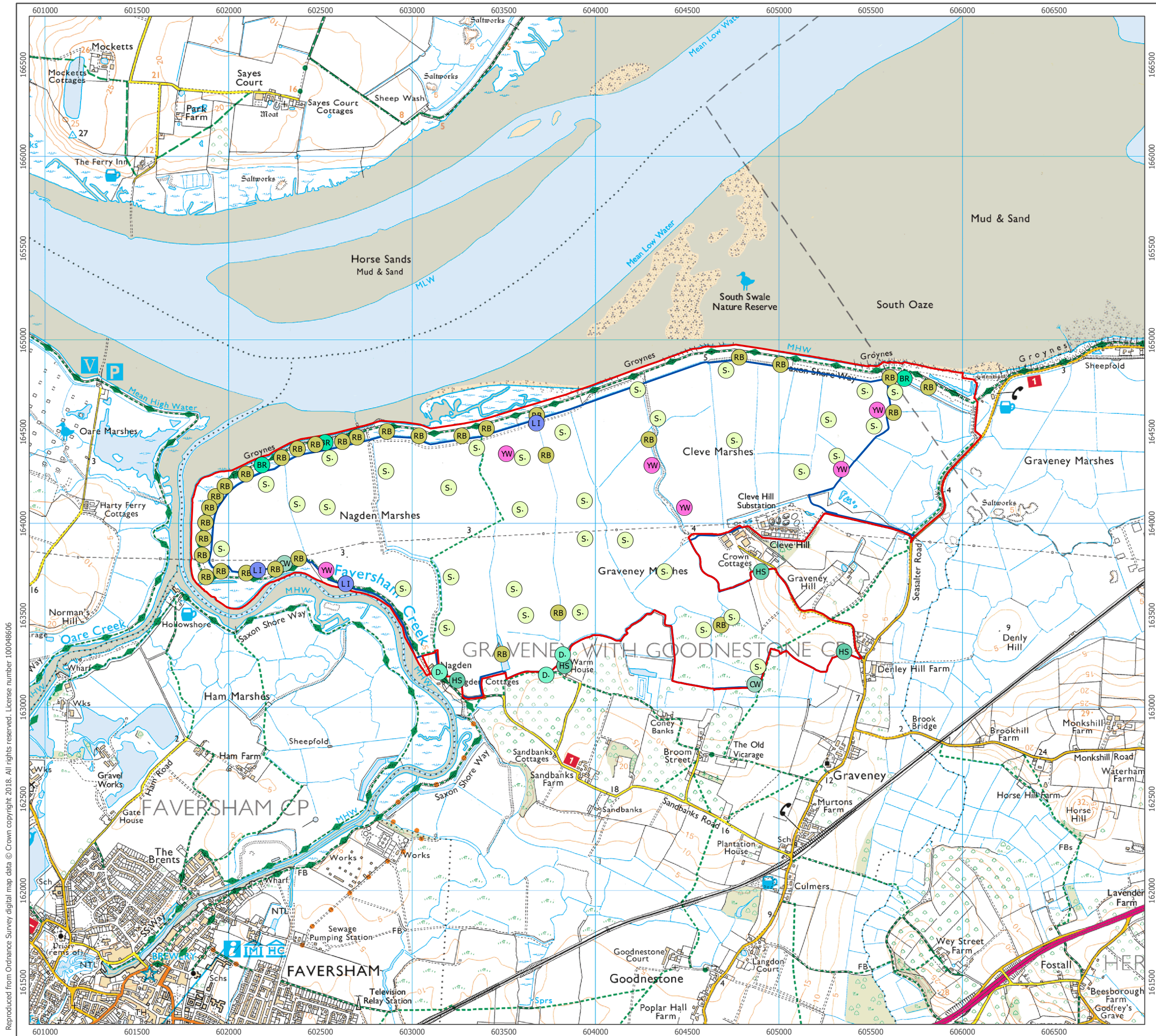
- CK Cuckoo
- D Dunnock
- HS House Sparrow
- LI Linnet
- MR Marsh Harrier
- MP Meadow Pipit
- RB Reed Bunting
- S Skylark
- YW Yellow Wagtail



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Checked By: MA	Date: 01/11/2018

Breeding Bird Survey Results 2014
Figure A9.3

Cleve Hill Solar Park
Environmental Statement

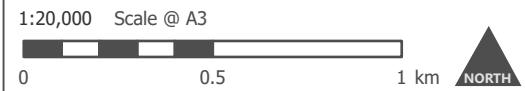


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- Site Boundary
- Core Survey Area

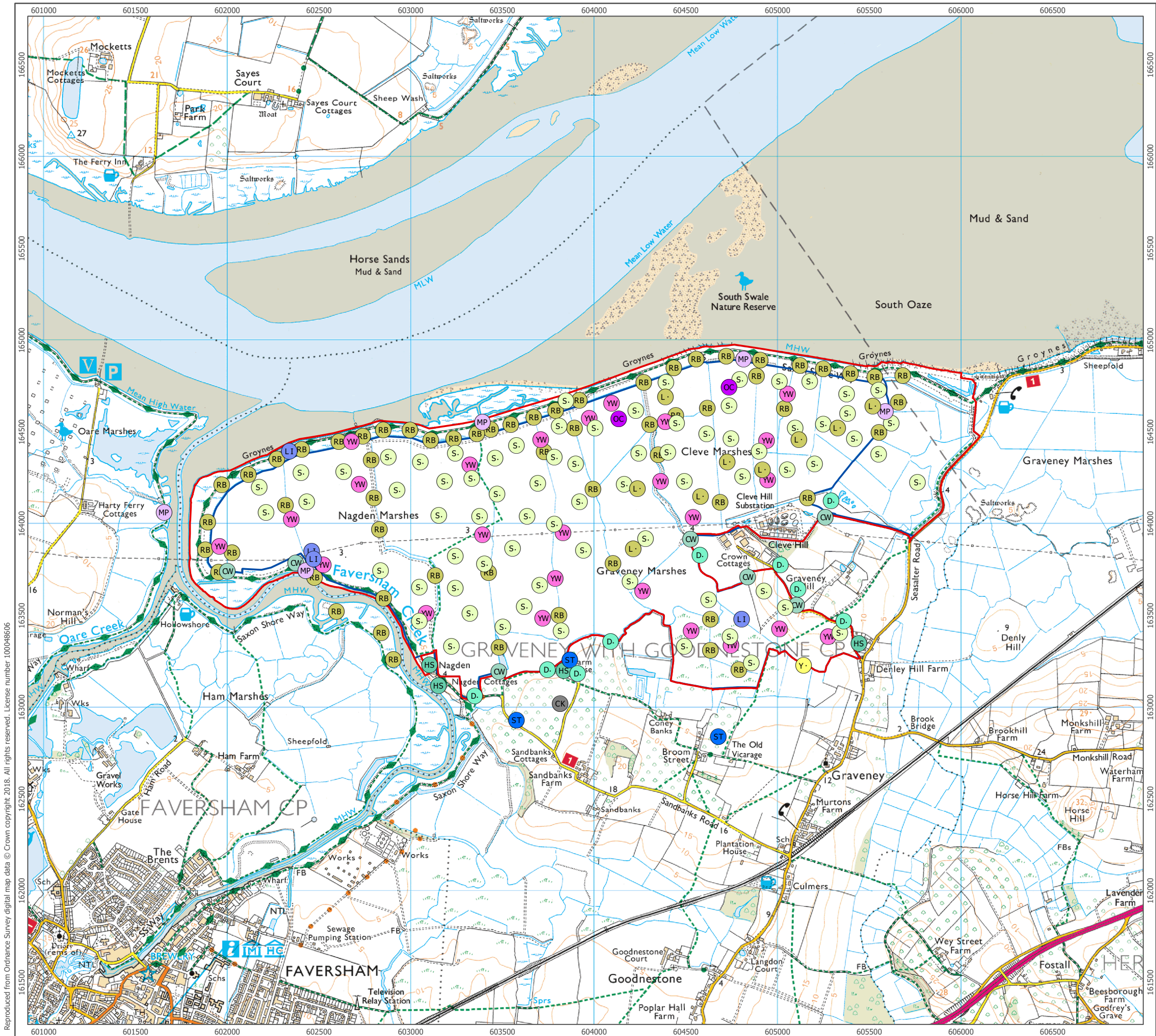
- Species
- BR Bearded Tit
 - CW Cetti's Warbler
 - D Dunnock
 - HS House Sparrow
 - LI Linnet
 - RB Reed Bunting
 - S Skylark
 - YW Yellow Wagtail



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Checked By: MA	Date: 01/11/2018

Breeding Bird Survey Results 2015
Figure A9.4

**Cleve Hill Solar Park
Environmental Statement**



- Site Boundary
- Core Survey Area

Species

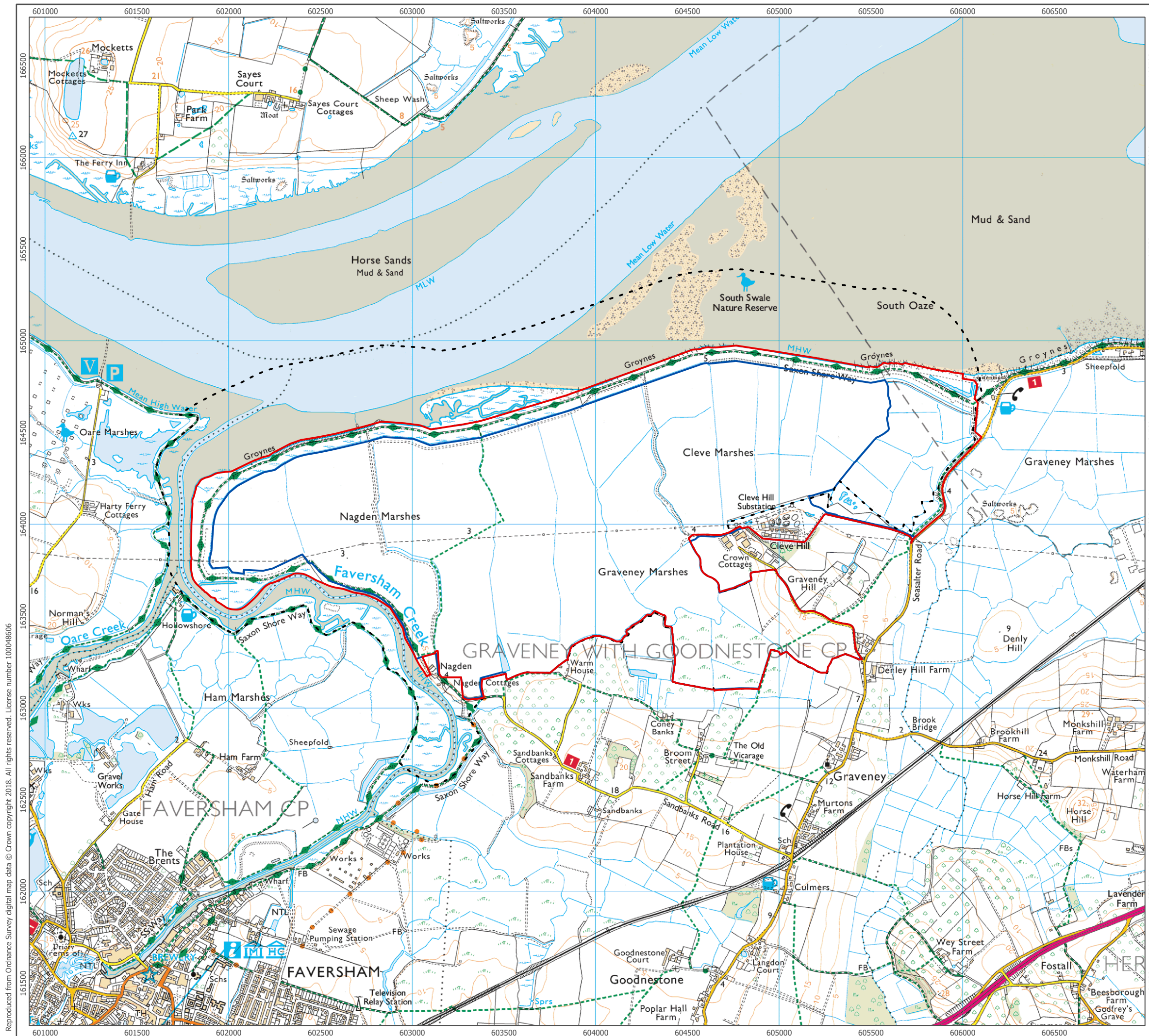
- Cetti's Warbler
- Cuckoo
- Dunnock
- House Sparrow
- Lapwing
- Linnet
- Meadow Pipit
- Oystercatcher
- Reed Bunting
- Skylark
- Song Thrush
- Yellow Wagtail
- Yellowhammer



Produced By: SC	Ref: 2238-REP-256
Checked By: MA	Date: 01/11/2018

Breeding Bird Survey Results 2016
Figure A9.5

Cleve Hill Solar Park
Preliminary Environmental
Information Report



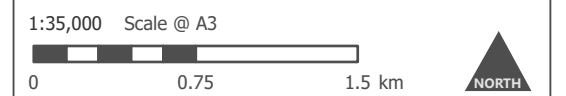
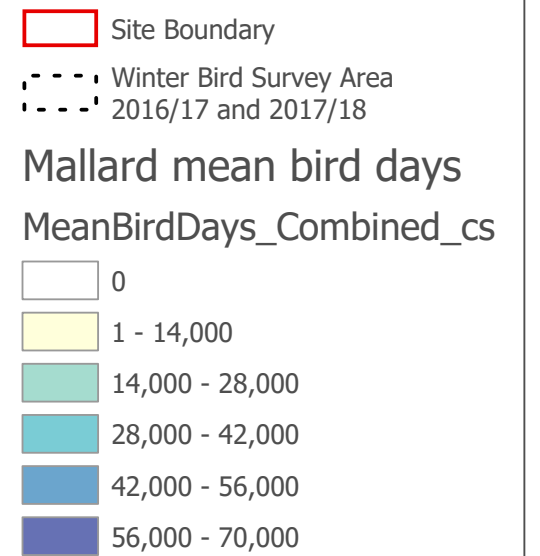
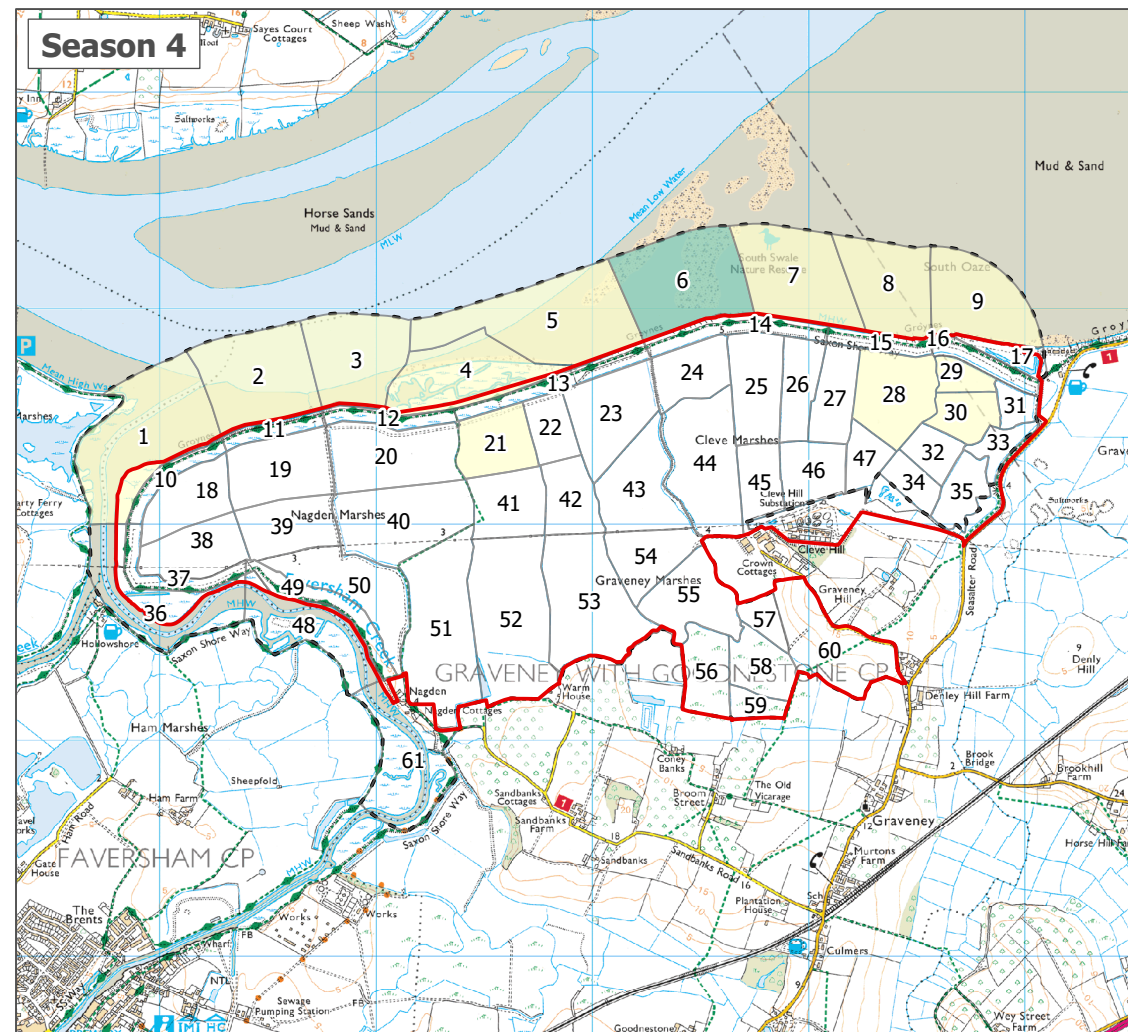
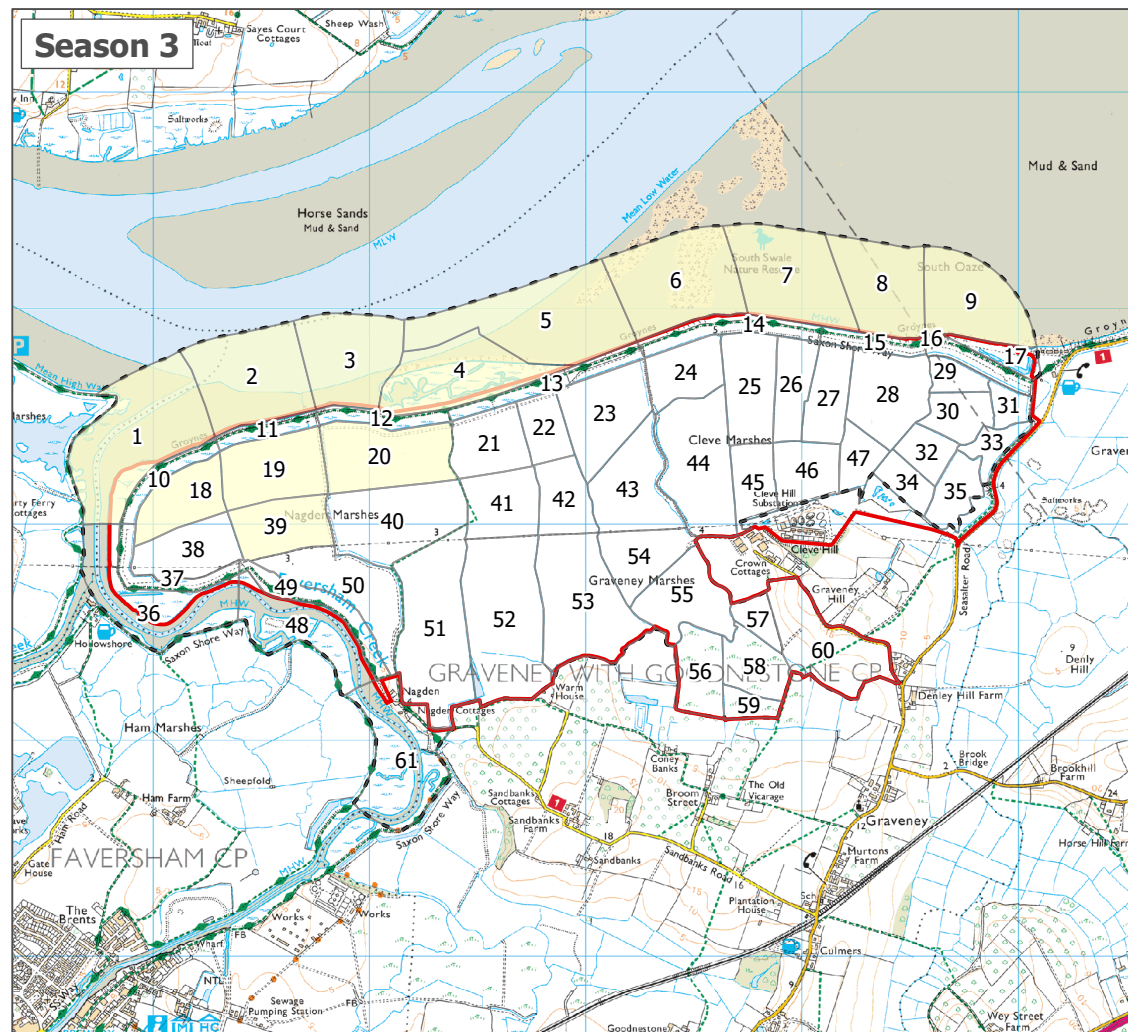
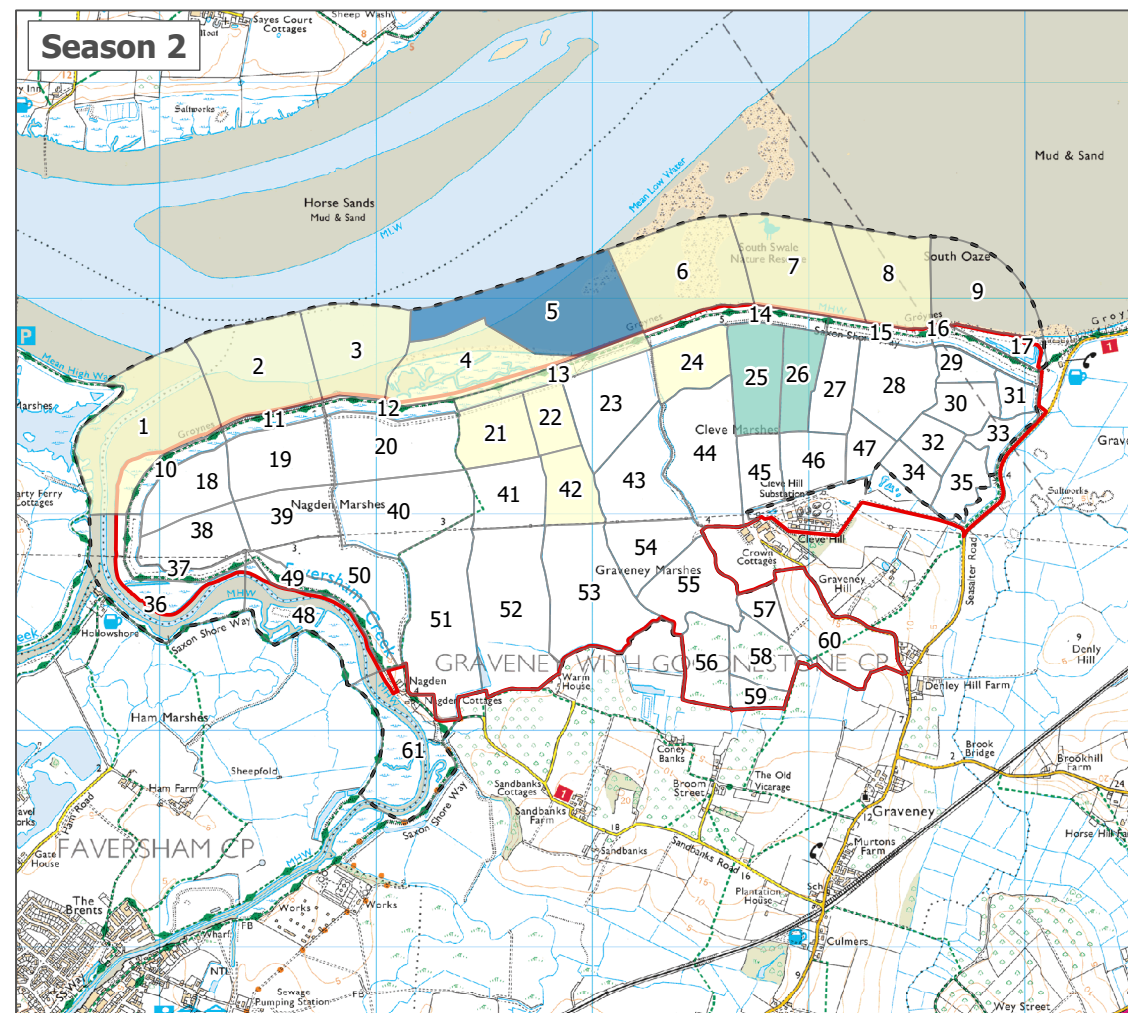
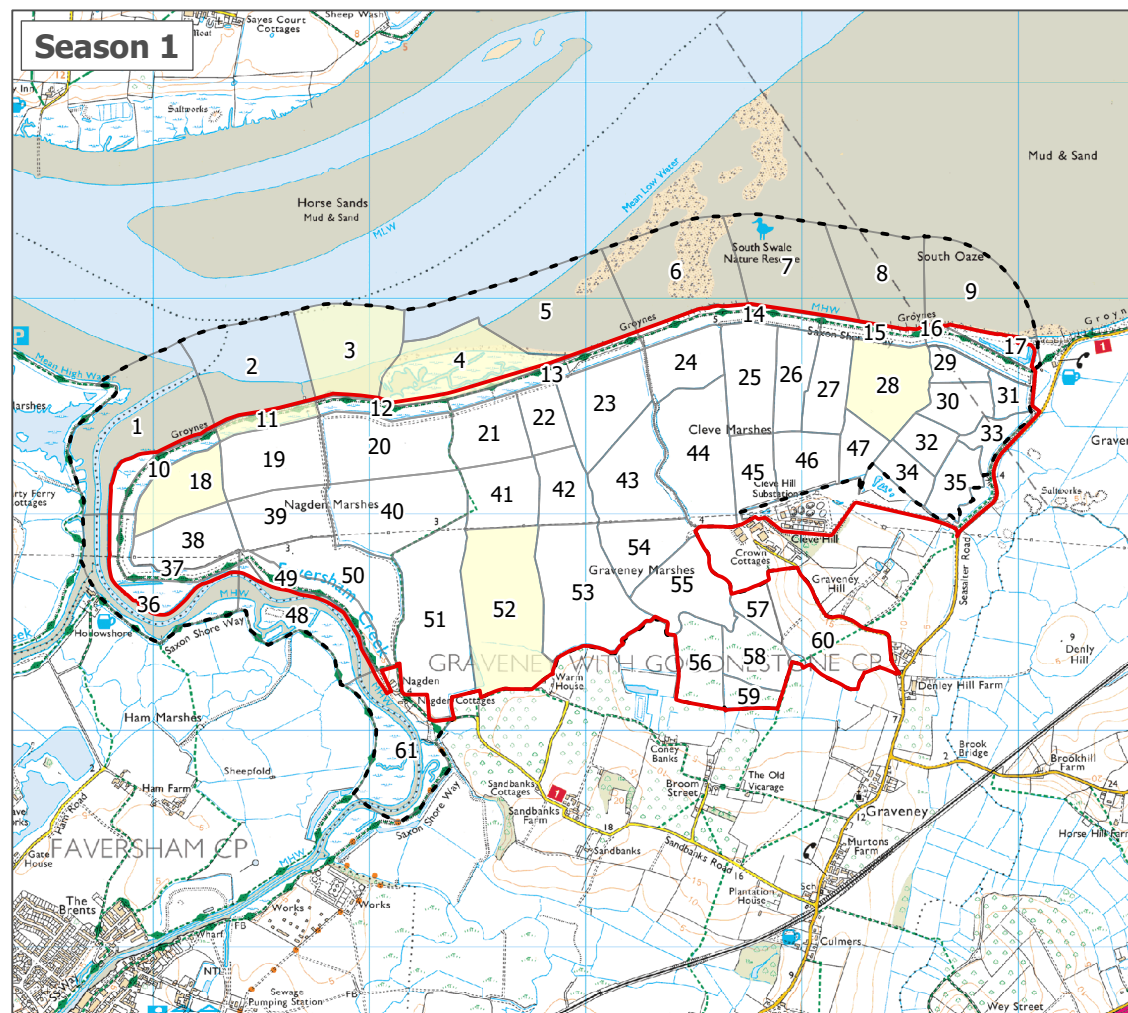
- Site Boundary
- Core Survey Area
- Winter Bird Survey Area
- 2015/16 and 2017/18

1:20,000 Scale @ A3
0 0.5 1 km

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Checked By: MA	Date: 09/11/2018

Passage/Winter Bird Survey Area
Figure A9.6

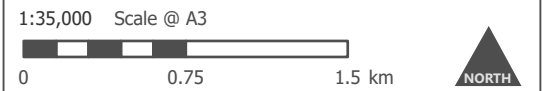
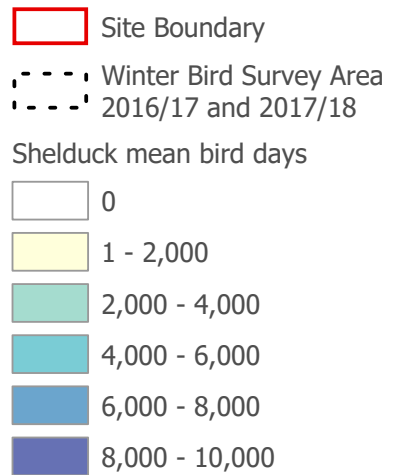
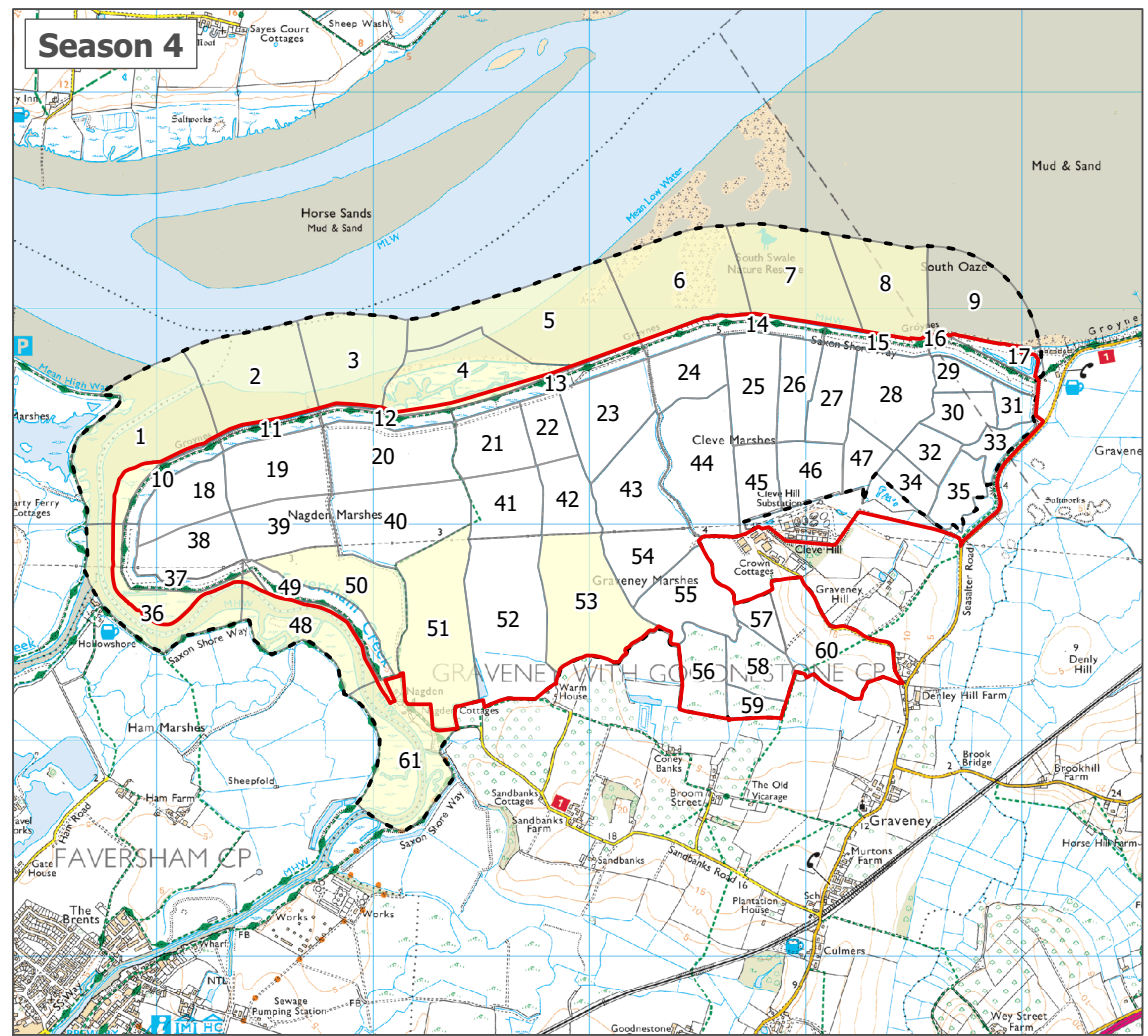
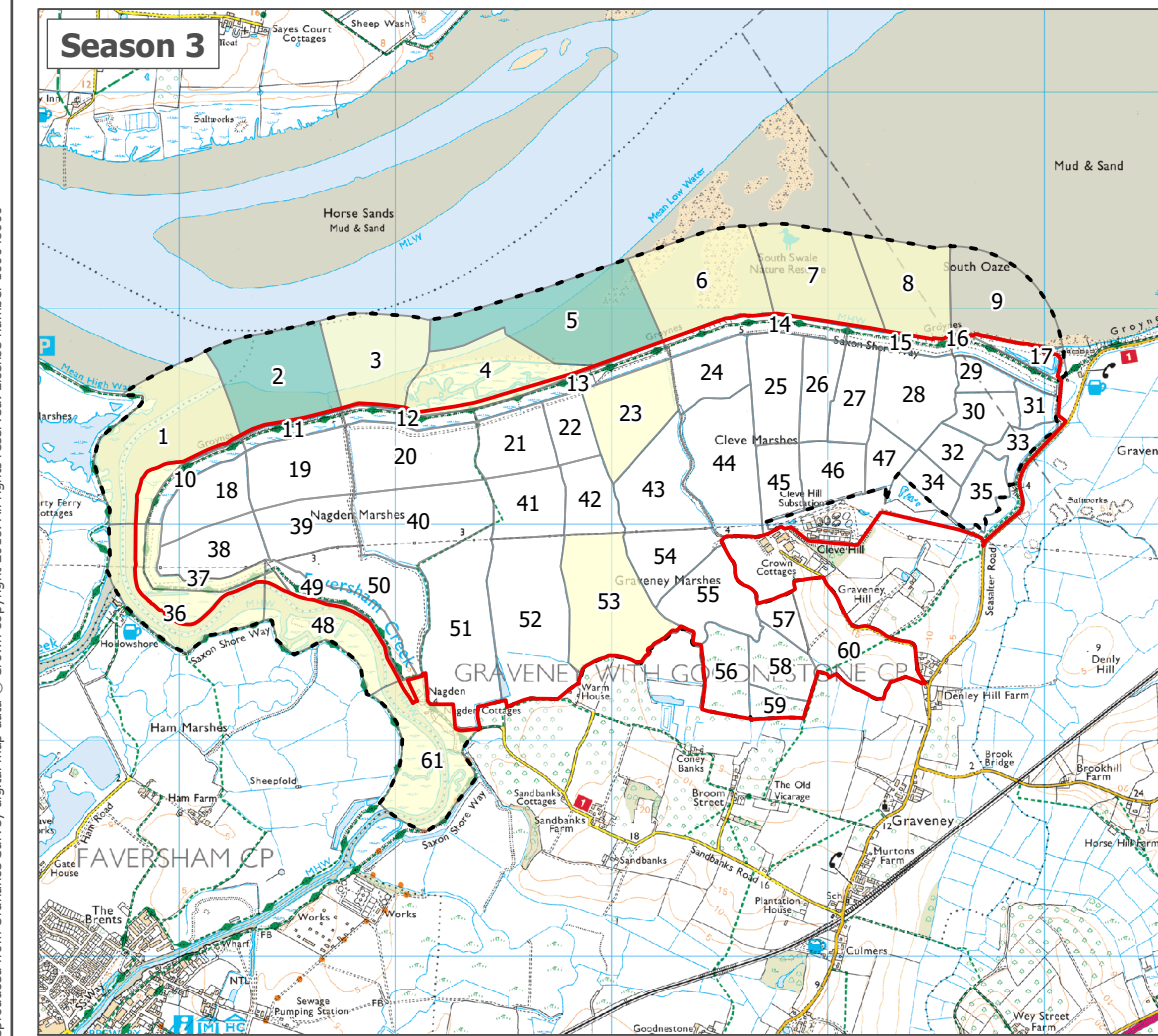
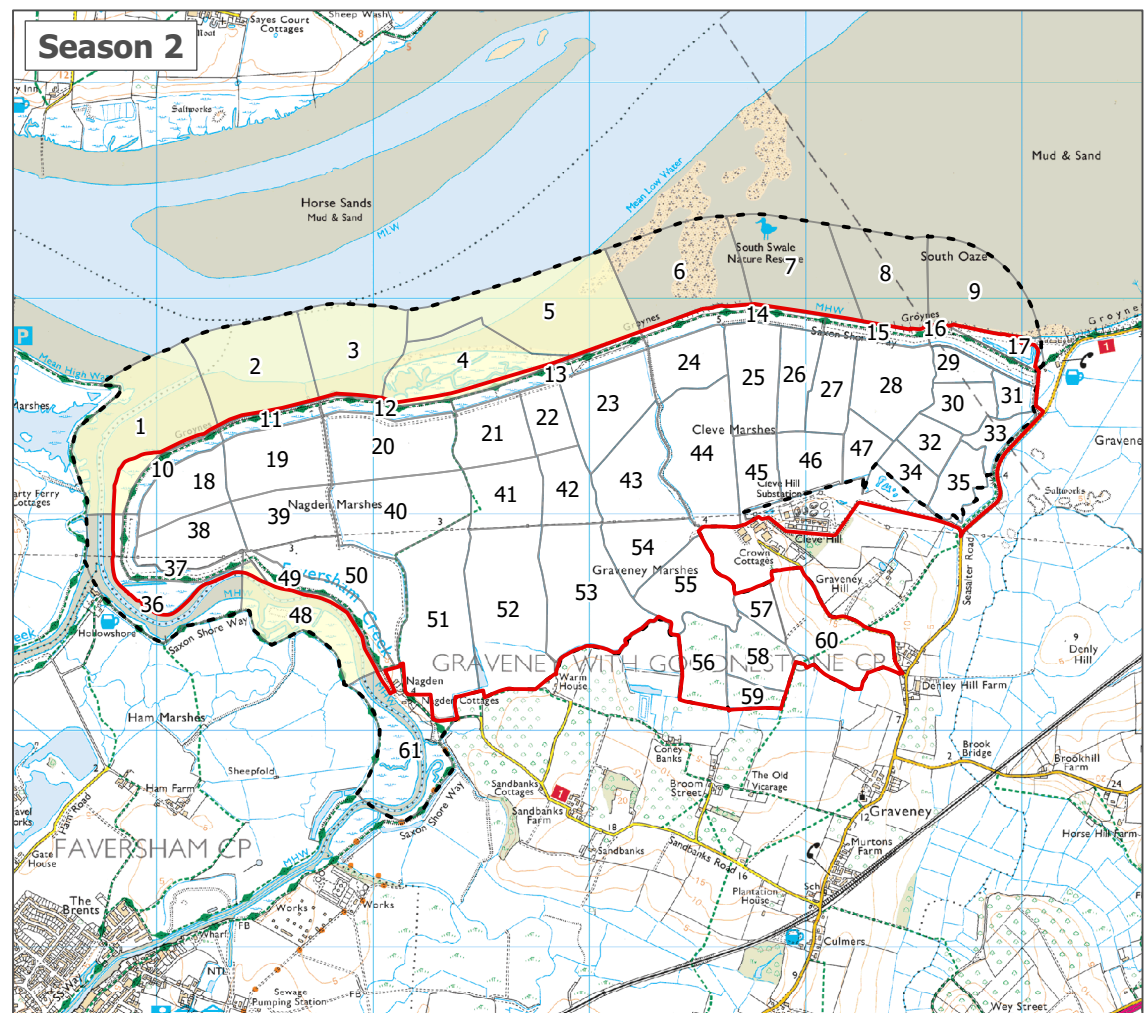
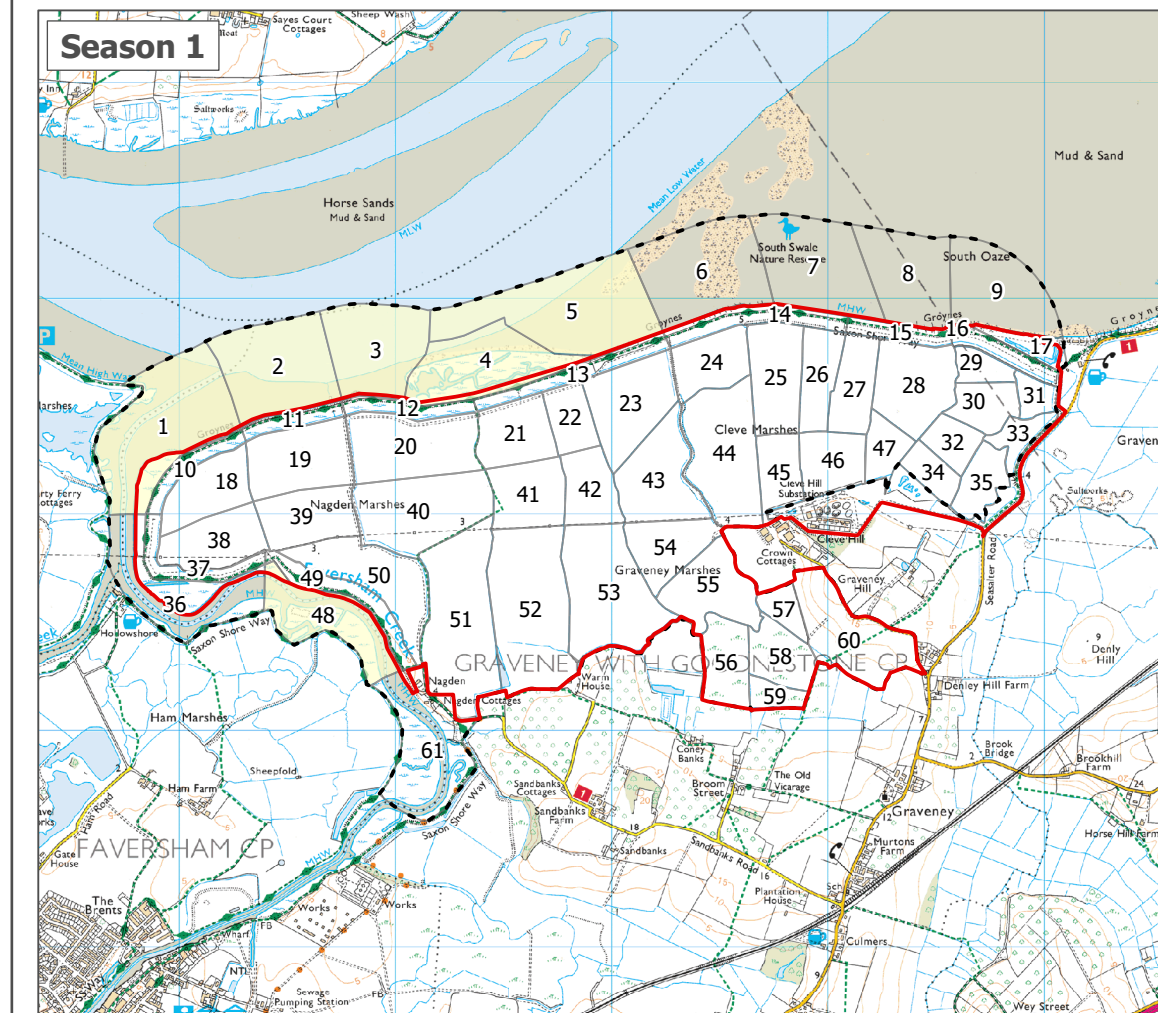
Cleve Hill Solar Park
Environmental Statement



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Checked By: MA	Date: 14/11/2018

Passage/Winter Bird Survey Results:
Dark-bellied Brent Goose
Figure A9.7

Cleve Hill Solar Park
Environmental Statement

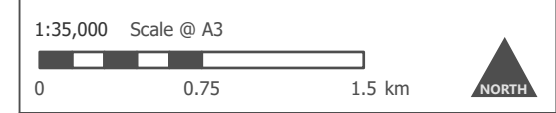
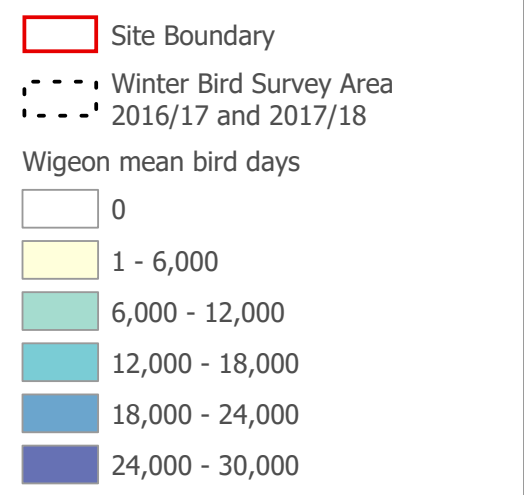
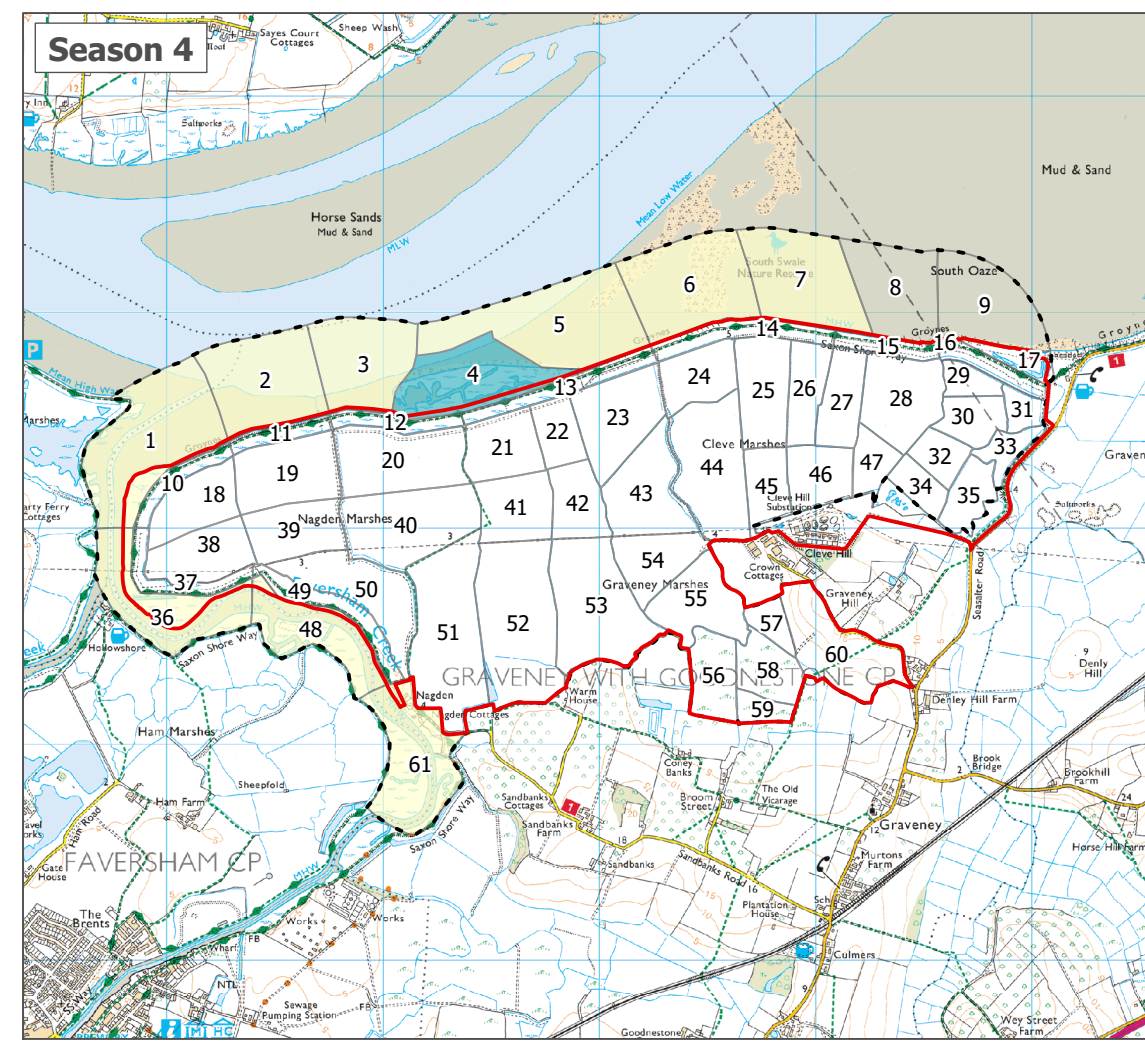
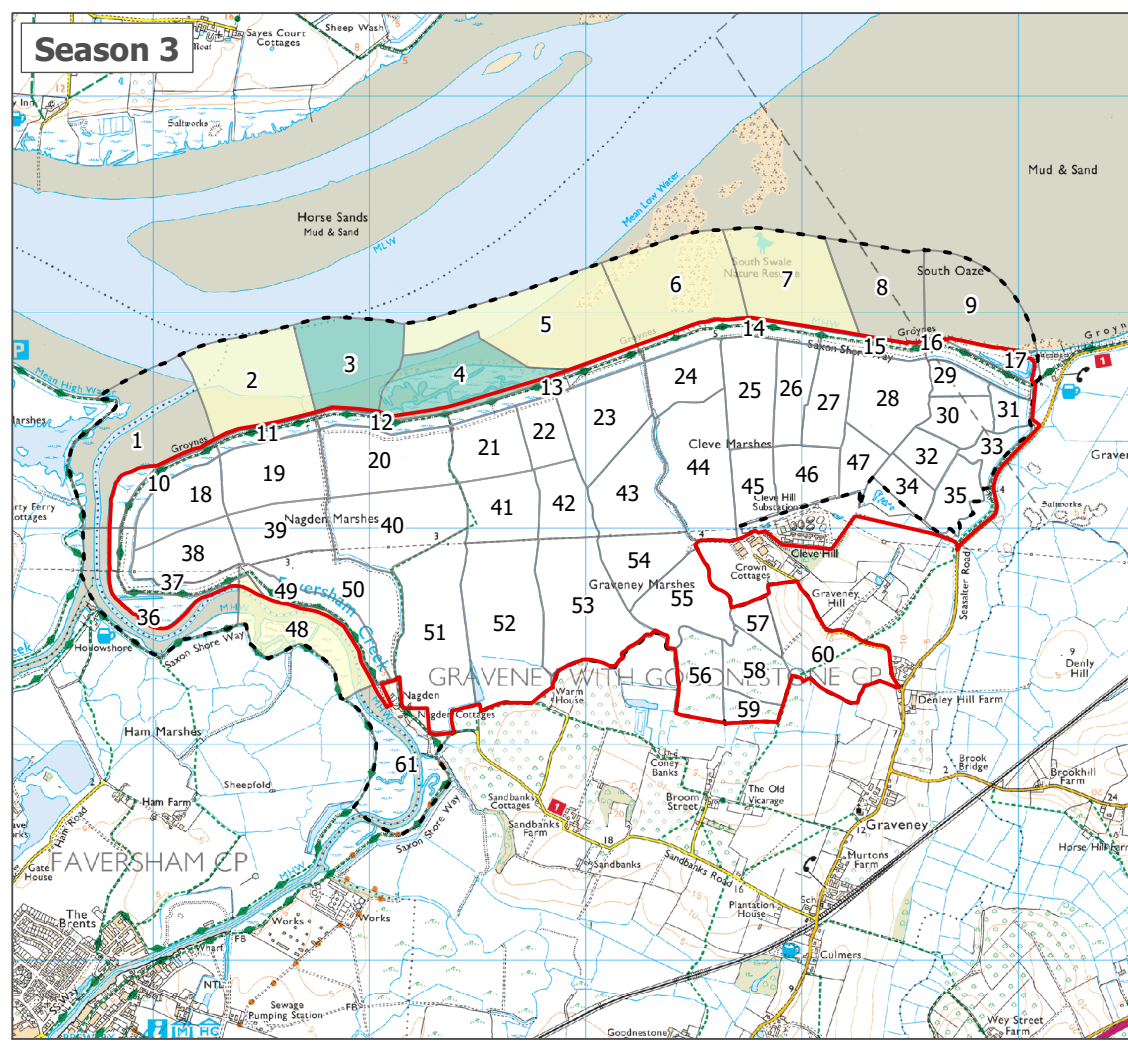
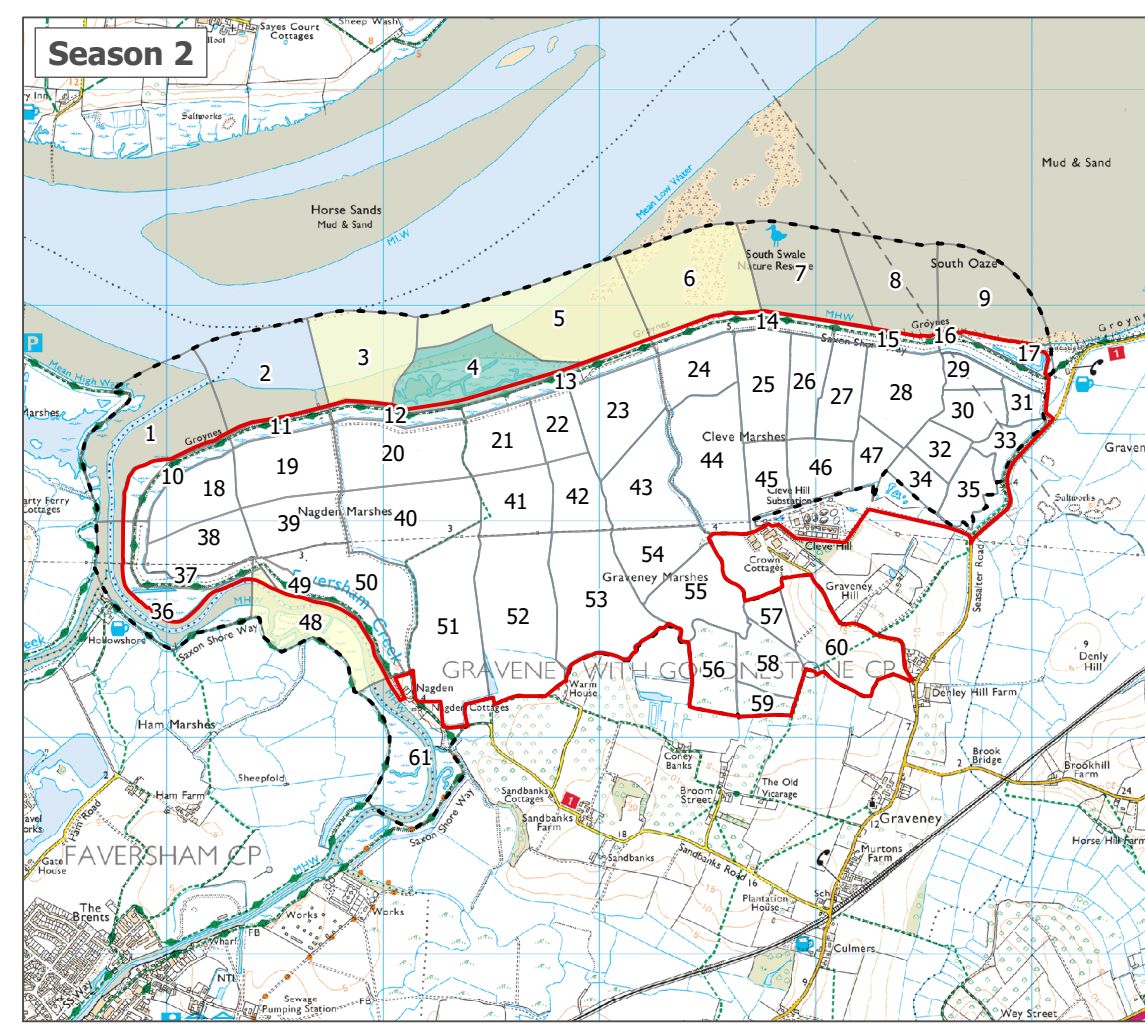
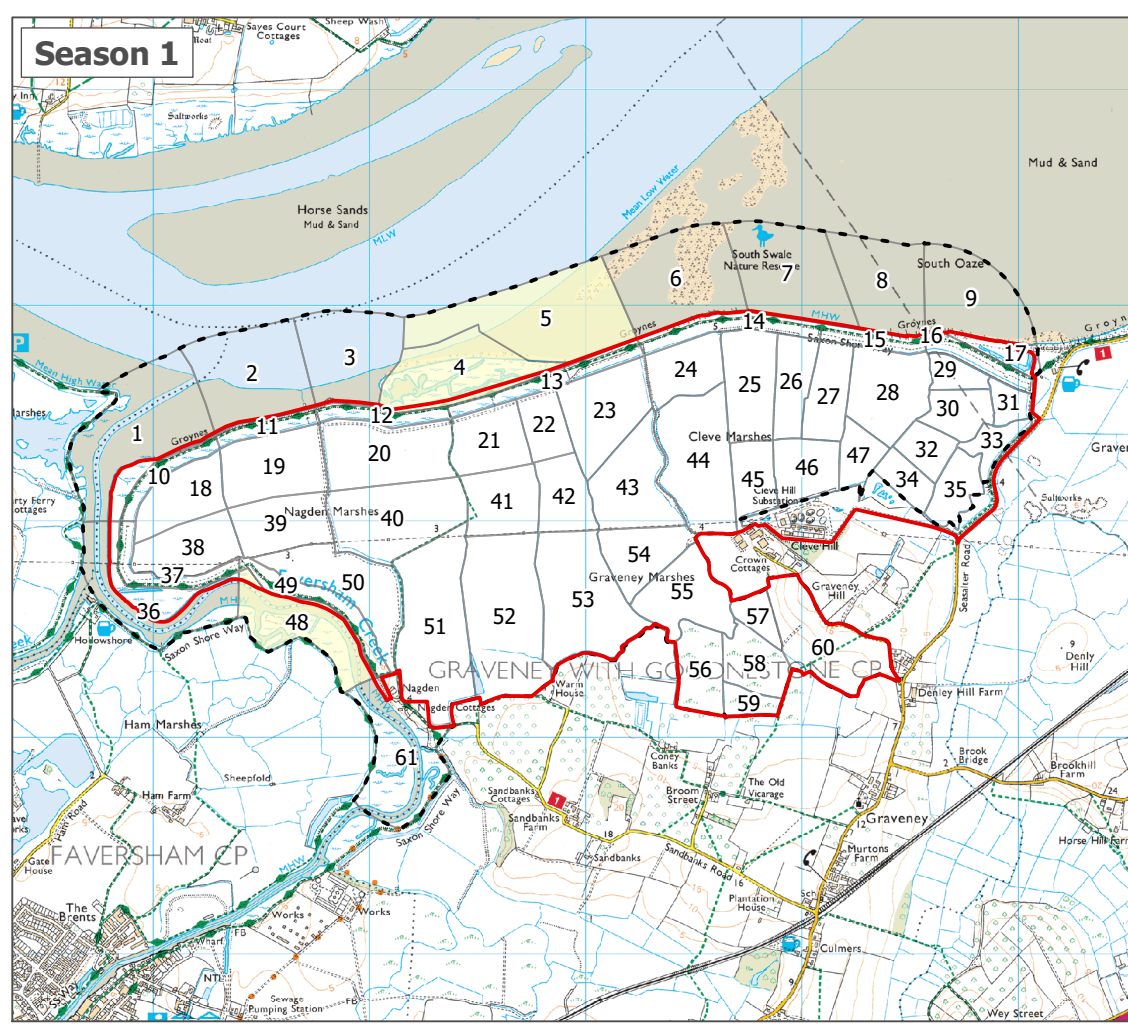


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Passage/Winter Bird Survey Results:
Shelduck
Figure A9.8

Cleve Hill Solar Park
Environmental Statement

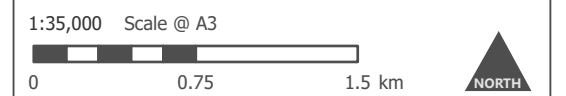
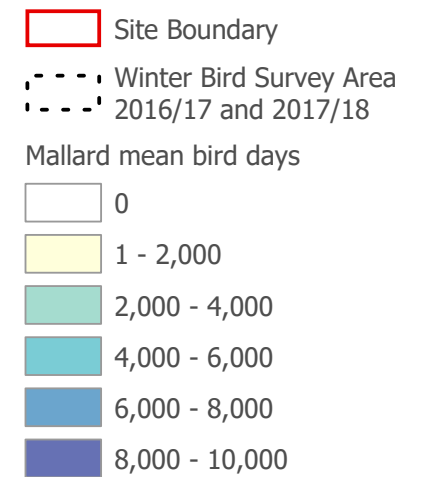
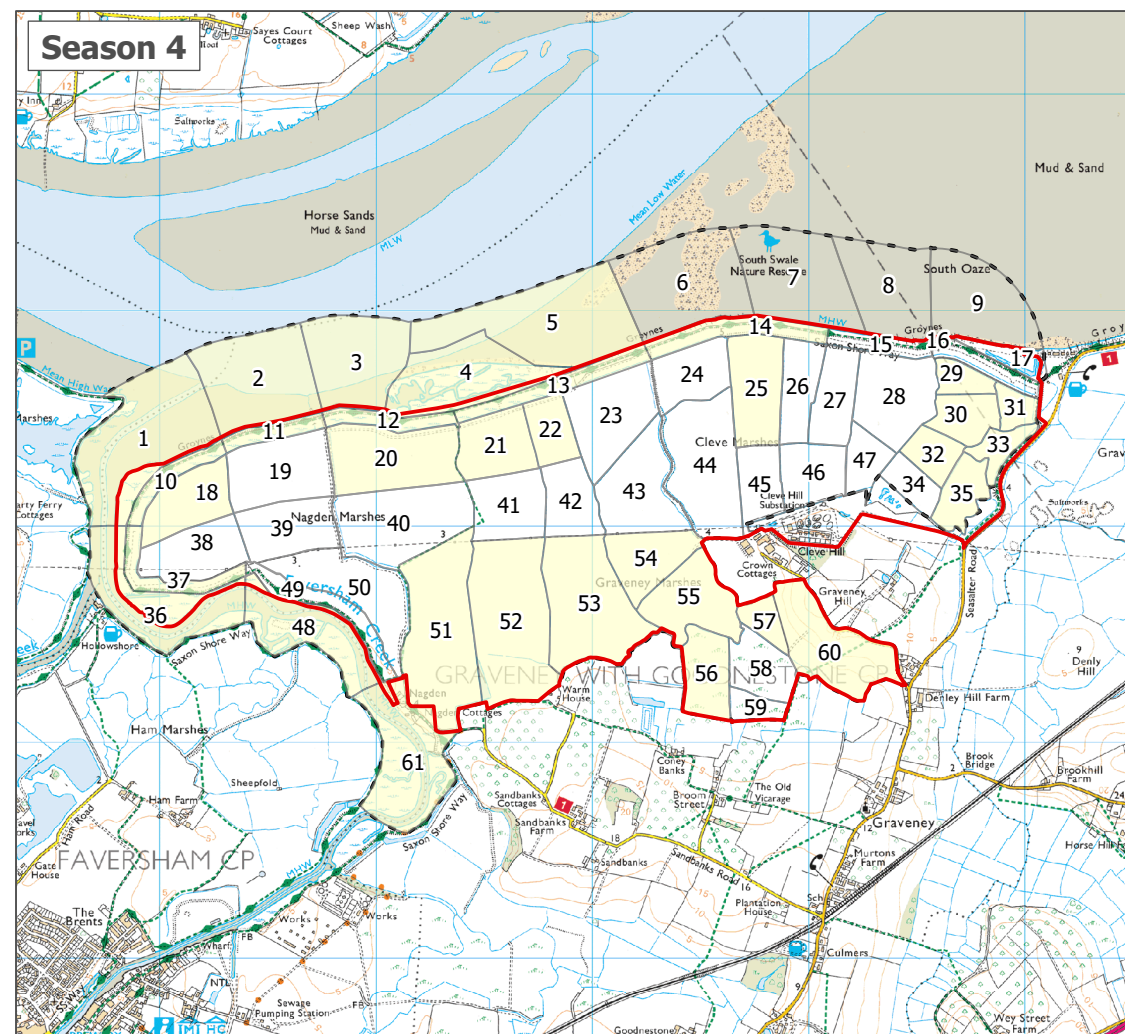
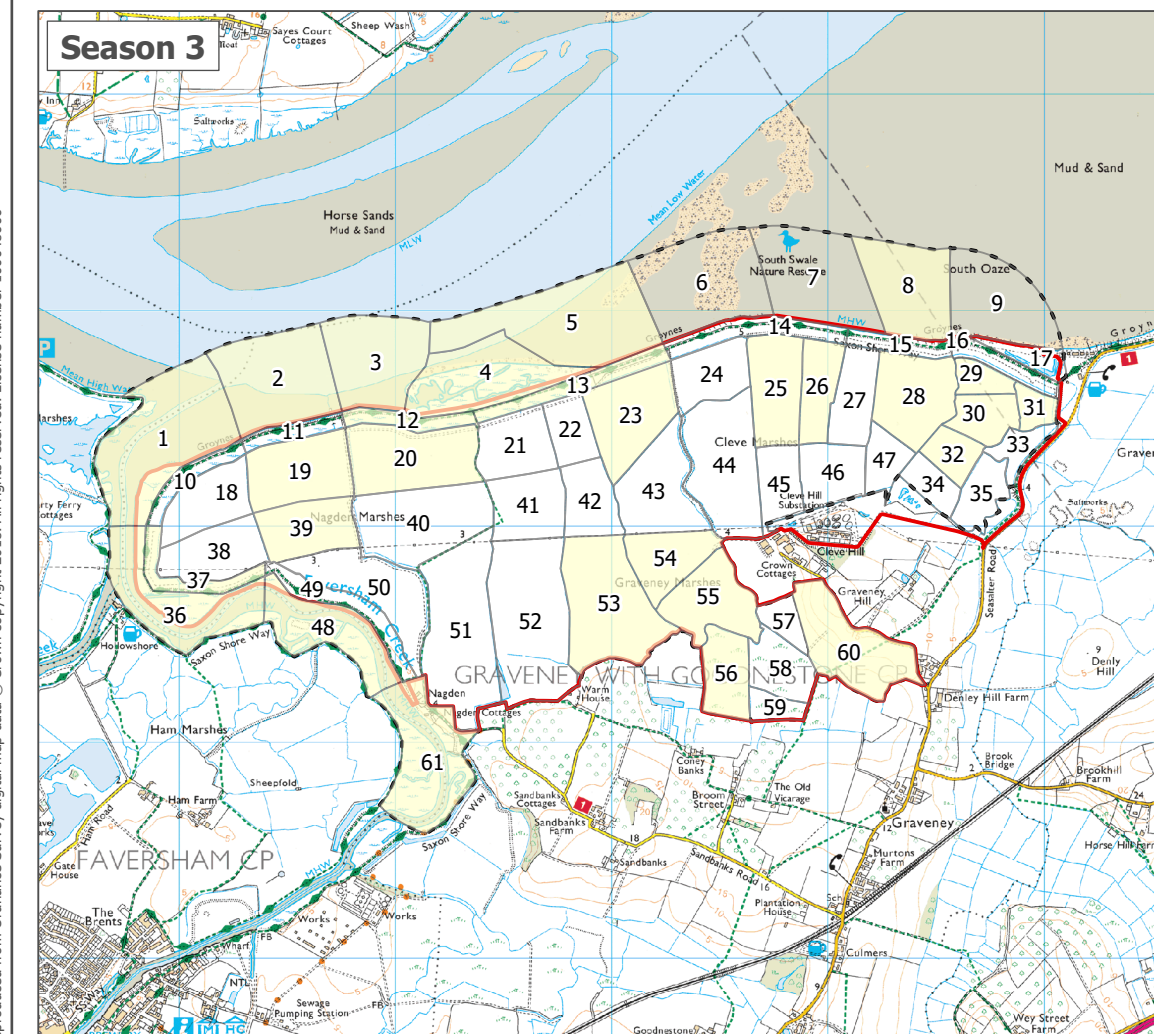
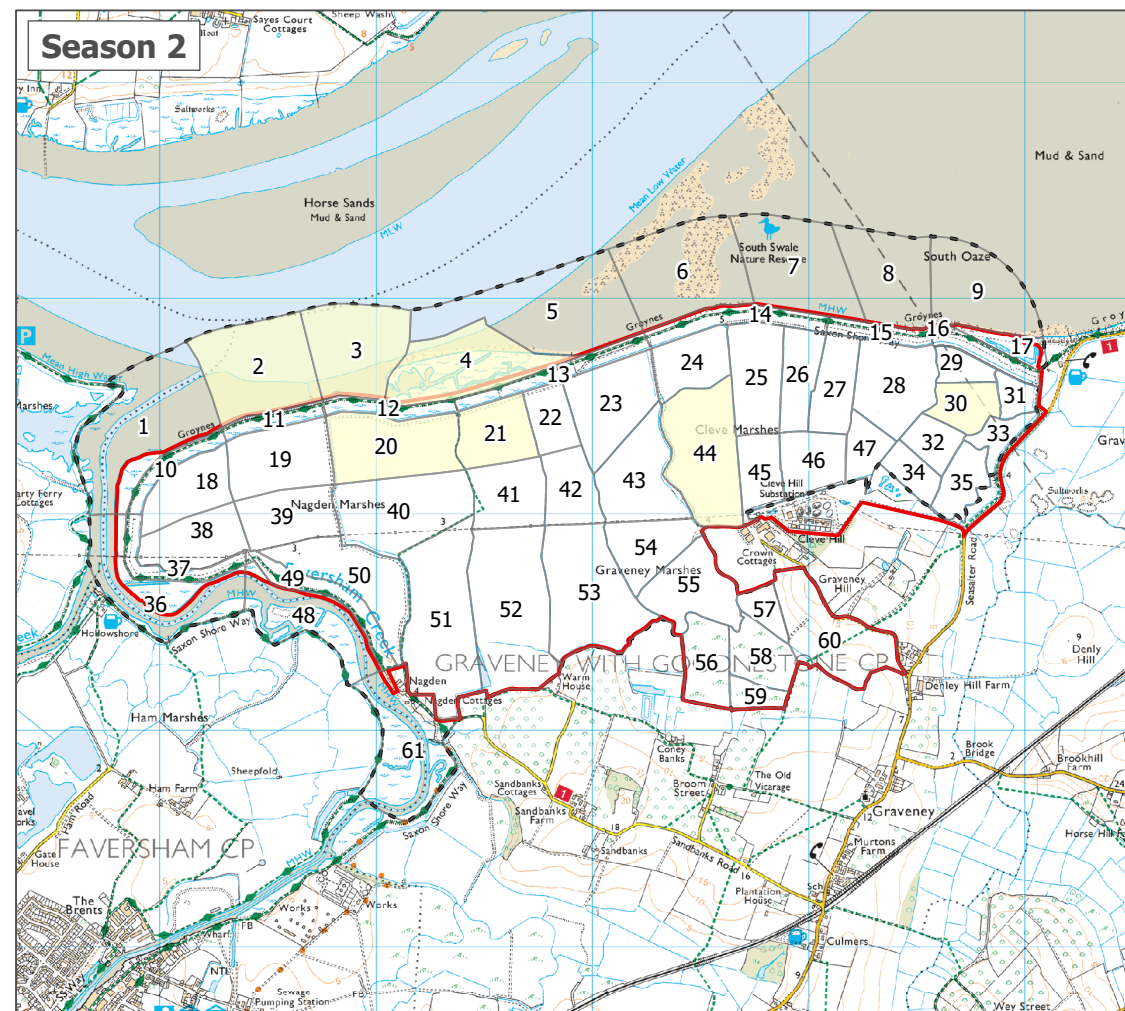
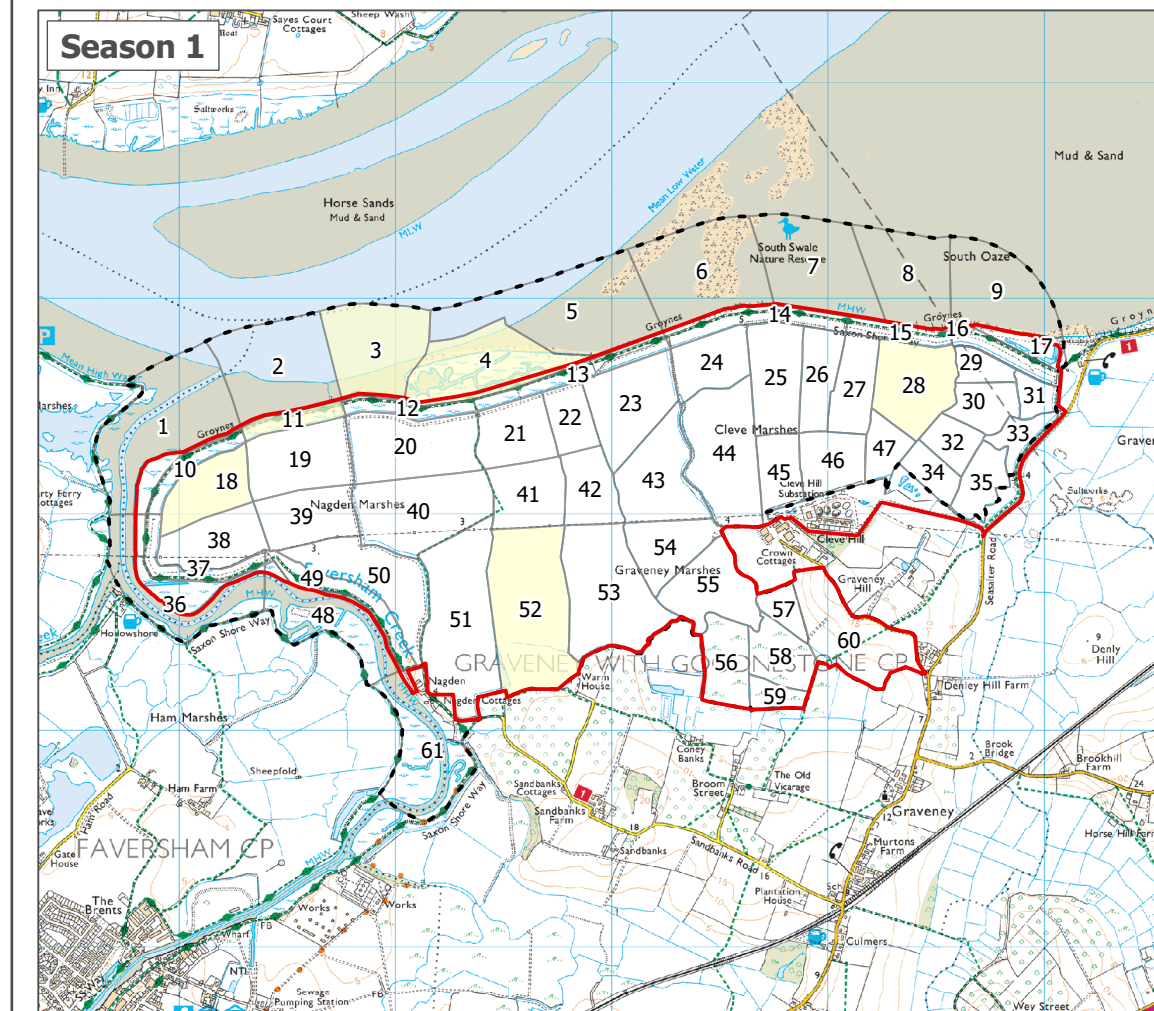
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Passage/Winter Bird Survey Results:
Wigeon
Figure A9.9

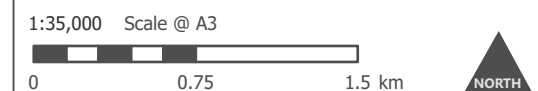
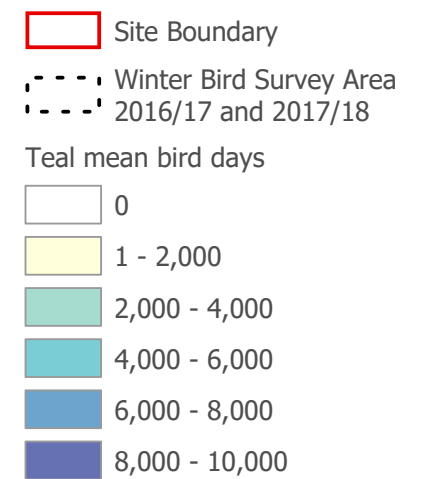
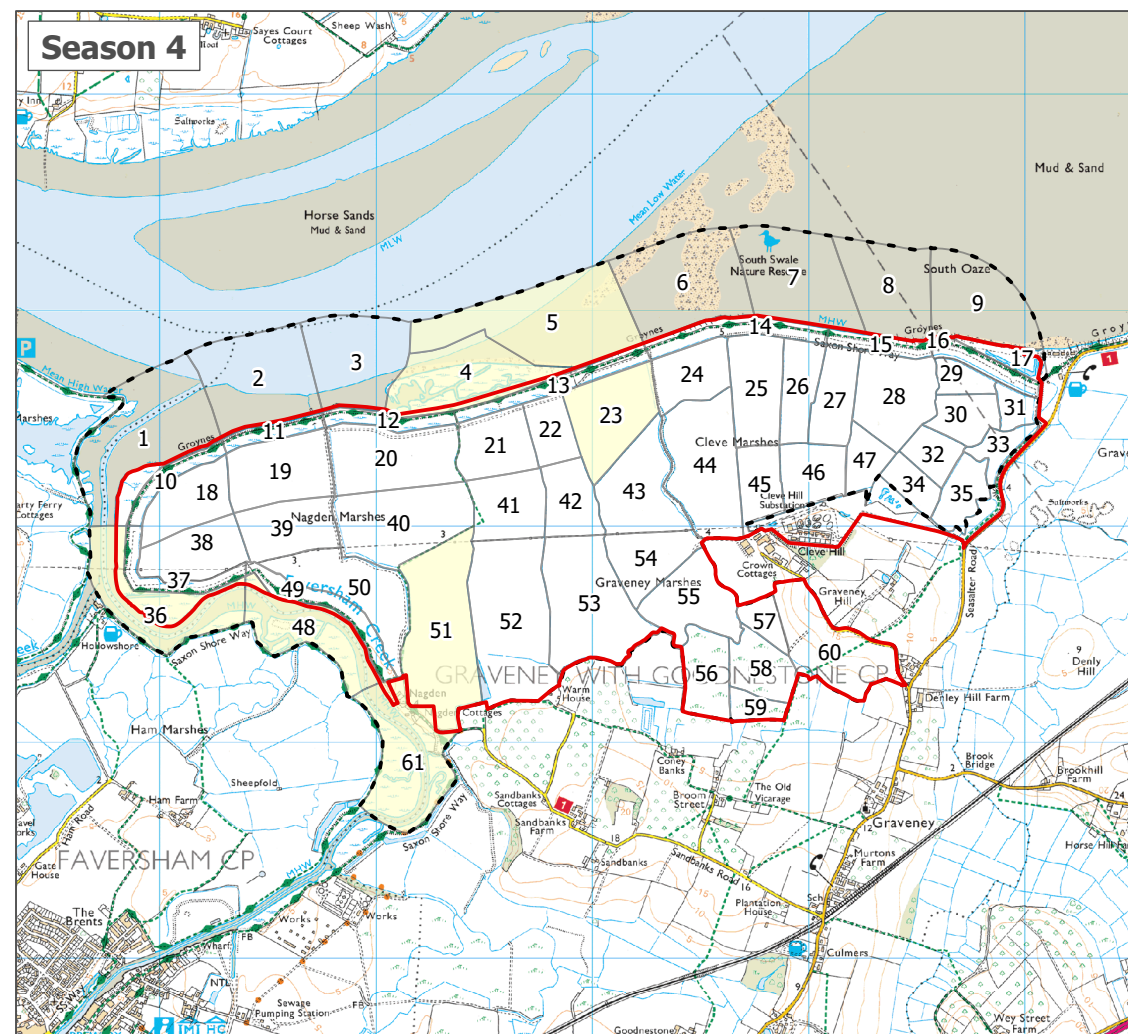
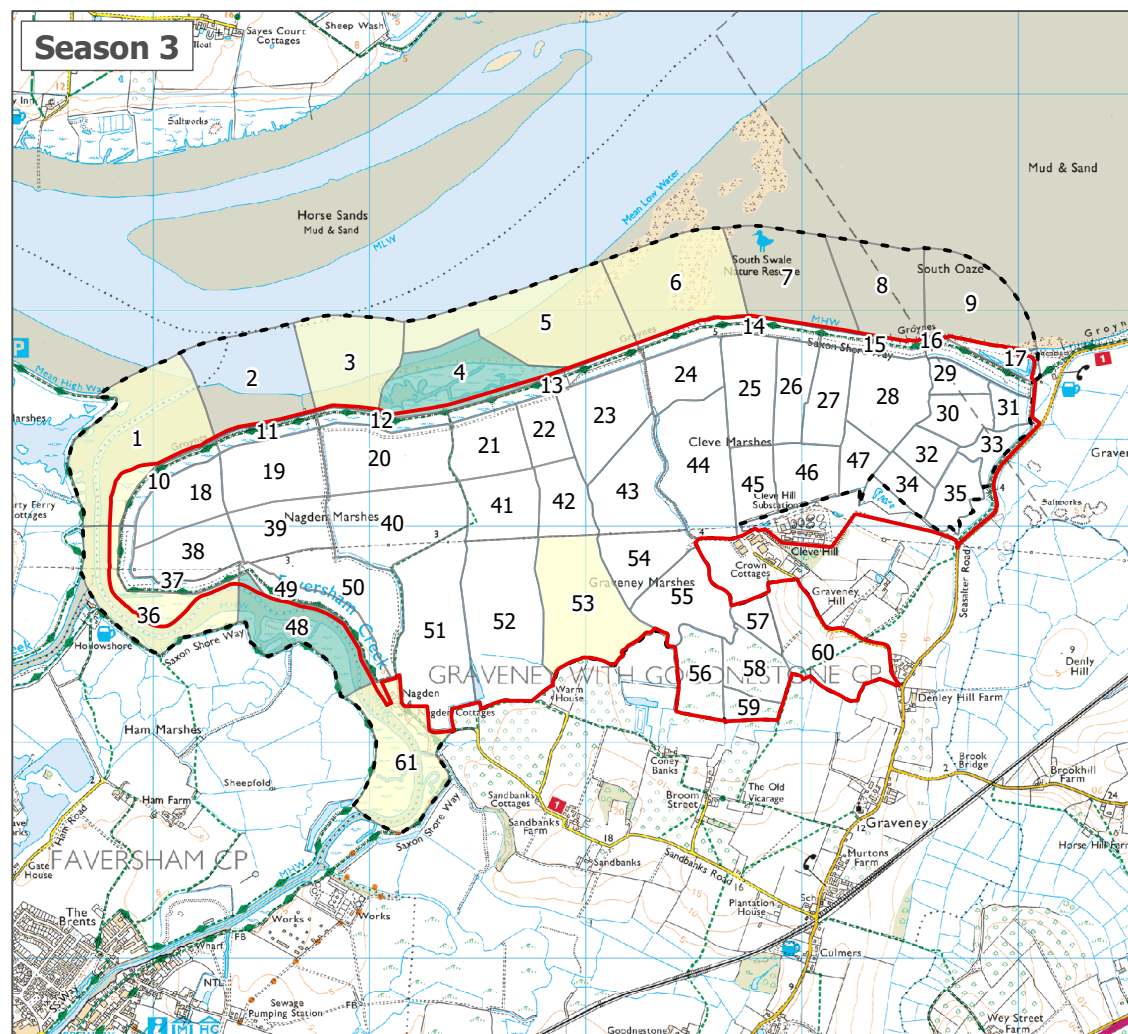
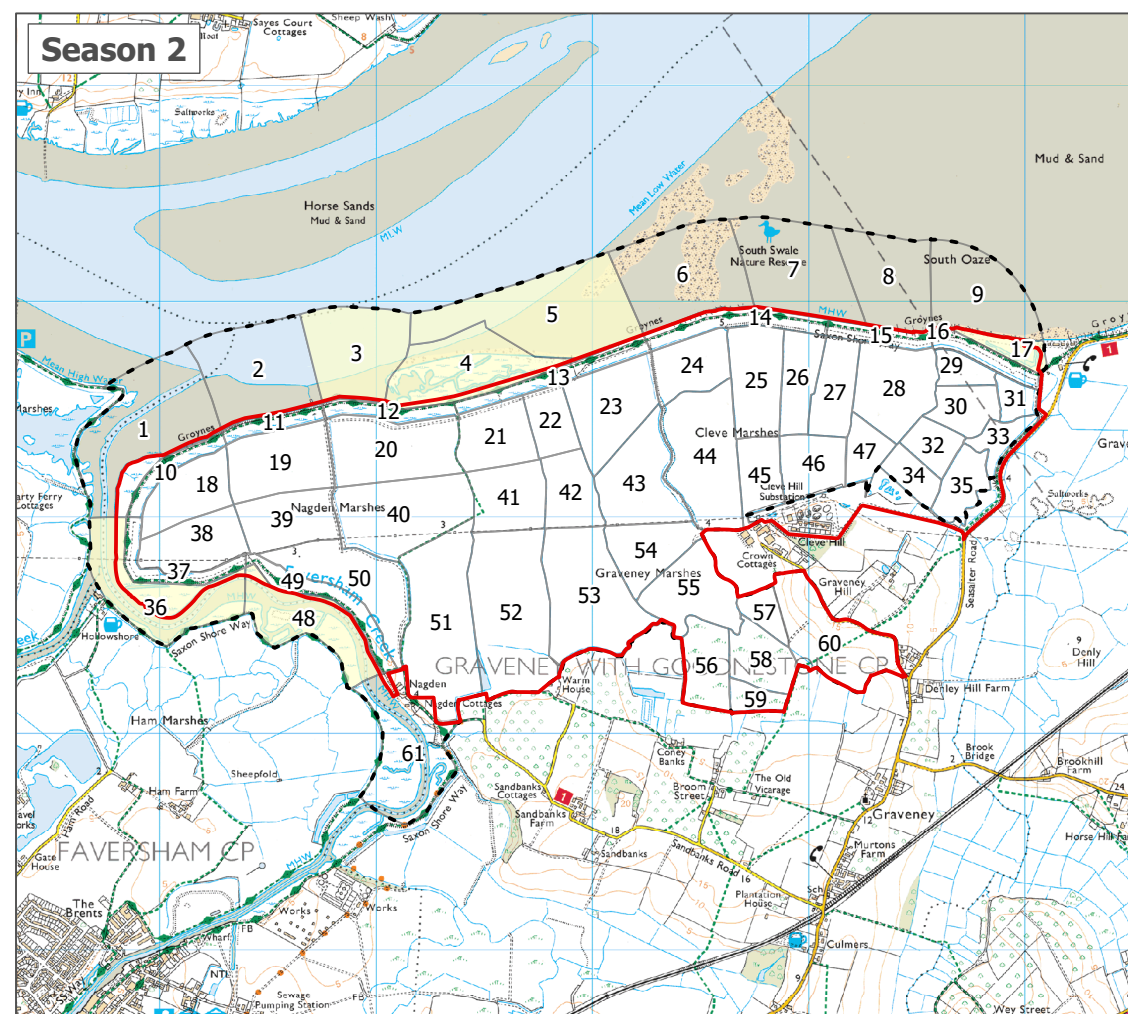
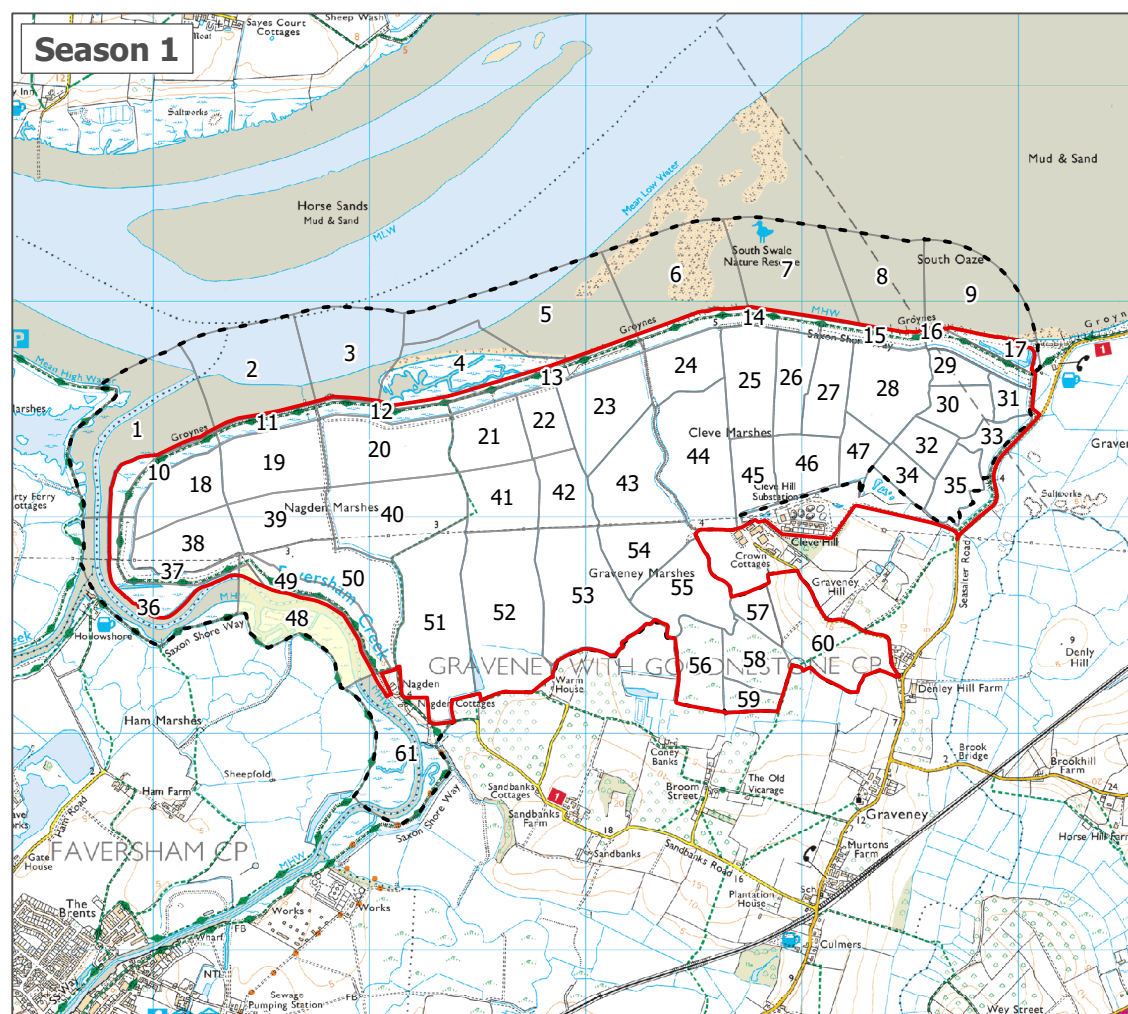
Cleve Hill Solar Park
Environmental Statement



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Passage/Winter Bird Survey Results:
Mallard
Figure A9.10

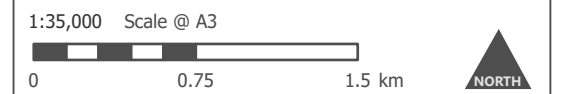
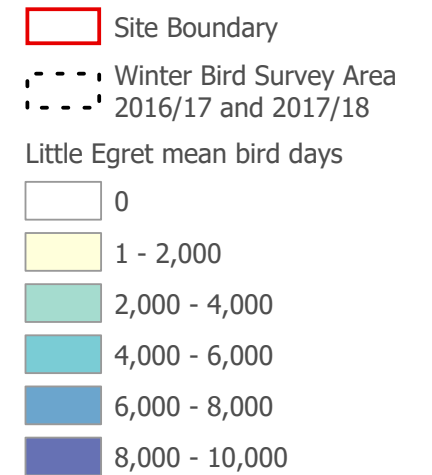
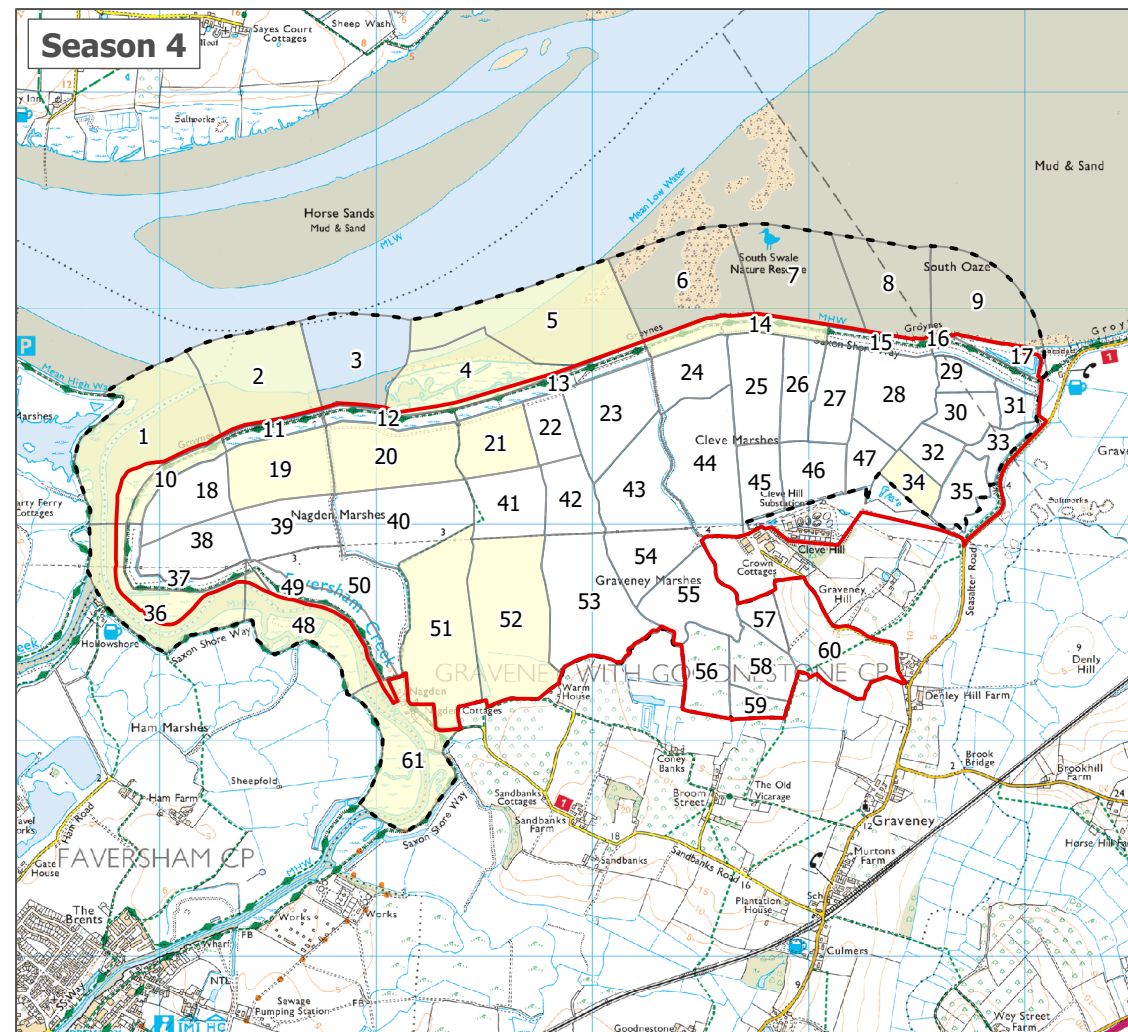
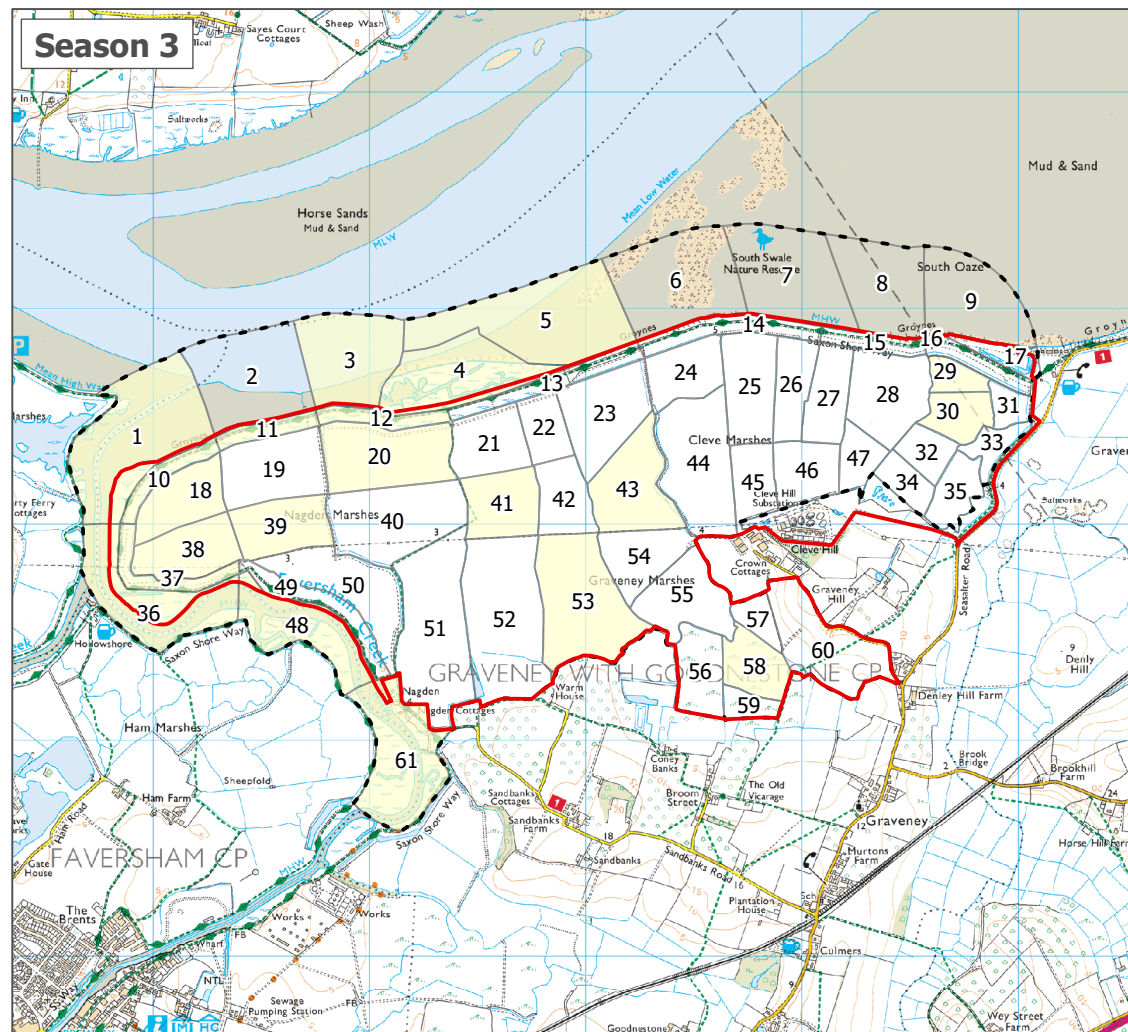
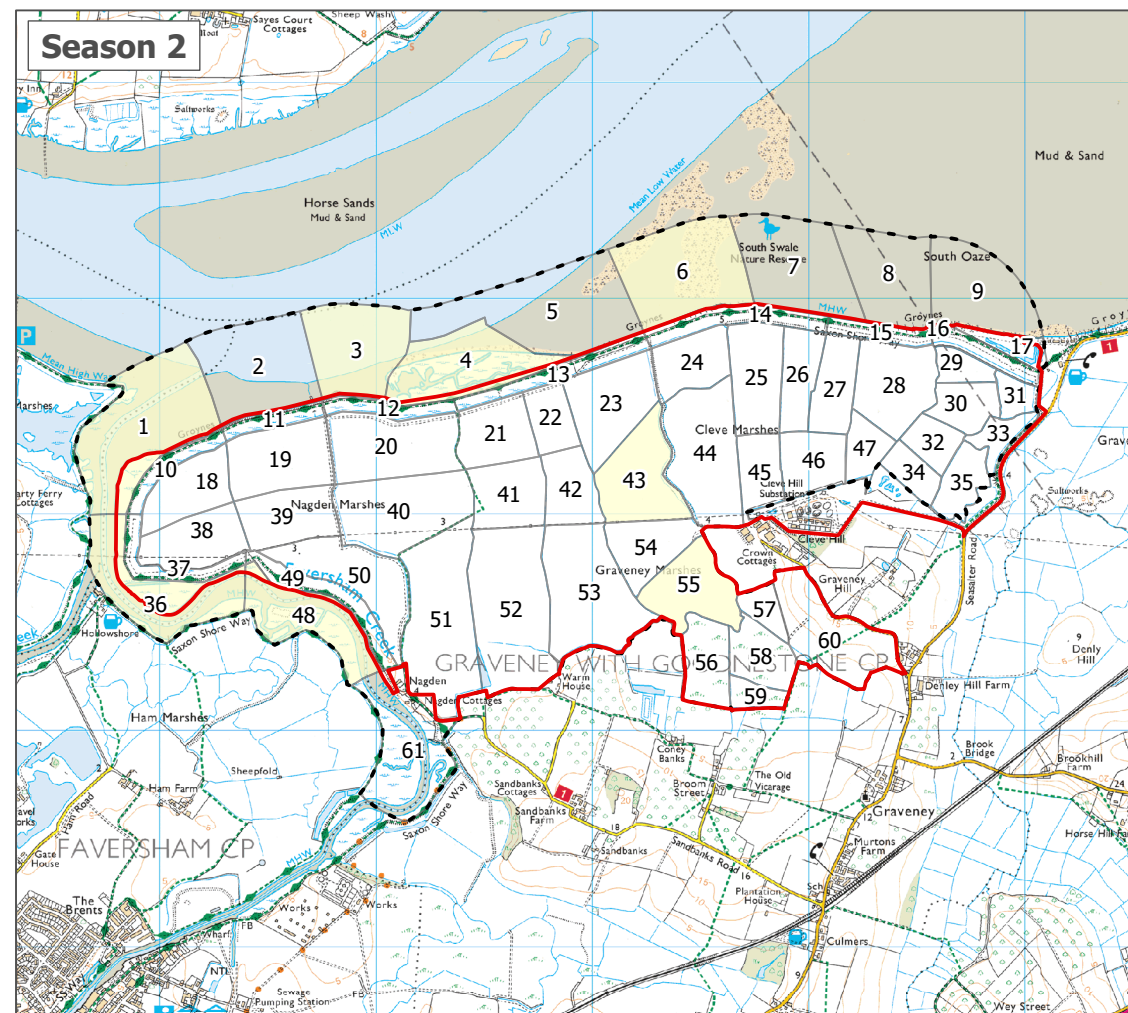
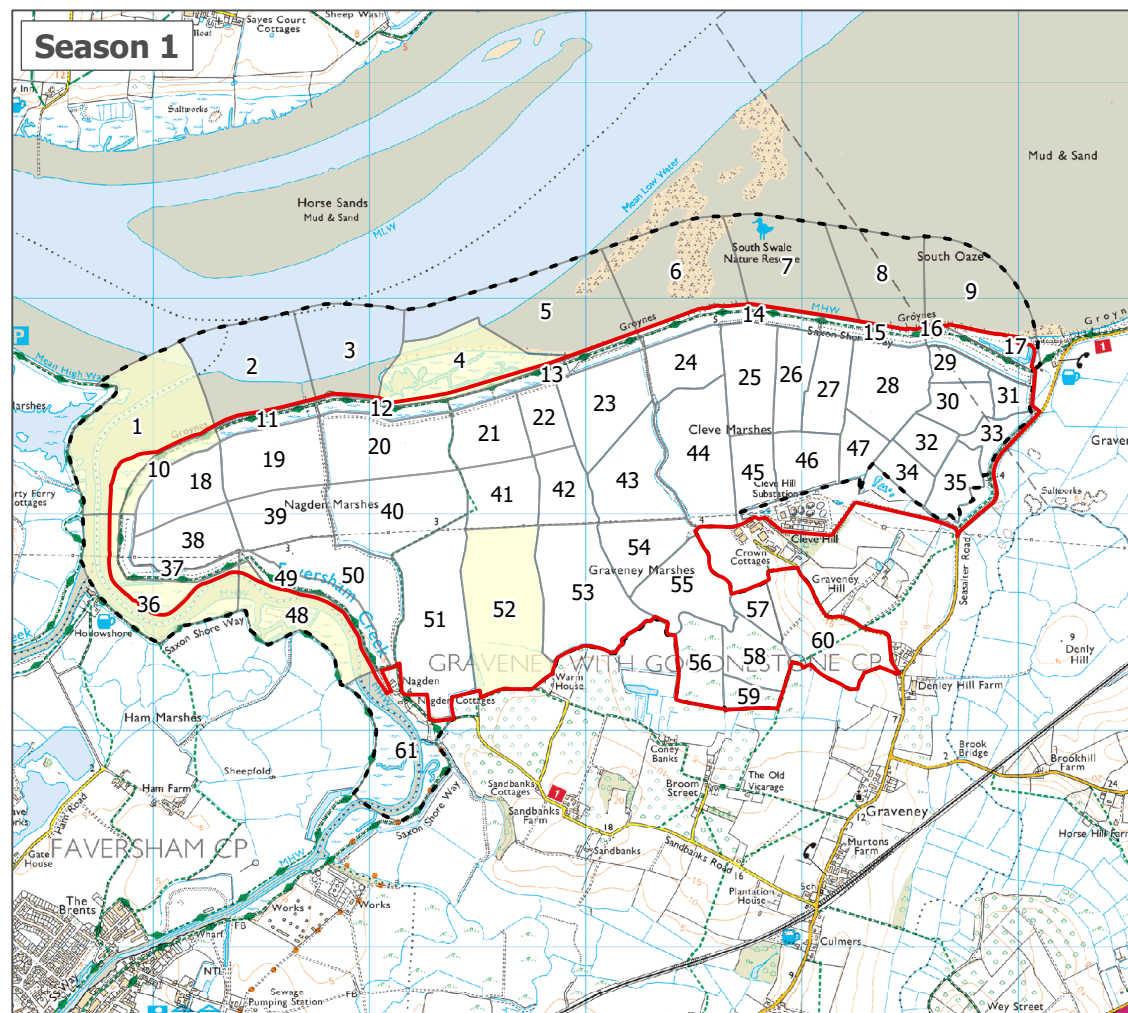
Cleve Hill Solar Park
Environmental Statement



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Checked By: MA	Date: 14/11/2018

Passage/Winter Bird Survey Results:
Teal
Figure A9.11

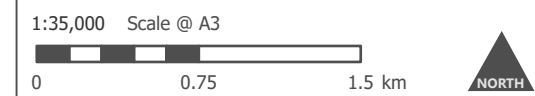
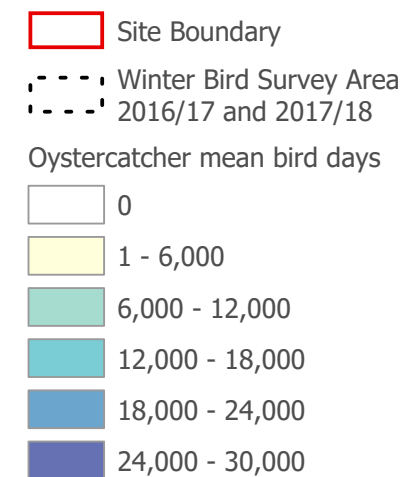
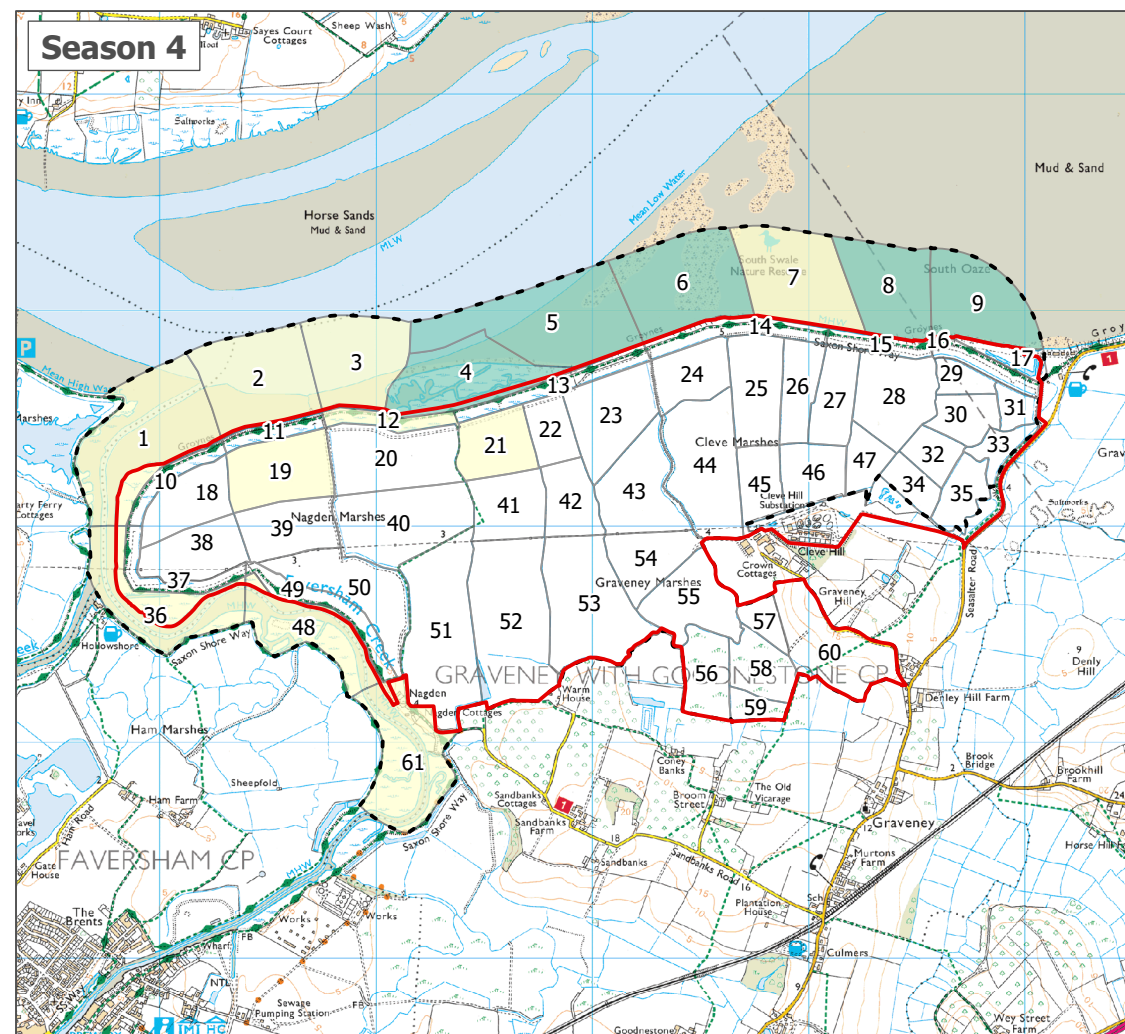
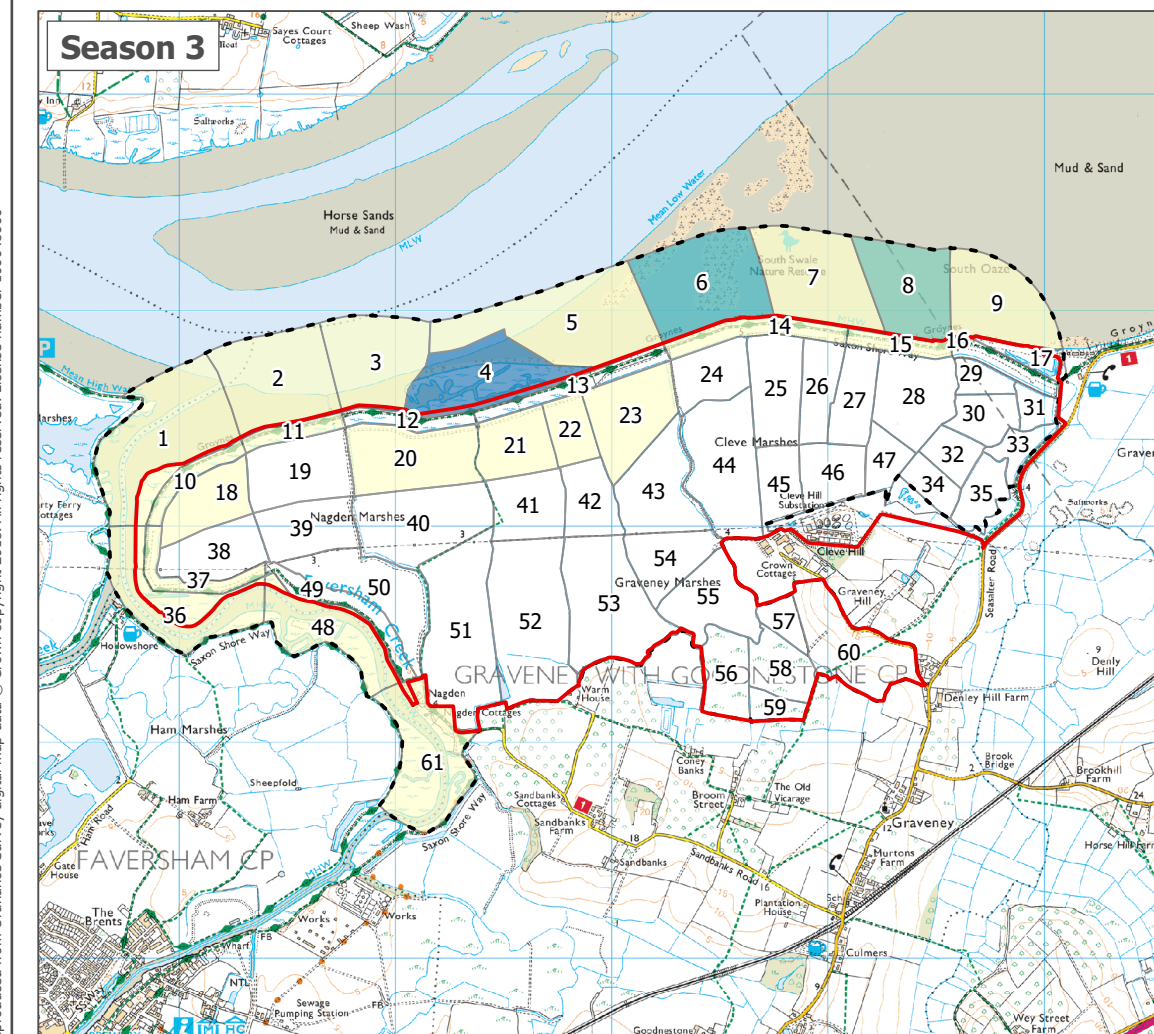
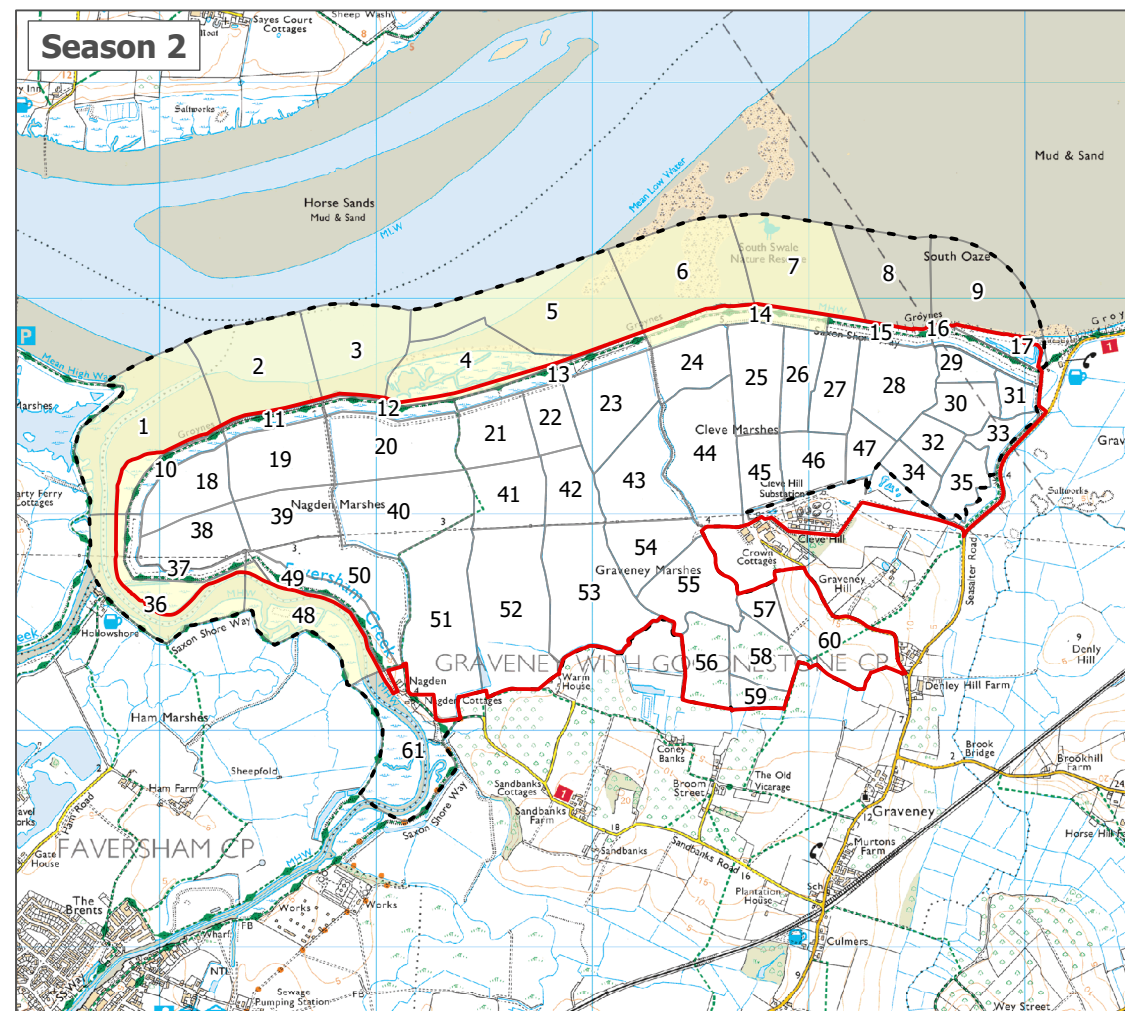
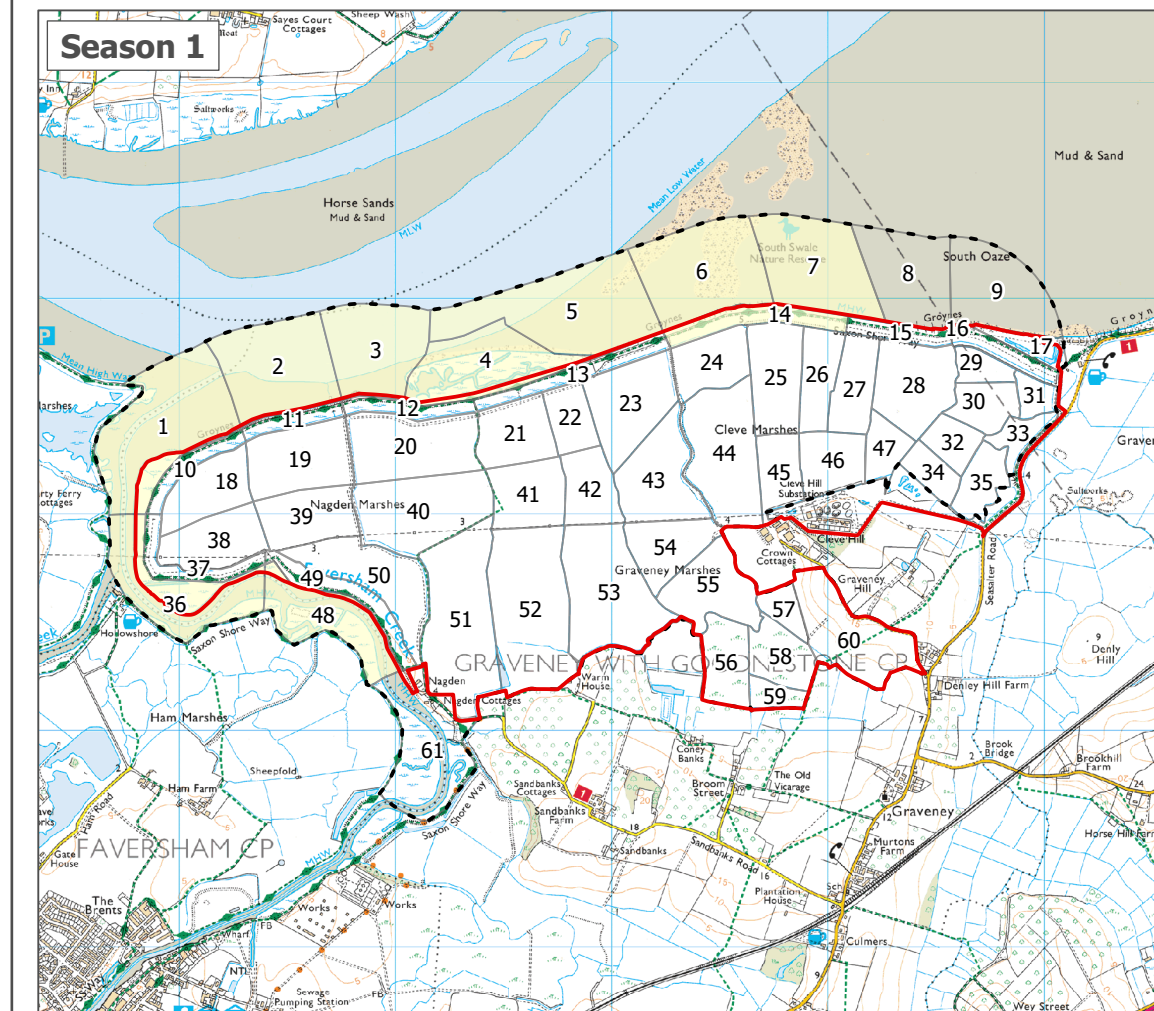
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Environmental Statement



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Passage/Winter Bird Survey Results:
Little Egret
Figure A9.12

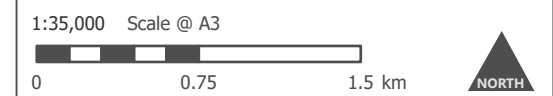
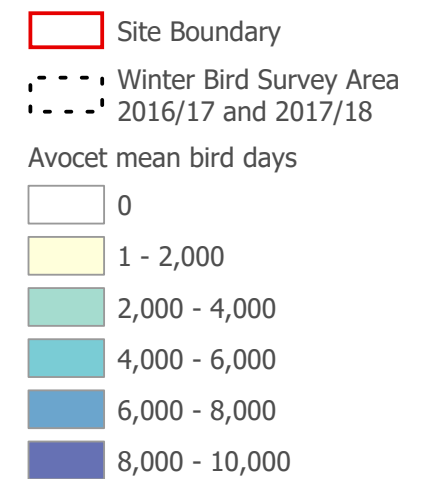
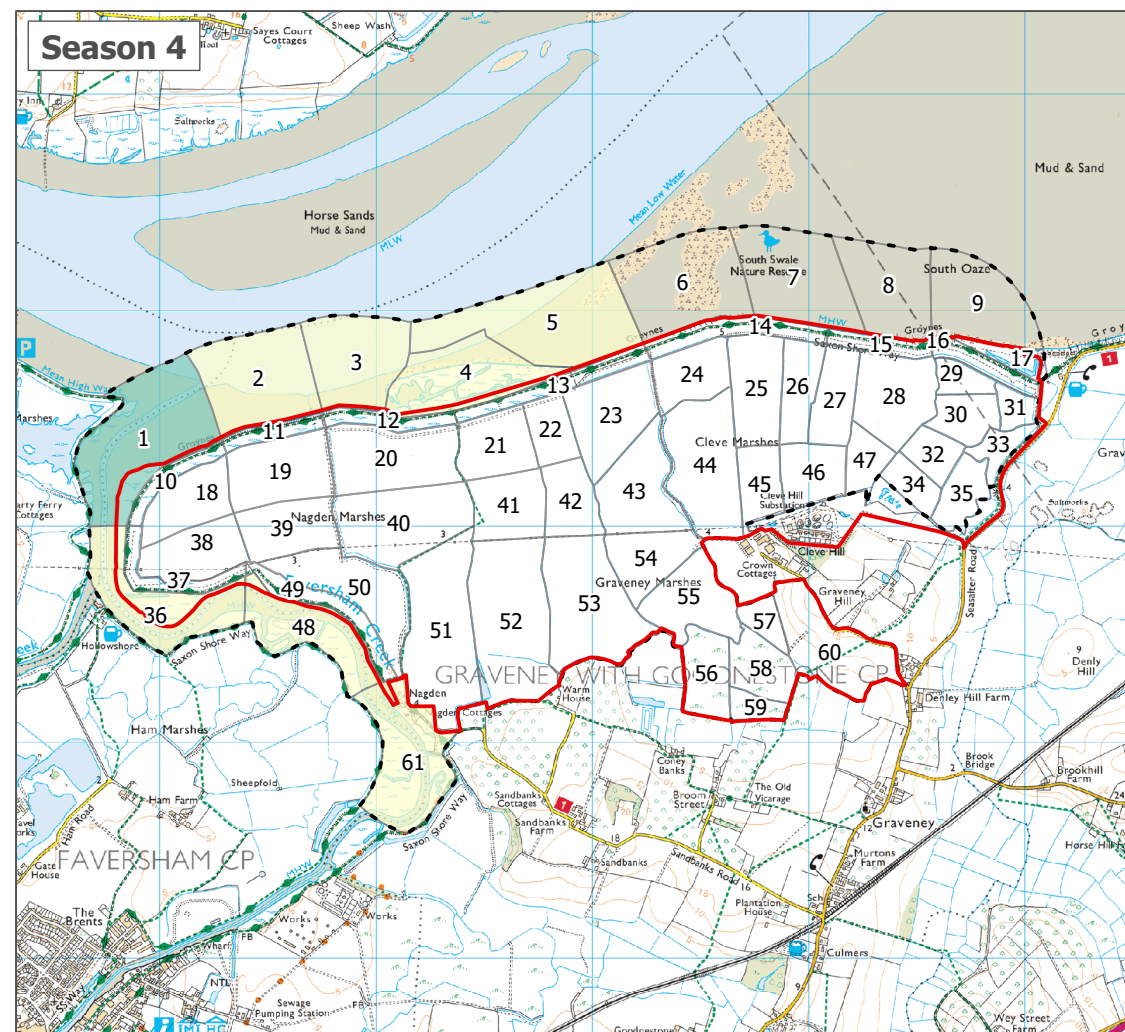
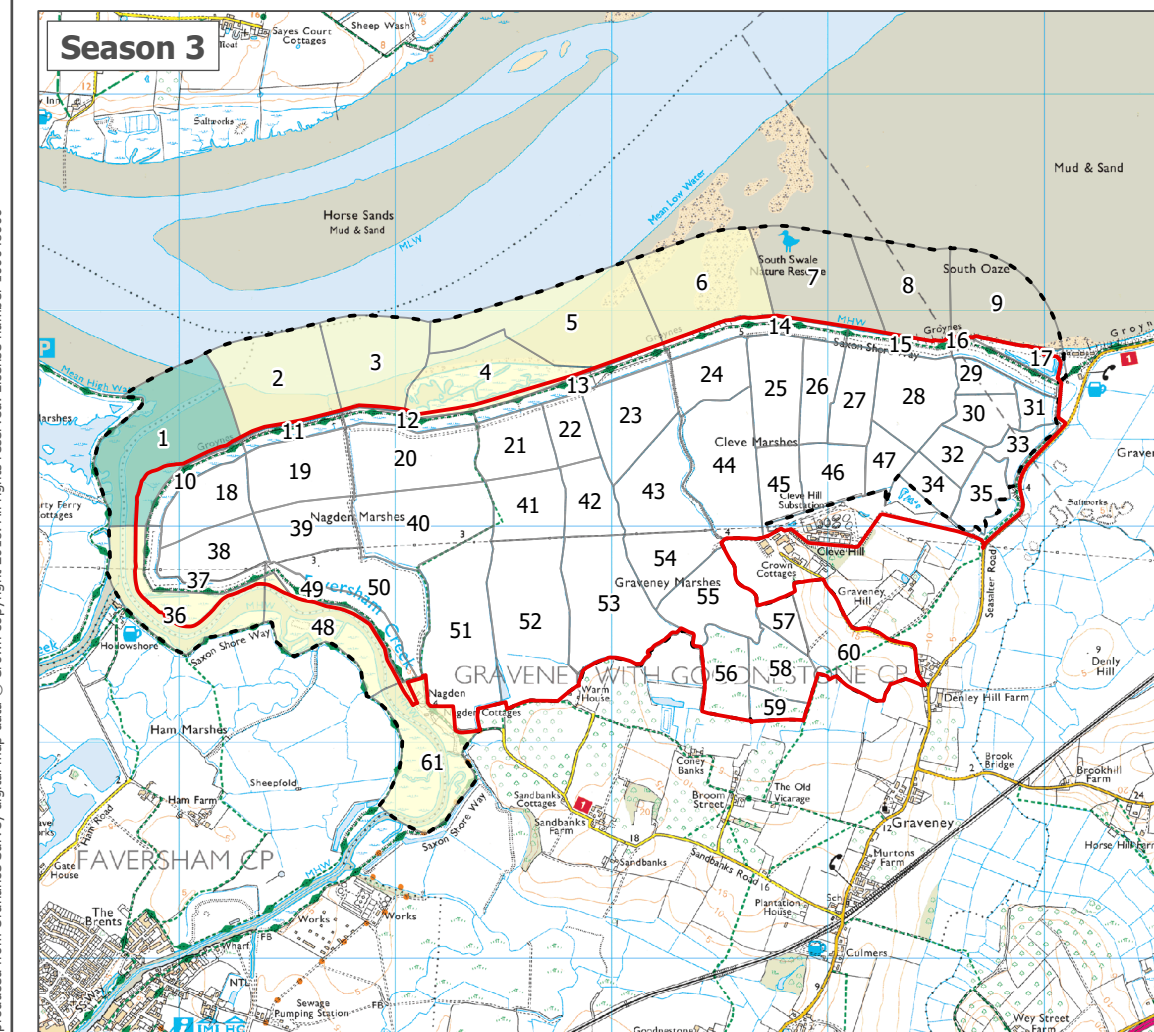
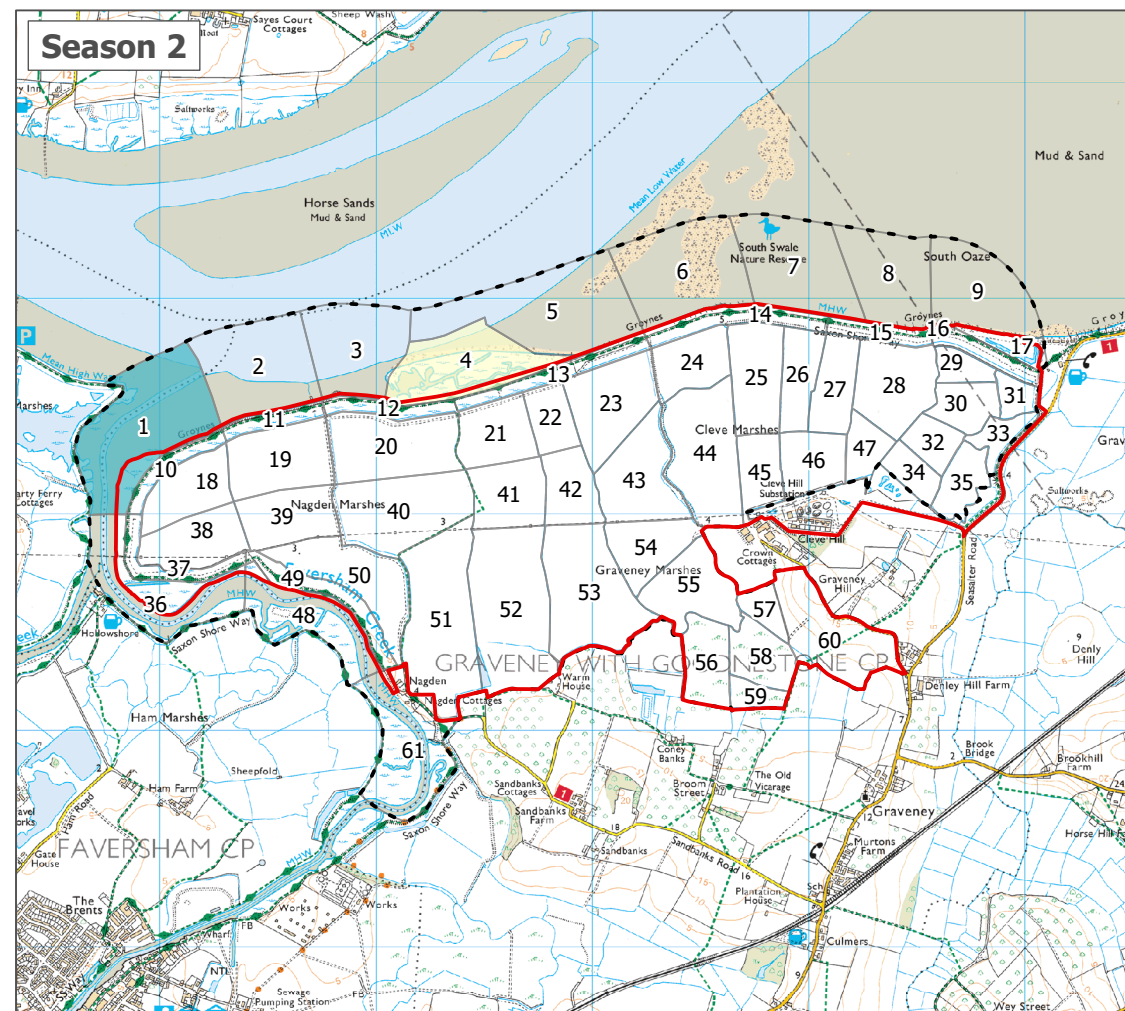
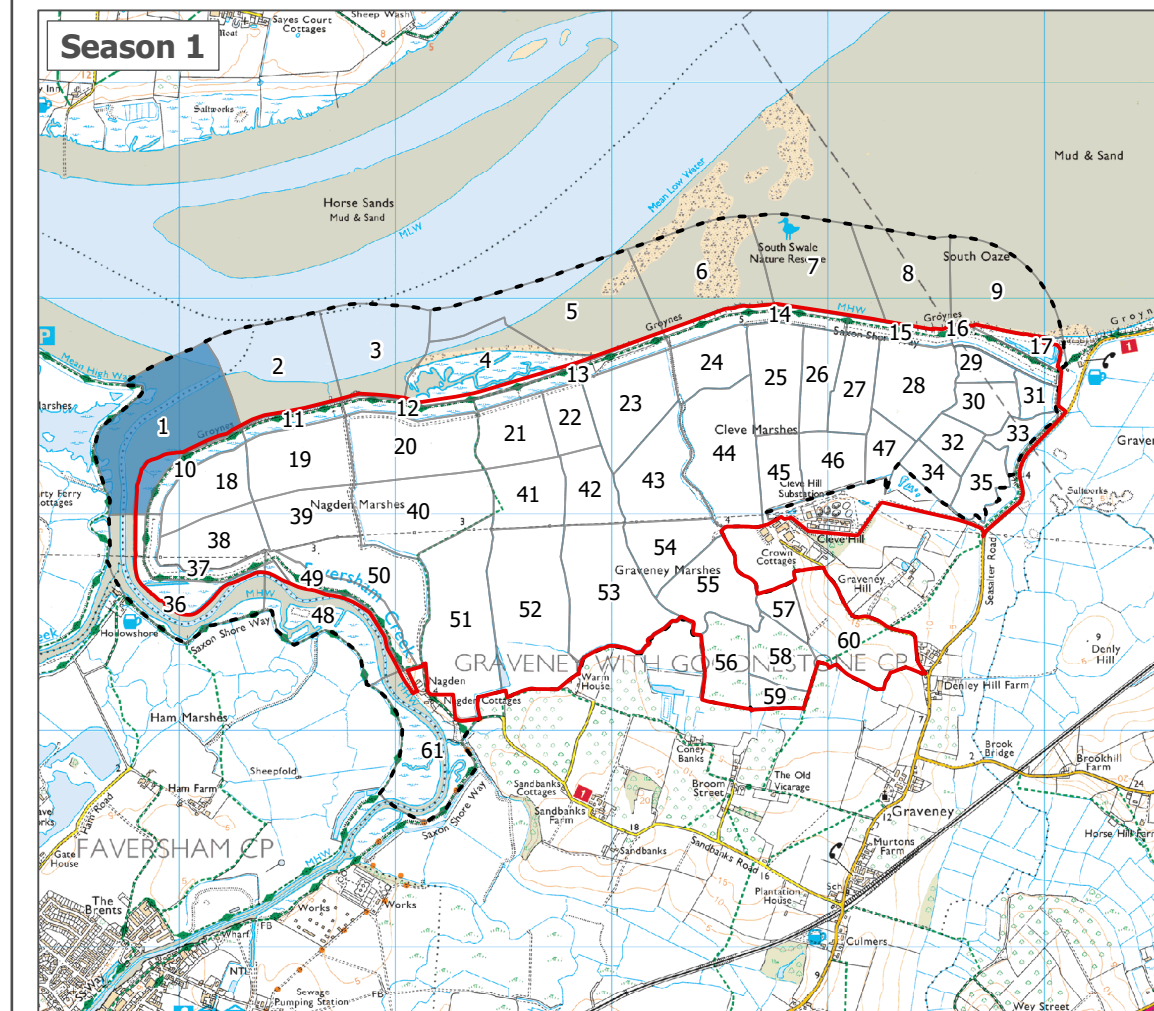
Cleve Hill Solar Park
Environmental Statement



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Checked By: MA	Date: 14/11/2018

Passage/Winter Bird Survey Results:
Oystercatcher
Figure A9.13

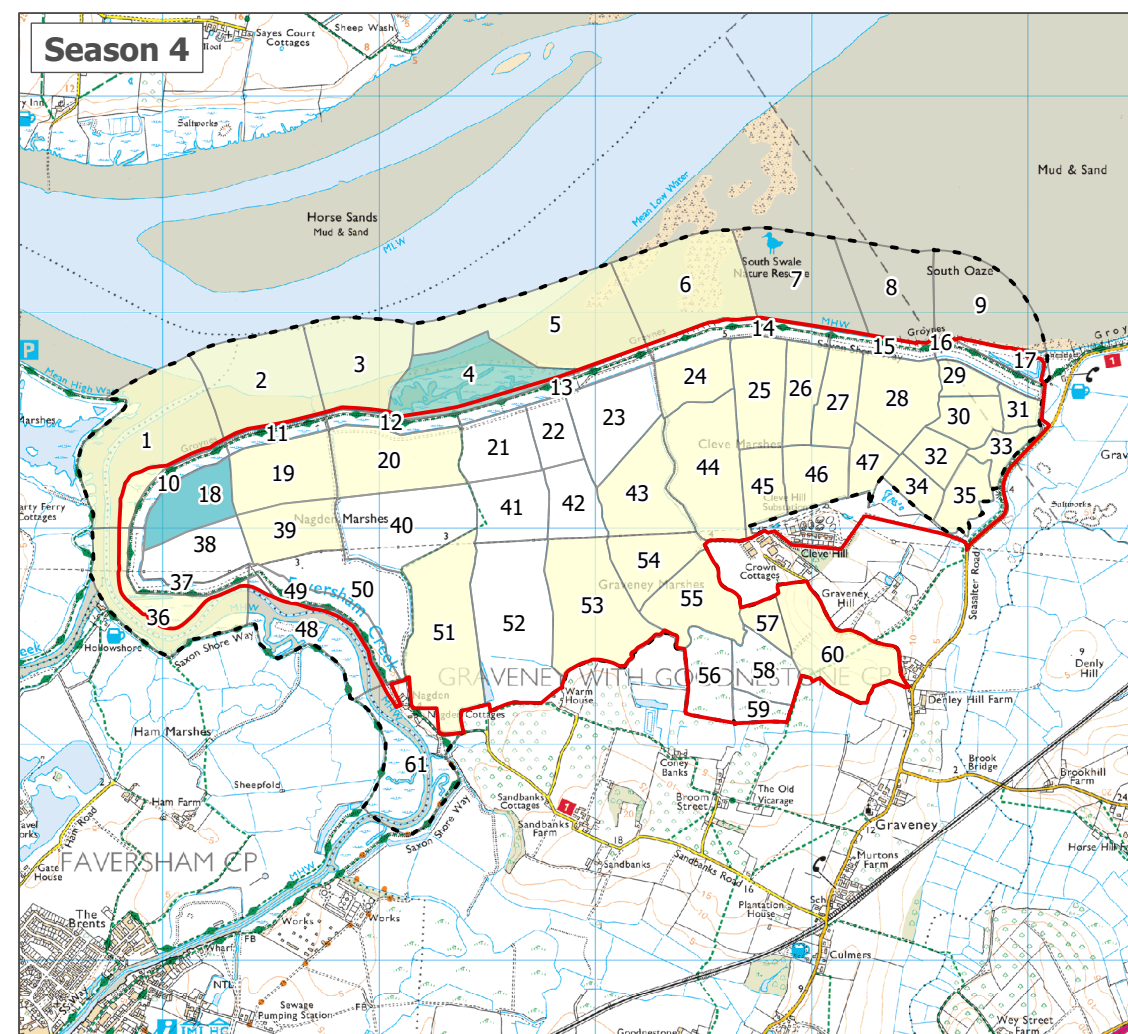
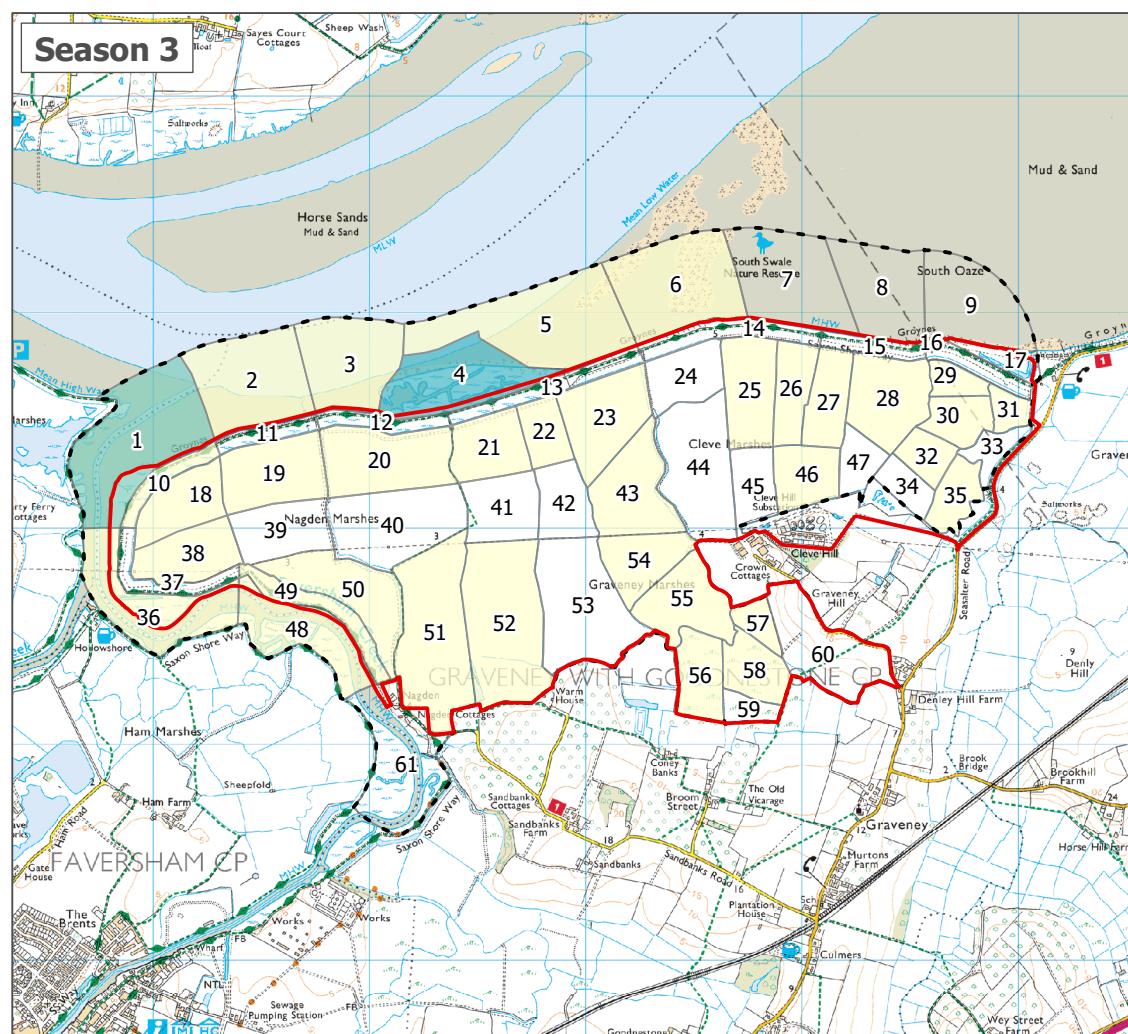
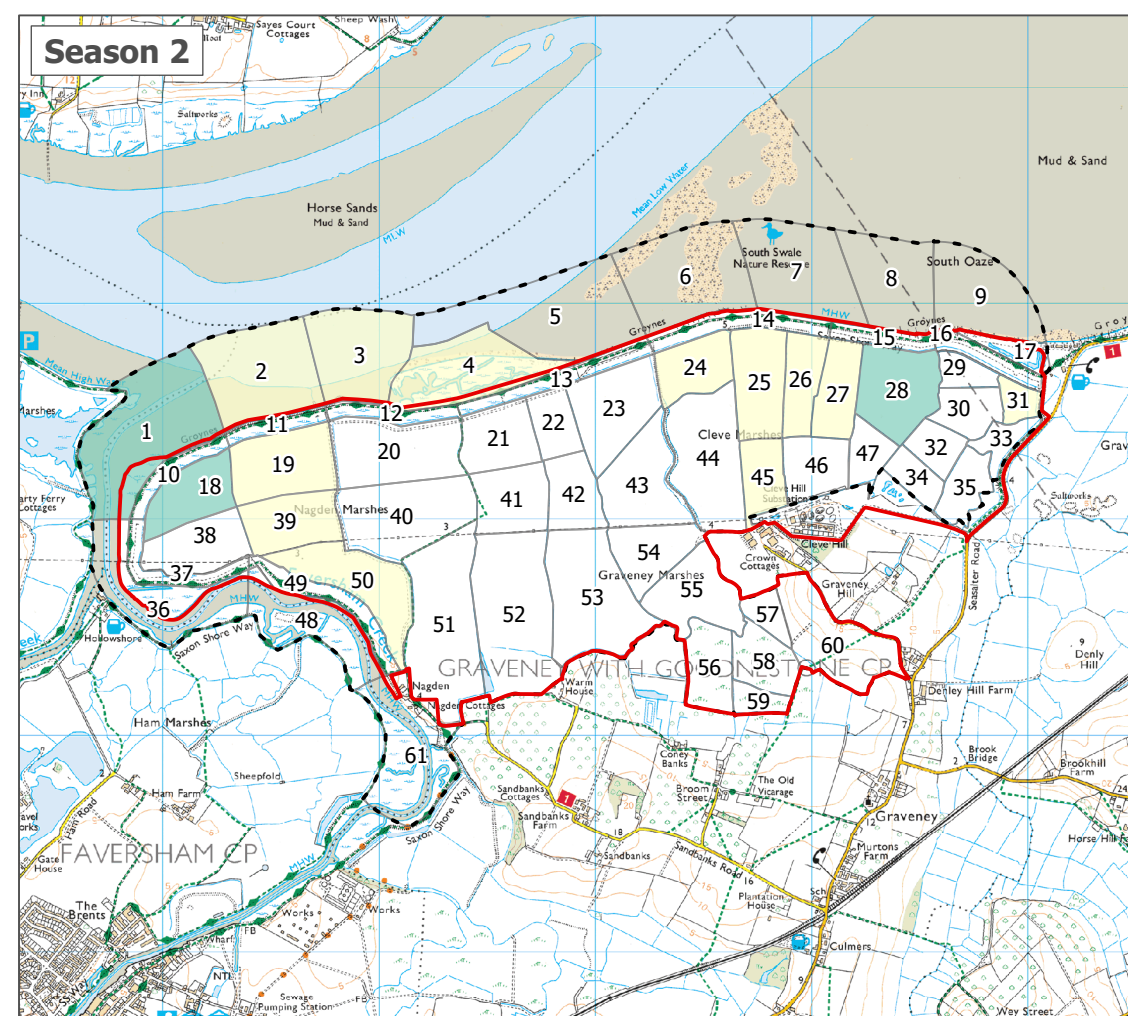
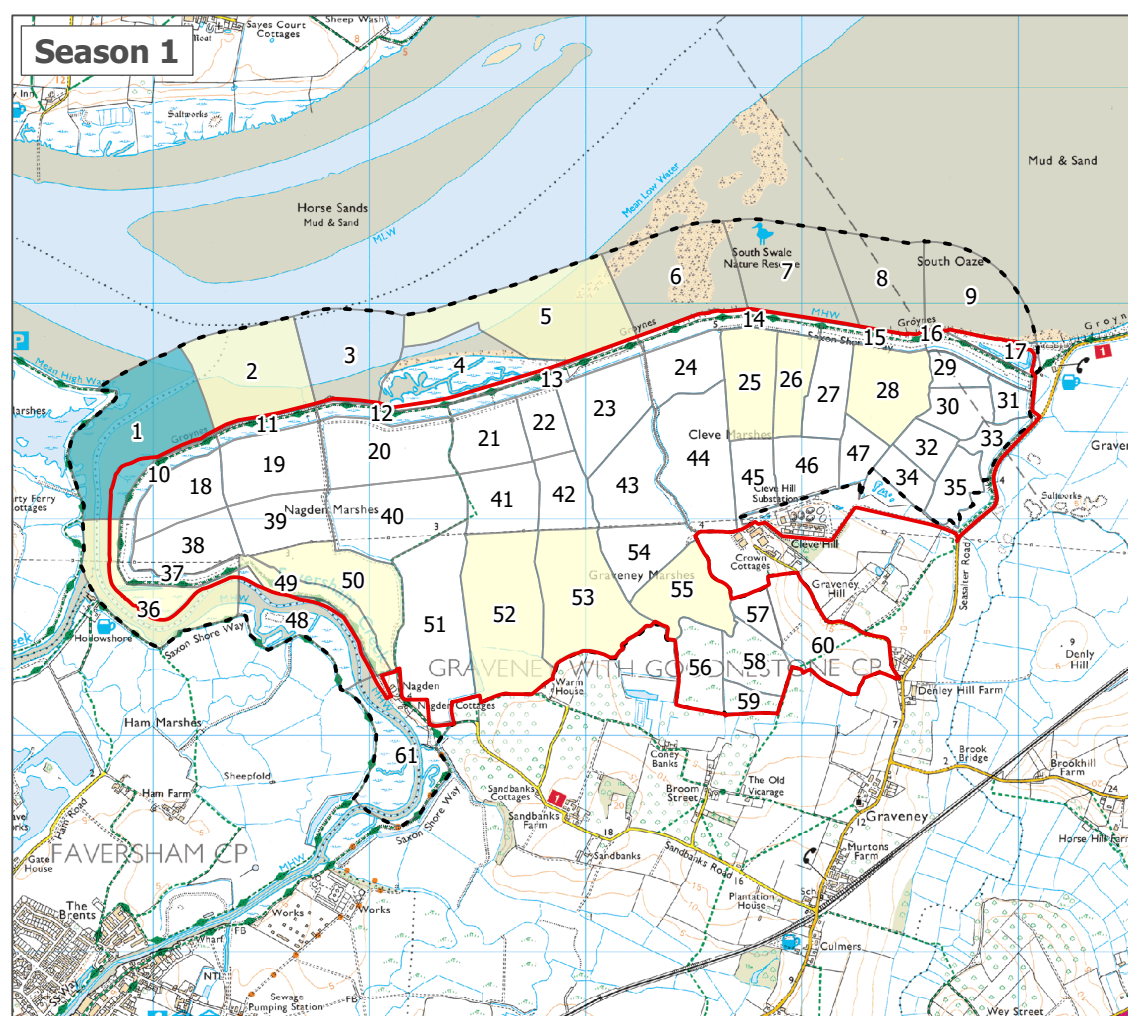
Cleve Hill Solar Park
Environmental Statement



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Checked By: MA	Date: 14/11/2018

Passage/Winter Bird Survey Results:
Avocet
Figure A9.14

Cleve Hill Solar Park
Environmental Statement



 Site Boundary

--- Winter Bird Survey Area
--- 2016/17 and 2017/18

Lapwing mean bird days

0

1 - 6,000

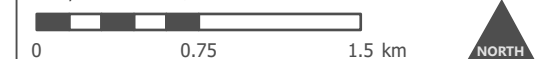
6,000 - 12,000

 12,000 - 18,000

 18,000 - 24,000

24,000 - 30,000

1:35,000 Scale @ A3



Produced By: SC

Ref: 2238-REP-266

Checked By: MA

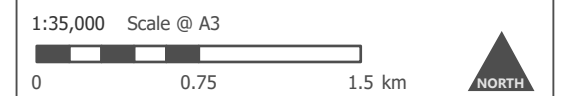
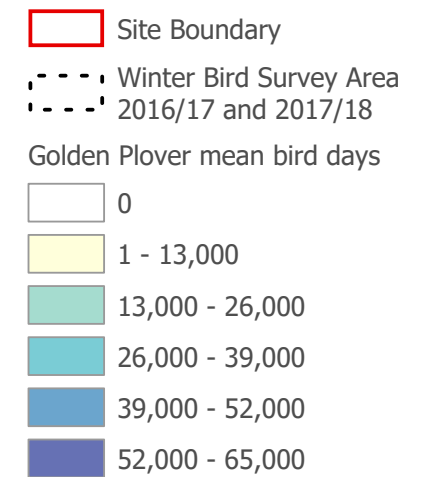
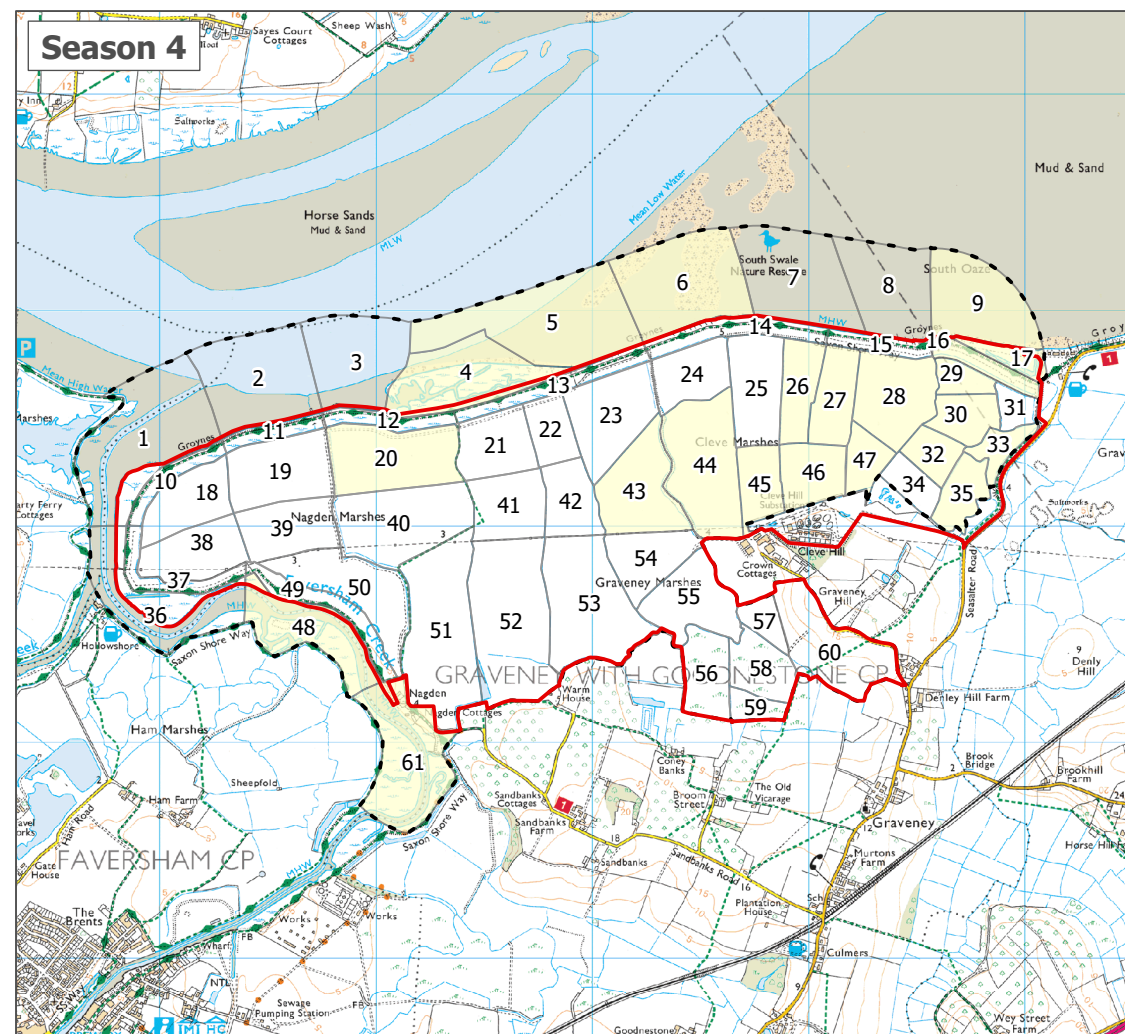
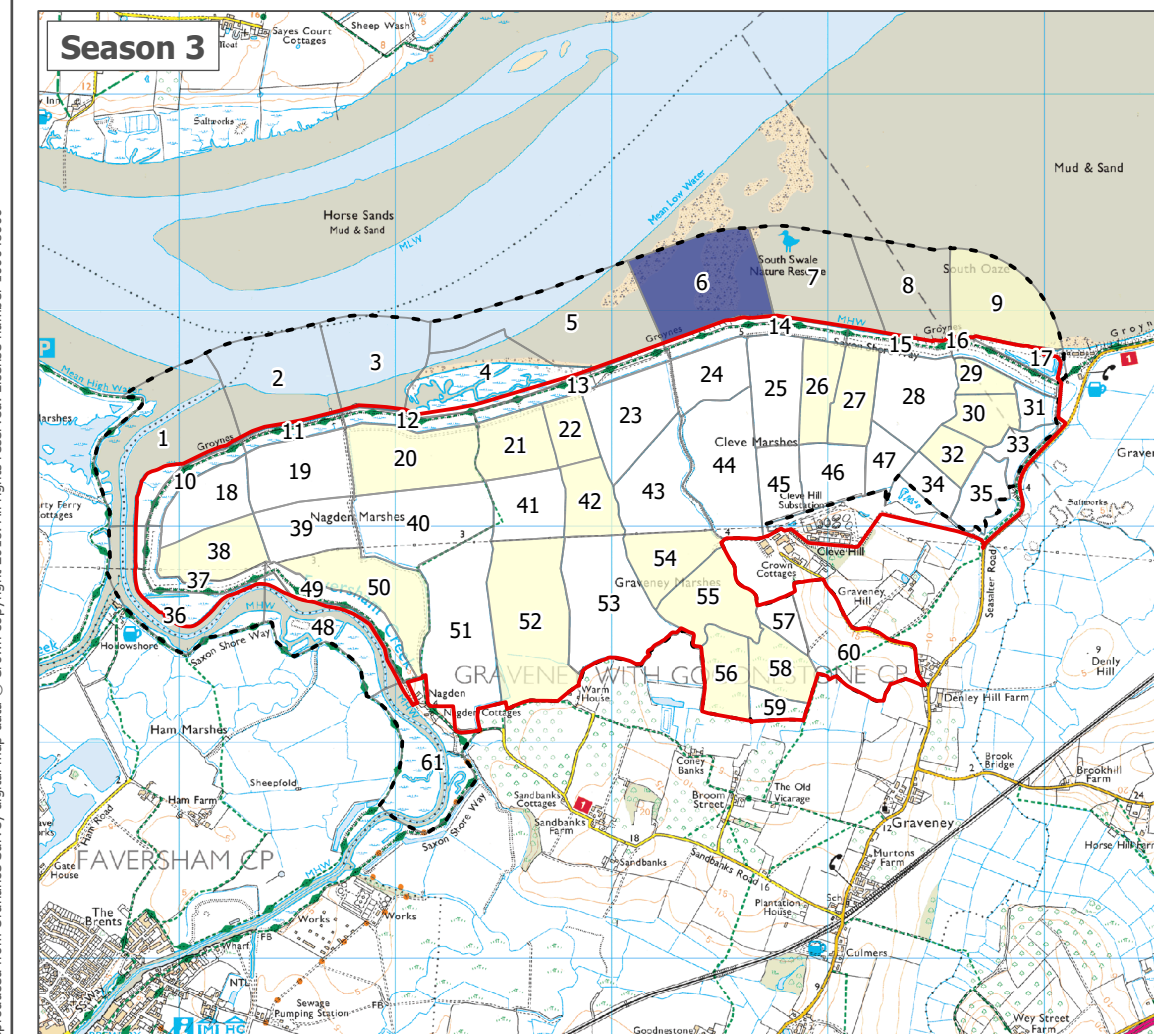
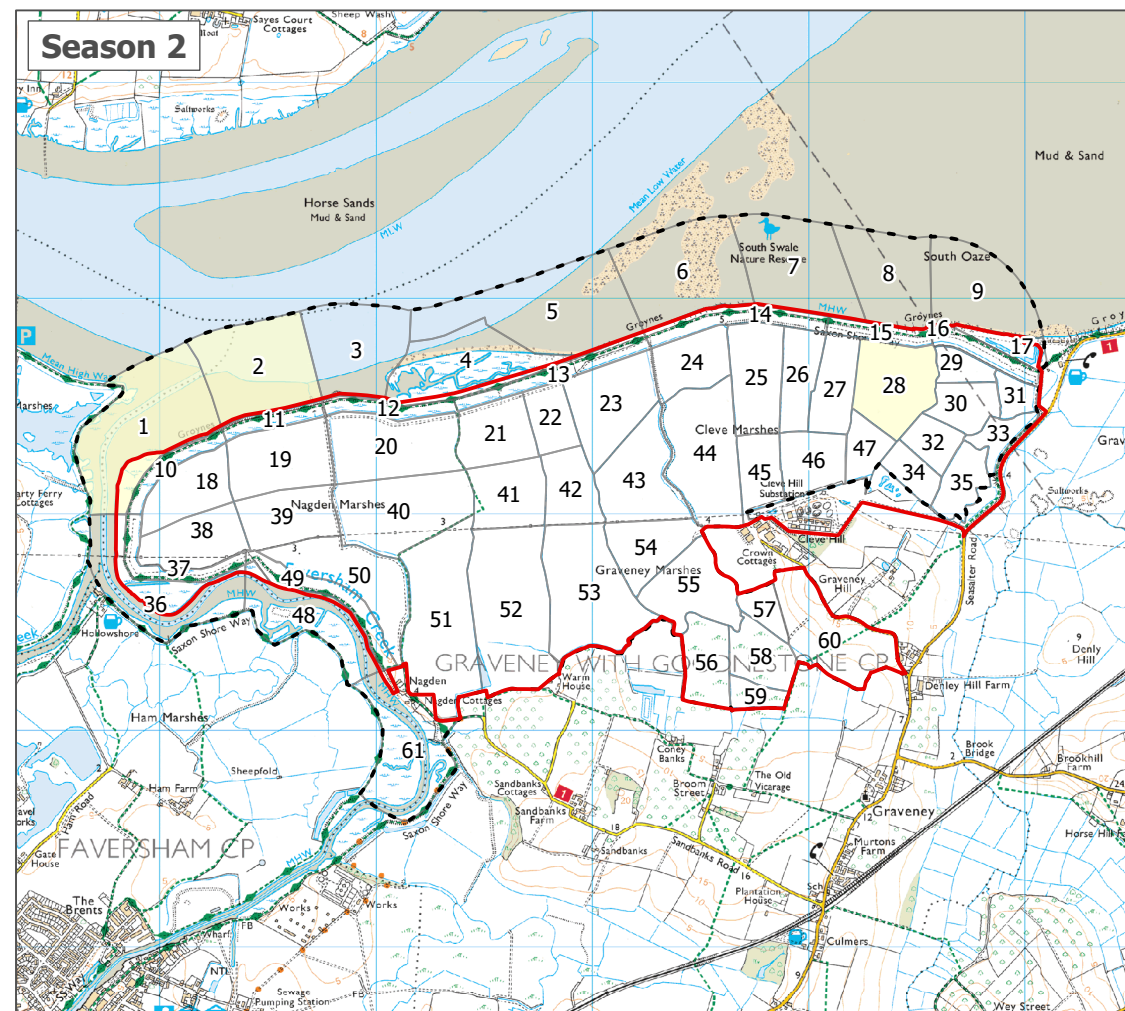
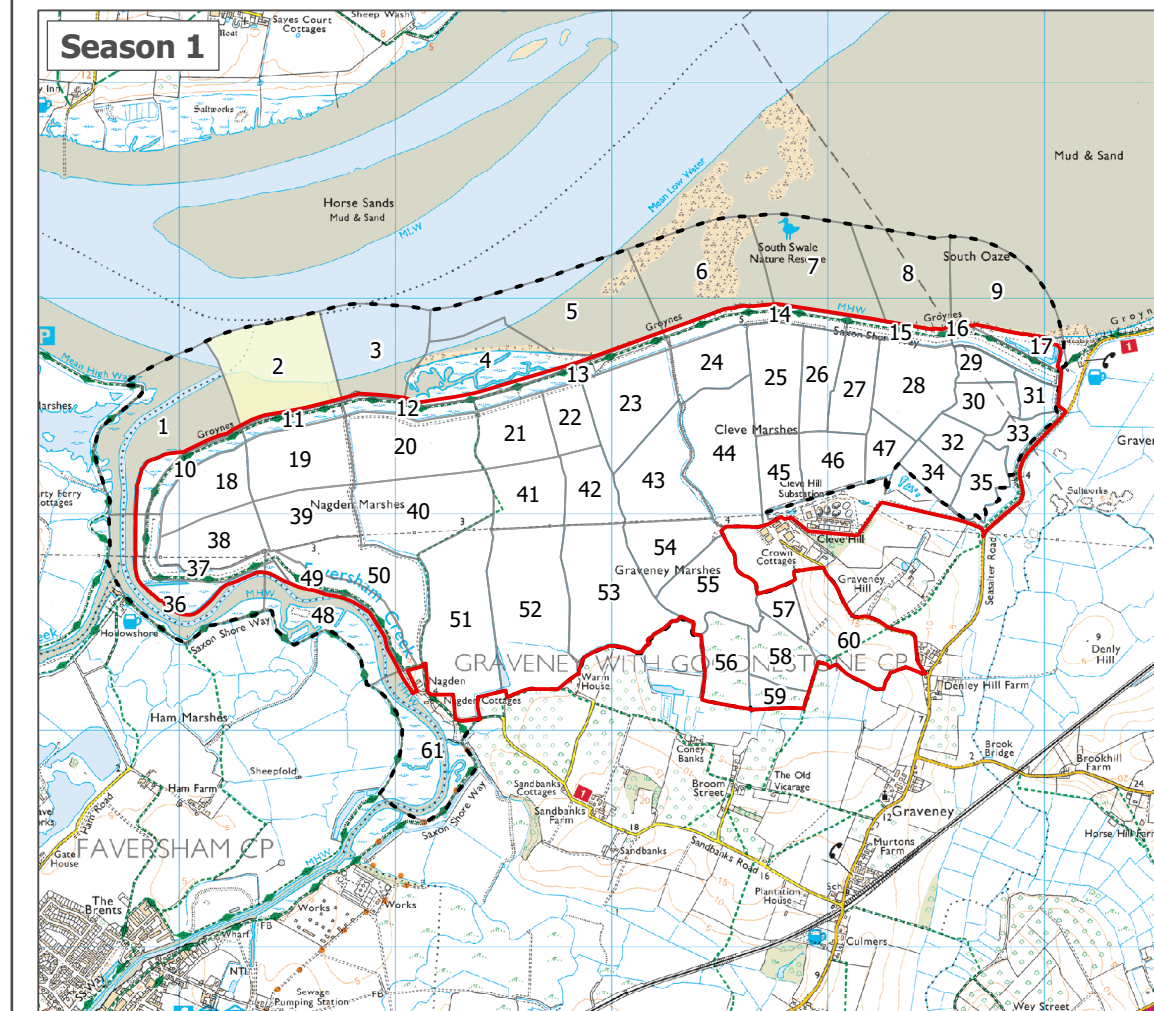
Date: 14/11/2018

Passage/Winter Bird Survey Results:

Lapwing

Figure A9.15

Cleve Hill Solar Park Environmental Statement

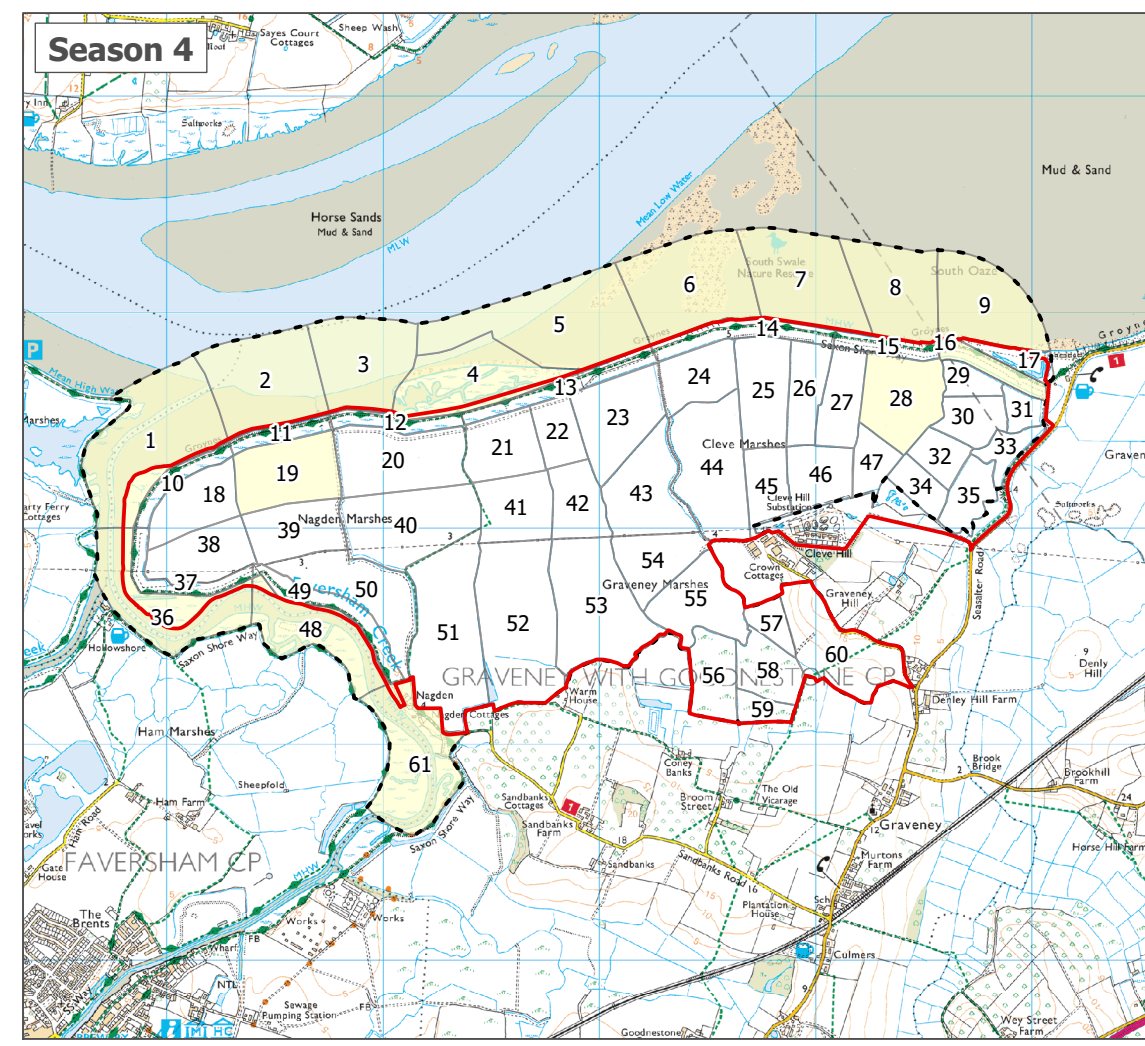
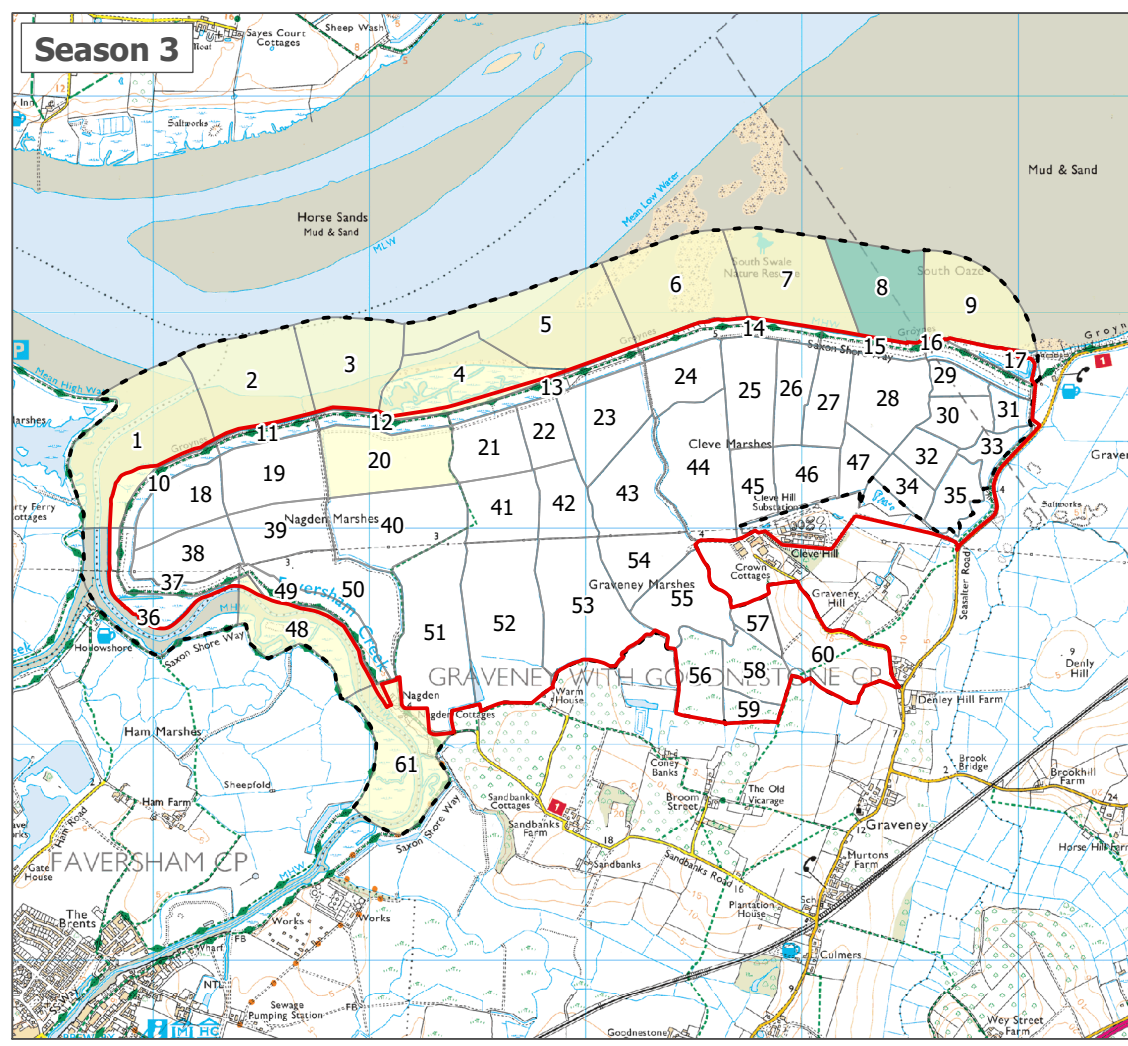
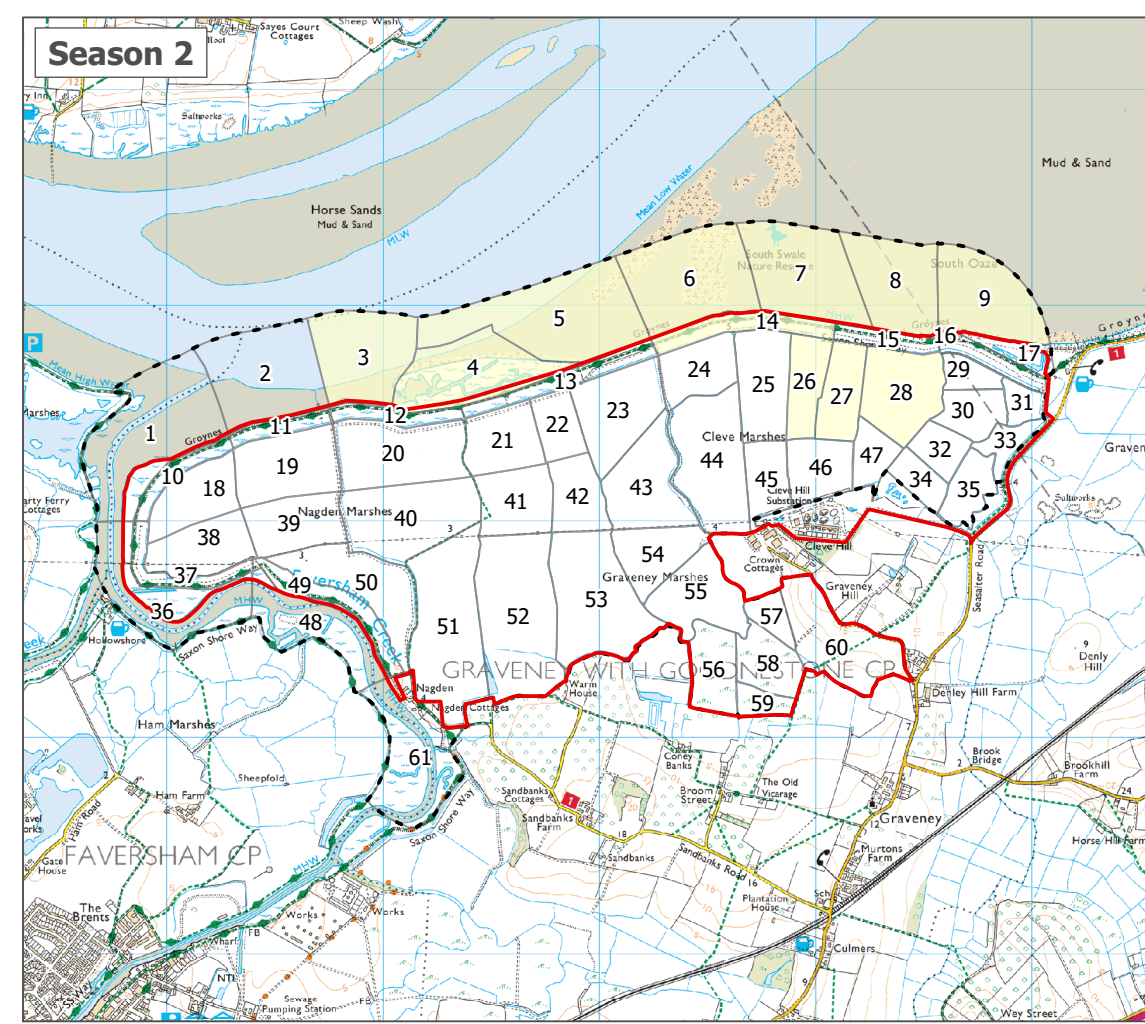
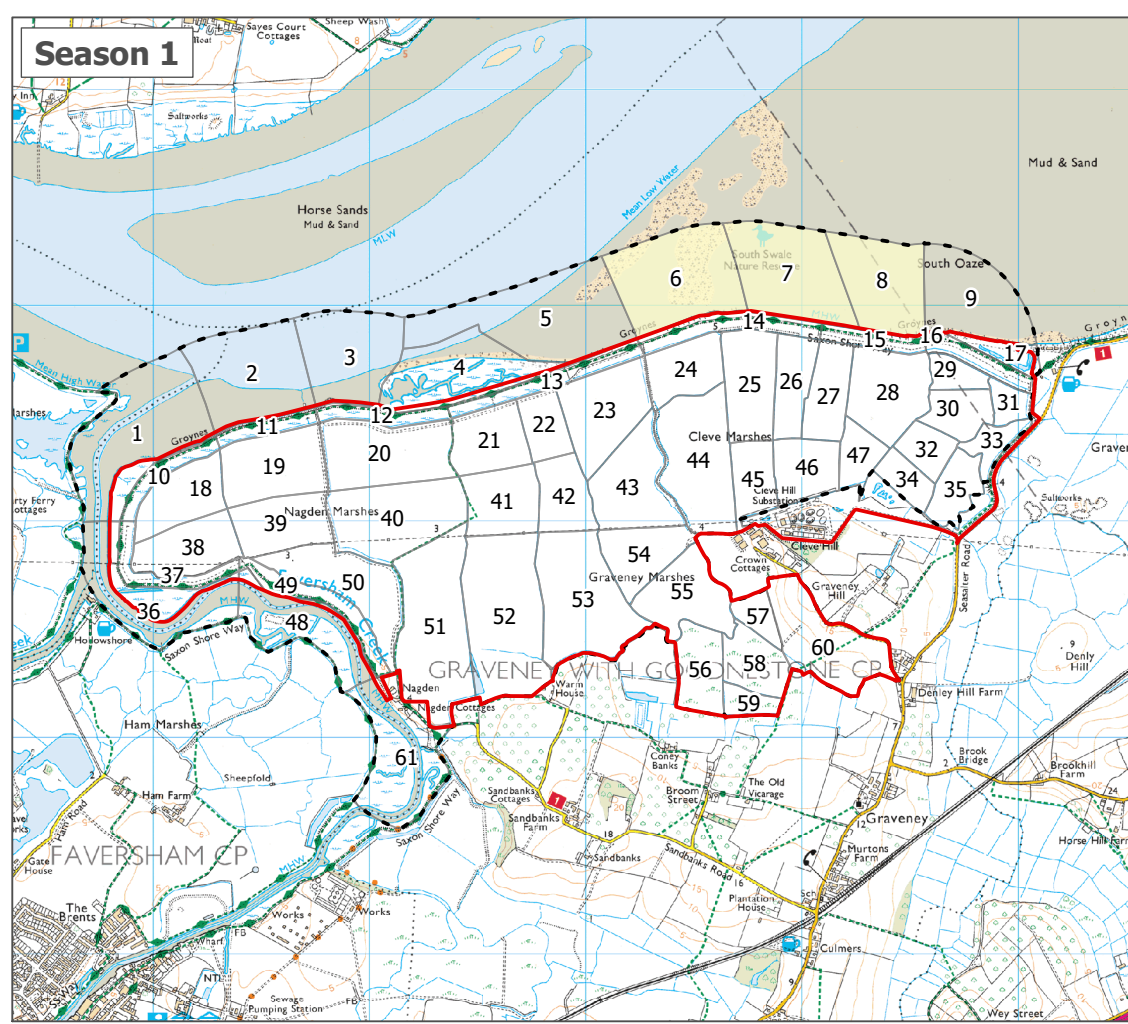


Produced By: SC	Ref: 2238-REP-267
Checked By: MA	Date: 14/11/2018

Passage/Winter Bird Survey Results:
Golden Plover
Figure A9.16

Cleve Hill Solar Park
Environmental Statement

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 Site Boundary
 Winter Bird Survey Area
2016/17 and 2017/18
Grey Plover mean bird days
 0
 1 - 2,000
 2,000 - 4,000
 4,000 - 6,000
 6,000 - 8,000
 8,000 - 10,000

1:35,000 Scale @ A3

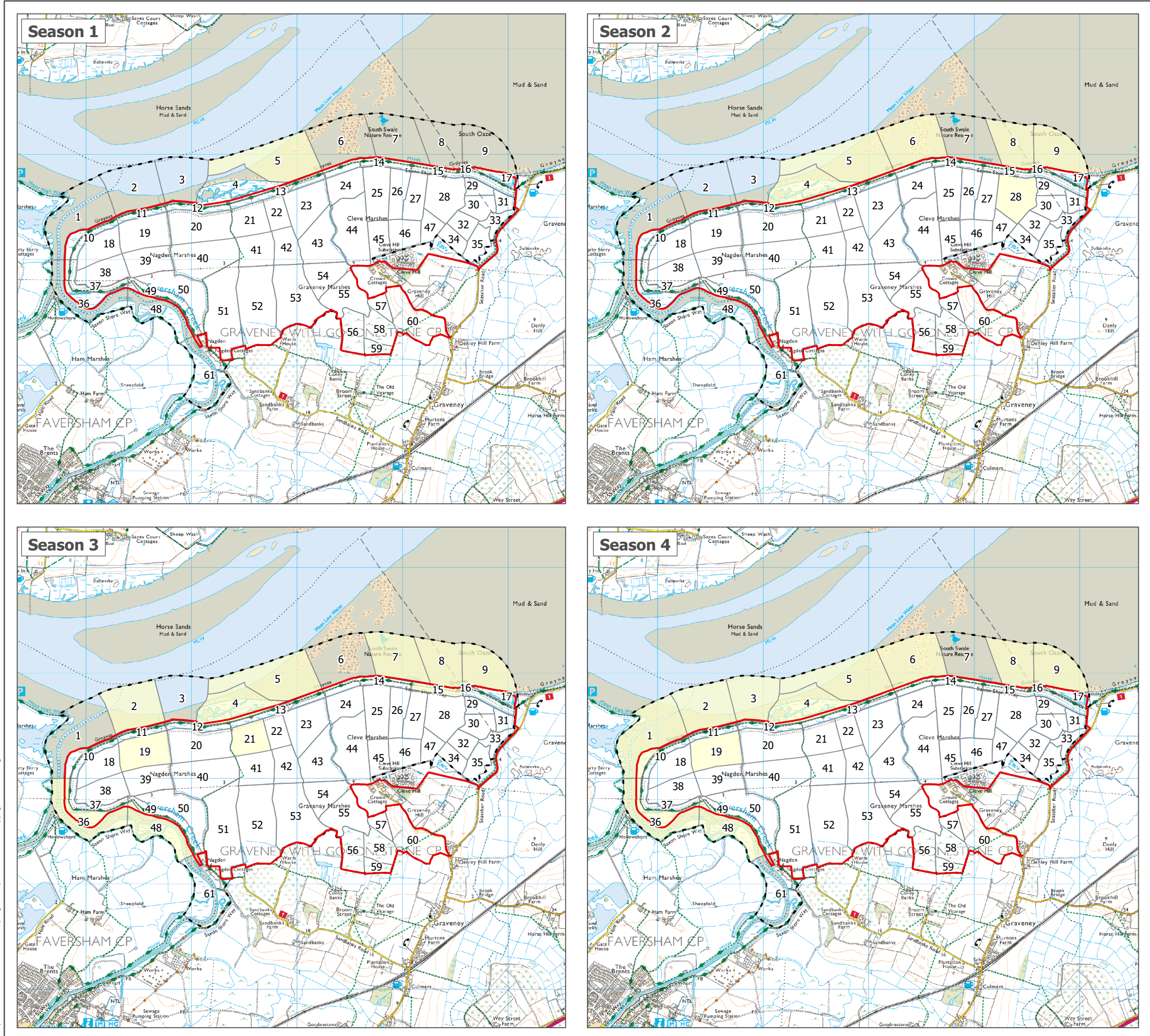
0 0.75 1.5 km
 NORTH

Produced By: SC	Ref: 2238-REP-268
Checked By: MA	Date: 14/11/2018

Passage/Winter Bird Survey Results:
Grey Plover
Figure A9.17

Cleve Hill Solar Park
Environmental Statement

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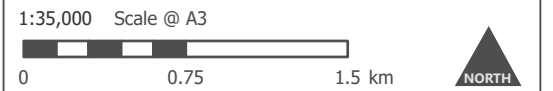
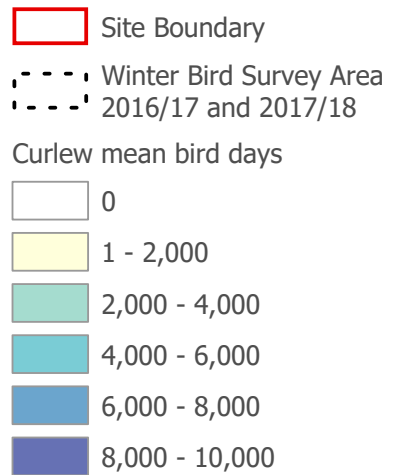
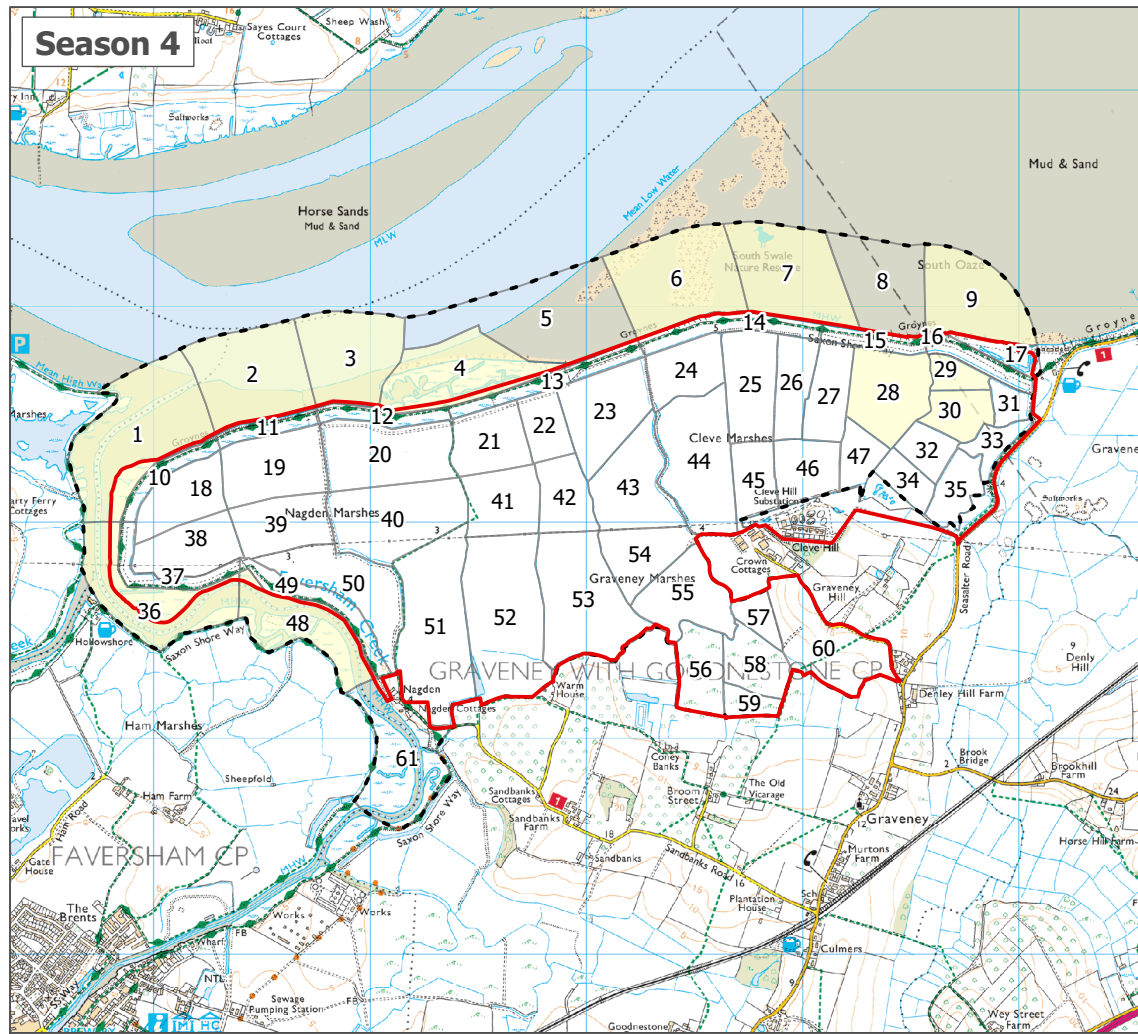
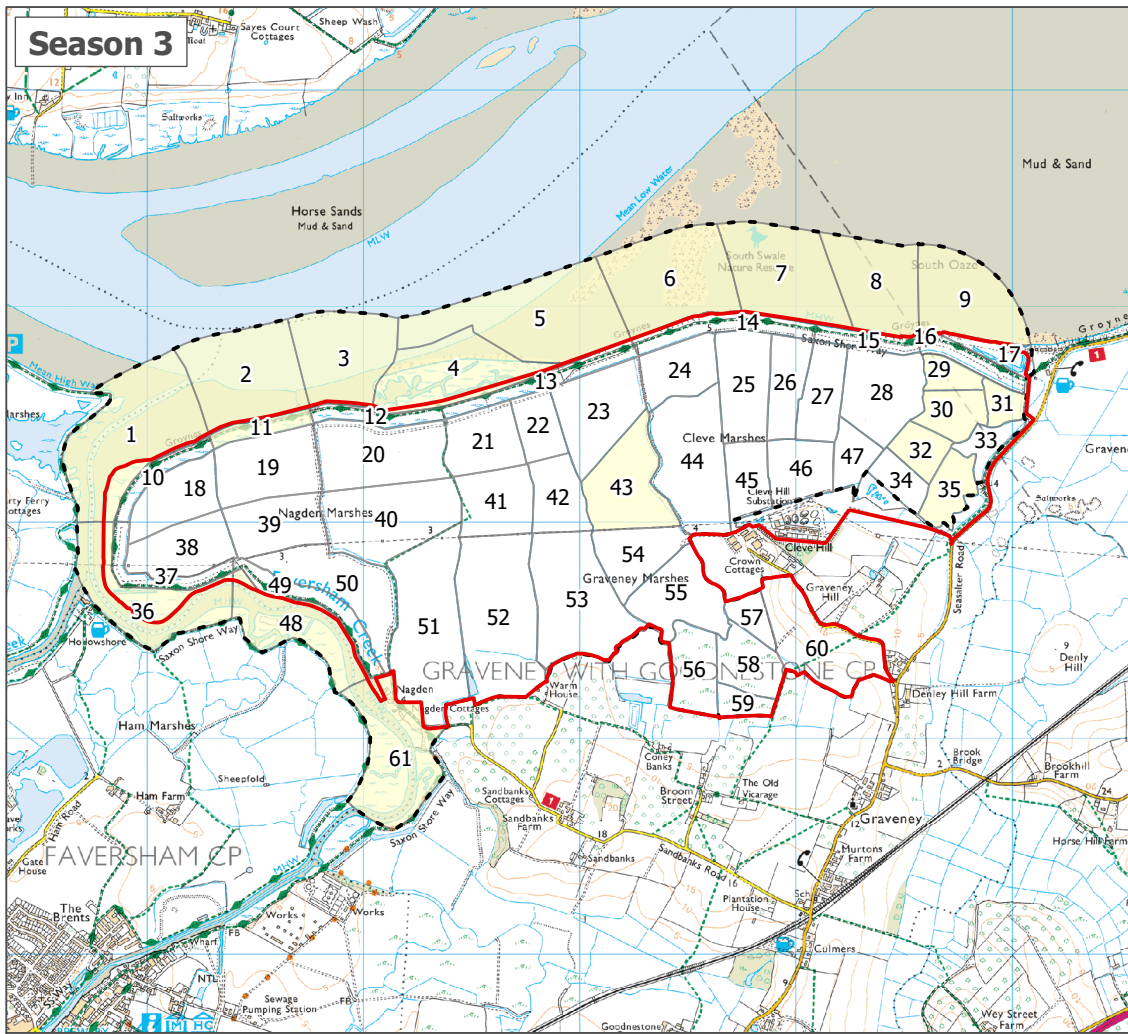
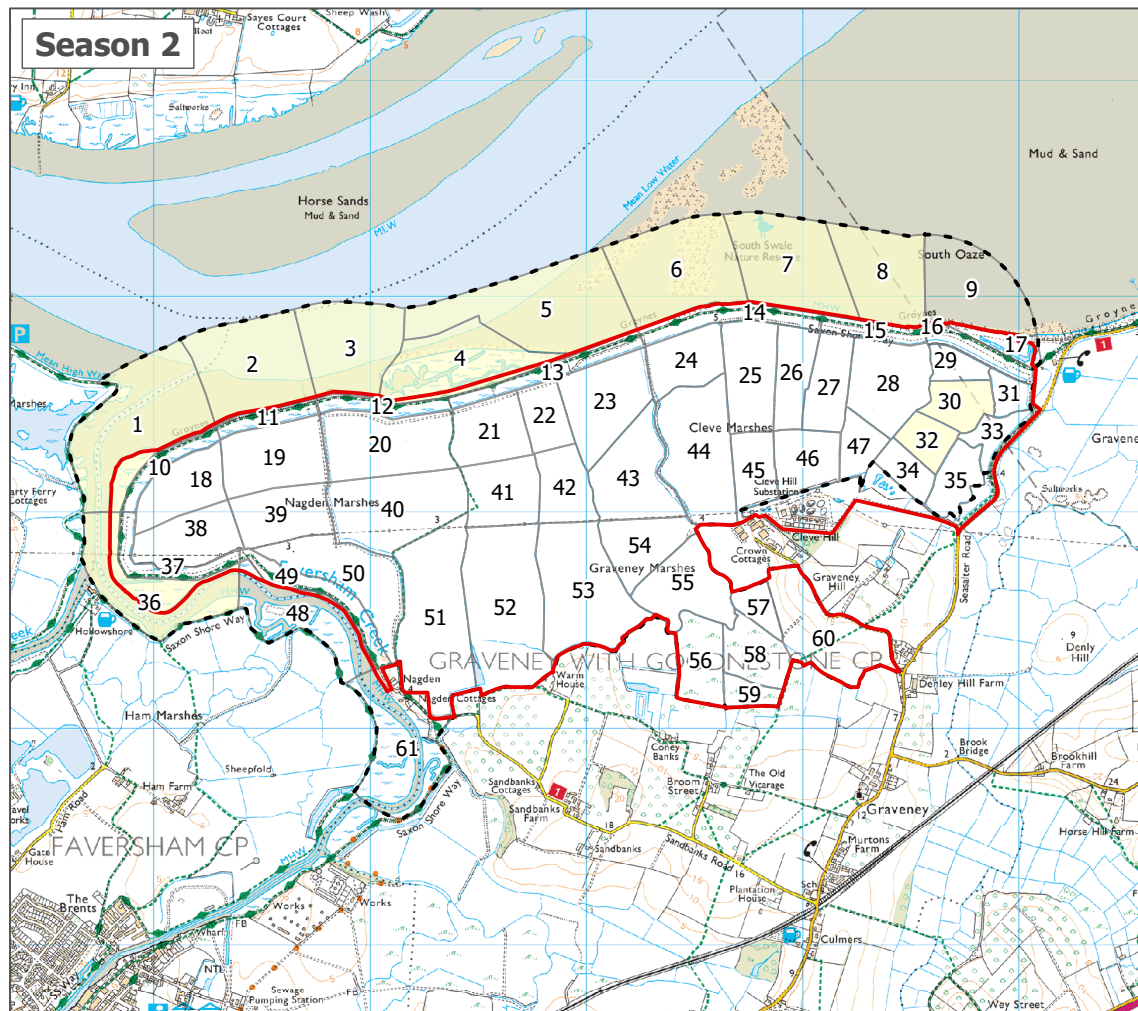
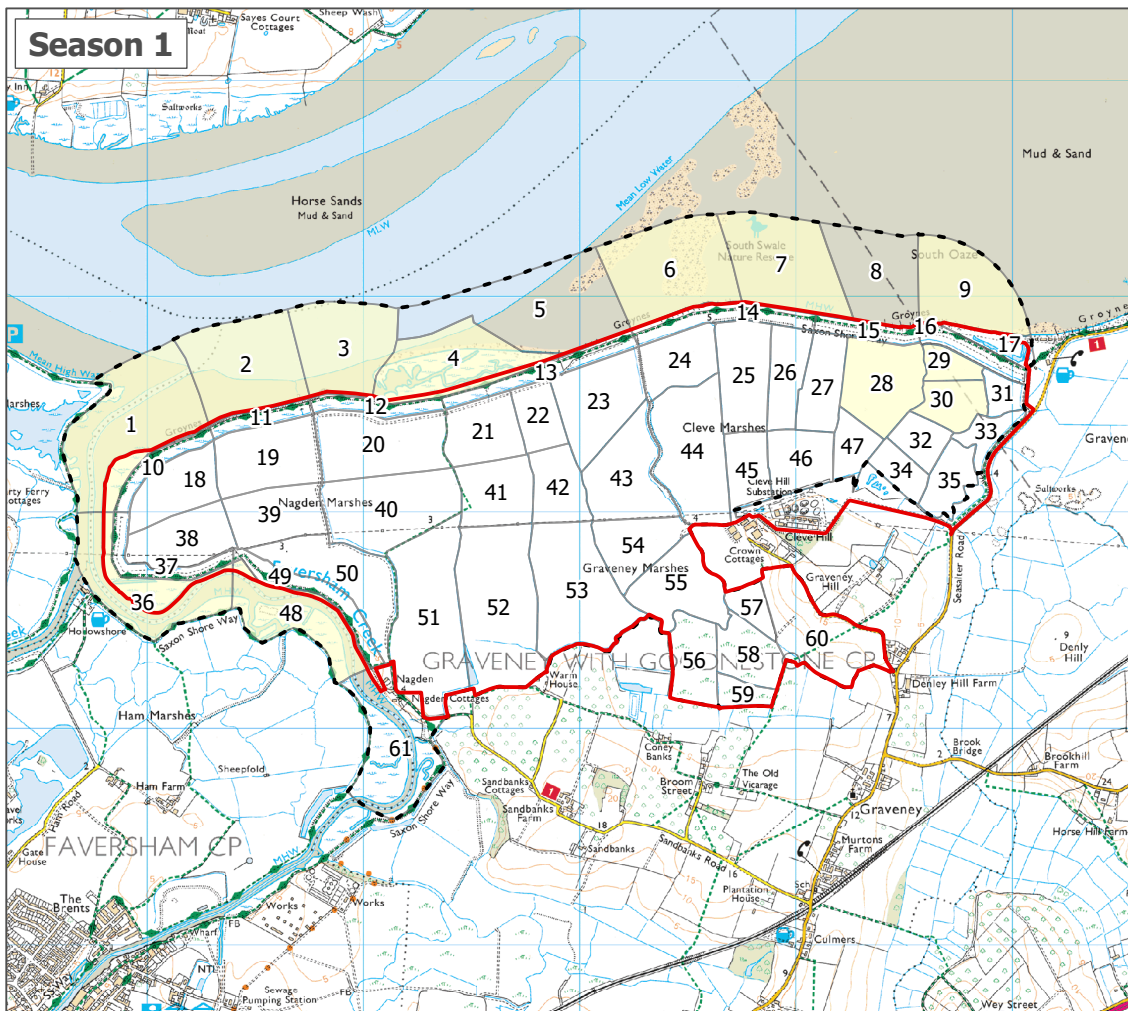
- Site Boundary
- Winter Bird Survey Area
- 2016/17 and 2017/18
- Ringed Plover mean bird days
- 0
- 1 - 2,000
- 2,000 - 4,000
- 4,000 - 6,000
- 6,000 - 8,000
- 8,000 - 10,000

1:35,000 Scale @ A3
0 0.75 1.5 km
NORTH

Produced By: SC	Ref: 2238-REP-269
Checked By: MA	Date: 14/11/2018

Passage/Winter Bird Survey Results:
Ringed Plover
Figure A9.18

Cleve Hill Solar Park
Environmental Statement

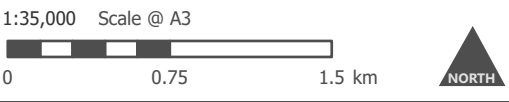
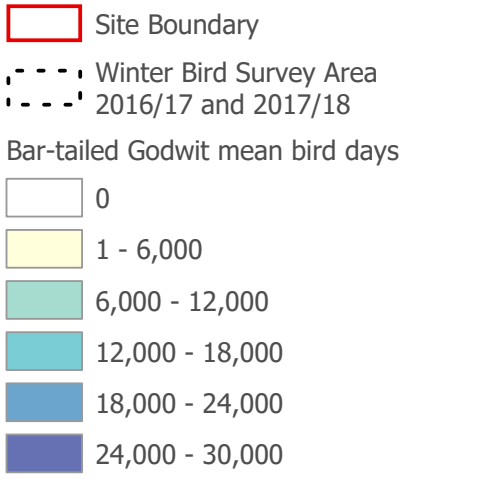
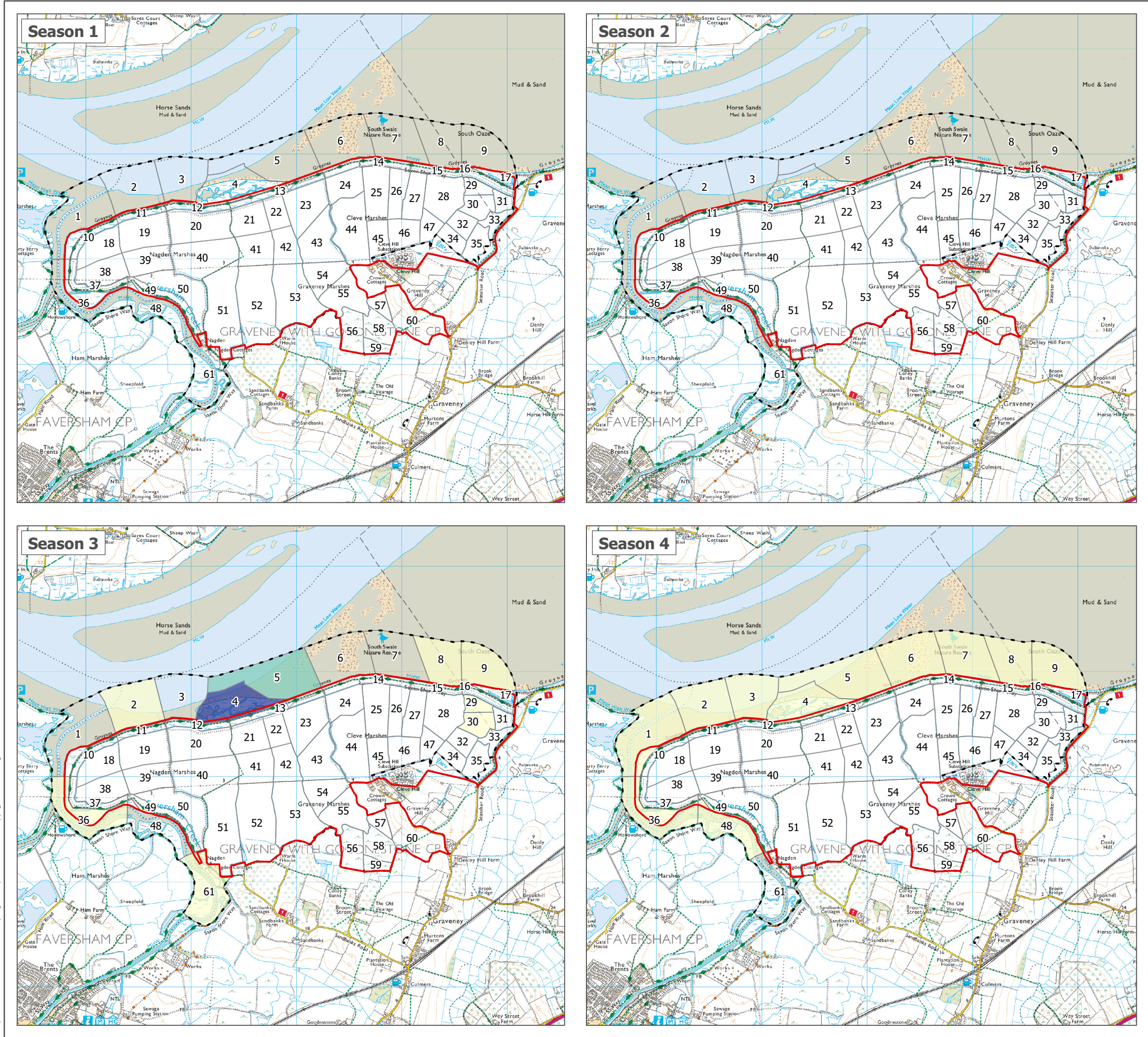


Produced By: SC	Ref: 2238-REP-270
Checked By: MA	Date: 14/11/2018

Passage/Winter Bird Survey Results:
Curlew
Figure A9.19

**Cleve Hill Solar Park
Environmental Statement**

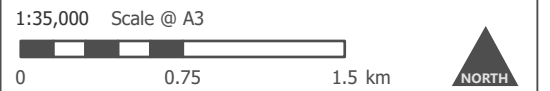
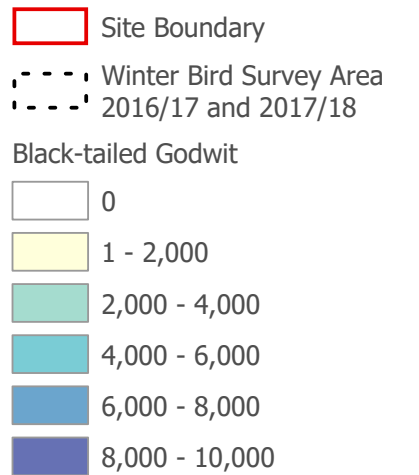
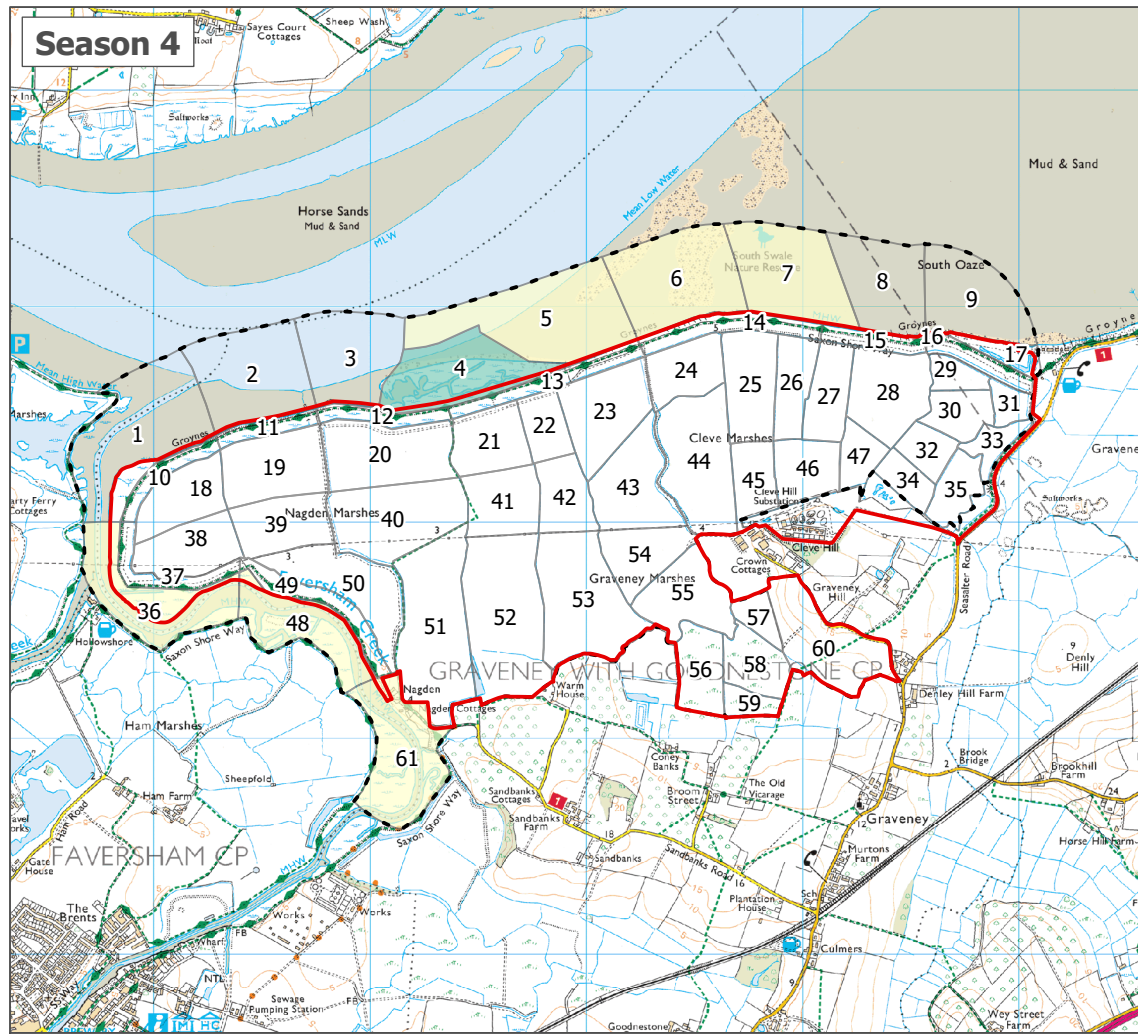
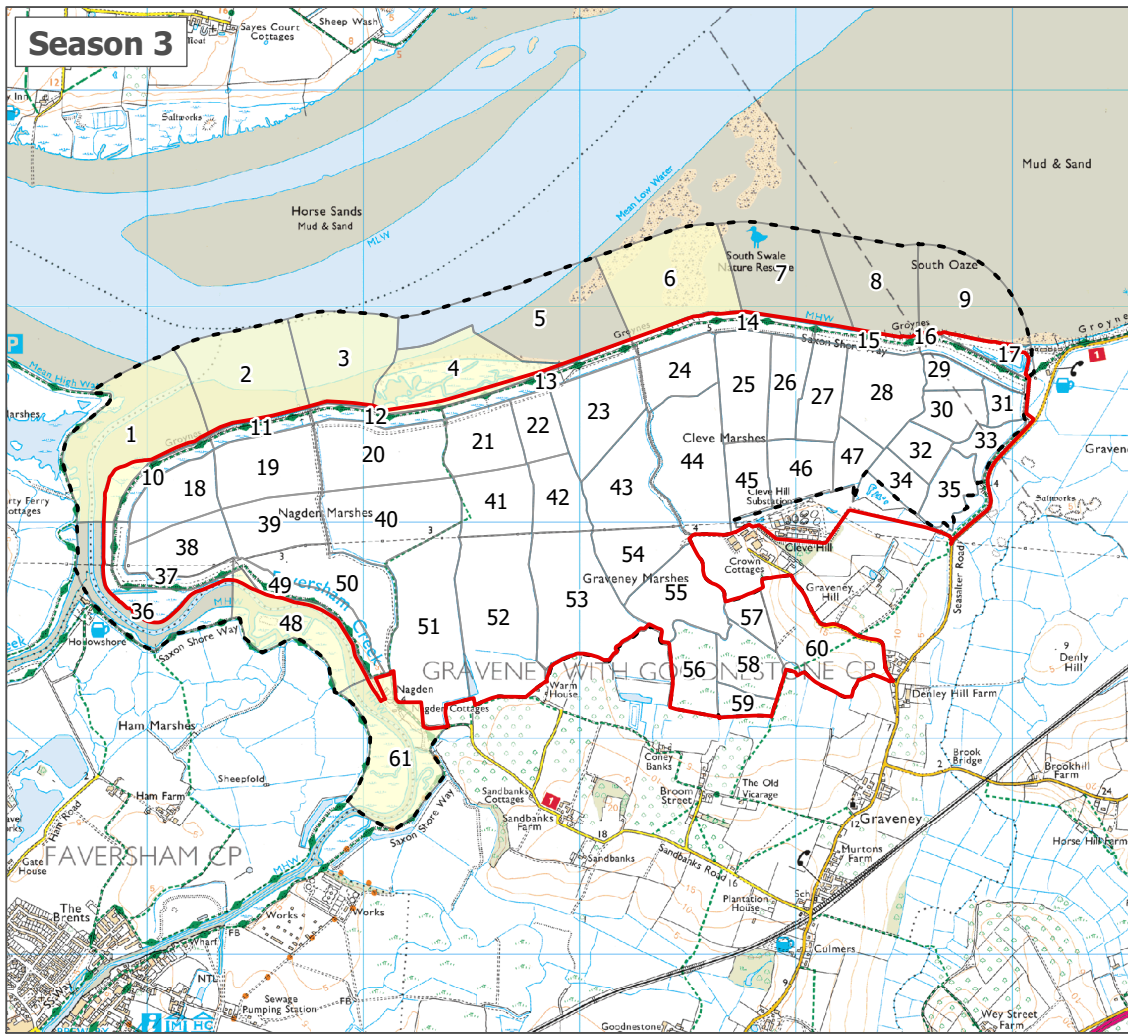
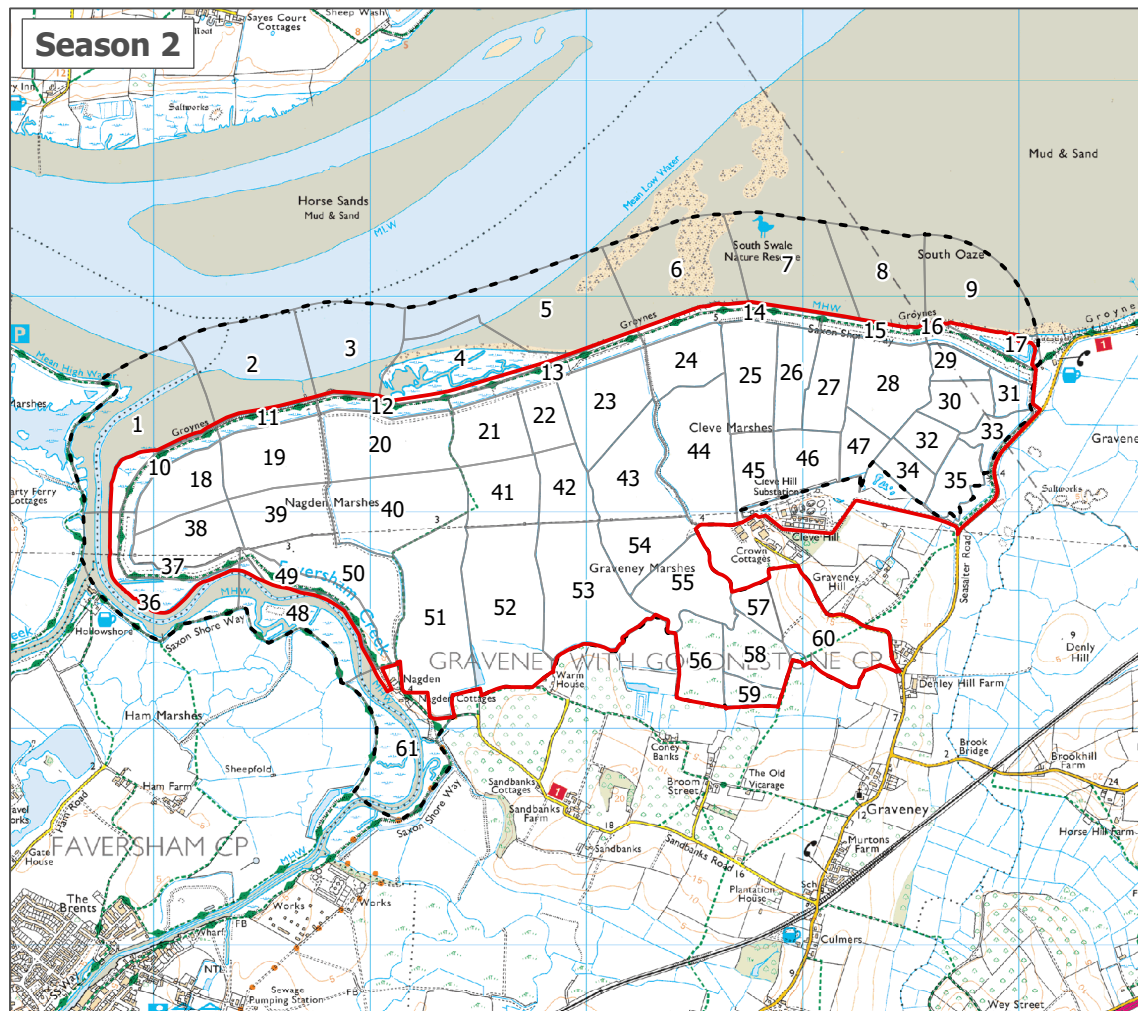
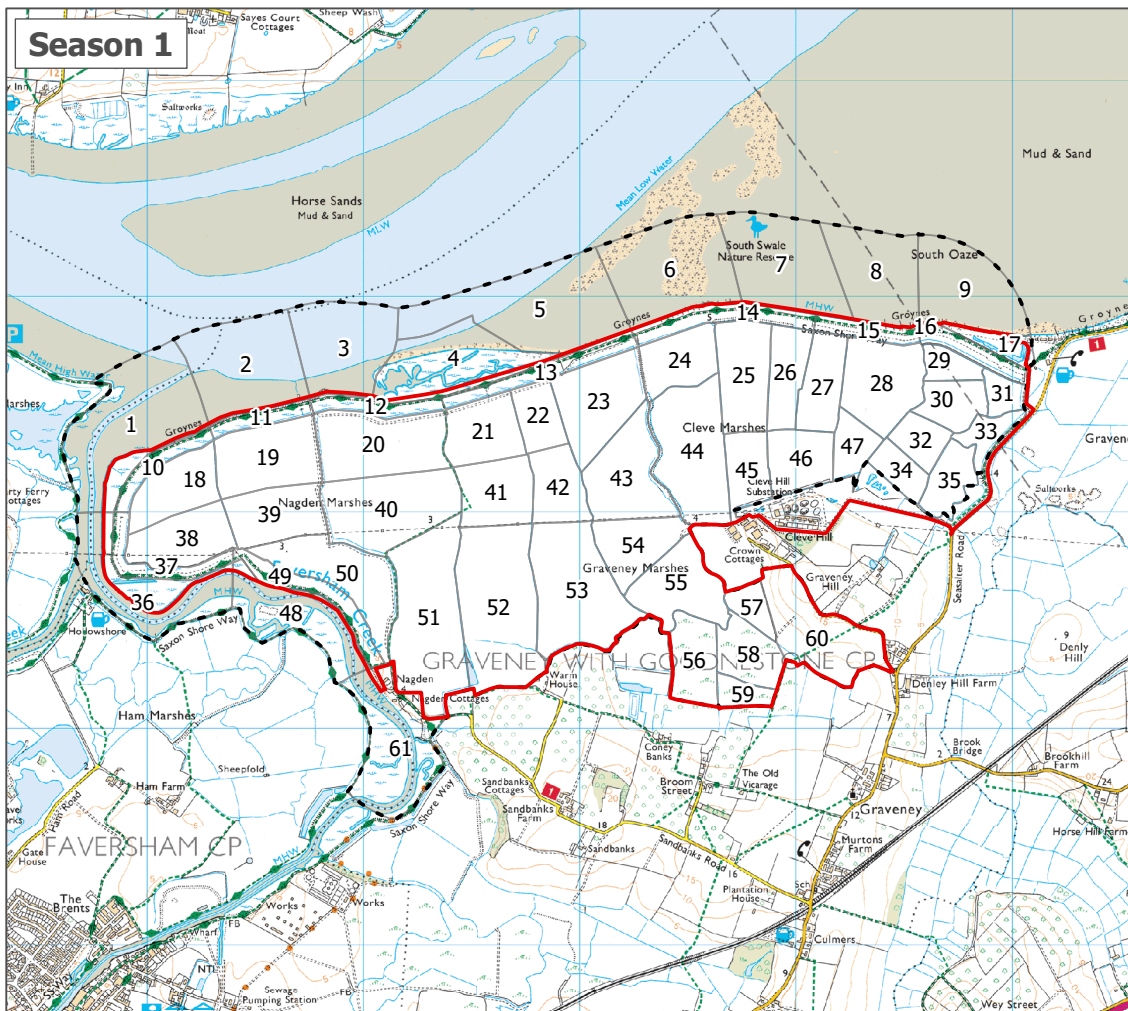
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Passage/Winter Bird Survey Results:
Bar-tailed Godwit
Figure A9.20

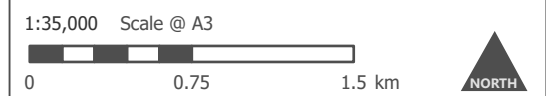
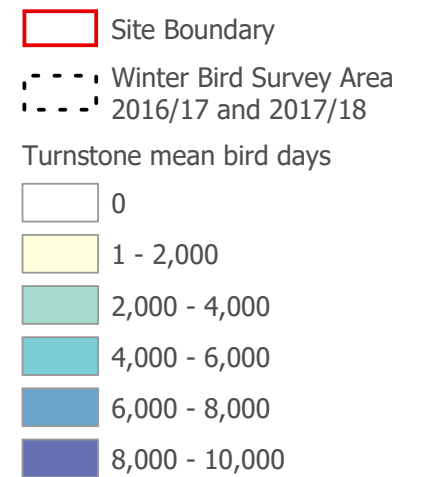
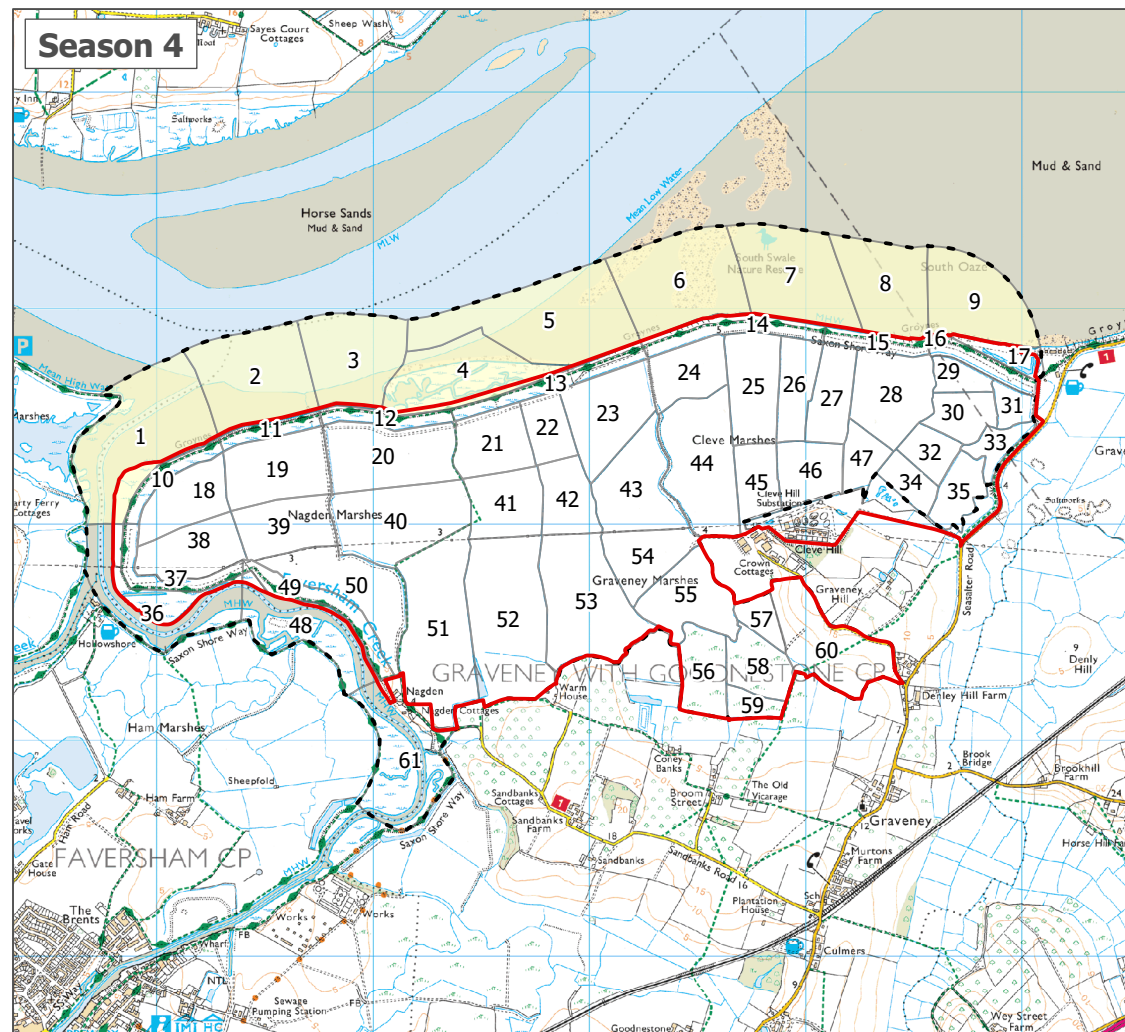
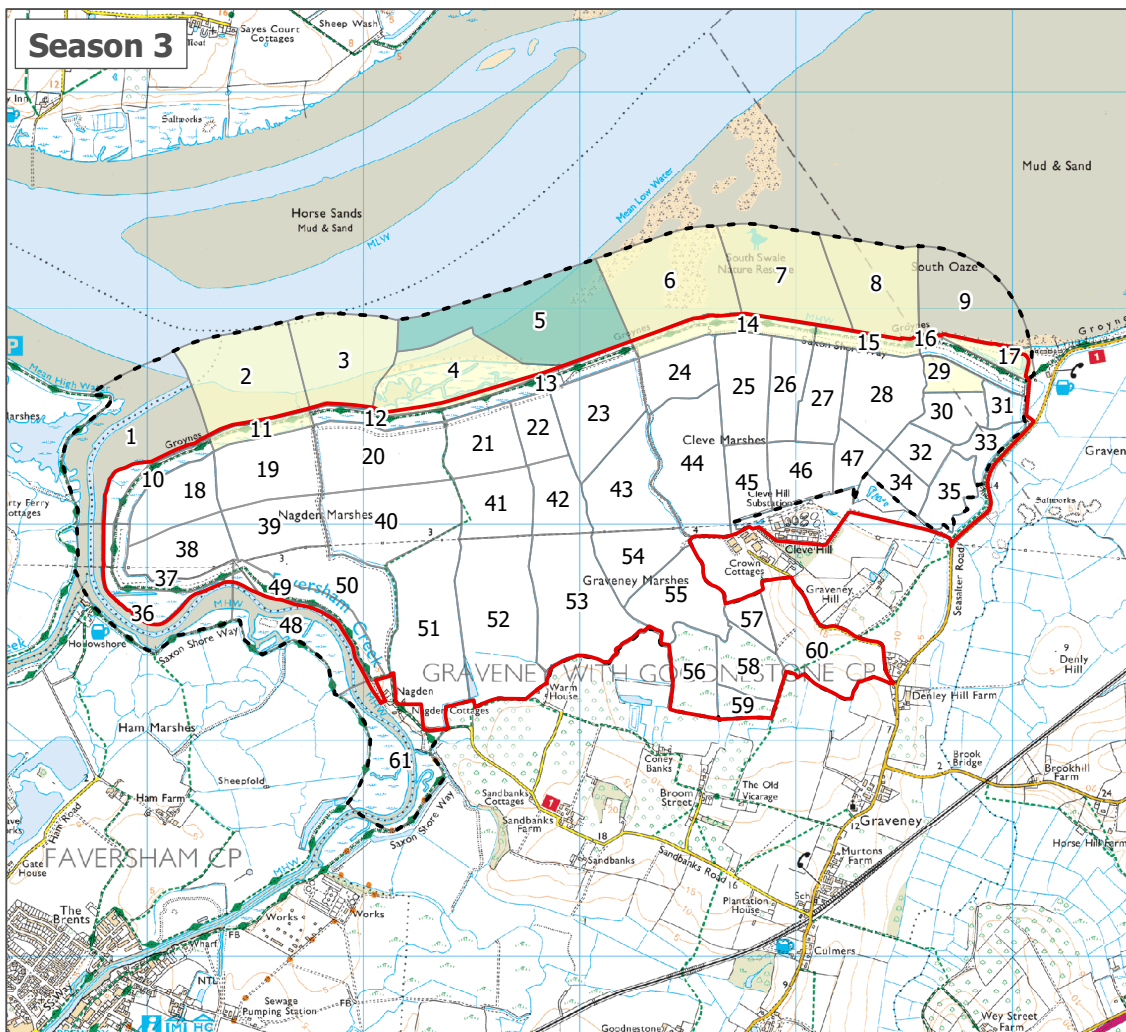
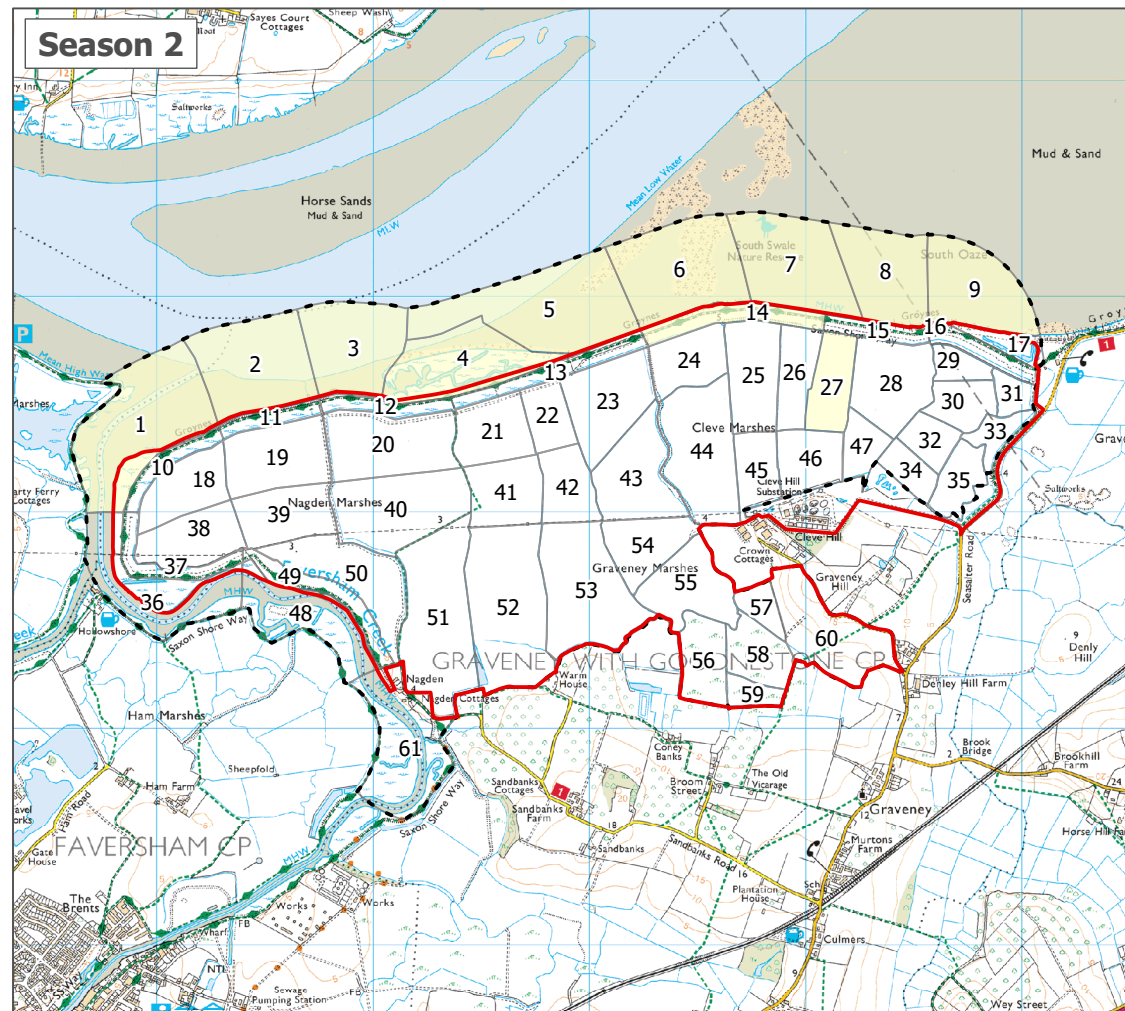
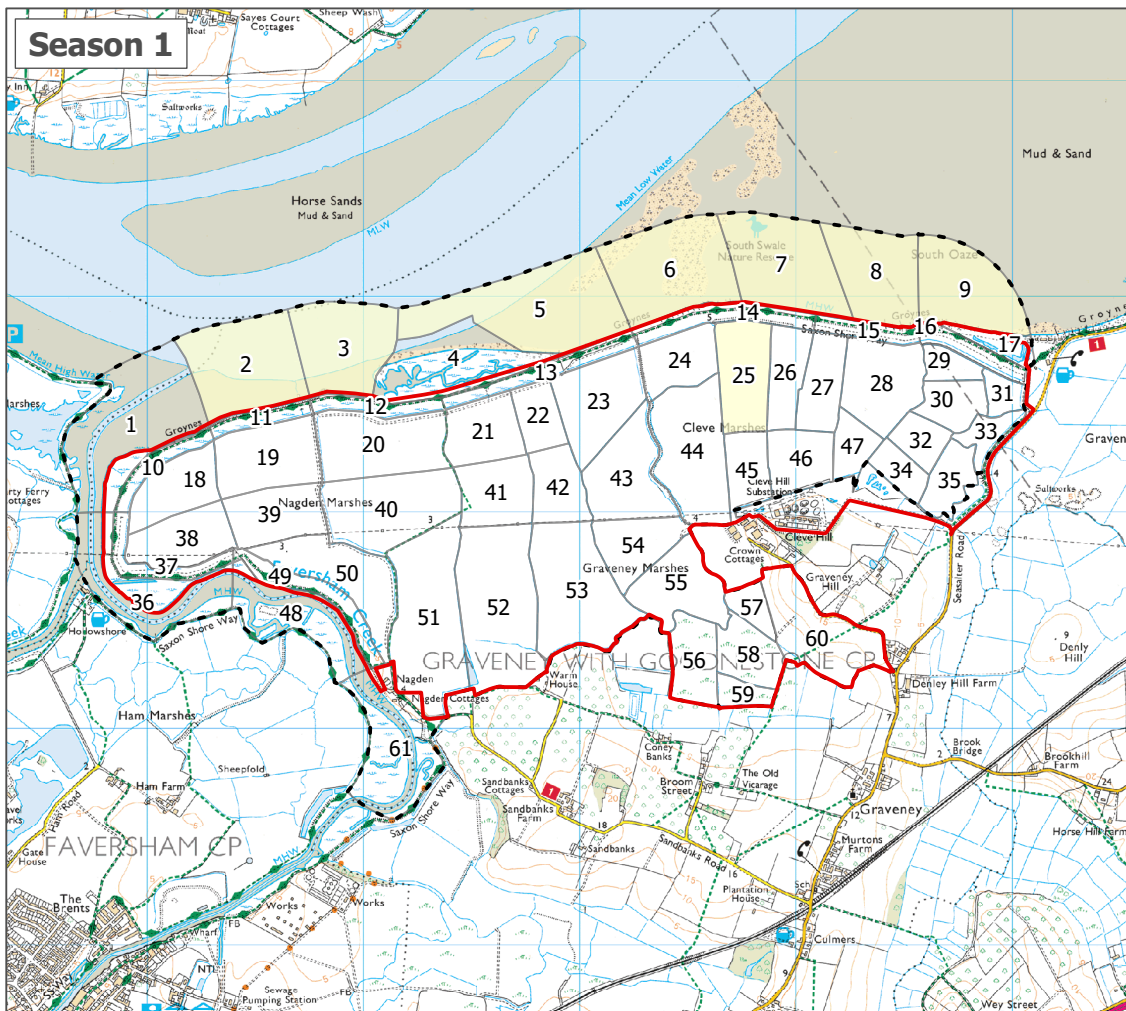
Cleve Hill Solar Park
Environmental Statement



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Checked By: MA	Date: 14/11/2018

Passage/Winter Bird Survey Results:
Black-tailed Godwit
Figure A9.21

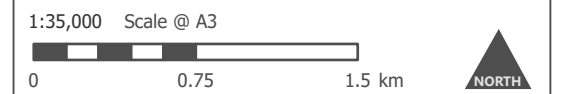
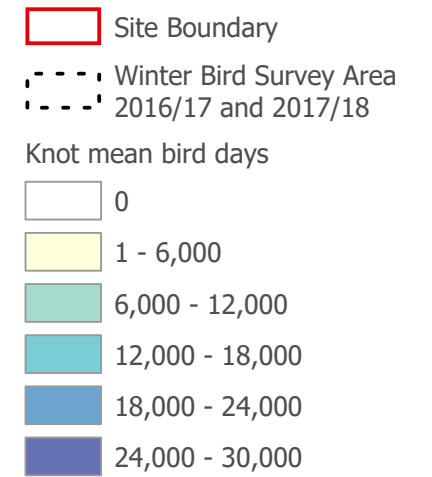
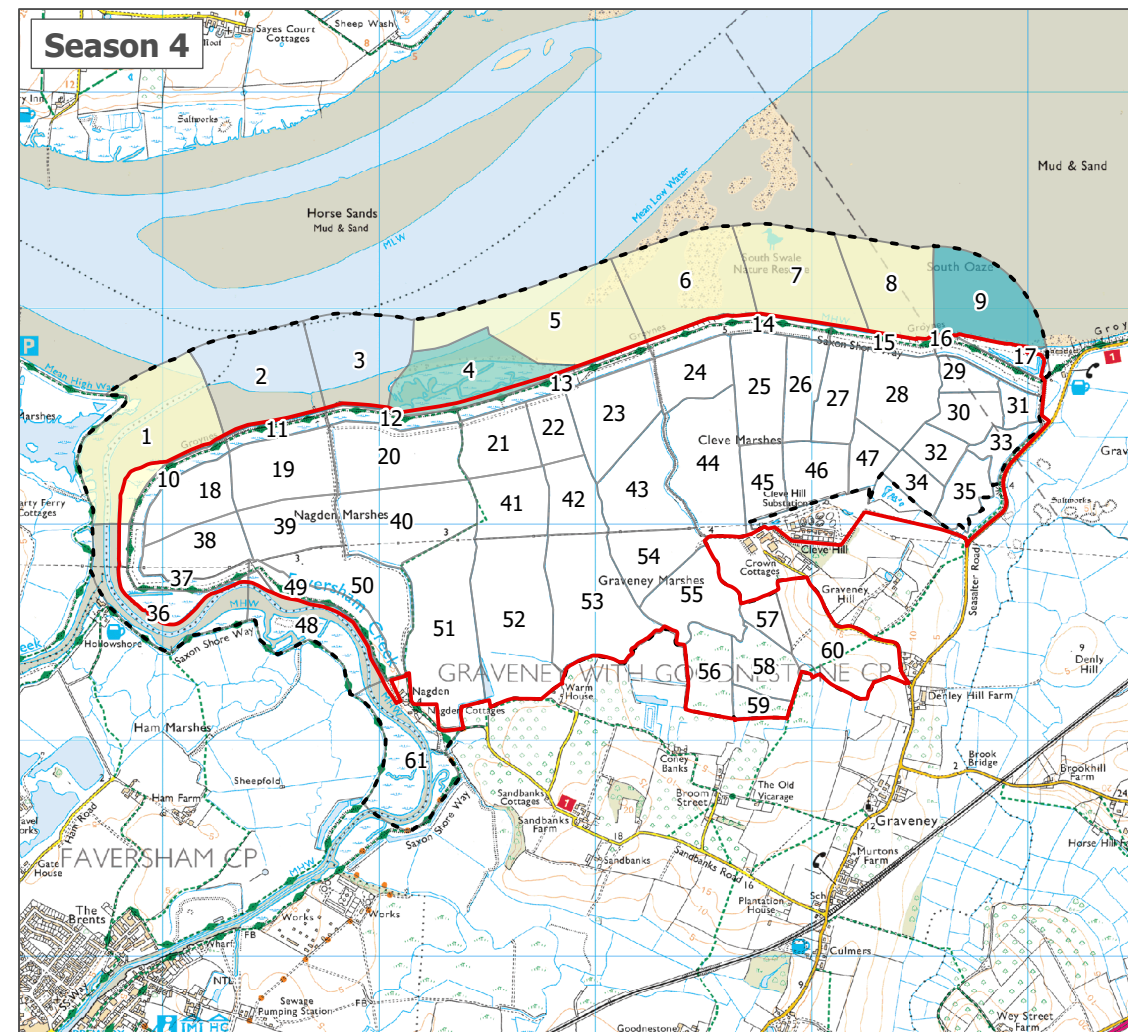
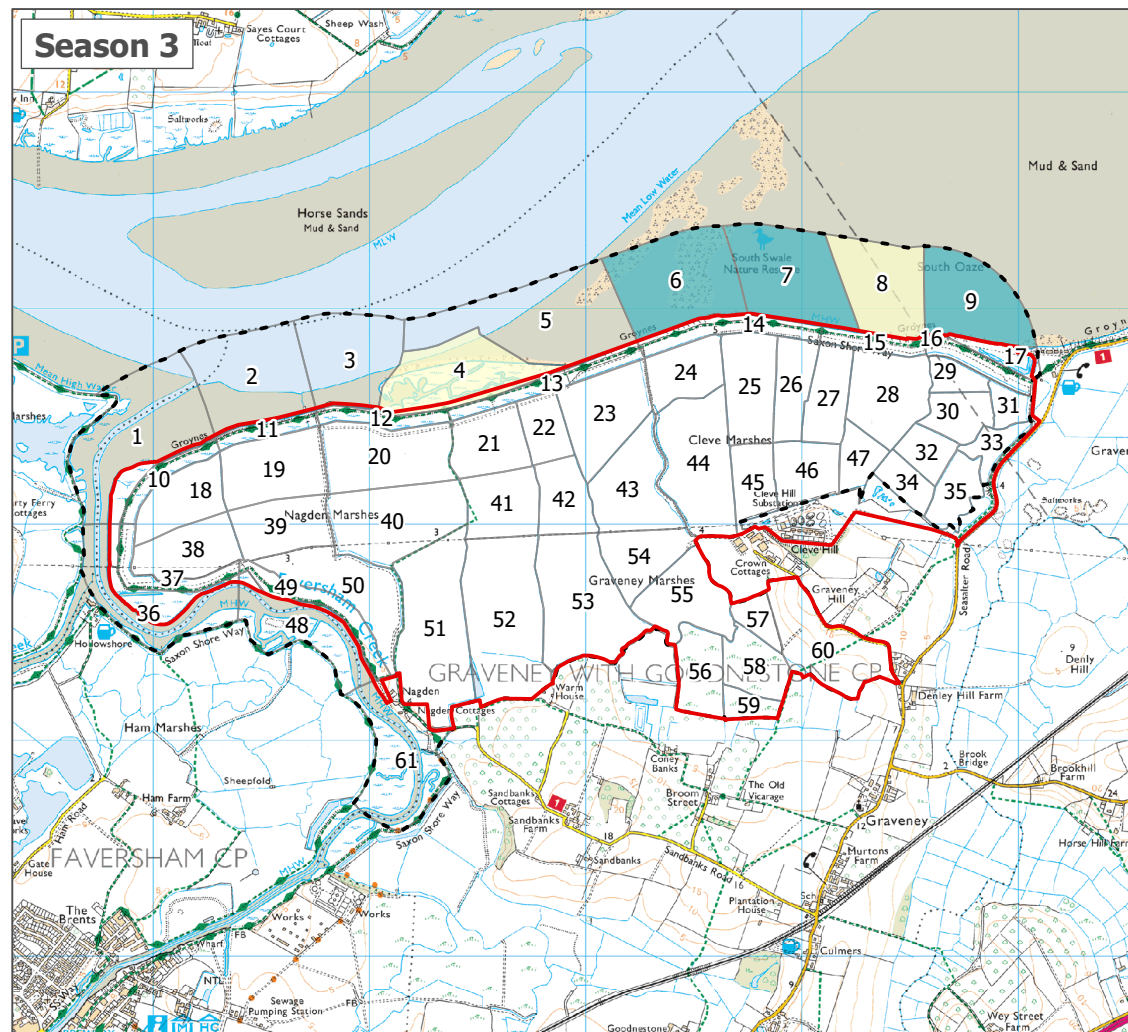
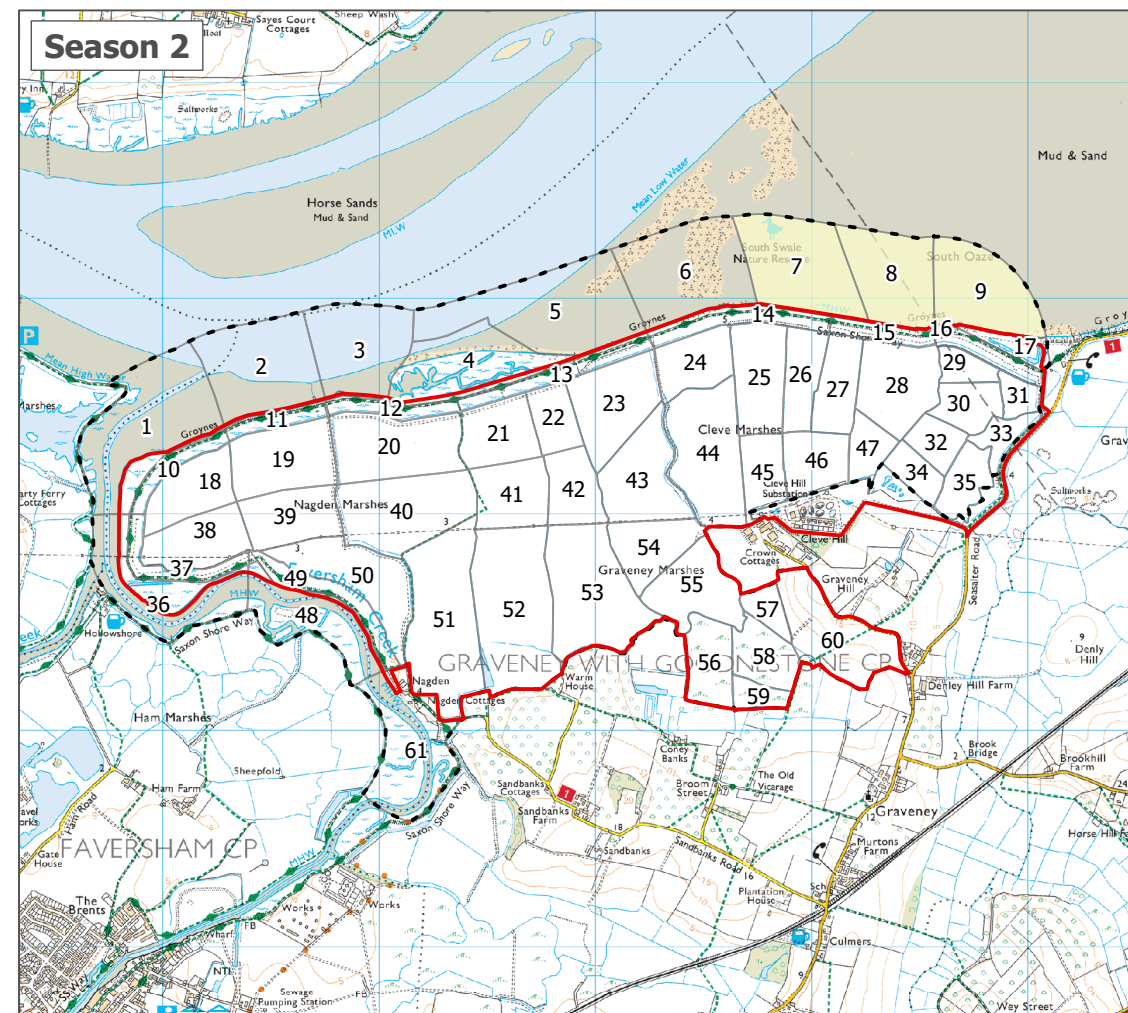
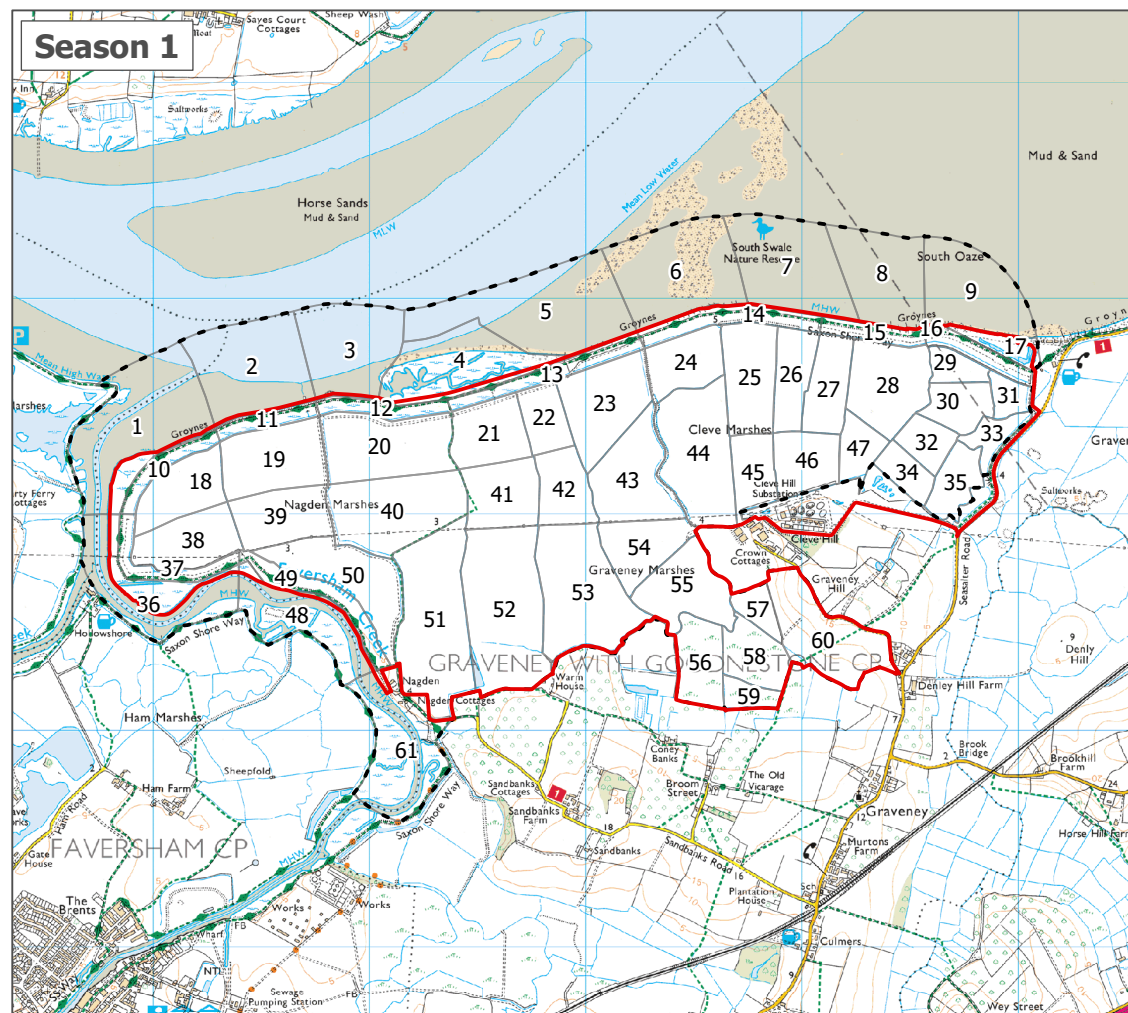
Cleve Hill Solar Park
Environmental Statement



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Checked By: MA	Date: 14/11/2018

Passage/Winter Bird Survey Results:
Turnstone
Figure A9.22

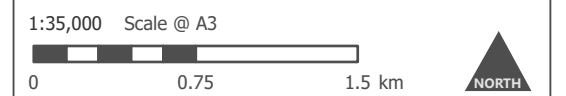
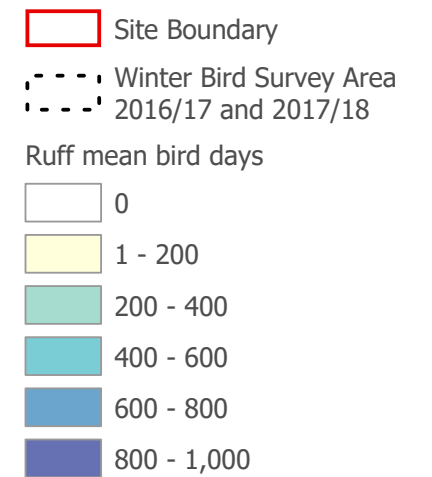
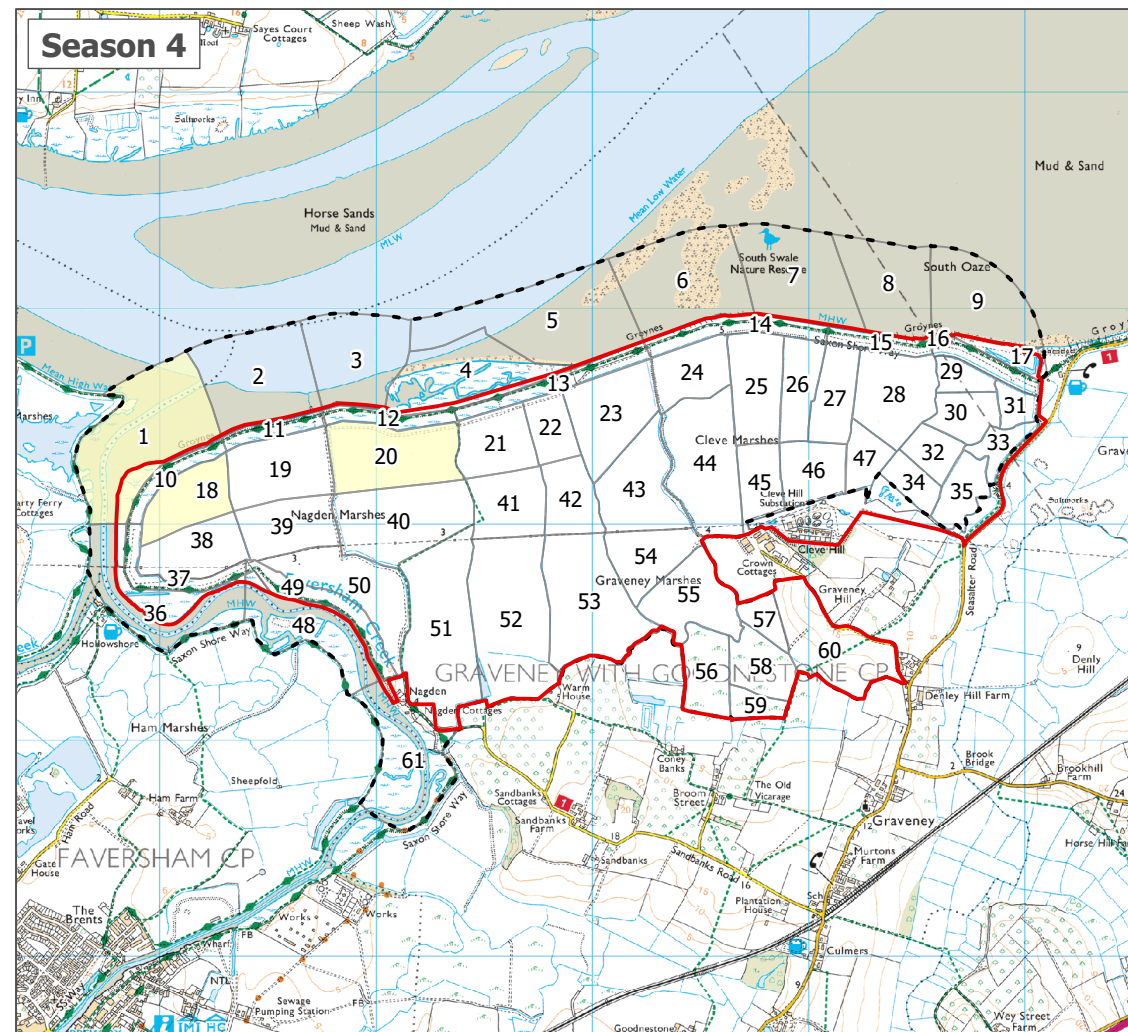
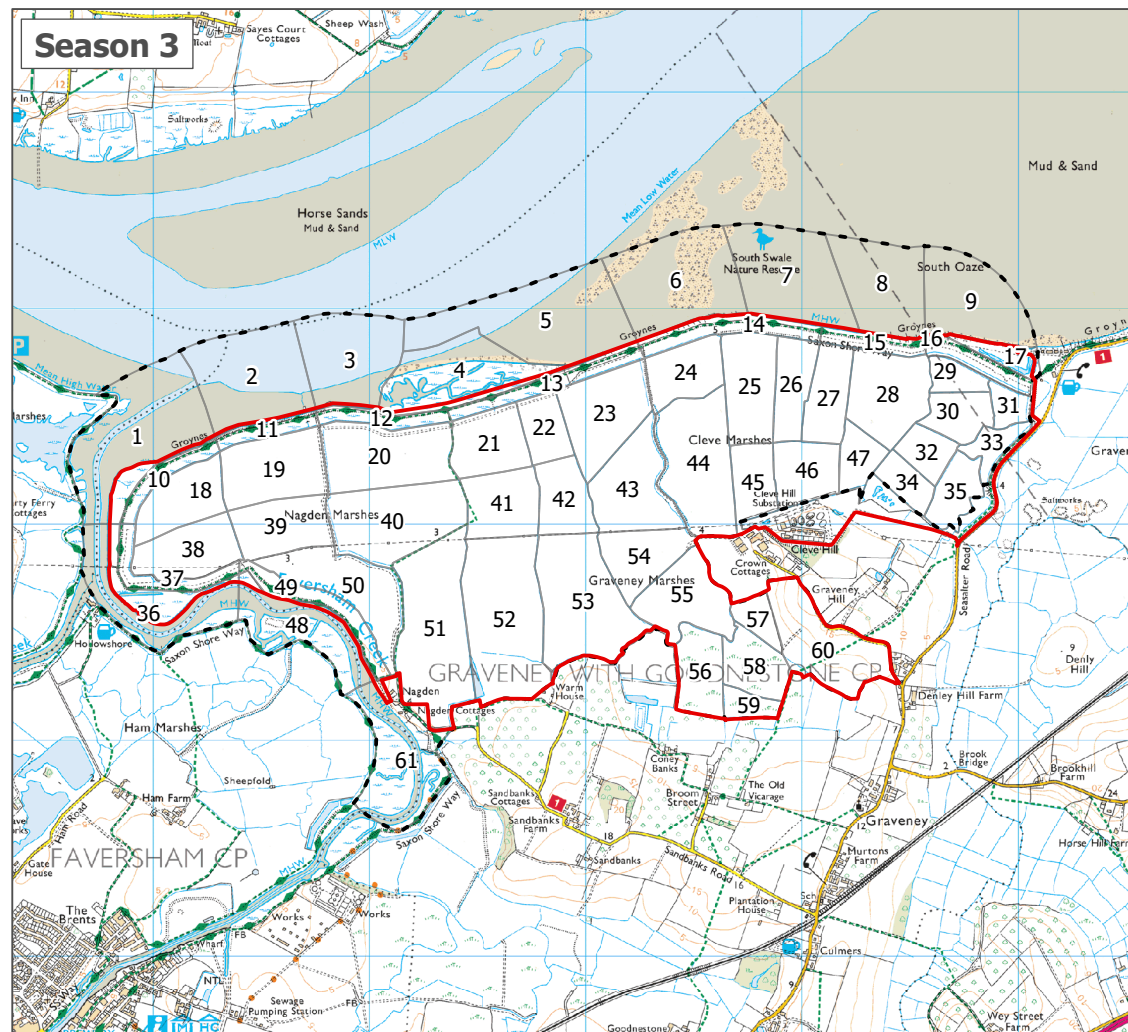
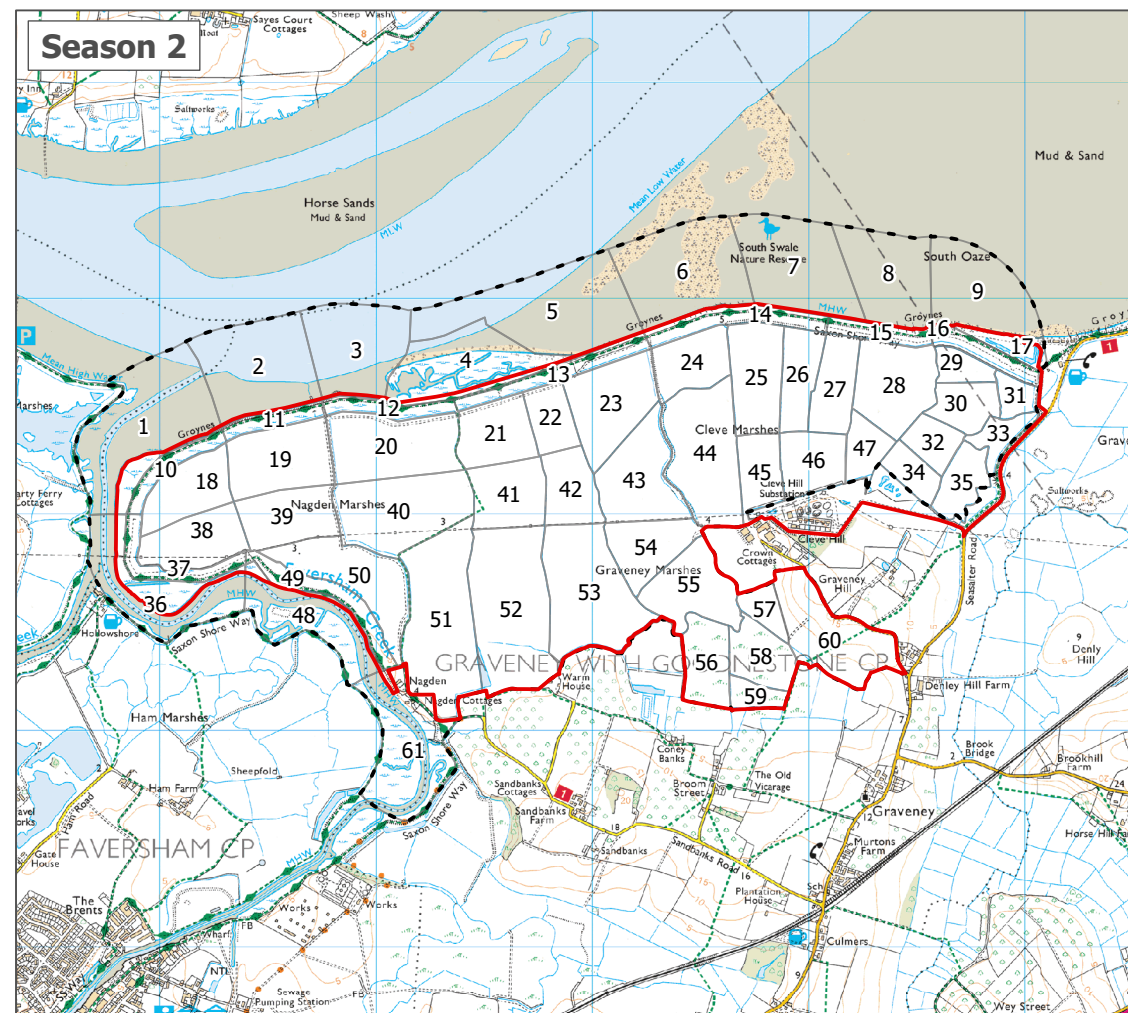
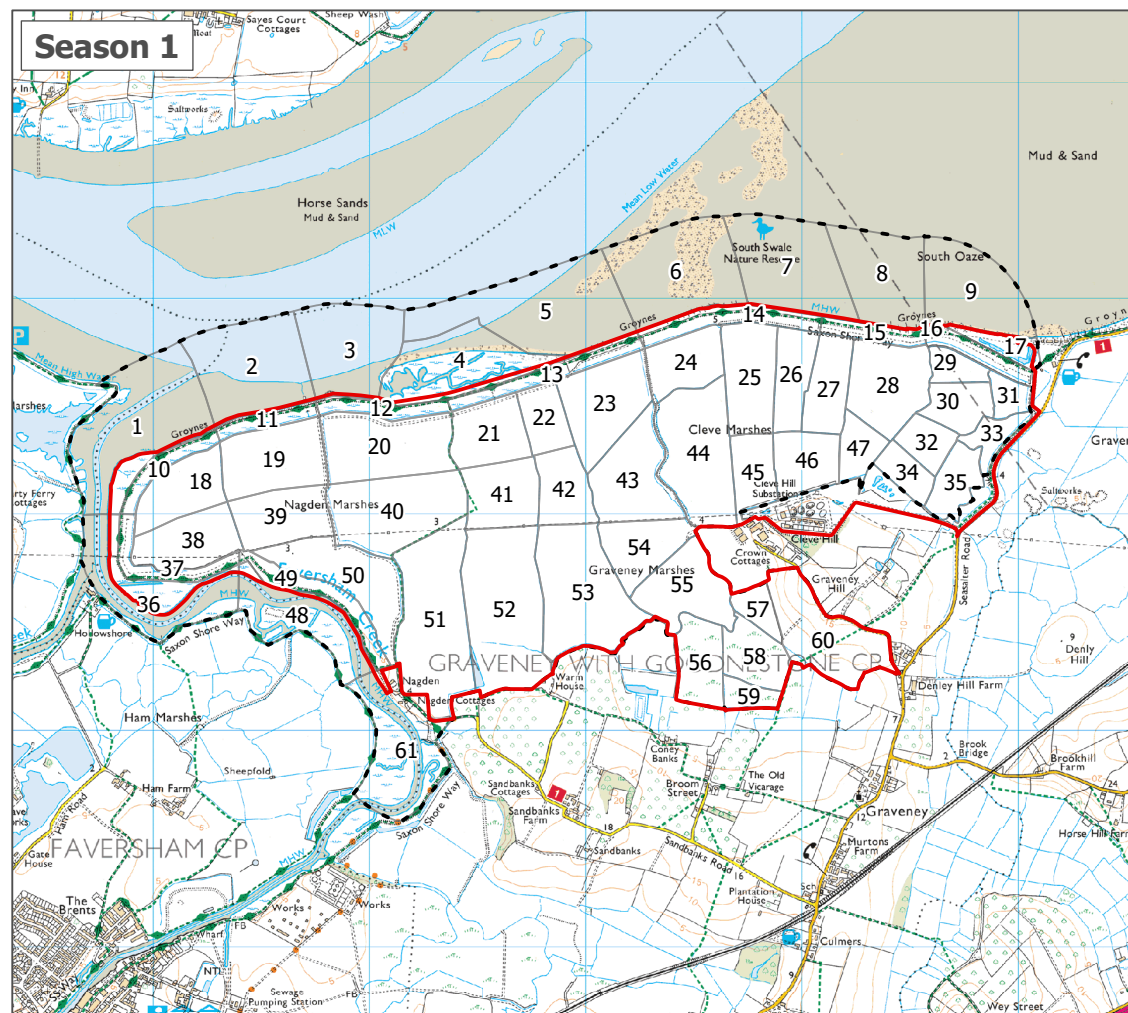
Cleve Hill Solar Park
Environmental Statement



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Checked By: MA	Date: 14/11/2018

Passage/Winter Bird Survey Results:
Dark-bellied Brent Goose
Figure A9.23

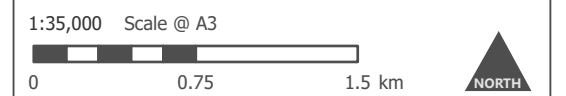
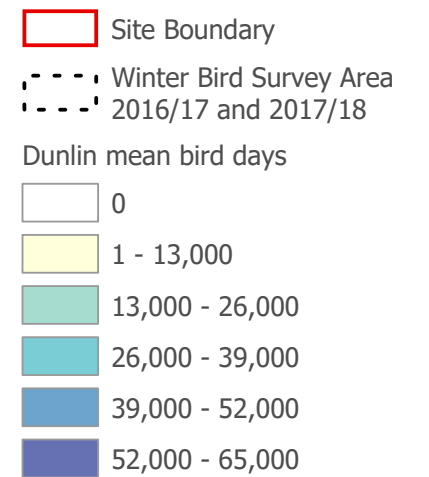
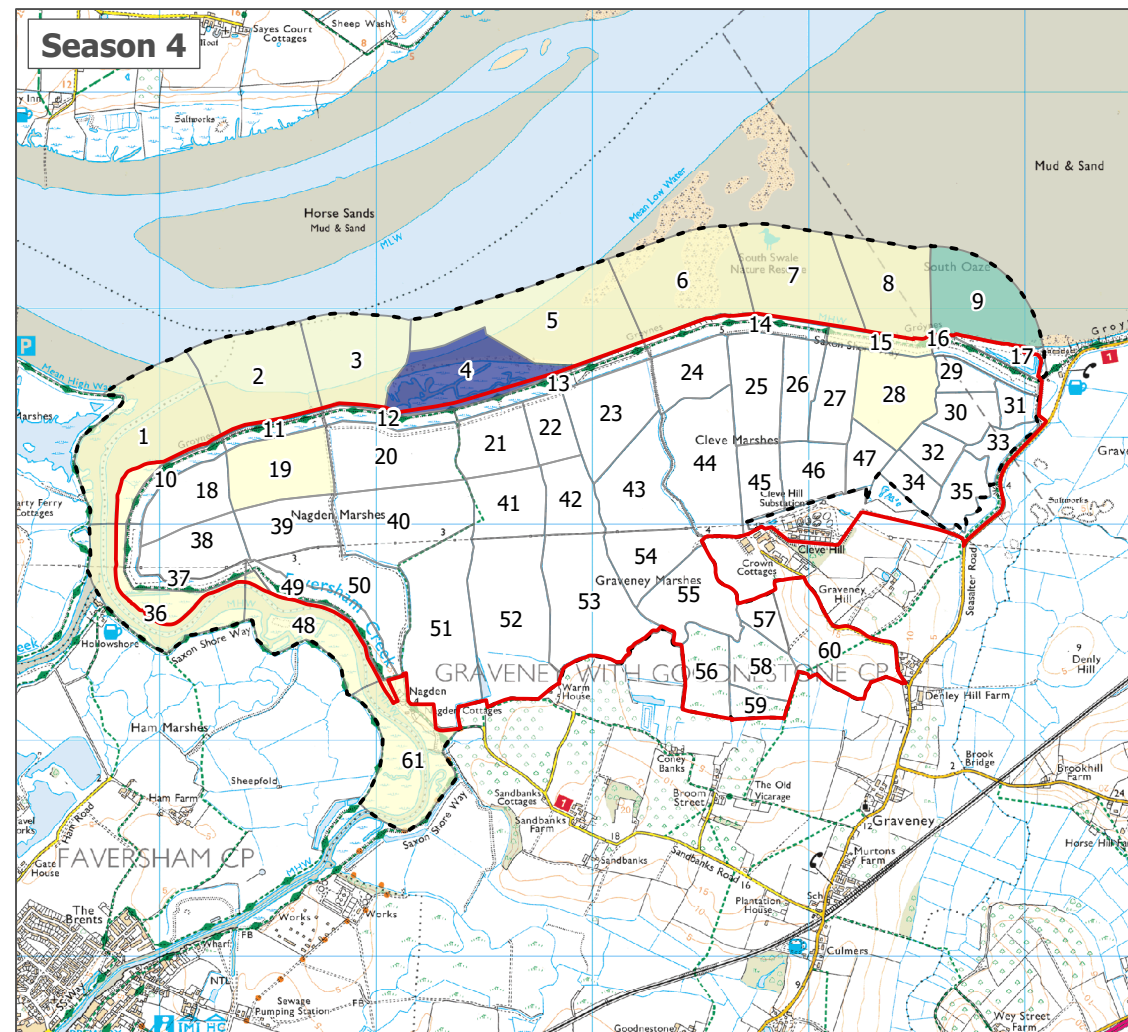
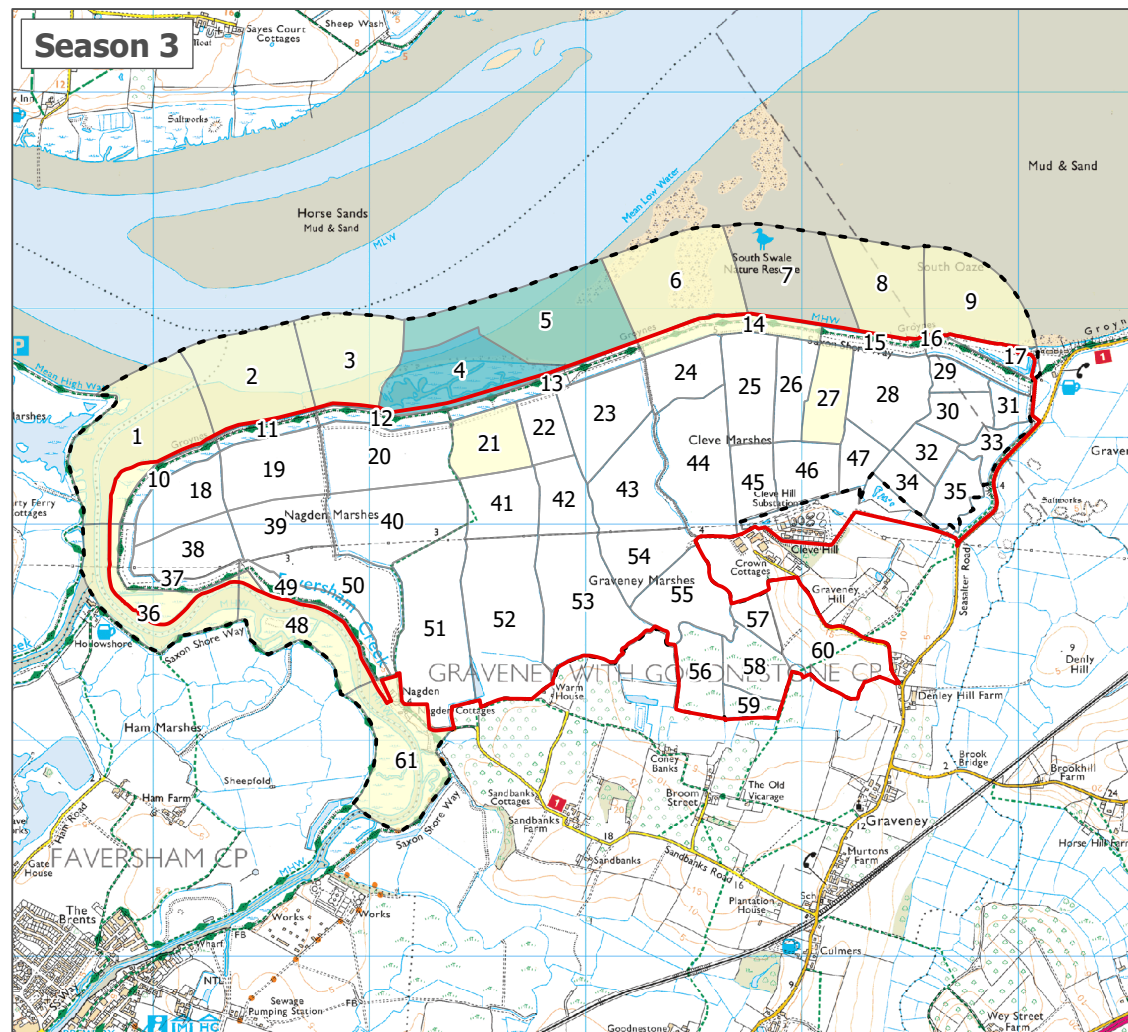
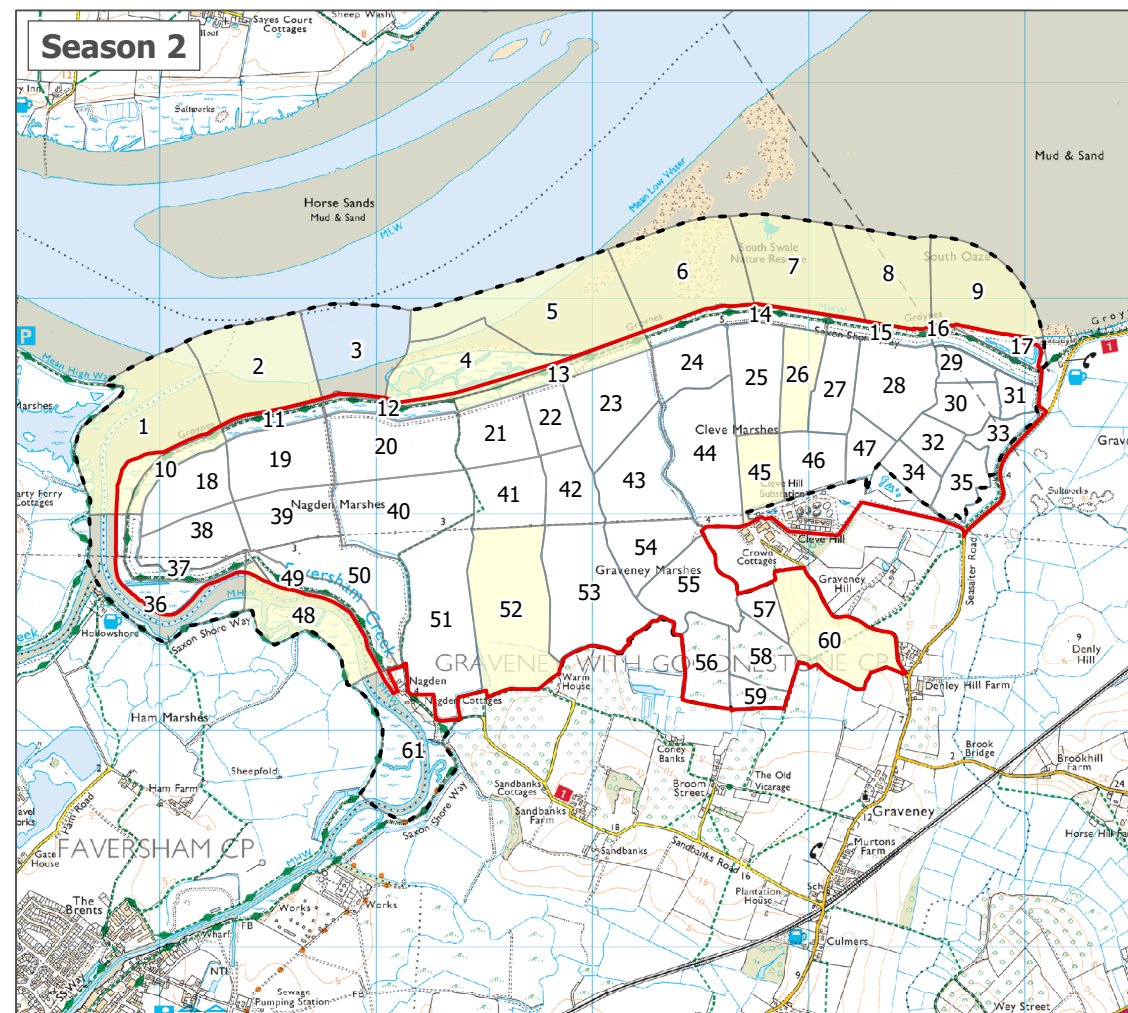
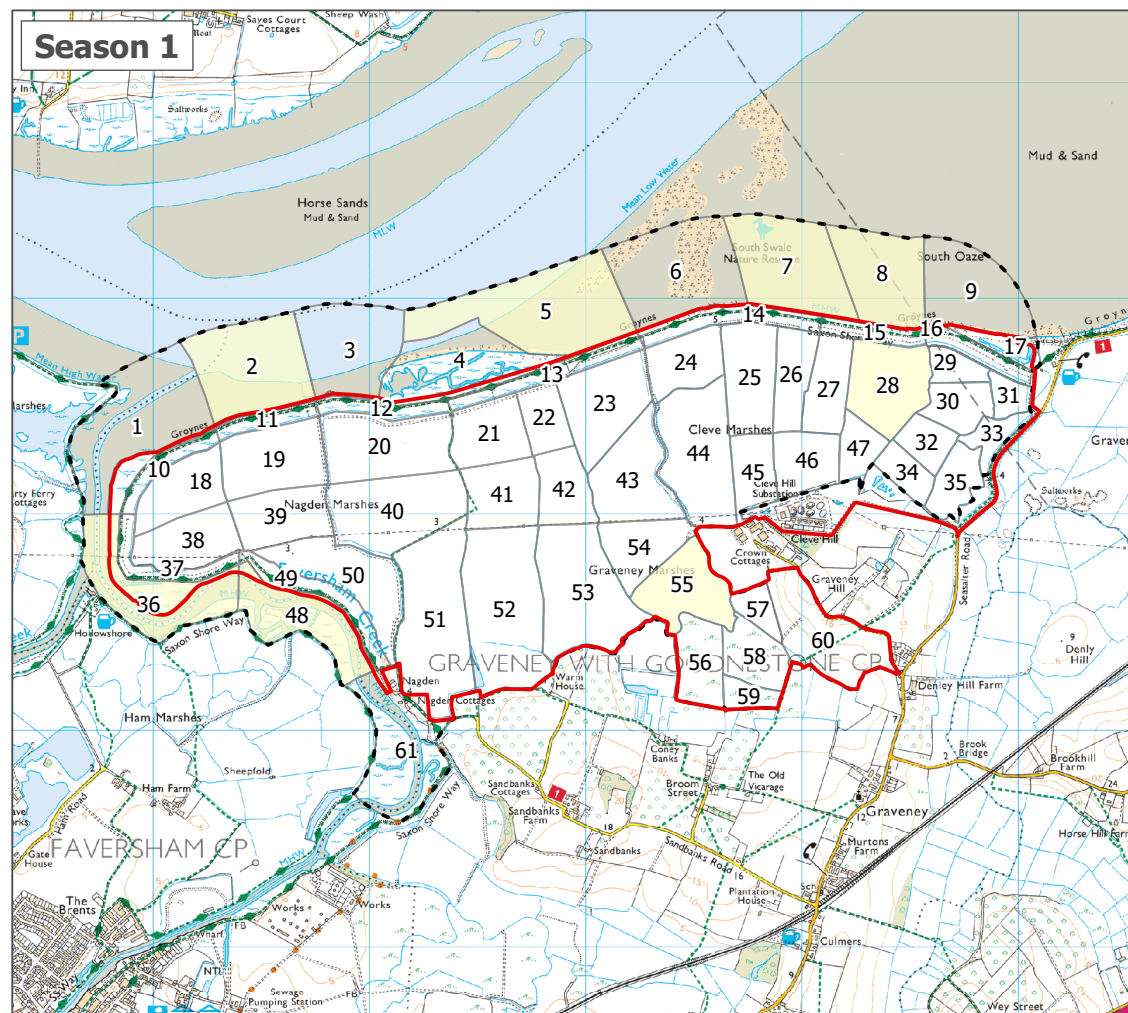
Cleve Hill Solar Park
Environmental Statement



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Passage/Winter Bird Survey Results:
Ruff
Figure A9.24

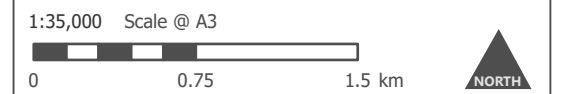
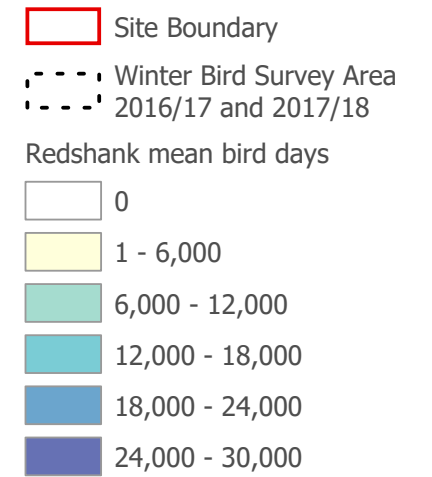
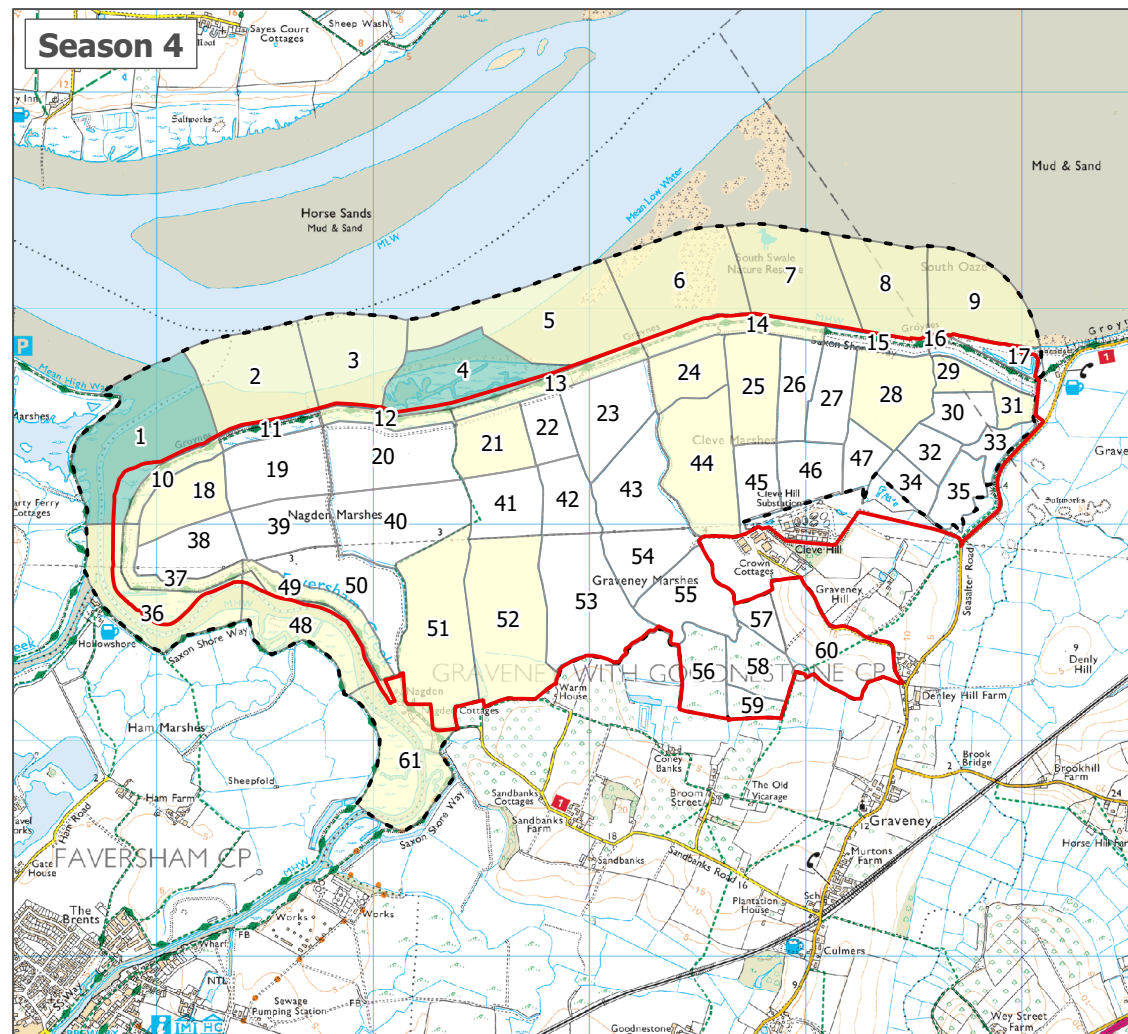
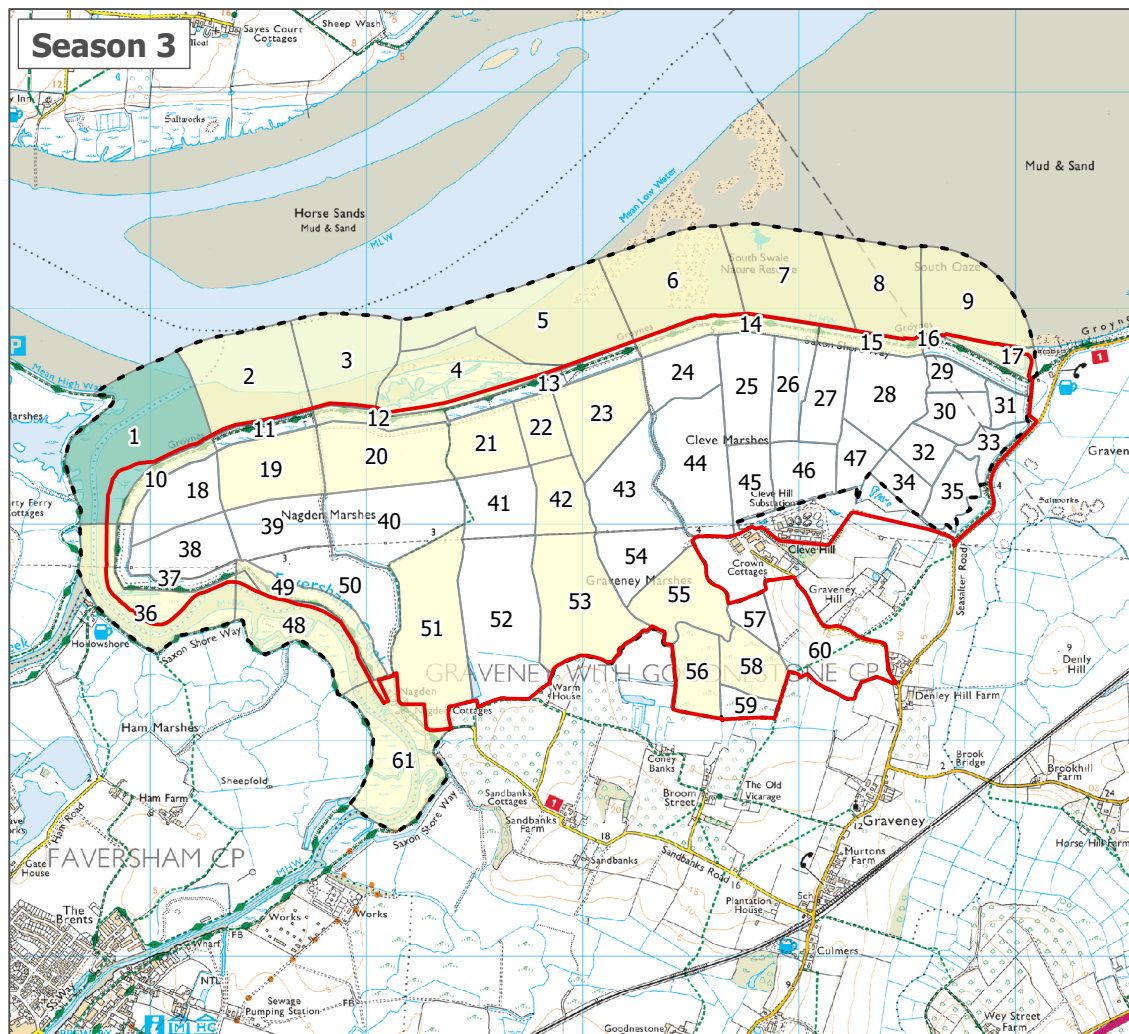
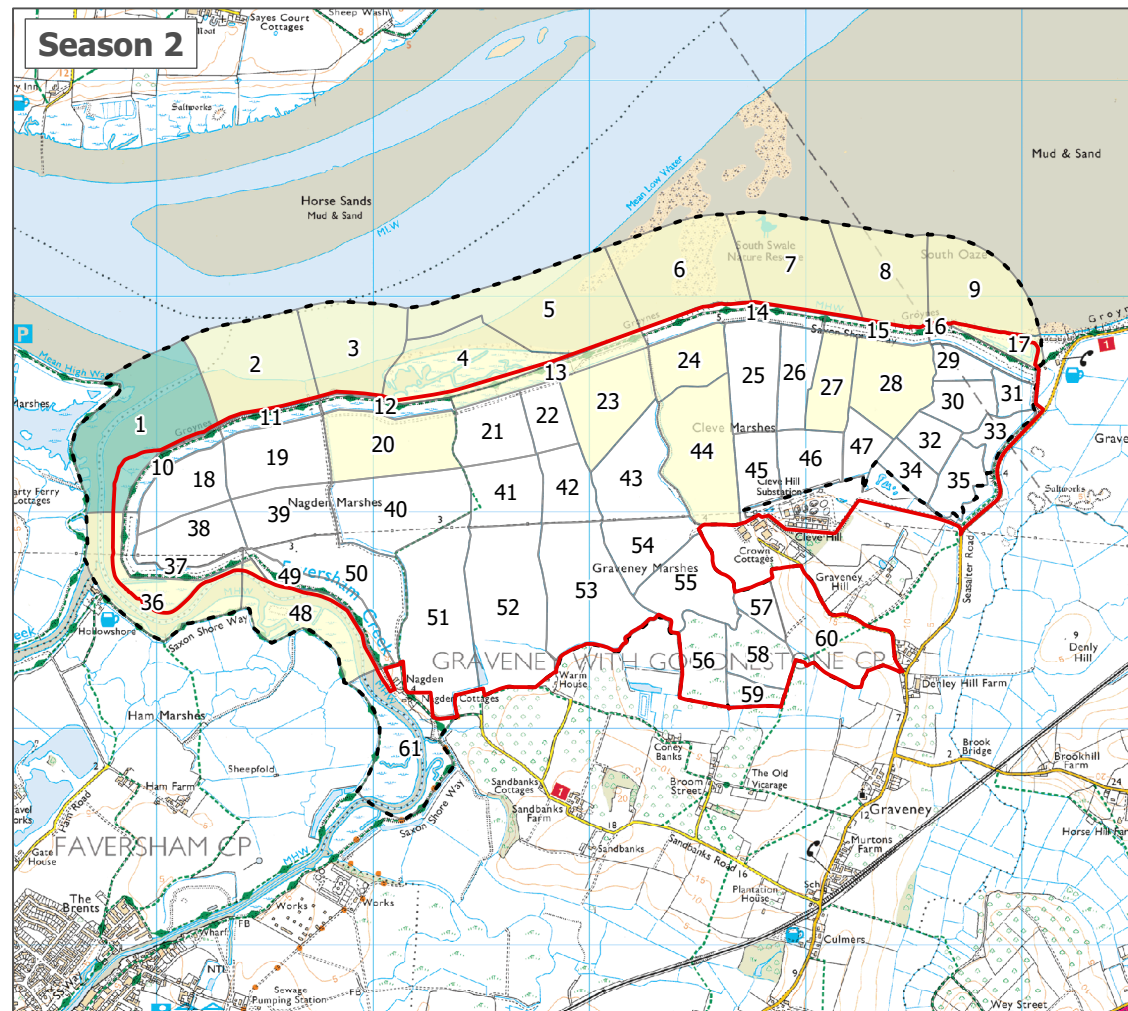
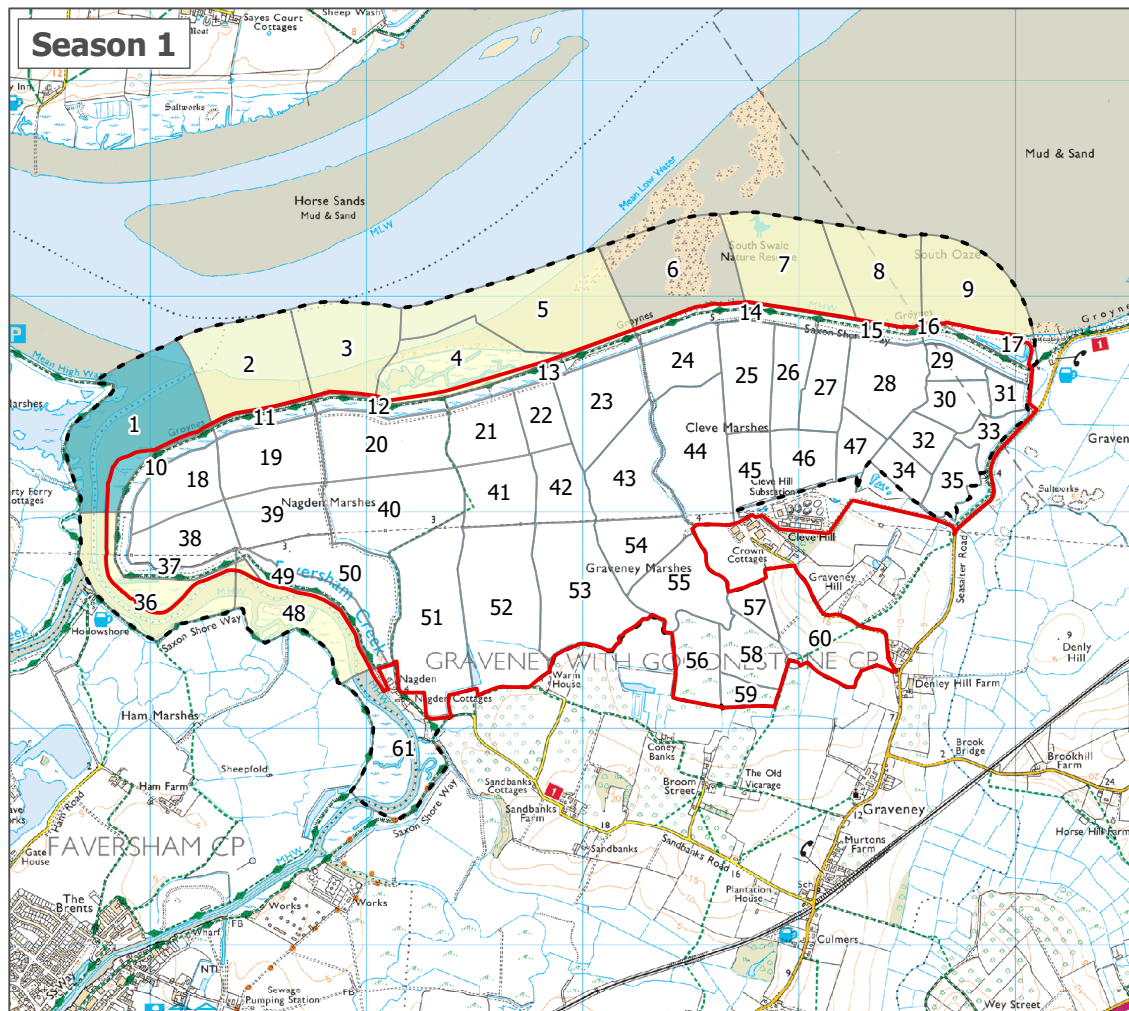
**Cleve Hill Solar Park
Environmental Statement**



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Checked By: MA	Date: 14/11/2018

Passage/Winter Bird Survey Results:
Dunlin
Figure A9.25

**Cleve Hill Solar Park
Environmental Statement**

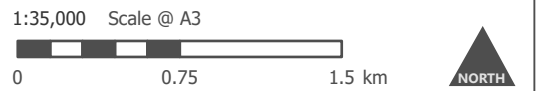
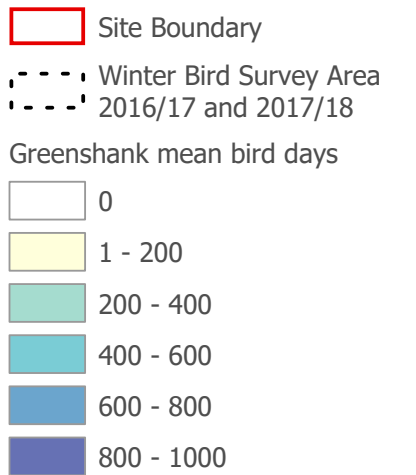
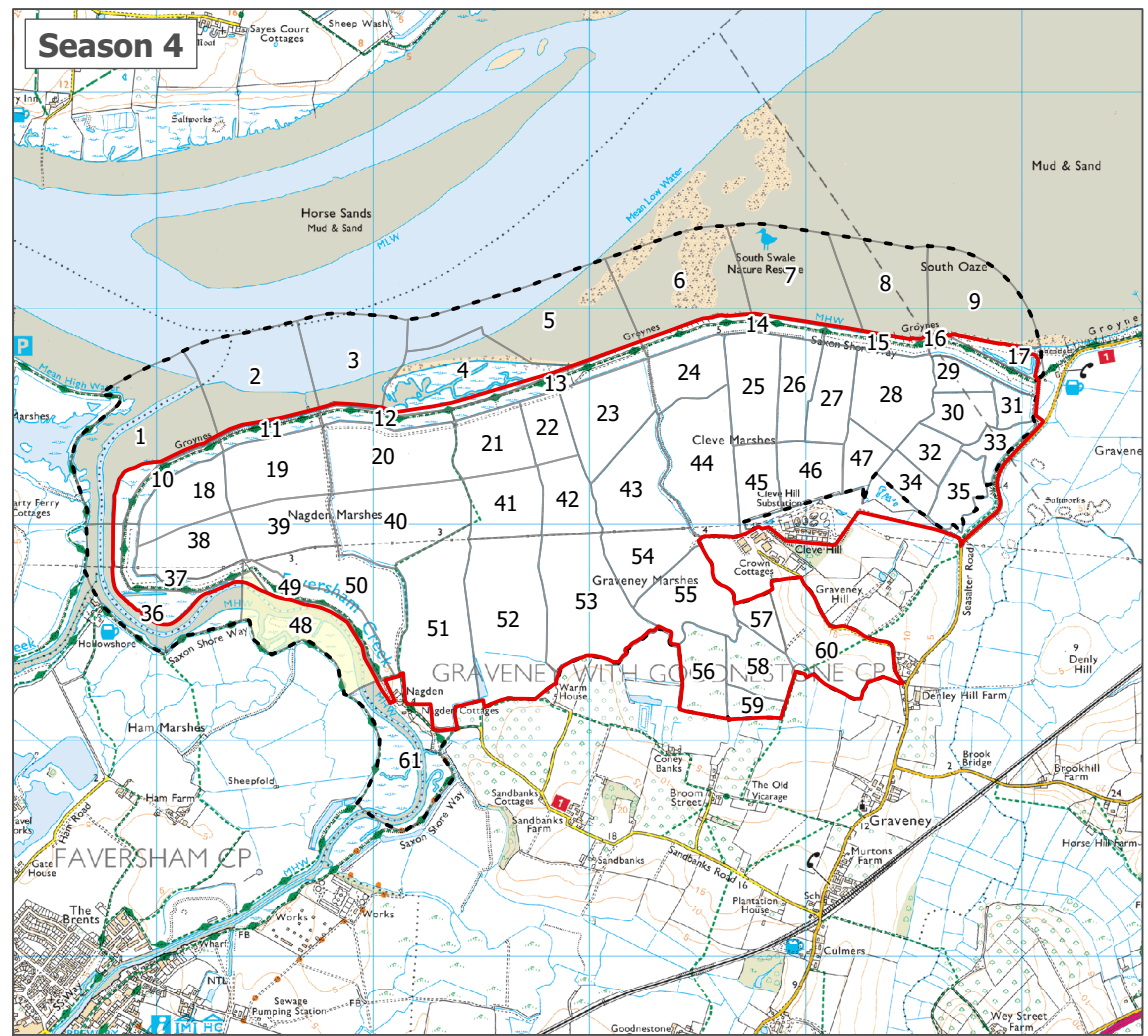
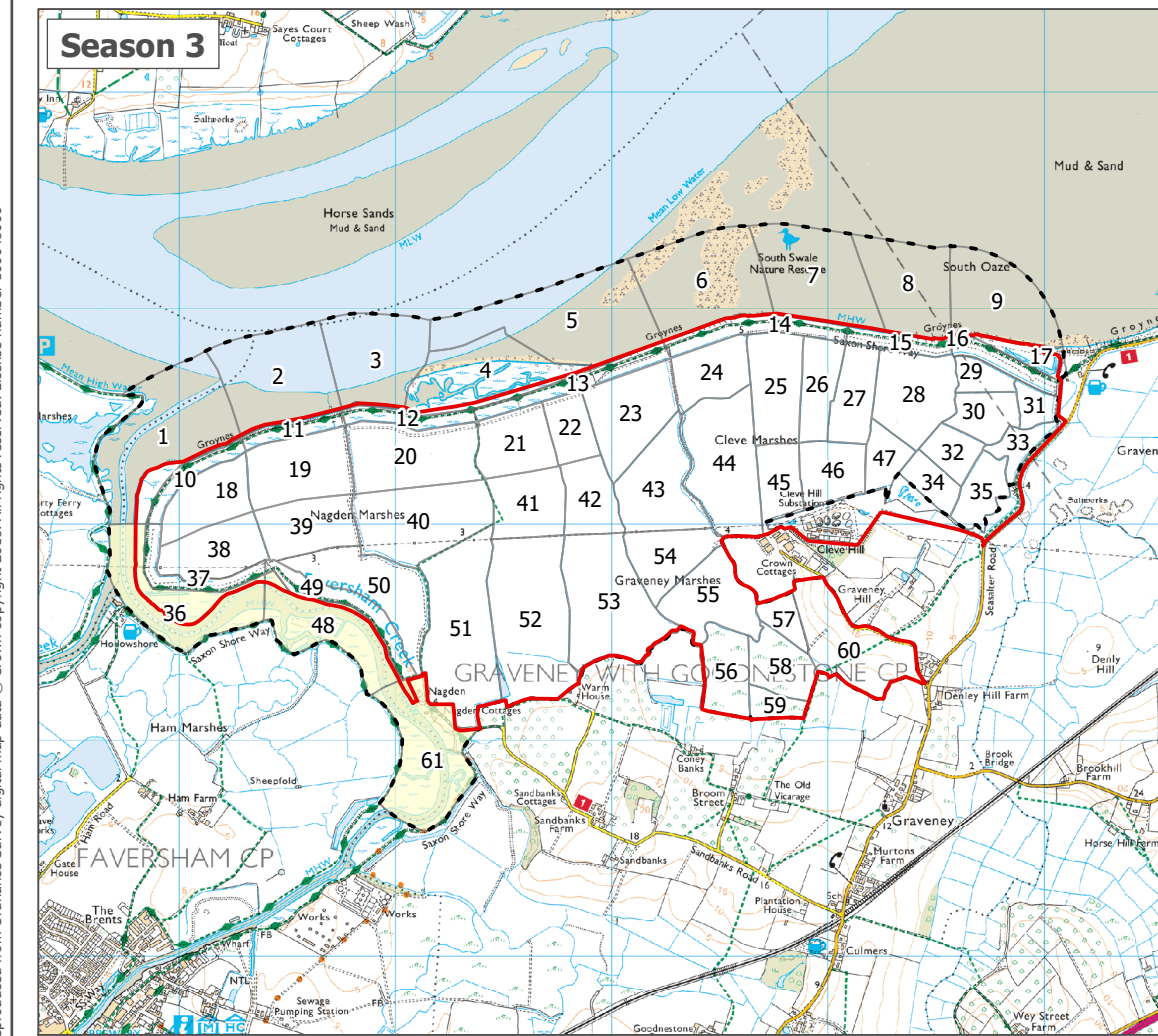
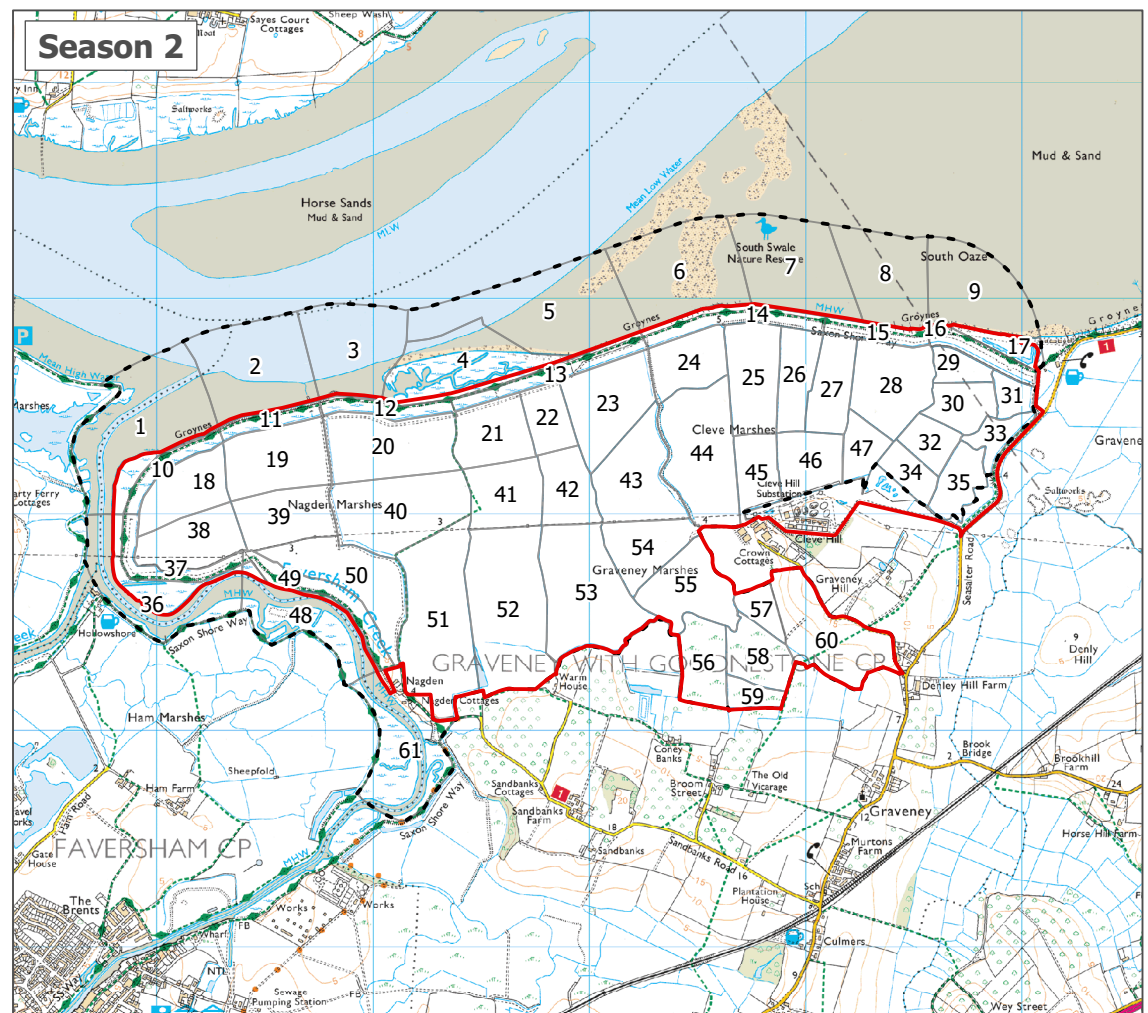
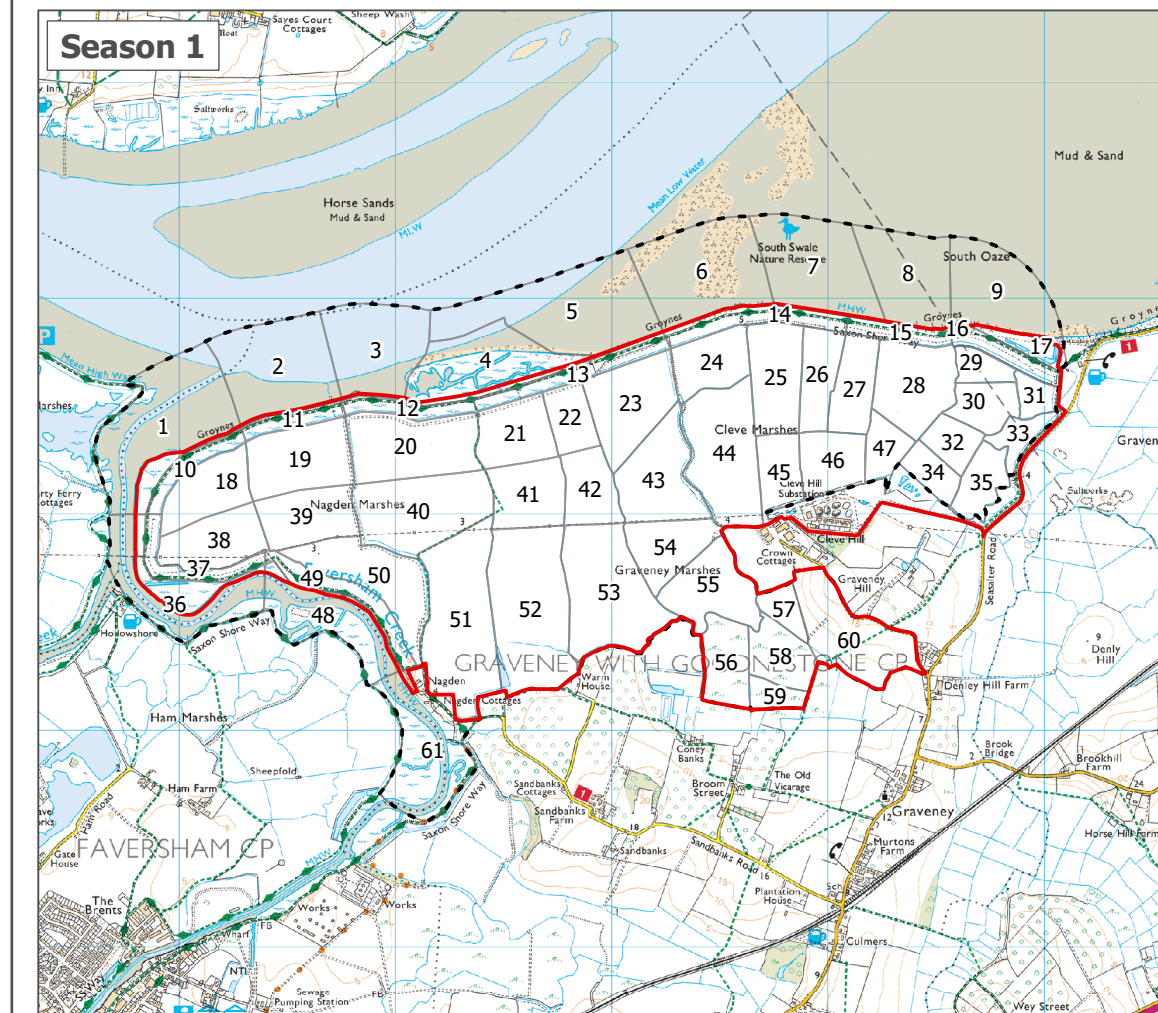


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Checked By: MA	Date: 14/11/2018

Passage/Winter Bird Survey Results:
Redshank
Figure A9.26

Cleve Hill Solar Park
Environmental Statement

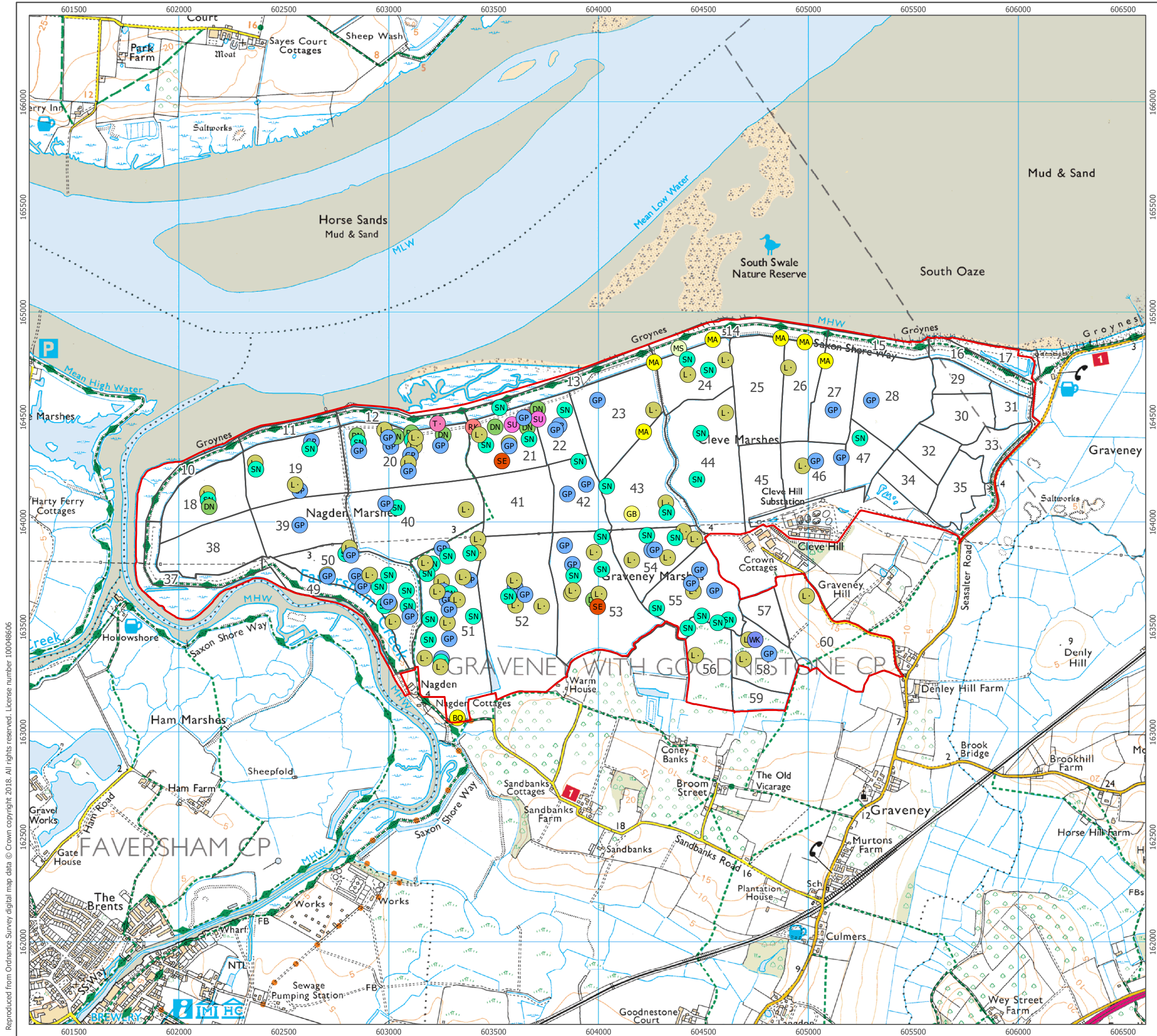
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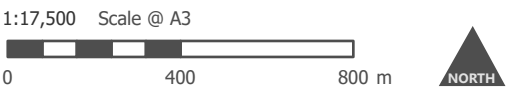
Produced By: SC	Ref: 2238-REP-278
Checked By: MA	Date: 14/11/2018

Passage/Winter Bird Survey Results:
Greenshank
Figure A9.7

Cleve Hill Solar Park
Environmental Statement



- Site Boundary
- Count Sectors
- Species
- BO Barn Owl
 - DN Dunlin
 - GB Great Black-backed Gull
 - GP Golden Plover
 - L Lapwing
 - MA Mallard
 - MS Mute Swan
 - RK Redshank
 - SE Short-eared Owl
 - SN Snipe
 - SU Shelduck
 - T Teal
 - WK Woodcock

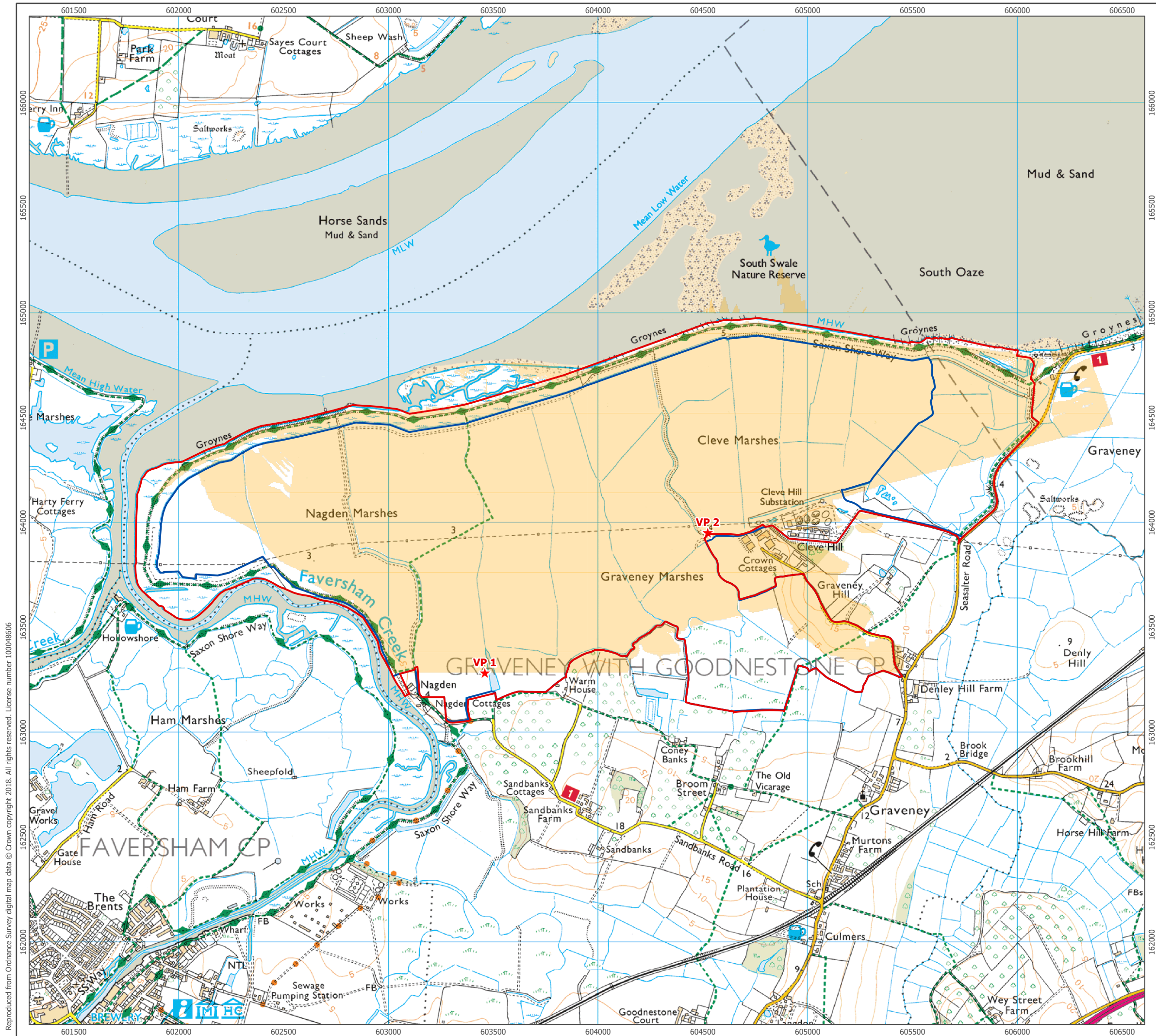


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Nocturnal Winter Bird
Survey Results 2015-16
Figure A9.28

Cleve Hill Solar Park
Environmental Statement

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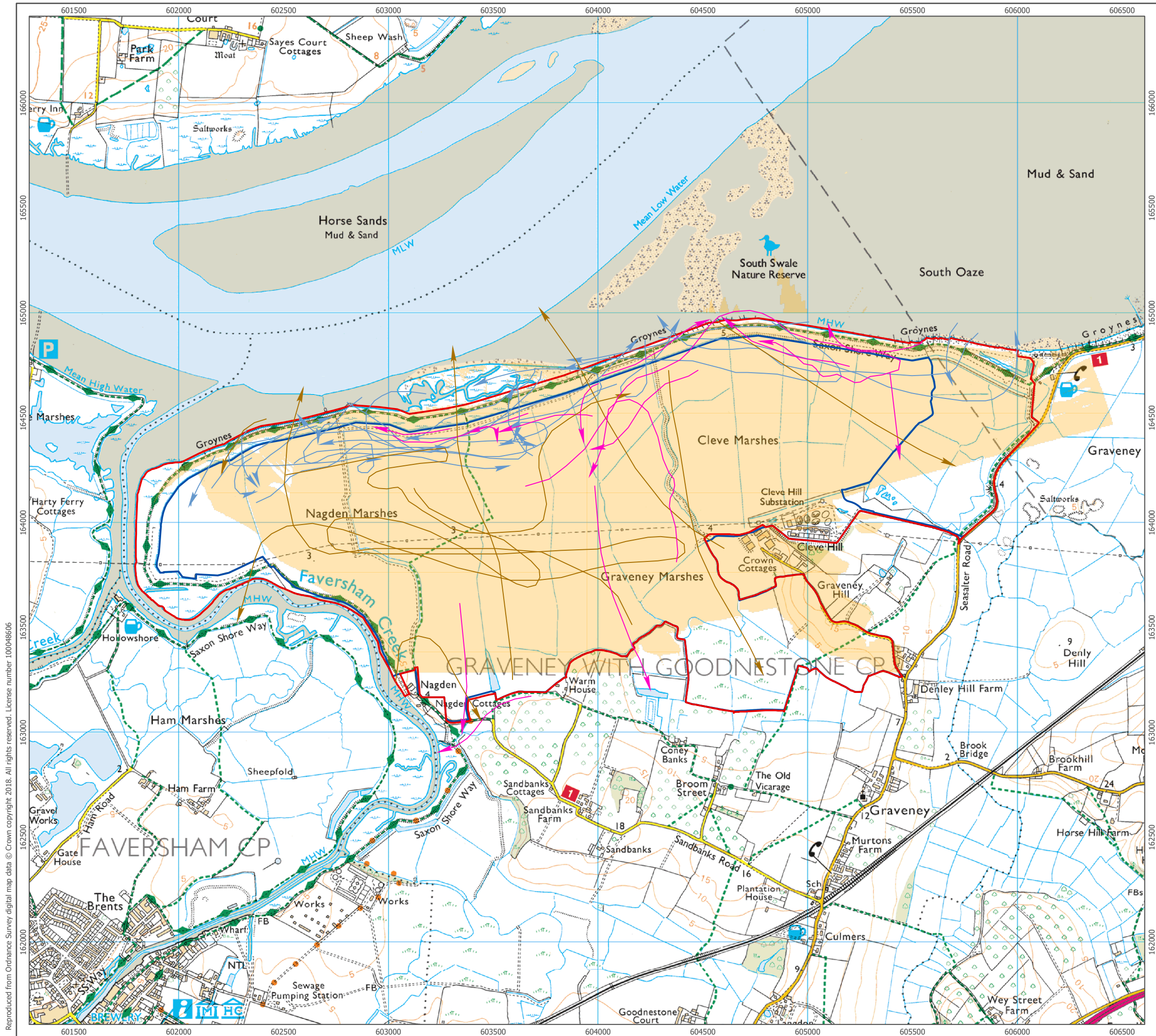
-  Site Boundary
-  Core Survey Area
-  Vantage Points
-  Visible Area from Vantage Point

1:17,500 Scale @ A3

0 400 800 m 

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Checked By: MA	Date: 07/11/2018

Flight Activity Survey Area
Figure A9.29



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-  Site Boundary
-  Core Survey Area
-  Visible Area from Vantage Point
-  Brent Goose
-  Greylag Goose
-  Mute Swan

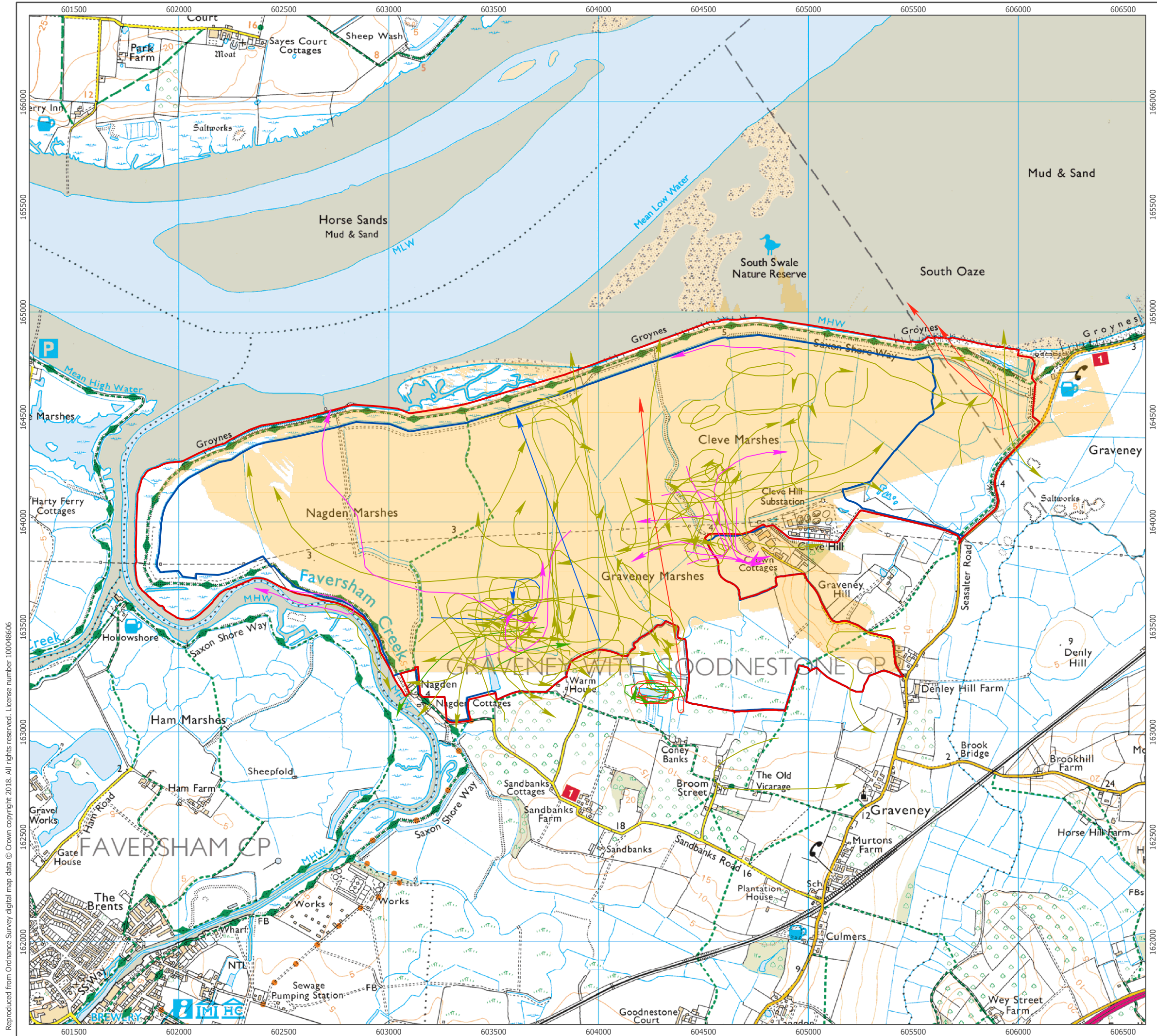
1:17,500 Scale @ A3



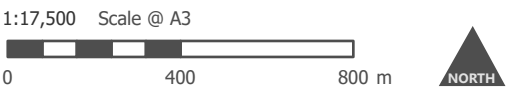
Produced By: SC	Ref: 2238-REP-281
Checked By: MA	Date: 01/11/2018

FAS Results: MS, GJ and DB
Figure A9.30

Cleve Hill Solar Park
Environmental Statement



- Site Boundary
- Core Survey Area
- Visible Area from Vantage Point
- Gadwall
- Mallard
- Shelduck
- Shoveler
- Teal
- Wigeon

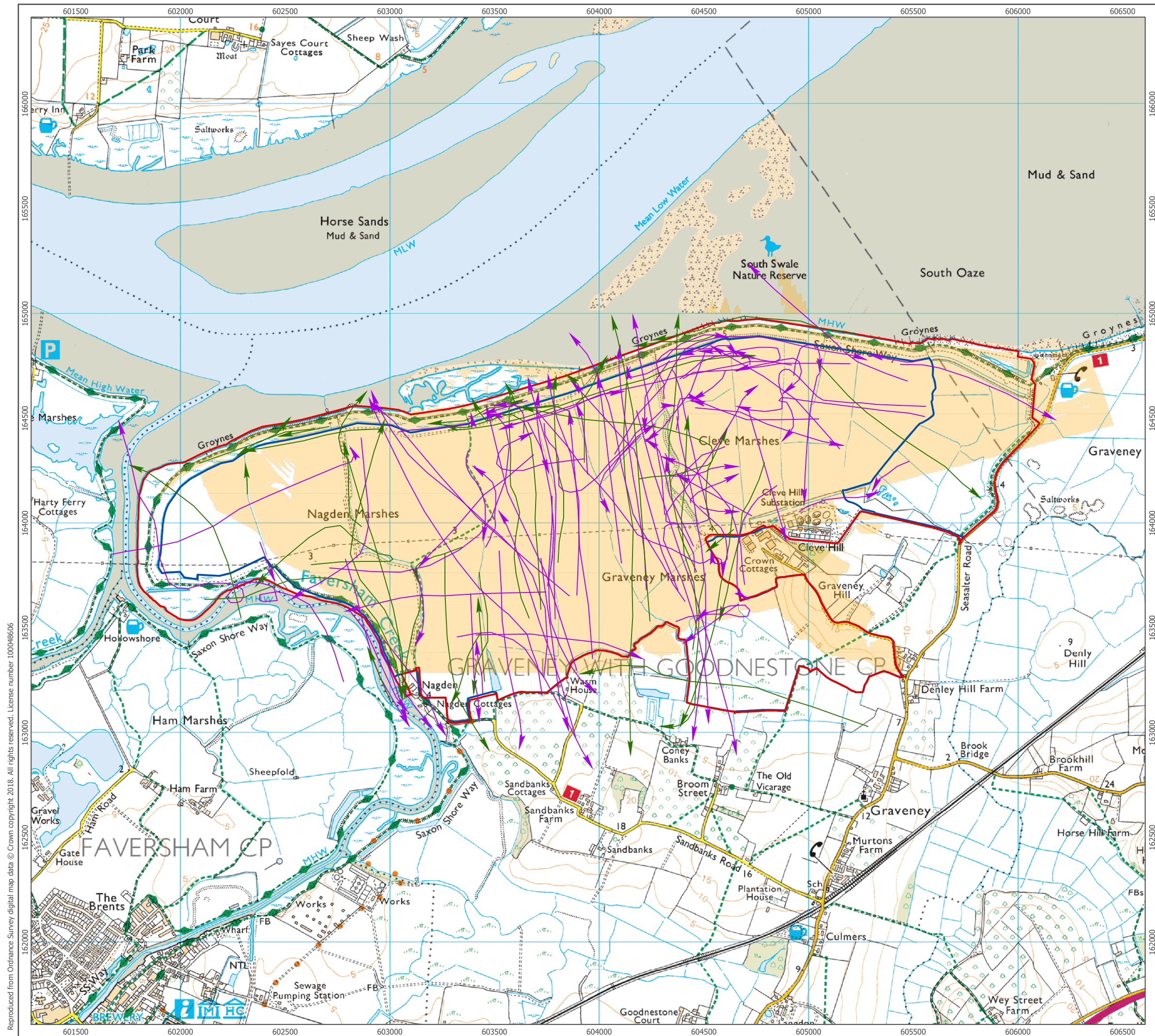


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Checked By: MA	Date: 01/11/2018

FAS Results: SU, WN,
GA, SV, MA and T
Figure A9.31

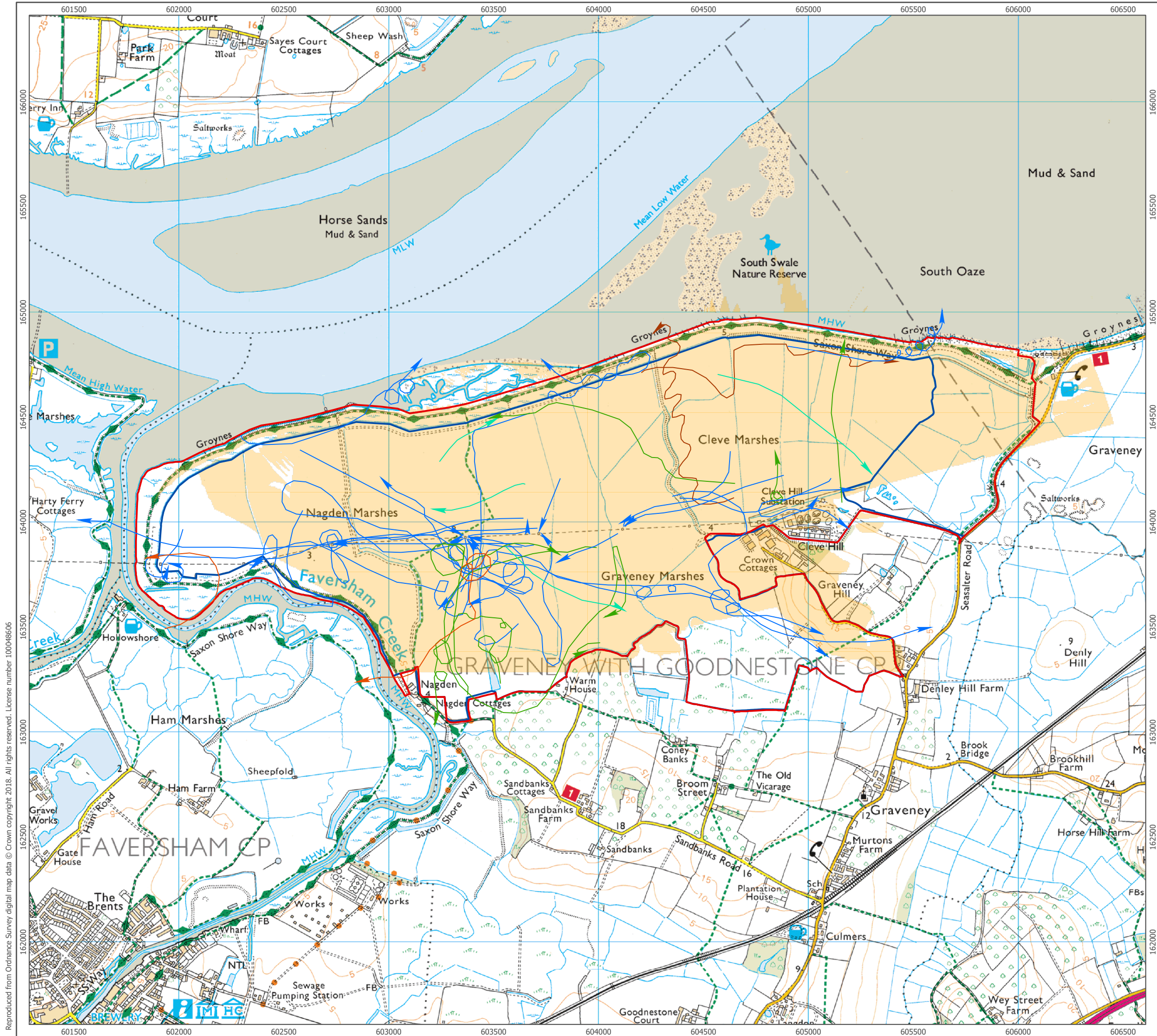
Cleve Hill Solar Park
Environmental Statement

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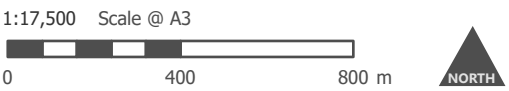


-  Site Boundary
-  Core Survey Area
-  Visible Area from Vantage Point
-  Grey Heron
-  Little Egret

FAS Results: ET and H.
Figure A9.32



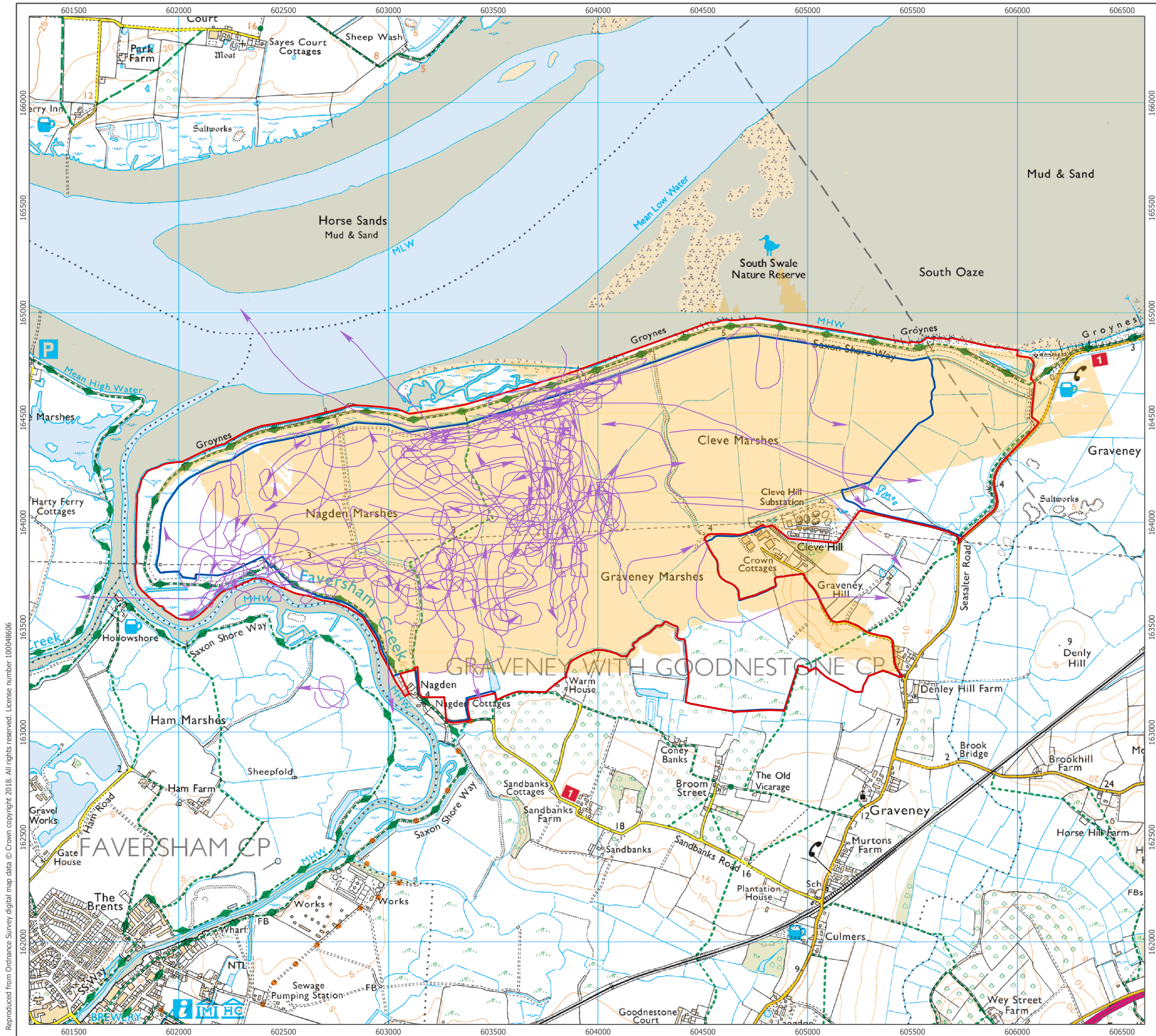
- Site Boundary
- Core Survey Area
- Visible Area from Vantage Point
- Hen Harrier
- Hobby
- Merlin
- Peregrine
- Red Kite



Produced By: SC	Ref: 2238-REP-284
Checked By: MA	Date: 01/11/2018

FAS Results: KT, HH, ML, HY and PE
Figure A9.33

**Cleve Hill Solar Park
Environmental Statement**



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-  Site Boundary
-  Core Survey Area
-  Visible Area from Vantage Point
-  Marsh Harrier

1:17,500 Scale @ A3

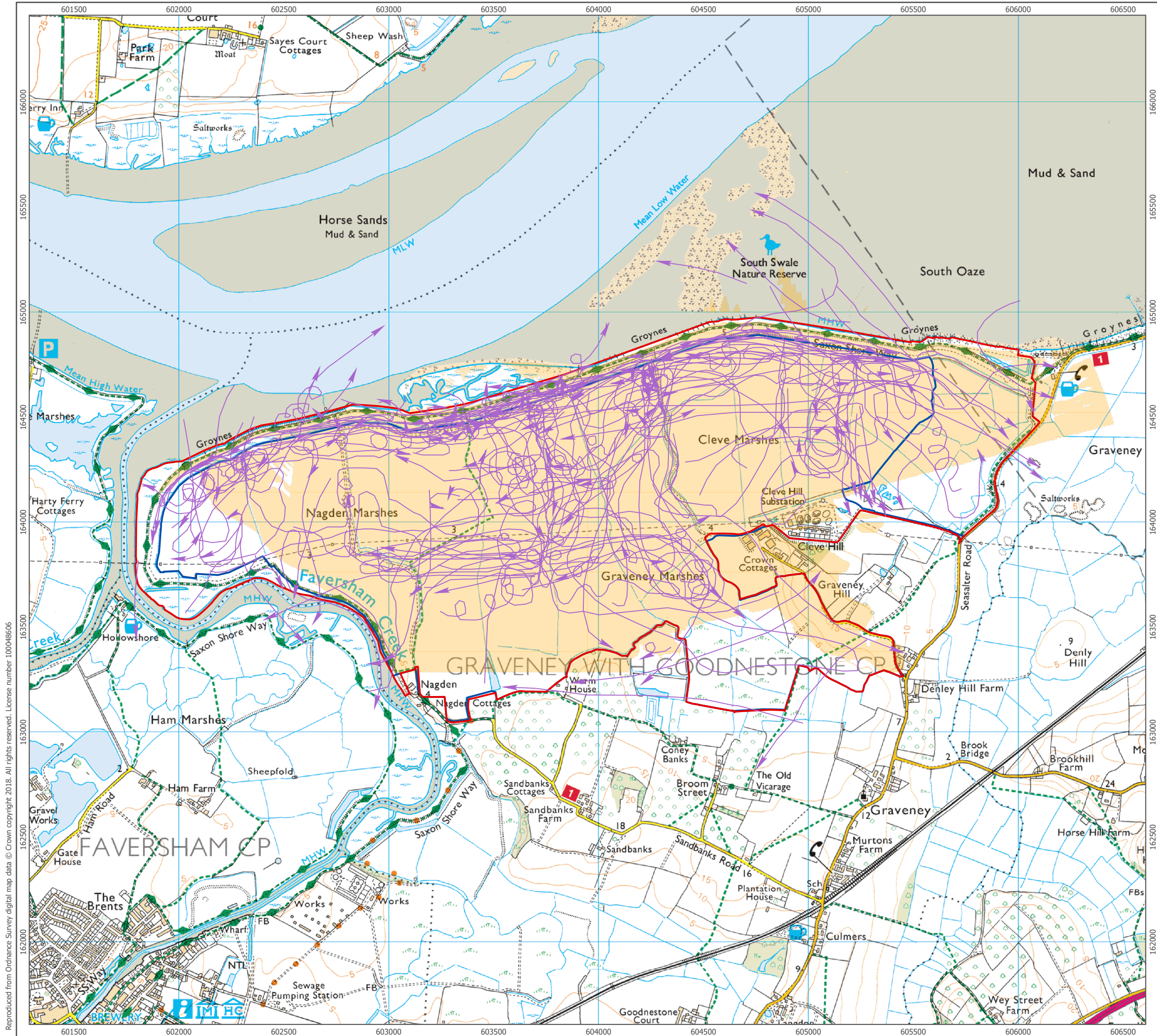
 0 400 800 m

 NORTH

Produced By: SC	Ref: 2238-REP-285
Checked By: MA	Date: 07/11/2018

FAS Results: Marsh Harrier - Breeding Season
Figure A9.34

**Cleve Hill Solar Park
Environmental Statement**



-  Site Boundary
-  Core Survey Area
-  Visible Area from Vantage Point
-  Marsh Harrier

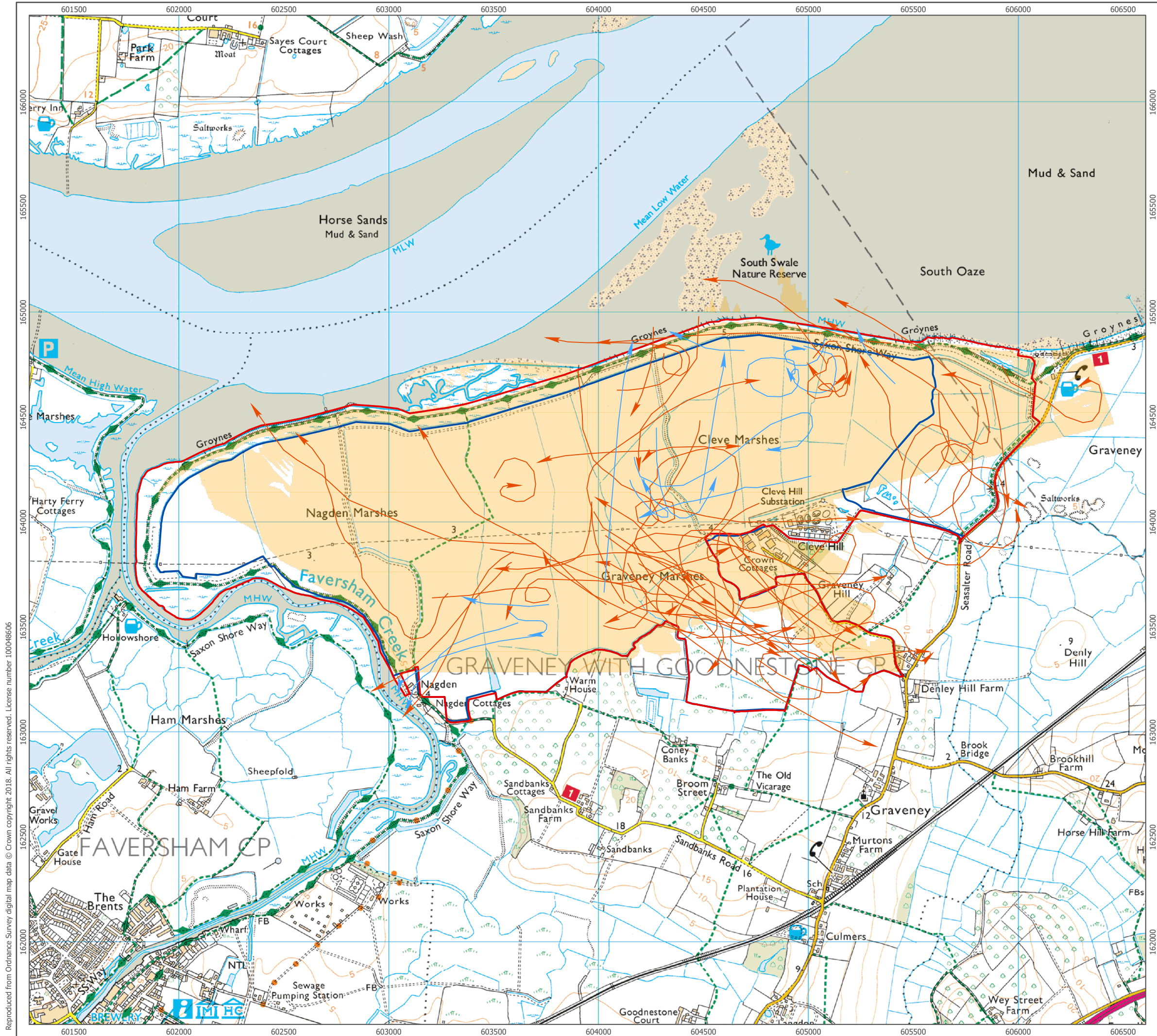
1:17,500 Scale @ A3

0 400 800 m 

Produced By: SC	Ref: 2238-REP-286
Checked By: MA	Date: 07/11/2018

**FAS Results: Marsh Harrier -
Non-breeding Season**
Figure A9.35

**Cleve Hill Solar Park
Environmental Statement**



-  Site Boundary
-  Core Survey Area
-  Visible Area from Vantage Point
-  Golden Plover
-  Oystercatcher

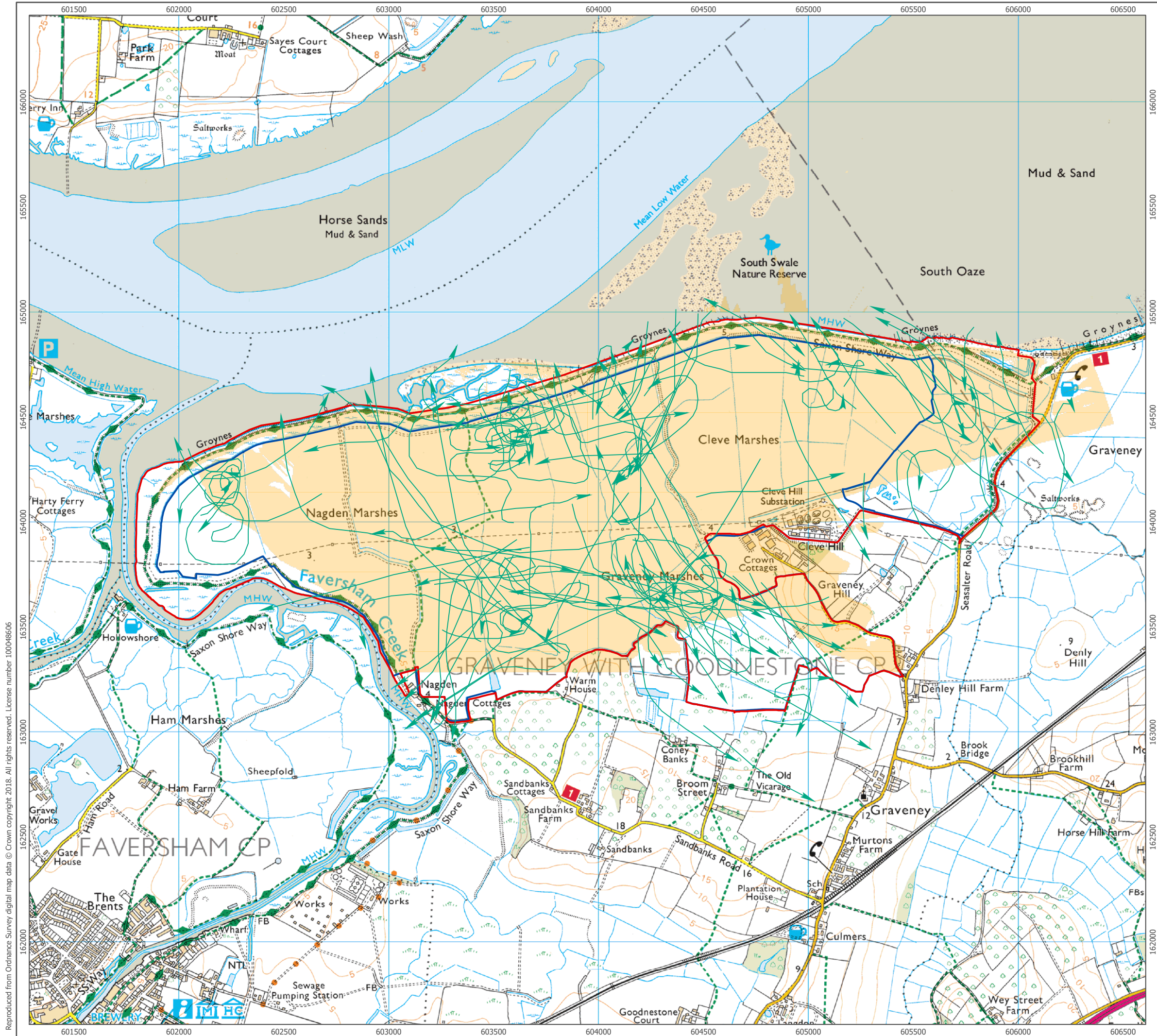
1:17,500 Scale @ A3

0 400 800 m 

Produced By: SC	Ref: 2238-REP-290
Checked By: MA	Date: 01/11/2018

FAS Results: OC and GP
Figure A9.36

Cleve Hill Solar Park
Environmental Statement



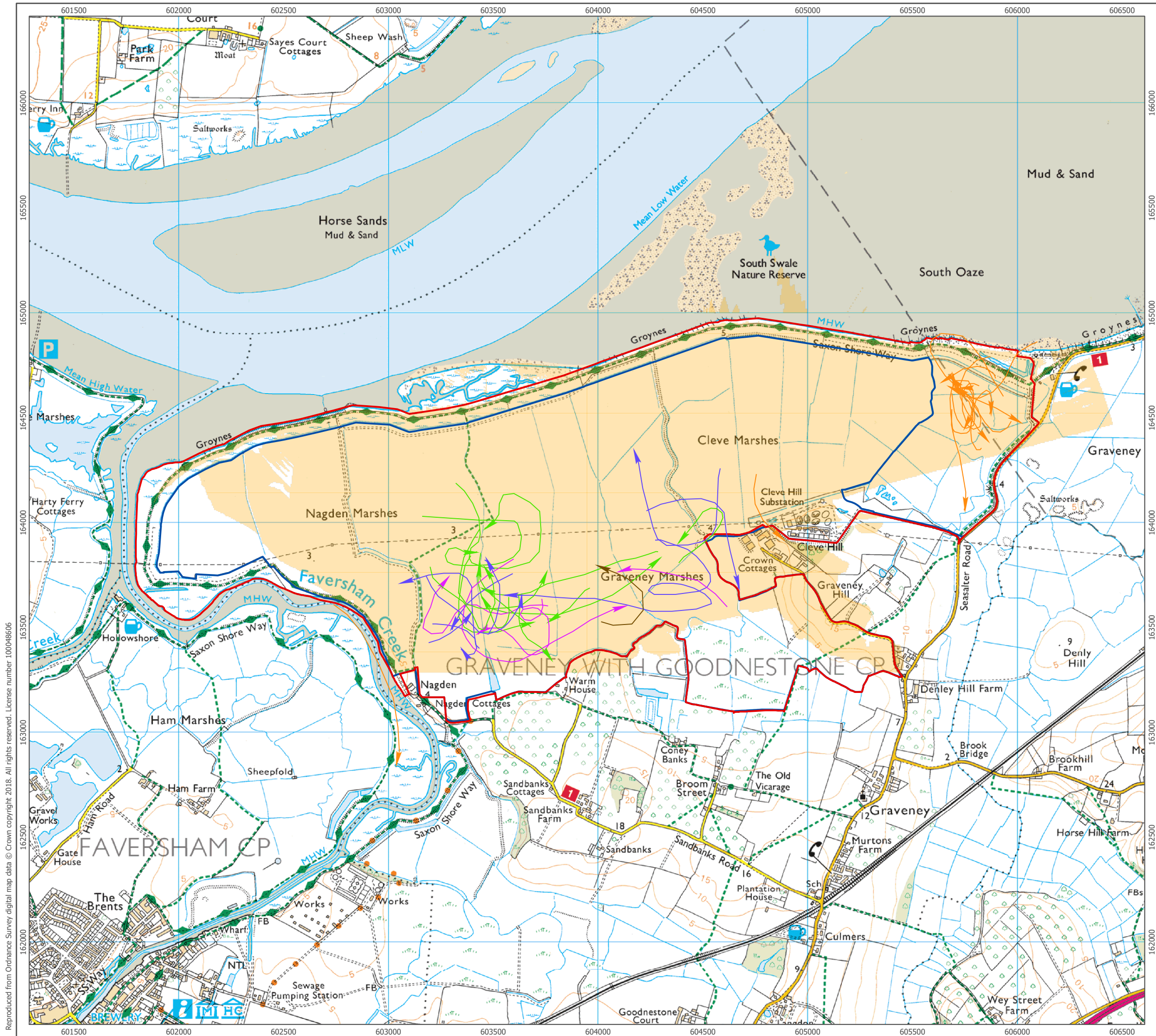
-  Site Boundary
-  Core Survey Area
-  Visible Area from Vantage Point
-  Lapwing

1:17,500 Scale @ A3
 0 400 800 m

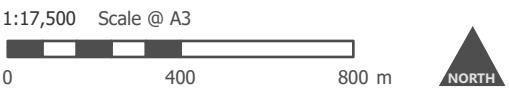

Produced By: SC	Ref: 2238-REP-291
Checked By: MA	Date: 01/11/2018

FAS Results: L.
Figure A9.37

Cleve Hill Solar Park
Environmental Statement



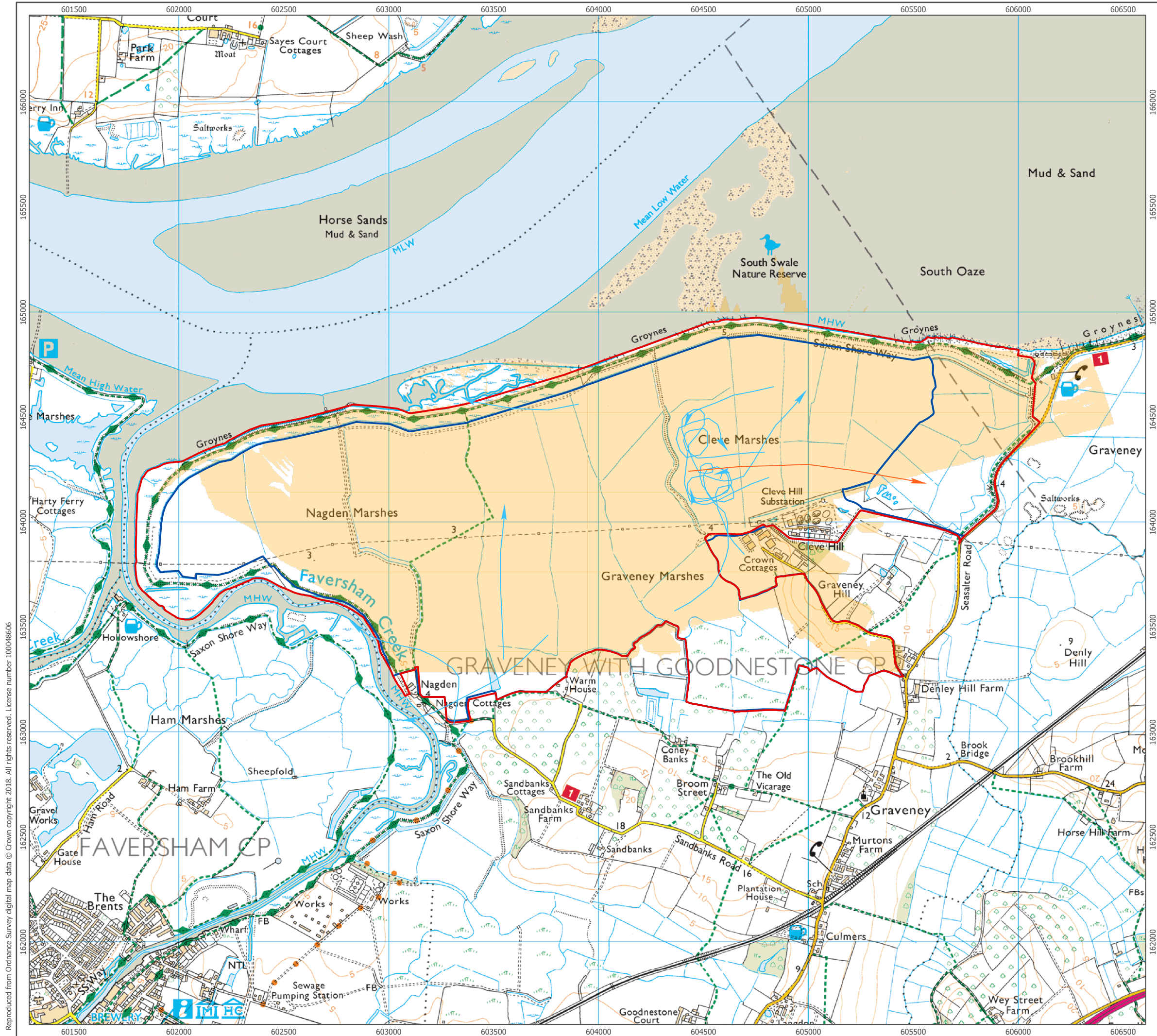
- Site Boundary
-
- Core Survey Area



Produced By: SC	Ref: 2238-REP-287
Checked By: MA	Date: 01/11/2018

**FAS Results: DN, SN,
CU, GE and RK**
Figure A9.38

**Cleve Hill Solar Park
Environmental Statement**



-  Site Boundary
-  Core Survey Area
-  Visible Area from Vantage Point
-  Common Tern
-  Mediterranean Gull

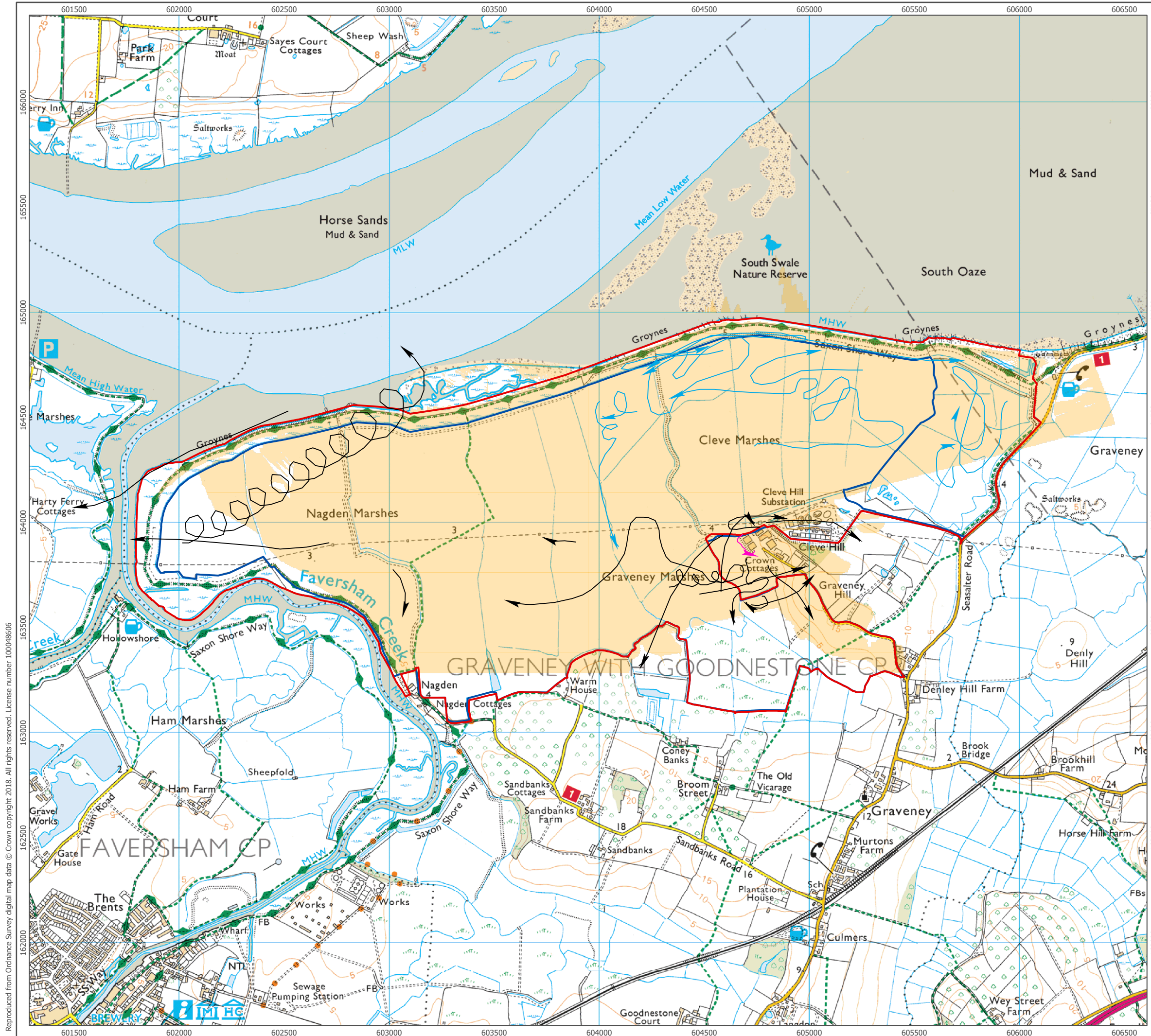
1:17,500 Scale @ A3

0 400 800 m 

Produced By: SC	Ref: 2238-REP-288
Checked By: MA	Date: 01/11/2018

FAS Results: MU and CN
Figure A9.39

Cleve Hill Solar Park
Environmental Statement



-  Site Boundary
-  Core Survey Area
-  Visible Area from Vantage Point
-  Barn Owl
-  Raven
-  Short-eared Owl

1:17,500 Scale @ A3

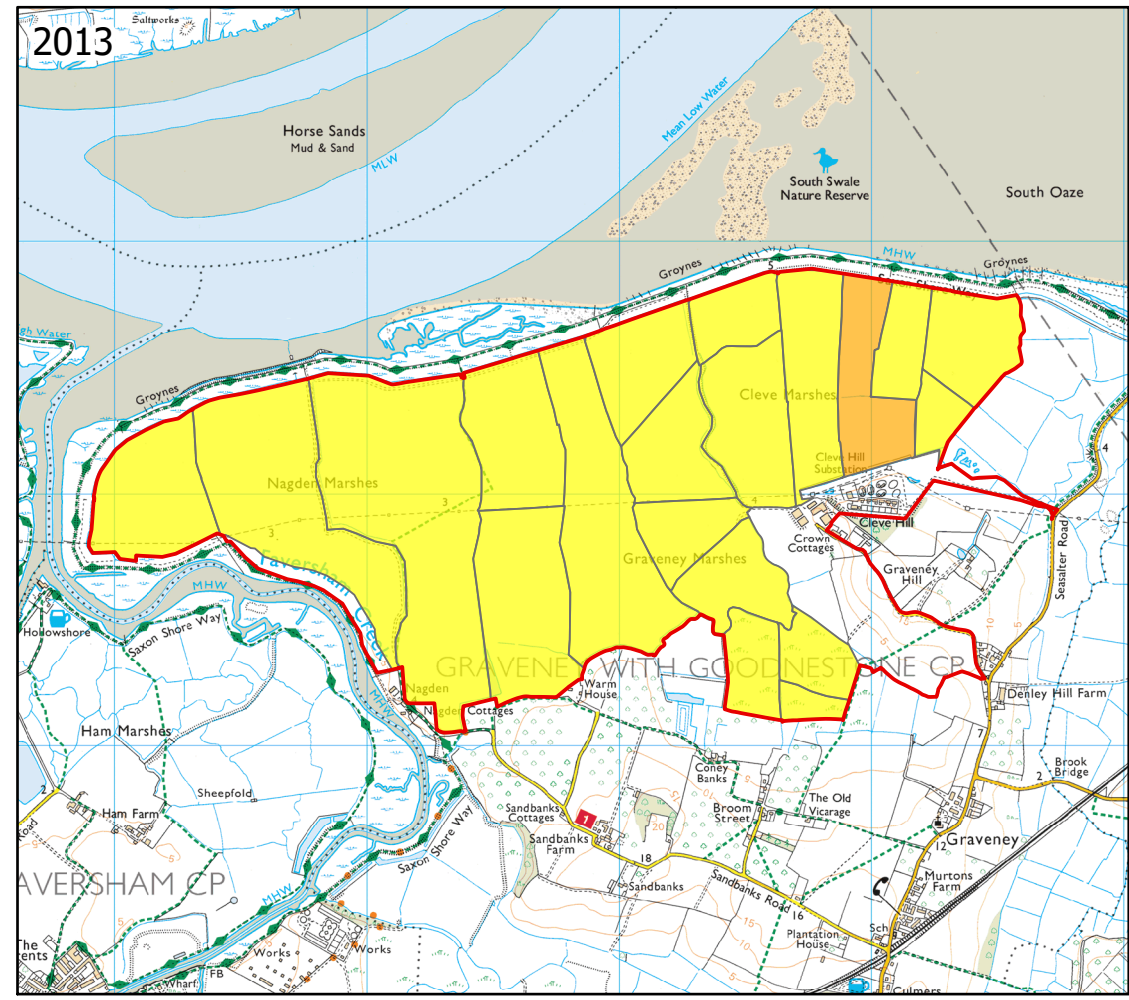
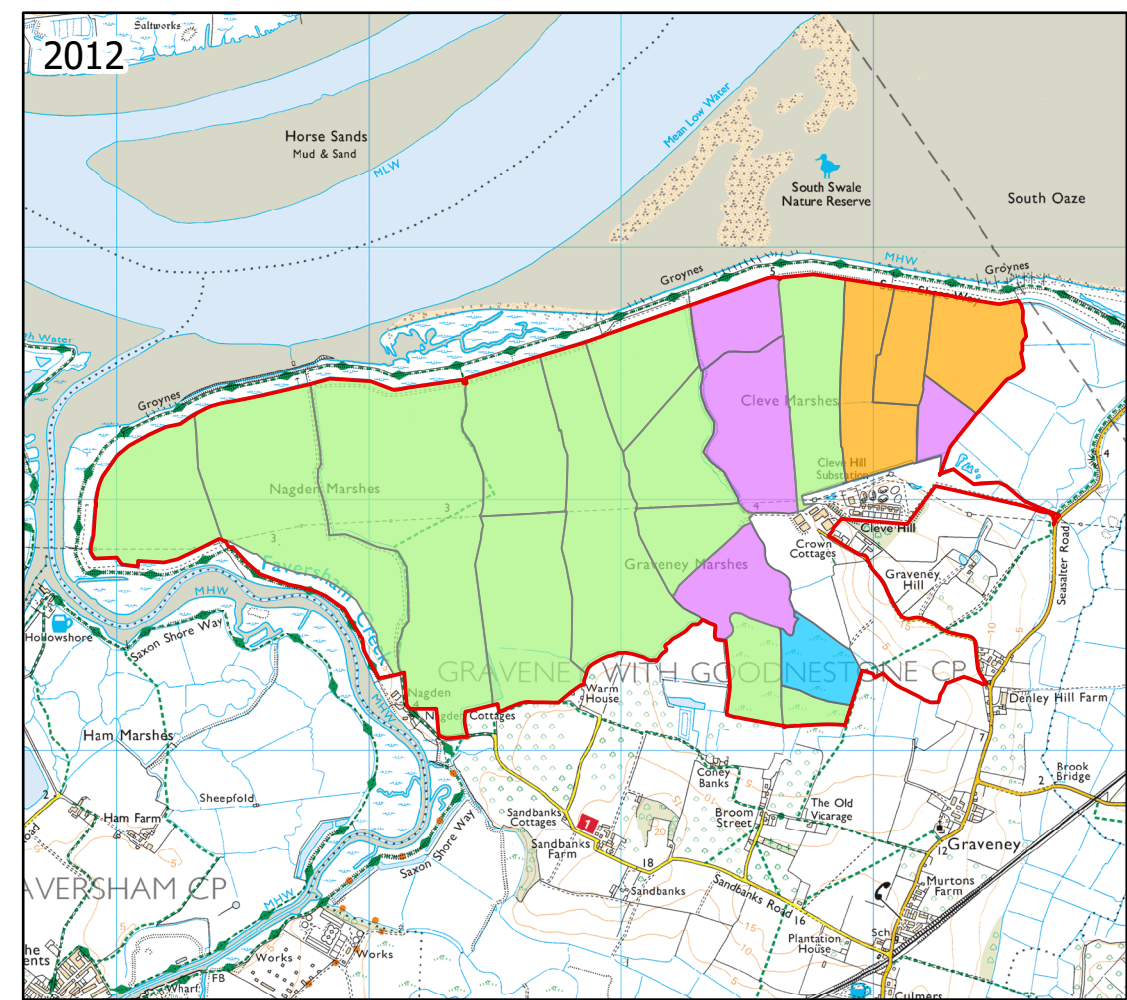
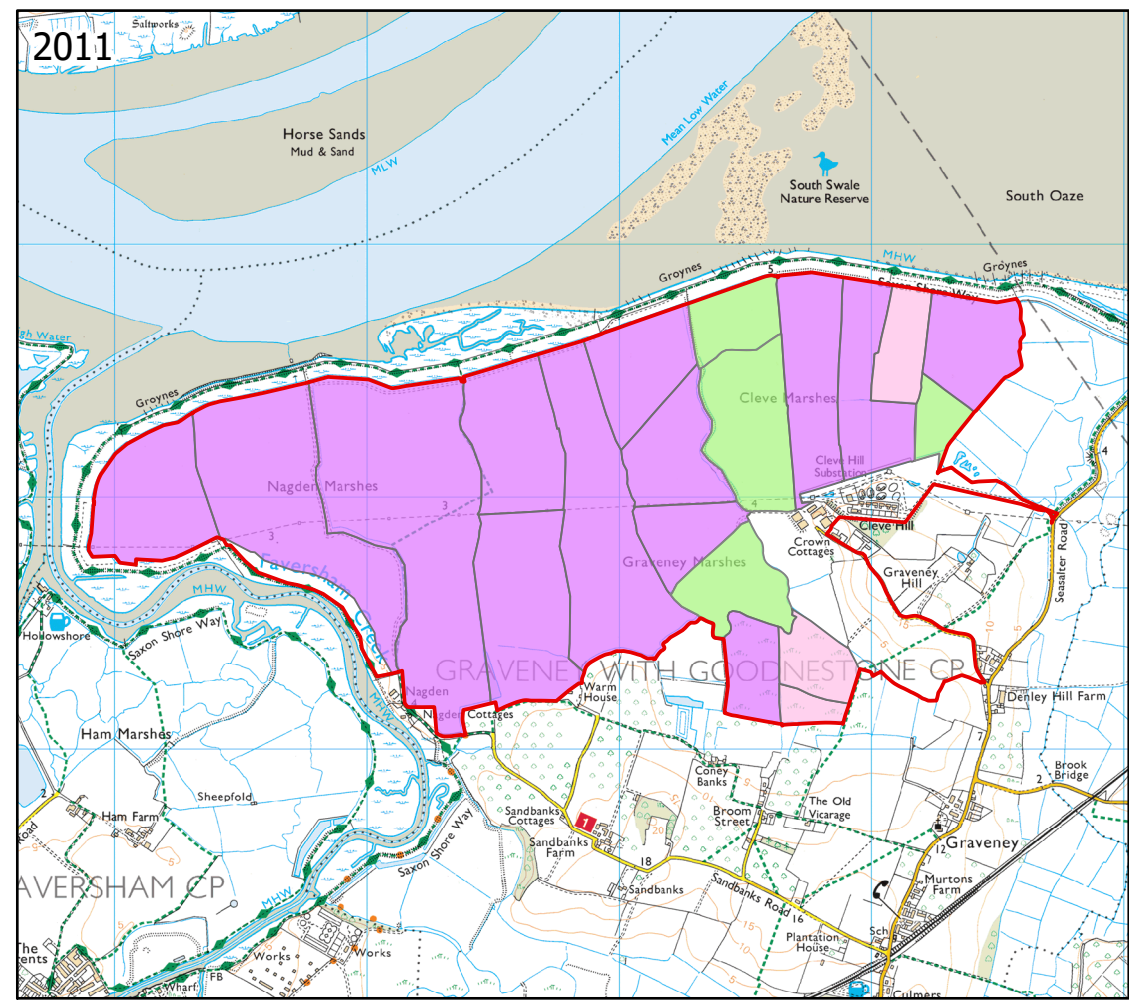
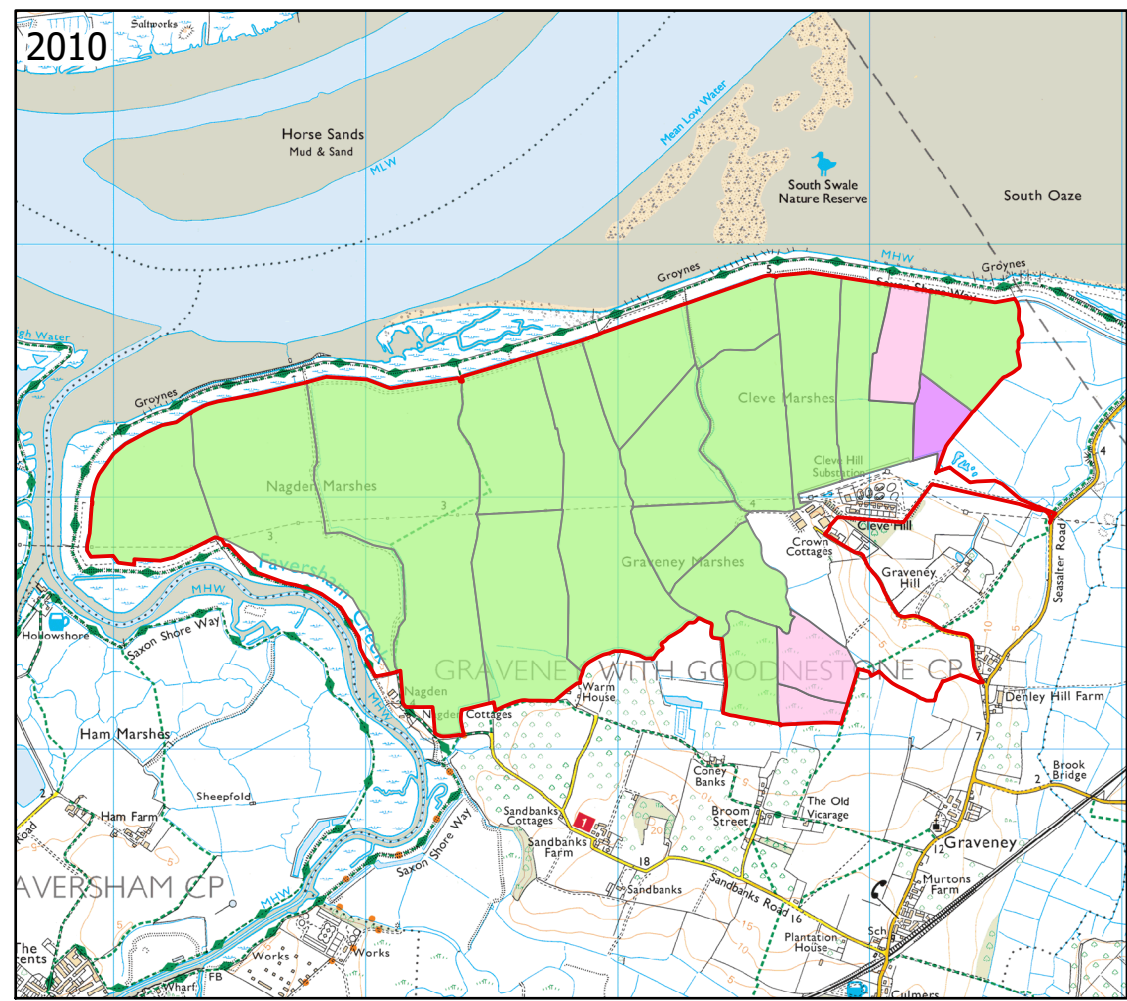
0 400 800 m 

Produced By: SC	Ref: 2238-REP-289
Checked By: MA	Date: 01/11/2018

FAS Results: BO, SE and RN
Figure A9.38

Cleve Hill Solar Park
Environmental Statement

N:\Projects\Ornithology\Projects\2238 Cleve Hill\ES Technical Appendix.aprx\2238-REP-308 Fig A9.41 Cropping Plan 1



- Core Survey Area
- Crop Type
- Fallow
 - Oats/Fallow
 - Pasture
 - Spring Crop
 - Uncropped
 - Wheat/Fallow
 - Winter Beans
 - Winter Cereal
 - Winter OSR

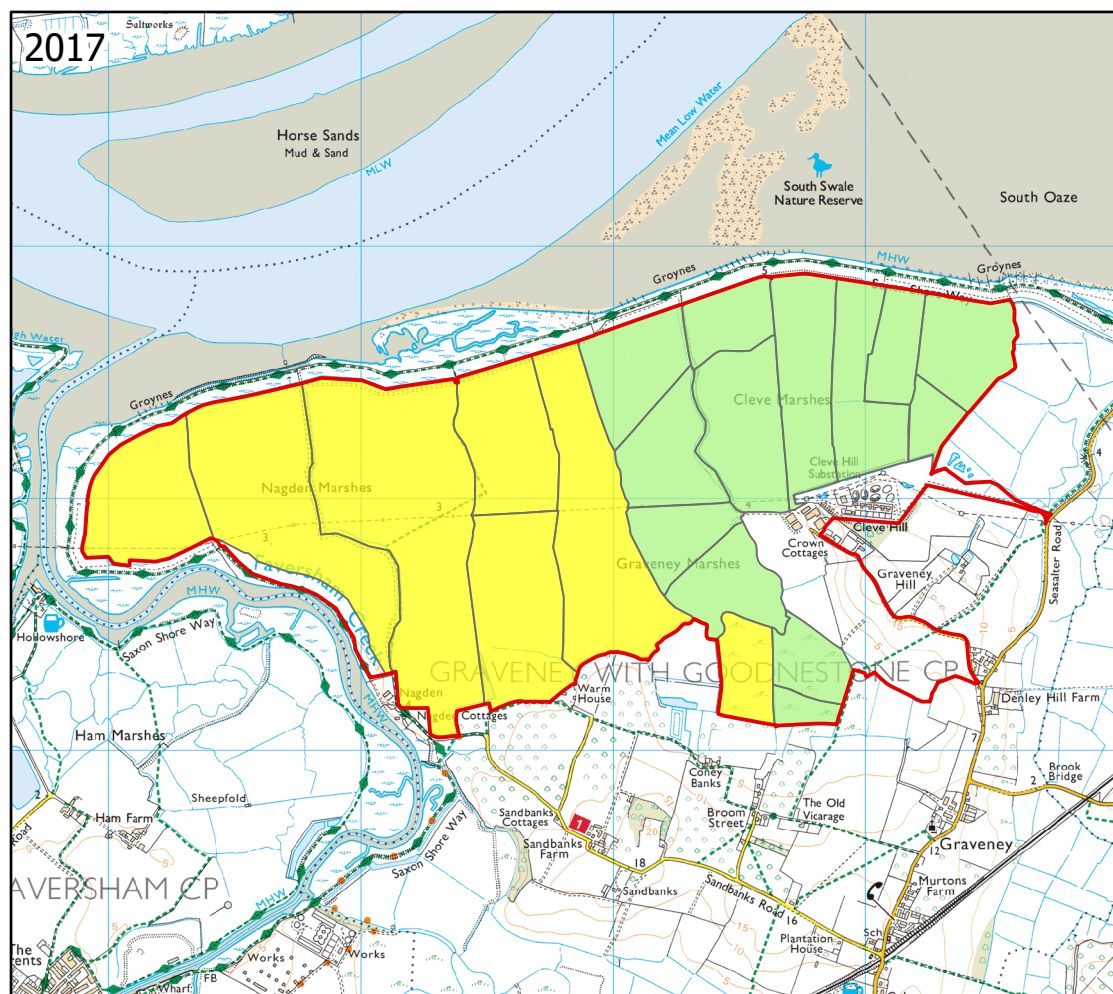
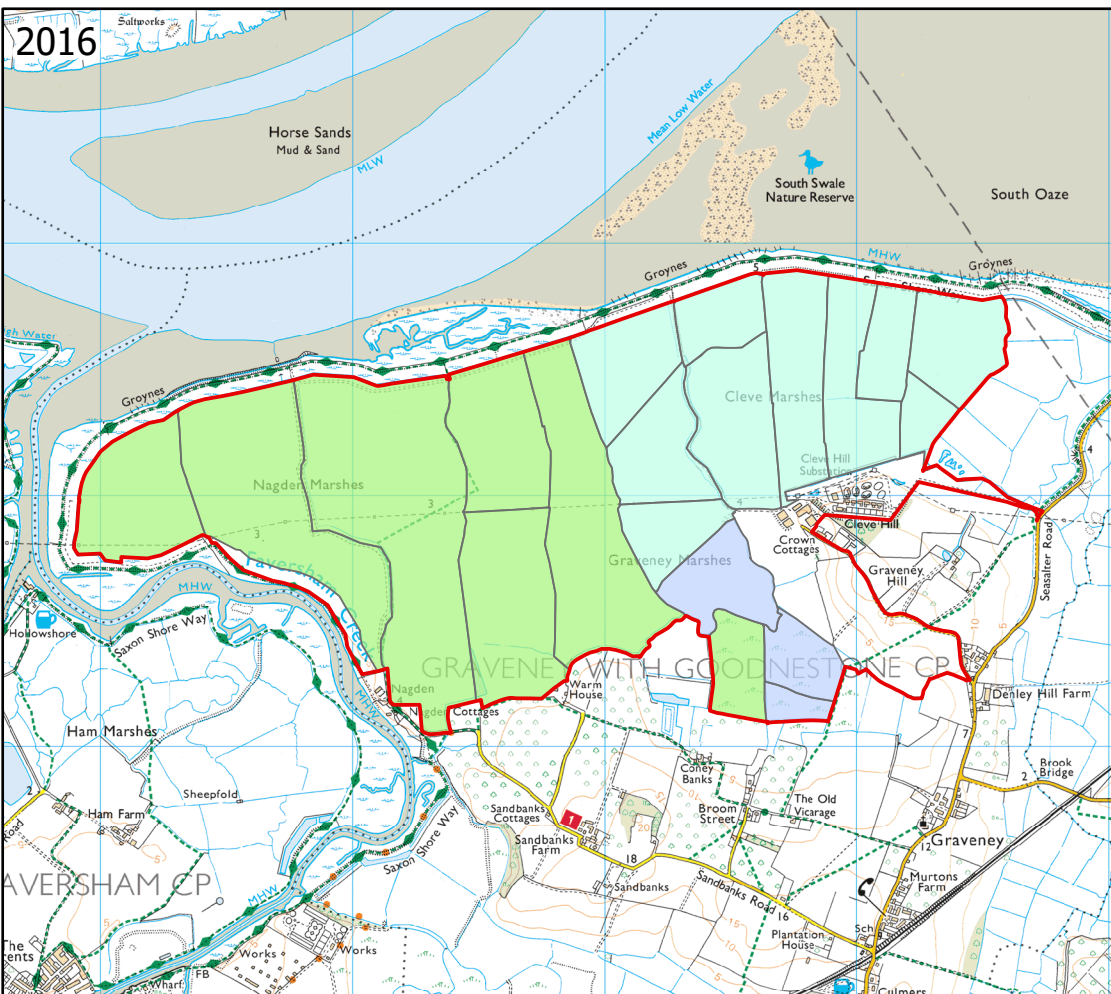
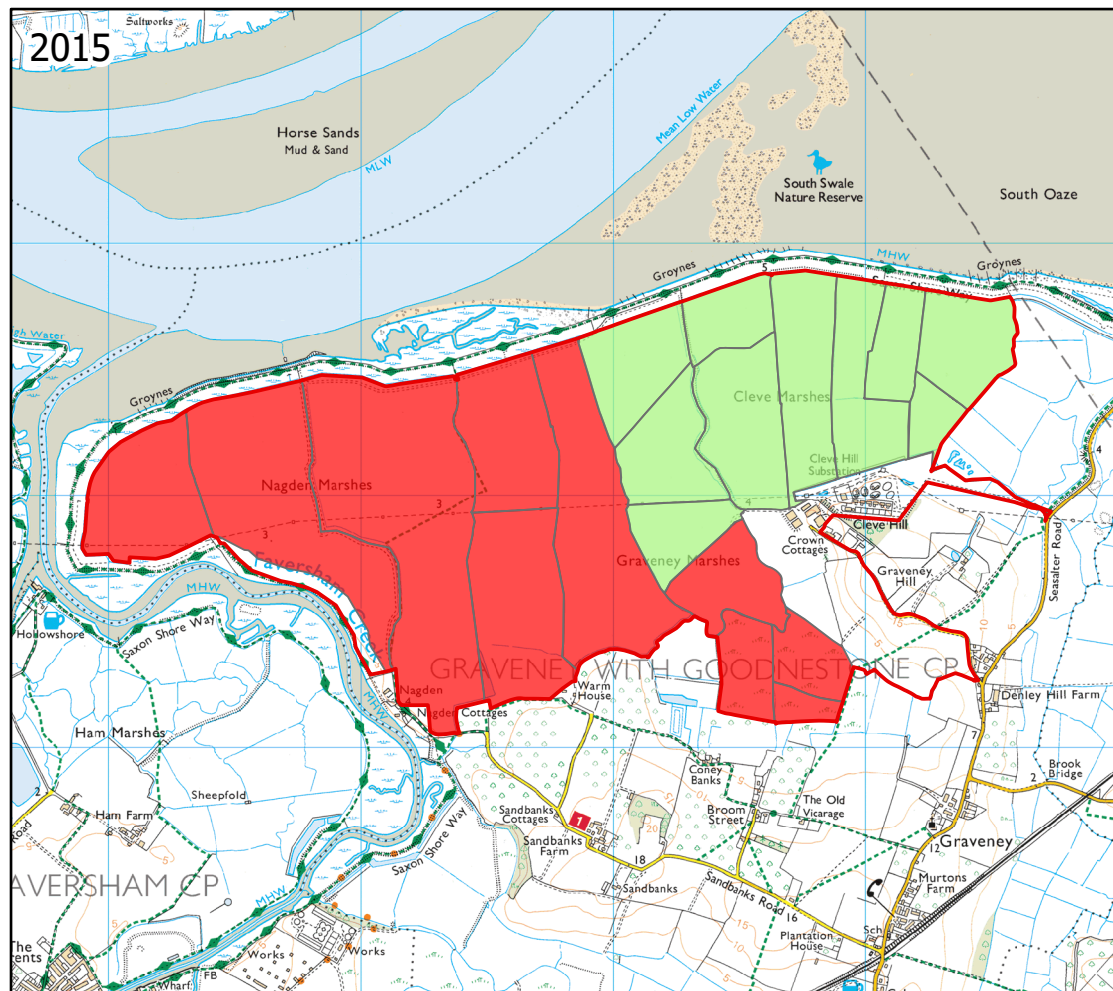
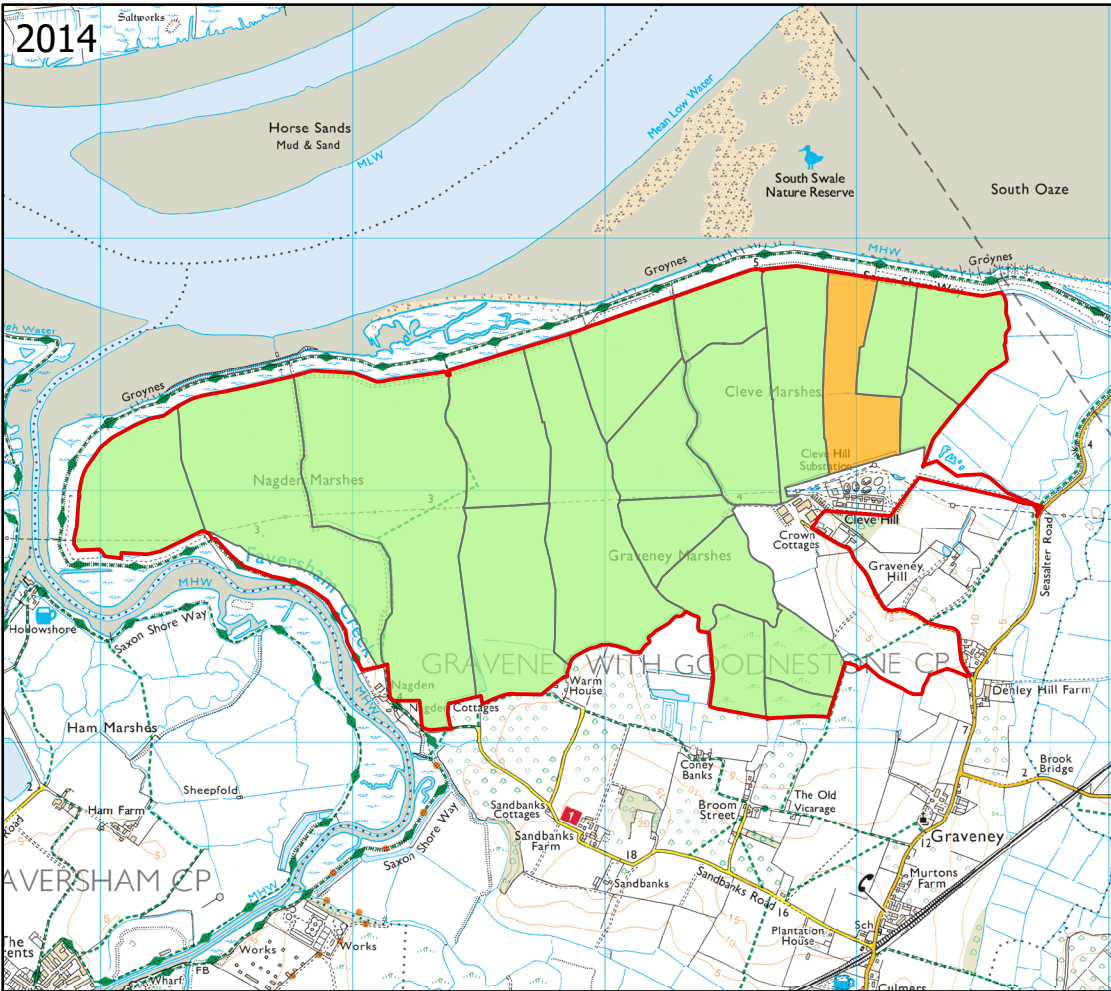
1:30,000 Scale @ A3

0 5 10 km

 NORTH

Produced By: KE	Ref: 2238-REP-308
Checked By: MB	Date: 06/11/2018

Cropping Plan 1
Figure A9.41



-  Core Survey Area
- CropType
-  Fallow
 -  Oats/Fallow
 -  Pasture
 -  Spring Crop
 -  Uncropped
 -  Wheat/Fallow
 -  Winter Beans
 -  Winter Cereal
 -  Winter OSR

1:30,000 Scale @ A3
0 5 10 km

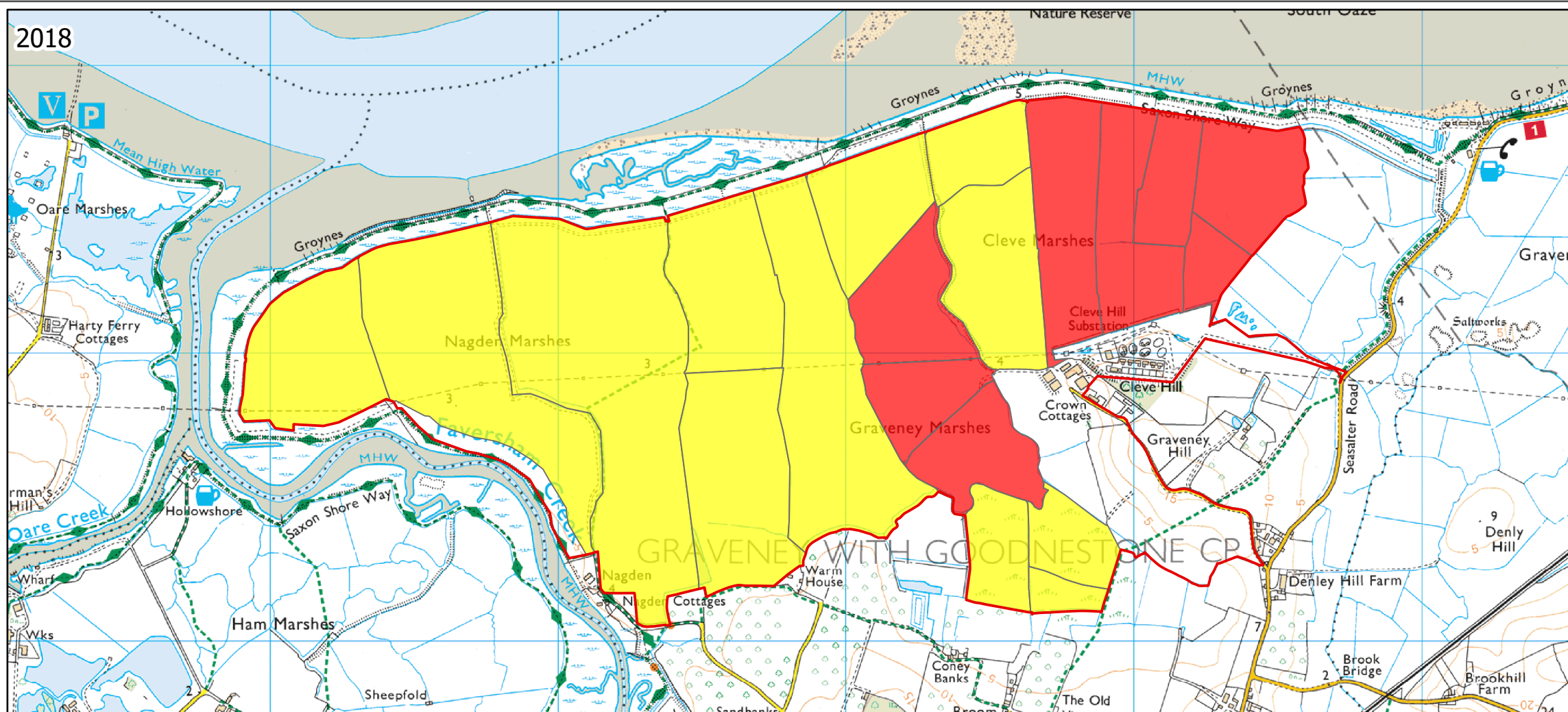


Produced By: KE	Ref: 2238-REP-309
Checked By: MB	Date: 06/11/2018

Cropping Plan 2 Figure A9.42

**Cleve Hill Solar Park
Environmental Statement**

2018



Core Survey Area

Crop Type

Fallow

Oats/Fallow

Pasture

Spring Crop

Uncropped

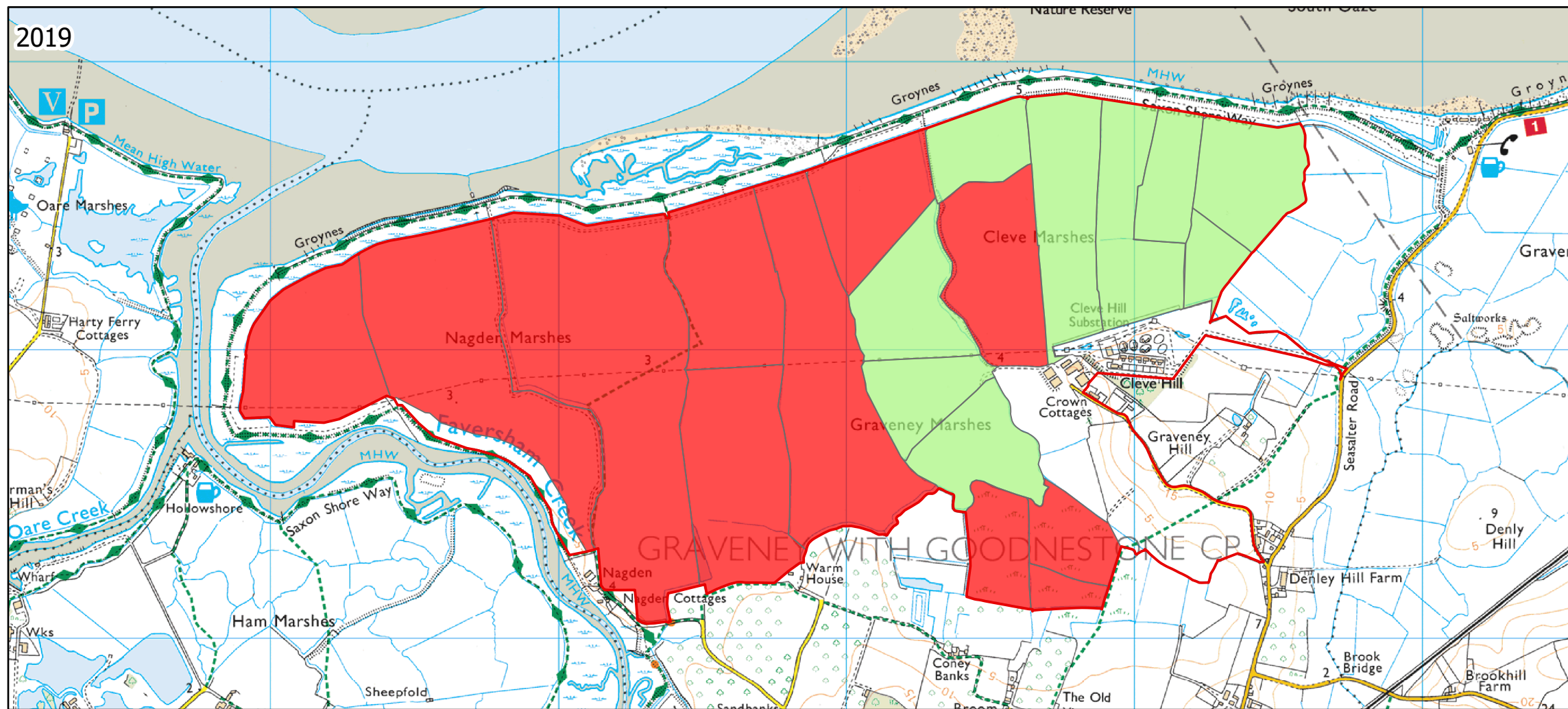
Wheat/Fallow

Winter Beans

Winter Cereal

Winter OSR

2019



1:18,000 Scale @ A3
0 5 10 km



Produced By: KE Ref: 2238-REP-310

Checked By: MB Date: 06/11/2018

Cropping Plan 3
Figure A9.43

Cleve Hill Solar Park
Environmental Statement