

Rush Wall Solar Park

Environmental Statement

Appendix 6.1

Winter and Passage bird surveys

Winter and Passage bird surveys
Rush Wall Solar Park
May 2020

Report no: WP Birds – 526.1

A report by

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Report details

Site name: Rush Wall Solar Park
 Site address: Redwick, Newport
 Grid reference: ST 416 853
 Report date: 11/05/2020
 Report author: Colin Hicks BSc (Hons) MCIEEM
 Checked by: Yolande Knight BSc (Hons), PhD, RSB

 Report no: WP Birds – 526.1

Declaration of compliance

BS 42020:2013

This study has been undertaken in accordance with British Standard 42020:2013 Biodiversity, Code of Practice for Planning and Development.

Code of Professional Conduct

The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

Validity of survey data and report

The findings of this report are valid for 24 months from the date of survey. If work has not commenced within this period, an updated survey by a suitably qualified ecologist will be required.

Revisions

Date	Report no:	Comment
11/05/2020	WP Birds – 526.1	Original report

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1. Introduction

1.1. Background

- 1.1.1. Western Ecology has been commissioned to complete winter and passage bird surveys of land for the proposed Rush Wall Solar Park near Redwick.

1.2. Consultation

- 1.2.1. The RSPB were consulted on possible mitigation for overwintering birds. Following a site visit with Fiona Walker and Simon Roberts on 26th February 2019 suggestions were made by Western Ecology in relation to mitigation habitats as follows:

- *Maintain a diversity of habitats such as stubble and short sward grazed wet grassland where invertebrates are plentiful during the over winter period.*
- *Maintain existing scrape type depressions which are subject to periodic flooding.*
- *No undersowing into stubble on the mitigation land.*
- *Over wintering period is defined as from October to March inclusive*

The reply of RSPB was as follows:

- *The four bullet points in your email would all be beneficial to increasing the diversity of foraging opportunities and invertebrate habitats*
- *It is great that the existing scrapes and sward diversity are being maintained*
- *It would be good where possible if the farmer(s) could create more scrapes in the mitigation areas to add to the existing ones*
- *If possible having a time period of high water levels in the winter is beneficial however I realise this may just not be feasible, practically or economically for the farmer(s)*
- *In terms of liquid slurry the principal thinking is that it has a higher/more concentrated nutrient hit than well-rotted farm yard manure. The slurry can be toxic to earthworm and other invertebrates, either killing them or expelling them from the soil. Higher nutrient applications can also impact on the vegetation composition and structure with knock on impacts on invertebrates and habitat suitability for waders. Slurry application would not be something we would advocate.*
- *Well-rotted farmyard manure would be more beneficial for invertebrates, and the application would be in the Autumn/Winter.*
- *The mitigation areas could become better over wintering sites and potential breeding sites.*

In addition, the RSPB recommended two years of winter and passage bird data to inform this application.

- 1.2.2. Natural Resources Wales made the comments during the scoping process:

The Scoping Report confirms the project site is approximately 1.3km from the Severn Estuary which is designated a Special Area of Conservation (SAC), Special Area of Protection (SPA) and Ramsar site. We agree with the report that there are potential significant adverse effects on breeding and wintering birds and these should be scoped in.

The scope of the surveys for birds appear reasonable but there may be need for the ES to consider foraging cranes, depending on the results of the first round of surveying.

- 1.2.3. During the scoping process, the planning inspectorate made the following comments:

The SR (Scoping Report) identifies the potential for significant adverse effects on breeding and wintering birds. The ES should therefore include this in its scope, but it is also considered necessary to further investigate the presence of foraging cranes in the area.

1.3. Survey aims

- 1.3.1. The surveys and this report characterise the use of the site and adjacent areas by birds during the passage and winter periods. Birds listed as interest features of the Severn Estuary SSSI, Severn Estuary Ramsar and Severn Estuary SPA are considered within this report.

1.4. Site location

- 1.4.1. The site comprises an area of agricultural land to the east of Redwick, a village in Newport.

2. Survey Methodology

2.1. Desktop survey

2.1.1. The desktop survey collated existing biological records for the site and adjacent areas and identified any nature conservation sites that may be affected by the proposals. This comprises an important part of the assessment process, providing information on ecological issues that may not be apparent during the site survey.

2.1.2. Consultees for the data search included:

- South East Wales Biodiversity Records Centre - records of protected/notable species within 2km of the centre of the site and non-statutory nature conservation sites within 4km of the centre of the site.
- Natural Resources Wales datasets – Location of statutory nature conservation sites within 5km.

2.2. Winter and passage surveys

2.2.1. Passage bird surveys were completed in October 2018/2019 and March 2019/2020 (Table 1) and comprised four 4 visits in each of these months, whilst winter bird surveys comprised two visits per month in the periods November 2018 to February 2019, and November 2019 to February 2020.

2.2.2. During each visit an experienced ornithologist walked a transect across the site and adjacent areas recording all activity for target species.

Table 1. Winter and passage bird survey dates

Date	Time	Weather
October 2018		
15/10/2018	10:00 - 15:00	Dull, 8/8 cloud, light-fresh NE wind, 12°C, just after rain
16/10/2018	11:00 - 16:00	Dull, dry, 8/8 cloud but clearing a little from 1300; calm, 13°C at start to 15°C at end.
30/10/2018	09:30 - 14:30	Dry, weak sunshine, 5/8 cloud, v light N breeze, cold 5°C
31/10/2018	09:00 - 14:00	Dry, cold, sunny, light E breeze, 2/8 cloud, 5°C at start, to 9°C at end
November 2018		
14/11/2018	09:45 - 14:00	Dry, patchy sun, 4/8 cloud, 13°C. Fresh SW breeze.
27/11/2018	08:00 - 12:30	Steady rain, 8/8 cloud, cold, light-mod ESE breeze, 4°C.
December 2018		
11/12/2018	09:00 - 13:00	Dry, calm, 6/8 cloud, 10°C.
29/12/2018	08:45 - 11:50	Overcast 6/8 cloud, light WNW breeze, 9-11°C.
January 2019		
18/01/2019	10:00 - 15:00	Dull, 8/8 cloud, light SE breeze, 6°C, patchy light rain
30/01/2019	08:15 - 12:30	Sunny, calm. -4 rising to +3°C, 1/8 cloud, sharp frost
February 2019		
13/02/2019	09:00 - 13:00	Calm, 7°C rising to 12° C, 1/8 cloud
26/02/2019	08:15 - 10:20	Sunny, calm. 5°C rising to 8°C, 1/8 cloud
March 2019		
05/03/2019	06:15 - 10:30	Light SW breeze, 5deecc rising to 7°C. 3/8 cloud
15/03/2019	10:30 - 14:00	9/8 cloud, 11°C, strong WWSWS, occasional rain
25/03/2019	05:45 - 09:45	Dry, sunny, 2/8 cloud, light NNE breeze, 7°C
29/03/2019	17:45 - 19:15	Dry, calm, 0/8 cloud, 10°C
30/03/2019	05:15 - 09:15	Dry, calm, misty, 6°C

October 2019		
04/10/2019	08:00 - 12:30	Dry, overcast 7/8 cloud; fresh W breeze; 14°C
13/10/2019	07:30 - 12:00	Dull, 8/8 cloud, occ light showers; light E breeze, 11°C
22/10/2019	08:50 - 12:00	Overcast but with sunny spells; 4/8 cloud, decreasing to 1/8; Calm; 7°C rising to 14°C
31/10/2019	07:15 - 11:15	Dry, cold, after heavy rain; light NE breeze, 7/8 cloud, 6°C
November 2019		
13/11/2019	07:15 - 11:00	Dry, cold, calm; 3°C rising to 8°C, 2/8 cloud increasing to 7/8
25/11/2019	07:25 - 11:30	Overcast but dry at first but steady rain from 0845; after heavy rain overnight (ground waterlogged); light SSE breeze; 8/8 cloud; 10° C
December 2019		
07/12/2019	08:00 - 12:30	Dry, light W breeze, 7/8 cloud; 10°C
28/12/2019	08:00 - 12:30	Dry, calm, 8°C; 4/8 cloud; hazy sun
January 2020		
23/01/2020	10:30 - 14:15	Dry, calm, o'cast 8/8 cloud, 7°C
31/01/2020	08:15 - 12:20	Dry, light SW breeze, o'cast 7/8 cloud, 8°C
February 2020		
14/02/2020	09:00 - 12:30	Dry, calm, o'cast 7/8 cloud, 9°C
25/02/2020	07:30 - 11:30	Dry, light NW breeze, o'cast 8/8 cloud, 6°C
March 2020		
07/03/2020	08:20 - 12_30	Dry, o'cast 8/8 cloud, light SW breeze, 8°C
14/03/2020	07:00 - 11:00	Mainly dry but occ light drizzle, light SW breeze, 8°C
21/03/2020	06:30 - 10:00	Dry, sunny, 2/8 cloud, fresh NE wind; 4°C
26/03/2020	06:20 - 10:30	Dry, sunny, calm, early frost, 2 °C rising to 8°C

2.3. Nocturnal surveys

- 2.3.1. Nocturnal bird transects were completed each month in the period October 2018 to March 2019 (Table 2). During each visit, after dusk an experienced ornithologist walked a transect across the site and adjacent areas recording all activity for target species. Initially a Night vision monocular was used to detect bird activity. After the first two visits, Night vision was abandoned due to the limited range of the unit. Instead it was decided to slowly and carefully, and without using a torch, walk through all the fields on a transect once/month at night. This caused any Lapwings or Snipe present to flush, uttering an alarm call, thereby giving away their presence.

Table 2. Nocturnal bird survey dates

Date	Time	Weather
30/10/2018	20:45 - 22:20	Dry, light breeze, 6/8 cloud, 11-14°C.
26/11/2018	20:02 - 22:00	Dry, calm, 2/8 cloud, ¾ moon, 4°C.
28/12/2018	20:00 - 22:50	Dry, calm, 6/8 cloud, 10°C.
29/01/2019	19:55 - 21:55	Calm, 2/8 cloud, 2°C. Ground waterlogged
25/02/2019	20:15 - 22:30	Calm, 4°C, 0/8 cloud
24/03/2019	21:00 - 23:00	Light W breeze, dry, 7°C, 1/85 cloud

2.4. Estuarine shore surveys

Observations were made of target species movements along the shore of the Severn Estuary by accessing the sea wall at the southern end of Sea Street Lane on seven occasions during the winter of 2018/2019 (Table 3). Bird movements were recorded by an experienced ornithologist with the aid of binoculars.

Table 3. Estuarine bird survey dates

Date	Time	Weather	Tidal state (Newport)
16/10/2018	08:30-10:30	Dry, overcast 8/8 cloud, light SE breeze, 12 °C	Rising tide survey (high tide 11:50)
30/10/2018	15:00-17:00	Partly sunny, 5/8 cloud, light N breeze, 8 °C	Falling tide survey (low tide 16:35)
14/11/2018	07:20-09:20	Dry, overcast 6/8 cloud, fresh SSW breeze, 12 °C	Rising tide survey (high tide 10:25)
11/12/2018	07:25-09:25	Dry, overcast, 8/8 cloud, v light SE breeze, 6 °C	Rising tide survey (high tide 09:13)
18/01/2019	07:30-09:30	Weak sunshine 3/8 cloud, light SW breeze, light rain, 8 °C	Falling tide survey (low tide 10:40)
05/03/2019	10:45-12:45	Weak sunshine 3/8 cloud, light SW breeze, light rain, 8 °C	Falling tide survey (low tide 12:57)

2.5. Target species

2.5.1. The Target bird species are those wintering and passage birds which are interest features of the Severn Estuary SSSI, Severn Estuary Ramsar and Severn Estuary SPA (Table 4).

Table 4. List of bird Target species for winter and passage vantage point surveys

Common name	SSSI interest feature?	Ramsar interest feature?	SPA interest feature?
Bewick's Swan			Y
Common Snipe	Y		
Curlew	Y		Y (over winter)
Dunlin	Y	Y	Y (over winter)
Gadwall		Y	Y
Grey Plover	Y		Y
Knot	Y		
Lapwing			Y ¹
Lesser Black-backed Gulls		Y ²	
Mallard			Y ¹
Pintail			Y (over winter)
Pochard			Y
Redshank	Y	Y	Y (over winter)
Ringed Plover	Y	Y	Y (passage)
Shelduck	Y	Y	Y (over winter)
Shoveler			Y ¹
Teal			Y
Tufted Duck			Y
Turnstone	Y		
Whimbrel	Y	Y	Y
White-fronted Goose		Y	Y
Wigeon	Y		Y

In line with scoping, Crane were also considered during these surveys.

2.6. Survey constraints

2.6.1. All areas of the development site were readily accessible due to the open, flat nature of this landscape. The majority of adjacent areas within the 250m buffer

¹ Lapwing, Mallard and Shoveller were added in the 2001 review, but were not included in the original 1995 SPA citation

² Lesser Black-backed gulls were added in the 2005 revised criterion, but were not included in the original 1995 Ramsar citation



were included within the survey by observation from public rights of way.

- 2.6.2. Nocturnal surveys relied on flushing birds as night vision equipment was not suitable. This proved successful in providing presence or absence data, but it was not easy to formalise an accurate picture of numbers, as it is not likely that all birds in a flock will utter alarm calls. In addition, species that will not easily flush would be under recorded. As the main target for these nocturnal surveys were Lapwing, which are relatively easy to flush, this is not considered a significant constraint.

2.7. Study area

- 2.7.1. The study area of the biological records search is within a 2km radius of the site for bird species. The survey area for the wintering and passage bird surveys is within the proposed solar park and a 250 metre buffer (where accessible).

Legend

-  Development footprint
-  Magor Marsh SSSI
-  Severn Estuary SSSI/SPA/Ramsar



Title: Map 1. Survey area and statutory sites with bird interest

Project: Rush Wall Solar Park

Checked by: CDH Version: 01
Date: 24/04/2020

3. Results

3.1. Desktop survey

3.1.1. The biological record search 2313 bird records from South East Wales Biodiversity Records Centre produced 880 records within 2km. These are detailed in Table 5.

Table 5. Bird records within 2km

Common name	Conservation listings	Count
Barn Owl	WCA1.1, WCA9, Bern, CITES, LBAP (ANG, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, VOG, WRE), WBAm(RSPB), LI(VC43), UKBAm(RSPB)	19
Bar-tailed Godwit	BDir1, BDir22, S7, Bonn, WBR(RSPB), LBAP (BBNP, CON, GWY, VOG), UKBAm(RSPB)	3
Bewick's Swan	BDir1, WCA1.1, S7, UKBAP, Bonn, Bern, LBAP (CON, GWY, POW, VOG), WBAm(RSPB), UKBAm(RSPB)	4
Black Redstart	WCA1.1, Bern, LBAP (GWY, VOG), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	2
Black-headed Gull	BDir22, S7, Bonn, WBR(RSPB), LBAP (GWY, VOG), UKBAm(RSPB)	12
Black-tailed Godwit	BDir22, WCA1.1, UKBAP, Bonn, RD1 (UK), LBAP (CON, GWY), WBAm(RSPB), UKBR(RSPB)	1
Brambling	WCA1.1, LBAP (CON)	2
Bullfinch	S7, UKBAP, WBR(RSPB), LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, TRF, VOG), UKBR(RSPB)	25
Cetti's Warbler	WCA1.1, LBAP (ANG, PEM, VOG)	133
Coal Tit	Bern, LBAP (CON, POW), WBAm(RSPB)	15
Common Crossbill	WCA1.1, Bern, LBAP (CON, POW), LI(VC43)	1
Common Gull	BDir22, Bonn, WBR(RSPB), UKBAm(RSPB)	12
Common Sandpiper	Bonn, Bern, WBAm(RSPB)	6
Common Scoter	BDir22, WCA1.1, S7, UKBAP, Bonn, LBAP (ANG, BBNP, CER, CON, CRM, DEN, FLI, GWY, PEM, VOG), WBAm(RSPB), UKBR(RSPB)	4
Cormorant	Bonn, LBAP (CON, GWY, POW), WBAm(RSPB), UKBAm(RSPB)	10
Cuckoo	S7, UKBAP, WBR(RSPB), LBAP (CON, DEN, FLI, GWY, VOG), UKBR(RSPB), UKBAm(RSPB)	26
Curlew	BDir22, S7, UKBAP, Bonn, RD1 (UK), WBR(RSPB), LBAP (ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, VOG), LI(VC43), UKBAm(RSPB)	12
Dipper	Bern, LBAP (BRG, CLY, CON, MTR, POW, RCT, TRA), WBAm(RSPB), UKBAm(RSPB)	1
Dunlin	Bonn, Bern, WBR(RSPB), LBAP (CON, GWY, POW), LI(VC43), UKBAm(RSPB)	9
Dunnock	S7, UKBAP, Bern, LBAP (CON, POW, VOG), UKBAm(RSPB)	46
Eider	BDir22, Bonn, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	1
Fieldfare	BDir22, WCA1.1, LBAP (CON, POW), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	50
Firecrest	WCA1.1, Bern, LBAP (BRG, CON, GWY, POW), WBAm(RSPB), LI(VC43), UKBAm(RSPB)	1
Gadwall	BDir21, Bonn, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	43
Garden Warbler	LBAP (BRG, CON, POW), WBAm(RSPB)	11
Garganey	BDir21, WCA1.1, Bonn, CITES, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	9
Goldcrest	Bern, LBAP (CON, POW), WBAm(RSPB), UKBAm(RSPB)	28
Golden Plover	BDir1, BDir22, S7, Bonn, WBR(RSPB), LBAP (BBNP, CON, CRM, FLI, GWY, POW, SNP, VOG), LI(VC43)	2
Goldeneye	BDir22, WCA1.2, Bonn, LBAP (CON, POW), UKBAm(RSPB)	1
Goshawk	WCA1.1, WCA9, Bonn, CITES, LBAP (CLY, CON, POW, VOG)	1
Grasshopper Warbler	S7, UKBAP, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY, POW, VOG), UKBR(RSPB)	26
Great Black-backed Gull	BDir22, Bonn, Bern, WBR(RSPB), UKBAm(RSPB)	7
Green Sandpiper	WCA1.1, Bonn, Bern, LBAP (CON, VOG), UKBAm(RSPB)	5
Green Woodpecker	Bern, LBAP (CLY, CON, DEN, FLI, GWY, PEM, POW, SNP), WBAm(RSPB), UKBAm(RSPB)	19
Greenshank	BDir22, WCA1.1, Bonn, LBAP (CON, POW), UKBAm(RSPB)	7
Grey Partridge	BDir21, S7, UKBAP, WBR(RSPB), LBAP (ANG, BBNP, CLY, CON, DEN, FLI, GWY, POW, TRF, VOG), LI(VC43), UKBR(RSPB)	4
Grey Plover	BDir22, Bonn, WBR(RSPB), LBAP (CON, GWY), UKBAm(RSPB)	7
Guillemot	Bonn, LBAP (CON, PEM), WBAm(RSPB), UKBAm(RSPB)	1
Hawfinch	S7, UKBAP, Bern, LBAP (CON, DEN, FLI, GWY, POW, VOG), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	1
Hen Harrier	BDir1, S7, Bonn, CITES, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY, POW, SNP, VOG), LI(VC43), UKBR(RSPB)	3
Hobby	WCA1.1, Bonn, Bern, CITES, LBAP (CON, GWY, POW, VOG), WBAm(RSPB), LI(VC43)	6
House Martin	Bern, LBAP (BRG, CON, POW, RCT, VOG), WBAm(RSPB), UKBAm(RSPB)	50
House Sparrow	S7, UKBAP, Bern, LBAP (CLY, CON, FLI, GWY, VOG), WBAm(RSPB), UKBR(RSPB)	51
Jack Snipe	BDir21, Bonn, LBAP (CON, POW), WBAm(RSPB)	3
Kestrel	S7, Bonn, Bern, CITES, WBR(RSPB), LBAP (ANG, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG), LI(VC43), UKBAm(RSPB)	60

Kingfisher	BDir1, WCA1.1, Bern, LBAP (CLY, CON, DEN, FLI, GWY, POW, TRA), WBAm(RSPB), UKBAm(RSPB)	69
Knot	BDir22, Bonn, LBAP (BBNP, CON, GWY), WBAm(RSPB), UKBAm(RSPB)	2
Lapwing	BDir22, S7, UKBAP, Bonn, WBR(RSPB), LBAP (ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, MON, PEM, POW, SNP, TRF, VOG), LI(VC43), UKBAm(RSPB)	39
Lesser Black-backed Gull	BDir22, Bonn, Bern, LBAP (CON, GWY, PEM, POW, SNP), WBAm(RSPB), UKBAm(RSPB)	16
Lesser Redpoll	S7, UKBAP, WBR(RSPB), LBAP (CON), LBAP (DEN, POW, VOG), UKBAm(RSPB)	10
Lesser Spotted Woodpecker	S7, UKBAP, Bern, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY, POW, VOG), LI(VC43), UKBR(RSPB)	1
Linnnet	S7, Bern, WBR(RSPB), LBAP (ANG, BBNP, CER, CLY, DEN, FLI, PEM, VOG), LBAP (CON, GWY), UKBR(RSPB)	21
Long-tailed Tit	WBAm(RSPB)	64
Mallard	BDir21, Bonn, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	209
Marsh Harrier	BDir1, WCA1.1, Bonn, CITES, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)	3
Marsh Tit	S7, UKBAP, Bern, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY, POW, VOG), UKBR(RSPB)	5
Marsh Warbler	WCA1.1, UKBAP, UKBR(RSPB)	4
Meadow Pipit	Bern, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)	24
Merlin	BDir1, WCA1.1, Bonn, Bern, CITES, LBAP (CON, DEN, FLI, GWY, POW), WBAm(RSPB), LI(VC43), UKBAm(RSPB)	9
Mute Swan	BDir22, Bonn, LBAP (CON, POW), WBAm(RSPB), UKBAm(RSPB)	205
Osprey	BDir1, WCA1.1, Bonn, CITES, LBAP (GWY), WBAm(RSPB), UKBAm(RSPB)	1
Oystercatcher	BDir22, Bonn, LBAP (CON, GWY), WBAm(RSPB), LI(VC43), UKBAm(RSPB)	12
Peregrine	BDir1, WCA1.1, Bonn, Bern, CITES, LBAP (ANG, CLY, CON, GWY, PEM, POW, TRF, VOG), LI(VC43), UKBAm(RSPB)	4
Pintail	BDir21, WCA1.2, Bonn, CITES, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	4
Pochard	BDir21, Bonn, WBR(RSPB), LBAP (CON, POW), UKBR(RSPB), UKBAm(RSPB)	1
Purple Sandpiper	WCA1.1, Bonn, Bern, LBAP (CON, VOG), UKBAm(RSPB)	1
Red Kite	BDir1, WCA1.1, WCA9, Bonn, CITES, RD1 (UK), LBAP (CON, CRM, GWY, POW), WBAm(RSPB), UKBAm(RSPB)	4
Redshank	BDir22, Bonn, LBAP (ANG, CON, GWY, POW), WBAm(RSPB), UKBAm(RSPB)	17
Redstart	Bern, LBAP (CON, GWY, POW, SNP), WBAm(RSPB), UKBAm(RSPB)	2
Redwing	BDir22, WCA1.1, LBAP (CON, POW), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	48
Reed Bunting	S7, UKBAP, Bern, LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG), WBAm(RSPB), UKBR(RSPB)	73
Ringed Plover	S7, Bonn, Bern, LBAP (BBNP, CON, CRM, GWY, VOG), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	5
Ruff	BDir1, BDir22, WCA1.1, Bonn, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)	2
Sand Martin	Bern, LBAP (CON, DEN, FLI, GWY, POW, VOG), WBAm(RSPB), UKBAm(RSPB)	6
Sanderling	Bonn, Bern, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)	5
Sandwich Tern	BDir1, Bonn, Bern, LBAP (ANG, CON, GWY), WBAm(RSPB), UKBAm(RSPB)	1
Shelduck	Bonn, Bern, LBAP (CON, GWY, VOG), WBAm(RSPB), UKBAm(RSPB)	18
Short-eared Owl	BDir1, Bern, CITES, WBR(RSPB), LBAP (CON, DEN, GWY, PEM, POW), LI(VC43), UKBAm(RSPB)	10
Shoveler	BDir21, Bonn, CITES, LBAP (ANG, CON, GWY, POW), WBAm(RSPB), UKBAm(RSPB)	34
Skylark	BDir22, S7, LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRF, VOG), WBAm(RSPB), UKBR(RSPB)	13
Snipe	BDir21, Bonn, LBAP (ANG, CON, DEN, FLI, GWY, POW), WBAm(RSPB), LI(VC43), UKBAm(RSPB)	45
Song Thrush	BDir22, S7, UKBAP, Bern, LBAP (ANG, BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, SNP, TRF, VOG, WRE), WBAm(RSPB), UKBR(RSPB)	61
Spoonbill	BDir1, WCA1.1, Bonn, Bern, CITES, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)	5
Spotted Flycatcher	S7, UKBAP, Bonn, Bern, WBR(RSPB), LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG), UKBR(RSPB)	7
Spotted Redshank	BDir22, Bonn, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)	6
Starling	BDir22, S7, UKBAP, Bern, WBR(RSPB), LBAP (BBNP, CON, FLI, GWY, VOG), UKBR(RSPB)	85
Stone-curlew	BDir1, WCA1.1, UKBAP, Bonn, Bern, UKBR(RSPB)	1
Swallow	Bern, LBAP (ANG, CON, GWY, POW, VOG), WBAm(RSPB), UKBAm(RSPB)	121
Swift	LBAP (BRG, RCT, VOG), WBAm(RSPB), UKBAm(RSPB)	35
Teal	BDir21, Bonn, CITES, LBAP (ANG, CON, DEN, FLI, GWY), WBAm(RSPB), LI(VC43), UKBAm(RSPB)	116
Tree Sparrow	S7, UKBAP, WBR(RSPB), LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, VOG), LI(VC43), UKBR(RSPB)	7
Tufted Duck	BDir21, Bonn, LBAP (CON, POW, VOG), WBAm(RSPB)	3
Turnstone	Bonn, Bern, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	5
Turtle Dove	BDir22, S7, UKBAP, CITES, WBR(RSPB), LBAP (BBNP, CON, GWY, MON, POW), UKBR(RSPB)	5
Wheatear	Bern, LBAP (BRG, CON, POW), WBAm(RSPB)	15
Whimbrel	BDir22, WCA1.1, Bonn, LBAP (CON, GWY), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	11
White-fronted Goose	BDir22, S7, UKBAP, Bonn, Bern, WBR(RSPB), LBAP (BBNP), UKBR(RSPB), UKBAm(RSPB)	1
Whitethroat	LBAP (CON, POW), WBAm(RSPB)	26

Wigeon	BDir21, Bonn, CITES, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	12
Willow Tit	S7, UKBAP, Bern, WBR(RSPB), LBAP (BBNP, DEN, FLI, POW, VOG), LBAP (CON, GWY), LI(VC43), UKBR(RSPB)	1
Willow Warbler	WBR(RSPB), LBAP (CON), UKBAm(RSPB)	45
Woodcock	BDir21, Bonn, LBAP (CON, DEN, FLI, GWY, POW), WBAm(RSPB), LI(VC43), UKBR(RSPB), UKBAm(RSPB)	2
Yellow Wagtail	S7, UKBAP, Bern, WBR(RSPB), LBAP (CON, DEN, FLI, POW, TRA, VOG), LI(VC43), UKBAm(RSPB)	14
Yellowhammer	S7, UKBAP, Bern, WBR(RSPB), LBAP (ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, VOG), UKBR(RSPB)	2

Key to Conservation status

- UKBAP = UK Biodiversity Action Plan Priority Species
 UKBAP (R) = UK Biodiversity Action Plan Priority Species (Research only species)
 BDir1 = EC Birds Directive Annex 1 Species
 BDir21 = EC Birds Directive Annex 2.1 Species
 BDir22 = EC Birds Directive Annex 2.2 Species
 Bern = The Bern Convention on the Conservation of European Wildlife and Natural Habitats
 Bonn = The Bonn Convention on the Conservation of Migratory Species of Wild Animals Species
 CITES = Convention on International Trade in Endangered Species
 EPS = European Protected Species
 HDir = EU Habitats Directive Species
 NRW = Natural Resources Wales Priority Species
 RD1 (Wales) = Welsh Red Data Book listing based on IUCN guidelines
 RD1 (UK) = UK Red Data Book listing based on IUCN guidelines
 RD2 (UK) = UK Red Data Book listing not based on IUCN guidelines (Nationally Rare and Scarce)
 WBR (RSPB) = RSPB Welsh Red listed birds (not based on IUCN criteria)
 WBAm (RSPB) = RSPB Welsh Amber listed birds (not based on IUCN criteria)
 UKBR (RSPB) = RSPB UK Red listed birds (not based on IUCN criteria)
 UKBAm (RSPB) = RSPB UK Amber listed birds (not based on IUCN criteria)
 S42 = Natural Environment and Rural Communities Act 2006 (Section 42)
 WCA1.1 = Wildlife and Countryside Act Schedule 1 Part 1 Species
 WCA5 = Wildlife and Countryside Act Schedule 5 Species
 WCA8 = Wildlife and Countryside Act Schedule 8 Species
 WCA9 = Wildlife and Countryside Act Schedule 9 Species
 WSG.P = Guidelines for the Selection of Wildlife Sites in South Wales - Primary species
 WSG.C = Guidelines for the Selection of Wildlife Sites in South Wales - Contributory species
 LBAP (xxx) = Local Biodiversity Action Plan Species (see key below)
 LI (SEWBRc) = Locally Important Species (as identified by local specialists) in SEWBRc area.
 LI (BIS) = Locally Important Species (as identified by local specialists) in BIS* area.
 LI (BRYO-MON) = Locally or nationally scarce or rare bryophyte in Monmouthshire.
 LI (VC##) = Locally Important Species (as identified by local specialists) in Vice County ##
 LI (VC##, LS) = Locally Scarce in Vice County ##
 LI (VC##, LR) = Locally Rare in Vice County ##
 LI (VC##, EX) = Extinct in Vice County ##
 LI (VC##, UR) = Under Recorded in Vice County ##
 * BIS = Biodiversity Information Service for Powys and Brecon Beacons National Park

3.2. Non-statutory Nature Conservation Sites (NNCS)

- 3.2.1. There are no Sites of Importance for Nature Conservation (SINC) within 1 km important for birds.

3.3. Statutory Nature Conservation Sites

- 3.3.1. There are 4 statutory nature conservation sites with bird interest features within 5km of the proposed development.

Severn Estuary SSSI

- 3.3.2. The Severn Estuary lies on the south west coast of Britain at the mouth of four major rivers (the Severn, Wye, Usk and Avon) and many lesser rivers. The immense tidal range (the second highest in the world) and classic funnel shape make the Severn Estuary unique in Britain and very rare worldwide. The intertidal zone of mudflats, sand banks, rocky platforms and saltmarsh is one of the largest and most important in Britain. The estuarine fauna includes: internationally

important populations of waterfowl; invertebrate populations of considerable interest; and large populations of migratory fish, including the nationally rare and endangered Allis Shad *Alosa alosa*. The SSSI forms the major part of a larger area of estuarine habitat, which includes the Upper Severn Estuary, the Taf/Ely Estuary and Bridgwater Bay.

- 3.3.3. The estuary has a diverse geological setting and a wide range of geomorphological features, especially sediment deposits. It is important for the interpretation of coastline dynamics and land-forms, and also past changes, in sea level, sediment supply, climate and river flow. The estuary's overall interest depends on its large size, and on the processes and interrelationships between the intertidal and marine habitats and its fauna.
- 3.3.4. Beds of eel-grass *Zostera* spp. occur on the more sheltered mud and sand banks. The estuary fringes have large areas of saltmarsh. These are generally grazed by sheep and/or cattle, a significant factor determining the plant communities. A range of saltmarsh types is present, with both gradual and stepped transitions between bare mudflat and upper marsh. Glassworts *Salicornia* spp. and Annual Sea-blite *Suaeda maritima* colonise bare mud on the lower saltmarshes, and disturbed areas at higher levels. Common Cord-grass *Spartina anglica* is abundant on the seaward fringes of marshes, where it occurs as dense monocultures, or with other species, such as Sea Aster *Aster tripolium*, Greater Sea-spurrey *Spergularia media* and Common Saltmarsh-grass *Puccinellia maritima*. The middle marsh is mainly dominated by Common Saltmarsh-grass, and frequent associates include Sea-milkwort *Glaux maritima*, English Scurvygrass *Cochlearia anglica* and Sea Arrowgrass *Triglochin maritima*, together with two nationally scarce plants Bulbous Foxtail *Alopecurus bulbosus* and Slender Hare's-ear *Bupleurum tenuissimum*.
- 3.3.5. There are a few localities for an uncommon middle marsh community, which is characterised by Sea Lavender *Limonium vulgare* and Thrift *Armeria maritima*. Prominent species on the upper marsh are Red Fescue *Festuca rubra* and Saltmarsh Rush *Juncus gerardi*. Nationally scarce species occurring on the upper marshes include Sea Clover *Trifolium squamosum* and Sea Barley *Hordeum marinum*. Highly saline drying pans on the upper marsh support a community with abundant Reflexed Saltmarsh-grass *Puccinellia distans* and Lesser Sea-spurrey *Spergularia marina*. The highest saltmarsh around the driftline is usually dominated by Sea Couch *Elymus pycnanthus*, with Spear-leaved Orache *Atriplex prostrata*. Some brackish pools and depressions on the upper marshes have small stands of Common Reed *Phragmites australis* or Sea Club-rush *Scirpus maritimus*. Corn Parsley *Petroselinum segetum*, a European rarity, occurs within the site.
- 3.3.6. The fluctuating salinity and highly mobile sediments with consequent high turbidity limits the benthic invertebrates to relatively few species. Those which are tolerant of such conditions occur in very high densities on the more stable mudflats. The most prominent species are ragworm *Nereis* spp., Lugworm *Arenicola marina*, Baltic Tellin *Macoma balthica* and the Spire Shell *Hydrobia ulvae*. A greater variety of invertebrates tend to occur on the intertidal rock platforms, a more stable habitat with rock pools and a relatively high cover of

seaweeds.

- 3.3.7. Seven species of migratory fish move through the Estuary between the sea and rivers. There are particularly large numbers of Atlantic Salmon *Salmo salar* and Common Eel *Anguilla anguilla*. The other species are Allis Shad, the nationally rare Twaite Shad *Alosa fallax*, the Sea Trout *Salmo trutta*, Sea Lamprey *Petromyzon marinus* and the Lampern or River Lamprey *Lampetra fluviatilis*.
- 3.3.8. The SSSI is of international importance for wintering and passage wading birds, with total winter populations averaging about 44,000 birds. Numbers can be considerably higher during severe winters when, owing to its mild climate, the Severn supports wader populations that move in from the colder coasts of Britain. The SSSI holds most of the estuary's internationally important Curlew *Numenius arquata* and Redshank *Tringa tetanus* populations, and most of its nationally important Ringed Plover *Charadrius hiaticula* and Grey Plover *Pluvialis squatarola* populations. Other waders which occur in significant numbers within the SSSI are Common Snipe *Gallinago gallinago*, Knot *Calidris canutus*, Whimbrel *Numenius phaeopus* and Turnstone *Arenaria interpres*.
- 3.3.9. The SSSI is internationally important for Dunlin *Calidris alpina* and supports about 7.5% of the British wintering population of this species. The estuary as a whole supports about 10.5% of the British wintering population and is the single most important wintering ground of Dunlin in Britain.
- 3.3.10. In late winter and early spring, the SSSI supports nationally important numbers of Shelduck *Tadorna tadorna*, following the partial dispersal from their moulting grounds in Bridgwater Bay. There are also significant numbers of Wigeon *Anas penelope*.

Severn Estuary RAMSAR

- 3.3.11. The Severn Estuary is one of the largest estuaries in Britain and it has the second largest tidal range in the world. Its classic funnel shape and southwest orientation makes it susceptible to extreme weather conditions in the east Atlantic. There are large urban developments on the estuary. The high tidal range leads to strong tidal stream and high turbidity, producing communities characteristic of the extreme physical conditions of liquid mud and tide-swept sand and rock. The site is particularly important for the run of migratory fish between the sea and rivers via the estuary. Species using the estuary include *Salmo salar*, *S. trutta*, *Petromyzon marinus*, *Lampetra fluviatilis*, *Alosa alosa*, *A. fallax* and *Anguilla anguilla*.
- 3.3.12. The estuary is also important for migratory birds during spring and autumn migrations. During the five year period 1987/88 to 1991/92, the estuary supported nationally important numbers of Common Ringed Plover *Charadrius hiaticula*, Dunlin *Calidris alpina*, Whimbrel *Numenius phaeopus*, and Common Redshank *Tringa totanus*. The site also regularly supports more than 20,000 waterfowl. In the five year period 1988/89 to 1992/93 the average peak count was 68,026 waterfowl, comprising 17,502 wildfowl and 50,524 waders. These included internationally important numbers of Greater White-fronted Goose *Anser albifrons*

albifrons (3,002), Shelduck *Tadorna tadorna* (2,892), Gadwall *Anas strepera* (330), Dunlin *Calidris alpina* (41,683) and Common Redshank *Tringa totanus* (2,013). Several other species occur in nationally important numbers, including Lesser Black-backed Gulls.

Severn Estuary SPA

- 3.3.13. This area has been designated an SPA due to its importance during the spring and autumn migration periods for waders moving up the west coast of Britain, as well as in winter for large numbers of waterbirds, especially swans, ducks and waders. This site qualifies under **Article 4.1** of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

Over winter:

Bewick's Swan *Cygnus columbianus ssp. bewickii*, 280 individuals representing at least 4.0% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)

- 3.3.14. This site also qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

On passage:

Ringed Plover *Charadrius hiaticula*, 655 individuals representing at least 1.3% of the Europe/Northern Africa - wintering population (5 year peak mean 1991/2 - 1995/6)

Over winter:

Curlew *Numenius arquata*, 3,903 individuals representing at least 1.1% of the wintering Europe - breeding population (5 year peak mean 1991/2 - 1995/6)

Dunlin *Calidris alpina alpina*, 44,624 individuals representing at least 3.2% of the wintering Northern Siberia/Europe/Western Africa population (5 year peak mean 1991/2 - 1995/6)

Pintail *Anas acuta*, 599 individuals representing at least 1.0% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)

Redshank *Tringa totanus*, 2,330 individuals representing at least 1.6% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1991/2 - 1995/6)

Shelduck *Tadorna tadorna*, 3,330 individuals representing at least 1.1% of the wintering North-western Europe population (5 year peak mean 1991/2 - 1995/6)

Assemblage qualification: A wetland of international importance.

The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl.

Over winter, the area regularly supports 93,986 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Gadwall *Anas strepera*, Shelduck *Tadorna tadorna*, Pintail *Anas acuta*, Dunlin *Calidris alpina alpina*, Curlew *Numenius arquata*, Redshank *Tringa totanus*, Bewick's Swan *Cygnus columbianus ssp. bewickii*, Wigeon *Anas penelope*, Lapwing *Vanellus vanellus*, Teal *Anas crecca*, Mallard *Anas platyrhynchos*, Shoveler *Anas clypeata*, Pochard *Aythya ferina*, Tufted Duck *Aythya fuligula*, Grey Plover *Pluvialis squatarola*, White-fronted Goose *Anser albifrons albifrons*, Whimbrel *Numenius phaeopus*.

Magor Marsh SSSI

- 3.3.15. This SSSI is the largest remnant of the formerly extensive fenlands near the Gwent coast. It lies on estuarine alluvium, but receives run-off from an area of Carboniferous Limestone. The site supports a variety of reed *Phragmites australis*, sedge *Carex* spp. and submerged and emergent aquatic plants. There are areas of wet meadow and both Willow *Salix* spp. and Alder *Alnus glutinosa* carr, with an intersecting system of drainage ditches – or reens and ponds. It is an important breeding ground for water and marsh birds.

3.4. WeBS Alerts for Severn Estuary SPA

- 3.4.1. The WeBS Alerts system is web based and provides a standardised method of identifying changes in numbers of waterbirds at a variety of spatial and temporal scales. The WeBS Alerts report provides a review of the status of species on sites in the UK which are designated due to their conservation value for waterbirds. Species that have undergone major declines in numbers are flagged, by the issuing of an Alert.
- 3.4.2. High Alerts are in place for:
- White-fronted Goose - medium term and long term;
 - Bewick's Swan - Short term and long term
- 3.4.3. Medium Alerts are in place for:
- Gadwall – Long term
 - Dunlin – Long term

White-fronted Goose

- 3.4.4. Numbers of White-fronted Goose (European - albifrons) over-wintering on Severn Estuary SPA have been decreasing long term. This decline has been of sufficient magnitude to trigger Alerts for the long-, medium and short-term, and the period since baseline. Numbers of this species over-wintering within South West and Wales Regions combined have been decreasing long term. Numbers of this species over-wintering in Great Britain have been decreasing long term. The comparison with regional trends is not meaningful as most of the this species

over-wintering in the region winter at this site. The declining proportion of numbers wintering in Great Britain supported by this site suggest that site-specific pressures may be affecting this species.

Bewick's Swan

- 3.4.5. Numbers of Bewick's Swan over-wintering on Severn Estuary SPA have been decreasing long term. This decline has been of sufficient magnitude to trigger Alerts for the long-, medium and short-term, and the period since baseline. Numbers of this species over-wintering within South West and Wales Regions combined have been decreasing long term. Numbers of this species over-wintering in Great Britain have been decreasing in the long-term having previously increased. The trend on the site appears to be tracking that of the region and British trends. The increasing proportion of regional numbers supported by this site suggest the environmental conditions remain relatively favourable and also indicates that this site is becoming increasingly important on a regional scale for this species. In conclusion, the similarity between the declining site trend and the regional and British trends suggests that the declining numbers underpinning these Alerts result from broad-scale population trends.

Gadwall

- 3.4.6. Numbers of Gadwall over-wintering on Severn Estuary SPA have been decreasing in the long-term having previously increased. Consequently, Alerts have been triggered for the long-term and the period since baseline. Numbers of this species over-wintering within South West and Wales Regions combined have been increasing long term. Numbers of this species over-wintering in Great Britain have been stable in the short-term having previously increased. The trend on the site does not appear to be tracking that of the either the region or the British trend. The declining proportion of the regional numbers supported by this site suggest that site-specific pressures may be affecting this species. In conclusion, the contrast between the declining site trend and both the regional and British trends suggests that declining numbers underpinning these Alerts are most likely due to site-specific pressures.

Dunlin

- 3.4.7. Numbers of Dunlin over-wintering on Severn Estuary SPA have been increasing in the medium-term following a previous decline. Consequently, Alerts have been triggered for the long-term and the period since baseline. Numbers of this species over-wintering within South West and Wales Regions combined have been increasing in the medium-term following a previous decline. Numbers of this species over-wintering in Great Britain have been decreasing in the long-term having previously been relatively stable. The trend on the site appears to be tracking that of the region although not the British trend. The increasing proportion of regional and even country-wide numbers supported by this site suggest the environmental conditions remain relatively favourable and that this site is becoming increasingly important for this species. In conclusion, the similarity between the site trend and the regional trend suggests that the declining numbers underpinning these Alerts result from broad-scale population trends.

3.5. Habitat assessment

- 3.5.1. The site is set within the Gwent Levels, an extensive area of grazing marsh with reed ditches along the northern shore of the Severn Estuary. The Levels support a diverse range of wetland species, including dragon flies and water beetles, with declining farmland birds and important mammal species. The proposed solar park is set within Gwent Levels – Redwick and Llandeenny SSSI, which has been designated for invertebrate and plant interest features, and it's reed and wet pasture habitat.
- 3.5.2. The Levels are a farmed habitat and the proposed solar park is towards the northern margin of the Levels, 50 metres to the south east of the A4810 highway and 50 metres from the Tesco Magor Distribution centre. Its location towards the rear of the Levels is likely to result in low levels of activity by birds associated with the estuary. These will have a tendency to stay closer to the coast, whilst inland areas to the north don't provide wetland habitat suitable for the majority of these bird species and they will not transit the site.
- 3.5.3. Habitats within the site largely comprise grassland managed for its agricultural value and are unlikely to provide much in the way of food items for farmland birds, whilst hedgerows would screen predators, making this area unlikely to be important for roosting. Lowland breeding wader survey

3.6. Passage bird surveys

October 2018 & March 2019 (Map 2 & Table 3)

- 3.6.1. Eight target species were recorded during the October 2018 and March 2019 passage bird surveys.
- 3.6.2. The only birds recorded in October 2018 were Mallard and Lapwing. Lapwing comprised three small groups of birds (5-6 individuals) in the south of the site in fields F19, F20 and F28 and a group of 60 birds moving across the site, travelling from F24 to F30 and F29.
- 3.6.3. In March 2019 a pair of Curlew were noted along with a single Teal, Bewick's Swan, four Shelduck, a number of Mallard (in singles and pairs) and small numbers of Snipe. Lapwing were recorded on three of the four site visits with a maximum of 17 birds on 5th March 2019.
- 3.6.4. The majority of Lapwing activity was in the south of the site. A small flock of Lesser Black-backed Gulls were recorded on 5th March 2019.

October 2019 & March 2020 (Map 3 & Table 3)

- 3.6.5. Five target species were recorded during the October 2019 and March 2020 passage bird surveys.
- 3.6.6. Birds recorded during October 2019 largely consisted Mallard, with records for a single Snipe, three Lesser Black-backed Gulls and three Lapwing.
- 3.6.7. In March 2020 Shelduck were recorded on two of the four visits, with two Snipe present on 21st March, frequent Mallard, a single Lesser Black-backed Gull and 12 records for Lapwing groups of various sizes.

- 3.6.8. Although all birds recorded during the passage surveys are over-wintering target species, none of these birds are identified as “on passage” interest features of the nearby protected sites.
- 3.6.9. No Cranes were recorded.

3.7. Wintering bird surveys

- 3.7.1. Data from the passage bird periods of October and March are included in this section of the report. No Cranes were recorded.
[October 2018 to March 2019 \(Map 4 & Table 3\)](#)
- 3.7.2. Nine target species were recorded during the first winter bird survey period. This comprised single records for Bewick’s Swan, Curlew, Shelduck, Wigeon and Teal, 2 records for Lesser Black-backed Gulls, 29 records for Snipe, 30 records for Lapwing and 39 records for Mallard.
- 3.7.3. The maximum number of Lapwing present during a single survey visit was estimated at 164 comprising three groups of birds of 9, 15 and 140 individuals on 27th November 2018 (Map 5). During a previous survey on 31st October a group of 60 birds were recorded moving across the site from north to south. Other than these early winter 2018 records, only occasional small numbers of wintering Lapwing were recorded here during daytime surveys in the period October 2018 – March 2019. These were predominately dispersed across the south of the development site and within F14, F18, F19 and F20 outside the southern site boundary.
- 3.7.4. Mallards were ever present within the reens in small numbers and were regularly recorded along Cockenton Reen beyond the southern edge of the proposed solar farm.
- 3.7.5. Small numbers of Snipe were regularly flushed with the largest aggregation being 14 birds in mid-December 2018. Snipe showed a similar distribution pattern to the Lapwing, being associated with fields to the south of the survey area.
- 3.7.6. Surveyors notes: *At the beginning of the survey period, fields comprised improved grassland in the north, south and east, with much of the central core of the site left to maize stubble. The maize stubble appeared to initially provide some foraging for these birds, but as the rye-grass which was under-sown into this stubble began to develop, the birds moved onto improved grassland habitats more regularly feeding in fields with cattle and slurry. When cattle were taken off the land, the bird numbers appeared to diminish.*

[October 2019 to March 2020 \(Map 6 & Table 6\)](#)

- 3.7.7. Six target species were recorded during the second winter bird survey period. This comprised three records for Pochard, 4 records for Lesser Black-backed Gull, 6 records for Shelduck, 14 records for Snipe, 30 records for Lapwing and 46 records for Mallard.
- 3.7.8. The maximum number of Lapwing present during a single survey visit was estimated at 52 on 7th December 2019 comprising a group of 50 birds in F22 in

the east of the site with two birds in F20 outside the southern site boundary (Map 5), whilst on 23rd January 2020 a group of 33 Lapwing were recorded in F31 in the centre of the site. In common with 2018 - 2019, records were dispersed largely across the south of the site.

- 3.7.9. Mallard were present across the site with good numbers in the Gwent Wildlife Trust reserve to the north east of the proposed development.
- 3.7.10. Small numbers of Snipe were regularly flushed with the largest aggregation being 42 birds in early February 2020.
- 3.7.11. Surveyors notes: *The Maize crop in certain fields was harvested in late October and by November the fields were waterlogged. In late October and November large number of Pigeons and Stock Dove (SOCC – Red status) were feeding on maize stubble in F14, F19 and F20, outside the development, although by December much of worth appeared have been gleaned and numbers reduced. Presumably much of the soil invertebrate fauna has died off in the waterlogged areas with very few Lapwing numbers. By February, small numbers of Lapwing were displaying in Field 20, outside the development.*

Table 6. Target species recorded during passage and winter survey periods

Date	Bewick's Swan	Curlew	Lapwing	Lesser Black-backed Gull	Mallard	Pochard	Snipe	Shelduck	Teal	Wigeon
15/10/2018										
16/10/2018					7					
30/10/2018			17		3					
31/10/2018			60							
14/11/2018					10		2			
27/11/2018			164	1						
11/12/2018					1		16			
29/12/2018			10				8			
18/01/2019			6		5					
30/01/2019			4				16			3
13/02/2019					5					
26/02/2019			4		4		1			
05/03/2019		2	17	25	18					
15/03/2019			16		15					
25/03/2019										
29/03/2019	1		4		20		14	4	1	
04/10/2019					4					
13/10/2019				3	50		1			
22/10/2019					2					
31/10/2019			3		8					
13/11/2019					2					
25/11/2019					4		13			
07/12/2019			52				3			
28/12/2019			17							
23/01/2020			33		2		3			
31/01/2020			3		6					
14/02/2020			12		4	8				
25/02/2020			23		12		43	5		
07/03/2020			24	77	8		17	1		
14/03/2020			18		7			5		
21/03/2020			18	1	10		2	4		

26/03/2020			18		15					
Average	0.03	0.06	16.34	3.34	6.94	0.25	4.34	0.59	0.03	0.09

3.8. Nocturnal surveys

- 3.8.1. Monthly nocturnal surveys were completed in winter 2018 – 2019. During this period Lapwing were recorded scattered across the site on 40 occasions with Snipe recorded on 44 occasions (Map 7 & Table 7).
- 3.8.2. Although precise numbers were difficult to estimate, the maximum number of Lapwing recorded were 15 on 26th November 2018. On the other 5 visits numbers were less than 10. The November 2018 peak is at the same time of year as the daytime peak recorded on 27th November 2018.
- 3.8.3. Slightly larger number of Snipe appeared to be present with 33 estimated onsite on 24th March 2019. Other target species were not recorded.
- 3.8.4. These results indicate that small numbers of lapwing and Snipe are present within the site during the night, and these are probably the same birds recorded here during daytime surveys in the same period.

Table 7. Nocturnal bird survey results October 2018 – March 2019

Date	Lapwing	Snipe
30/10/2018	9	0
26/11/2018	15	11
28/12/2018	9	6
29/01/2019	4	17
25/02/2019	2	9
24/03/2019	3	33

3.9. Estuarine shore surveys

Estuarine shore surveys were completed in winter 2018 – 2019 in an attempt to determine if birds left the estuary on rising tides to move inland, or vice versa as tides fell.

A narrative of the survey results was provided by the ornithologist and is included here as it provides much more clarity on the results when compared to maps or tables:

16 October 2018 - On arrival, 1 curlew, 3 oystercatcher, 30 black-headed gull, 1 heron – all feeding/loafing on shoreline. During survey - c200 Canada Geese wheeling in flight SW of Redwick; re-settled seawards of sea wall. Corvid (mainly jackdaw) and starling flocks in fields also SW of Redwick, each about 150 in number. 20 mallards close inshore to West of old breakwater. Large flock of starlings (c300) in fields to SE of Redwick, with cattle.

Summary: No obvious or clear movements of birds inland; birds actively using shore and fields throughout survey.

30 October 2018 - On arrival – 1 heron, 4 shelduck, 1 curlew, 6 black-headed gull, 2 herring gull on shoreline, feeding/loafing; 70 wigeon swimming close inshore.

During survey – very little change to bird activity; small numbers of corvids and starlings feeding in fields behind sea wall.

Summary: No obvious movements of birds inland.

14 November 2018 - On arrival, 80 black-headed gull flew inland towards Redwick On shore – 3 curlew, 1 oystercatcher, 12 wigeon close inshore, 13 mallards offshore further south. C300 starling in fields by breakwater at 0905, and 18 black-headed gulls arrived on shore from Redwick area.

Summary - Only obvious movement inland was the black-headed gulls on arrival – maybe these had been roosting on shore and flew inland at dawn, (probably) not related to tide state?

11 December 2018 - On arrival – 10 mallards close inshore, shoreline empty During survey – 8 black-headed gulls inland at 0750; 120 dunlin on shoreline rocks 1km South, with 8 oystercatchers, 18 black-headed gulls over Redwick at 0900. Coastal fields very quiet – no corvids or starlings.

Summary - Apart from the black-headed gulls, no obvious bird movements inland.

18 January 2019 - At dawn on arrival, c400 gulls (black-headed and common) were flushed from shoreline and flew inland to fields south of Redwick. On shore – 45 curlew, 12 oystercatcher, 90 wigeon all feeding/loafing along shoreline. After survey, fields to SW and S of Redwick were checked: a flock of c450 gulls with 9 lapwing were feeding SW of Redwick, with grazing sheep. No other inland bird movements seen.

Summary - Apart from gulls, no obvious bird movements inland.

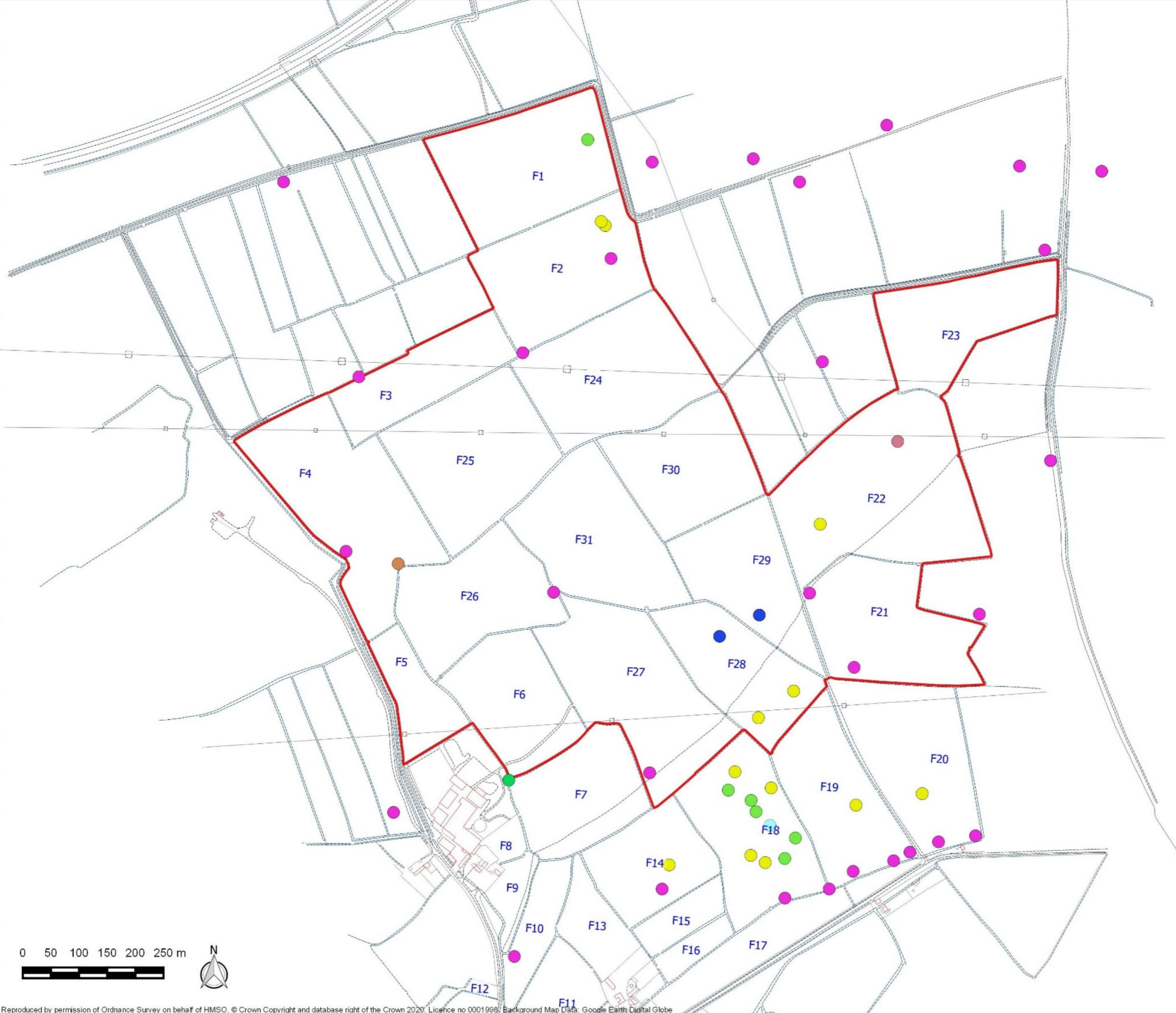
15 March 2019 - On arrival – 35 curlew, 2 shelduck, 40 black-headed gull, 4 wigeon and 8 mallard feeding/loafing along shoreline During survey – 2 curlew flew into fields S of Redwick; 2 Little egret also.

Summary - Apart from curlew, no obvious bird movements inland.

There is no evidence to suggest that target species move between the estuarine shore and the proposed development site on a regular basis, driven by tidal cycles.

Legend

- Development footprint
- Bewick Swan
- Curlew
- Lapwing
- Lesser Black-backed Gull
- Mallard
- Snipe
- Shelduck
- Teal



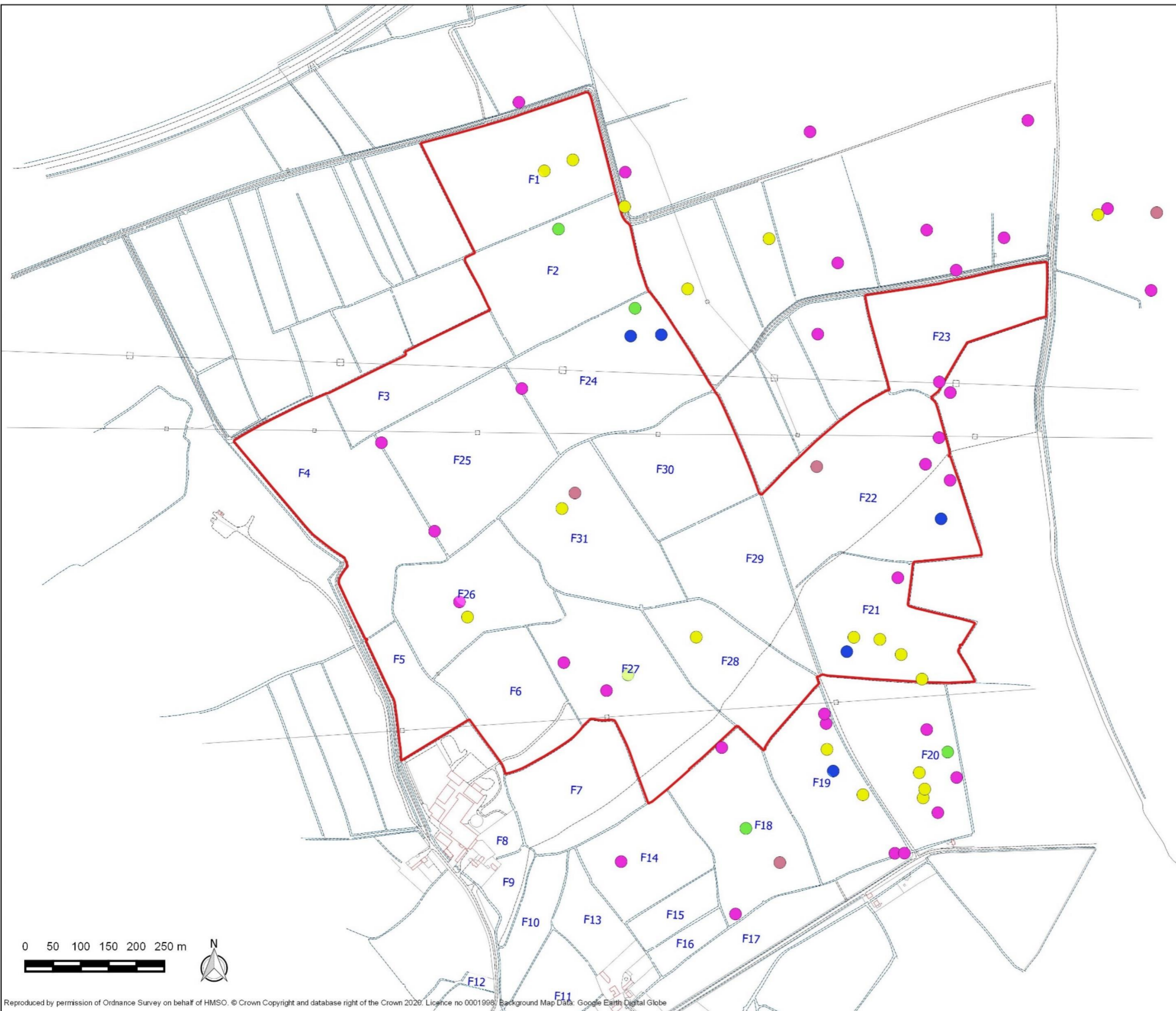
Title: Map 2. Passage birds, 2018-2019

Project: Rush Wall Solar Park

Checked by: CDH Version: 01
Date: 24/04/2020

Legend

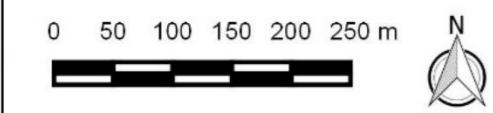
- Development footprint
- Lapwing
- Lesser Black-backed Gull
- Mallard
- Snipe
- Shelduck



Title: Map 3. Passage birds, 2019-2020

Project: Rush Wall Solar Park

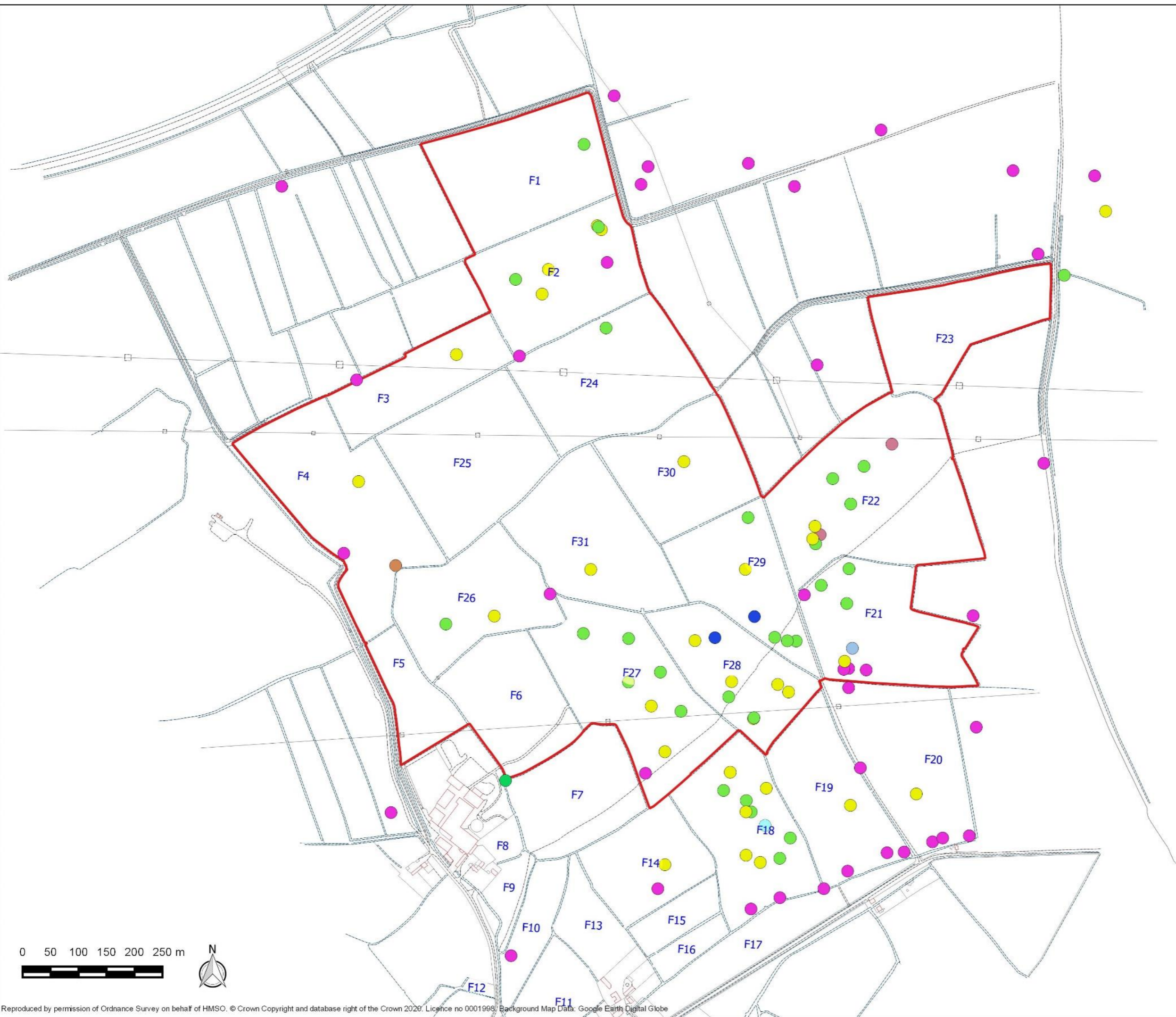
Checked by: CDH Version: 01
Date: 24/04/2020



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Legend

- Development footprint
- Bewick's Swan
- Curlew
- Lapwing
- Lesser Black-backed Gull
- Mallard
- Snipe
- Shelduck
- Teal
- Wigeon



0 50 100 150 200 250 m



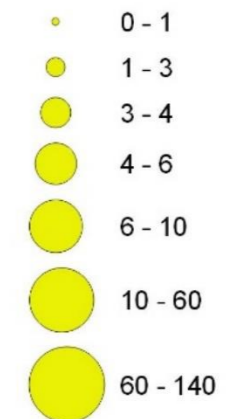
Title: Map 4. Winter birds, 2018 - 2019

Project: Rush Wall Solar Park

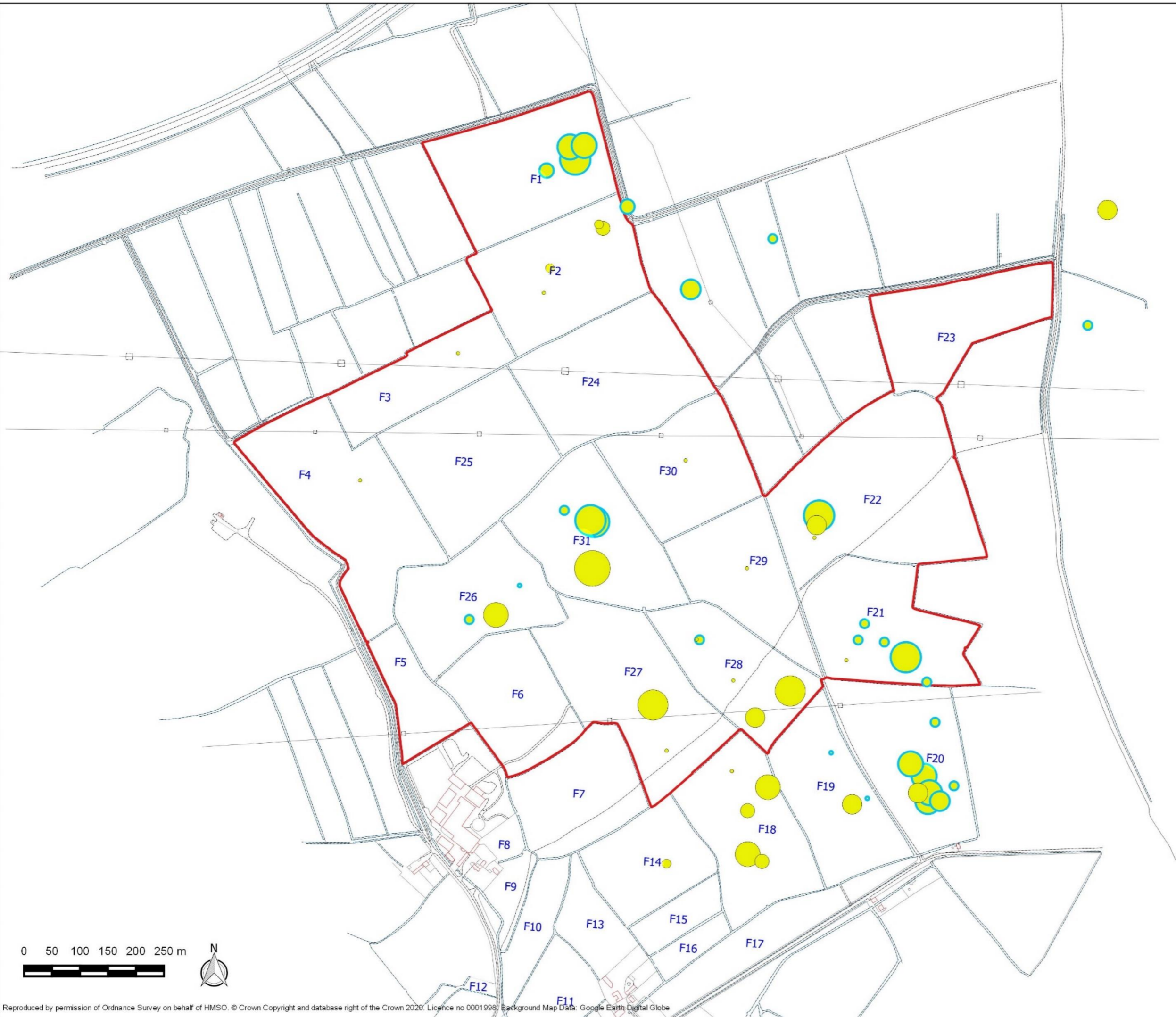
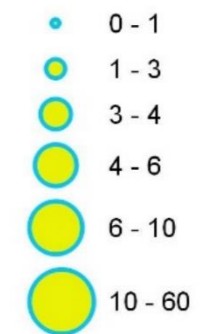
Checked by: CDH Version: 01
Date: 24/04/2020

Legend

— Development footprint
● Lapwing records 2018-2019



● Lapwing records 2019-2020



0 50 100 150 200 250 m



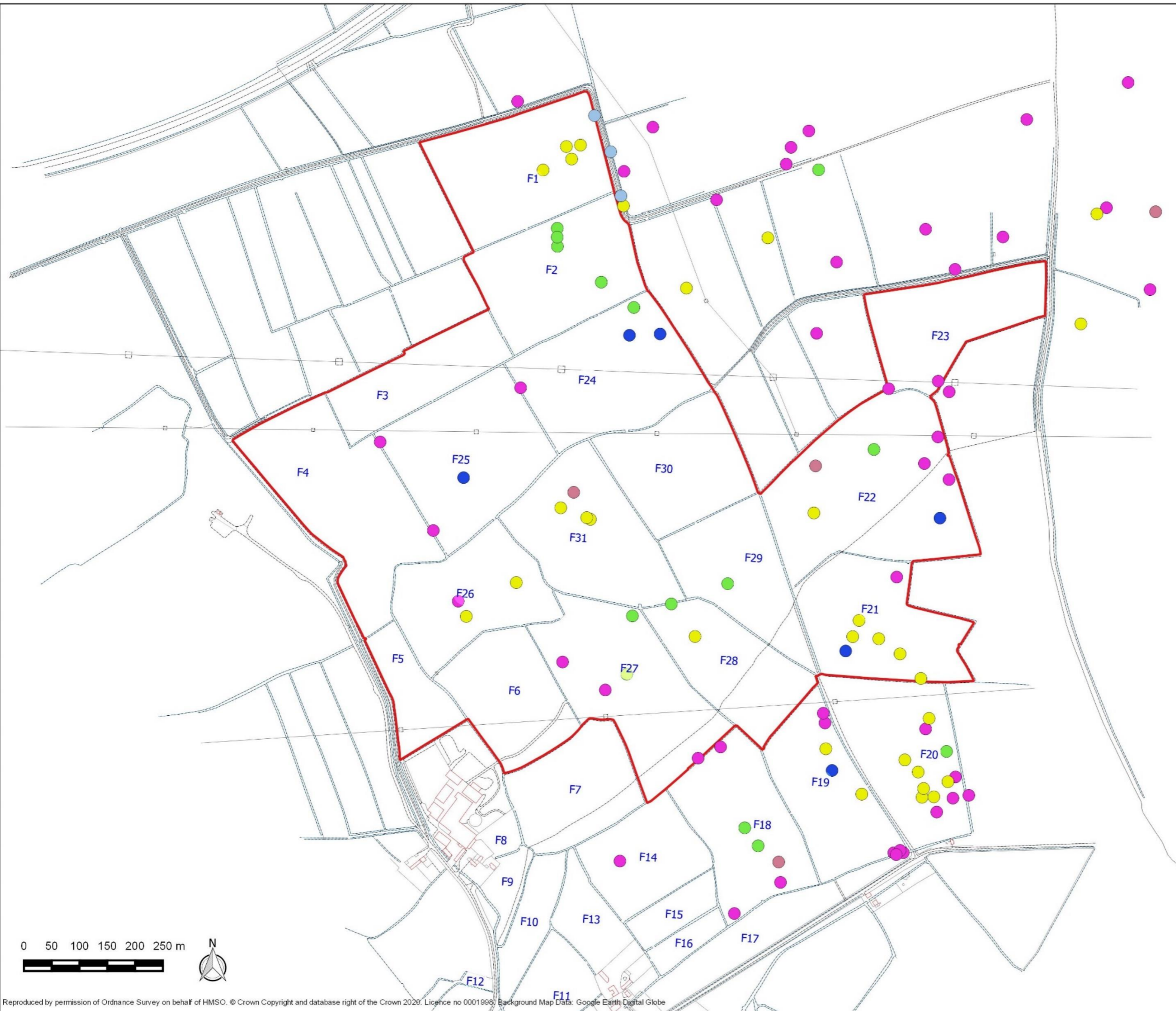
Title: Map 5. Winter Lapwing records 2018 to 2020

Project: Rush Wall Solar Park

Checked by: CDH Version: 01
Date: 24/04/2020

Legend

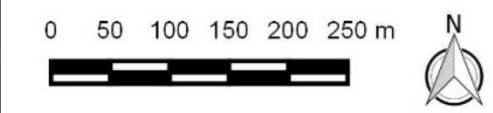
- Development footprint
- Lapwing
- Lesser Black-backed Gull
- Mallard
- Snipe
- Shelduck
- Pochard



Title: Map 6. Wintering birds
October 2019 to March 2020

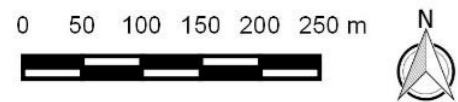
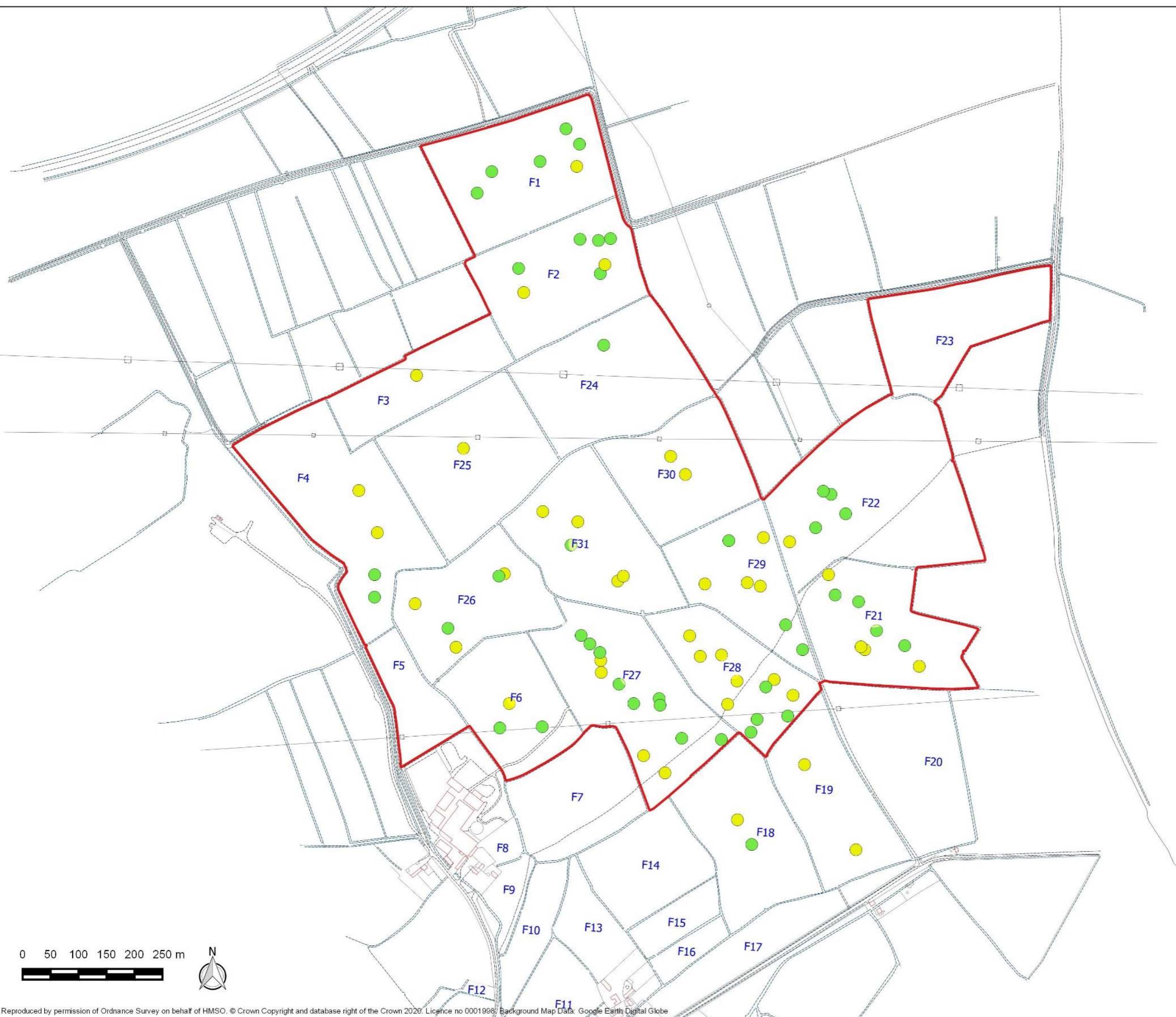
Project: Rush Wall Solar Park

Checked by: CDH Version: 01
Date: 24/04/2020



Legend

- Development footprint
- Lapwing
- Snipe



Title: Map 7. Nocturnal bird surveys, October 2018 to March 2019

Project: Rush Wall Solar Park

Checked by: CDH Version: 01
Date: 24/04/2020

4. Evaluation of site for passage/wintering birds

- 4.1.1. This report only considers birds that are interest features of the nearby statutory nature conservation sites.

4.2. On passage birds

- 4.2.1. No birds listed as “on passage” interest features of nearby statutory nature conservation sites were recorded here. This site is negligible importance for these passage birds.

4.3. Over wintering birds

- 4.3.1. The following birds that are over wintering interest features of the nearby statutory nature conservation sites were recorded here during the 31 site visits:

- Mallard
- Lapwing
- Snipe
- Shelduck
- Lesser Black-backed Gulls
- Pochard
- Bewick’s Swan
- Teal
- Curlew
- Wigeon

- 4.3.2. For an effect to be considered significant, it is generally accepted it should act on at least 1% of the protected site population on a regular basis.

- 4.3.3. Of these species, Wigeon, Teal, Pochard, Curlew and Bewick’s Swan were only encountered in small numbers on a single visit. The site is of negligible value for these overwintering species associated with nearby statutory nature conservation sites.

Shelduck

- 4.3.4. Shelduck were present on five occasions with a maximum of 5 birds on 25th February and 14th March 2020. Shelduck are an interest feature of the Severn Estuary SSSI, Severn Estuary SPA and Severn Estuary Ramsar. WeBs data annual peak (5-year average) for these duck in the estuary is 5462 (Frost et al, 2020³) whilst the SPA was designated for a population of 2892 and the Ramsar for 3330. These five birds would comprise less than 0.1% of the estuary population and less than 0.2% of the SPA population and 0.15% of the Ramsar population, whilst this species is not regularly active here.

Lesser Black-backed Gull

- 4.3.5. Lesser Black-backed Gulls were present on five occasions with a maximum of 77 individuals on 7th March 2020. No details could be found on the number of Lesser

³ Frost, T.M., Calbrade, N.A., Birtles, G.A., Mellan, H.J., Hall, C., Robinson, A.E., Wotton, S.R., Balmer, D.E. and Austin, G.E. 2020. *Waterbirds in the UK 2018/19: The Wetland Bird Survey*. BTO/RSPB/JNCC. Thetford.

Black-backed gulls associated with the Ramsar, although WeBs data annual peak (5-year average) for these gulls in the estuary is 376 (Frost et al, 2020). These 77 birds would comprise 20% of the estuary population. However, they were seldom active here with an average of 3.34 birds during two years of survey represents just under 1% of the estuary population.

Snipe

- 4.3.6. Snipe were recorded on 13 of the 32 survey visits with a maximum of 43 birds on 28th February 2020. Snipe are an interest feature of Severn Estuary SSSI. WeBs data annual peak (5-year average) for this wader within the Severn Estuary is 503 (Frost et al, 2020). These 43 birds would comprise 8.5% of the estuary population. However, an average of 4.34 birds during two years of survey represents 0.9% of the estuary population.

Mallard

- 4.3.7. Mallard were recorded on 24 of the 32 site visits with a maximum of 50 birds on 13th October 2019. Mallard are an interest feature of Severn Estuary SPA. WeBs data annual peak (5-year average) for these duck within the Severn Estuary is 2379 (Frost et al, 2020). These birds would comprise 2% of the local population. However, usual numbers were between 1-10 with an average of approximately 7 birds per survey, approximately 0.3% of the SPA population.

Lapwing

- 4.3.8. Lapwing were recorded on 21 of the 32 site visits with a maximum of 164 birds on 27th November 2018. Lapwing are an interest feature of Severn Estuary SPA. WeBs data annual peak (5-year average) for this wader within the Severn Estuary is 11383 (Frost et al, 2020). These 164 birds would comprise 1.4%% of the local population. However, the average of 16.34 birds during two years of survey represents 0.14% of the estuary population.
- 4.3.9. The proposed development site does not regularly support more than 1% of overwintering birds associated with nearby Severn Estuary SSSI, SPA and Ramsar. However, it does support a diversity of interest feature species birds with low numbers of Lapwing, Snipe, Mallard and Lesser Black-backed Gull, and very occasional Bewick's Swan, Shelduck, Teal, Widgeon, Curlew and Pochard.
- 4.3.10. The proposed development site is of County value for wintering and passage birds.