

Appendix 5C

HyNet Decarbonisation Project

Baseline Ornithology Report: Winter 2021/22

This appendix includes sensitive ornithological information concerning protected species and should not be disclosed beyond the Planning Authority, Natural England and RSPB.

1. Introduction

1.1 About this document

- 1.1.1 Wood Group REI UK (Wood) was commissioned by Cadent Gas Ltd (Cadent) to undertake bird surveys during the 2021/22 non-breeding season (October 2021 to February 2022 inclusive). This report describes the methods and results of these surveys and has been prepared to accompany an application for consent to develop a proposed hydrogen pipeline in North-West England.

1.2 Site description

- 1.2.1 The Proposed Development's onshore infrastructure will comprise up to 125 km of underground high-pressure pipeline with associated consumer connection spurs, together with a number of HAGIs along the route of the pipeline. The pipeline will run from the Hydrogen Production Plant at the Essar Stanlow site to a central hub and then on to locations near Middlewich, Irlam and St. Helens in the northwest of England. The Scoping red line boundary figure for the Proposed Development is illustrated within **Figure 1.1**. The habitats within this area mainly comprise mixed farmland, interspersed with other habitats such as wet woodland, scrub, marshland, industrial/brownfield land, amenity grassland/parkland (e.g. playing fields and golf courses), and waterways including rivers, lakes, canals, ditches and streams.

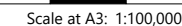
2. Desk-Based Review

2.1 Desk study

- 2.1.1 A desk study was undertaken to identify European sites featuring qualifying ornithological interests that could be affected by the Proposed Development. The



☐ Preliminary Order Limits



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Figure 1.1
The Proposed Development

September 2022

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study area was based on the preferred pipeline routes outlined in the feasibility report (Saith Limited, 2020¹) and the winter bird survey methodology (WSP, 2021²). This study area is illustrated in **EIA Scoping Report – Figure 5.1** (Wood, 2022)³.

- 2.1.2 For ornithological features that utilise functionally linked habitats within and outwith the European site boundaries (such as wetland and farmland respectively), these linkages were determined based on an understanding of potential connectivity with foraging range / movement between the roosting and foraging sites and through published literature and consultation with Natural England. The 20 km search distance is generally considered to be the maximum distance beyond which most non-marine species of birds would not travel on a regular basis between foraging and roost sites (NatureScot, 2016⁴).
- 2.1.3 The presence of Special Protection Areas (SPAs) and Ramsar sites within 20 km of the Scoping red line boundary was determined by accessing the Multi-Agency Geographical Information for the Countryside (MAGIC⁵) website. **Table 2.1** provides details of SPA and Ramsar sites within the search area, which are also illustrated within **EIA Scoping Report – Figure 5.1**.

Table 2.1 SPA and Ramsar sites within a 20 km search area around the Scoping red line boundary

Site	Distance to Site	Qualifying features	Potential connectivity/ Functionally Linked Land (FLL)
Mersey Estuary SPA	~205 m west	Non-breeding: Shelduck, Teal, Pintail, Golden plover, Dunlin, Black-tailed godwit, Redshank. Waterbird assemblage.	High
Mersey Estuary Ramsar site	~205 m west	International Waterfowl assemblage: 89,576 individuals in winter	High

¹ Saith Limited. (2020). HyNet Phase 2 Feasibility Report - North West England Hydrogen Pipeline Network.

² HyNet. August (2020). HyNet CO2 and H2 Pipeline Enabling Works – Wintering Bird Survey Methodology (confidential).

³ Wood Group UK Ltd on behalf of Cadent Gas Limited Ltd. (2022). HyNet North West Hydrogen Pipeline Project – EIA Scoping Report.

⁴ NatureScot (formerly Scottish Natural Heritage). (2016). Assessing Connectivity with Special Protection Areas (SPAs) Guidance. Version 3. (online). Available at: <https://www.nature.scot/sites/default/files/2018-08/Assessing%20connectivity%20with%20special%20protection%20areas.pdf> (Accessed 25 August 2022).

⁵ Defra (2022). Magic Maps. (online) Available at: <http://magic.defra.gov.uk/> (Accessed 04 April 2022).

Site	Distance to Site	Qualifying features	Potential connectivity/ Functionally Linked Land (FLL)
		Shelduck: 12,676 individuals in spring/autumn Black-tailed godwit: 2,011 individuals in spring/autumn Redshank: 6,651 individuals in spring/autumn Teal: 10,613 individuals in winter Pintail: 565 individuals in winter Dunlin: 48,364 individuals in winter National Ringed plover: 429 individuals in spring/autumn Curlew: 2,010 individuals (breeding) Spotted redshank: three individuals in spring/autumn Greenshank: six individuals in spring/autumn Wigeon: 8,268 individuals in winter	
Rostherne Mere Ramsar site	~2.2 km south-east	National Shoveler: 86 individuals in winter Pochard: 757 individuals in winter	None
Midland Meres and Mosses Phase 2 Ramsar site	~3 km south-west	National Shoveler: 171 individuals in spring/autumn Cormorant: 323 individuals in winter Bittern: one individual in winter Water rail: seven individuals in winter	None
Midland Meres and Mosses Phase 1 Ramsar site	~4 km east	No ornithological interest noted.	N/A
Dee Estuary SPA	~13.5 km west	Non-breeding: Shelduck, Teal, Pintail, oystercatcher, Grey plover, Knot, Dunlin, Black-tailed godwit, Bar-tailed godwit, Curlew, Redshank, Sandwich tern.	Low

Site	Distance to Site	Qualifying features	Potential connectivity/ Functionally Linked Land (FLL)
		Breeding: common tern, little tern. Waterbird assemblage.	
Dee Estuary Ramsar site	~13.5 km west	International Waterbird assemblage: 120,726 individuals in winter Redshank: 8,795 individuals in spring/autumn Teal: 5,251 individuals in winter Shelduck: 7,725 individuals in winter Oystercatcher: 22,677 individuals in winter Curlew: 3,899 individuals in winter Pintail: 5,407 individuals in winter Grey plover: 1,643 individuals in winter Knot: 12,394 individuals in winter Dunlin: 27,769 individuals in winter Black-tailed godwit 1,747 individuals in winter Bar-tailed godwit: 1,150 individuals in winter Redshank: 5,293 individuals in winter National Little tern: 69 pairs breeding Common tern: 392 pairs breeding Sandwich tern: 957 individuals on passage Redshank: 200 pairs breeding Ringed plover: 272 individuals in spring/autumn Wigeon: 4,526 individuals in winter Sanderling: 502 individuals in winter Cormorant: 405 individuals in winter Great crested grebe: 114 individuals in winter	Low
Mersey Narrows	~18.2 km west	Non-breeding: Bar-tailed godwit, Little gull, Knot, Common tern.	Negligible

Site	Distance to Site	Qualifying features	Potential connectivity/ Functionally Linked Land (FLL)
and North Wirral Foreshore SPA		Breeding: Common tern. Waterbird assemblage.	
Mersey Narrows and North Wirral Foreshore Ramsar site	~18.2 km west	International Bar-tailed godwit: 3,344 individuals in winter Knot: 10,655 individuals in non-breeding season National Little gull: 213 individuals in non-breeding season Common tern: 1,475 individuals in non-breeding season Cormorant: 972 individuals in non-breeding season Oystercatcher: 2,718 individuals in non-breeding season Grey plover: 593 individuals in non-breeding season Sanderling: 510 individuals in non-breeding season Dunlin: 7,645 individuals in non-breeding season Redshank: 1,209 individuals in non-breeding season	Negligible
Ribble and Alt Estuaries SPA	~18.5 km north-west	Non-breeding: Bewick's swan, Whooper swan, Pink-footed goose, Shelduck, Wigeon, Teal, Pintail, Oystercatcher, Ringed plover, Golden plover, Grey plover, Knot, Sanderling, Dunlin, Black-tailed godwit, Bar-tailed godwit, Redshank. Breeding: Ruff, Lesser black-backed gull, Common tern. Waterbird assemblage. Seabird assemblage.	Low
Ribble and Alt Estuaries Ramsar site	~18.5 km north-west	International Waterfowl assemblage: 222,038 individuals in winter Black-tailed godwit: 3,323 individuals in spring/autumn	Low

Site	Distance to Site	Qualifying features	Potential connectivity/ Functionally Linked Land (FLL)
		Redshank: 4,465 individuals in spring/autumn Dunlin: 38,196 individuals in spring/autumn Grey plover: 11,021 individuals in spring/autumn Knot: 42,692 individuals in spring/autumn Ringed plover: 3,761 individuals in spring/autumn Sanderling: 7,401 individuals in spring/autumn Bar-tailed godwit: 13,935 individuals in winter Oystercatcher: 18,926 individuals in winter Teal: 5,107 individuals in winter Wigeon: 69,841 individuals in winter Pintail: 1,497 individuals in winter Pink-footed goose: 6,552 individuals in winter Bewick's swan: 230 individuals in winter Whooper swan: 211 individuals in winter National Black-headed gull: 14,888 apparently occupied nests in breeding season Common tern: 182 pairs in breeding season Greenshank: nine individuals in spring/autumn Curlew: 2,502 individuals in spring/autumn Ruff: 60 individuals in spring/autumn Common scoter: 691 individuals in winter Black-headed gull: 16,849 individuals in winter Golden plover: 3,588 individuals in winter Cormorant: 463 individuals in winter	

Site	Distance to Site	Qualifying features	Potential connectivity/ Functionally Linked Land (FLL)
		Shoveler: 200 individuals in winter Red-throated diver: 56 individuals in winter Spotted redshank: two individuals in winter	

3. Methodology

3.1 Target species

- 3.1.1 Target species comprised of all qualifying species associated with the Mersey Estuary SPA and Ramsar site outlined within **Table 2.1**, although all waterbirds were recorded (including those associated with other designated sites within the search area). Additionally, all Schedule 1 and Annex I listed species were also recorded.

3.2 Study area

- 3.2.1 The study area comprised all potential FLL within 500 m of the Scoping red line boundary as illustrated in the **EIA Scoping Report – Figure 5.1**. Potential FLL was identified via the following sources:
- Literature including Natural England commissioned report number (NECR) 361 – ‘Identification of Functionally Linked Land supporting SPA waterbirds in the North West of England’ (Bowland Ecology, 2021⁶) and NECR173 – ‘Review and analysis of changes in waterbird use of the Mersey Estuary SPA, Mersey Narrows & North Wirral Foreshore pSPA and Ribble & Alt Estuaries SPA’ (Natural England, 2015⁷);

⁶ Bowland Ecology. (2021). Identification of Functionally Linked Land supporting SPA waterbirds in the North West of England. NERC361. (online) Available at: <http://publications.naturalengland.org.uk/publication/6303434392469504> (Accessed 25 August 2022).

⁷ Natural England. (2015). Review and analysis of changes in waterbird use of the Mersey Estuary SPA, Mersey Narrows & North Wirral Foreshore pSPA and Ribble & Alt Estuaries SPA (NECR173). Annex II: Roost locations by species at a regional level. (online) Available at: <http://publications.naturalengland.org.uk/file/5495789449117696> (Accessed 28 October 2021).

- Survey data gathered by the Applicant over winter 2020/21 in support of the Proposed Development⁸; and
- Aerial images of the area via Google Earth Pro (Google LLC, 2021⁹).

3.2.2 The five transects that were originally prepared by WSP in areas identified as requiring wetland bird surveys/intertidal surveys included Frodsham and Ince Marshes, plus three other areas along the River Mersey. It was considered that minor amendments to these transects (Transects 5, 6, 7b, 13b and 14) would ensure robust coverage of FLL, relating to the Mersey Estuary SPA within the study area and are illustrated within **Figure 3.1**.

3.3 Winter Waterbird Survey Methods

3.3.1 In the absence of best practice guidance, the survey method comprised fortnightly transects walked between October 2021 and February 2022 (to cover the entire winter period), totalling ten survey visits to each transect. Full details are documented within **Annex A, Table A.1**.

3.3.2 Transect timings varied between morning and afternoon to avoid any time related bias and considered low and high tide times on the Mersey Estuary, so that survey results were representative of habitat use by birds at varying stages of tidal movement and habitat exposure. During each survey visit the transect was walked slowly, scanning and listening for target species as well as notable aggregations of other species and potential resident Schedule 1 breeding species (e.g. Cetti's warbler, Barn owl, Peregrine falcon etc). The locations of birds both seen and heard were mapped using standard British Trust of Ornithology (BTO) two-letter codes and activity symbols.

3.4 Surveyors

3.4.1 All surveys were undertaken by experienced Wood Ornithologists, all of whom have extensive field experience and a detailed understanding of bird survey methods and experience of monitoring bird activity and distribution at proposed development sites. Surveys were undertaken by Conor MacKenzie, Pete Clark MCIEEM and Nathaniel Dargue.

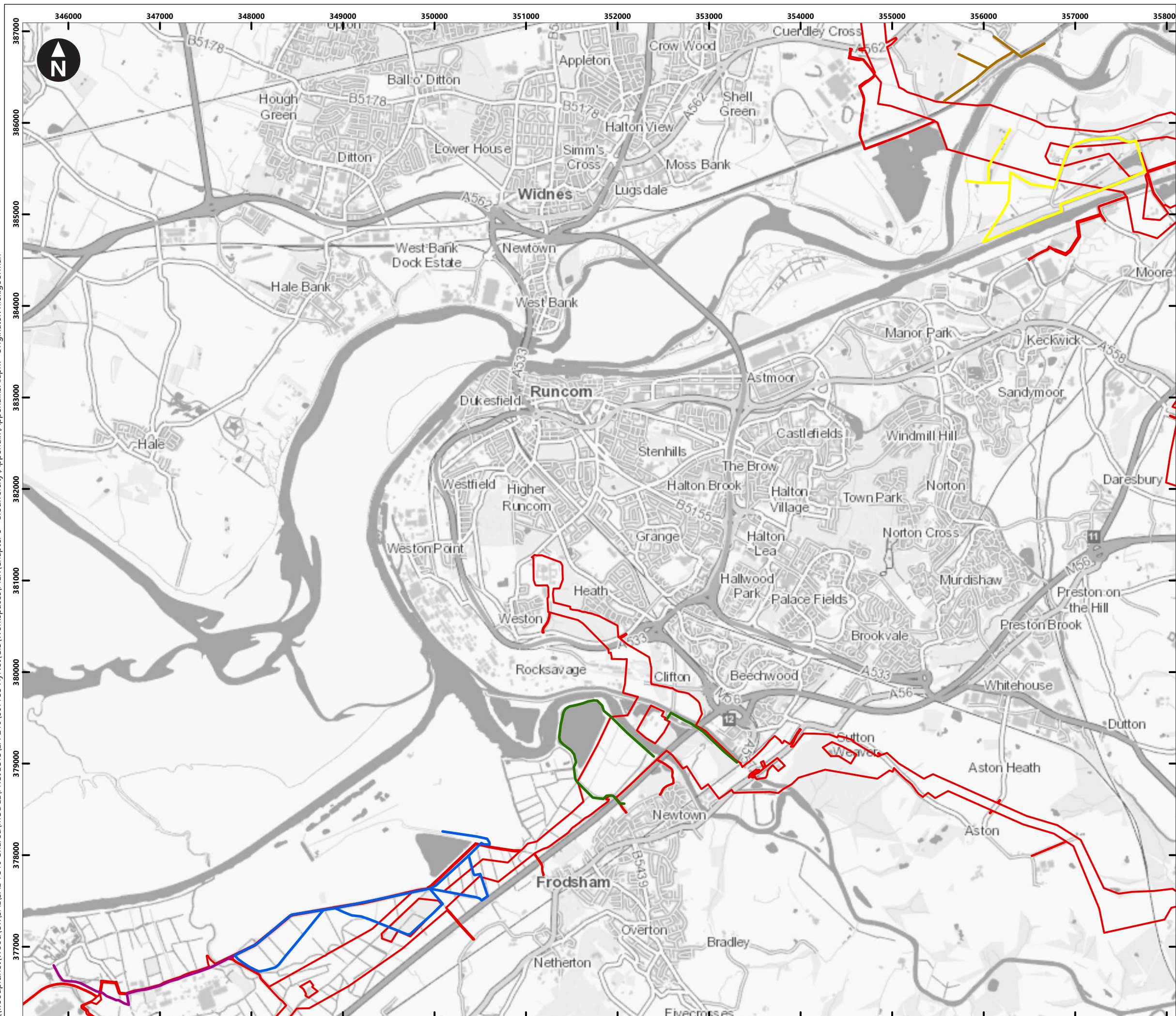
3.5 Limitations

3.5.1 Although access was limited to undertaking surveys from publicly accessible areas (PRoWs, public roads etc), it was considered that adequate coverage of the survey area was achievable from these locations. Access to part of Transect 14 was restricted during both visits in December by third-party construction works.

⁸ Cadent (2021). Hydrogen Pipeline - Wintering Bird Surveys.

⁹ Google LLC. (2021). Google Earth Pro 7.3.3.7721 (64-bit) (Computer program). Google, California, USA. Available at: <http://www.earth.google.com> (Accessed October 2021).

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- Key
- Preliminary Order Limits
 - Transect 5
 - Transect 6
 - Transect 7b
 - Transect 13b
 - Transect 14

0 0.5 1 1.5 2 km
Scale at A3: 1:40,000
OS Open Greyscale: Contains OS data © Crown Copyright and database right 2020

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Figure 3.1
Transect routes

September 2022

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4. Results

4.1 Winter Waterbird Surveys

4.1.1 The following target species were recorded during the winter transect surveys: Shelduck, Teal, Pintail, Golden plover, Black-tailed godwit, Dunlin and Redshank. A further 35 waterbird assemblage species were also recorded (including other SPA-qualifying species comprising Whooper swan, Pink-footed goose, Wigeon, Oystercatcher and Curlew).

4.1.2 **Table 4.1** details the peak counts of each target species recorded on Transects 5, 6, 7b and 13b. There were no target species recorded on Transect 14. **Annex B, Table B.1-5** details full survey results per transect for all waterbird species recorded.

Table 4.1 Peak counts of target species per transect (number of visits present in parentheses)

Species	Transect 5	Transect 6	Transect 7b	Transect 13b
Shelduck	4 (1)	50 (7)	116 (7)	0
Teal	51 (6)	981 (10)	166 (7)	14 (5)
Pintail	0	109 (10)	39 (5)	0
Golden plover	25 (1)	0	3 (1)	0
Black-tailed godwit	144 (6)	956 (8)	1 (1)	0
Dunlin	0	0	8 (1)	0
Redshank	7 (1)	9 (4)	57 (4)	0

Table 4.2 Peak counts of all other waterbird assemblage species per transect (number of visits present in parentheses)

Species	Transect 5	Transect 6	Transect 7b	Transect 13	Transect 14
Black-headed gull	2,700 (6)	356 (7)	40 (3)	20 (1)	500 (7)
Canada goose	0 (0)	0 (0)	65 (3)	33 (6)	26 (5)
Cattle egret	8 (3)	0 (0)	0 (0)	0 (0)	0 (0)
Common gull	5 (2)	11 (2)	0 (0)	0 (0)	6 (1)
Coot	29 (8)	12 (5)	11 (6)	98 (1)	8 (10)

Species	Transect 5	Transect 6	Transect 7b	Transect 13	Transect 14
Cormorant	0 (0)	2 (3)	4 (7)	10 (9)	2 (3)
Curlew	134 (9)	159 (8)	11 (3)	53 (4)	0 (0)
Gadwall	19 (2)	20 (6)	7 (1)	36 (9)	0 (0)
Goldeneye	0 (0)	3 (3)	1 (1)	1 (1)	0 (0)
Great black-backed gull	0 (0)	0 (0)	2 (2)	1 (1)	0 (0)
Great crested grebe	0 (0)	0 (0)	3 (7)	4 (4)	0 (0)
Great egret	2 (1)	0 (0)	0 (0)	0 (0)	0 (0)
Green sandpiper	0 (0)	2 (3)	0 (0)	0 (0)	0 (0)
Grey heron	2 (7)	7 (7)	3 (5)	3 (7)	1 (1)
Greylag goose	0 (0)	2 (1)	0 (0)	0 (0)	0 (0)
Herring gull	30 (4)	2 (1)	2 (2)	16 (1)	30 (3)
Jack snipe	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)
Kingfisher	0 (0)	2 (2)	2 (1)	1 (2)	0 (0)
Lapwing	2,000 (6)	750 (7)	16 (2)	255 (4)	58 (3)
Lesser black-backed gull	0 (0)	0 (0)	0 (0)	12 (1)	4 (1)
Little egret	35 (8)	1 (3)	2 (5)	1 (1)	0 (0)
Little grebe	2 (1)	28 (8)	3 (1)	7 (6)	0 (0)
Mallard	42 (6)	56 (10)	36 (7)	90 (10)	60 (10)
Moorhen	28 (9)	25 (10)	12 (9)	8 (8)	6 (9)
Mute swan	2 (3)	10 (8)	9 (7)	4 (7)	5 (5)
Oystercatcher	0 (0)	0 (0)	3 (1)	8 (1)	2 (3)
Pink-footed goose	2 (1)	0 (0)	0 (0)	0 (0)	0 (0)
Pochard	0 (0)	40 (9)	0 (0)	5 (3)	0 (0)
Ruff	0 (0)	2 (2)	0 (0)	0 (0)	0 (0)
Shoveler	2 (2)	362 (10)	2 (2)	9 (3)	0 (0)

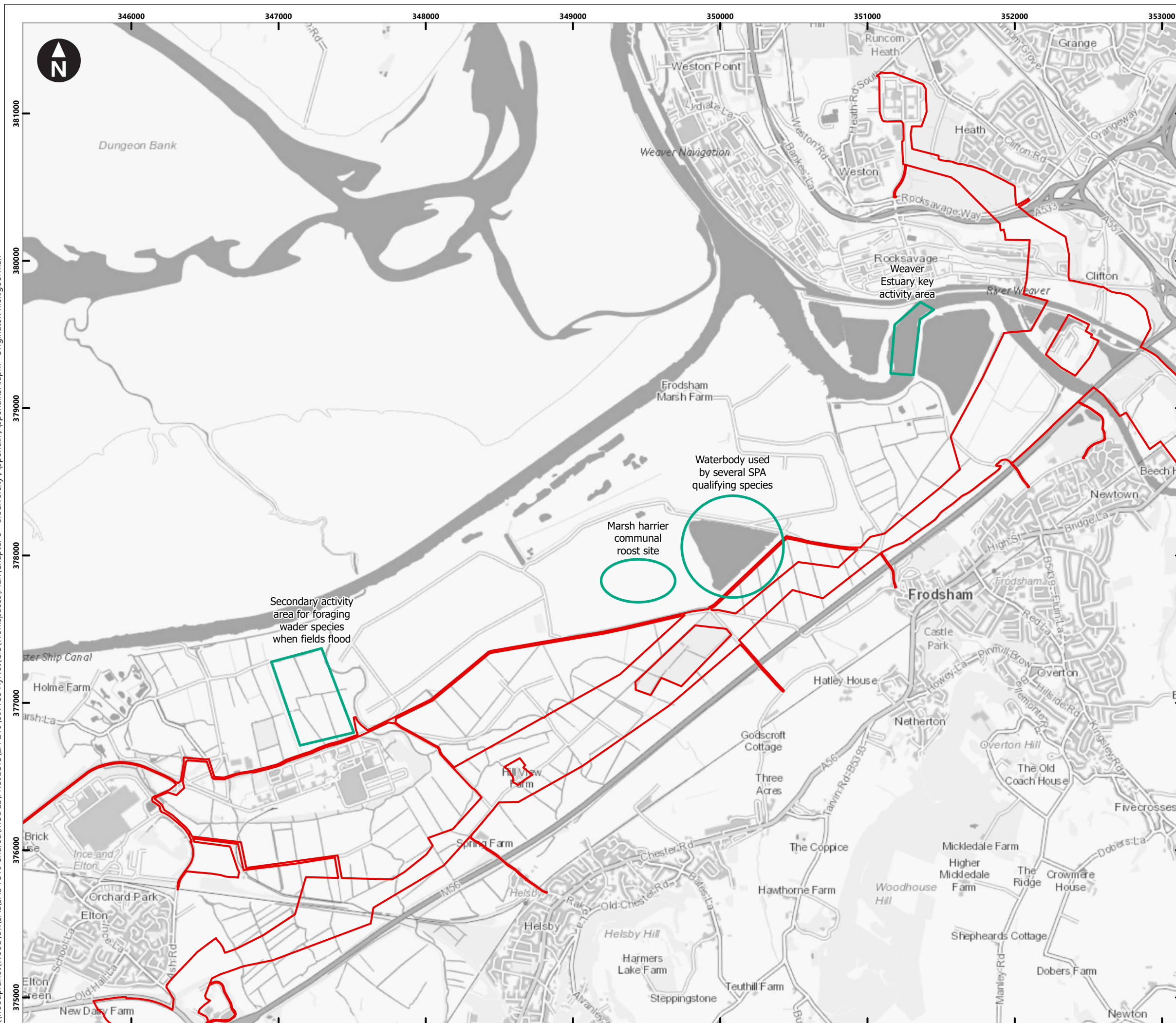
Species	Transect 5	Transect 6	Transect 7b	Transect 13	Transect 14
Snipe	2 (1)	7 (3)	6 (1)	0 (0)	0 (0)
Tufted duck	0 (0)	122 (8)	3 (3)	73 (9)	2 (1)
Water rail	1 (1)	2 (2)	1 (2)	2 (1)	0 (0)
Whooper swan	0 (0)	29 (9)	0 (0)	0 (0)	0 (0)
Wigeon	0 (0)	555 (6)	555 (6)	38 (10)	0 (0)

- 4.1.3 Records of non-waterbird Schedule 1/Annex I listed species during the survey period comprised: Marsh harrier, Cetti's warbler, Merlin and Peregrine. Although no Barn owls were recorded during the survey period, several barn owl nest boxes were noted in the survey area.
- 4.1.4 Marsh harrier was recorded on Transects 6 and 7b. A communal roost site was identified within the survey area in early December, where between four and six individuals were noted using the roost at Lordship Marsh. Thereafter the number of Marsh harrier using the roost ranged from one bird in late December to a peak count of ten birds in early February.
- 4.1.5 Cetti's warbler were recorded on all Transects, with the following peak counts recorded on each Transect (number of visits birds recorded in parentheses):
- Transect 5 – two singing males (four);
 - Transect 6 – five singing males (ten);
 - Transect 7b – two (four);
 - Transect 13b – one (three); and
 - Transect 14 – one (one).
- 4.1.6 A single male Merlin was recorded on Transect 6 in early December. A single Peregrine was recorded flying from within National Grid's Frodsham substation adjacent to the River Weaver in January.
- 4.1.7 Other notable species recorded during the winter waterbird surveys included: Lesser spotted woodpecker and Willow tit. Both species were recorded on Transect 13b (in Moore Nature Reserve).

5. Key Species Summary

- 5.1.1 The following section details survey results for qualifying species of the Mersey Estuary SPA and Ramsar site. Additionally, survey results for notable other species are also summarised in this section. A summary of the key species activity areas is illustrated in **Figure 5.1**.

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- Key
- Preliminary Order Limits
 - Activity areas

0 250 500 750 1,000 1,250 m
Scale at A3: 1:25,000
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Figure 5.1
Key species activity areas

5.2 Shelduck

- 5.2.1 A peak count of 116 SPA-qualifying Shelduck were recorded utilising the Weaver Estuary (Transect 7b) in February. This constitutes 1.79% of the most recent SPA wintering population of 6,764 individuals (Natural England, 2019¹⁰). Shelduck were also recorded utilising Ince Marshes (peak count of four individuals) and a waterbody within the Frodsham Sludge Lagoons at SJ 500 780 (peak count of 50 birds).

5.3 Teal

- 5.3.1 Most records of Teal during the survey period relate to birds using the waterbody at SJ 500 780, with more than 1% of the most recent SPA wintering population of 11,723 individuals (Natural England, 2019) recorded here each month across the winter period. The peak count of Teal recorded here was 984 individuals (or 8.37% of the SPA population) in early November. More than 1% of the SPA population was also recorded using the Weaver Estuary (Transect 7b) in December (150 birds/1.27%) and in January (166 birds/1.42%). Teal was also recorded on Ince Marshes (Transect 5) and Moore Nature Reserve (Transect 13b) but in numbers less than 1% of the SPA population.

5.4 Pintail

- 5.4.1 Most records of Pintail during the survey period also relate to birds using the waterbody at SJ 500 780, with more than 1% of the most recent SPA wintering population of 1,169 individuals (Natural England, 2019) recorded here each month across the winter period. Peak monthly counts ranged from 73 (6.24%) in November to 109 (9.32%) in October. Additionally, more than 1% of the SPA population was also recorded using the outer bend of the River Weaver (Transect 7b) in January (39 birds/3.34%) and February (17 birds/1.45%).

5.5 Shoveler

- 5.5.1 Shoveler was recorded utilising the waterbody at SJ 500 780 on every survey visit over the winter period. In both October and November, the peak count of Shoveler here was more than 1% of the UK wintering population of 19,500 individuals (362 individuals/1.86% in October; and 209 individuals/1.07% in November) (Woodward *et al.*, 2020¹¹).

¹⁰ Natural England. (2019). European Site Conservation Objectives for Mersey Estuary SPA (UK9005131). Mersey Estuary SPA citation (22/08/2014). (online) Available at: <http://publications.naturalengland.org.uk/file/6485318211469312> (Accessed 28 October 2021).

¹¹ Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, D. and Noble, D. 2020. Population estimates of birds in Great Britain and the United Kingdom. In: *British Birds* 113, pp 69-104.

5.6 Golden plover

- 5.6.1 Although there were two records of Golden plover during the survey period, neither of which exceeded 1% of the SPA-qualifying population of 3,040 individuals (Natural England, 2019) (peak count of 25 birds on Transect 5).

5.7 Black-tailed godwit

- 5.7.1 Most records of Black-tailed godwit during the survey period relate to birds roosting within the waterbody at SJ 500 780, with more than 1% of the most recent SPA wintering population of 976 individuals (Natural England, 2019) recorded here on 80% of survey visits across the winter period (absent between late December and early January). The peak count of Black-tailed godwit recorded here was 956 individuals (or 97.95% of the SPA population) in October. More than 1% of the SPA population was also recorded foraging on flooded agricultural fields on the Ince Marshes (Transect 5) in November (82 birds/8.4%) and December (46 birds/4.71%) and on the Weaver Estuary (Transect 7b) in February (219 birds/22.44%).

5.8 Dunlin

- 5.8.1 The only record of Dunlin during the survey period was of eight birds recorded on the Weaver Estuary (Transect 7b) in February. The most recent SPA wintering population of dunlin is 48,789 individuals (Natural England, 2019).

5.9 Redshank

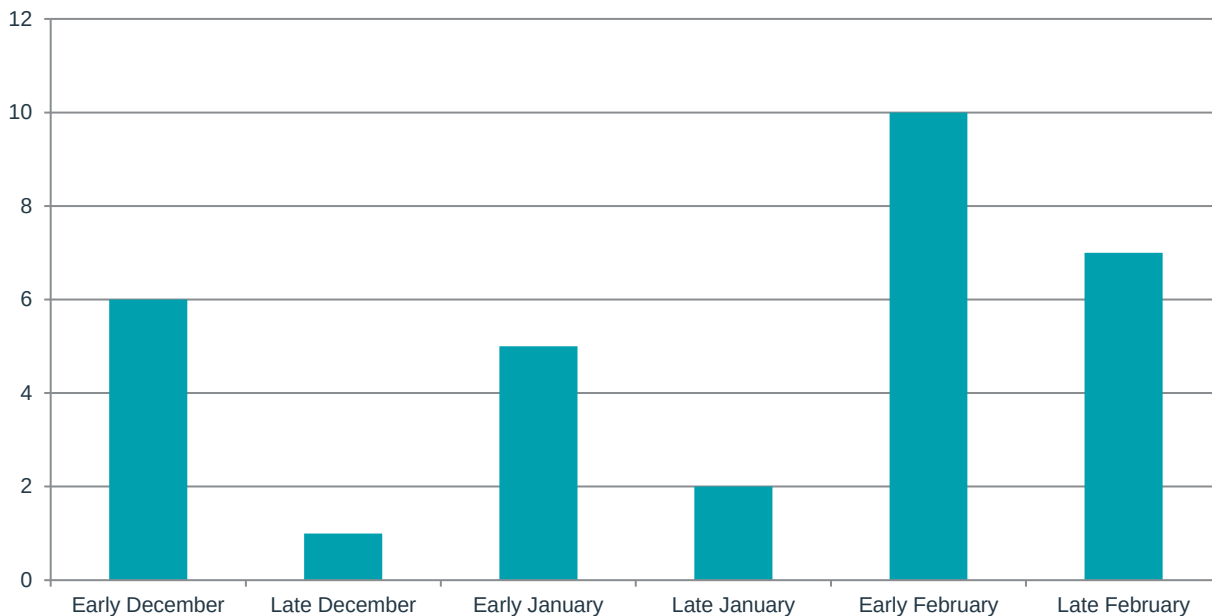
- 5.9.1 Redshank were recorded on three of the five transect routes, but this species was only recorded in numbers greater than 1% of the most recent SPA wintering (4,993 individuals) and/or passage (4,513 individuals) population (Natural England, 2019) on a single occasion in February, when 57 birds were recorded in the Weaver Estuary (Transect 7b). This constitutes 1.14% of the most recent SPA wintering population or 1.26% of the most recent SPA passage population (Woodward *et al.*, 2020).

5.10 Marsh harrier

- 5.10.1 During the December surveys, a communal roost site of Marsh harrier was identified to the north of Transect 6 in Lordship Marsh (approximate grid reference SJ 495 778). **Graphic 5.1** illustrates the peak counts of Marsh harrier using the roost site between early December and late February (upper estimates given, where an exact count was unable to be obtained e.g. where 4-6 birds were noted, six birds is used as the peak count). The peak roost count was of ten birds in late February, which constitutes 0.71-0.82% of the UK breeding population of 590-695 breeding pairs (Woodward *et al.*, 2020). There is no known UK wintering population estimate for marsh harrier, although the number of birds wintering in the UK has been increased from around 30 individuals in the 1980s to

approximately 100 birds in the early 2000s (Brown and Grice, 2005¹²). It is now considered that the formerly migrant population is largely resident in the UK.

Graphic 5.1 Lordship Lane marsh harrier roost counts – December 2021 to February 2022



5.11 Summary

5.11.1 Most records of target waterbird species relate to birds roosting and/or feeding on a small waterbody within Frodsham Sludge Lagoons at approximate grid reference SJ 500 780, as observed from Transect 6. This waterbody is a well-used high-tide roost site of international importance for Black-tailed godwit (as well as Dunlin) and is also used by other waterbird species including SPA-qualifying Shelduck, Teal, Golden plover and Redshank and assemblage species such as Wigeon and Curlew (Natural England, 2015). This area is deemed to be functionally linked to the Mersey Estuary SPA (Bowland Ecology, 2021). Although lower numbers of target species were expected during the low tide period, this pattern was only loosely noted in Black-tailed godwit. Pintail and Teal were both recorded in consistent numbers across the survey period regardless of time of day or tidal state. Shelduck and Redshank were also recorded here but sporadically in low numbers. Key assemblage species using the waterbody included ducks like Wigeon, Shoveler (high numbers recorded in autumn), Mallard, Pochard and Tufted duck as well as waders like Lapwing and Curlew. A winter roost site of Annex I and Schedule 1 listed Marsh harrier was also identified in a similar area (Frodsham Sludge Lagoons) in December 2021, peaking at ten individuals in February 2022. There were also notable records of Schedule 1 listed Kingfisher and Cetti's warbler (peak count of five singing males); as well as three barn owl

¹² Brown, A. F. and Grice, P. 2005. *Birds in England*. London: T & AD Poyser.

nest boxes (at approximate grid references SJ 490 771, SJ 494 774 and SJ 496 774) within the Scoping Report red line boundary.

- 5.11.2 Ince Marshes (Transect 5) also held over 1% of SPA-qualifying Black-tailed godwit. There appears to be no specific pattern to target species utilisation of Ince Marshes, for example there was no increase in activity at certain tidal states nor specific times of day. Most records however do relate to birds feeding on flooded agricultural fields and included high numbers of assemblage species such as Lapwing and Curlew. There were also notable records of Schedule 1 listed Cetti's warbler (three distinct territories) and a single barn owl box was also noted (at approximate grid reference SJ 490 771).
- 5.11.3 The Weaver Estuary (Transect 7b) held important numbers of Shelduck, Teal and Wigeon albeit sporadically over the winter period. There was no pattern to species utilisation of this area regarding time of day or tidal state. There were also notable records of Schedule 1 listed Cetti's warbler, and two barn owl boxes (at approximate grid references SJ 530 783 and SJ 522 795) were also noted.
- 5.11.4 Transects 13b and 14 did not hold important numbers of SPA-qualifying species (e.g. more than 1% of the SPA-populations), although Moore Nature Reserve and mudflats on the River Mersey around Fiddler's Ferry (observed from Transect 13b) held low numbers of assemblage species such as Gadwall, Tufted duck, Coot, Curlew and Lapwing. There were also notable records of Lesser spotted woodpecker, Willow tit and Schedule 1 listed Cetti's warbler around Moore Nature Reserve as well as three barn owl boxes (at approximate grid references SJ 562 859, SJ 561 852 and SJ 579 849) and an osprey nest platform (at approximate grid reference SJ 552 847) as viewed from Transect 13b.

Annex A

Survey Conditions

Table A.1 Survey conditions

Date	Time	Sunrise	Sunset	HT time	HT height	LT time	LT height	Weather conditions
Transect 5								
20/10/21	07:50-09:30	07:48	17:59	11:51	9.05 m	18:33	1.93 m	Heavy to light rain, Wind F1-2 SW, Cloud Cover 5-8/8, Visibility >3km, Temp 12c
03/11/21	07:30-09:00	07:15	16:35	09:35	9.08 m	16:20	1.88 m	Dry, Wind F1-3 N, Cloud Cover 5-7/8, Visibility >3km, Temp 7-8c
11/11/21	12:10-13:50	07:30	16:19	16:35	8.03 m	10:20	3.23 m	Drizzle then dry, Wind F1-3 SE, Cloud Cover 4-8/8, Visibility >3km, Temp 12-13c
25/11/21	12:10-13:50	07:54	16:02	14:14	8.03 m	08:34	2.89 m	Drizzle then dry, Wind F1-2 NNW, Cloud Cover 3-4/8, Visibility >3km, Temp 6c
06/12/21	13:20-14:30	08:10	15:54	12:10	9.70 m	06:45	1.09 m	Dry, Wind F3-4 W, Cloud Cover 3-6/8, Visibility >3km, Temp 5-6c
15/12/21	14:00-16:00	08:20	15:51	*	*	*	*	Dry, Wind F2 SW, Cloud Cover 3-4/8, Visibility >3km, Temp 10-11c
13/01/22	11:30-13:15	08:06	16:30	07:54	7.32 m	14:29	3.46 m	Dry, Wind F1 W, Cloud Cover 0/8, Visibility >3km, Temp 2-3c

Date	Time	Sunrise	Sunset	HT time	HT height	LT time	LT height	Weather conditions
25/01/22	11:30-13:30	08:06	16:40	03:37	8.34 m	10:12	2.58 m	Dry, Wind F1 SW, Cloud 7-8/8, Visibility >3km, Temp 6-7c
10/02/22	10:45-12:50	07:39	17:12	05:28	6.90 m	12:13	3.84 m	Light rain showers, Wind F5-6 W, Cloud Cover 3-8/8, Visibility >3km, Temp 6c
24/02/22	13:07-15:20	07:10	17:39	16:25	7.92 m	10:43	2.92 m	Light rain showers, Wind F4-7 W-WNW, Cloud Cover 3-8/8, Visibility >3km, Temp 4-5c
Transect 6								
20/10/21	10:00-13:10	07:48	17:59	11:51	9.05 m	18:33	1.93 m	Light rain showers, Wind F1-2 SW, Cloud Cover 5-8/8, Visibility >3km, Temp 12c
02/11/21	07:45-11:15	07:15	16:35	08:55	8.53 m	15:34	2.42 m	Dry, Wind F1-3 SSW, Cloud Cover 0-2/8, Visibility >3km, Temp 4-8c
11/11/21	10:15-12:10 & 13:50-15:00	07:30	16:19	16:35	8.03 m	10:20	3.23 m	Drizzle then dry, Wind F1-3 SE, Cloud Cover 4-8/8, Visibility >3km, Temp 12-13c
25/11/21	10:15-12:10 & 13:50-14:30	07:54	16:02	14:14	8.03 m	08:34	2.89 m	Drizzle then dry, Wind F1-2 NNW, Cloud Cover 2-5/8, Visibility >3km, Temp 5-6c
06/12/21	12:00-13:15 &	08:10	15:54	12:10	9.70 m	06:45	1.09 m	Light rain showers, Wind F3-5 SW-W, Cloud Cover 3-8/8, Visibility >3km, Temp 3-6c

Date	Time	Sunrise	Sunset	HT time	HT height	LT time	LT height	Weather conditions
	14:40- 16:30							
15/12/21	09:00- 12:00	08:20	15:51	*	*	*	*	Dry, Wind F2 SSW, Cloud Cover 0-3/8, Visibility >3km, Temp 9-12c
13/01/22	09:15- 11:30 & 13:15- 14:30	08:06	16:30	07:54	7.32 m	14:29	3.46 m	Dry, Wind F1 W, Cloud Cover 0/8, Visibility >3km, Temp -1c to 3c
25/01/22	09:15- 11:30 & 13:30- 14:30	08:06	16:40	03:37	8.34 m	10:12	2.58 m	Dry, Wind F1 SW, Cloud Cover 7-8/8, Visibility >3km, Temp 4-7c
10/02/22	08:38- 10:45 & 12:50- 15:00	07:39	17:12	05:28	6.90 m	12:13	3.84 m	Light rain showers, Wind F4-6 W, Cloud Cover 4-8/8, Visibility >3km, Temp 4-6c
24/02/22	11:00- 13:07 & 15:20- 18:00	07:10	17:39	16:25	7.92 m	10:43	2.92 m	Light rain showers, Wind F4-7 W-WNW, Cloud Cover 3-8/8, Visibility >3km, Temp 4-5c
Transect 7b								
19/10/21	15:30- 16:45	07:46	17:57	11:18	8.94 m	17:58	1.88 m	Dry, Wind F3-5 SSW, Cloud Cover 8/8, Visibility >3km, Temp 18c

Date	Time	Sunrise	Sunset	HT time	HT height	LT time	LT height	Weather conditions
02/11/21	11:30-13:15	07:15	16:35	08:55	8.53 m	15:34	2.42 m	Dry, Wind F1-3 WSW, Cloud Cover 4-6/8, Visibility >3km, Temp 10c
12/11/21	07:30-09:20	07:30	16:19	17:21	7.80 m	11:33	3.60 m	Light rain showers, Wind F2-4 S-SSW, Cloud Cover 8/8, Visibility >3km, Temp 10-11c
26/11/21	07:45-09:30	07:54	16:02	15:04	7.73 m	09:19	3.25 m	Rain showers, Wind F 3-7 WNW-NW, Cloud Cover 8/8, Visibility >3km, Temp 7-8c
06/12/21	10:00-12:30	08:10	15:54	12:10	9.70 m	06:45	1.09 m	Heavy rain showers, Wind F3-5 W, Cloud Cover 6-8/8, Visibility >3km to <1km, Temp 5-8c
16/12/21	09:40-12:00	08:21	15:53	09:57	5.18 m	18:35	1.06 m	Dry, Wind F2 SW, Cloud Cover 8/8, Visibility 1-3km, Temp 9-10c
14/01/22	08:20-10:30	08:06	16:30	08:52	7.63 m	15:26	3.19 m	Dry, Wind F1 NW, Cloud Cover 8/8, Visibility >3km, Temp 4c
26/01/22	08:05-09:35	08:05	16:42	03:52	7.63 m	11:09	2.82 m	Dry, Wind F1 SW, Cloud 2-7/8, Visibility >3km, Temp 4c
11/02/22	07:45-10:30	07:37	17:14	06:56	6.83 m	13:38	3.86 m	Light rain showers, Wind F2 SSW-SW, Cloud Cover 8/8, Visibility >3km, Temp 4-5c
25/02/22	07:00-09:20	07:08	17:41	05:06	7.51 m	11:56	3.26 m	Dry, Wind F2-4 W-WNW, Cloud Cover 4-6/8, Visibility >3km, Temp 7-8c
Transect 13b								

Date	Time	Sunrise	Sunset	HT time	HT height	LT time	LT height	Weather conditions
19/10/21	12:45-15:00	07:46	17:57	11:18	8.94 m	17:58	1.88 m	Light rain showers, Wind F3-5 SSW, Cloud Cover 5-8/8, Visibility >3km, Temp 18c
03/11/21	10:40-12:40	07:15	16:35	09:35	9.08 m	16:20	1.88 m	Light rain showers, Wind F1-3 N-NNW, Cloud Cover 5-7/8, Visibility >3km, Temp 7-9c
12/11/21	10:00-11:45	07:30	16:19	17:21	7.80 m	11:33	3.60 m	Drizzle, Wind F2-5 SSW-SW, Cloud Cover 8/8, Visibility >3km, Temp 12c
26/11/21	10:00-11:45	07:54	16:02	15:04	7.73 m	09:19	3.25 m	Drizzle, Wind F 3-7 WNW-NW, Cloud Cover 8/8, Visibility >3km, Temp 7c
06/12/21	13:00-14:30	08:10	15:54	12:10	9.70 m	06:45	1.09 m	Dry, Wind F2-3 W, Cloud Cover 4-6/8, Visibility >3km, Temp 5-7c
16/12/21	12:15-14:15	08:21	15:53	09:57	5.18 m	18:35	1.06 m	Dry, Wind F2 SW, Cloud Cover 8/8, Visibility 1-3km, Temp 10-11c
14/01/22	11:05-13:10	08:06	16:30	08:52	7.63 m	15:26	3.19 m	Dry, Still, Cloud Cover 6-7/8, Visibility >3km, Temp 0-1c
26/01/22	10:00-13:00	08:05	16:42	03:52	7.63 m	11:09	2.82 m	Dry, Wind F2 W, Cloud 2-6/8, Visibility >3km, Temp 7-8c
11/02/22	11:05-13:10	07:37	17:14	06:56	6.83 m	13:38	3.86 m	Light rain showers, Wind F2 SSW-SW, Cloud Cover 2-5/8, Visibility >3km, Temp 6-7c
25/02/22	10:10-12:30	07:08	17:41	05:06	7.51 m	11:56	3.26 m	Dry, Wind F2-3 WNW, Cloud Cover 5-8/8, Visibility >3km, Temp 7-8c

Date	Time	Sunrise	Sunset	HT time	HT height	LT time	LT height	Weather conditions
Transect 14								
19/10/21	11:18- 12:20	07:46	17:57	11:18	8.94 m	17:58	1.88 m	Light rain, Wind F3-5 SSW, Cloud Cover 7-8/8, Visibility >3km, Temp 18c
03/11/21	09:30- 10:15	07:15	16:35	09:35	9.08 m	16:20	1.88 m	Dry, Wind F1-3 SSW, Cloud Cover 5/8, Visibility >3km, Temp 7c
12/11/21	12:00- 12:45	07:30	16:19	17:21	7.80 m	11:33	3.60 m	Drizzle, Wind F3-5 SSW, Cloud Cover 8/8, Visibility >3km, Temp 13c
26/11/21	12:00- 12:35	07:54	16:02	15:04	7.73 m	09:19	3.25 m	Drizzle, Wind F 3-7 WNW-NW, Cloud Cover 7-8/8, Visibility >3km, Temp 6c
06/12/21	15:00- 15:20	08:10	15:54	12:10	9.70 m	06:45	1.09 m	Dry, Wind F4 W, Cloud Cover 3/8, Visibility >3km, Temp 5c
16/12/21	14:40- 15:15	08:21	15:53	09:57	5.18 m	18:35	1.06 m	Dry, Wind F2 SW, Cloud Cover 8/8, Visibility 1-3km, Temp 10c
14/01/22	13:35- 14:10	08:06	16:30	08:52	7.63 m	15:26	3.19 m	Dry, Wind F1 NW, Cloud Cover 8/8, Visibility >3km, Temp 4c
26/01/22	13:30- 14:00	08:05	16:42	03:52	7.63 m	11:09	2.82 m	Dry, Wind F2 W, Cloud 5/8, Visibility >3km, Temp 8c
11/02/22	13:35- 14:10	07:37	17:14	06:56	6.83 m	13:38	3.86 m	Dry, Wind F2 SSW, Cloud Cover 2/8, Visibility >3km, Temp 7c

Date	Time	Sunrise	Sunset	HT time	HT height	LT time	LT height	Weather conditions
25/02/22	13:00- 13:45	07:08	17:41	05:06	7.51 m	11:56	3.26 m	Dry, Wind F2-3 W-WNW, Cloud Cover 7/8, Visibility >3km, Temp 8c

Surveys were undertaken from 11:18 to 16:45 on 19 October; and 07:50 to 13:10 on 20 October. Approximate timings of each survey are given within **Table A.1**.

* = Not recorded.

Annex B

Survey results

Table B.2 Transect 5 survey results – all SPA-qualifying and -assemblage species records

Species	SPA species status	20/10/21	03/11/21	11/11/21	25/11/21	06/12/21	15/12/21	13/01/22	25/01/22	10/02/22	24/02/22
Black-headed gull	Assemblage	2,700	1,090	330	196	50	0	0	0	70	0
Black-tailed godwit	Qualifying	0	70	82	0	46	3	0	0	108	144
Cattle egret	Assemblage	0	8	0	0	0	2	0	0	1	0
Common gull	Assemblage	0	0	0	5	0	0	0	0	2	0
Coot	Assemblage	2	6	1	0	0	7	1	1	29	19
Curlew	Assemblage	2	134	80	29	80	55	0	10	38	64
Gadwall	Assemblage	0	0	0	0	0	0	0	0	11	19
Golden plover	Qualifying	0	0	0	0	0	0	0	0	0	25
Great egret	Assemblage	0	0	0	0	0	0	0	0	0	2
Grey heron	Assemblage	1	2	2	0	1	1	1	0	0	1
Herring gull	Assemblage	30	25	5	11	0	0	0	0	0	0
Jack snipe	Assemblage	0	0	0	0	0	0	0	0	0	1
Lapwing	Assemblage	0	0	330	474	0	0	940	971	1,170	2,000
Little egret	Assemblage	0	35	2	4	2	13	3	0	17	15
Little grebe	Assemblage	0	0	0	0	0	0	0	0	2	0
Mallard	Assemblage	1	6	5	0	0	42	0	0	35	29
Moorhen	Assemblage	2	6	1	0	2	3	3	1	28	13
Mute swan	Assemblage	0	0	0	0	1	2	0	0	1	0
Pink-footed goose	Assemblage	0	0	0	0	0	0	0	0	0	2
Redshank	Qualifying	0	0	0	0	7	0	0	0	0	0
Shelduck	Qualifying	0	0	0	0	0	0	0	0	0	4
Shoveler	Assemblage	0	2	0	0	0	0	0	0	2	0

Species	SPA species status	20/10/21	03/11/21	11/11/21	25/11/21	06/12/21	15/12/21	13/01/22	25/01/22	10/02/22	24/02/22
Snipe	Assemblage	0	0	0	0	0	0	0	0	0	2
Teal	Qualifying	1	5	0	0	0	16	0	1	51	37
Water rail	Assemblage	0	1	0	0	0	0	0	0	0	0

Table B.3 Transect 6 survey results – all SPA-qualifying and -assemblage species records

Species	SPA species status	20/10/21	02/11/21	11/11/21	25/11/21	06/12/21	15/12/21	13/01/22	25/01/22	10/02/22	24/02/22
Black-headed gull	Assemblage	26	356	188	17	163	0	42	0	0	265
Black-tailed godwit	Qualifying	956	743	35	548	450	0	0	8	30	219
Common gull	Assemblage	0	0	0	0	2	0	0	0	0	11
Coot	Assemblage	12	5	2	12	0	0	0	0	9	0
Cormorant	Assemblage	0	2	0	0	2	1	0	0	0	0
Curlew	Assemblage	11	12	1	0	22	0	159	60	32	87
Gadwall	Assemblage	6	6	6	0	20	0	0	4	9	0
Goldeneye	Assemblage	0	0	0	0	0	3	1	1	0	0
Green sandpiper	Assemblage	0	1	0	0	0	0	0	2	0	2
Greylag goose	Assemblage	0	0	0	0	0	0	0	0	0	2
Grey heron	Assemblage	3	1	0	1	2	0	7	0	2	1
Herring gull	Assemblage	0	0	0	2	0	0	0	0	0	0
Kingfisher	Assemblage	0	0	0	0	2	0	0	0	1	0
Lapwing	Assemblage	750	120	2	31	80	75	0	0	0	3
Little egret	Assemblage	0	1	0	0	1	0	0	0	0	1
Little grebe	Assemblage	17	28	25	15	0	7	0	7	11	3
Mallard	Assemblage	29	23	12	17	15	40	11	41	56	44
Moorhen	Assemblage	2	9	11	23	20	8	15	25	16	19
Mute swan	Assemblage	0	3	6	4	3	10	5	2	0	5
Pintail	Qualifying	109	73	48	54	80	30	86	23	98	11

Species	SPA species status	20/10/21	02/11/21	11/11/21	25/11/21	06/12/21	15/12/21	13/01/22	25/01/22	10/02/22	24/02/22
Pochard	Assemblage	1	14	8	28	0	15	4	19	40	31
Redshank	Qualifying	0	0	0	1	0	0	0	8	9	3
Ruff	Assemblage	0	2	0	1	0	0	0	0	0	0
Shelduck	Qualifying	0	22	0	12	1	0	35	50	41	43
Shoveler	Assemblage	362	209	178	75	60	50	32	26	86	186
Snipe	Assemblage	4	7	0	0	0	0	0	0	6	
Teal	Qualifying	141	981	575	471	580	500	177	447	425	280
Tufted duck	Assemblage	2	2	0	6	0	80	9	12	122	39
Water rail	Assemblage	0	1	0	0	0	0	2	0	0	0
Whooper swan	Assemblage	2	6	0	17	20	2	22	26	29	16
Wigeon	Assemblage	65	35	24	555	0	400	0	0	31	0

Table B.4 Transect 7b survey results – all SPA-qualifying and -assemblage species records

Species	SPA species status	19/10/21	02/11/21	12/11/21	26/11/21	06/12/21	16/12/21	14/01/22	26/01/22	11/02/22	25/02/22
Black-headed gull	Assemblage	0	0	15	12	0	0	0	0	40	0
Black-tailed godwit	Qualifying	0	0	0	0	0	0	1	0	0	0
Canada goose	Assemblage	0	0	0	0	0	0	0	31	65	46
Coot	Assemblage	0	0	6	2	0	0	7	9	11	5
Cormorant	Assemblage	0	1	0	14	3	0	4	5	1	3
Curlew	Assemblage	0	0	2	0	0	0	0	0	2	11
Dunlin	Qualifying	0	0	0	0	0	0	0	0	8	0
Gadwall	Assemblage	0	0	0	0	0	0	0	0	7	0
Goldeneye	Assemblage	0	0	0	0	1	0	0	0	0	0
Golden plover	Qualifying	0	0	0	3	0	0	0	0	0	0
Great black-backed gull	Assemblage	0	0	2	0	0	0	0	0	0	1

Species	SPA species status	19/10/21	02/11/21	12/11/21	26/11/21	06/12/21	16/12/21	14/01/22	26/01/22	11/02/22	25/02/22
Gadwall	Assemblage	0	0	0	0	0	0	0	14	0	2
Great crested grebe	Assemblage	0	0	0	3	1	1	1	1	2	2
Grey heron	Assemblage	0	2	1	0	2	0	0	3	0	2
Herring gull	Assemblage	0	0	2	0	0	0	0	0	2	0
Kingfisher	Assemblage	2	0	0	0	0	0	0	0	0	0
Lapwing	Assemblage	0	0	16	0	0	0	0	0	5	0
Little grebe	Assemblage	0	0	0	0	3	0	0	0	0	0
Little egret	Assemblage	0	0	1	0	1	0	0	1	1	2
Mallard	Assemblage	0	0	2	3	0	21	8	17	35	36
Moorhen	Assemblage	1	3	0	3	3	1	12	5	2	5
Mute swan	Assemblage	0	5	8	9	3	0	2	1	2	0
Oystercatcher	Assemblage	0	0	0	0	0	0	0	0	3	0
Pintail	Qualifying	0	0	9	7	0	0	39	0	17	4
Redshank	Qualifying	0	0	0	0	1	19	0	0	57	20
Shelduck	Qualifying	0	0	2	13	0	5	36	2	116	28
Shoveler	Assemblage	0	0	2	0	0	0	0	0	0	2
Snipe	Assemblage	0	0	0	0	0	0	0	0	6	0
Teal	Qualifying	0	0	23	33	0	150	166	69	90	67
Tufted duck	Assemblage	0	0	0	0	3	1	2	0	0	0
Water rail	Assemblage	0	0	0	0	0	0	1	1	0	0
Wigeon	Assemblage	65	35	24	555	0	400	10	0	0	0

Table B.5 Transect 13b survey results – all SPA-qualifying and -assemblage species records

Species	SPA species status	19/10/21	03/11/21	12/11/21	26/11/21	06/12/21	16/12/21	14/01/22	26/01/22	11/02/22	25/02/22
Black-headed gull	Assemblage	0	0	20	0	0	0	0	0	0	0
Canada goose	Assemblage	0	2	2	1	0	0	0	1	33	11
Coot	Assemblage	0	94	71	98	30	14	23	39	21	16
Cormorant	Assemblage	3	1	8	5	10	0	3	7	7	3
Curlew	Assemblage	27	0	0	0	0	0	0	53	4	4
Gadwall	Assemblage	35	36	6	15	5	1	19	10	2	0
Goldeneye	Assemblage	0	0	0	1	0	0	0	0	0	0
Great black-backed gull	Assemblage	0	0	0	0	0	0	1	0	0	0
Great crested grebe	Assemblage	4	0	2	0	0	0	0	0	2	1
Grey heron	Assemblage	2	1	3	2	0	1	1	2	0	0
Herring gull	Assemblage	0	0	16	0	0	0	0	0	0	0
Kingfisher	Assemblage	0	1	1	0	0	0	0	0	0	0
Lapwing	Assemblage	10	111	0	0	50	0	0	0	255	0
Lesser black-backed gull	Assemblage	0	0	12	0	0	0	0	0	0	0
Little egret	Assemblage	0	0	1	0	0	0	0	0	0	0
Little grebe	Assemblage	1	0	1	0	0	1	0	2	7	2
Mallard	Assemblage	12	23	8	54	90	3	15	32	22	25
Moorhen	Assemblage	4	7	8	1	0	0	8	1	4	5
Mute swan	Assemblage	0	4	2	2	0	1	1	1	1	0
Oystercatcher	Assemblage	0	0	0	0	0	0	0	0	8	0
Pochard	Assemblage	0	0	0	2	5	1	0	0	0	0
Shoveler	Assemblage	1	9	0	0	0	0	0	3	0	0
Teal	Qualifying	0	8	0	6	0	0	14	0	3	12
Tufted duck	Assemblage	30	51	59	70	25	25	0	56	52	73
Water rail	Assemblage	0	0	0	0	0	0	0	0	0	2

Table B.6 Transect 14 survey results – all SPA-qualifying and -assemblage species records

Species	SPA species status	19/10/21	03/11/21	12/11/21	26/11/21	06/12/21	16/12/21	14/01/22	26/01/22	11/02/22	25/02/22
Black-headed gull	Assemblage	2	26	46	35	0	0	355	500	170	0
Canada goose	Assemblage	0	0	16	0	0	17	9	26	4	0
Common gull	Assemblage	0	0	0	0	0	0	0	6	0	0
Coot	Assemblage	4	3	6	3	3	7	6	8	6	3
Cormorant	Assemblage	0	0	2	2	0	0	0	0	1	0
Grey heron	Assemblage	0	0	0	0	0	0	0	1	0	0
Herring gull	Assemblage	0	0	0	6	0	0	30	16	0	0
Lapwing	Assemblage	0	0	0	58	0	5	0	0	15	0
Lesser black-backed gull	Assemblage	0	0	0	0	0	0	0	4	0	0
Mallard	Assemblage	4	20	24	27	60	28	23	13	22	19
Moorhen	Assemblage	0	4	5	4	2	6	2	5	3	2
Mute swan	Assemblage	0	2	0	5	2	0	2	0	0	2
Oystercatcher	Assemblage	0	0	0	0	0	0	0	2	1	1
Tufted duck	Assemblage	0	0	0	2	0	0	0	0	0	0