



NAVIGATOR QUARTER, SOUTHAMPTON AIRPORT: NETWORK RAIL FIELD

Breeding Bird Survey

Report for: Southampton International Airport Limited

Ref. 84004775

Ricardo ref. ED15367

Issue: 1

04/11/2022

Customer:

Southampton International Airport Limited

Customer reference:

84004775

Confidentiality, copyright and reproduction:

This report is the Copyright of Southampton International Airport Ltd. It has been prepared by Ricardo Energy & Environment, a trading name of Ricardo-AEA Ltd, under contract to Southampton International Airport Ltd. The contents of this report may not be reproduced in whole or in part, nor passed to any organisation or person without the specific prior written permission of Southampton International Airport Ltd. Ricardo Energy & Environment accepts no liability whatsoever to any third party for any loss or damage arising from any interpretation or use of the information contained in this report, or reliance on any views expressed therein.

Ricardo reference:

ED15367

Contact:

Rob Hinks, Gemini Building, Fermi Avenue, Harwell, Didcot, OX11 0QR, UK

T: +44 (0)7736 869 661

E: rob.hinks@ricardo.com

Author:

Dr Jess Ware, Carys Jones

Checked:

Laurence David

Approved

Rob Hinks

Date:

04/11/2022

Ricardo is certified to ISO9001, ISO14001, ISO27001 and ISO45001.

Ricardo, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to as the 'Ricardo Group'. The Ricardo Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Ricardo Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

CONTENTS

1. INTRODUCTION	1
1.1 BACKGROUND	1
1.2 SURVEY AREA AND LOCATION	1
1.3 OBJECTIVES	1
1.4 LEGISLATION AND GUIDANCE	1
1.5 LIMITATIONS	3
2. METHODOLOGY	4
2.1 DESK STUDY	4
2.2 FIELD SURVEY	4
2.3 DATA ANALYSIS	5
3. RESULTS	7
3.1 DESK STUDY	7
3.2 FIELD SURVEY	7
4. DISCUSSION AND CONCLUSION	10

Appendices

APPENDIX 1 BREEDING BIRD SURVEY DATA
APPENDIX 2 BREEDING BIRD TERRITORY MAPS

1. INTRODUCTION

1.1 BACKGROUND

Ricardo Energy & Environment were commissioned by Southampton International Airport Limited to undertake breeding bird surveys in relation to proposals for a freeport development in the Southampton Navigator Quarter area and submit a planning application. The requirement for the breeding bird surveys in the Navigator Quarter is driven by the presence of suitable supporting habitat for breeding birds which includes scrub, woodland and grassland.

This breeding bird survey report has focussed on the Network Rail field present at the Navigator Quarter only and the potential impact of the proposed development on breeding birds.

1.2 SURVEY AREA AND LOCATION

The Network Rail field site is located on the north-east side of Southampton Airport, centred roughly at Ordnance Survey National Grid Reference (NGR) SU 46376 17800 and is shown in **Figure 1.1**. The survey area consists of semi-improved grassland, surrounded by broadleaved woodland and scrub woodland. The site is also adjacent to the River Itchen Special Area of Conservation (SAC) and River Itchen Site of Special Scientific Interest (SSSI).

1.3 OBJECTIVES

The objectives of the breeding bird survey were to:

- Identify any legally protected species using the Network Rail field in the Navigator Quarter;
- Identify any nationally, regionally or locally significant species using the Network Rail field in the Navigator Quarter, including Local Biodiversity Action Plan Species and Species of Principle Importance (priority species);
- Identify key habitat areas for feeding and roosting for those species recorded; and
- Assess the potential impact of the proposed development on breeding birds using the Network Rail field in the Navigator Quarter (if present).

1.4 LEGISLATION AND GUIDANCE

There are several different acts of legislation and guidance with particular relevance to birds, which are outlined below. This is a short summary of relevant legislation and guidance, that should not be considered a definitive legal opinion.

1.4.1 Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations), as amended, provides for the designation and protection of a network of 'European sites' (also termed national site network), including Special Areas of Conservation (SACs) and SPAs.

Regulation 43 creates the following offences relating to European Protected Species (EPS):

- deliberately capture, injure or kill any wild animal of a European Protected Species;
- deliberately disturb animals of any such species in such a way as to be likely to:
 - impair their ability to survive, breed, rear or nurture their young, hibernate or migrate, or
 - significantly affect the local distribution or abundance of the species to which they belong;
- deliberately take or destroy the eggs of such an animal; or
- damage or destroy a breeding site or resting place of such an animal.

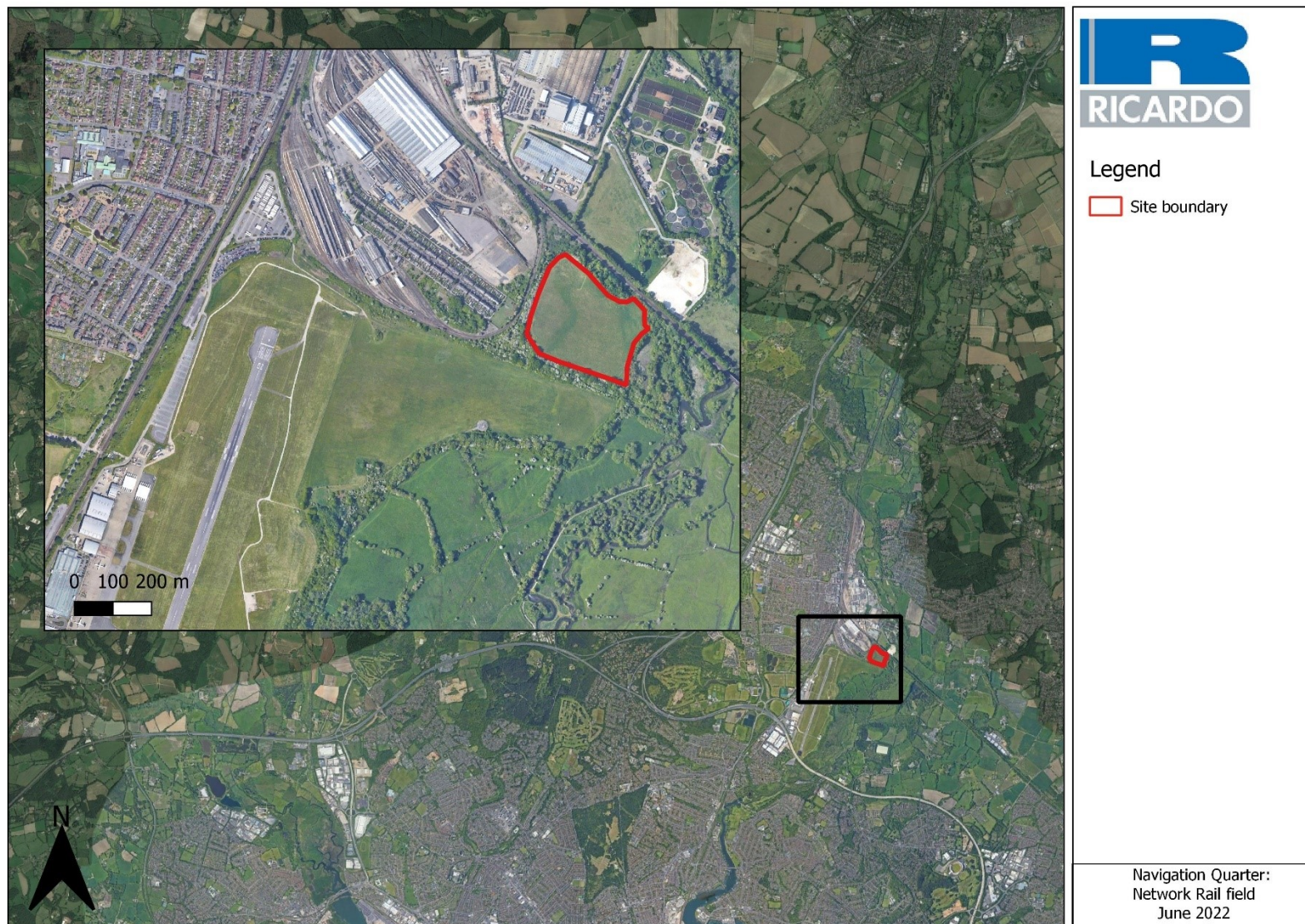


Figure 1.1 Survey area at the Network Rail field (red line).

1.4.2 The Wildlife and Countryside Act 1981 (as amended)

The Wildlife & Countryside Act 1981 (as amended) provides for designation and protection of SSSIs, which are areas that represent the most valuable habitats in the United Kingdom (UK) for nature conservation. In addition, it is the principal legislation affording protection to UK wild birds.

The Act creates the following offences in relation to wild bird:

- To intentionally kill, injure, or take any wild bird or their eggs or nests (with exception to species listed in Schedule 2).
- To intentionally disturb species listed on Schedule 1 of the Act whilst building or occupying a nest or intentionally disturb their dependent young.

It also provides a mechanism of making any of the above offences legal, through the granting of licences by the appropriate authorities.

1.4.3 Natural Environment and Rural Communities Act 2006

A number of birds feature on the Natural Environment and Rural Communities (NERC) Act 2006¹, Section 41 (S41), as species which are of principal importance for the conservation of biodiversity in England. The Section 41 list is used to guide decision-makers, such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

1.4.4 Birds of Conservation Concern

The Birds of Conservation Concern (BoCC) is a review of the conservation status of all birds occurring regularly in the UK. Bird species are classified into the following categories:

- Red list (high conservation concern) species are those that are globally threatened according to International Union for the Conservation of Nature (IUCN) criteria. These include those whose population or range has declined rapidly ($\geq 50\%$) in recent years and those that have declined historically and not shown a substantial recent recovery;
- Amber list (medium conservation concern) species are those with an unfavourable conservation status in Europe. These include those whose population or range has declined moderately (between 25% and 49%) in recent years, has declined historically but made a substantial recent recovery, rare breeders and those with internationally important or localised populations; and
- Green list (low conservation concern) species that fulfil none of the above criteria.

1.4.5 Local Biodiversity Action Plans

Some bird species are afforded local protection through Local Biodiversity Action Plans (LBAP), which lists species of importance in the local area. In relation to the Network Rail field in the Navigator Quarter, the conservation of habitats supporting any species listed in the Southampton LBAP and also recorded on site should be encouraged in accordance with the LBAP.

1.5 LIMITATIONS

The survey visits at Network Rail field were undertaken from 1st April 2022 - 6th July 2022. Due to mist present across the site on 14th April, visibility was categorised as moderate which may have impacted on species detection, particularly for fly overs.

It is noted that this report deals with matters of legal significance but does not constitute professional legal advice. The Client may wish to seek professional legal interpretation of the relevant wildlife legislation cited in this document, which is summarised in **Section 1.4**.

¹ [Natural Environment and Rural Communities Act 2006 \(legislation.gov.uk\)](https://www.legislation.gov.uk/ukpga/2006/42/section/41) Accessed July 2021.

2. METHODOLOGY

2.1 DESK STUDY

Prior to site visits a data search was undertaken to compile existing bird data from Hampshire Biodiversity Information Centre. This gave an indication of potential species using Network Rail field.

2.2 FIELD SURVEY

Prior to starting the breeding bird survey, the date, start time, time of sunrise, temperature (°C), wind speed and direction, percentage cloud cover and possibility of rain were all recorded. The end time and weather conditions at the end of the survey were also noted. Each survey was undertaken during suitable weather conditions. The breeding bird survey broadly followed the BTO territory mapping method², recording and mapping all the bird species either seen or heard using the standard BTO species codes on a large- scale field map and taking note of sex and age where appropriate. In addition, any signs of breeding activity were noted.

The following approach was adopted:

- A survey transect was walked at a slow, ambling pace, stopping to scan priority habitat/ features where appropriate, with a minimum distance of 50 m between each transect route.
- All birds encountered (either observed or heard) at the Network Rail field, on adjacent land or flying over were recorded on a site map, using BTO codes. Notes were taken on bird behaviour, sex and age where appropriate. In addition, any signs of breeding activity were noted.

Six transect surveys were undertaken from 1st April 2022 - 6th July 2022 led by Jess Ware (BSc, MSc, PhD) and supported by Carys Jones (BSc), Matt Longshaw (BSc) and Jess Turner (BSc). Each survey covered the entirety of site 2b, via transects, a minimum distance of 50 m apart. Survey visits were at least 10 days apart and approximately three hours with varying start times between sunrise and 11:30. One evening visit was also undertaken in June, in order to record nocturnal bird species. The results from the survey will be used to estimate the breeding status of each bird species recorded and the number of territories or pairs likely to be breeding within the site.

The weather conditions recorded during each survey are provided below in **Table 2.1**.

Table 2.1 General information on the six breeding bird survey visits completed 1st April 2022 - 6th July 2022 at Network Rail field.

Surveyor(s)	Date	Sunrise/ Sunset	Start	End	Weather (air temperature, cloud cover, Beaufort scale (BF) wind speed, wind direction, precipitation, visibility)
Jess Ware Jess Turner	01/04/22	06:42	06:25		1°C, Okta 2, BF 1, south-east, dry, good visibility
				09:25	4°C, Okta 2, BF 2, south-east, dry, good visibility
Jess Ware Matt Longshaw	14/04/22	06:13	05:50		8°C, Okta 8, BF 0, dry, moderate visibility due to mist
				08:50	9°C, Okta 8, BF 0, dry, good visibility
Jess Ware Matt Longshaw	10/05/22	05:20	05:10		13°C, Okta 8, BF 1, north-east, dry, good visibility
				08:10	13°C, Okta 8, BF 1, north-east, dry, good visibility
Jess Ware Jess Turner	16/06/22	04:51	04:20		13°C, Okta 1, BF 0, dry, good visibility
				07:20	13°C, Okta 1, BF 0, dry, good visibility
Jess Ware Carys Jones	31/06/22	21:07	19:10		15°C, Okta 2, BF 2, west-north-west, dry, good visibility
				22:10	13°C, Okta 1, BF 1, west-north-west, dry, good visibility
Jess Ware	06/07/22	05:00	05:10		12°C, Okta 3, BF 0, dry, good visibility

² Gilbert, G., Gibbons, D. W. and Evans, J., (1998). Bird Monitoring Methods. RSPB.

Surveyor(s)	Date	Sunrise/ Sunset	Start	End	Weather (air temperature, cloud cover, Beaufort scale (BF) wind speed, wind direction, precipitation, visibility)
Carys Jones				08:10	15°C, Okta 2, BF 0, dry, good visibility

2.3 DATA ANALYSIS

2.3.1 Conservation value

The conservation value of bird populations has been measured using two separate approaches: conservation status and nature conservation value within a geographical context³. Firstly, birds recorded during the surveys listed under either WCA Schedule 1, NERC S41 and/ or BoCC Red or Amber listed species in the UK are likely to be vulnerable to population decline and are herein, referred to as 'notable species'. The conservation value for each species recorded has been reviewed based on its international, national and regional conservation value. The criteria has been outlined in **Table 2.2** below.

Table 2.2 Selection criteria for determining the natura conservation value of birds recorded during the breeding bird surveys at Network Rail field.

Nature Conservation Value	Selection Criteria
International	- Qualifying feature of an Special Protection Area (SPA). - A species present in internationally important numbers (>1% of international population).
National	- Cited species of a Site of Special Scientific Interest (SSSI). - A species present in nationally important numbers (>1% UK population).
Regional	- Species listed as Natural Environment and Rural Communities (NERC) Section 41 (S41) which are not covered above. - Priority species of Hampshire in Biodiversity Action Plan. - Species on UK Birds of Conservation Concern (BoCC) Red and Amber List and which regularly occurs in regionally important numbers.

2.3.2 Breeding bird status

Once the six breeding bird surveys were complete, the data was collated to determine the BTO breeding status of each species. The re-occurrence of individuals displaying territorial and/ or breeding activity in the same location during the survey period allows for certain assumptions to be made about the breeding status of each species. Breeding evidence will be based on the standard BTO criteria⁴ assigned to the following four categories:

- Confirmed: distraction display or injury feigning, used nest or eggshells found, recently fledged young or downy young, adults entering or leaving nest site, adult observed incubating, adult carrying faecal sac or food for young, nest containing eggs and nest with young seen or heard;
- Probable: pair observed in suitable nesting habitat during the breeding season, permeant territory presumed through registration of territorial behaviour, courtship and display, visiting a probable nest site, agitated behaviour or anxiety calls from adults, brood patch on adult examined in hand and nest building or excavating nest-hole.
- Possible: species observed in possible nesting habitat and singing male(s) present and/or heard during the breeding season.
- Non-breeding.

³ CIEEM (2016). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.

⁴ [Breeding evidence | BTO - British Trust for Ornithology](#), Accessed July 2021.

The conservation status of each species was also reviewed in accordance with the Wildlife & Countryside Act (WCA) Schedule 1 species, NERC Section 41 species, BoCC Red or Amber listed species and Hampshire priority species⁵.

Information gained on the conservation and breeding status of bird species recorded within the survey area will be used to aid recommendations on habitat enhancement in order to support 'notable' species. The assessment considered bird species associated with coastal and floodplain marsh/ wetland, arable and pastoral land, and woodland and scrub separately.

⁵ Hampshire Biodiversity Partnership (2020). Biodiversity Action Plan for Hampshire, Volume Two. Hampshire County Council. 1 – 31.

3. RESULTS

3.1 DESK STUDY

3.1.1 Hampshire Biodiversity Information Centre data

A total of three individual birds were recorded from 2010 – 2019 within the boundary of Network Rail field. These included nightingale *Luscinia megarhynchos* recorded in 2014 and two water rail *Rallus aquaticus* recorded in 2015 and 2016.

A total of 71 bird species were recorded within 1 km of the site from 2010 - 2019. These include but are not limited to; black redstart *Phoenicurus ochruros*, cuckoo *Cuculus canorus*, hen harrier *Circus cyaneus*, kingfisher *Alcedo atthis*, and yellow wagtail *Motacilla flava*.

3.2 FIELD SURVEY

A total of 31 bird species were recorded during the breeding bird surveys at the Network Rail field (see **Appendix 1**). Of the 31 species recorded, 12 were 'notable' species which included three BoCC Red listed species (greenfinch *Chloris chloris*, skylark *Alauda arvensis* and starling *Sturnus vulgaris*) and nine BoCC Amber listed, four NERC S41 species (dunnock *Prunella modularis*, skylark, song thrush *Turdus philomelos* and starling) and two are Hampshire priority species (skylark and song thrush). These are nationally and/or regionally important species. Of the 'notable' species recorded, six were probable breeders (see **Table 3.1**). Other confirmed breeders included blue tit *Cyanistes caeruleus*, long-tailed tit *Aegithalos caudatus* and carrion crow *Corvus corone*. Note that as the surrounding woodland is not within the boundary of the survey area, the majority of species recorded were within the adjacent habitat.

Based on overlaying field survey results approximately four wren *Troglodytes troglodytes* and blackcap *Sylvia atricapilla* territories, two skylark territories and one greenfinch, song thrush, wood pigeon, dunnock and long-tailed tit *Aegithalos caudatus* territory were identified (see **Appendix 2**).

Table 3.1 Notable species recorded during six breeding bird surveys undertaken from 1st April 2022 - 6th July 2022 at Network Rail field, Navigator Quarter in Southampton Airport, including their conservation status (national and regional), British Trust of Ornithology (BTO) breeding status, location of recording and additional notes.

Species	UK and Regional Conservation Status	BTO Breeding status	Recorded within and/ or adjacent to survey area?	Notes
Black-headed gull <i>Chroicocephalus ridibundus</i>	Amber	Non-breeder	Within survey area	Individual flew over the survey area on 06/07 and flew adjacent to site on 31/06.
Dunnock <i>Prunella modularis</i>	Amber, NERC S41	Possible	Adjacent to survey area	Individual heard singing in adjacent scrub habitat on 01/04 and 06/07.
Greenfinch <i>Chloris chloris</i>	Red	Probable	Adjacent to survey area	Individual heard singing in north-western corner of adjacent woodland on 01/04, 14/04 and 10/05. Two singing and calling on south-eastern corner of adjacent woodland on 01/04.
Lesser black-backed gull <i>Larus fuscus</i>	Amber	Non-breeder	Within survey area	Individual flew over the survey area on 06/07.
Mallard <i>Anas platyrhynchos</i>	Amber	Non-breeder	Within survey area	Pair flew over the survey area on 01/04.
Moorhen <i>Gallinula chloropus</i>	Amber	Non-breeder	Adjacent to survey area	Individual heard in adjacent wetland habitat on 14/04.
Skylark <i>Alauda arvensis</i>	Red, NERC S41, Hampshire priority species	Probable	Within survey area	Two skylarks singing/ hovering over the field on 01/04, individual flushed on 10/05 from within grassland and on 16/06 individual was recorded carrying food and landing in field.
Song thrush <i>Turdus philomelos</i>	Amber, NERC S41, Hampshire priority species	Probable	Adjacent to survey area	Individual heard in adjacent woodland on 16/06, 31/06 and 06/07.
Wood pigeon <i>Columba livia domestica</i>	Amber	Probable	Within survey area	Individuals recorded in adjacent woodland and flying over the survey area on 01/04, 14/04 and 10/05.
Wren <i>Troglodytes troglodytes</i>	Amber	Probable	Adjacent to survey area	Pairs and individuals heard and seen during each survey in adjacent woodland singing and calling.

Kestrel <i>Falco tinnunculus</i>	Amber	Possible	Within survey area	Individual resting in adjacent woodland and flew over the site on 06/07.
Starling <i>Sturnus vulgaris</i>	Red, NERC S41	Possible	Adjacent to survey area	Four individuals recorded in adjacent scrub habitat on 10/05.

4. DISCUSSION AND CONCLUSION

During the six breeding bird surveys conducted from 1st April – 6th July 2022 at Network Rail field, Navigator Quarter at Southampton Airport, a number of confirmed and probable breeding birds were identified with varying numbers of territories. This included 'notable' species such as greenfinch, skylark, wood pigeon, song thrush and wren (probable). Additionally, blue tit, long-tailed tit and carrion crow were confirmed breeders at the site. No WCA Schedule 1 species were identified during the surveys. However, one record of nightingale was received from Hampshire Biodiversity Information Centre in 2014, which is a BoCC red listed species which has been recorded within the boundary of Network Rail field.

Breeding activity was concentrated within scrub, scrub woodland, dense scrub and woodland habitat, and approximately two skylark territories were identified within the semi-improved grassland. Proposed construction works that require the permanent loss of scrub, woodland and grassland habitat will result in the loss of potential bird breeding habitat. Due to biodiversity net gain legislation, the permanent loss of suitable breeding habitat due to the proposed freeport development will need to be compensated, via a minimum of 10 % biodiversity net gain. This may involve the identification of a suitable site for enhancement/ restoration. In addition, under the WCA (as amended), it is an offence to intentionally kill, injure, or take any wild bird or their eggs or nests. Therefore, the following mitigation measures will need to be implemented during construction works:

- Where possible, construction works that require scrub, woodland and grassland removal should be undertaken outside of the breeding season (March – early August inclusive);
- If construction works are undertaken during the breeding season, a suitably experienced ecologist must conduct a nest check at least 24 hours prior to the removal of scrub, woodland and grassland;
- If an active birds nest is identified, works may be suspended and a suitable work exclusion buffer installed around the nest (buffer size is species dependent); and
- Works may only re-commence once the chicks have fledged and the supervising ecologist confirms that the nest is no longer in use.

In conclusion, Network Rail field supports both nationally and regionally protected breeding birds. Proposed construction works to facilitate the freeport development will result in the loss of suitable bird breeding habitat. Appropriate mitigation measures will need to be implemented during construction works to prevent adverse impacts on birds present. In addition, the permanent loss of suitable breeding habitat may also require compensation via biodiversity net gain in order to prevent potential localised and long-term impacts on population abundance and resilience.

APPENDICE

Appendix 1 Breeding bird survey data

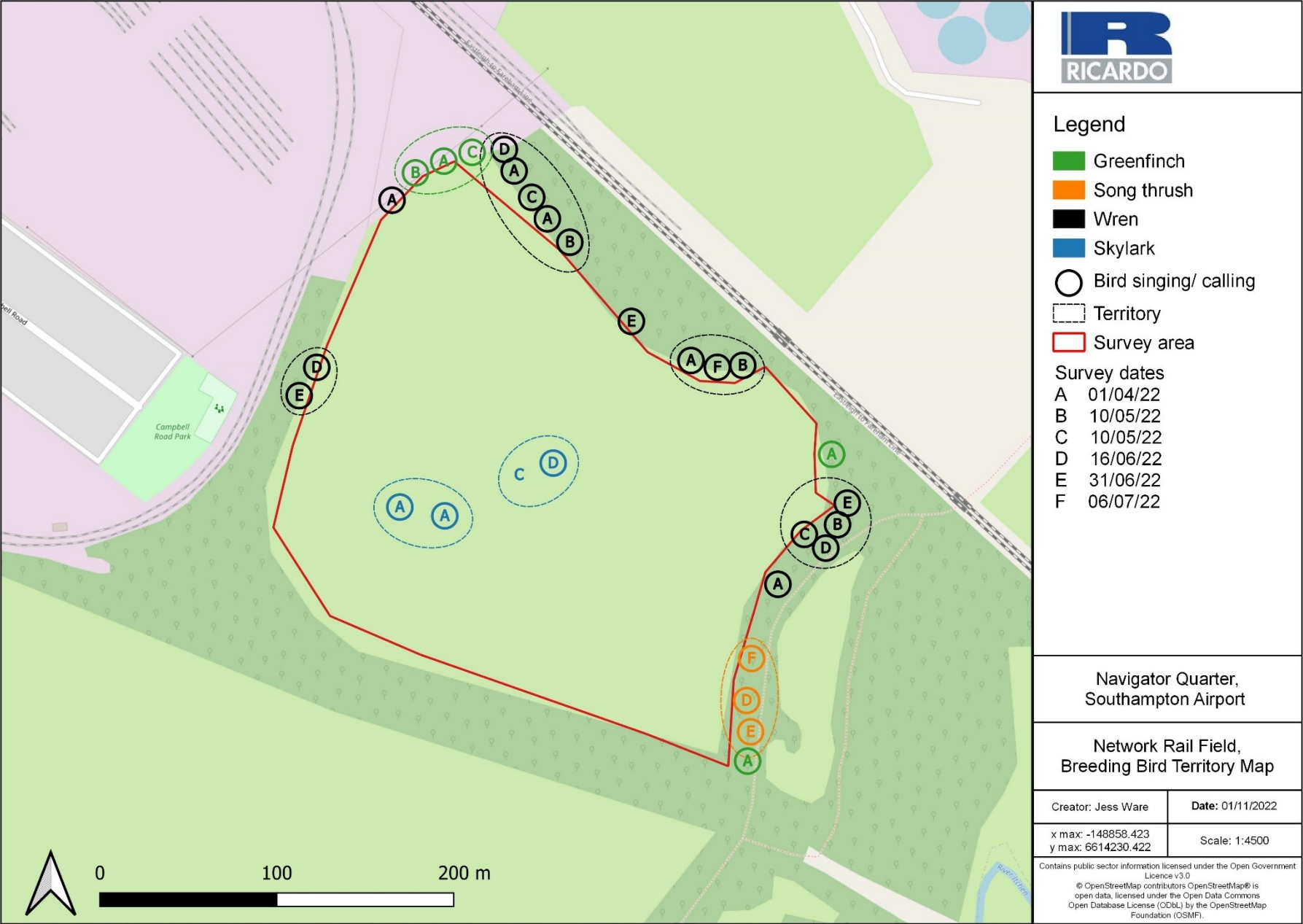
Appendix 1 Total bird species recorded during six breeding bird surveys undertaken from 1st April – 6th July 2022 at Network Rail field, including their conservation status (national and regional), British Trust of Ornithology (BTO) breeding status and location of recording.

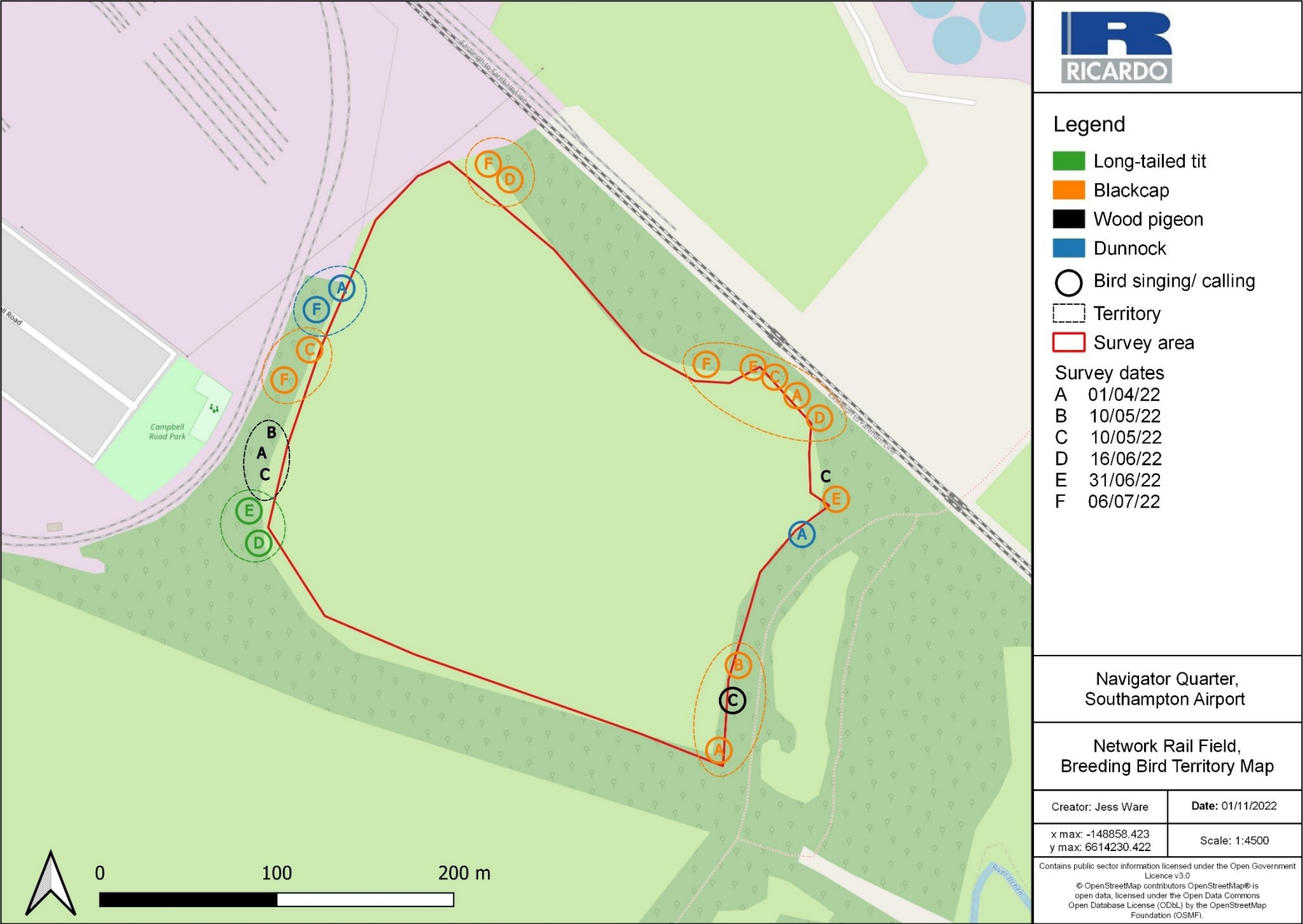
Species	UK and Regional Conservation Status	BTO Breeding status	Recorded within and/ or adjacent to survey area?	Notes
Black-headed gull <i>Chroicocephalus ridibundus</i>	Amber	Non-breeder	Within survey area	Individual flew over the survey area on 06/07 and flew adjacent to site on 31/06.
Blackbird <i>Turdus merula</i>	Green	Probable	Adjacent to survey area	Pairs and individuals recorded singing and calling (displaying territorial behaviour) within scrub and woodland habitat on 01/04, 14/04, 10/05, 16/06, 31/06 and 06/07.
Blackcap <i>Sylvia atricapilla</i>	Green	Probable	Adjacent to survey area	Pairs and individuals recorded singing and calling (displaying territorial behaviour) within scrub and woodland habitat on 01/04, 14/04, 10/05, 16/06, 31/06 and 06/07.
Blue tit <i>Cyanistes caeruleus</i>	Green	Confirmed	Adjacent to survey area	Pairs and individuals recorded singing and calling (displaying territorial behaviour) on 01/04, 14/04, 10/05, 16/06 and 06/07. Nest located within western scrub on 16/06.
Chaffinch <i>Fringilla coelebs</i>	Green	Probable	Adjacent to survey area	Pairs and individuals recorded singing and calling (displaying territorial behaviour) within scrub and woodland habitat on 01/04, 14/04 and 10/05.
Chiffchaff <i>Phylloscopus collybita</i>	Green	Probable	Adjacent to survey area	Individuals recorded singing within scrub and woodland habitat on 14/04, 10/05, 31/06 and 06/07.
Dunnock <i>Prunella modularis</i>	Amber, NERC S41	Probable	Adjacent to survey area	Individual heard singing in adjacent scrub habitat on 01/04 and 06/07.
Goldfinch <i>Carduelis carduelis</i>	Green	Probable	Within survey area	Groups and individuals recorded singing and calling (displaying territorial behaviour) within scrub and woodland habitat. Recorded on 01/04, 16/06 and 06/07.

Species	UK and Regional Conservation Status	BTO Breeding status	Recorded within and/ or adjacent to survey area?	Notes
Great tit <i>Parus major</i>	Green	Probable	Adjacent to survey area	Individual and pairs recorded singing and calling (displaying territorial behaviour) within scrub and woodland habitat on 01/04, 14/04 and 16/06.
Great spotted woodpecker <i>Dendrocopos major</i>	Green	Possible	Adjacent to survey area	Individuals heard singing in woodland on 16/06 and 06/07.
Greenfinch <i>Chloris chloris</i>	Red	Probable	Adjacent to survey area	Individual heard singing in north-western corner of adjacent woodland on 01/04, 14/04 and 10/05. Two singing and calling on south-eastern corner of adjacent woodland on 01/04.
Lesser black-backed gull <i>Larus fuscus</i>	Amber	Non-breeder	Within survey area	Individual flew over the survey area on 06/07.
Mallard <i>Anas platyrhynchos</i>	Amber	Non-breeder	Within survey area	Pair flew over the survey area on 01/04.
Moorhen <i>Gallinula chloropus</i>	Amber	Non-breeder	Adjacent to survey area	Individual heard in adjacent wetland habitat on 14/04.
Robin <i>Erithacus rubecula</i>	Green	Probable	Adjacent to survey area	Individuals recorded singing and calling (displaying territorial behaviour) within scrub and woodland habitat on 01/04, 14/04, 10/05, 16/06 and 31/06.
Sedge warbler <i>Acrocephalus schoenobaenus</i>	Green	Probable	Adjacent to survey area	Pair recorded singing in wetland habitat adjacent to the Network Rail field on 10/05 and individual heard on 31/06 and 06/07.
Skylark <i>Alauda arvensis</i>	Red, NERC S41, Hampshire priority species	Probable	Within survey area	Two skylarks singing/ hovering over the field on 01/04, individual flushed on 10/05 from within grassland and on 16/06 individual was recorded carrying food and landing in field.
Song thrush <i>Turdus philomelos</i>	Amber, NERC S41, Hampshire priority species	Probable	Adjacent to survey area	Individual heard in adjacent woodland on 16/06, 31/06 and 06/07.
Wood pigeon <i>Columba livia domestica</i>	Amber	Probable	Within survey area	Individuals recorded in adjacent woodland and flying over the survey area on 01/04, 14/04 and 10/05.
Wren <i>Troglodytes troglodytes</i>	Amber	Probable	Adjacent to survey area	Pairs and individuals heard and seen during each survey in adjacent woodland singing and calling.
Carrion crow <i>Corvus corone</i>	Green	Confirmed	Within survey area	Pair resting in semi-improved grassland on 01/04 and individual singing in woodland on 14/04 and 10/05.

Species	UK and Regional Conservation Status	BTO Breeding status	Recorded within and/ or adjacent to survey area?	Notes
				Individual fly over on 10/05 and 16/06 within survey area. Individual resting in woodland on 31/06 and 06/07. Two nest sites confirmed in woodland.
Pheasant <i>Phasianus colchicus</i>	No status	Non-breeder	Within survey area	Individual heard calling adjacent to survey area on 01/04 and individual within survey area on semi-improved grassland on 06/07.
Magpie <i>Pica pica</i>	Green	Probable	Within survey area	Individual fly over and individual resting in woodland on 10/05 and 16/06. Individual singing in woodland on 31/06 and 06/07.
Goldcrest <i>Regulus regulus</i>	Green	Probable	Adjacent to survey area	Individuals heard calling in woodland to north of the site (within same location) on 14/04, 10/05 and 31/06.
Kestrel <i>Falco tinnunculus</i>	Amber	Possible	Within survey area	Individual resting in adjacent woodland and flew over the site on 06/07.
Jackdaw <i>Corvus monedula</i>	Green	Non-breeder	Within survey area	Individual fly over on 10/05.
Long-tailed tit <i>Aegithalos caudatus</i>	Green	Confirmed	Adjacent to survey area	Groups recorded singing and calling in scrub and woodland habitat. Recorded on 16/06, 31/06 and 06/07.
Green woodpecker <i>Picus viridis</i>	Green	Possible	Within survey area	Individual heard singing in woodland on 16/06.
Collared dove <i>Streptopelia decaocto</i>	Green	Possible	Within survey area	Individual flew over the survey area on 01/04.
Jay <i>Garrulus glandarius</i>	Green	Possible	Within survey area	Individual heard singing in woodland on 14/04 and fly over within survey area on 31/06.
Starling <i>Sturnus vulgaris</i>	Red, NERC S41	Possible	Within survey area	Four individuals recorded in adjacent scrub habitat on 10/05.

Appendix 2 Breeding bird territory maps







T: +44 (0) 1235 75 3000

E: enquiry@ricardo.com

W: ee.ricardo.com



NAVIGATOR QUARTER, SOUTHAMPTON AIRPORT: NORTH EAST FIELD

Breeding Bird Survey

Report for: Southampton International Airport Limited

Ref. 84004775

Ricardo ref. ED15367

Issue: 1

03/11/2022

Customer:

Southampton International Airport Limited

Customer reference:

84004775

Confidentiality, copyright and reproduction:

This report is the Copyright of Southampton International Airport Ltd. It has been prepared by Ricardo Energy & Environment, a trading name of Ricardo-AEA Ltd, under contract to Southampton International Airport Ltd. The contents of this report may not be reproduced in whole or in part, nor passed to any organisation or person without the specific prior written permission of Southampton International Airport Ltd. Ricardo Energy & Environment accepts no liability whatsoever to any third party for any loss or damage arising from any interpretation or use of the information contained in this report, or reliance on any views expressed therein.

Ricardo reference:

ED15367

Contact:

Rob Hinks, Gemini Building, Fermi Avenue, Harwell, Didcot, OX11 0QR, UK

T: +44 (0)7736 869 661

E: rob.hinks@ricardo.com

Author:

Dr Jess Ware, Carys Jones

Checked:

Laurence David

Approved:

Rob Hinks

Date:

03/11/2022

Ricardo is certified to ISO9001, ISO14001, ISO27001 and ISO45001.

Ricardo, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to as the 'Ricardo Group'. The Ricardo Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Ricardo Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

CONTENTS

1. INTRODUCTION	1
1.1 BACKGROUND	1
1.2 SURVEY AREA AND LOCATION	1
1.3 OBJECTIVES	1
1.4 LEGISLATION AND GUIDANCE	1
1.5 LIMITATIONS	3
2. METHODOLOGY	4
2.1 FIELD SURVEY	4
2.2 DATA ANALYSIS	5
3. RESULTS	6
3.1 DESK STUDY	6
3.2 FIELD SURVEY	6
4. DISCUSSION AND CONCLUSION	9

Appendices

APPENDIX 1 BREEDING BIRD SURVEY DATA
APPENDIX 2 BREEDING BIRD TERRITORY MAPS

1. INTRODUCTION

1.1 BACKGROUND

Ricardo Energy & Environment were commissioned by Southampton International Airport Limited to undertake breeding bird surveys in relation to proposals to implement a development in the Southampton Navigator Quarter area and submit a planning application. The requirement for the breeding bird surveys in the Navigator Quarter is driven by the presence of suitable supporting habitat for breeding birds which includes scrub, woodland and grassland.

This breeding bird survey report has focussed on the north-east field present at the Navigator Quarter only and the potential impact of the proposed development on breeding birds.

1.2 SURVEY AREA AND LOCATION

The north-east field is located on the north-east side of Southampton Airport, centred roughly at Ordnance Survey National Grid Reference (NGR) SU 46093 17643 and is shown in **Figure 1.1**. The survey area consists of semi-improved grassland and scrub, surrounded by broadleaved woodland and scrub woodland. The site is also adjacent to the River Itchen Special Area of Conservation (SAC) and River Itchen Site of Special Scientific Interest (SSSI).

1.3 OBJECTIVES

The objectives of the breeding bird survey were to:

- Identify any legally protected species using the north-east field of the Navigator Quarter;
- Identify any Nationally, regionally or locally significant species using the north-east field of the Navigator Quarter, including Local Biodiversity Action Plan Species and Species of Principle Importance (priority species);
- Identify key habitat areas for feeding and roosting for those species recorded; and
- Assess the potential impact of the proposed development on breeding birds using the north-east field of the Navigator Quarter (if present).

1.4 LEGISLATION AND GUIDANCE

There are several different acts of legislation and guidance with particular relevance to birds, which are outlined below. This is a short summary of relevant legislation and guidance, that should not be considered a definitive legal opinion.

1.4.1 Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations), as amended, provides for the designation and protection of a network of 'European sites' (also termed national site network), including Special Areas of Conservation (SACs) and SPAs.

Regulation 43 creates the following offences relating to European Protected Species (EPS):

- deliberately capture, injure or kill any wild animal of a European Protected Species;
- deliberately disturb animals of any such species in such a way as to be likely to:
 - impair their ability to survive, breed, rear or nurture their young, hibernate or migrate, or
 - significantly affect the local distribution or abundance of the species to which they belong;
- deliberately take or destroy the eggs of such an animal; or
- damage or destroy a breeding site or resting place of such an animal.



Figure 1.1 Survey area at the north-east field (red line).

1.4.2 The Wildlife and Countryside Act 1981 (as amended)

The Wildlife & Countryside Act 1981 (as amended) provides for designation and protection of SSSIs, which are areas that represent the most valuable habitats in the United Kingdom (UK) for nature conservation. In addition, it is the principal legislation affording protection to UK wild birds.

The Act creates the following offences in relation to wild bird:

- To intentionally kill, injure, or take any wild bird or their eggs or nests (with exception to species listed in Schedule 2).
- To intentionally disturb species listed on Schedule 1 of the Act whilst building or occupying a nest or intentionally disturb their dependent young.

It also provides a mechanism of making any of the above offences legal, through the granting of licences by the appropriate authorities.

1.4.3 Natural Environment and Rural Communities Act 2006

A number of birds feature on the Natural Environment and Rural Communities (NERC) Act 2006¹, Section 41 (S41), as species which are of principal importance for the conservation of biodiversity in England. The Section 41 list is used to guide decision-makers, such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

1.4.4 Birds of Conservation Concern

The Birds of Conservation Concern (BoCC) is a review of the conservation status of all birds occurring regularly in the UK. Bird species are classified into the following categories:

- Red list (high conservation concern) species are those that are globally threatened according to International Union for the Conservation of Nature (IUCN) criteria. These include those whose population or range has declined rapidly ($\geq 50\%$) in recent years and those that have declined historically and not shown a substantial recent recovery;
- Amber list (medium conservation concern) species are those with an unfavourable conservation status in Europe. These include those whose population or range has declined moderately (between 25% and 49%) in recent years, has declined historically but made a substantial recent recovery, rare breeders and those with internationally important or localised populations; and
- Green list (low conservation concern) species that fulfil none of the above criteria.

1.4.5 Local Biodiversity Action Plans

Some bird species are afforded local protection through Local Biodiversity Action Plans (LBAP), which lists species of importance in the local area. In relation to the north-east field of the Navigator Quarter, the conservation of habitats supporting any species listed in the Southampton LBAP and also recorded on site should be encouraged in accordance with the LBAP.

1.5 LIMITATIONS

The survey visits at north-east field were undertaken from 1st April 2022 - 6th July 2022. Due to mist present across the site on 14th April, visibility was categorised as moderate which may have impacted on species detection, particularly for fly overs.

It is noted that this report deals with matters of legal significance but does not constitute professional legal advice. The Client may wish to seek professional legal interpretation of the relevant wildlife legislation cited in this document, which is summarised in Section 1.4.

¹ [Natural Environment and Rural Communities Act 2006 \(legislation.gov.uk\)](https://www.legislation.gov.uk/ukpga/2006/30/section/41) Accessed July 2021.

2. METHODOLOGY

Prior to site visits a data search was undertaken to compile existing bird data from Hampshire Biodiversity Information Centre. This gave an indication of potential species using north-east field.

2.1 FIELD SURVEY

Prior to starting the breeding bird survey, the date, start time, time of sunrise, temperature (°C), wind speed and direction, percentage cloud cover and possibility of rain were all recorded. The end time and weather conditions at the end of the survey were also noted. Each survey was undertaken during suitable weather conditions. The breeding bird survey broadly followed the BTO territory mapping method², recording and mapping all the bird species either seen or heard using the standard BTO species codes on a large-scale field map and taking note of sex and age where appropriate. In addition, any signs of breeding activity were noted.

The following approach was adopted:

- A survey transect was walked at a slow, ambling pace, stopping to scan priority habitat/ features where appropriate, with a minimum distance of 50 m between each transect route.
- All birds encountered (either observed or heard) at the north-east field, on adjacent land or flying over were recorded on a site map, using BTO codes. Notes were taken on bird behaviour, sex and age where appropriate. In addition, any signs of breeding activity were noted.

Six transect surveys were undertaken from 1st April 2022 - 6th July 2022 led by Jess Ware (BSc, MSc, PhD) and supported by Carys Jones (BSc), Matt Longshaw (BSc) and Jess Turner (BSc). Each survey covered the entirety of site 2b, via transects, a minimum distance of 50 m apart. Survey visits were at least 10 days apart and approximately three hours with varying start times between sunrise and 11:30. One evening visit was also undertaken in June, in order to record nocturnal bird species. The results from the survey will be used to estimate the breeding status of each bird species recorded and the number of territories or pairs likely to be breeding within the site.

The weather conditions recorded during each survey are provided below in **Table 2.1**.

Table 2.1 General information on the six breeding bird survey visits completed 1st April 2022 - 6th July 2022 at north-east field.

Surveyor(s)	Date	Sunrise/ Sunset	Start	End	Weather (air temperature, cloud cover, Beaufort scale (BF) wind speed, wind direction, precipitation, visibility)
Jess Ware Jess Turner	01/04/22	06:42	06:25		1°C, Okta 2, BF 1, south-east, dry, good visibility
				09:25	4°C, Okta 2, BF 2, south-east, dry, good visibility
Jess Ware Matt Longshaw	14/04/22	06:13	05:50		8°C, Okta 8, BF 0, dry, moderate visibility due to mist
				08:50	9°C, Okta 8, BF 0, dry, good visibility
Jess Ware Matt Longshaw	10/05/22	05:20	05:10		13°C, Okta 8, BF 1, north-east, dry, good visibility
				08:10	13°C, Okta 8, BF 1, north-east, dry, good visibility
Jess Ware Jess Turner	16/06/22	04:51	04:20		13°C, Okta 1, BF 0, dry, good visibility
				07:20	13°C, Okta 1, BF 0, dry, good visibility
Jess Ware Carys Jones	31/06/22	21:07	19:10		15°C, Okta 2, BF 2, west-north-west, dry, good visibility
				22:10	13°C, Okta 1, BF 1, west-north-west, dry, good visibility
Jess Ware Carys Jones	06/07/22	05:00	05:10	08:10	12°C, Okta 3, BF 0, dry, good visibility
					15°C, Okta 2, BF 0, dry, good visibility

² Gilbert, G., Gibbons, D. W. and Evans, J., (1998). Bird Monitoring Methods. RSPB.

2.2 DATA ANALYSIS

2.2.1 Conservation value

The conservation value of bird populations has been measured using two separate approaches: conservation status and nature conservation value within a geographical context³. Firstly, birds recorded during the surveys listed under either WCA Schedule 1, NERC S41 and/ or BoCC Red or Amber listed species in the UK are likely to be vulnerable to population decline and are herein, referred to as 'notable species'. The conservation value for each species recorded has been reviewed based on its international, national and regional conservation value. The criteria has been outlined in **Table 2.2** below.

Table 2.2 Selection criteria for determining the natura conservation value of birds recorded during the breeding bird surveys at north-east field.

Nature Conservation Value	Selection Criteria
International	- Qualifying feature of an Special Protection Area (SPA). - A species present in internationally important numbers (>1% of international population).
National	- Cited species of a Site of Special Scientific Interest (SSSI). - A species present in nationally important numbers (>1% UK population).
Regional	- Species listed as Natural Environment and Rural Communities (NERC) Section 41 (S41) which are not covered above. - Priority species of Hampshire in Biodiversity Action Plan. - Species on UK Birds of Conservation Concern (BoCC) Red and Amber List and which regularly occurs in regionally important numbers.

2.2.2 Breeding bird status

Once the six breeding bird surveys were complete, the data was collated to determine the BTO breeding status of each species. The re-occurrence of individuals displaying territorial and/ or breeding activity in the same location during the survey period allows for certain assumptions to be made about the breeding status of each species. Breeding evidence will be based on the standard BTO criteria⁴ assigned to the following four categories:

- Confirmed: distraction display or injury feigning, used nest or eggshells found, recently fledged young or downy young, adults entering or leaving nest site, adult observed incubating, adult carrying faecal sac or food for young, nest containing eggs and nest with young seen or heard;
- Probable: pair observed in suitable nesting habitat during the breeding season, permeant territory presumed through registration of territorial behaviour, courtship and display, visiting a probable nest site, agitated behaviour or anxiety calls from adults, brood patch on adult examined in hand and nest building or excavating nest-hole.
- Possible: species observed in possible nesting habitat and singing male(s) present and/or heard during the breeding season.
- Non-breeding.

The conservation status of each species was also reviewed in accordance with the Wildlife & Countryside Act (WCA) Schedule 1 species, NERC Section 41 species, BoCC Red or Amber listed species and Hampshire priority species⁵.

Information gained on the conservation and breeding status of bird species recorded within the survey area will be used to aid recommendations on habitat enhancement in order to support 'notable' species. The assessment considered bird species associated with coastal and floodplain marsh/ wetland, arable and pastoral land, and woodland and scrub separately.

³ CIEEM (2016). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.

⁴ [Breeding evidence | BTO - British Trust for Ornithology](#), Accessed July 2021.

⁵ Hampshire Biodiversity Partnership (2020). Biodiversity Action Plan for Hampshire, Volume Two. Hampshire County Council. 1 – 31.

3. RESULTS

3.1 DESK STUDY

3.1.1 Hampshire Biodiversity Information Centre data

A total of seven individual birds have been recorded within the north-east field site perimeter from 2010 – 2019. These individuals included hawfinch *Coccothraustes coccothraustes* (two) in 2012, redstart *Phoenicurus phoenicurus* in 2011, nightingale *Luscinia megarhynchos* in 2011, merlin *Falco columbarius* in 2010, cetti's warbler *Cettia cetti* in 2015 and whinchat *Saxicola rubetra* in 2012.

A total of 71 bird species were recorded within 1 km of the site from 2010 - 2019. These include but are not limited to; black redstart *Phoenicurus ochruros*, cuckoo *Cuculus canorus*, hen harrier *Circus cyaneus*, kingfisher *Alcedo atthis*, and yellow wagtail *Motacilla flava*.

3.2 FIELD SURVEY

A total of 43 bird species were recorded during the breeding bird surveys at the north-east field (see **Appendix 1**). Of the 43 species recorded, 22 were 'notable' species which included nine BoCC Red listed species (including greenfinch *Chloris chloris*, herring gull *Larus argentatus*, linnet *Linaria cannabina*, skylark *Alauda arvensis* and starling *Sturnus vulgaris*) and 11 BoCC Amber listed, eight NERC S41 species (including dunnoek *Prunella modularis*, herring gull, linnet, skylark, song thrush *Turdus philomelos* and starling) and four are Hampshire priority species (Cetti's warbler *Cettia cetti*, gadwall *Mareca strepera*, linnet and song thrush). These are nationally and/or regionally important species. Of the 'notable' species recorded, nine were probable breeders (see **Table 3.1**). Other confirmed species included blue tit and long-tailed tit.

Based on overlaying field survey results approximately six skylark territories (one adjacent), two song thrush and one Cetti's warbler and whitethroat *Curruca communis* within the boundary of north-east field were identified (see **Appendix 2**). In addition, approximately four wren *Troglodytes troglodytes* territories and one territory for dunnoek, greenfinch and starling.

Table 3.1 Notable species recorded during six breeding bird surveys undertaken from 1st April 2022 - 6th July 2022 at north-east field, Navigator Quarter in Southampton Airport, including their conservation status (national and regional), British Trust of Ornithology (BTO) breeding status, location of recording and additional notes.

Species	UK and Regional Conservation Status	BTO Breeding status	Recorded within and/ or adjacent to survey area?	Notes
Black-headed gull <i>Chroicocephalus ridibundus</i>	Amber	Non-breeder	Within survey area	Individual fly over on 16/06.
Cetti's warbler <i>Cettia cetti</i>	Green, WCA S1, Hampshire priority species	Possible	Adjacent to survey area	Individual heard in adjacent wetland habitat south of the survey area on 14/04 and 10/05.
Dunnock <i>Prunella modularis</i>	Amber, NERC S41	Probable	Adjacent to survey area	Individuals and pairs singing on 01/04, 14/04, 10/05, 16/06 in southern scrub habitat and small area of scrub in the north-west corner of the survey area.
Gadwall <i>Mareca strepera</i>	Amber, Hampshire priority species	Non-breeder	Within survey area	Pair fly over on 16/06.
Greenfinch <i>Chloris chloris</i>	Red	Probable	Adjacent to survey area	Pair singing in woodland adjacent to the survey area to the south on 10/05, individual heard calling in adjacent woodland on 16/06.
Herring gull <i>Larus argentatus</i>	Red, NERC S41	Non-breeder	Within survey area	Individual fly overs on 10/05 and 06/07.
Linnet <i>Linaria cannabina</i>	Red, NERC S41, Hampshire priority species	Possible	Within survey area	Individual in small area of scrub habitat in the north-west corner of the site on 06/07.
Meadow pipit <i>Anthus pratensis</i>	Amber	Possible	Within survey area	Individual singing in field on 31/06.
Moorhen <i>Gallinula chloropus</i>	Amber	Possible	Adjacent to survey area	Individual heard in adjacent wetland habitat on 01/04.
Skylark <i>Alauda arvensis</i>	Red, NERC S41	Probable	Within survey area	Two individuals singing/ hovering over field and two flushed during survey on 01/04. Individual singing/ hovering over field and one flushed during survey on 14/04. Four individuals singing/ hovering over field on 10/05. Individual singing/ hovering and two flushed during survey on 16/06. Two individuals singing/ hovering over field on 31/06. Three individuals singing/

				hovering over field on 06/07 and two flushed during survey.
Song thrush <i>Turdus philomelos</i>	Amber, NERC S41, Hampshire priority species	Probable	Adjacent to survey area	Individuals and pairs singing within adjacent scrub on 01/04, 10/05, 16/06, 31/06 and 06/07.
Whitethroat <i>Curruca communis</i>	Amber	Probable	Adjacent to survey area	Individual heard singing in scrub habitat adjacent to the south of the survey area on 14/04, 10/05 and 16/06. In addition, three birds recorded singing in small area of scrub habitat in the north-western corner of the site.
Wood pigeon <i>Columba livia domestica</i>	Amber	Probable	Within survey area	Individual recorded in adjacent woodland on 14/04 and fly over on 31/06.
Wren <i>Troglodytes troglodytes</i>	Amber	Probable	Adjacent to survey area	Pairs and individuals singing and calling during surveys on 01/04, 14/04, 10/05, 16/06 and 06/07 within adjacent scrub habitat.
Swift <i>Apus apus</i>	Red	Non-breeder	Within survey area	Multiple pairs flew over site on 16/06 and 31/06.
Kestrel <i>Falco tinnunculus</i>	Amber	Possible	Within survey area	Individual resting in small area of scrub habitat in north-west corner of the site on 10/05.
House sparrow <i>Passer domesticus</i>	Red, NERC S41	Probable	Adjacent to survey area	Group of sparrows singing in small area of scrub habitat to north-west of the site on 31/06.
House martin <i>Delichon urbicum</i>	Red	Non-breeder	Within survey area	Group of three feeding over survey area on 06/07.
Starling <i>Sturnus vulgaris</i>	Red, NERC S41	Probable	Within survey area	Multiple large groups (20 – 30) roosting in adjacent woodland, grassland and scrub habitat within survey area on 06/07.
Mistle thrush <i>Turdus viscivorus</i>	Red	Possible	Adjacent to survey area	Individual heard calling in adjacent woodland to south of the site.
Redstart <i>Phoenicurus phoenicurus</i>	Amber	Possible	Adjacent to survey area	Individual heard singing in woodland adjacent to the survey area (east) on 10/05.
Cuckoo <i>Cuculus canorus</i>	Red, NERC S41	Possible	Adjacent to survey area	Individual heard in adjacent woodland habitat on 10/05.

4. DISCUSSION AND CONCLUSION

During the six breeding bird surveys conducted from 1st April – 6th July 2022 at the north-east field, in the Navigator Quarter at Southampton Airport, a number of confirmed and probable breeding birds were identified with varying numbers of territories. This included 'notable' species such as dunnoek, greenfinch, skylark, song thrush, whitethroat, wood pigeon, house sparrow, starling and wren (probable). Additionally, blue tit and long-tailed tit were confirmed breeders at the site. Cetti's warbler was heard singing adjacent to the survey area which is the only WCA Schedule 1 species recorded during the breeding bird surveys within the Navigator Quarter. Records of hawfinch (BoCC red listed and NERC S41), nightingale (BoCC red listed), redstart (BoCC amber listed), whinchat (BoCC red listed) and merlin (WCA Schedule 1, BoCC red listed) were also received from Hampshire Biodiversity Information Centre from within the boundary of north-east field.

Breeding activity was concentrated within scrub, scrub woodland, dense scrub and woodland habitat, and approximately six skylark territories were identified within the semi-improved grassland. Proposed construction works that require the permanent loss of scrub, woodland and grassland habitat will result in the loss of potential bird breeding habitat. Due to biodiversity net gain legislation, the permanent loss of suitable breeding habitat due to the proposed free port development will need to be compensated, via a minimum of 10 % biodiversity net gain. This may involve the identification of a suitable site for enhancement/ restoration. In addition, under the WCA (as amended), it is an offence to intentionally kill, injure, or take any wild bird or their eggs or nests. Therefore, the following mitigation measures will need to be implemented during construction works:

- Where possible, construction works that require scrub, woodland and grassland removal should be undertaken outside of the breeding season (March – early August inclusive);
- If construction works are undertaken during the breeding season, a suitably experienced ecologist must conduct a nest check at least 24 hours prior to the removal of scrub, woodland and grassland;
- If an active birds nest is identified, works may be suspended and a suitable work exclusion buffer installed around the nest (buffer size is species dependent); and
- Works may only re-commence once the chicks have fledged and the supervising ecologist confirms that the nest is no longer in use.

In conclusion, north-east field supports both nationally and regionally protected breeding birds. Proposed construction works to facilitate the freeport development will result in the loss of suitable bird breeding habitat. Appropriate mitigation measures will need to be implemented during construction works to prevent adverse impacts on birds present. In addition, the permanent loss of suitable breeding habitat may also require compensation via Biodiversity Net Gain in order to prevent potential localised and long-term impacts on population abundance and resilience.

APPENDICES

Appendix 1 Breeding bird survey data

Appendix 1 Total bird species recorded during six breeding bird surveys undertaken from 1st April – 6th July 2022 at north-east field, including their conservation status (national and regional), British Trust of Ornithology (BTO) breeding status and location of recording.

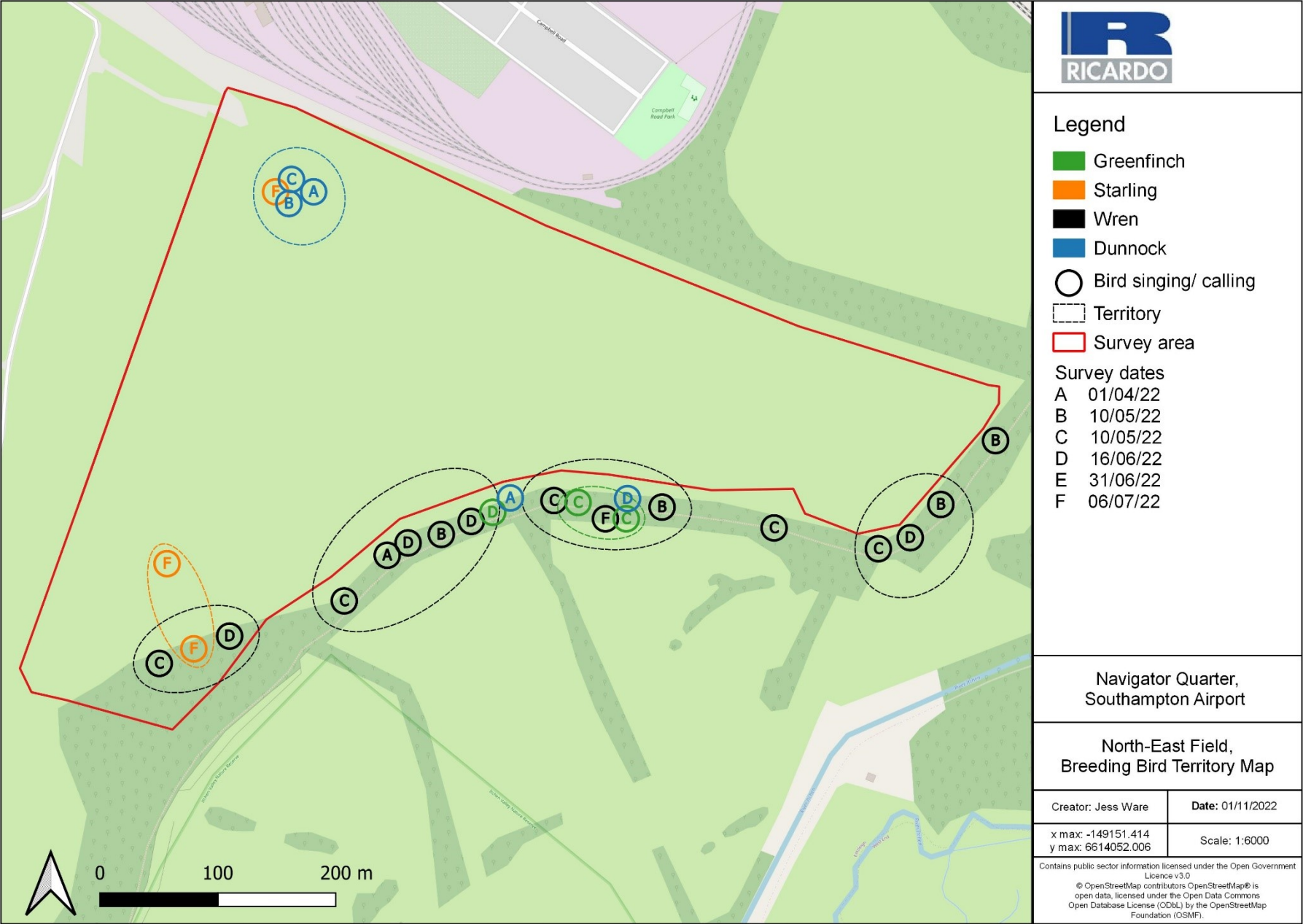
Species	UK and Regional Conservation Status	BTO Breeding status	Recorded within and/ or adjacent to survey area?	Notes
Black-headed gull <i>Chroicocephalus ridibundus</i>	Amber	Non-breeder	Within survey area	Individual fly over on 16/06.
Blackbird <i>Turdus merula</i>	Green	Probable	Within survey area	Individuals recorded singing and calling (displaying territorial behaviour) within scrub and woodland habitat on 14/04, 10/05, 16/06, 31/06 and 06/07.
Blackcap <i>Sylvia atricapilla</i>	Green	Probable	Adjacent to survey area	Individuals recorded singing and calling (displaying territorial behaviour) within scrub and woodland habitat on 01/04, 14/04, 10/05, 16/06, 31/06 and 06/07.
Blue tit <i>Cyanistes caeruleus</i>	Green	Confirmed	Adjacent to survey area	Individuals recorded singing and calling (displaying territorial behaviour) within scrub and woodland habitat on 01/04, 14/04, 10/05, 16/06 and 06/07.
Canada goose <i>Branta canadensis</i>	Green	Non-breeder	Within survey area	Pair flew over the survey area on 14/04.
Cetti's warbler <i>Cettia cetti</i>	Green, WCA S1, Hampshire priority species	Possible	Adjacent to survey area	Individual heard in adjacent wetland habitat south of the survey area on 14/04 and 10/05.
Chaffinch <i>Fringilla coelebs</i>	Green	Probable	Adjacent to survey area	Individuals recorded singing and calling (displaying territorial behaviour) within scrub and woodland habitat on 16/06 and 31/06.
Chiffchaff <i>Phylloscopus collybita</i>	Green	Probable	Adjacent to survey area	Individuals recorded singing and calling (displaying territorial behaviour) within scrub and woodland habitat on 01/04, 14/04, 10/05, 16/06, 31/06 and 06/07.
Dunnock <i>Prunella modularis</i>	Amber, NERC S41	Probable	Adjacent to survey area	Individuals and pairs singing on 01/04, 14/04, 10/05, 16/06 in southern scrub habitat and small area of scrub in the north-west corner of the survey area.
Gadwall <i>Mareca strepera</i>	Amber, Hampshire priority species	Non-breeder	Within survey area	Pair fly over on 16/06.

Species	UK and Regional Conservation Status	BTO Breeding status	Recorded within and/ or adjacent to survey area?	Notes
Goldfinch <i>Carduelis carduelis</i>	Green	Probable	Within survey area	Groups and individuals recorded singing and calling (displaying territorial behaviour) within scrub and woodland habitat. Recorded on 14/04, 16/06 and 06/07.
Great tit <i>Parus major</i>	Green	Probable	Adjacent to survey area	Individuals recorded singing and calling (displaying territorial behaviour) within scrub and woodland habitat on 14/04, 10/05, 16/06 and 31/06.
Greenfinch <i>Chloris chloris</i>	Red	Probable	Adjacent to survey area	Pair singing in woodland adjacent to the survey area to the south on 10/05, individual heard calling in adjacent woodland on 16/06.
Herring gull <i>Larus argentatus</i>	Red, NERC S41	Non-breeder	Within survey area	Individual fly overs on 10/05 and 06/07.
Linnet <i>Linaria cannabina</i>	Red, NERC S41	Possible	Within survey area	Individual in small area of scrub habitat in the north-west corner of the site on 06/07.
Meadow pipit <i>Anthus pratensis</i>	Amber	Possible	Within survey area	Individual singing in field on 31/06.
Moorhen <i>Gallinula chloropus</i>	Amber	Possible	Adjacent to survey area	Individual heard in adjacent wetland habitat on 01/04.
Robin <i>Erithacus rubecula</i>	Green	Probable	Adjacent to survey area	Individuals recorded singing and calling (displaying territorial behaviour) within scrub and woodland habitat on 01/04, 14/04, 10/05 and 31/06.
Skylark <i>Alauda arvensis</i>	Red, NERC S41	Probable	Within survey area	Two individuals singing/ hovering over field and two flushed during survey on 01/04. Individual singing/ hovering over field and one flushed during survey on 14/04. Four individuals singing/ hovering over field on 10/05. Individual singing/ hovering and two flushed during survey on 16/06. Two individuals singing/ hovering over field on 31/06. Three individuals singing/ hovering over field on 06/07 and two flushed during survey.
Song thrush <i>Turdus philomelos</i>	Amber, NERC S41, Hampshire priority species	Probable	Adjacent to survey area	Individuals and pairs singing within adjacent scrub on 01/04, 10/05, 16/06, 31/06 and 06/07.
Whitethroat <i>Curruca communis</i>	Amber	Probable	Adjacent to survey area	Individual heard singing in scrub habitat adjacent to the south of the survey area on 14/04, 10/05 and 16/06. In

Species	UK and Regional Conservation Status	BTO Breeding status	Recorded within and/ or adjacent to survey area?	Notes
				addition, three birds recorded singing in small area of scrub habitat in the north-western corner of the site.
Wood pigeon <i>Columba livia domestica</i>	Amber	Probable	Within survey area	Individual recorded in adjacent woodland on 14/04 and fly over on 31/06.
Wren <i>Troglodytes troglodytes</i>	Amber	Probable	Adjacent to survey area	Pairs and individuals singing and calling during surveys on 01/04, 14/04, 10/05, 16/06 and 06/07 within adjacent scrub habitat.
Carion crow <i>Corvus corone</i>	Green	Possible	Within survey area	Pair flew over the survey area on 01/04.
Pheasant <i>Phasianus colchicus</i>	No status	Non-breeder	Within survey area	Individual recorded in survey area on and adjacent to survey area on 14/04 and 10/05.
Swift <i>Apus apus</i>	Red	Non-breeder	Within survey area	Multiple pairs flew over site on 16/06 and 31/06.
Magpie <i>Pica pica</i>	Green	Possible	Within survey area	Pair flew over the survey area on 01/04.
Goldcrest <i>Regulus regulus</i>	Green	Possible	Adjacent to survey area	Individual recorded in woodland on 16/06.
Kestrel <i>Falco tinnunculus</i>	Amber	Possible	Within survey area	Individual resting in small area of scrub habitat in north-west corner of the site on 10/05.
House sparrow <i>Passer domesticus</i>	Red, NERC S41	Probable	Adjacent to survey area	Group of sparrows singing in small area of scrub habitat to north-west of the site on 31/06.
Long-tailed tit <i>Aegithalos caudatus</i>	Green	Confirmed	Adjacent to survey area	Groups recorded singing and calling (displaying territorial behaviour) within scrub and woodland habitat. Recorded on 16/06.
Green woodpecker <i>Picus viridis</i>	Green	Possible	Adjacent to survey area	Individual recorded in woodland on 14/04.
Nuthatch <i>Sitta europaea</i>	Green	Possible	Adjacent to survey area	Individual recorded in woodland on 16/06.
Treecreeper <i>Certhia familiaris</i>	Green	Possible	Adjacent to survey area	Individual recorded in woodland on 16/06.
House martin	Red	Non-breeder	Within survey area	Group of three feeding over survey area on 06/07.

Species	UK and Regional Conservation Status	BTO Breeding status	Recorded within and/ or adjacent to survey area?	Notes
<i>Delichon urbicum</i>				
Starling <i>Sturnus vulgaris</i>	Red, NERC S41	Probable	Within survey area	Multiple large groups (20 – 30) roosting in adjacent woodland, grassland and scrub habitat within survey area on 06/07.
Jay <i>Garrulus glandarius</i>	Green	Possible	Adjacent to survey area	Individual recorded in woodland on 14/04 and 10/05.
Great spotted woodpecker <i>Dendrocopos major</i>	Green	Possible	Within survey area	Individual recorded in woodland on 01/04.
Mistle thrush <i>Turdus viscivorus</i>	Red	Possible	Adjacent to survey area	Individual heard calling in adjacent woodland to south of the site.
Pied wagtail <i>Motacilla alba</i>	Green	Possible	Within survey area	Individual recorded flying over survey area on 14/04.
Redstart <i>Phoenicurus phoenicurus</i>	Amber	Possible	Adjacent to survey area	Individual heard singing in woodland adjacent to the survey area (east) on 10/05.
Stonechat <i>Saxicola rubicola</i>	Green	Possible	Within survey area	Individual recorded singing on 31/06.
Cuckoo <i>Cuculus canorus</i>	Red, NERC S41	Possible	Adjacent to survey area	Individual heard in adjacent woodland habitat on 10/05.

Appendix 2 Breeding bird territory maps





Legend

- Cetti's warbler
- Song thrush
- Whitethroat
- Skylark
- Bird singing/ calling
- Territory
- Survey area

Survey dates

- A 01/04/22
- B 10/05/22
- C 10/05/22
- D 16/06/22
- E 31/06/22
- F 06/07/22

Navigator Quarter,
Southampton Airport

North-East Field,
Breeding Bird Territory Map

Creator: Jess Ware

Date: 01/11/2022

x max: -149151.414
y max: 6614052.006

Scale: 1:6000

Contains public sector information licensed under the Open Government
Licence v3.0
© OpenStreetMap contributors OpenStreetMap® is
open data, licensed under the Open Data Commons
Open Database License (ODbL) by the OpenStreetMap
Foundation (OSMF).





T: +44 (0) 1235 75 3000

E: enquiry@ricardo.com

W: ee.ricardo.com



NAVIGATOR QUARTER, SOUTHAMPTON AIRPORT: MITCHELL WAY LINK ROAD

Wintering Bird Survey

Report for: Southampton International Airport Limited

Ref. 84004775

Ricardo ref. ED15367

Issue: 1

31/08/2022

Customer:

Southampton International Airport Limited

Customer reference:

84004775

Confidentiality, copyright and reproduction:

This report is the Copyright of Southampton International Airport Ltd. It has been prepared by Ricardo Energy & Environment, a trading name of Ricardo-AEA Ltd, under contract to Southampton International Airport Ltd. The contents of this report may not be reproduced in whole or in part, nor passed to any organisation or person without the specific prior written permission of Southampton International Airport Ltd. Ricardo Energy & Environment accepts no liability whatsoever to any third party for any loss or damage arising from any interpretation or use of the information contained in this report, or reliance on any views expressed therein.

Ricardo reference:

ED15367

Contact:

Rob Hinks, Gemini Building, Fermi Avenue, Harwell, Didcot, OX11 0QR, UK

T: +44 (0)7736 869 661

E: rob.hinks@ricardo.com

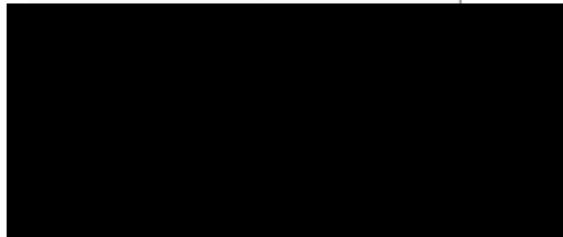
Author:

Dr Jess Ware, Tom Clayton

Approved by:

Laurence David

Signed



Date:

31/08/2022

Ricardo is certified to ISO9001, ISO14001, ISO27001 and ISO45001.

Ricardo, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to as the 'Ricardo Group'. The Ricardo Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Ricardo Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

CONTENTS

1. INTRODUCTION	1
1.1 BACKGROUND	1
1.2 SURVEY AREA AND LOCATION	1
1.3 OBJECTIVES	3
1.4 LEGISLATION AND GUIDANCE	3
1.4.1 Conservation of Habitats and Species Regulations 2017 (as amended)	3
1.4.2 The Wildlife and Countryside Act 1981 (as amended)	3
1.4.3 Natural Environmental and Rural Communities Act 2006	3
1.4.4 Birds of Conservation Concern	4
1.4.5 Local Biodiversity Action Plans	4
1.5 LIMITATIONS	4
2. METHODOLOGY	5
2.1 DESK STUDY	5
2.2 FIELD SURVEY	5
2.3 DATA ANALYSIS	6
3. RESULTS	7
3.1 DESK STUDY	7
3.1.1 Hampshire Biodiversity Information Centre data	7
3.1.2 WeBS peak count data	7
3.2 FIELD SURVEY	8
4. DISCUSSION AND CONCLUSION	11

Appendices

APPENDIX 1 WINTERING BIRD SURVEY DATA	1
---------------------------------------	---

1. INTRODUCTION

1.1 BACKGROUND

Ricardo Energy & Environment were commissioned by Southampton International Airport Limited to undertake wintering bird surveys in relation to proposals to implement a development in the Southampton Navigator Quarter area and submit a planning application. The requirement for the wintering bird surveys has been raised due to the proximity of the Navigator Quarter to suitable habitat (wetland, open water, river and estuary) and potential for the semi-improved grassland habitat present to provide functionally linked foraging habitat.

This wintering bird survey report has focussed on Mitchell Way link road present at Navigator Quarter only and the potential impact of the proposed development on wintering bird populations, if using the site.

1.2 SURVEY AREA AND LOCATION

Mitchell Way link road is located on the north-east side of Southampton Airport, centred roughly at Ordnance Survey National Grid Reference (NGR) SU 45824 17830 and is shown in **Figure 1.1**. The site is adjacent to the River Itchen Special Area of Conservation (SAC) and River Itchen Site of Special Scientific Interest (SSSI) and 5.4 km north-east of the Solent and Southampton Water Special Protection Area (SPA), Ramsar site and Lee-on-the-Solent to Itchen Estuary SSSI. The Solent and Southampton Water SPA and Ramsar site are designated due supporting wader, waterfowl, tern and gull populations of international and national importance including black tailed godwit *Limosa limosa*, dark-bellied brent goose *Branta bernicla bernicla* common tern *Sterna hirundo* and Mediterranean gull *Ichthyophaga melanocephalus*.

The study area broadly comprised the following Phase 1 Habitat Survey¹ classification habitats:

- Semi-improved grassland
- Broadleaved plantation woodland
- Dense scrub
- Scrub
- Scrub woodland
- Hard standing

¹ Joint Nature Conservancy Council (2010) Handbook for Phase 1 Habitat Survey – a technique for environmental audit, ISBN 0 86139 636 7



Figure 1.1 Survey area at the Mitchell Way link road (red line).

1.3 OBJECTIVES

The objectives of the wintering bird survey were to:

- Identify any legally protected species using the Mitchell Way link road at Navigator Quarter;
- Identify any nationally, regionally or locally significant species using the Mitchell Way link road at Navigator Quarter, including Local Biodiversity Action Plan Species and Species of Principle Importance (priority species);
- Identify key habitat areas for feeding and roosting for those species recorded; and
- Assess the potential impact of the proposed development on wintering birds using the Mitchell Way link road at Navigator Quarter (if present).

1.4 LEGISLATION AND GUIDANCE

There are several different acts of legislation and guidance with particular relevance to birds, which are outlined below. This is a short summary of relevant legislation and guidance, that should not be considered a definitive legal opinion.

1.4.1 Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations), as amended, provides for the designation and protection of a network of 'European sites' (also termed national site network), including Special Areas of Conservation (SACs) and SPAs.

Regulation 43 creates the following offences relating to European Protected Species (EPS):

- deliberately capture, injure or kill any wild animal of a European Protected Species;
- deliberately disturb animals of any such species in such a way as to be likely to:
 - impair their ability to survive, breed, rear or nurture their young, hibernate or migrate, or
 - significantly affect the local distribution or abundance of the species to which they belong;
- deliberately take or destroy the eggs of such an animal; or
- damage or destroy a breeding site or resting place of such an animal.

1.4.2 The Wildlife and Countryside Act 1981 (as amended)

The Wildlife & Countryside Act 1981 (as amended) provides for designation and protection of SSSIs, which are areas that represent the most valuable habitats in the United Kingdom (UK) for nature conservation. In addition, it is the principal legislation affording protection to UK wild birds.

The Act creates the following offences in relation to wild bird:

- To intentionally kill, injure, or take any wild bird or their eggs or nests (with exception to species listed in Schedule 2).
- To intentionally disturb species listed on Schedule 1 of the Act whilst building or occupying a nest or intentionally disturb their dependent young.

It also provides a mechanism of making any of the above offences legal, through the granting of licences by the appropriate authorities.

1.4.3 Natural Environment and Rural Communities Act 2006

A number of birds feature on the Natural Environment and Rural Communities (NERC) Act 2006², Section 41 (S41), as species which are of principal importance for the conservation of biodiversity in England. The Section 41 list is used to guide decision-makers, such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

² [Natural Environment and Rural Communities Act 2006 \(legislation.gov.uk\)](https://www.legislation.gov.uk/ukpga/2006/29/section/41) Accessed July 2021.

1.4.4 Birds of Conservation Concern

The Birds of Conservation Concern (BoCC) is a review of the conservation status of all birds occurring regularly in the UK. Bird species are classified into the following categories:

- Red list (high conservation concern) species are those that are globally threatened according to International Union for the Conservation of Nature (IUCN) criteria. These include those whose population or range has declined rapidly ($\geq 50\%$) in recent years and those that have declined historically and not shown a substantial recent recovery;
- Amber list (medium conservation concern) species are those with an unfavourable conservation status in Europe. These include those whose population or range has declined moderately (between 25% and 49%) in recent years, has declined historically but made a substantial recent recovery, rare breeders and those with internationally important or localised populations; and
- Green list (low conservation concern) species that fulfil none of the above criteria.

1.4.5 Local Biodiversity Action Plans

Some bird species are afforded local protection through Local Biodiversity Action Plans (LBAP), which lists species of importance in the local area. In relation to the Mitchell Way link road in Navigator Quarter, the conservation of habitats supporting any species listed in the Southampton LBAP and also recorded on site should be encouraged in accordance with the LBAP.

1.5 LIMITATIONS

There are no bird species records publicly available within the site boundary to conduct a desk-based assessment. For example, no Wetland Bird Surveys (WeBS) have been conducted within the boundaries of the site. However, WeBS peak count data available for Allington gravel pit and Lakeside lakes, which are <1 km from Mitchell Way link road will be reviewed to inform the wintering bird report on localised activity.

The survey visits at Mitchell Way link road were undertaken from November 2021 – February 2022 when wintering waterfowl might be present. The survey period excluded September, October and March which are also within the bird wintering period. Intermittent rain was also recorded during the survey on 4th November 2021. However, due to the number of surveys conducted and lack of wintering waterfowl identified using the site it is not considered likely to significantly affect the conclusions drawn within this report.

It is noted that this report deals with matters of legal significance but does not constitute professional legal advice. The Client may wish to seek professional legal interpretation of the relevant wildlife legislation cited in this document, which is summarised in **Section 1.4**.

2. METHODOLOGY

2.1 DESK STUDY

Prior to site visits a data search was undertaken to compile existing bird data (peak counts) from WeBS, produced by British Trust for Ornithology (BTO), for sites within 2 km of the Mitchel Way link road. No WeBS data is available within the site boundary. The objective of the data search was to provide information on the local wintering bird peak counts within adjacent supporting habitat. This gave an indication of potential species using Mitchel Way link road.

2.2 FIELD SURVEY

The surveys were undertaken following the BTO WeBS core count methodology³ to identify and record birds using the Mitchel Way link road at Navigator Quarter, with particular interest on the presence of wintering waterfowl (this includes divers, grebes, cormorants, herons, geese, ducks, rails, waders, gulls and terns) on the semi-improved grassland habitat. The following approach was adopted:

- A survey transect was walked at a slow, ambling pace, stopping to scan priority habitat/ features where appropriate, with a minimum distance of 50 m between each transect route.
- Each survey started at sunrise and continued for 4 hours thereafter, aligning with WeBS core count methodology.
- All birds encountered (either observed or heard) at the Mitchel Way link road, on adjacent land or flying over were recorded on a site map, using BTO codes. Notes were taken on bird behaviour where appropriate.

Six transect surveys were undertaken from November 2021 – end of February 2022 by Jess Ware (BSc, MSc, PhD) and Tom Clayton (BSc, MSc). The weather conditions recorded during each survey are provided below in Table 2.1.

Table 2.1 General information on the six wintering bird survey visits completed from November 2021 – February 2022 at Mitchel Way link road.

Surveyor(s)	Date	Sunrise/ Sunset	Start	End	Weather
Jess Ware/ Tom Clayton	04/11/21	07:02	07:00		5°C, Okta 2, BF 3, NW, dry, good visibility
				11:00	8°C, Okta 6, BF 3, NNW, intermittent rain, good visibility
Jess Ware/ Tom Clayton	18/11/21	07:26	07:30		7°C, Okta 8, BF 0, N/A, dry, good visibility
				11:30	11°C, Okta 4, BF 1, W, dry, good visibility
Jess Ware/ Tom Clayton	15/12/21	08:02	08:00		11°C, Okta 8, BF 1, WSW, dry, good visibility
				12:00	13°C, Okta 8, BF 1, WSW, dry, good visibility
Jess Ware/ Tom Clayton	20/01/22	08:03	08:00		1°C, Okta 0, BF 0, N/A, dry, good visibility
				12:00	4°C, Okta 0, BF 1, NW, dry, good visibility

³ Gilbert, G., Gibbons, D. W. and Evans, J., (1998). Bird Monitoring Methods. RSPB.

Surveyor(s)	Date	Sunrise/ Sunset	Start	End	Weather
Jess Ware/ Tom Clayton	03/02/22	07:39	07:40		8°C, Okta 8, BF 2, WSW, dry, good visibility
				11:40	9°C, Okta 5, BF 2, WSW, dry, good visibility
Jess Ware/ Tom Clayton	25/02/22	06:56	07:00		4°C, Okta 1, BF 1, SW, dry, good visibility
				11:00	7°C, Okta 0, BF SW, dry, good visibility

2.3 DATA ANALYSIS

The conservation value of bird populations has been measured using two separate approaches: conservation status and nature conservation value within a geographical context⁴. Firstly, birds recorded during the surveys listed under either WCA Schedule 1, NERC S41 and/ or BoCC Red or Amber listed species in the UK are likely to be vulnerable to population decline and are herein, referred to as 'notable species'. The conservation value for each species recorded has been reviewed based on its international, national and regional conservation value. The criteria has been outlined in **Table 2.2** below.

Table 2.2 Selection criteria for determining the natura conservation value of birds recorded during the wintering bird surveys at Mitchel Way link road.

Nature Conservation Value	Selection Criteria
International	- Qualifying feature of an Special Protection Area (SPA). - A species present in internationally important numbers (>1% of international population).
National	- Cited species of a Site of Special Scientific Interest (SSSI). - A species present in nationally important numbers (>1% UK population).
Regional	- Species listed as Natural Environment and Rural Communities (NERC) Section 41 (S41) which are not covered above. - Species present in regionally important numbers (>1% of regional population). - Sustainable populations of species that are rare or scarce within Hampshire. - Species on UK Birds of Conservation Concern (BoCC) Red List and which regularly occurs in regionally important numbers.

⁴ CIEEM (2016). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.

3. RESULTS

3.1 DESK STUDY

3.1.1 Hampshire Biodiversity Information Centre data

A total of 39 wintering waterfowl (including kingfisher *Alcedo atthis*) have been recorded from 2010 – 2019 within 2 km of Mitchell Way link road. No waterfowl have been recorded within the boundaries of Mitchell Way link road. 38 m south-east of the site boundary, a woodcock *Scolopax rusticola* was recorded in 2015.

Within 1 km of the Mitchell Way link road other species records associated with wetland, grassland and riverine habitat include water rail *Rallus aquaticus*, little egret *Egretta garzetta*, shelduck *Tadorna tadorna*, green sandpiper *Tringa ochropus*, red-breasted merganser *Mergus serrator*, Mediterranean gull *Larus melanocephalus*, kingfisher, lapwing *Vanellus vanellus*, whimbrel *Numenius phaeopus*, black-headed gull *Chroicocephalus ridibundus*, curlew *Numenius arquata*, herring gull *Larus argentatus*, great black-backed gull *Chroicocephalus ridibundus*, lesser black-backed gull *Larus fuscus*, grey heron *Ardea cinerea*, common snipe *Gallinago gallinago* and golden plover *Pluvialis apricaria*.

3.1.2 WeBS peak count data

Two WeBS survey sites were identified within 2 km of Mitchell Way link road: Allington gravel pits (17233) which is 0.59 km south-east and Lakeside lakes (17017) which is 0.6 km west. Yearly peak count data recorded by WeBS has been collated for 2017/18, 2018/19 and 2019/20⁵ and shown in Table 3.1. A total of nine species have been recorded at Allington gravel pits from 2017 – 2020, with the most abundant species including greylag goose *Anser anser*, Canada goose *Branta canadensis* and tufted duck *Aythya fuligula*. A total of 19 species have been recorded at Lakeside lakes from 2017 – 2020, with the most abundant species including black-headed gull, greylag goose and snipe.

Table 3.1 Wetland Bird Survey (WeBS) peak count data from 2017 – 2020 for Allington gravel pits and Lakeside lakes.

Species	Allington gravel pits			Lakeside lakes		
	2017/18	2018/19	2019/20	2017/18	2018/19	2019/20
Canada goose <i>Branta canadensis</i>	34	0	50	4	6	7
Mallard <i>Anas platyrhynchos</i>	0	0	0	43	43	32
Cormorant <i>Phalacrocorax carbo</i>	19	22	24	1	0	1
Great crested grebe <i>Podiceps cristatus</i>	0	2	1	4	3	5
Teal <i>Anas crecca</i>	0	0	0	1	0	2
Tufted duck <i>Aythya fuligula</i>	45	43	0	3	9	2
Black-headed gull <i>Chroicocephalus ridibundus</i>	0	0	0	130	70	110
Coot	0	0	0	6	11	12

⁵ Frost, T.M., Calbrade, N.A., Birtles, G.A., Hall, C., Robinson, A.E., Wotton, S.R., Balmer, D.E. and Austin, G.E. 2021. *Waterbirds in the UK 2019/20: The Wetland Bird Survey*. BTO/RSPB/JNCC. Thetford.

Contains Wetland Bird Survey (WeBS) data from Waterbirds in the UK 2019/20 © copyright and database right 2021. WeBS is a partnership jointly funded by the BTO, RSPB and JNCC, in association with WWT, with fieldwork conducted by volunteers

Species	Allington gravel pits			Lakeside lakes		
	2017/18	2018/19	2019/20	2017/18	2018/19	2019/20
<i>Fulica atra</i>						
Lesser black-backed gull <i>Larus fuscus</i>	0	0	0	2	3	0
Grey heron <i>Ardea cinerea</i>	0	0	0	2	0	0
Mandarin duck <i>Aix galericulata</i>	2	1	2	0	0	0
Little egret <i>Egretta garzetta</i>	20	22	27	0	0	0
Moorhen <i>Gallinula chloropus</i>	0	0	0	10	15	16
Snipe <i>Gallinago gallinago</i>	0	0	0	45	62	38
Kingfisher <i>Alcedo atthis</i>	0	0	0	0	1	1
Northern shoveler <i>Anas clypeata</i>	12	18	0	0	0	0
Greylag goose <i>Anser anser</i>	125	0	170	45	132	56
Pochard <i>Aythya ferina</i>	0	2	1	0	0	0
Mute swan <i>Cygnus olor</i>	0	0	0	2	2	2
Jack snipe <i>Lymnocyptes minimus</i>	0	0	0	3	3	1
Water rail <i>Rallus aquaticus</i>	0	0	0	2	1	1
Common gull <i>Larus canus</i>	0	0	0	0	0	2
Little grebe <i>Tachybaptus ruficollis</i>	0	0	0	1	0	0

3.2 FIELD SURVEY

A total of 26 bird species were recorded during the wintering bird surveys at the Mitchell Way link road (see **Appendix 1**). Of the 26 species recorded, four were waterfowl and two were 'notable' waterfowl which included black-headed gull and herring gull (see **Figure 3.1**). Redwing *Turdus iliacus* is also listed below as a wintering thrush in the UK. Black-headed gull and redwing are a BoCC amber listed species and herring gull is BoCC red listed and NERC S41 listed species. Redwing is the only WCA Schedule 1 species identified at Navigation Quarter that was recorded at the following OS NGR and flew south-east: SU 46268 17671. Herring gull, black-headed gull and mute swan *Cygnus olor* were all recorded flying over the site.

Table 3.2 Waterfowl recorded during wintering bird surveys from November 2021 – February 2022 at Mitchell Way link road, Navigation Quarter in Southampton Airport.

Species	UK Conservation Status	Hampshire Priority Species	Qualifying feature of Solent and Southampton Water SPA and Ramsar site	Peak count/ No. of surveys recorded	Habitat species recorded
Black-headed gull <i>Chroicocephalus ridibundus</i>	Amber,	No	No	6/ 4	Fly over
Herring gull <i>Larus argentatus</i>	Red, NERC S41	No	No	2/ 3	Fly over
*Redwing (included as wintering thrush) <i>Turdus iliacus</i>	Amber, WCA Schedule 1	No	No	1/ 1	Grassland, scrub
Mute swan <i>Cygnus olor</i>	Green	No	Yes – as part of the waterbird assemblage qualifying feature	2/ 1	Fly over

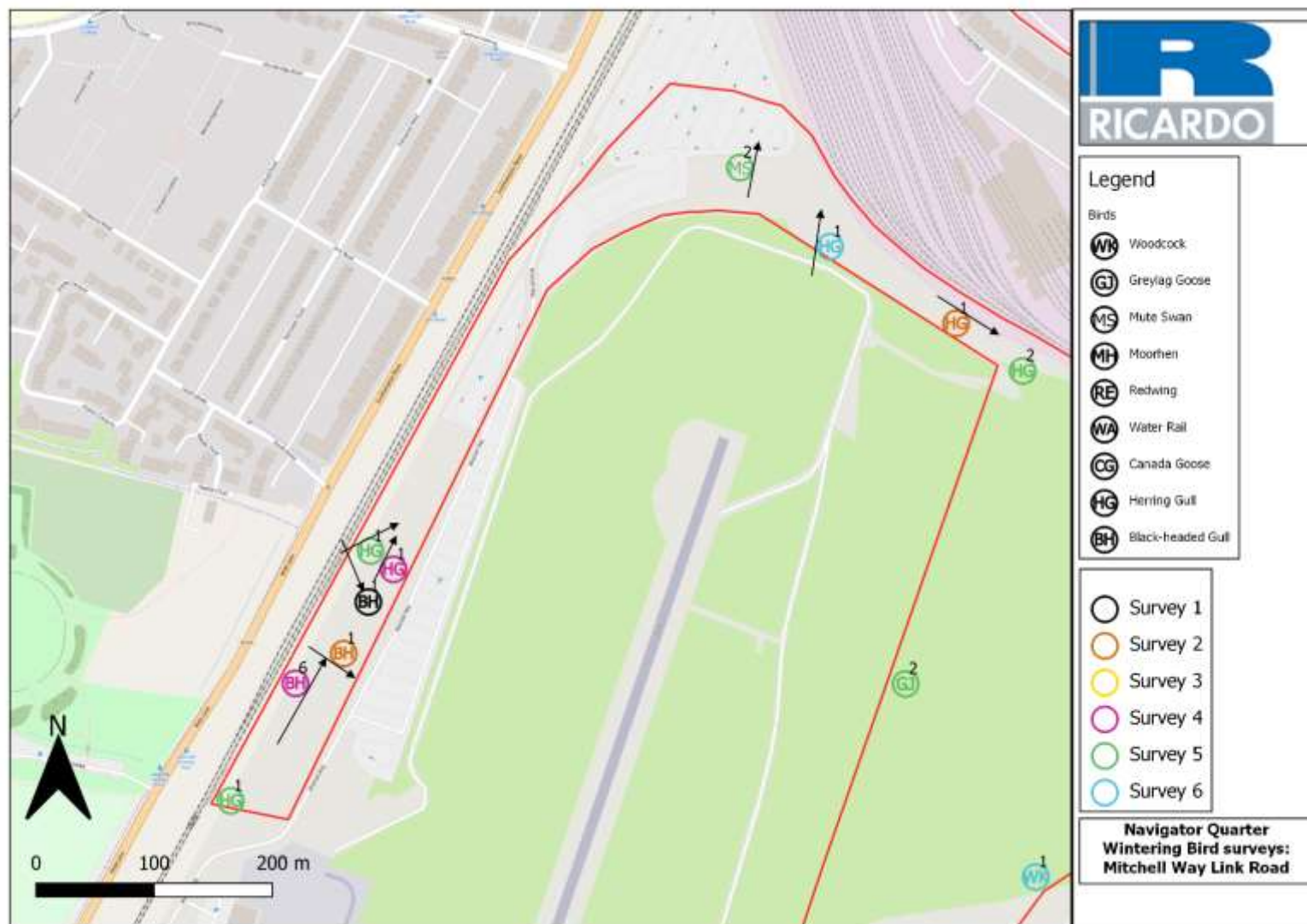


Figure 3.1 Distribution of waterfowl recorded during six wintering bird surveys from November 2021 – February 2022 at Mitchell Way link road, Navigation Quarter, Southampton Airport. Numbers reflect bird abundance and arrows, fly over direction. Redwing was additionally recorded at the following OS NGR and flew south-east: SU 46268 17671

4. DISCUSSION AND CONCLUSION

During the six wintering bird surveys conducted from November 2021 – February 2022 at Mitchell Way link road, Navigation Quarter at Southampton airport, a small number of waterfowl species were recorded of national conservation status and one of international importance. These included black-headed gull, herring gull and mute swan. Redwing was also recorded as WCA Schedule 1 listed species and a wintering thrush in the UK. All of the gull species have previously been recorded within 1 km of the site and mute swans have also been recorded at Lakeside lakes during WeBS in 2019/20. Herring gull, black-headed gull and mute swan were only recorded flying over the site. Redwing was recorded feeding within the grassland and scrub habitat within the boundary of Mitchell Way link road.

Based on the surveys conducted at Mitchell Way link road, the site does not provide functionally linked habitat for qualifying features of the Solent and Southampton Water SPA and Ramsar site or nationally and regionally protected wintering waterfowl. This may be due to the wildlife management activities that the airport is required to undertake⁶ to safeguard aviation safety, and the proximity of other suitable habitat such as the River Itchen, Allington gravel pits, wetland and wet grassland to the south/ south-east, plus Lakeside lakes to the west and the Solent and Southampton Water estuarine habitat. Therefore, based on the lack of waterfowl activity at the site, no further wintering bird surveys are recommended in relation to the proposed development within the boundaries of Mitchell Way link road. As redwing were only recorded during one of the wintering surveys, it is not deemed key functionally linked habitat that if lost, would impact on the overall population. However, as redwing are protected under the WCA and intentional disturbance, if present during construction works, mitigation measures will need to be considered to reduce noise disturbance within proximity of potential supporting habitat (i.e woodland edge and scrub).

⁶ Civil Aviation Authority. (2017). *Wildlife hazard management at aerodromes. CAP 772*

APPENDICES

Appendix 1 Wintering bird survey data

Appendix 1 Total bird species recorded during six wintering bird surveys undertaken from November 2021 – February 2022 at Mitchell Way link road, including their conservation status (national and regional) and location recorded.

Species	UK Conservation Status	Hampshire Priority Species	Habitat species recorded
Black-headed gull <i>Chroicocephalus ridibundus</i>	Amber	No	Fly over
Herring gull <i>Larus argentatus</i>	Red, NERC Section 41	No	Fly over
Woodpigeon <i>Columba livia domestica</i>	Amber	No	Woodland
Magpie <i>Pica pica</i>	Green	No	Woodland
Carrion crow <i>Corvus corone</i>	Green	No	Woodland
Blue tit <i>Cyanistes caeruleus</i>	Green	No	Woodland
Great tit <i>Parus major</i>	Green	No	Woodland
Long-tailed tit <i>Aegithalos caudatus</i>	Green	No	Woodland
Wren <i>Troglodytes troglodytes</i>	Amber	No	Woodland
Starling <i>Sturnus vulgaris</i>	Red, NERC S41	No	Scrub
Blackbird <i>Turdus merula</i>	Green	No	Woodland
Song thrush <i>Turdus philomelos</i>	Amber, NERC S41	Yes	Woodland, scrub
Robin <i>Erithacus rubecula</i>	Green	No	Woodland, scrub
Dunnock <i>Prunella modularis</i>	Amber, NERC S41	No	Woodland, scrub
Meadow pipit <i>Anthus pratensis</i>	Amber	No	Grassland
Chaffinch <i>Fringilla coelebs</i>	Green	No	Woodland
Greenfinch <i>Chloris chloris</i>	Red	No	Woodland
Linnet <i>Linaria cannabina</i>	Red, NERC S41	Yes	Grassland, fly over
Goldfinch <i>Carduelis carduelis</i>	Green	No	Woodland
Nuthatch <i>Sitta europaea</i>	Green	No	Woodland

Great spotted woodpecker <i>Dendrocopos major</i>	Green	No	Woodland
Stonechat <i>Saxicola rubicola</i>	Green	No	Scrub
Mute swan <i>Cygnus olor</i>	Green	No	Fly over
Goldcrest <i>Regulus regulus</i>	Green	No	Woodland
House sparrow <i>Passer domesticus</i>	Red, NERC S41	No	Woodland, scrub
Redwing <i>Turdus iliacus</i>	Amber, WCA Schedule 1	No	Grassland, scrub



T: +44 (0) 1235 75 3000

E: enquiry@ricardo.com

W: ee.ricardo.com



NAVIGATOR QUARTER, SOUTHAMPTON AIRPORT: NETWORK RAIL FIELD

Wintering Bird Survey

Report for: Southampton International Airport Limited

Ref. 84004775

Ricardo ref. ED15367

Issue: 1

31/08/2022

Customer:

Southampton International Airport Limited

Customer reference:

84004775

Confidentiality, copyright and reproduction:

This report is the Copyright of Southampton International Airport Ltd. It has been prepared by Ricardo Energy & Environment, a trading name of Ricardo-AEA Ltd, under contract to Southampton International Airport Ltd. The contents of this report may not be reproduced in whole or in part, nor passed to any organisation or person without the specific prior written permission of Southampton International Airport Ltd. Ricardo Energy & Environment accepts no liability whatsoever to any third party for any loss or damage arising from any interpretation or use of the information contained in this report, or reliance on any views expressed therein.

Ricardo reference:

ED15367

Contact:

Rob Hinks, Gemini Building, Fermi Avenue, Harwell, Didcot, OX11 0QR, UK

T: +44 (0)7736 869 661

E: rob.hinks@ricardo.com

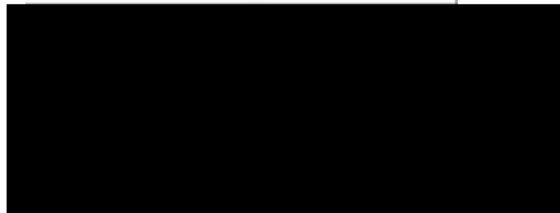
Author:

Dr Jess Ware, Tom Clayton

Approved by:

Laurence David

Signed



Date:

31/08/2022

Ricardo is certified to ISO9001, ISO14001, ISO27001 and ISO45001.

Ricardo, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to as the 'Ricardo Group'. The Ricardo Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Ricardo Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

CONTENTS

1. INTRODUCTION	1
1.1 BACKGROUND	1
1.2 SURVEY AREA AND LOCATION	1
1.3 OBJECTIVES	3
1.4 LEGISLATION AND GUIDANCE	3
1.4.1 Conservation of Habitats and Species Regulations 2017 (as amended)	3
1.4.2 The Wildlife and Countryside Act 1981 (as amended)	3
1.4.3 Natural Environmental and Rural Communities Act 2006	3
1.4.4 Birds of Conservation Concern	4
1.4.5 Local Biodiversity Action Plans	4
1.5 LIMITATIONS	4
2. METHODOLOGY	5
2.1 DESK STUDY	5
2.2 FIELD SURVEY	5
2.3 DATA ANALYSIS	6
3. RESULTS	7
3.1 DESK STUDY	7
3.1.1 Hampshire Biodiversity Information Centre data	7
3.1.2 WeBS peak count data	7
3.2 FIELD SURVEY	9
4. DISCUSSION AND CONCLUSION	11

Appendices

APPENDIX 1 WINTERING BIRD SURVEY DATA	1
---------------------------------------	---

1. INTRODUCTION

1.1 BACKGROUND

Ricardo Energy & Environment were commissioned by Southampton International Airport Limited to undertake wintering bird surveys in relation to proposals to implement a development in the Southampton Navigator Quarter area and submit a planning application. The requirement for the wintering bird surveys has been raised due to the proximity of the Navigator Quarter to suitable habitat (wetland, open water, river and estuary) and potential for the semi-improved grassland habitat present to provide functionally linked foraging habitat.

This wintering bird survey report has focussed on the Network Rail field present at Navigator Quarter only and the potential impact of the proposed development on wintering bird populations, if using the site.

1.2 SURVEY AREA AND LOCATION

The Network Rail field site is located on the north-east side of Southampton Airport, centred roughly at Ordnance Survey National Grid Reference (NGR) SU 46376 17800 and is shown in **Figure 1.1**. The site is adjacent to the River Itchen Special Area of Conservation (SAC) and River Itchen Site of Special Scientific Interest (SSSI) and 5.4 km north-east of the Solent and Southampton Water Special Protection Area (SPA), Ramsar site and Lee-on-the-Solent to Itchen Estuary SSSI. The Solent and Southampton Water SPA and Ramsar site are designated due to supporting wader, waterfowl, tern and gull populations of international and national importance including black tailed godwit *Limosa limosa*, dark-bellied brent goose *Branta bernicla bernicla* common tern *Sterna hirundo* and Mediterranean gull *Ichthyophaga melanocephalus*.

The study area broadly comprised the following Phase 1 Habitat Survey¹ classification habitats:

- Semi-improved grassland
- Broadleaved plantation woodland
- Dense Scrub
- Scrub
- Scrub woodland

¹ Joint Nature Conservancy Council (2010) Handbook for Phase 1 Habitat Survey – a technique for environmental audit, ISBN 0 86139 636 7

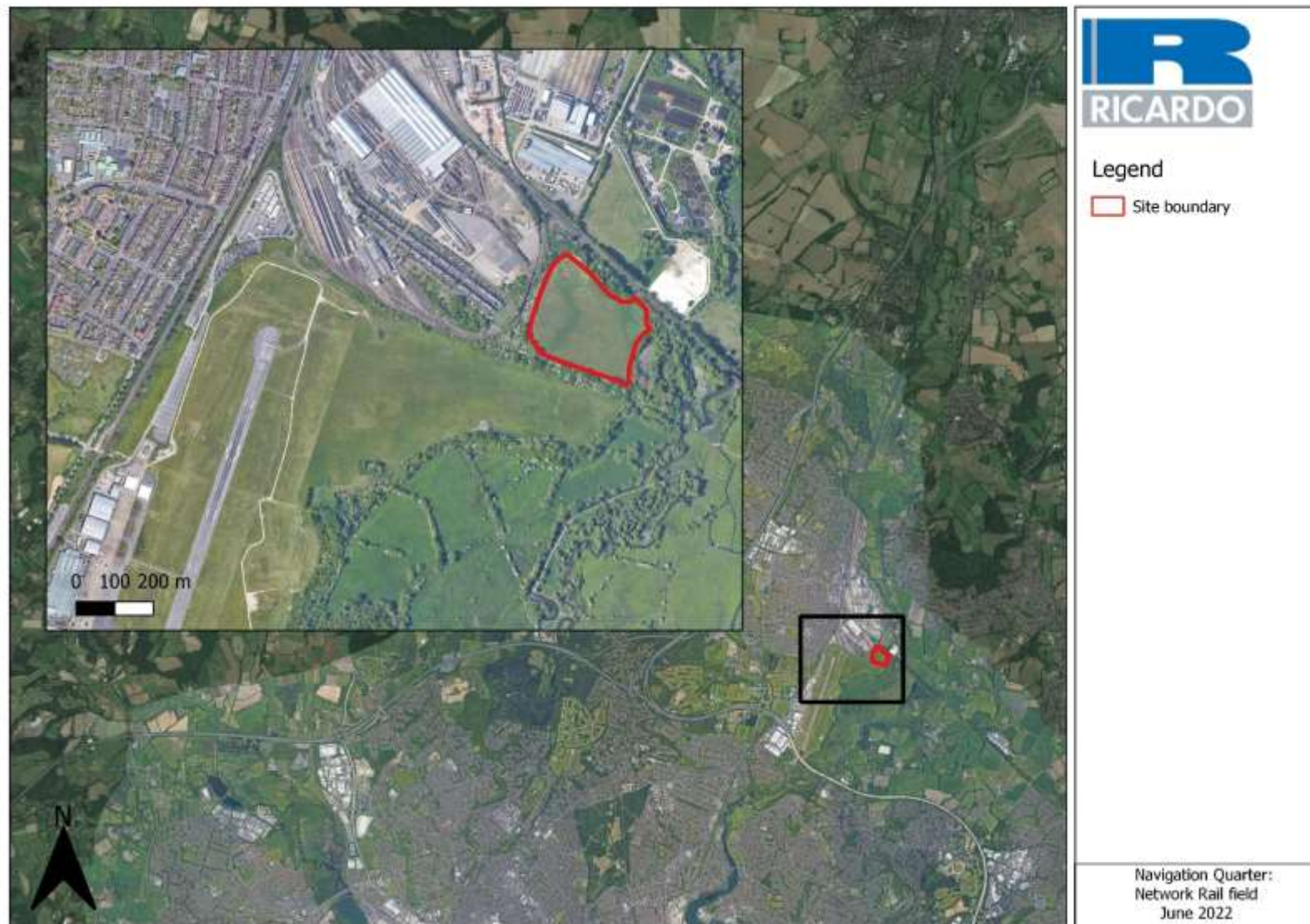


Figure 1.1 Survey area at the Network Rail field (red line).

1.3 OBJECTIVES

The objectives of the wintering bird survey were to:

- Identify any legally protected species using the Network Rail field at Navigator Quarter;
- Identify any nationally, regionally or locally significant species using the Network Rail field at Navigator Quarter, including Local Biodiversity Action Plan Species and Species of Principle Importance (priority species);
- Identify key habitat areas for feeding and roosting for those species recorded; and
- Assess the potential impact of the proposed development on wintering birds using the Network Rail field at Navigator Quarter (if present).

1.4 LEGISLATION AND GUIDANCE

There are several different acts of legislation and guidance with particular relevance to birds, which are outlined below. This is a short summary of relevant legislation and guidance, that should not be considered a definitive legal opinion.

1.4.1 Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations), as amended, provides for the designation and protection of a network of 'European sites' (also termed national site network), including Special Areas of Conservation (SACs) and SPAs.

Regulation 43 creates the following offences relating to European Protected Species (EPS):

- deliberately capture, injure or kill any wild animal of a European Protected Species;
- deliberately disturb animals of any such species in such a way as to be likely to:
 - impair their ability to survive, breed, rear or nurture their young, hibernate or migrate, or
 - significantly affect the local distribution or abundance of the species to which they belong;
- deliberately take or destroy the eggs of such an animal; or
- damage or destroy a breeding site or resting place of such an animal.

1.4.2 The Wildlife and Countryside Act 1981 (as amended)

The Wildlife & Countryside Act (WCA) 1981 (as amended) provides for designation and protection of SSSIs, which are areas that represent the most valuable habitats in the United Kingdom (UK) for nature conservation. In addition, it is the principal legislation affording protection to UK wild birds.

The Act creates the following offences in relation to wild bird:

- To intentionally kill, injure, or take any wild bird or their eggs or nests (with exception to species listed in Schedule 2).
- To intentionally disturb species listed on Schedule 1 of the Act whilst building or occupying a nest or intentionally disturb their dependent young.

It also provides a mechanism of making any of the above offences legal, through the granting of licences by the appropriate authorities.

1.4.3 Natural Environment and Rural Communities Act 2006

A number of birds feature on the Natural Environment and Rural Communities (NERC) Act 2006², Section 41 (S41), as species which are of principal importance for the conservation of biodiversity in England. The Section 41 list is used to guide decision-makers, such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

² [Natural Environment and Rural Communities Act 2006 \(legislation.gov.uk\)](https://www.legislation.gov.uk/ukpga/2006/29/section/41) Accessed July 2021.

1.4.4 Birds of Conservation Concern

The Birds of Conservation Concern (BoCC) is a review of the conservation status of all birds occurring regularly in the UK. Bird species are classified into the following categories:

- Red list (high conservation concern) species are those that are globally threatened according to International Union for the Conservation of Nature (IUCN) criteria. These include those whose population or range has declined rapidly ($\geq 50\%$) in recent years and those that have declined historically and not shown a substantial recent recovery;
- Amber list (medium conservation concern) species are those with an unfavourable conservation status in Europe. These include those whose population or range has declined moderately (between 25% and 49%) in recent years, has declined historically but made a substantial recent recovery, rare breeders and those with internationally important or localised populations; and
- Green list (low conservation concern) species that fulfil none of the above criteria.

1.4.5 Local Biodiversity Action Plans

Some bird species are afforded local protection through Local Biodiversity Action Plans (LBAP), which lists species of importance in the local area. In relation to the Network Rail field in Navigator Quarter, the conservation of habitats supporting any species listed in the Southampton LBAP and also recorded on site should be encouraged in accordance with the LBAP.

1.5 LIMITATIONS

No Wetland Bird Surveys (WeBS) have been conducted within the boundaries of the site. However, WeBS peak count data available for Allington gravel pit and Lakeside lakes, which are <1 km from Network Rail field will be reviewed to inform the wintering bird report on localised activity. In addition, bird records from Hampshire Biodiversity Information Centre have been reviewed as part of the desk study.

The survey visits at Network Rail field were undertaken from November 2021 – February 2022 when wintering waterfowl might be present. The survey period excluded September, October and March which are also within the bird wintering period. Intermittent rain was also recorded during the survey on 4th November 2021. However, due to the number of surveys conducted and lack of wintering waterfowl identified using the site it is not considered likely to significantly affect the conclusions drawn within this report.

It is noted that this report deals with matters of legal significance but does not constitute professional legal advice. The Client may wish to seek professional legal interpretation of the relevant wildlife legislation cited in this document, which is summarised in **Section 1.4**.

2. METHODOLOGY

2.1 DESK STUDY

Prior to site visits a data search was undertaken to compile existing bird data (peak counts) from WeBS, produced by British Trust for Ornithology (BTO), for sites within 2 km of the Network Rail field. No WeBS data is available within the site boundary. The objective of the data search was to provide information on the local wintering bird peak counts within adjacent supporting habitat. This gave an indication of potential species using Network Rail field.

2.2 FIELD SURVEY

The surveys were undertaken following the BTO WeBS core count methodology³ to identify and record birds using the Network Rail field at Navigator Quarter, with particular interest on the presence of wintering waterfowl (this includes divers, grebes, cormorants, herons, geese, ducks, rails, waders, gulls and terns) on the semi-improved grassland habitat. The following approach was adopted:

- A survey transect was walked at a slow, ambling pace, stopping to scan priority habitat/ features where appropriate, with a minimum distance of 50 m between each transect route.
- Each survey started at sunrise and continued for 4 hours thereafter, aligning with WeBS core count methodology.
- All birds encountered (either observed or heard) at the Network Rail field, on adjacent land or flying over were recorded on a site map, using BTO codes. Notes were taken on bird behaviour where appropriate.

Six transect surveys were undertaken from November 2021 – end of February 2022 by Jess Ware (BSc, MSc, PhD) and Tom Clayton (BSc, MSc). The weather conditions recorded during each survey are provided below in Table 2.1.

Table 2.1 General information on the six wintering bird survey visits completed from November 2021 – February 2022 at Network Rail field.

Surveyor(s)	Date	Sunrise/ Sunset	Start	End	Weather
Jess Ware/ Tom Clayton	04/11/21	07:02	07:00		5°C, Okta 2, BF 3, NW, dry, good visibility
				11:00	8°C, Okta 6, BF 3, NNW, intermittent rain, good visibility
Jess Ware/ Tom Clayton	18/11/21	07:26	07:30		7°C, Okta 8, BF 0, N/A, dry, good visibility
				11:30	11°C, Okta 4, BF 1, W, dry, good visibility
Jess Ware/ Tom Clayton	15/12/21	08:02	08:00		11°C, Okta 8, BF 1, WSW, dry, good visibility
				12:00	13°C, Okta 8, BF 1, WSW, dry, good visibility
Jess Ware/ Tom Clayton	20/01/22	08:03	08:00		1°C, Okta 0, BF 0, N/A, dry, good visibility
				12:00	4°C, Okta 0, BF 1, NW, dry, good visibility

³ Gilbert, G., Gibbons, D. W. and Evans, J., (1998). Bird Monitoring Methods. RSPB.

Surveyor(s)	Date	Sunrise/ Sunset	Start	End	Weather
Jess Ware/ Tom Clayton	03/02/22	07:39	07:40		8°C, Okta 8, BF 2, WSW, dry, good visibility
				11:40	9°C, Okta 5, BF 2, WSW, dry, good visibility
Jess Ware/ Tom Clayton	25/02/22	06:56	07:00		4°C, Okta 1, BF 1, SW, dry, good visibility
				11:00	7°C, Okta 0, BF SW, dry, good visibility

2.3 DATA ANALYSIS

The conservation value of bird populations has been measured using two separate approaches: conservation status and nature conservation value within a geographical context⁴. Firstly, birds recorded during the surveys listed under either WCA Schedule 1, NERC S41 and/ or BoCC Red or Amber listed species in the UK are likely to be vulnerable to population decline and are herein, referred to as 'notable species'. The conservation value for each species recorded has been reviewed based on its international, national and regional conservation value. The criteria has been outlined in **Table 2.2** below.

Table 2.2 Selection criteria for determining the natura conservation value of birds recorded during the wintering bird surveys at Network Rail field.

Nature Conservation Value	Selection Criteria
International	- Qualifying feature of an Special Protection Area (SPA). - A species present in internationally important numbers (>1% of international population).
National	- Cited species of a Site of Special Scientific Interest (SSSI). - A species present in nationally important numbers (>1% UK population).
Regional	- Species listed as Natural Environment and Rural Communities (NERC) Section 41 (S41) which are not covered above. - Species present in regionally important numbers (>1% of regional population). - Sustainable populations of species that are rare or scarce within Hampshire. - Species on UK Birds of Conservation Concern (BoCC) Red List and which regularly occurs in regionally important numbers.

⁴ CIEEM (2016). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.

3. RESULTS

3.1 DESK STUDY

3.1.1 Hampshire Biodiversity Information Centre data

A total of 39 wintering waterfowl (including kingfisher *Alcedo atthis*) have been recorded from 2010 – 2019 within 2 km of the Network Rail field. Two sightings of water rail *Rallus aquaticus* were recorded in 2015 and 2016 within the boundaries of Network Rail field and 38 m south-east of the site boundary, a woodcock *Scolopax rusticola* was recorded in 2015.

Within 1 km of the Network Rail field other species records associated with wetland, grassland and riverine habitat include little egret *Egretta garzetta*, shelduck *Tadorna tadorna*, green sandpiper *Tringa ochropus*, red-breasted merganser *Mergus serrator*, Mediterranean gull *Larus melanocephalus*, kingfisher, lapwing *Vanellus vanellus*, whimbrel *Numenius phaeopus*, common crane *Grus grus*, black-headed gull *Chroicocephalus ridibundus*, curlew *Numenius arquata*, herring gull *Larus argentatus*, great black-backed gull *Chroicocephalus ridibundus*, lesser black-backed gull *Larus fuscus*, grey heron *Ardea cinerea* and common snipe *Gallinago gallinago*.

3.1.2 WeBS peak count data

Two WeBS survey sites were identified within 2 km of Network Rail field: Allington gravel pits (17233) which is 0.59 km south-east and Lakeside lakes (17017) which is 1.6 km west. Yearly peak count data recorded by WeBS has been collated for 2017/18, 2018/19 and 2019/20⁵ and shown in Table 3.1. A total of nine species have been recorded at Allington gravel pits from 2017 – 2020, with the most abundant species including greylag goose *Anser anser*, Canada goose *Branta canadensis* and tufted duck *Aythya fuligula*. A total of 19 species have been recorded at Lakeside lakes from 2017 – 2020, with the most abundant species including black-headed gull, greylag goose and snipe.

Table 3.1 Wetland Bird Survey (WeBS) peak count data from 2017 – 2020 for Allington gravel pits and Lakeside lakes.

Species	Allington gravel pits			Lakeside lakes		
	2017/18	2018/19	2019/20	2017/18	2018/19	2019/20
Canada goose <i>Branta canadensis</i>	34	0	50	4	6	7
Mallard <i>Anas platyrhynchos</i>	0	0	0	43	43	32
Cormorant <i>Phalacrocorax carbo</i>	19	22	24	1	0	1
Great crested grebe <i>Podiceps cristatus</i>	0	2	1	4	3	5
Teal <i>Anas crecca</i>	0	0	0	1	0	2
Tufted duck <i>Aythya fuligula</i>	45	43	0	3	9	2
Black-headed gull <i>Chroicocephalus ridibundus</i>	0	0	0	130	70	110

⁵ Frost, T.M., Calbrade, N.A., Birtles, G.A., Hall, C., Robinson, A.E., Wotton, S.R., Balmer, D.E. and Austin, G.E. 2021. *Waterbirds in the UK 2019/20: The Wetland Bird Survey*. BTO/RSPB/JNCC. Thetford.

Contains Wetland Bird Survey (WeBS) data from Waterbirds in the UK 2019/20 © copyright and database right 2021. WeBS is a partnership jointly funded by the BTO, RSPB and JNCC, in association with WWT, with fieldwork conducted by volunteers

Species	Allington gravel pits			Lakeside lakes		
	2017/18	2018/19	2019/20	2017/18	2018/19	2019/20
Coot <i>Fulica atra</i>	0	0	0	6	11	12
Lesser black-backed gull <i>Larus fuscus</i>	0	0	0	2	3	0
Grey heron <i>Ardea cinerea</i>	0	0	0	2	0	0
Mandarin duck <i>Aix galericulata</i>	2	1	2	0	0	0
Little egret <i>Egretta garzetta</i>	20	22	27	0	0	0
Moorhen <i>Gallinula chloropus</i>	0	0	0	10	15	16
Snipe <i>Gallinago gallinago</i>	0	0	0	45	62	38
Kingfisher <i>Alcedo atthis</i>	0	0	0	0	1	1
Northern shoveler <i>Anas clypeata</i>	12	18	0	0	0	0
Greylag goose <i>Anser anser</i>	125	0	170	45	132	56
Pochard <i>Aythya ferina</i>	0	2	1	0	0	0
Mute swan <i>Cygnus olor</i>	0	0	0	2	2	2
Jack snipe <i>Lymnocyptes minimus</i>	0	0	0	3	3	1
Water rail <i>Rallus aquaticus</i>	0	0	0	2	1	1
Common gull <i>Larus canus</i>	0	0	0	0	0	2
Little grebe <i>Tachybaptus ruficollis</i>	0	0	0	1	0	0

3.2 FIELD SURVEY

A total of 28 bird species were recorded during the wintering bird surveys at the Network Rail field (see **Appendix 1**). Of the 28 species recorded, four were 'notable' waterfowl species which included black-headed gull, herring gull, lesser black-backed gull and moorhen *Gallinula chloropus* (see **Figure 3.1**). Black-headed gull, lesser black-backed gull and moorhen are BoCC amber listed species in the UK and herring gull is BoCC red listed and NERC S41 listed species. Herring gull was the only gull species observed loafing on grassland habitat. Black-headed gull and lesser black-backed gull were recorded as fly overs. Moorhen was heard outside of the site boundary in association with wetland habitat to the south-east of the site.

Table 3.2 Waterfowl recorded during wintering bird surveys from November 2021 – February 2022 at Network Rail Field, Navigation Quarter in Southampton Airport, including their national and regional conservation status, association with European sites, peak count, number of surveys recorded and habitat species recorded.

Species	UK Conservation Status	Hampshire Priority Species	Qualifying feature of Solent and Southampton Water SPA and Ramsar site	Peak count/ No. of surveys recorded	Habitat species recorded
Black-headed gull <i>Chroicocephalus ridibundus</i>	Amber	No	No	18/ 2	Fly over
Herring gull <i>Larus argentatus</i>	Red, NERC S41	No	No	3/ 4	Grassland, fly over
Lesser-black-backed gull <i>Larus fuscus</i>	Amber	No	No	1/ 1	Fly over
Moorhen <i>Gallinula chloropus</i>	Amber	No	No	1/ 1	Wetland (heard outside site boundary)



Figure 3.1 Distribution of waterfowl recorded during six wintering bird surveys from November 2021 – February 2022 at Network Rail field, Navigation Quarter, Southampton Airport. Numbers reflect bird abundance and arrows, fly over direction.

4. DISCUSSION AND CONCLUSION

During the six wintering bird surveys conducted from November 2021 – February 2022 at the Network Rail field, Navigation Quarter at Southampton airport, a small number of waterfowl species were recorded of national conservation status. These included black-headed gull, herring gull, lesser black-backed gull and moorhen. All of the gull species have previously been recorded within 1 km of the site and moorhen have also been recorded at Lakeside lakes during WeBS in 2019/20. Gulls were largely recorded flying over the site with limited feeding or loafing activity observed. Moorhen was heard outside of the site boundary, within wetland habitat to the south-east of the Network Rail field.

Based on the surveys conducted at Network Rail Field, the site does not provide functionally linked habitat for qualifying features of the Solent and Southampton Water SPA and Ramsar site or nationally and regionally protected wintering waterfowl. This may be due to the wildlife management activities that the airport is required to undertake⁶ to safeguard aviation safety, and the proximity of other suitable habitat such as the River Itchen, Allington gravel pits, wetland and wet grassland to the south/ south-east, plus Lakeside lakes to the west and the Solent and Southampton Water estuarine habitat. Therefore, based on the lack of waterfowl activity at the site, no further wintering bird surveys or associated mitigation measures are recommended in relation to the proposed development within the boundaries of Network Rail Field.

⁶ Civil Aviation Authority. (2017). *Wildlife hazard management at aerodromes. CAP 772*

APPENDICE

Appendix 1 Wintering bird survey data

Appendix 1 Total bird species recorded during six wintering bird surveys undertaken from November 2021 – February 2022 at Network Rail Field, including their conservation status (national and regional) and location recorded. Note that woodland habitat is outside of the red line boundary for the Network Rail Field.

Species	UK Conservation Status	Hampshire Priority Species	Habitat species recorded
Black-headed gull <i>Chroicocephalus ridibundus</i>	Amber	No	Fly over
Herring gull <i>Larus argentatus</i>	Red, NERC Section 41	No	Grassland, fly over
Lesser-black-backed gull <i>Larus fuscus</i>	Amber	No	Fly over
Moorhen <i>Gallinula chloropus</i>	Amber	No	Wetland (heard outside site boundary)
Woodpigeon <i>Columba livia domestica</i>	Amber	No	Woodland
Jay <i>Garrulus glandarius</i>	Green	No	Woodland
Magpie <i>Pica pica</i>	Green	No	Woodland
Carrion crow <i>Corvus corone</i>	Green	No	Woodland
Blue tit <i>Cyanistes caeruleus</i>	Green	No	Woodland
Great tit <i>Parus major</i>	Green	No	Woodland
Long-tailed tit <i>Aegithalos caudatus</i>	Green	No	Woodland
Cetti's warbler <i>Cettia cetti</i>	Green, WCA S1	Yes	Wetland (heard outside boundary)
Chiffchaff <i>Phylloscopus collybita</i>	Green	No	Woodland
Wren <i>Troglodytes troglodytes</i>	Amber	No	Woodland
Starling <i>Sturnus vulgaris</i>	Red, NERC S41	No	Woodland, fly over
Blackbird <i>Turdus merula</i>	Green	No	Woodland
Song thrush <i>Turdus philomelos</i>	Amber, NERC S41	Yes	Woodland, grassland
Robin <i>Erithacus rubecula</i>	Green	No	Woodland
Dunnock <i>Prunella modularis</i>	Amber, NERC S41	No	Woodland
Meadow pipit <i>Anthus pratensis</i>	Amber	No	Grassland

Chaffinch <i>Fringilla coelebs</i>	Green	No	Woodland
Greenfinch <i>Chloris chloris</i>	Red	No	Woodland
Linnet <i>Linaria cannabina</i>	Red, NERC S41	Yes	Grassland
Goldfinch <i>Carduelis carduelis</i>	Green	No	Woodland
Nuthatch <i>Sitta europaea</i>	Green	No	Woodland
Green woodpecker <i>Picus viridis</i>	Green	No	Woodland
Great spotted woodpecker <i>Dendrocopos major</i>	Green	No	Woodland
Mistle thrush <i>Turdus viscivorus</i>	Red	No	Woodland
Jackdaw <i>Corvus monedula</i>	Green	No	Woodland



T: +44 (0) 1235 75 3000

E: enquiry@ricardo.com

W: ee.ricardo.com



NAVIGATOR QUARTER, SOUTHAMPTON AIRPORT: NORTH EAST FIELD

Wintering Bird Survey

Report for: Southampton International Airport Limited

Ref. 84004775

Ricardo ref. ED15367

Issue: 1

31/08/2022

Customer:

Southampton International Airport Limited

Customer reference:

84004775

Confidentiality, copyright and reproduction:

This report is the Copyright of Southampton International Airport Ltd. It has been prepared by Ricardo Energy & Environment, a trading name of Ricardo-AEA Ltd, under contract to Southampton International Airport Ltd. The contents of this report may not be reproduced in whole or in part, nor passed to any organisation or person without the specific prior written permission of Southampton International Airport Ltd. Ricardo Energy & Environment accepts no liability whatsoever to any third party for any loss or damage arising from any interpretation or use of the information contained in this report, or reliance on any views expressed therein.

Ricardo reference:

ED15367

Contact:

Rob Hinks, Gemini Building, Fermi Avenue, Harwell, Didcot, OX11 0QR, UK

T: +44 (0)7736 869 661

E: rob.hinks@ricardo.com

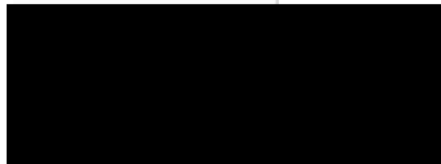
Author:

Dr Jess Ware, Tom Clayton

Approved by:

Laurence David

Signed



Date:

31/08/2022

Ricardo is certified to ISO9001, ISO14001, ISO27001 and ISO45001.

Ricardo, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to as the 'Ricardo Group'. The Ricardo Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Ricardo Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

CONTENTS

1. INTRODUCTION	1
1.1 BACKGROUND	1
1.2 SURVEY AREA AND LOCATION	1
1.3 OBJECTIVES	3
1.4 LEGISLATION AND GUIDANCE	3
1.4.1 Conservation of Habitats and Species Regulations 2017 (as amended)	3
1.4.2 The Wildlife and Countryside Act 1981 (as amended)	3
1.4.3 Natural Environmental and Rural Communities Act 2006	3
1.4.4 Birds of Conservation Concern	4
1.4.5 Local Biodiversity Action Plans	4
1.5 LIMITATIONS	4
2. METHODOLOGY	5
2.1 DESK STUDY	5
2.2 FIELD SURVEY	5
2.3 DATA ANALYSIS	6
3. RESULTS	7
3.1 DESK STUDY	7
3.1.1 Hampshire Biodiversity Information Centre data	7
3.1.2 WeBS peak count data	7
3.2 FIELD SURVEY	8
4. DISCUSSION AND CONCLUSION	11

Appendices

APPENDIX 1 WINTERING BIRD SURVEY DATA	1
---------------------------------------	---

1. INTRODUCTION

1.1 BACKGROUND

Ricardo Energy & Environment were commissioned by Southampton International Airport Limited to undertake wintering bird surveys in relation to proposals to implement a development in the Southampton Navigator Quarter area and submit a planning application. The requirement for the wintering bird surveys has been raised due to the proximity of the Navigator Quarter to suitable habitat (wetland, open water, river and estuary) and potential for the semi-improved grassland habitat present to provide functionally linked foraging habitat.

This wintering bird survey report has focussed on the North-East field present at Navigator Quarter only and the potential impact of the proposed development on wintering bird populations, if using the site.

1.2 SURVEY AREA AND LOCATION

The North-East field is located on the north-east side of Southampton Airport, centred roughly at Ordnance Survey National Grid Reference (NGR) SU 46093 17643 and is shown in **Figure 1.1**. The site is adjacent to the River Itchen Special Area of Conservation (SAC) and River Itchen Site of Special Scientific Interest (SSSI) and 5.4 km North-East of the Solent and Southampton Water Special Protection Area (SPA), Ramsar site and Lee-on-the-Solent to Itchen Estuary SSSI. The Solent and Southampton Water SPA and Ramsar site are designated due supporting wader, waterfowl, tern and gull populations of international and national importance including black tailed godwit *Limosa limosa*, dark-bellied brent goose *Branta bernicla bernicla* common tern *Sterna hirundo* and Mediterranean gull *Ichthyophaga melanocephalus*.

The study area broadly comprised the following Phase 1 Habitat Survey¹ classification habitats:

- Semi-improved grassland
- Broadleaved plantation woodland
- Dense scrub
- Scrub
- Scrub woodland.

¹ Joint Nature Conservancy Council (2010) Handbook for Phase 1 Habitat Survey – a technique for environmental audit, ISBN 0 86139 636 7

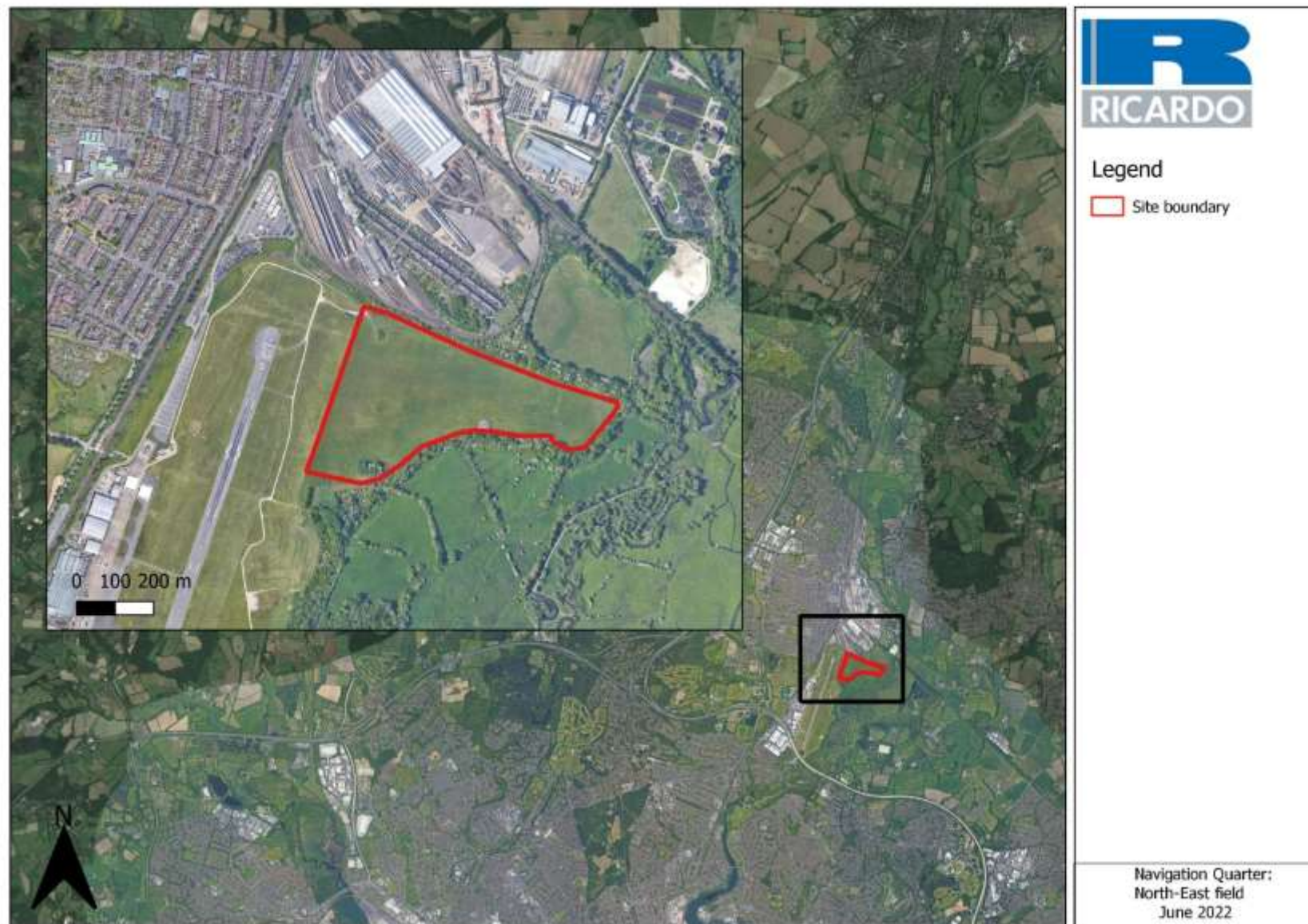


Figure 1.1 Survey area at the North-East field (red line).

1.3 OBJECTIVES

The objectives of the wintering bird survey were to:

- Identify any legally protected species using the North-East field at Navigator Quarter;
- Identify any Nationally, regionally or locally significant species using the North-East field at Navigator Quarter, including Local Biodiversity Action Plan Species and Species of Principle Importance (priority species);
- Identify key habitat areas for feeding and roosting for those species recorded; and
- Assess the potential impact of the proposed development on wintering birds using the North-East field at Navigator Quarter (if present).

1.4 LEGISLATION AND GUIDANCE

There are several different acts of legislation and guidance with particular relevance to birds, which are outlined below. This is a short summary of relevant legislation and guidance, that should not be considered a definitive legal opinion.

1.4.1 Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations), as amended, provides for the designation and protection of a network of 'European sites' (also termed national site network), including Special Areas of Conservation (SACs) and SPAs.

Regulation 43 creates the following offences relating to European Protected Species (EPS):

- deliberately capture, injure or kill any wild animal of a European Protected Species;
- deliberately disturb animals of any such species in such a way as to be likely to:
 - impair their ability to survive, breed, rear or nurture their young, hibernate or migrate, or
 - significantly affect the local distribution or abundance of the species to which they belong;
- deliberately take or destroy the eggs of such an animal; or
- damage or destroy a breeding site or resting place of such an animal.

1.4.2 The Wildlife and Countryside Act 1981 (as amended)

The Wildlife & Countryside Act (WCA) 1981 (as amended) provides for designation and protection of SSSIs, which are areas that represent the most valuable habitats in the United Kingdom (UK) for nature conservation. In addition, it is the principal legislation affording protection to UK wild birds.

The Act creates the following offences in relation to wild bird:

- To intentionally kill, injure, or take any wild bird or their eggs or nests (with exception to species listed in Schedule 2).
- To intentionally disturb species listed on Schedule 1 of the Act whilst building or occupying a nest or intentionally disturb their dependent young.

It also provides a mechanism of making any of the above offences legal, through the granting of licences by the appropriate authorities.

1.4.3 Natural Environment and Rural Communities Act 2006

A number of birds feature on the Natural Environment and Rural Communities (NERC) Act 2006², Section 41 (S41), as species which are of principal importance for the conservation of biodiversity in England. The Section 41 list is used to guide decision-makers, such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

² [Natural Environment and Rural Communities Act 2006 \(legislation.gov.uk\)](https://www.legislation.gov.uk/ukpga/2006/42/section/41) Accessed July 2021.

1.4.4 Birds of Conservation Concern

The Birds of Conservation Concern (BoCC) is a review of the conservation status of all birds occurring regularly in the UK. Bird species are classified into the following categories:

- Red list (high conservation concern) species are those that are globally threatened according to International Union for the Conservation of Nature (IUCN) criteria. These include those whose population or range has declined rapidly ($\geq 50\%$) in recent years and those that have declined historically and not shown a substantial recent recovery;
- Amber list (medium conservation concern) species are those with an unfavourable conservation status in Europe. These include those whose population or range has declined moderately (between 25% and 49%) in recent years, has declined historically but made a substantial recent recovery, rare breeders and those with internationally important or localised populations; and
- Green list (low conservation concern) species that fulfil none of the above criteria.

1.4.5 Local Biodiversity Action Plans

Some bird species are afforded local protection through Local Biodiversity Action Plans (LBAP), which lists species of importance in the local area. In relation to the North-East field in Navigator Quarter, the conservation of habitats supporting any species listed in the Southampton LBAP and also recorded on site should be encouraged in accordance with the LBAP.

1.5 LIMITATIONS

There are no bird species records publicly available within the site boundary to conduct a desk-based assessment. For example, no Wetland Bird Surveys (WeBS) have been conducted within the boundaries of the site. However, WeBS peak count data available for Allington gravel pit and Lakeside lakes, which are <1 km from North-East field will be reviewed to inform the wintering bird report on localised activity.

The survey visits at North-East field were undertaken from November 2021 – February 2022 when wintering waterfowl might be present. The survey period excluded September, October and March which are also within the bird wintering period. Intermittent rain was also recorded during the survey on 4th November 2021. However, due to the number of surveys conducted and lack of wintering waterfowl identified using the site it is not considered likely to significantly affect the conclusions drawn within this report.

It is noted that this report deals with matters of legal significance but does not constitute professional legal advice. The Client may wish to seek professional legal interpretation of the relevant wildlife legislation cited in this document, which is summarised in **Section 1.4**.

2. METHODOLOGY

2.1 DESK STUDY

Prior to site visits a data search was undertaken to compile existing bird data (peak counts) from WeBS, produced by British Trust for Ornithology (BTO), for sites within 2 km of the North-East field. No WeBS data is available within the site boundary. The objective of the data search was to provide information on the local wintering bird peak counts within adjacent supporting habitat. This gave an indication of potential species using North-East field.

2.2 FIELD SURVEY

The surveys were undertaken following the BTO WeBS core count methodology³ to identify and record birds using the North-East field at Navigator Quarter, with particular interest on the presence of wintering waterfowl (this includes divers, grebes, cormorants, herons, geese, ducks, rails, waders, gulls and terns) on the semi-improved grassland habitat. The following approach was adopted:

- A survey transect was walked at a slow, ambling pace, stopping to scan priority habitat/ features where appropriate, with a minimum distance of 50 m between each transect route.
- Each survey started at sunrise and continued for 4 hours thereafter, aligning with WeBS core count methodology.
- All birds encountered (either observed or heard) at the North-East field, on adjacent land or flying over were recorded on a site map, using BTO codes. Notes were taken on bird behaviour where appropriate.

Six transect surveys were undertaken from November 2021 – end of February 2022 by Jess Ware (BSc, MSc, PhD) and Tom Clayton (BSc, MSc). The weather conditions recorded during each survey are provided below in Table 2.1.

Table 2.1 General information on the six wintering bird survey visits completed from November 2021 – February 2022 at North-East field.

Surveyor(s)	Date	Sunrise/ Sunset	Start	End	Weather
Jess Ware/ Tom Clayton	04/11/21	07:02	07:00		5°C, Okta 2, BF 3, NW, dry, good visibility
				11:00	8°C, Okta 6, BF 3, NNW, intermittent rain, good visibility
Jess Ware/ Tom Clayton	18/11/21	07:26	07:30		7°C, Okta 8, BF 0, N/A, dry, good visibility
				11:30	11°C, Okta 4, BF 1, W, dry, good visibility
Jess Ware/ Tom Clayton	15/12/21	08:02	08:00		11°C, Okta 8, BF 1, WSW, dry, good visibility
				12:00	13°C, Okta 8, BF 1, WSW, dry, good visibility
Jess Ware/ Tom Clayton	20/01/22	08:03	08:00		1°C, Okta 0, BF 0, N/A, dry, good visibility
				12:00	4°C, Okta 0, BF 1, NW, dry, good visibility

³ Gilbert, G., Gibbons, D. W. and Evans, J., (1998). Bird Monitoring Methods. RSPB.

Surveyor(s)	Date	Sunrise/ Sunset	Start	End	Weather
Jess Ware/ Tom Clayton	03/02/22	07:39	07:40		8°C, Okta 8, BF 2, WSW, dry, good visibility
				11:40	9°C, Okta 5, BF 2, WSW, dry, good visibility
Jess Ware/ Tom Clayton	25/02/22	06:56	07:00		4°C, Okta 1, BF 1, SW, dry, good visibility
				11:00	7°C, Okta 0, BF SW, dry, good visibility

2.3 DATA ANALYSIS

The conservation value of bird populations has been measured using two separate approaches: conservation status and nature conservation value within a geographical context⁴. Firstly, birds recorded during the surveys listed under either WCA Schedule 1, NERC S41 and/ or BoCC Red or Amber listed species in the UK are likely to be vulnerable to population decline and are herein, referred to as 'notable species'. The conservation value for each species recorded has been reviewed based on its international, national and regional conservation value. The criteria has been outlined in **Table 2.2** below.

Table 2.2 Selection criteria for determining the natura conservation value of birds recorded during the wintering bird surveys at North-East field.

Nature Conservation Value	Selection Criteria
International	- Qualifying feature of an Special Protection Area (SPA). - A species present in internationally important numbers (>1% of international population).
National	- Cited species of a Site of Special Scientific Interest (SSSI). - A species present in nationally important numbers (>1% UK population).
Regional	- Species listed as Natural Environment and Rural Communities (NERC) Section 41 (S41) which are not covered above. - Species present in regionally important numbers (>1% of regional population). - Sustainable populations of species that are rare or scarce within Hampshire. - Species on UK Birds of Conservation Concern (BoCC) Red List and which regularly occurs in regionally important numbers.

⁴ CIEEM (2016). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.

3. RESULTS

3.1 DESK STUDY

3.1.1 Hampshire Biodiversity Information Centre data

A total of 39 wintering waterfowl (including kingfisher *Alcedo atthis*) have been recorded from 2010 – 2019 within 2 km of the North-East field. No waterfowl have been recorded within the boundaries of the North-East field. 38 m west of the site a common crane *grus grus* was recorded in 2014.

Within 1 km of the North-East field other species records associated with wetland, grassland and riverine habitat include water rail *Rallus aquaticus*, woodcock *Scolopax rusticola*, little egret *Egretta garzetta*, shelduck *Tadorna tadorna*, green sandpiper *Tringa ochropus*, red-breasted merganser *Mergus serrator*, Mediterranean gull *Larus melanocephalus*, kingfisher, lapwing *Vanellus vanellus*, whimbrel *Numenius phaeopus*, black-headed gull *Chroicocephalus ridibundus*, curlew *Numenius arquata*, herring gull *Larus argentatus*, great black-backed gull *Chroicocephalus ridibundus*, lesser black-backed gull *Larus fuscus*, grey heron *Ardea cinerea*, common snipe *Gallinago gallinago* and golden plover *Pluvialis apricaria*.

3.1.2 WeBS peak count data

Two WeBS survey sites were identified within 2 km of North-East field: Allington gravel pits (17233) which is 0.59 km south-east and Lakeside lakes (17017) which is 1 km west. Yearly peak count data recorded by WeBS has been collated for 2017/18, 2018/19 and 2019/20⁵ and shown in Table 3.1. A total of nine species have been recorded at Allington gravel pits from 2017 – 2020, with the most abundant species including greylag goose *Anser anser*, Canada goose *Branta canadensis* and tufted duck *Aythya fuligula*. A total of 19 species have been recorded at Lakeside lakes from 2017 – 2020, with the most abundant species including black-headed gull, greylag goose and snipe.

Table 3.1 Wetland Bird Survey (WeBS) peak count data from 2017 – 2020 for Allington gravel pits and Lakeside lakes.

Species	Allington gravel pits			Lakeside lakes		
	2017/18	2018/19	2019/20	2017/18	2018/19	2019/20
Canada goose <i>Branta canadensis</i>	34	0	50	4	6	7
Mallard <i>Anas platyrhynchos</i>	0	0	0	43	43	32
Cormorant <i>Phalacrocorax carbo</i>	19	22	24	1	0	1
Great crested grebe <i>Podiceps cristatus</i>	0	2	1	4	3	5
Teal <i>Anas crecca</i>	0	0	0	1	0	2
Tufted duck <i>Aythya fuligula</i>	45	43	0	3	9	2
Black-headed gull <i>Chroicocephalus ridibundus</i>	0	0	0	130	70	110
Coot	0	0	0	6	11	12

⁵ Frost, T.M., Calbrade, N.A., Birtles, G.A., Hall, C., Robinson, A.E., Wotton, S.R., Balmer, D.E. and Austin, G.E. 2021. *Waterbirds in the UK 2019/20: The Wetland Bird Survey*. BTO/RSPB/JNCC. Thetford.

Contains Wetland Bird Survey (WeBS) data from Waterbirds in the UK 2019/20 © copyright and database right 2021. WeBS is a partnership jointly funded by the BTO, RSPB and JNCC, in association with WWT, with fieldwork conducted by volunteers

Species	Allington gravel pits			Lakeside lakes		
	2017/18	2018/19	2019/20	2017/18	2018/19	2019/20
<i>Fulica atra</i>						
Lesser black-backed gull <i>Larus fuscus</i>	0	0	0	2	3	0
Grey heron <i>Ardea cinerea</i>	0	0	0	2	0	0
Mandarin duck <i>Aix galericulata</i>	2	1	2	0	0	0
Little egret <i>Egretta garzetta</i>	20	22	27	0	0	0
Moorhen <i>Gallinula chloropus</i>	0	0	0	10	15	16
Snipe <i>Gallinago gallinago</i>	0	0	0	45	62	38
Kingfisher <i>Alcedo atthis</i>	0	0	0	0	1	1
Northern shoveler <i>Anas clypeata</i>	12	18	0	0	0	0
Greylag goose <i>Anser anser</i>	125	0	170	45	132	56
Pochard <i>Aythya ferina</i>	0	2	1	0	0	0
Mute swan <i>Cygnus olor</i>	0	0	0	2	2	2
Jack snipe <i>Lymnocyptes minimus</i>	0	0	0	3	3	1
Water rail <i>Rallus aquaticus</i>	0	0	0	2	1	1
Common gull <i>Larus canus</i>	0	0	0	0	0	2
Little grebe <i>Tachybaptus ruficollis</i>	0	0	0	1	0	0

3.2 FIELD SURVEY

A total of 33 bird species were recorded during the wintering bird surveys at the North-East field (see **Appendix 1**). Of the 33 species recorded, eight were waterfowl and four were 'notable' waterfowl which included black-headed gull, herring gull, greylag goose and woodcock (see **Figure 3.1**). Black-headed gull and greylag goose are BoCC amber listed species in the UK and herring gull is BoCC red listed and NERC S41 listed species and woodcock is BoCC red listed. Herring gull was the only gull species observed loafing on grassland habitat. Black-headed gull, Canada goose, greylag goose and cormorant *Phalacrocorax carbo* all flew over the site. Water rail was heard outside of the site boundary in associated with wetland habitat to the south of the site.

Table 3.2 Waterfowl recorded during wintering bird surveys from November 2021 – February 2022 at North-East field, Navigation Quarter in Southampton Airport, including their national and regional conservation status, association with European sites, peak count, number of surveys recorded and habitat species recorded.

Species	UK Conservation Status	Hampshire Priority Species	Qualifying feature of Solent and Southampton Water SPA and Ramsar site	Peak count/ No. of surveys recorded	Habitat species recorded
Black-headed gull <i>Chroicocephalus ridibundus</i>	Amber	No	No	1/ 2	Fly over
Herring gull <i>Larus argentatus</i>	Red, NERC S41	No	No	3/ 5	Grassland, fly over
Canada goose <i>Branta canadensis</i>	Green	No	No	8/ 1	Fly over
Water rail <i>Rallus aquaticus</i>	Green	No	Yes – as part of the waterbird assemblage qualifying feature	1/ 1	Wetland (heard outside boundary)
Greylag goose <i>Anser anser</i>	Amber	No	Yes – as part of the waterbird assemblage qualifying feature	2/ 1	Fly over
Cormorant <i>Phalacrocorax carbo</i>	Green	No	Yes – as part of the waterbird assemblage qualifying feature	1/ 1	Fly over
Woodcock <i>Scolopax rusticola</i>	Red	No	Yes – as part of the waterbird assemblage qualifying feature	1/ 1	Scrub (flushed during survey)
Grey heron <i>Ardea cinerea</i>	Green	No	Yes – as part of the waterbird assemblage qualifying feature	1/ 1	Fly over

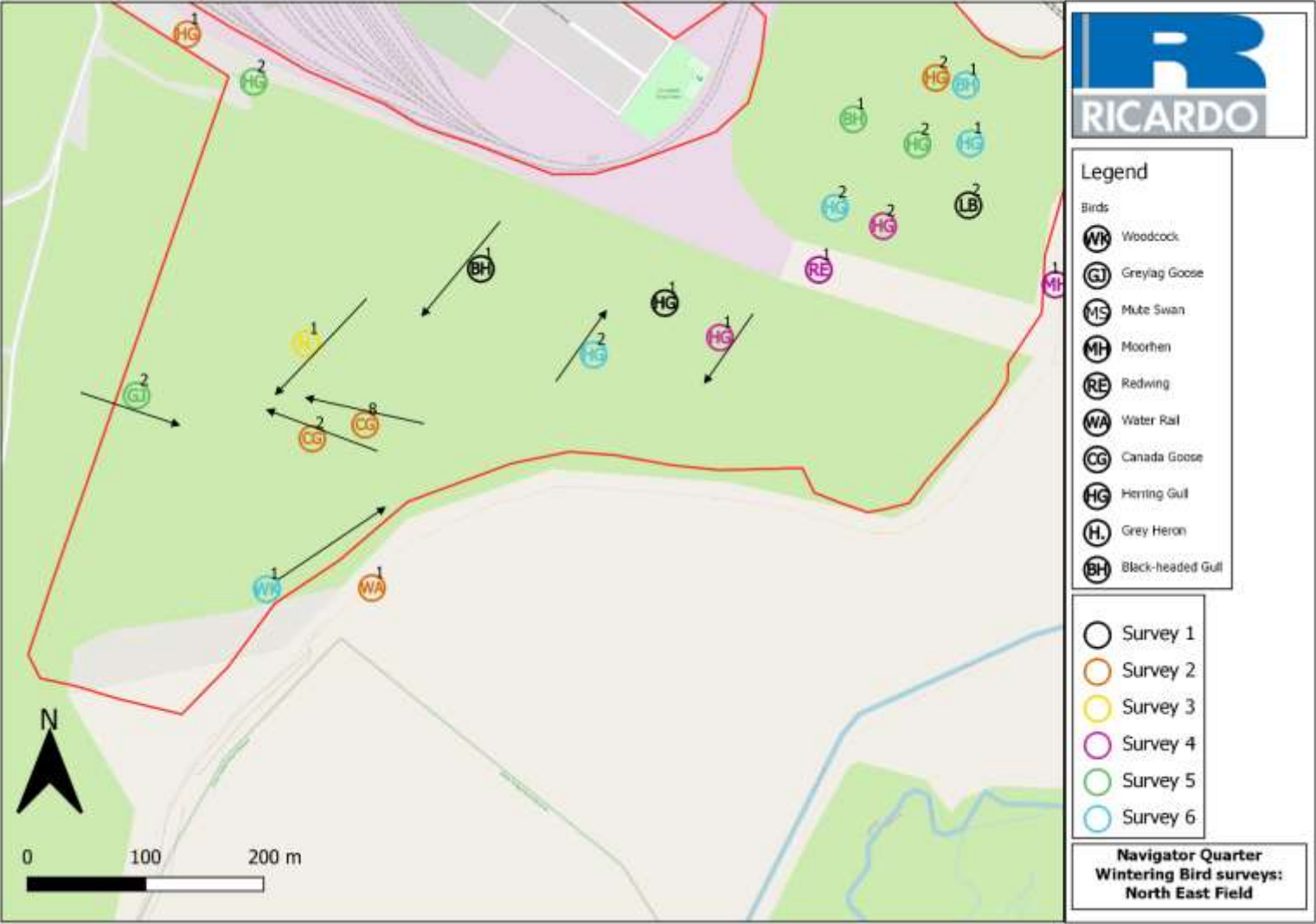


Figure 3.1 Distribution of waterfowl recorded during six wintering bird surveys from November 2021 – February 2022 at North-East field, Navigation Quarter, Southampton Airport. Numbers reflect bird abundance and arrows, fly over direction.

4. DISCUSSION AND CONCLUSION

During the six wintering bird surveys conducted from November 2021 – February 2022 at the North-East field, Navigation Quarter at Southampton airport, a small number of waterfowl species were recorded of international and national conservation status. These included black-headed gull, herring gull, water rail, cormorant, greylag goose and woodcock. Water rail, woodcock, herring gull and black-headed gull have previously been recorded within 1 km of the site and Canada goose, greylag goose and cormorant have also been recorded at Lakeside lakes and Allington gravel pits, during WeBS in 2019/20. Gulls and geese were largely recorded flying over the site with limited feeding or loafing activity observed (only herring gull). Water rail was heard within wetland habitat present south-east of the site boundary and woodcock was flushed out of scrub habitat present within the site boundary.

Based on the surveys conducted at North-East field, the grassland habitat does not provide functionally linked habitat for qualifying features of the Solent and Southampton Water SPA and Ramsar site or nationally and regionally protected wintering waterfowl. This may be due to the wildlife management activities that the airport is required to undertake⁶ to safeguard aviation safety, and the proximity of other suitable habitat such as the River Itchen, Allington gravel pits, wetland and wet grassland to the south/ south-east, plus Lakeside lakes to the west and the Solent and Southampton Water estuarine habitat. Adjacent wetland and scrub habitat does support woodcock and water rail although in small numbers. Therefore, based on the lack of waterfowl activity at the site, no further wintering bird surveys or associated mitigation measures are recommended in relation to the proposed development within the boundaries of the North-East field.

⁶ Civil Aviation Authority. (2017). *Wildlife hazard management at aerodromes. CAP 772*

APPENDICES

Appendix 1 Wintering bird survey data

Appendix 1 Total bird species recorded during six wintering bird surveys undertaken from November 2021 – February 2022 at North-East field, including their conservation status (national and regional) and location recorded. Note that woodland habitat is outside of the red line boundary for the North-East field

Species	UK Conservation Status	Hampshire Priority Species	Habitat species recorded
Black-headed gull <i>Chroicocephalus ridibundus</i>	Amber	No	Fly over
Herring gull <i>Larus argentatus</i>	Red, NERC Section 41	No	Grassland, fly over
Woodpigeon <i>Columba livia domestica</i>	Amber	No	Woodland
Jay <i>Garrulus glandarius</i>	Green	No	Woodland
Magpie <i>Pica pica</i>	Green	No	Woodland
Carrion crow <i>Corvus corone</i>	Green	No	Woodland
Blue tit <i>Cyanistes caeruleus</i>	Green	No	Woodland
Great tit <i>Parus major</i>	Green	No	Woodland
Long-tailed tit <i>Aegithalos caudatus</i>	Green	No	Woodland
Wren <i>Troglodytes troglodytes</i>	Amber	No	Woodland
Starling <i>Sturnus vulgaris</i>	Red, NERC S41	No	Woodland, fly over
Blackbird <i>Turdus merula</i>	Green	No	Woodland
Song thrush <i>Turdus philomelos</i>	Amber, NERC S41	Yes	Woodland, grassland
Robin <i>Erithacus rubecula</i>	Green	No	Woodland
Dunnock <i>Prunella modularis</i>	Amber, NERC S41	No	Woodland
Meadow pipit <i>Anthus pratensis</i>	Amber	No	Grassland
Chaffinch <i>Fringilla coelebs</i>	Green	No	Woodland
Goldfinch <i>Carduelis carduelis</i>	Green	No	Woodland
Green woodpecker <i>Picus viridis</i>	Green	No	Woodland
Great spotted woodpecker <i>Dendrocopos major</i>	Green	No	Woodland

Buzzard <i>Buteo buteo</i>		No	Fly over
Greylag goose <i>Anser anser</i>	Amber	No	Fly over
Canada goose <i>Branta canadensis</i>	Green	No	Fly over
Woodcock <i>Scolopax rusticola</i>	Red	No	Scrub (flushed during survey)
Water rail <i>Rallus aquaticus</i>	Green	No	Wetland (heard outside of site boundary)
Cormorant <i>Phalacrocorax carbo</i>	Green	No	Fly over
Goldcrest <i>Regulus regulus</i>	Green	No	Woodland
Grey heron <i>Ardea cinerea</i>	Green	No	Fly over
House sparrow <i>Passer domesticus</i>	Red, NERC S41	No	Woodland
Skylark <i>Alauda arvensis</i>	Red	Yes	Grassland
Pheasant <i>Phasianus colchicus</i>	Green	No	Grassland
Jackdaw <i>Corvus monedula</i>	Green	No	Woodland
Red kite <i>Milvus milvus</i>	Green	Yes	Fly over



T: +44 (0) 1235 75 3000

E: enquiry@ricardo.com

W: ee.ricardo.com



NAVIGATION QUARTER

Bat Survey Report

Report for: Southampton International Airport Limited

Ref. 84004775

Ricardo ref. ED15367100

Issue: 1

20/12/2022

Customer:

Southampton International Airport Limited

Customer reference:

84006885

Contact:

Rob Hinks

Ricardo Energy & Environment

21 Prince Street, Bristol, BS1 4PH, United Kingdom

T: +44 (0) 1235 75 3482

E: rob.hinks@ricardo.com

Confidentiality, copyright and reproduction:

This report is the Copyright of Southampton International Airport Ltd. It has been prepared by Ricardo Energy & Environment, a trading name of Ricardo-AEA Ltd, under contract to Southampton International Airport Ltd. The contents of this report may not be reproduced in whole or in part, nor passed to any organisation or person without the specific prior written permission of Southampton International Airport Ltd. Ricardo Energy & Environment accepts no liability whatsoever to any third party for any loss or damage arising from any interpretation or use of the information contained in this report, or reliance on any views expressed therein.

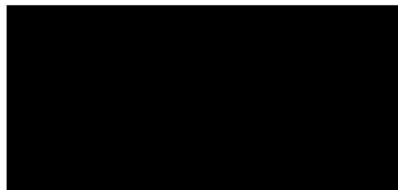
Author:

Tom Clayton, Laurence David

Approved by:

Rob Hinks

Signed



Ricardo reference:

ED15367100

Date:

20/12/2022

Ricardo is certified to ISO9001, ISO14001, ISO27001 and ISO45001.

Ricardo, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to as the 'Ricardo Group'. The Ricardo Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Ricardo Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

CONTENTS

1	INTRODUCTION	1
1.1	BACKGROUND	1
1.2	STUDY AREA AND LOCATION	1
2	METHODOLOGY	3
2.1	BAT TRANSECT AND STATIC DETECTOR SURVEYS	3
2.2	LIMITATIONS	7
3	FINDINGS	8
3.1	TRANSECT SURVEYS	8
3.2	STATIC DETECTORS	22
4	SUMMARY OF FINDINGS AND RECOMMENDATIONS	28
4.1	STATUS OF BATS ON SITE	28
4.2	MITIGATION REQUIREMENTS AND ENHANCEMENTS	28

Appendices

APPENDIX 1 LEGISLATION AND PLANNING POLICY

1 INTRODUCTION

1.1 BACKGROUND

Ricardo Energy & Environment were commissioned by Southampton International Airport Limited to undertake a Bat activity survey in relation to proposals to implement a free port development to the north east of Southampton Airport in the area known as the Navigator Quarter area.

A Preliminary Ecological Appraisal (PEA), including a Phase 1 walkover survey and desk study was undertaken in June 2021 and the results were presented in a formal PEA report. The PEA report provided general advice on ecological constraints associated with this project and included recommendations for a detailed bat activity survey of the working area and immediate surroundings, the results of which are presented in this report.

1.2 STUDY AREA AND LOCATION

The Navigator Quarter site (approximate central NGR: SU 46093 17643) is located on the north east side of the Airport runway north of the Itchen Valley park and south of Barton park industrial estate in Eastleigh, Southampton and is shown in **Figure 1.1**.

The study area broadly comprised the following Phase 1 Habitat Survey¹ classification habitats:

- Semi-improved grassland
- Broadleaved plantation woodland
- Dense Scrub
- Scrub
- Scrub woodland.

¹ Joint Nature Conservancy Council (2010) Handbook for Phase 1 Habitat Survey – a technique for environmental audit, ISBN 0 86139 636 7



Figure 1.1 Proposed works location.

2 METHODOLOGY

2.1 BAT TRANSECT AND STATIC DETECTOR SURVEYS

The PEA undertaken by Ricardo² recommended that activity surveys be undertaken of the entire site to further understand how bats use the site. Transect surveys were undertaken between May and September inclusive and comprised a dusk transect and dawn transect, these surveys are summarised in **Table 2.1** below and the transect route shown in **Figure 2.1** below.

All bat surveys were undertaken in accordance (where possible) with current best practice guidance for bat surveys³. Any survey limitations are described in Section 2.3.

Overall survey supervision was undertaken by Laurence David (ACIEEM, bat licence number: 2019-39101-CLS-CLS). The surveys were led by Ricardo ecologists registered to use the Natural England level 1 bat survey class licence assisted by suitably experienced Ricardo ecologists. The surveyors walked a transect route covering the whole site (shown in **Figure 2.1**) stopping at set listening points for five minutes. Dusk transect surveys commenced at sunset for a duration of two hours. Dawn transect surveys commenced two hours prior to sunrise. During the surveys the time, location, number of bats, species (where possible), activity type and direction of flight were recorded for each bat pass (either echolocation heard, or activity seen) encountered during the transect. Notes were made on weather conditions prior to and during the surveys and are summarised in Section 3.1 below. The transect starting point was varied each month to ensure all bat activity across the site was sampled.

Echo Meter Touch Pro (using iPhone) bat detectors were used to detect and record any ultrasonic bat calls during the transect surveys. The calls were recorded in .WAV format using the Echo Meter Touch mobile application and analysed using Kaleidoscope pro.

Table 2.1: Bat transect survey summary

Transect no.	Month	Survey Date
1	May	10 th May 2022 Dawn Transect 26 th May 2022 Dusk Transect
2	June	9 th June 2022 Dusk Transect 23 rd June 2022 Dusk Transect
3	July	13 th July 2021 Dusk Transect 27 th July 2021 Dusk Transect
4	August	16 th August 2021 Dusk Transect 24 th August 2021 Dusk Transect
5	September	6 th September 2021 Dusk Transect 22 nd September 2021 Dusk Transect
6	October	7 th October 2021 Dusk Transect 19 th October 2021 Dusk Transect

Static bat detectors were deployed in three locations across the site for a minimum of five consecutive nights each month, see **Figure 2.2** for locations. Three static detectors were used (Wildlife Acoustics song meter mini) a rotated each month to cover a range of locations across the site. The four locations

² Ricardo Energy and Environment (2021) Navigation Quarter, Southampton Airport: NE field – Preliminary Ecological Appraisal

³ Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

were chosen to encompass and range of habitats within the site and to focus on areas which could be affected by development. Detectors were programmed to turn on 15 minutes prior to sunset and record until 15 minutes after sunrise. Static surveys are summarised in **Table 2.2** and **Figure 2.2** below. All bat surveys were undertaken in accordance (where possible) with current best practice guidance for bat surveys⁴. Any survey limitations are described in Section 2.3.

Table 2.2: Static survey summary

Static Location	Months	Recording dates
1 (Tree in northern boundary of Network Rail field) 2 (Tree in north west boundary of NE field) 3 (Tree on eastern boundary of NE field)	May	10 th May 2022 – 26 th May 2022
1 (Tree in north west boundary of NE field) 2 (Tree on eastern boundary of NE field) 3 (Tree in southern tree line of NE field)	May	26 th May 2022 – 31 st May 2022
1 (Tree in south eastern tree line of NE field) 2 (Tree in eastern boundary of NE field)	June	9 th June 2022 – 23 rd June 2022
1 (Tree in southern tree line of NE field) 2 (Tree in eastern boundary of Network Rail field)	June	23 rd June 2022 – 7 th July 2022
1 (Tree in southern tree line of NE field) 2 (Tree within the woodland between the two fields) 3 (Tree nearby the long stay car park)	July	13 th July 2022 – 31 st July 2022
1 (Tree in southern tree line of NE field) 2 (Tree in northern boundary of Network Rail field) 3 (Tree on eastern boundary of NE field)	August	17 th August 2021 – 24 th August 2021
1 (Tree in northern boundary of NE field) 2 (Tree nearby the long stay car park) 3 (Tree on eastern boundary of Network Rail field)	August	24 th August 2021 – 29 th August 2021
1 (Tree nearby the long stay car park) 2 (Tree in southern tree line of NE field) 3 (Tree in southern tree line of Network Rail field)	September	22 nd September 2021 – 28 th September 2021
2 (Tree in southern tree line of NE field) 3 (Tree on eastern boundary of Network Rail field)	October	7 th October 2021 – 17 th October 2021

⁴ Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

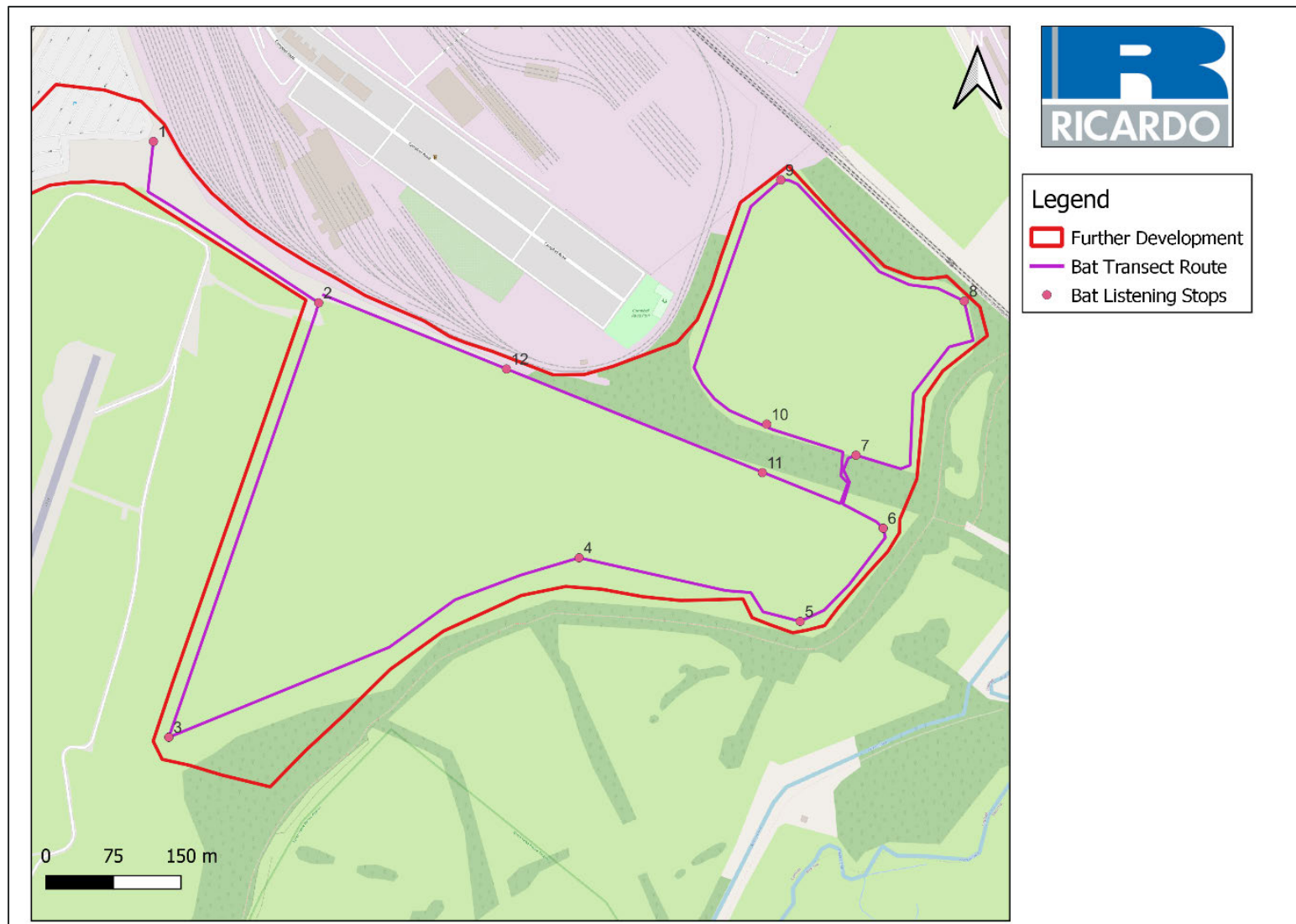


Figure 2.1 Bat transect route including 12 listening stops which were stopped at for five minutes each.

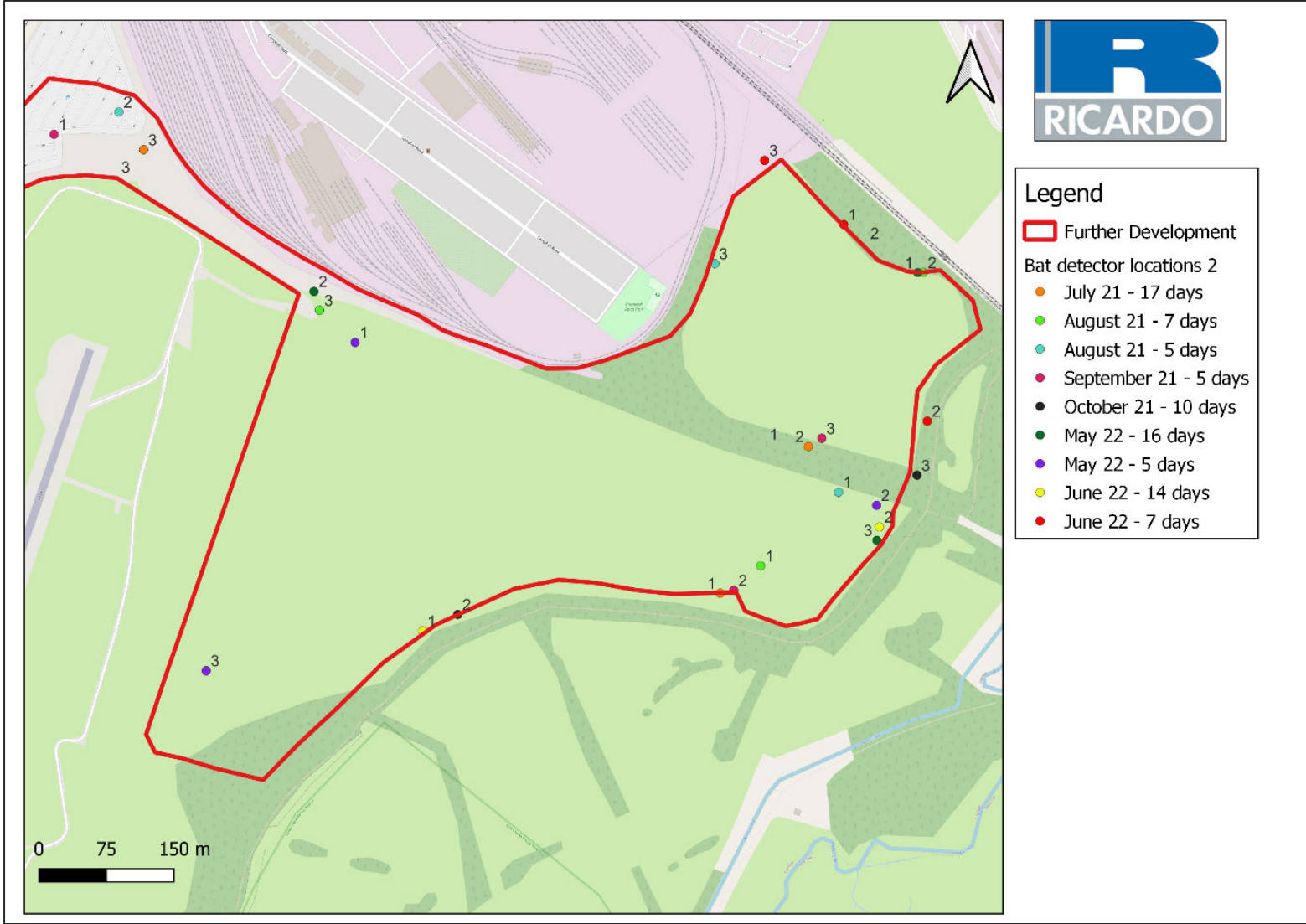


Figure 2.2 Static bat detector locations for each survey, labelled with the bat detector number

2.2 LIMITATIONS

Light rain was recorded during two surveys on the 27th July 2021 at 22:08 for 10 minutes, as well as on the 9th June 2022 at 21:20 for five minutes. Despite the light rain which can impact bat activity, the activity recorded on those transects was considered to be a normal level and therefore the weather was not considered a limitation.

During the second June static survey, static detector 3 failed to record. However as two more detectors were used per month enough data was recorded over the active season that static detector 3 failing did not cause a significant loss of data. During the July static surveys the detectors were not moved in between transect surveys meaning there was one long round of surveying (17 days) rather than two rounds. This is not considered to be an issue as over the survey period the whole site was well covered by static detectors. During the first August static survey static 1 failed to record, this does not cause any significant data loss. During the October surveys static detector 1 failed to record, however as two more detectors were used per month and enough data was recorded over the active season that static detector 1 failing does not cause a significant loss of data. On average detectors were left to record for longer than the suggested five day period therefore more data could be collected to mitigate any data loss from static detector issues.

This report deals with matters of legal significance but does not constitute professional legal advice. The Client may wish to seek professional legal interpretation of the relevant wildlife legislation cited in this document, which is summarised in **Appendix 1**.

3 FINDINGS

3.1 TRANSECT SURVEYS

3.1.1 July transect surveys

The results of the bat activity on site during the transect survey on the 13th July 2021 are summarised below in **Figure 3.1**. The survey started at listening stop 1 and continued in numerical order to listening stop 12. Three bat species were recorded during the survey: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, and myotis sp. Common pipistrelles were the most common species recorded, with foraging activity noted along edge the woodland strip between the North East (NE) field and the Network Rail field. Activity was recorded at all listening stops except stops 1, 2, 3, 4, 11 and 12. Listening stop 7 provided the most activity in one place, with constant pipistrelle activity.

Table 3.1 Dusk Transect Survey 13th July 2021

Survey Start	Survey End	Sunset	Temp Start	Temp End	Precipitation	Wind speed (Beaufort)
21:13	23:17	21:13	21	16	None	1

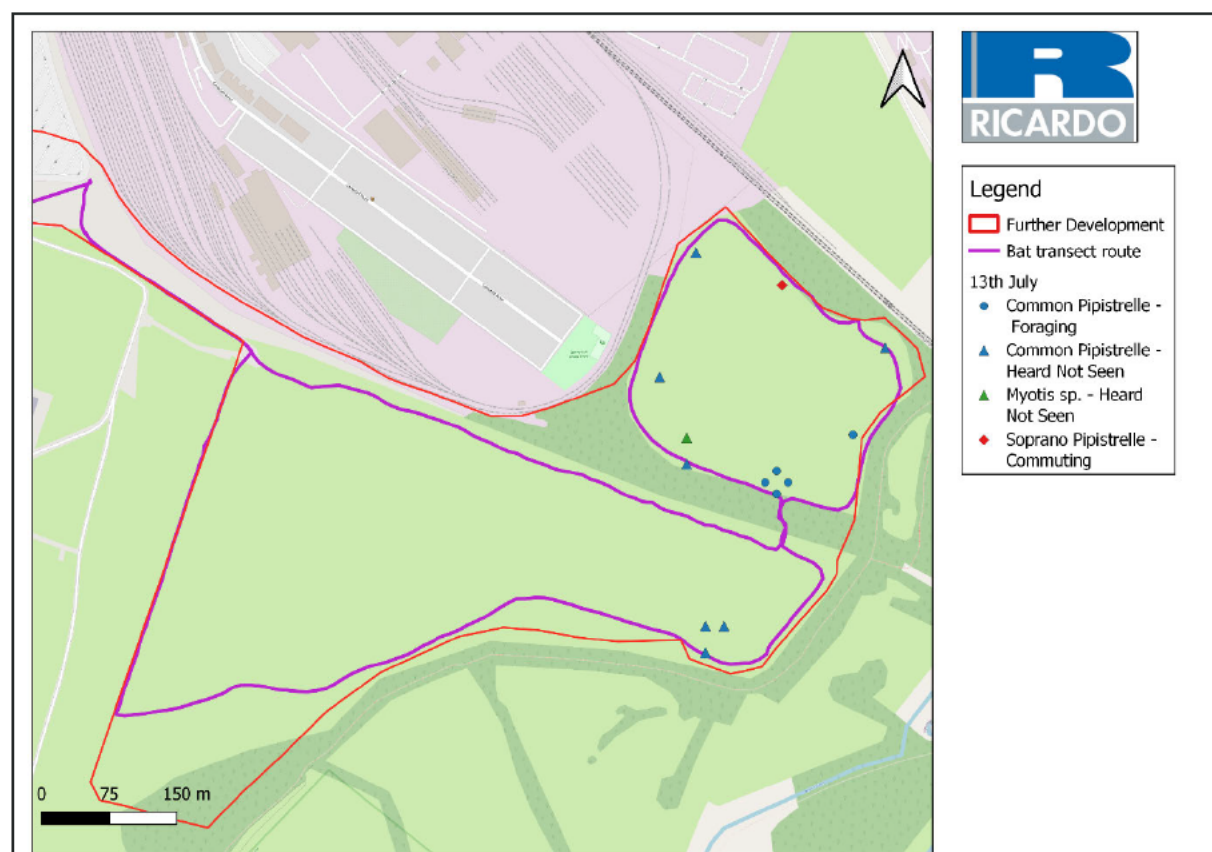


Figure 3.1 Bat Activity Dusk Transect Survey 13th July 2021

The results of the bat activity on site during the transect survey on the 27th July 2021 are summarised below in **Figure 3.2**. The survey started at listening stop 12 and continued in reverse numerical order to listening stop 1. Four bat species were recorded during the survey: soprano pipistrelle, common pipistrelle, myotis sp. and noctule *Nyctalus noctula*. Soprano pipistrelles were the most common species recorded, with foraging activity noted along edge the woodland strip on the southern boundary of the NE field and the Network Rail field. Activity was recorded at all listening stops except stop 8, 11 and 12 in the south east corner of the NE field. Listening stop 5 provided the most activity in one place, with pipistrelle activity.

Table 3.2 Dusk Transect Survey 27th July 2021

Survey Start	Survey End	Sunset	Temp Start	Temp End	Precipitation	Wind speed (Beaufort)
20:55	22:55	20:55	18	17	22:08 - light rain	4

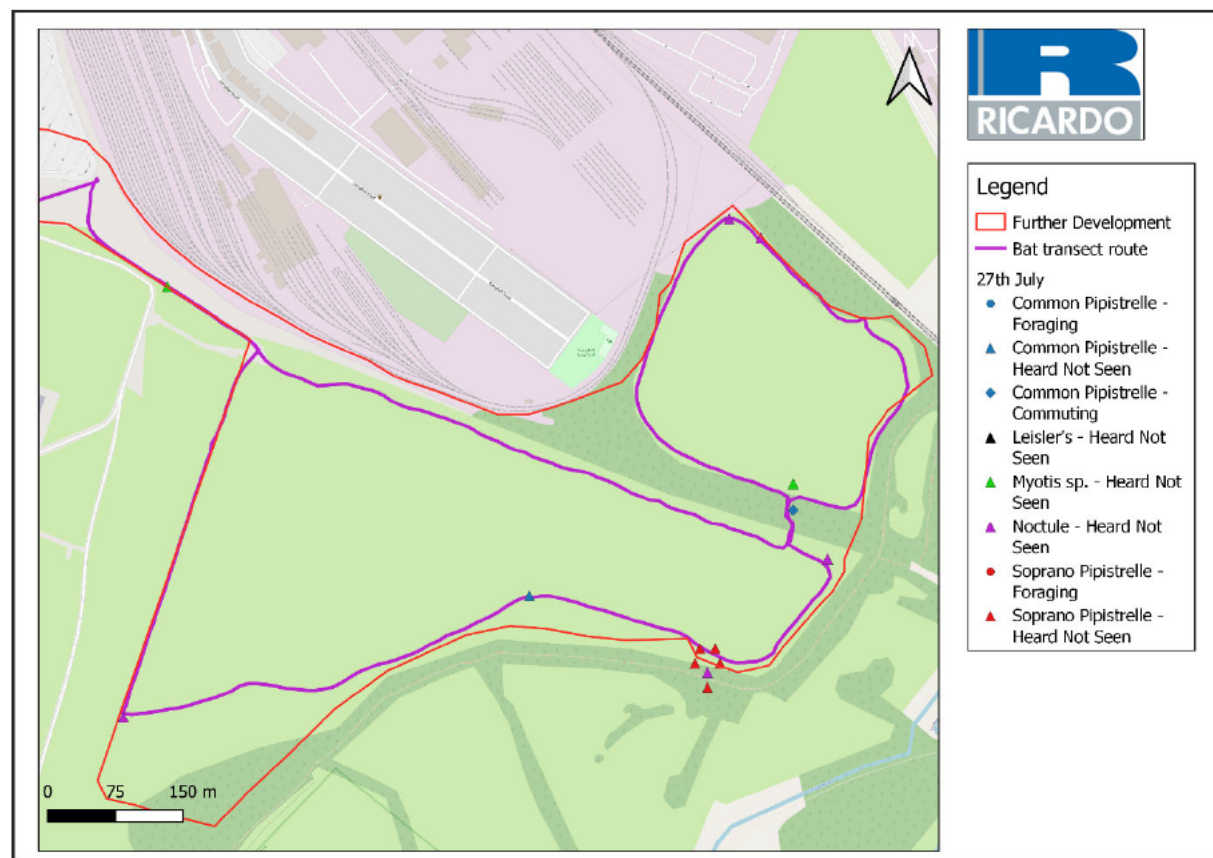


Figure 3.2 Bat Activity Dusk Transect Survey 27th July 2021 August transect surveys

The results of the bat activity on site during the transect survey on the 16th August 2021 are summarised below in **Figure 3.3**. The survey started at listening stop 1 and continued in numerical order to listening stop 12. Five bat species were recorded during the survey: soprano pipistrelle, common pipistrelle, brown long-eared *Plecotus auritus*, myotis sp. and noctule. Common pipistrelles were the most common species recorded, with foraging activity noted along edge the woodland strip between the NE field and the Network Rail field as well as plenty of activity on the northern woodland of the Network Rail field. Activity was recorded at all listening stops except stop 3 in the southeast corner of the NE field. Listening stops 7, 8, 9 and 10 provided the most activity in one place, with constant pipistrelle activity.

Table 3.3 Dusk Transect Survey 16th August 2021

Survey Start	Survey End	Sunset	Temp Start	Temp End	Precipitation	Wind speed (Beaufort)
20:21	22:26	20:21	17	16	None	3

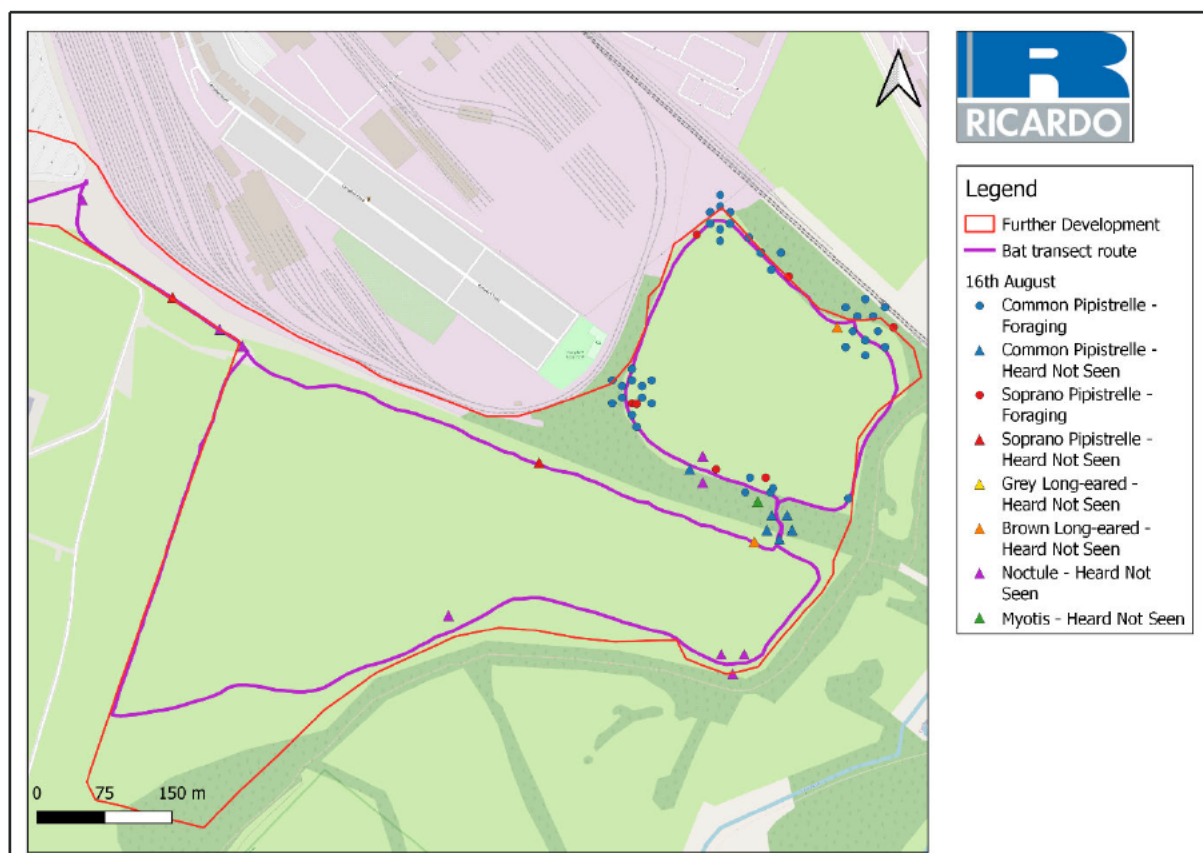


Figure 3.3 Bat Activity Dusk Transect Survey 16th August 2021

The results of the bat activity on site during the transect survey on the 24th August 2021 are summarised below in **Figure 3.4**. The survey started at listening stop 12 and continued in reverse numerical order to listening stop 1. Five bat species were recorded during the survey: soprano pipistrelle, common pipistrelle, grey long-eared* *Plecotus austriacus*, brown long-eared and noctule. Common pipistrelles were the most common species recorded, with foraging activity noted along the edge of the woodland strip between the NE field and the Network Rail field as well as constant activity on the northern woodland of the Network Rail field. Activity was recorded at all listening stops except stop's 1 and 2 along the link road and the northeast corner of the NE field. Listening stops 7, 8 and 9 provided the most activity in one place, with constant pipistrelle activity.

* Grey long-eared bat records as determined by kaleidoscope auto id.

Table 3.4 Dusk Transect Survey 24th August 2021

Survey Start	Survey End	Sunset	Temp Start	Temp End	Precipitation	Wind speed (Beaufort)
20:06	22:03	20:08	19	16	None	2

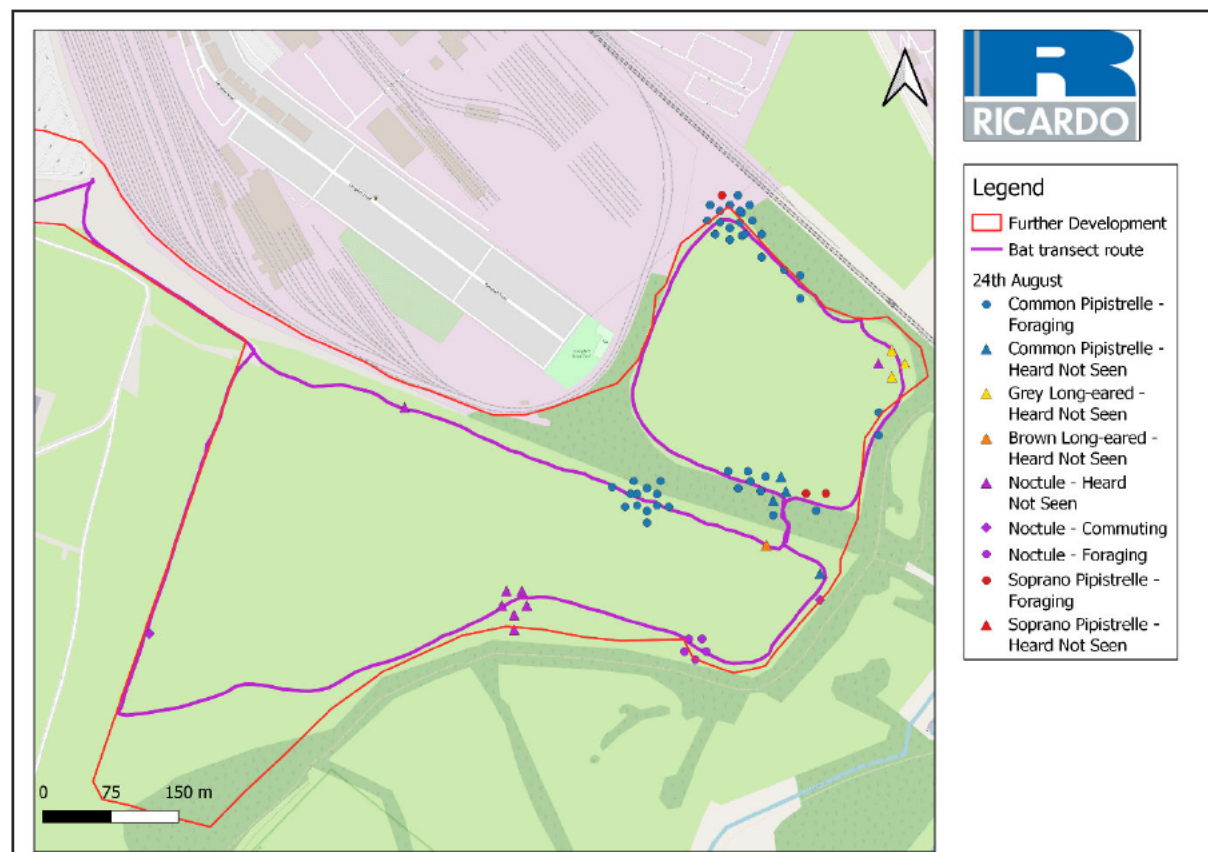


Figure 3.4 Bat Activity Dusk Transect Survey 24th August 2021September transect surveys

The results of the bat activity on site during the transect survey on the 6th September 2021 are summarised below in **Figure 3.5**. The survey started at listening stop 1 and continued in numerical order to listening stop 12. Three bat species were recorded during the survey: soprano pipistrelle, common pipistrelle and noctule. Soprano pipistrelles were the most common species recorded, with foraging activity noted along edge the woodland strip between the NE field and the Network Rail field as well as plenty of activity on the southern woodland boundary of the north east rail field. Activity was recorded at all listening stops except stop 3 in the southeast corner of the NE field and listening stops 1 and 2.

Table 3.5 Dusk Transect Survey 6th September 2021

Survey Start	Survey End	Sunset	Temp Start	Temp End	Precipitation	Wind speed (Beaufort)
19:39	21:39	19:39	18	17	None	1

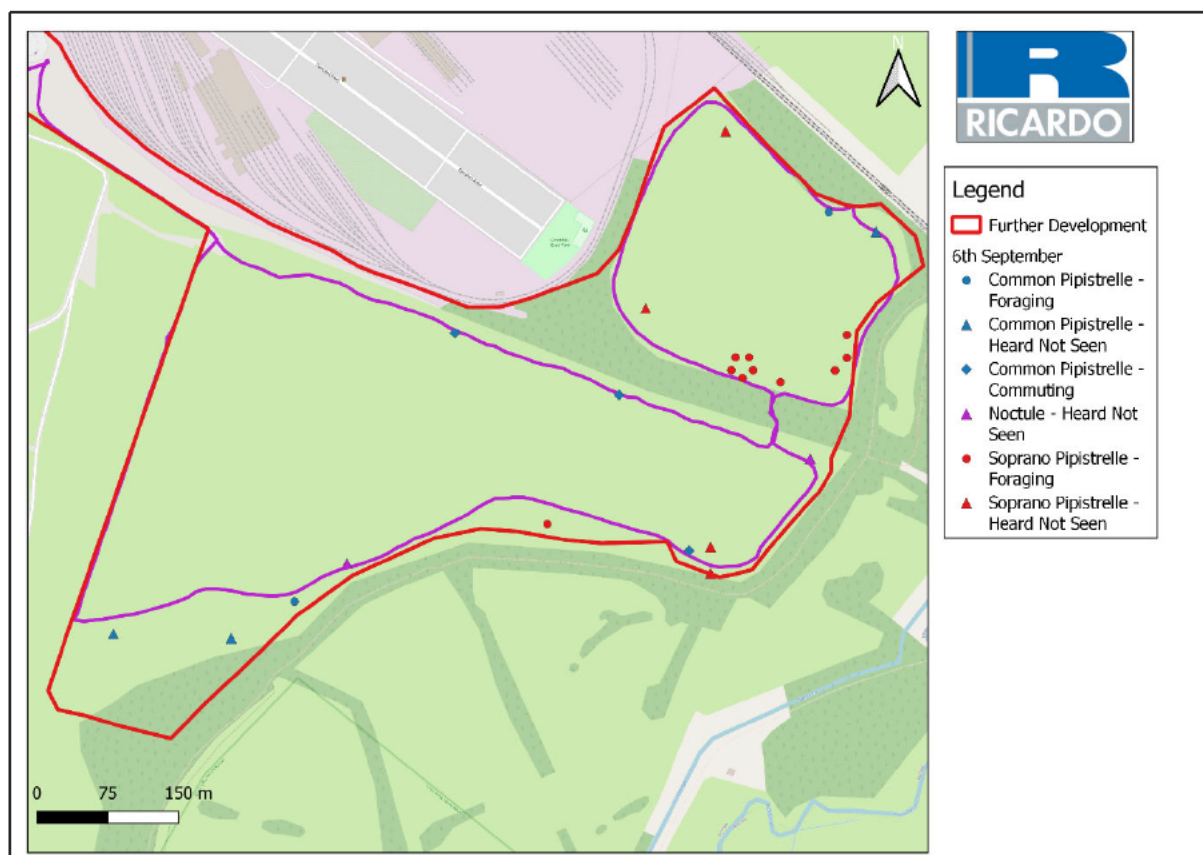


Figure 3.5 Bat Activity Dusk Transect Survey 6th September 2021.