



Oxfordshire Railfreight Ltd.

Proposed Oxfordshire Strategic Rail Freight Interchange

BREEDING BIRD REPORT

Working Draft - April 2022

DRAFT

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Figure 1: 2018 – 2020 Breeding Bird Survey Results

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1.0 NON-TECHNICAL SUMMARY

1.1 FPCR were commissioned by Oxfordshire Railfreight Ltd. to carry out a suite of breeding bird surveys at a proposed development site at Ardley, Oxfordshire. Proposals are for the construction of a rail freight connection and industrial units, road junctions, habitat corridors and other soft landscaping.

1.2 The site was originally defined as a single area located to the south of the Chiltern Main Line, however this was extended in 2021 to incorporate additional land to the south (the 'Main Site'). Further land was then added to the Proposed Development area in 2021 to encompass proposed two highways works areas, one to the northeast of the Main Site and linking to Junction 10 of the M49, the other to the southeast and linking south to the B4030 east of Middleton Stoney.

Main Site

1.3 Initial surveys were undertaken across the extent of the original Main Site area in April, May and June 2018 during which time a total of 47 bird species were recorded, of which 23 are considered notable species. Three species were confirmed as breeding on site, 19 were considered probable breeders and the remaining 25 were considered possible or non-breeders. Additionally, based on anecdotal evidence from other ecological surveys conducted by FPCR on site, barn owl (listed under Schedule 1 of the Wildlife and Countryside Act 1981) was considered a probable breeder within the site.

1.4 Further surveys were conducted in 2020 that covered the new parcel of land added to the south of the Main Site area. A total of 53 species of bird were recorded within this area, of which 24 are notable. 13 species were confirmed to be breeding on site, 27 were considered to be probable or possible breeders. No evidence was recorded to suggest the remaining species were breeding on site.

1.5 The entire extended Main Site was then subject to a single updating survey in 2021 which recorded 41 species, of which 21 are notable. The species composition and numbers of individuals recorded during the 2021 survey were largely similar to those recorded previously, except for the additional presence of merlin, which had not previously been recorded.

1.6 The bird assemblages recorded on site were considered typical of the habitats present, with the vast majority of species both common and widespread. The assemblages associated with the tree/hedgerow cover, fields interiors and farm buildings were all considered to be of Local conservation importance, whilst the assemblage associated with the ponds was considered of no more than Site importance.

1.7 Twelve individual species recorded on site were additionally considered to be of Local conservation importance based on their conservation status and abundance on site: skylark, mistle thrush, song thrush, house sparrow, corn bunting, linnet, yellowhammer, stock dove, kestrel, dunnoek, spotted flycatcher and barn owl. The remaining species recorded were considered of no more than Site conservation importance.

1.8 The Proposed Development will result in a short- to medium-term local level impact of **Minor** adverse significance on breeding generalist bird species as a result of habitat loss and disturbance due to the development. As the soft landscaping matures however this will result in enhanced foraging and nesting opportunities associated with a broad habitat corridor around

the perimeter of the Main Site and linking to retained priority habitats on and off-site. As such the long-term impact on breeding generalist bird species will be **Negligible to Minor positive** at the local level.

- 1.9 There will be a local permanent impact of **Minor** significance on the farmland bird assemblage as the entirety of the existing arable land will be lost from the Main Site.
- 1.10 Alternative nesting opportunities will be provided for the species associated with buildings on site, including barn owl, kestrel and house sparrow to mitigate the loss of existing structures which will either be removed or renovated as part of the development. The provision of permanent nest sites will reduce the impact on these species to **Negligible to Minor** adverse significance at a local level since

Highway Works

The extent of the survey area was expanded again in 2021 to encompass the Highways Works areas. A single survey was undertaken of these two areas in June 2021, with two more surveys scheduled for the 2022 breeding season. **To be completed.**

Disturbance **To be updated to include Highways Areas following 2022 survey**

- 1.11 Best practice working methods will be employed throughout construction operations to minimise disturbance impacts to breeding birds and dependant young. These will include the timing of vegetation clearance outside of the bird nesting season (i.e. avoiding March to August inclusive) where possible. When such timing is not possible a suitably experienced ecologist will make a check of any suitable breeding habitat prior to its clearance, with appropriate stand-offs (as determined by the ecologist) retained around any active nests until dependant young have fledged.
- 1.12 Mitigation measures will be implemented to minimise disturbance to nesting barn owls. A licensed barn owl surveyor will check the probable nest sites immediately prior to any works which have the potential to disturb nesting owls. If any active nests are recorded, all works in the vicinity with potential to disturb the nest site will be halted and will not resumed until the young are no longer dependent on the nest site.
- 1.13 To mitigate the loss of suitable nesting habitat on site a range of nest sites for barn owl, kestrel and house sparrow will be provided as well as a range of bird boxes suitable for use by more generalist species.
- 1.14 During the construction phase, spotted flycatcher will likely undergo a **Minor** adverse impact at a local level due to noise and increased disturbance (short- to medium-term impact). The phased construction works will otherwise likely result in a short- to medium-term impact of **Negligible to Minor** adverse significance to the breeding bird assemblage as a whole as a result of disturbance.

2.0 INTRODUCTION

2.0 The following report has been prepared by FPCR Environment and Design Ltd. on behalf of Oxfordshire Railfreight Ltd. and provides details of breeding bird surveys undertaken on land at Ardley, Bicester (central OS grid reference SP533263) in 2018, 2020, 2021 and 2022. This report should be read in conjunction with the Ecological Appraisal¹ for the site which includes the results of an Extended Phase 1 Habitat Survey and the Winter Bird Report².

Site Location and Context

2.1 The Proposed Development Site is located to the south of Ardley within a rural environment. The Main Site is bound by Chiltern Main Line Railway to the north, the B430 road to the east, agricultural fields to the south, and the disused Heyford airfield to the west. The adjacent Highways Works components of the Proposed Development lie to the northeast and southeast. The Highways Works to the northeast centre on the proposed Ardley Bypass which will cross the railway line and link to Junction 10 of the M40. Highway Works to the southeast of the Main Site will create the Middleton Stoney Relief Road that will link to the B4030 east of Middleton Stoney.

2.2 The Site itself is dominated by arable and improved grassland, with hedgerows, trees, scrub and semi-improved grassland at the field margins. Other habitats present within the Site include relatively small woodland and woodland plantation stands, waterbodies, a small section of the Gagle Brook and a tributary of the brook, farm and residential buildings and associated hardstanding, and amenity/ornamental habitats.

Site Proposals

2.3 The development proposals comprise a rail freight connection and industrial units with associated access roads. A mounded landscape buffer planted with woodland is proposed around the periphery of the Main Site and a green corridor of retained woodland and ponds in the centre and south of the Main Site. Proposals for the Highway Works area mainly comprise roads and associated access and landscaping.

Survey Objectives

- 2.4 The objectives of the breeding bird surveys were to:
- To identify the presence of any designated nature conservation sites that support notable breeding bird assemblages within or in the vicinity of the site;
 - To identify the presence of any notable species/populations of breeding birds within or in the vicinity of the site;
 - Identify the presence, species and distribution of breeding birds on the site;
 - Evaluate the conservation value of habitats on site to local bird populations and identify any areas of ornithological interest; and
 - Make recommendations in terms of the development design to minimize the potential impacts of development and to consider opportunities for mitigation, compensation and enhancement where relevant.

¹ FPCR Environment and Design Ltd. 2022. *Proposed Oxfordshire Strategic Rail Freight Interchange - Ecological Appraisal*.

² FPCR Environment and Design Ltd. 2022. *Proposed Oxfordshire Strategic Rail Freight Interchange - Wintering Bird Report*.

LEGISLATION & GUIDANCE

Legislation

- 2.5 The Wildlife and Countryside Act 1981 (as amended)³ is the principal legislation affording protection to UK wild birds. Under this legislation all birds, their nests and eggs are protected by law and it is an offence, with certain exceptions to recklessly or intentionally:
- Kill, injure or take any wild bird;
 - Take, damage or destroy the nest of any wild bird while in use or being built;
 - Take or destroy the egg of any wild bird.
- 2.6 Species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) receive additional protection against intentional disturbance whilst building or occupying a nest, and against disturbance of dependent young.
- 2.7 Certain species have also been listed as Species of Principal Importance (SPI) for the conservation of biodiversity in England under Schedule 41 of the Natural Environment and Rural Communities (NERC) Act (2006). The S.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.
- 2.8 The site falls within the Oxfordshire Local Biodiversity Action Plan (LBAP) which identifies a number of targets for UK priority species that occur within this area, however no bird species are specifically included within the LBAP.

Status

- 2.9 In addition to statutory protection, some bird species are classified according to their conservation status, such as their inclusion on the Red and Amber lists of Birds of Conservation Concern (BoCC) in the UK⁴:
- 2.10 Red list (high conservation concern) species are those that are globally threatened according to IUCN criteria; those whose population has declined rapidly (50% or more) in recent years; and those that have declined historically and not shown a substantial recent recovery.
- 2.11 Amber list (medium conservation concern) species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately (between 25% and 49%) in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations.
- 2.12 Green list (low conservation concern) species fulfil none of the above criteria.

³ [Online] <http://www.legislation.gov.uk/ukpga/1981/69>

⁴ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* 114: 723-747.

3.0 METHODOLOGY

Desk Study

3.0 In order to compile existing baseline ornithological information, the following statutory and non-statutory organisations were consulted for data regarding designated sites for which birds are a designating feature, and protected/notable bird records from the preceding 20 years:

- Natural England via the Multi Agency Geographic Information for the Countryside (MAGIC) website⁵;
- Thames Valley Environmental Records Centre (TVERC).

3.1 The geographical extent of the search area for biodiversity information was related to the significance of sites and species and potential zones of influence which might arise from development within the site, as follows:

- 15km around the site boundary for sites of International Importance (e.g. Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites);
- 2km around the site boundary for statutory sites of National or Regional Importance (e.g. Sites of Special Scientific Interest (SSSIs)); and
- 1km around the site for non-statutory designated sites of County Importance (e.g. Sites of Importance for Nature Conservation (SINCs) / Local Wildlife Sites (LWSs) and protected or otherwise notable species records within the last 20 years.

Field Survey

3.2 Three surveys of the original Main Site boundary were undertaken by an experienced ornithologist between 05.00 and 11.00, one each during April, May and June 2018. Three surveys were then undertaken in April, May and June 2020 that focused on the subsequently added land to the south of the Main Site. An update survey of the entire Main Site (original and additional land to south) was carried out in May 2021. Figures 1 and 2 show the relevant survey areas.

3.3 The Highway Works areas have to date been surveyed once only, in June 2021. These areas will be subject to two more surveys, one each in April and May 2022.

3.4 The survey methodology employed was broadly based on that of territory mapping as developed by the British Trust for Ornithology (BTO)⁶. All birds encountered (seen or heard) were recorded on a field survey plan using standard BTO species codes and symbols for bird activities and to denote activity, sex and age where appropriate. Birds were considered to be holding a territory and therefore likely to be utilizing the survey area for breeding activities if they were displaying breeding behaviours, such as: singing, nest building, food carrying or territorial defence. If birds did not display such behaviours, e.g. they were only recorded flying over the survey area, they were considered non-breeders. Breeding evidence used in this report follows EOAC guidelines 1979⁷, as summarised in Appendix A.

⁵ [Online]. <http://www.magic.gov.uk/>

⁶ Bibby, C.J., N.D. Burgess & D.A. Hill 2000. *Bird Census Techniques*: 2nd Edition. London: Academic Press

⁷ European Ornithological Atlas Committee, 1979. *Categories of Breeding Bird Evidence*. European Ornithological Atlas Committee.

- 3.5 A route was mapped out prior to the survey being undertaken, with particular attention paid to linear features such as hedgerows and watercourses, and other features such as woodland and ponds. The surveys were not undertaken in unfavourable conditions such as heavy rain or strong wind, which may negatively affect the results. Table 1 identifies the dates and weather conditions for each survey.

Table 1: Breeding Bird Survey Dates and Conditions

Survey	Date	Survey Area	Cloud Cover (%)	Rain	Wind (Beaufort)	Visibility
1	30.04.18	Original Main Site	100	None	Fresh breeze	Excellent
2	18.05.18		20	None	Light air	Excellent
3	29.06.18		5	None	Light breeze	Good
4	29.04.20	Main Site Southern Extension	100	Drizzle	Light breeze	Moderate
5	20.05.20		0	None	None	Excellent
6	04.06.20		100	None	Light breeze	Excellent
7	20.05.21	Entire Main Site	100	None	Calm	Moderate (foggy for first hour) to Excellent
8	30.06.21	Highways Works Areas	100	None	Light breeze	Excellent

Species & Assemblage Assessment

- 3.6 The Chartered Institute of Ecology and Environmental Management (CIEEM) guidance on ecological impact assessment assesses nature conservation importance within a geographical context⁸. To attain each level of importance, an ornithological resource or one of the features (species population or assemblage of species) should meet the criteria set out in Table 2. In some cases, professional judgment may be required to increase or decrease the allocation of importance, based upon local knowledge.
- 3.7 The site has also been assessed against the selection criteria for LWS for Berkshire, Buckinghamshire and Oxfordshire⁹ on a number of criteria set out for breeding birds. Local Wildlife Sites are recognised by central government as an important tool in promoting sustainable development and protecting biodiversity.
- 3.8 Particular attention has been given to bird species with an associated protection and/or conservation status such as WCA Schedule 1, SPI and/or BoCC Red or Amber list species. These species are likely to be of the greatest threat in relation to further decline and are commonly referred to as 'notable' species.
- 3.9 The recent county annual bird report the Birds of Oxfordshire 2013¹⁰ was consulted to inform the assessment. The abundance of species referred to by these reports is classified by the following criteria:

⁸ http://www.cieem.net/data/files/Publications/EcIA_Guidelines_Terrestrial_Freshwater_and_Coastal_Jan_2016.pdf

⁹ MHa, GH, AF, GDB, RM (Revised 2009). *Criteria for the Selection of Local Wildlife Sites in Berkshire, Buckinghamshire and Oxfordshire*, Version 6.0

¹⁰ Oxford Ornithological Society 2018. *Birds of Oxfordshire 2013*

Very rare – Fewer than ten records ever;

Rare – Ten or more records ever, but less than annual;

Scarce – Fewer than ten birds occurring or pairs breeding annually;

Uncommon – Between ten and 100 birds occurring or pairs breeding annually;

Fairly common – Between 100 and 1000 birds occurring or pairs breeding annually;

Common – Between 1000 and 10,000 birds occurring or pairs breeding annually;

Abundant – More than 10,000 birds occurring or pairs breeding annually.

Table 2: Evaluation Criteria

Nature Conservation Value	Examples of Selection Criteria
International	A species which is part of the cited interest of an SPA and which regularly occurs in internationally or nationally important numbers. A species present in internationally important numbers (>1% of international population).
National	A species which is part of the cited interest of a SSSI and which regularly occurs in nationally or regionally important numbers. A nationally important assemblage of breeding or over-wintering species. A species present in nationally important numbers (>1% UK population). Rare breeding species (<300 breeding pairs in the UK).
Regional	Species listed as being of principal importance under NERC S.41 which are not covered above, and which regularly occurs in regionally important numbers. Species present in regionally important numbers (>1% of regional population). Sustainable populations of species that are rare or scarce within a region. Species on the BoCC Red List & which regularly occur in regionally important numbers.
County	Species listed as being of principal importance under NERC S.41 which are not covered above and which regularly occurs in county important numbers Species present in county important numbers (>1% of county population). Sustainable populations of species that are rare or scarce within a county, or are listed as being of principle importance under S41 of the NERC Act. A site designated for its county important assemblage of birds (e.g. a SINC Site). Species on the BoCC Red List & which regularly occur in county important numbers.
Local	Other species of conservation interest (e.g. all other species on the BoCC Red and Amber List or species listed as being of principal importance under NERC S.41 which are not covered above) regularly occurring in locally sustainable populations. Sustainable populations of species which are rare or scarce within the locality.
Site	Species that are common and widespread

4.0 RESULTS & EVALUATION

Desk Study

Designated Sites

- 4.0 There were two non-statutory sites of relevance to birds present within the search areas as summarised in Table 3 below.

Table 3 Designated Sites of Ornithological Interest within Search Radius.

Site	Designation	Summary Description	Ornithological Interest	Approx. Distance from site
Upper Heyford Airfield (52105)	LWS	An old airbase that includes a very large area of grassland which ranges in botanical diversity and includes some species-rich calcareous areas. Includes areas of broadleaved plantation woodland and a series of water tanks.	Meadow pipit nest here and a large number of skylark appear to be breeding in the grassland. Curlew, grey partridge and corn bunting are almost certainly breeding. Tree sparrow, linnet, yellowhammer, kestrel, were also noted.	Adjacent to the western site boundary
Ardley Fields Quarry (52N07)	LWS	Comprises a restored quarry which supports improved grassland, rough grassland, young planted trees, species rich grassland, ponds and wet ditches.	Records of red kite and snipe.	750m east of the site

Protected / Notable Species

- 4.1 A total of 40 notable bird species were recorded within 1km of the site within the last 20 years as identified through consultation with local environmental record centres. A summary of these species records is provided in Appendix B. The majority of records were from within the Ardley Cutting and Quarry SSSI adjacent to the northern boundary of the site and included a range of typical farmland and scrub species, such as yellowhammer *Emberiza citrinella*, corn bunting *Emberiza calandra* and marsh tit *Poecile palustris*, with a few rarer species such as merlin *Falco columbarius* and whimbrel *Numenius phaeopus*. No existing records were returned from within the boundary of the Proposed Development site.

Field Survey Summary - Main Site

- 4.2 Figure 1 shows the locations of notable bird records made during breeding bird surveys. A full list of species recorded is provided in Appendix A.

2018 Breeding Bird Surveys

- 4.3 The breeding bird surveys of the original Main Site area in 2018 recorded a total of 47 bird species, of which 23 were considered notable.
- 4.4 Three species were confirmed as breeding on site including the notable starling *Sturnus vulgaris*. The other two species confirmed to be breeding on site were both of low conservation concern (carrion crow *Corvus corone* and great tit *Parus major*, both BoCC green listed).

- 4.5 19 species were considered probable breeders within the survey area, including the notable stock dove *Columba oenas*, kestrel *Falco tinnunculus*, skylark *Alauda arvensis*, mistle thrush *Turdus viscivorus*, dunnoek *Prunella modularis*, house sparrow *Passer domesticus*, linnet *Linaria cannabina* and yellowhammer. The other 8 probable breeding species were all of low conservation concern (BoCC green listed).
- 4.6 The remaining species recorded were considered possible breeders (18) or non-breeders (7).
- 4.7 Barn owl *Tyto alba* was additionally noted as a probable breeder during a bat roost building assessment¹¹ conducted by FPCR on the site. Evidence included owl pellets within the interior of a two-storey stone barn associated with Ashgrove Farm (Building B5 in the separate Bat Report), and the presence of several ledges suitable for nesting and roosting owls was also noted. This species is listed under Schedule 1 of the Wildlife and Countryside Act (1981) (as amended).

Table 4a: Notable Bird Species Recorded and their Recent Status in Oxfordshire (Main Site 2018)

Species	Legal/ Conservation Status	Peak Count / No. of Survey Visits Recorded	Breeding status ¹²	Recent Status in Oxfordshire
Mallard <i>Anas platyrhynchos</i>	Amber list	5/1	Possible	Very common resident
Red kite <i>Milvus milvus</i>	Green list WCA Sch. 1	5/3	Non-breeder	Established resident
Sparrowhawk <i>Accipiter nisus</i>	Amber list	1/1	Possible	
Moorhen <i>Gallinus chloropus</i>	Amber list	1/1	Possible	
Stock dove <i>Columba oenas</i>	Amber list	17/2	Probable	Numerous resident
Woodpigeon <i>Columba oenas</i>	Amber list	48/3	Probable	
Swift <i>Apus apus</i>	Red list	3/1	Non-breeder	Common but declining summer visitor
Kestrel <i>Falco tinnunculus</i>	Amber list	2/3	Probable	Common resident
Rook <i>Corvus frugilegus</i>	Amber list	101/3	Possible	
Skylark <i>Alauda arvensis</i>	Red list NERC SPI	17/3	Probable	Common resident
Whitethroat <i>Sylvia communis</i>	Amber list	9/1	Probable	
Wren <i>Troglodytes troglodytes</i>	Amber list	5/3	Probable	

¹¹ FPCR Environment and Design Ltd. 2022. *Proposed Oxfordshire Strategic Rail Freight Interchange – Bat Report*.

¹² European Ornithological Atlas Committee, 1979. *Categories of Breeding Bird Evidence*. European Ornithological Atlas Committee.

Species	Legal/ Conservation Status	Peak Count / No. of Survey Visits Recorded	Breeding status ¹²	Recent Status in Oxfordshire
Starling <i>Sturnus vulgaris</i>	Red list NERC SPI	5/3	Confirmed	Much reduced breeding distribution
Song thrush <i>Turdus philomelos</i>	Amber list NERC SPI	3/2	Possible	Common resident, perhaps declining
Mistle thrush <i>Turdus viscivorus</i>	Red list	5/3	Probable	Common resident
Wheatear <i>Oenanthe oenanthe</i>	Amber list	1/1	Non-breeder	
Dunnock <i>Prunella modularis</i>	Amber list NERC SPI	14/3	Probable	Common and widespread resident
House sparrow <i>Passer domesticus</i>	Red list NERC SPI	1 colony + 5/3	Probable	Abundant resident, recent decline
Yellow wagtail <i>Motacilla flava</i>	Red list NERC SPI	1/1	Non-breeder	Moderately common summer visitor, reduction in numbers
Greenfinch <i>Chloris chloris</i>	Red list	8/3	Probable	
Linnet <i>Linaria cannabina</i>	Red list NERC SPI	19/3	Probable	Common resident
Yellowhammer <i>Emberiza citrinella</i>	Red list NERC SPI	11/3	Probable	Common resident. Major decline
Corn bunting <i>Emberiza calandra</i>	Red list NERC SPI	1/1	Possible	Local resident. Population decline

2020 Breeding Bird Surveys

- 4.8 The surveys of the Main Site southern extension area in 2020 recorded 53 bird species, of which 24 are considered notable.
- 4.9 13 were confirmed to be breeding on site, including notable species dunnock, skylark and yellowhammer and wren *Troglodytes troglodytes*. The remaining nine breeding species are all of low conservation concern (BoCC green listed) and include chaffinch *Fringilla coelebs*, jay *Garrulus glandarius* and buzzard *Buteo buteo*.
- 4.10 14 species were considered probable breeders, of which eight are considered notable: corn bunting, kestrel, bullfinch *Pyrrhula pyrrhula*, song thrush *Turdus philomelos*, spotted flycatcher *Muscicapa striata*, stock dove, whitethroat *Sylvia communis* and linnet, the remaining six species are BoCC green list species and include blackcap *Sylvia atricapilla*.
- 4.11 The remaining 26 species recorded were considered possible breeders (15) non breeders (11).

Table 4b: Notable Bird Species Recorded and their Recent Status in Oxfordshire (Main Site 2020)

Species	Legal/ Conservation Status	Peak Count / No. of Survey Visits Recorded	Breeding status ¹¹	Recent Status in Oxfordshire
Red kite <i>Milvus milvus</i>	Green list WCA Sch.1	3/3	Non-breeder	Established resident
Sparrowhawk <i>Accipiter nisus</i>	Amber list	1/1	Possible	
Stock dove <i>Columba oenas</i>	Amber list	3/3	Probable	Numerous resident
Woodpigeon <i>Columba oenas</i>	Amber list	39/3	Probable	
Swift <i>Apus apus</i>	Red list	12/1	Non-breeder	Common but declining summer visitor
Kestrel <i>Falco tinnunculus</i>	Amber list	2/2	Probable	Common resident
Rook <i>Corvus frugilegus</i>	Amber list	11/2	Possible	
Lesser black backed gull <i>Larus fuscus</i>	Amber list	1/1	Non-breeder	Common visitor
Hobby <i>Falco subbuteo</i>	Green list WCA Sch.1	1/1	Non-breeder	Common migrant
Skylark <i>Alauda arvensis</i>	Red list NERC SPI	20/3	Confirmed	Common resident
Whitethroat <i>Sylvia communis</i>	Amber list	10/3	Probable	
Wren <i>Troglodytes troglodytes</i>	Amber list	21/3	Probable	
Starling <i>Sturnus vulgaris</i>	Red list NERC SPI	1/1	Possible	Much reduced breeding distribution
Song thrush <i>Turdus philomelos</i>	Amber list NERC SPI	6/3	Probable	Common resident, perhaps declining
Dunnock <i>Prunella modularis</i>	Amber list NERC SPI	10/3	Confirmed	Common and widespread resident
House martin <i>Delichon urbicum</i>	Red list	36/1	Non-breeder	Common summer visitor but experiencing a decline
Yellow wagtail <i>Motacilla flava</i>	Red list NERC SPI	2/2	Possible breeder	Moderately common summer visitor, reduction in numbers
Grey wagtail <i>Motacilla cinerea</i>	Amber list	1/1	Possible breeder	Widespread resident population
Greenfinch <i>Chloris chloris</i>	Red list	3/1	Probable	
Bullfinch <i>Pyrrhula pyrrhula</i>	Amber listed	6/3	Probable breeder	Common resident
Linnet <i>Linaria cannabina</i>	Red list NERC SPI	8/3	Probable	Common resident

Species	Legal/ Conservation Status	Peak Count / No. of Survey Visits Recorded	Breeding status ¹¹	Recent Status in Oxfordshire
Yellowhammer <i>Emberiza citrinella</i>	Red list NERC SPI	29/3	Confirmed	Common resident. Major decline
Corn bunting <i>Emberiza calandra</i>	Red list NERC SPI	5/1	Probable	Local resident. Population decline
Reed bunting <i>Emberiza schoeniclus</i>	Amber list	1/1	Non-breeder	Common resident
Spotted flycatcher <i>Muscicapa stia</i>	Red list	2/2	Probable	Declining summer visitor

2021 Breeding Bird Survey

- 4.12 a total of 41 bird species were recorded during the 2021 update survey of the entire Main Site, of which 21 are considered notable.
- 4.13 Three species were confirmed as breeding on site, including jackdaw, and notable species starling and yellow wagtail. Seven species were considered probable breeders, including notable species skylark, linnet, yellowhammer and corn bunting. As only one breeding bird survey was carried out in 2021, it is likely that some breeding evidence was not observed. The number of probable/confirmed breeders utilising the site in 2021 is therefore likely to be higher than the number for which evidence was recorded.

4c: Notable Bird Species Recorded During the 2021 Survey of the Main Site and Their Recent Status in Oxfordshire

Species	Legal/ Conservation Status	Peak Count	Breeding status ¹¹	Recent Status in Oxfordshire
Mallard <i>Anas platyrhynchos</i>	Amber list	2 + 4 flyovers	Possible	
Red kite <i>Milvus milvus</i>	Green list WCA Sch. 1	1 + 3 flyovers	Possible	Established resident
Stock dove <i>Columba oenas</i>	Amber list	4 flyovers	Non-breeder	Numerous resident
Woodpigeon <i>Columba oenas</i>	Amber list	31 +24 flyovers	Possible	
Kestrel <i>Falco tinnunculus</i>	Amber list	1 flyover	Possible	Common resident
Merlin <i>Falco columbarius</i>	Red list WCA Sch. 1	1 flyover	Non-breeder	
Herring gull <i>Larus argentatus</i>	Red list NERC SPI	1 flyover	Non-breeder	
Skylark <i>Alauda arvensis</i>	Red list NERC SPI	45	Probable	Common resident
Whitethroat <i>Sylvia communis</i>	Amber list	21	Probable	
Wren <i>Troglodytes troglodytes</i>	Amber list	26	Probable	

Species	Legal/ Conservation Status	Peak Count	Breeding status ¹¹	Recent Status in Oxfordshire
Starling <i>Sturnus vulgaris</i>	Red list NERC SPI	1 + 1 flyover	Confirmed	Much reduced breeding distribution
Mistle thrush <i>Turdus viscivorus</i>	Red list	11 + 2 flyovers	Possible	
Song thrush <i>Turdus philomelos</i>	Amber list NERC SPI	6	Possible	Common resident, perhaps declining
Spotted flycatcher <i>Muscicapa striata</i>	Red list	3	Possible	
Dunnock <i>Prunella modularis</i>	Amber list NERC SPI	13	Possible	Common and widespread resident
Yellow wagtail <i>Motacilla flava</i>	Red list NERC SPI	5	Confirmed	Moderately common summer visitor, reduction in numbers
Greenfinch <i>Chloris chloris</i>	Red list	1	Probable	
Linnet <i>Linaria cannabina</i>	Red list NERC SPI	42 + 4 flyovers	Probable	Common resident
Yellowhammer <i>Emberiza citrinella</i>	Red list NERC SPI	27	Probable	Common resident. Major decline
Corn bunting <i>Emberiza calandra</i>	Red list NERC SPI	4	Probable	Local resident. Population decline
Reed bunting <i>Emberiza schoeniclus</i>	Amber list	1	Possible	Common resident

Bird Survey Results Description- Main Site

- 4.14 The interiors of the open arable and grassland fields provided limited breeding opportunities for birds with the exception of skylark, a confirmed breeder within the site with up to 20 individuals recorded. The field boundary hedgerows, trees and field margins provided breeding and foraging opportunities for farmland bird species including linnet and yellowhammer. Corn bunting was recorded using arable habitats in the north, west and south of the Main Site, and was considered a probable breeding species due to the observation of a pair within suitable breeding habitat. Yellow wagtail *Motacilla flava* was recorded within northern and southern arable fields and on one occasion flying over the site. This species was considered to be breeding within the site due to the observation of a pair visiting a probable nest site. Starling, hobby *Falco subbuteo*, sparrowhawk *Accipiter nisus* and kestrel utilised the grassland fields and arable field margins for foraging. Wheatear *Oenanthe oenanthe* and stonechat *Saxicola rubicola*, both passage migrants to the county, were also recorded within grassland habitats. Other species which utilised this habitat included buzzard, green woodpecker *Picus viridis*, pied wagtail *Motacilla alba*, swallow *Hirundo rustica*, gamebird and corvid species.
- 4.15 The hedgerows, trees and small strips of woodland and woodland plantation that bound the field compartments provided breeding and foraging opportunities for a range of common and widespread generalist and woodland species. Notable species included dunnock, mistle thrush, bullfinch, spotted flycatcher, stock dove and song thrush. Starling was noted as a confirmed breeder in a tree standard, and house sparrow used the hedgerows for shelter and foraging. A pair of spotted flycatcher, a declining summer visitor to the county was recorded

and this is considered to be a probable breeding species on site. Other species utilising these habitats included sparrowhawk, great spotted woodpecker *Dendrocopos major*, robin *Erithacus rubecula*, wren, blackbird *Turdus merula* and a range of common and widespread warbler, finch, pigeon and tit species.

- 4.16 The farm buildings provided breeding opportunities for a limited range of species. This included a colony of house sparrow and the probable nest site of kestrel and swallow. Barn owl was noted as a probable breeder in one a stone barn during bat surveys undertaken by FPCR (labelled building B5 within the Bat Report), with a probable roost site also identified within a large barn of concrete and sheet metal construction (building B8), based on the number and nature of pellets recorded and sightings of the species.
- 4.17 A limited range of common and widespread birds were associated with the large pond present on site (P4 Figure 1) including moorhen *Gallinula chloropus* and grey heron *Ardea cinerea*, as well as the notable species mallard *Anas platyrhynchos*.
- 4.18 A number of birds were recorded flying over the site only. Notable species included several red kite *Milvus milvus* on each survey visit, merlin *Falco columbarius*, house martin *Delichon urbicum* and numerous swift *Apus apus*.

Field Survey – Highway Works

2021 Breeding Bird Survey

- 4.19 During the single 2021 breeding bird survey of the Highway Works area, 33 species were recorded, of which 16 were considered notable.
- 4.20 Four species were confirmed as breeding within the Highway Works areas, including yellowhammer and wren. One species, bullfinch, was considered a probable breeder, while the remaining species were considered either possible or non-breeders. Completion of the two surveys still outstanding in April and May 2022 will likely result in the addition of more confirmed/probable breeding species to those listed in Table 4d.

Table 4d: Notable Species Recorded and their Recent Status in Oxfordshire (Highway Works Area 2021)

Species	Legal/ Conservation Status	Peak Count / No. of Survey Visits Recorded	Breeding status ¹⁴	Recent Status in Oxfordshire
Mallard <i>Anas platyrhynchos</i>	Amber list	2 flyovers	Non-breeder	Very common resident
Red kite <i>Milvus milvus</i>	Green list WCA Sch.1	1 flyover	Non-breeder	Established resident
Stock dove <i>Columba oenas</i>	Amber list	1 + 1 flyover	Possible	Numerous resident
Woodpigeon <i>Columba oenas</i>	Amber list	43 + 7 flyovers	Possible	
Kestrel <i>Falco tinnunculus</i>	Amber list	2/3	Probable	Common resident
Skylark <i>Alauda arvensis</i>	Red list NERC SPI	17/3	Probable	Common resident
Whitethroat <i>Sylvia communis</i>	Amber list	2	Probable	
Wren <i>Troglodytes troglodytes</i>	Amber list	15 + 3 families	Probable	
Song thrush <i>Turdus philomelos</i>	Amber list NERC SPI	3/2	Possible	Common resident, perhaps declining
Dunnock <i>Prunella modularis</i>	Amber list NERC SPI	14/3	Probable	Common and widespread resident
Yellow wagtail <i>Motacilla flava</i>	Red list NERC SPI	1/1	Non-breeder	Moderately common summer visitor, reduction in numbers
Greenfinch <i>Chloris chloris</i>	Red list	1	Probable	
Bullfinch <i>Pyrrhula pyrrhula</i>	Amber listed	6/3	Probable breeder	Common resident
Linnet <i>Linaria cannabina</i>	Red list NERC SPI	19/3	Probable	Common resident
Yellowhammer <i>Emberiza citrinella</i>	Red list NERC SPI	11/3	Probable	Common resident. Major decline
Reed bunting <i>Emberiza schoeniclus</i>	Amber list	1	Possible	Common resident

Bird Survey Results Description- Highway Works Areas

- 4.21 Arable field compartments provided breeding and foraging potential for species including notable species skylark and yellow wagtail. Boundary habitats such as hedgerows and trees provided breeding and foraging potential for species including yellowhammer, reed bunting, linnet, bullfinch, greenfinch, dunnock, song thrush, whitethroat and stock dove.
- 4.22 The woodland to the south of the Highway Works area along the course of Gagle Brook provided suitable habitat for a number of generalist and woodland specialist species such as dunnock, blackcap, chiffchaff and wren. The ponds to the north provided breeding and foraging habitat for several wetland bird species, including reed warbler *Acrocephalus scirpaceus* and mallard.

¹⁴ European Ornithological Atlas Committee, 1979. *Categories of Breeding Bird Evidence*. European Ornithological Atlas Committee.

- 4.23 The open grassland south of the railway provided foraging areas for kestrel.
- 4.24 Two species, red kite and mallard, were recorded flying over the Highway Works area.

Evaluation

Local Wildlife Site Selection Criteria

- 4.25 The whole site was assessed against published criteria for LWS selection in the Criteria for the Selection of Local Wildlife Sites in Berkshire, Buckinghamshire and Oxfordshire Version 6.0 to assess the site against the thresholds for county value. In the criteria “supports breeding” means confirmed or probable breeding at the site. The relevant criteria are discussed below and assessed against the recorded assemblage.

Criterion 5.7.Ai: Any site that supports the breeding of any Notable Species listed may be considered for Wildlife Site status

Main Site

- 4.26 Of the species listed within Criterion 5.7.Ai, only grey heron was recorded within the Main Site. This was considered a possible breeder with no nest sites recorded.

Highway Works

- 4.27 None of the species listed within Criterion 5.7.Ai have been recorded within the Highway Works area to date.

Criterion 5.7.B: A site which normally supports a significant assemblage of breeding birds associated with a habitat present on the site

Main Site

- 4.28 Criterion 5.7.B states that a significant assemblage of breeding birds is one with a value equal to or exceeding the threshold value for the relevant habitat based on the points assigned to each species. The only habitat listed within the selection criteria that is present in the Main Site is Lowland Woodland. The total score for this habitat has been calculated using the survey data and is shown alongside the “threshold site index value” in Table 5. Only confirmed or probable breeding species were included. The total score does not meet the threshold site index value for Lowland Woodland and therefore this criterion is not met.

Table 5: An Assessment of the Breeding Bird Assemblage against the Habitat Thresholds Provided in the Criteria for the Selection of Local Wildlife Sites in Berkshire, Buckinghamshire and Oxfordshire Version 6.0

Lowland Woodland	
Species	Score
Stock dove	1
Blackcap	1
Spotted flycatcher	3
Bullfinch	1
Chiffchaff	1
Treecreeper	1
Goldcrest	1

Lowland Woodland	
Species	Score
Buzzard	2
Green Woodpecker	1
Great spotted woodpecker	1
Jay	1
Nuthatch	1
Total score for site	15
Threshold site index value	52

Highway Works

- 4.29 The only habitat listed within the selection criteria that is present in the Highway Works area is Lowland Woodland. The total score for this habitat has been calculated using the survey data and is shown alongside the “threshold site index value” in Table 6. Only species considered as confirmed or probable breeders were included. The total score does/does not meet the threshold site index value for Lowland Woodland and therefore this criterion is/is not met.

Table 6: An Assessment of the Breeding Bird Assemblage against the Habitat Thresholds Provided in the Criteria for the Selection of Local Wildlife Sites in Berkshire, Buckinghamshire and Oxfordshire Version 6.0

Lowland Woodland	
Species	Score
Blackcap	
Chiffchaff	
Total score for site	
Threshold site index value	52

- 4.30 The Main Site do not meet any of the three relevant criteria and therefore do not qualify for selection as a LWS based on its breeding bird assemblage. To be completed with the Highway Works areas results.

Assemblage Value – Main Site

- 4.31 The agricultural fields and their boundaries provided breeding and foraging opportunities for skylark, linnet, corn bunting and yellowhammer and also foraging opportunities for kestrel and small numbers of starling and yellow wagtail. Corn bunting, a species which has undergone a substantial decline in the county was recorded once in 2018 in the form of a single bird within the original Main Site extent, whereas several were observed within the southern extension area in 2020 and 2021. This species was often recorded in association with the field boundary hedgerows and margins, with only occasional use of the arable compartments noted. Due to the presence of declining farmland species the Main Site was considered to be of Local level importance for its farmland bird assemblage.
- 4.32 The hedgerows, trees and woodland on site supported a range of common and widespread species typical of this habitat. This included providing breeding opportunities for stock dove, song thrush, mistle thrush, starling and dunnock. Pairs of bullfinch and spotted flycatcher were also

recorded within the woodland to the south of the site. The site was considered to be of Local level importance for its hedgerow/woodland bird assemblage due to the range of species it supports.

- 4.33 The farm buildings provided potential breeding sites for barn owl, an uncommon species in the county, in addition to kestrel, swift, swallow, house martin and house sparrow. Built habitats are therefore considered to have Local level importance for their associated bird assemblage.
- 4.34 The large pond on site supported a limited range of birds that are common and widespread within Oxfordshire. As a result these habitats were considered to be of no more than Site level importance for the recorded assemblage.

Individual Species - Main Site

- 4.35 Table 7 presents the bird species recorded on site in 2018-2021 that are considered to be of at least Local nature conservation importance. This evaluation is based on the methodology outlined in Table 2. The remaining species recorded on site were categorised as Site nature conservation importance due to these either being considered nationally common and widespread species and/or because they occurred on site infrequently, in low numbers, in unsuitable breeding habitats or flying over only.
- 4.36 According to the Birds of Oxfordshire Bird Report, only four spotted flycatchers were recorded to be potentially breeding within Oxfordshire as of 2013. This indicates that the Main Site supports >1% of the county population, therefore it is considered to be of County level importance for spotted flycatchers as it potentially supports breeding areas.

Table 7: Evaluation of Nature Conservation Importance of Birds Recorded on Site 2018-2021

Name	Status		Importance
	SPI	WCA Sch.1	
Red List			
Skylark	<i>Alauda arvensis</i>	+	Local
Mistle thrush	<i>Turdus viscivorus</i>		Local
Song thrush	<i>Turdus philomelos</i>	+	Local
House sparrow	<i>Passer domesticus</i>	+	Local
Corn bunting	<i>Emberiza calandra</i>	+	Local
Linnet	<i>Linaria cannabina</i>	+	Local
Yellowhammer	<i>Emberiza citrinella</i>	+	Local
Spotted flycatcher	<i>Muscicapa striata</i>		County
Amber List			
Stock dove	<i>Columba oenas</i>		Local
Kestrel	<i>Falco tinniculus</i>		Local
Dunnoek	<i>Prunella modularis</i>	+	Local
Green List			
Barn Owl	<i>Tyto alba</i>	+	Local

5.0 **DISCUSSION & RECOMMENDATIONS** To be updated following completion of the Highway Works surveys.

5.0 The following section provides an assessment of the potential impacts of the proposals upon breeding birds and details of mitigation and enhancement as appropriate.

5.1 The measures below are provided with the aim of maintaining the conservation status of bird species recorded across the site.

Impact Assessment

5.2 The potential impact of the loss or change of habitat upon breeding bird species arising from the effects of development is based upon the following: an understanding of each species' ecological requirements; the type of development; number of birds recorded on site; their nature conservation criteria based on legislation and current guidance; their county status according to Birds of Oxfordshire 2013, and professional judgement.

5.3 The following potential impacts to the recorded bird populations and assemblage may result from the proposals:

- Direct loss/change of breeding habitat; and
- Disturbance during construction and/or operation

Habitat Loss

5.4 The Proposed Development will result in the loss of all arable and grassland pasture fields from the Main Site and the effective loss of the farm buildings as these are all either to be renovated or demolished. The majority of field boundary trees and hedgerows around the perimeter of the Main Site are to be retained however, as will a proportion of the hedgerows and trees from the centre of the site, however the majority of internal hedgerows are to be lost.

5.5 Generous structural planting and open grassland creation is proposed as part of a broad landscape buffer to be created around the perimeter of the Main Site and as part of a landscape corridor incorporating the retained ponds and woodland through the interior. Additional habitat creation includes the provision of surface water attenuation areas within areas of grassland and scattered shrub / tree planting.

5.6 The individual species recorded on site that are arguably the most vulnerable to impacts from habitat loss/change are the 12 species that are considered to be of at least Local importance. These comprise notable species that are either specially protected, appear on the BoCC Red/Amber list and/or are listed as SPI, and were recorded in at least locally important numbers: skylark, yellowhammer, mistle thrush, song thrush, house sparrow, corn bunting, linnet, stock dove, kestrel, dunnock, spotted flycatcher and barn owl.

5.7 The total loss of the arable and pasture fields will inevitably affect the recorded farmland bird assemblage. This includes the locally important linnet, corn bunting, yellowhammer, skylark and stock dove which depend on these habitats for nesting and/or foraging. The provision of an open grassland buffer will provide some additional foraging habitat for these species however it is likely that all farmland bird species will be lost as breeding species within the site. It is therefore considered that proposals will have a **Minor** adverse impact at a local level on the farmland species recorded present.

- 5.8 For the generalist species which inhabit the hedgerows, scrub habitats and woodland, including the locally important mistle thrush and dunnock, the construction phase will result in a short to medium-term **Minor** adverse impact at a local level due to habitat loss and disturbance. The woodland in which the spotted flycatcher pairs were recorded is to be retained, however impacts from the development including noise and increased disturbance may result in a **Minor** impact on this species during the construction phase. The proposed retained and created landscape buffer and corridor will likely compensate the remaining species that use such habitats, with a Negligible to **Minor positive** effect in the as the planting becomes established.
- 5.9 The loss of the buildings on site will result in a permanent impact on the species which utilise these structures for nesting including the locally important barn owl, house sparrow and kestrel. With the inclusion of the mitigation options detailed below this impact would be no more than of **Minor** significance at the local level.
- 5.10 The retention of the large pond will result in a **Negligible** impact on the assemblage of birds recorded in association with this habitat. Whilst two of the smaller ponds on site will be lost as a result of the development, no wetland bird species were recorded utilising these features.

Mitigation for Habitat Loss

- 5.11 The scrub and tree structural planting that will form a significant proportion of the landscape buffer and landscape corridors will compensate for the partial loss of trees, scrub and hedgerow habitats from the site. This planting should comprise mixed native species, ideally including a diverse range of fruit, seed and nut-bearing species to provide an optimal foraging resource for a range of bird species. Suitable species include but are not limited to rowan *Sorbus aucuparia*, hawthorn *Crataegus monogyna*, holly *Ilex aquifolium*, honeysuckle *Lonicera periclymenum*, crab apple *Malus sylvestris*, alder *Alnus glutinosa*, beech *Fagus sylvestris*, ash *Fraxinus excelsior*, wild cherry *Prunus avium*, dog rose *Rosa canina*, blackthorn *Prunus spinosa*, guelder-rose *Virbunum opulus* and dogwood *Cornus sanguinea*.
- 5.12 In order to compensate for impacts on corn bunting resulting from habitat loss the proposed structural planting and open grassland will include wide unimproved tussocky grassland margins to provide suitable nesting opportunities for the species. Spotted flycatchers often utilise woodland glades and mosaics of open grassland and woodland edges to forage, therefore open grassland located adjacent to areas of structural planting will additionally enhance foraging opportunities for this declining species.
- 5.13 Mitigation will be provided for the loss of the probable barn owl nesting/roosting site. Two nest sites will be provided to replace the nesting and roosting sites, with at least one within 200m of existing nest site. In order to provide continuous availability of nest sites some alternative nesting opportunities will be provided prior to the commencement of building demolition and renovation works. If either is to be sited close to construction activities which could cause potential disturbance and prevent nesting, a temporary barn owl box will be provisionally provided away from the construction activities in order to provide a continuous availability of nest sites.
- 5.14 Alternatively, a permanent barn owl nesting space will be incorporated into the design of one of the renovated farm buildings or one of the new industrial units. The nest space should be within a building on the edge of the development with the entrance hole facing suitable

grassland habitat, following Barn Owl Trust guidelines¹⁷. Nest spaces can be incorporated into the design of any building over 3m high, including steel clad industrial units. If necessary to maintain nesting opportunities on site in the short-term whilst the new buildings are constructed, a temporary barn owl box will be provided away from construction activities before works to the existing buildings commence.

- 5.15 If a permanent barn owl nest space cannot be incorporated into the on-site buildings two barn owl nest boxes will instead be erected on suitable mature lone trees with few or no low branches¹⁸ or on poles¹⁹ close to suitable grassland habitat. This recommendation should be implemented prior to the commencement of building works and located away from potential disturbance so that the barn owls have a chance to familiarise with the new nest sites.
- 5.16 Nest boxes will also be provided for kestrel and house sparrow to mitigate the loss of on-site nesting opportunities. Kestrels require species specific nest boxes at least 5m high on lone trees or buildings close to grassland areas where possible, while house sparrows favour sparrow terraces boxes within the built environment. House martin boxes and/or swift bricks will be incorporated into the retained and/or newly built structures.

Disturbance Impacts

- 5.17 The stone barn containing a probable barn owl nest site will be renovated as part of the development and the larger metal and concrete barn considered to support a probable roost site will be demolished. This will result in potential disturbance to nesting barn owls, a species listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).
- 5.18 Construction operations also have the potential to disturb other bird species using the site for roosting, foraging, and breeding. Operations likely to disturb breeding birds include noise from vegetation clearance, initial ground works and some construction activities, such as piling, which are of low frequency but high amplitude. Active, high level, infrequent disturbance causes most birds to be displaced for short periods²⁰. During the breeding season disturbance may lead to nest desertion or the avoidance of the area, and reduce the suitability of retained nesting areas, such as the retained hedgerows trees and woodland. Whilst there is some potential for breeding success to be reduced, this is not expected to affect the local conservation status of the majority of the bird species using the site for breeding.

Mitigation for Disturbance

- 5.19 To minimise the risk of disturbance to barn owls, any development work potentially causing disturbance to nest sites (building B5) should not occur between March and August, since c.75%²¹ of nesting cycles occur within this period. However, since this species breeds all year round a checking survey will be undertaken prior to the commencement of works, regardless of the time of year. This will be performed by a licensed barn owl surveyor within 3 days of any works commencing that could result in disturbance. If any active nests, nests being built or dependent young are found, all potentially disturbing work will be halted and will not resume

¹⁷ [Online] <https://www.barnowltrust.org.uk/barn-owl-nestbox/barn-owl-nestboxes-building-projects/>

¹⁸ [Online] <https://www.barnowltrust.org.uk/barn-owl-nestbox/owl-boxes-for-trees/>

¹⁹ [Online] <https://www.barnowltrust.org.uk/barn-owl-nestbox/barn-owl-pole-nest-box/>

²⁰ Hockin, D., Ounsted, M., Gorman, M., Hill, D., Keller, V., & Barker, M. 1992. Examination of the effects of disturbance on birds with reference to the role of environmental impact assessments. *Journal of Environmental Management*, 36, 253–286.

²¹ [Online] <https://www.barnowltrust.org.uk/barn-owl-nestbox/wildlife-tower/>

until the young are no longer dependent on the nest site or adult birds. This would be a statutory requirement due to the protection of nesting barn owls and their nests against disturbance under Schedule 1 of the Wildlife and Countryside Act (1981 as amended).

- 5.20 To avoid disturbance to other breeding birds, ground clearance works, vegetation removal and building demolition will where possible be undertaken outside of the bird-breeding season (i.e. avoiding March to September inclusive). If this is not possible the areas will be checked prior to the removal of vegetation, ground works or building demolition by an experienced ecologist. If active nests are found, the relevant vegetation or building will be left untouched and suitably buffered from works until all birds have fledged. Specific advice will be provided prior to undertaking the clearance. This would be a statutory requirement due to the protection of all nesting birds and their nests under the Wildlife and Countryside Act (1981 as amended).

Enhancements

- 5.21 If the proposed surface water attenuation areas contain permanent water this will provide an enhancement to the site by providing further habitat for the assemblage of pond bird species recorded on site. Planting the waterbodies with an appropriate native marginal vegetation mix that includes common reed *Phragmites australis* will provide good nesting opportunities for several species including reed bunting *Emberiza schoeniclus* and warblers. If the attenuation areas contain water on only a seasonal basis, this will provide an enhancement of a more limited scope.
- 5.22 The provision of additional nest boxes to those recommended above for specific species will provide further enhancement in terms of available nesting resources for local bird species. The following provides details of suitable nest box types to be erected at suitable locations:
- The inclusion of swift nest boxes within the built environment to encourage this species to breed on site;
 - Large nest boxes with large holes (45-50mm) placed on suitable retained trees to provide additional breeding sites for starling. These will also provide suitable nesting for great spotted woodpecker when placed within woodland;
 - A mixture of small hole (26mm and 32mm) boxes placed on suitable trees will provide nesting opportunities for species such as blue tit *Cyanistes caeruleus* and great tit. These boxes generally have a high uptake rate;
 - Small open fronted nest boxes will also be placed throughout the site especially on trees which support a climber such as ivy which provides a degree of concealment. These boxes typically attract species such as robin and blackbird.

Appendix A: 2018 Breeding Bird Survey Results & EOAC Criteria for Categorisation of Breeding Status

Species: British Common Name	Species: Scientific Name	Survey 1	Survey 2	Survey 3	Conservation Status & Protection	Breeding Status
Canada goose	<i>Branta canadensis</i>	0	0	1	Not listed	Non-breeder F
Mallard	<i>Anas platyrhynchos</i>	0	5	0	Amber list	Possible H
Red-legged partridge	<i>Alectoris rufa</i>	2	4	0	Not listed	Probable P
Pheasant	<i>Phasianus colchicus</i>	4	3	0	Not listed	Probable P
Grey heron	<i>Ardea cinerea</i>	0	1	0	Green list	Possible H
Red kite	<i>Milvus milvus</i>	5	2	3	Green list WCA Sch.1	Non-breeder F
Sparrowhawk	<i>Accipiter nisus</i>	0	1	0	Amber list	Possible H
Buzzard	<i>Buteo buteo</i>	2	3	1	Green list	Possible H
Moorhen	<i>Gallinula chloropus</i>	0	1	0	Amber list	Possible H
Rock dove/Feral pigeon	<i>Columba livia</i>	3	0	0	Green list	Non-breeder F
Stock dove	<i>Columba oenas</i>	5	22	0	Amber list	Probable P
Woodpigeon	<i>Columba palumbus</i>	23	48	13	Amber list	Probable P
Collared dove	<i>Streptopelia decaocto</i>	0	1	1	Green list	Possible S, H
Swift	<i>Apus apus</i>	0	3	0	Red list	Non-breeder F
Green woodpecker	<i>Picus viridis</i>	0	2	0	Green list	Possible H
Great spotted woodpecker	<i>Dendrocopos major</i>	1	3	0	Green list	Possible H
Kestrel	<i>Falco tinnunculus</i>	1	2	1	Amber list	Probable N, T
Magpie	<i>Pica pica</i>	2	3	1	Green list	Possible H
Jackdaw	<i>Corvus monedula</i>	13	48	1	Green list	Possible H
Rook	<i>Corvus frugilegus</i>	9	4	101	Amber list	Possible H
Carrion crow	<i>Corvus corone</i>	13	10	7	Green list	Confirmed FF
Raven	<i>Corvus corax</i>	0	2	0	Green list	Non-breeder F
Blue tit	<i>Cyanistes caeruleus</i>	5	7	9	Green list	Probable P, A
Great tit	<i>Parus major</i>	3	4	4	Green list	Confirmed FF

Species: British Common Name	Species: Scientific Name	Survey 1	Survey 2	Survey 3	Conservation Status & Protection	Breeding Status
Skylark	<i>Alauda arvensis</i>	15	15	17	Red list WCA Sch.1	Probable T, P, A
Swallow	<i>Hirundo rustica</i>	15	15	16	Green list	Probable N
Long-tailed tit	<i>Aegithalos caudatus</i>	3	2	0	Green list	Possible H
Chiffchaff	<i>Phylloscopus collybita</i>	1	0	1	Green list	Possible S, H
Blackcap	<i>Sylvia atricapilla</i>	2	1	3	Green list	Probable T
Whitethroat	<i>Sylvia communis</i>	0	9	0	Amber list	Probable A
Wren	<i>Troglodytes troglodytes</i>	5	5	3	Amber list	Probable T, A
Starling	<i>Sturnus vulgaris</i>	5	2	5	Red list NERC S.41	Confirmed ON, FF
Blackbird	<i>Turdus merula</i>	20	24	7	Green list	Probable T, P, A
Song thrush	<i>Turdus philomelos</i>	0	3	3	Amber list NERC S.41	Possible S, H
Mistle thrush	<i>Turdus viscivorus</i>	2	5	3	Red list	Probable P
Robin	<i>Erithacus rubecula</i>	1	6	1	Green list	Possible S, H
Wheatear	<i>Oenanthe oenanthe</i>	1	0	0	Amber list	Non- breeder UH
Dunnock	<i>Prunella modularis</i>	1	4	14	Amber list NERC S.41	Probable T, P, A
House sparrow	<i>Passer domesticus</i>	1 colony	1 colony	1 colony + 5	Red list NERC S.41	Probable T, B
Yellow wagtail	<i>Motacilla flava</i>	0	1	0	Red list NERC S.41	Non- breeder F
Pied wagtail	<i>Motacilla alba</i>	2	1	0	Green list	Possible H
Chaffinch	<i>Fringilla coelebs</i>	15	17	4	Green list	Probable T, P
Greenfinch	<i>Chloris chloris</i>	8	1	3	Red list	Probable T, P
Linnet	<i>Linaria cannabina</i>	8	19	7	Red list NERC S.41	Probable P
Goldfinch	<i>Carduelis carduelis</i>	18	19	15	Green list	Probable P
Yellowhammer	<i>Emberiza citrinella</i>	8	11	8	Red list NERC S.41	Probable T, P
Corn bunting	<i>Emberiza calandra</i>	0	1	0	Red list NERC S.41	Possible H
Total No. Species: 47		34	43	28		

Breeding Status evidence can be broken down into four sections, each with their own codes, as defined by the European Ornithological Atlas Committee:

Confirmed breeder -

- Distraction display or injury feigning (DD)
- Used nest or eggshells found from this season (UN)
- Recently fledged young or downy young (FF)
- Adults entering or leaving nest-site in circumstances indicating occupied nest (ON)
- Adult carrying faecal sac or food for young (FF)
- Nest containing eggs (NE)
- Nest with young seen or heard (NY)

Probable breeder - (Evidence accumulated during the survey indicates that the bird species is breeding on site)

- Pair in suitable nesting habitat (P)
- Permanent territory, defended over at least 2 survey occasions (T)
- Courtship and display (D)
- Visiting probable nest site (N)
- Agitated behaviour (A)
- Brood patch of incubating bird, from bird in hand (I)
- Nest building or excavating nest-hole (B)

Possible breeder - (Evidence accumulated during the survey indicates that the bird species could be breeding on site, but the evidence is less conclusive than that obtained for probable breeders)

- Observed in suitable nesting habitat (H)
- Singing male (S)

Non-breeder -

- Flying over (F)
- Migrant (M)
- Summering non-breeder (U)
- Observed in unsuitable nesting habitat (UH)

Appendix B: 2020 Breeding Bird Survey Results

Species: British Common Name	Species: Scientific Name	Survey 1	Survey 2	Survey 3	Conservation Status & Protection
Canada goose	<i>Branta canadensis</i>	3	3	0	Not listed
Red-legged partridge	<i>Alectoris rufa</i>	9	0	2	Not listed
Pheasant	<i>Phasianus colchicus</i>	10	1	1	Not listed
Red kite	<i>Milvus milvus</i>	2	1	3	Green list WCA Sch.1
Sparrowhawk	<i>Accipiter nisus</i>	0	1	0	Amber list
Buzzard	<i>Buteo buteo</i>	2	3	8	Green list
Rock dove/Feral pigeon	<i>Columba livia</i>	0	1	0	Green list
Stock dove	<i>Columba oenas</i>	1	2	3	Amber list
Woodpigeon	<i>Columba palumbus</i>	31	16	39	Amber list
Swift	<i>Apus apus</i>	0	0	12	Red list
Green woodpecker	<i>Picus viridis</i>	1	0	3	Green list
Great spotted woodpecker	<i>Dendrocopos major</i>	0	2	1	Green list
Kestrel	<i>Falco tinnunculus</i>	0	1	2	Amber list
Magpie	<i>Pica pica</i>	5	2	6	Green list
Jackdaw	<i>Corvus monedula</i>	5	5	5	Green list
Rook	<i>Corvus frugilegus</i>	0	5	11	Amber list
Carrion crow	<i>Corvus corone</i>	14	7	9	Green list
Blue tit	<i>Cyanistes caeruleus</i>	11	5	31	Green list
Lesser black-backed gull	<i>Larus fuscus</i>	0	0	2	Amber list
Hobby	<i>Falco subbuteo</i>	0	0	2	Green list
Great tit	<i>Parus major</i>	10	8	7	Green list
Coal tit	<i>Periparus ater</i>	0	0	1	Green list
Nuthatch	<i>Sitta europaea</i>	0	1	0	Green list
Skylark	<i>Alauda arvensis</i>	14	16	20	Red list WCA Sch.1
Swallow	<i>Hirundo rustica</i>	0	0	3	Green list
Long-tailed tit	<i>Aegithalos caudatus</i>	1	1 flock	5	Green list
Chiffchaff	<i>Phylloscopus collybita</i>	4	3	2	Green list
Blackcap	<i>Sylvia atricapilla</i>	9	7	4	Green list
Whitethroat	<i>Sylvia communis</i>	10	9	9	Amber list
Lesser whitethroat	<i>Sylvia curruca</i>	0	0	1	Green list
Wren	<i>Troglodytes troglodytes</i>	12	11	21	Amber list
Treecreeper	<i>Certhia familiaris</i>	0	1	0	Green list
Starling	<i>Sturnus vulgaris</i>	0	1	0	Red list NERC S.41
Blackbird	<i>Turdus merula</i>	8	5	13	Green list

Species: British Common Name	Species: Scientific Name	Survey 1	Survey 2	Survey 3	Conservation Status & Protection
Song thrush	<i>Turdus philomelos</i>	2	6	4	Amber list NERC S.41
Robin	<i>Erithacus rubecula</i>	2	8	14	Green list
Dunnock	<i>Prunella modularis</i>	9	8	10	Amber list NERC S.41
House Martin	<i>Delichon urbicum</i>	0	0	36	Red list
Yellow wagtail	<i>Motacilla flava</i>	2	1	0	Red list NERC S.41
Grey wagtail	<i>Motacilla cinerea</i>	0	1	0	Amber list
Pied wagtail	<i>Motacilla alba</i>	1	1	3	Green list
Jay	<i>Garrulus glandarius</i>	0	0	2	Green list
Chaffinch	<i>Fringilla coelebs</i>	9	14	18	Green list
Greenfinch	<i>Chloris chloris</i>	0	0	3	Red list
Bullfinch	<i>Pyrrhula pyrrhula</i>	2	1	6	Amber list
Goldcrest	<i>Regulus regulus</i>	0	0	1	Green list
Linnet	<i>Linaria cannabina</i>	2	8	5	Red list NERC S.41
Goldfinch	<i>Carduelis carduelis</i>	10	5	15	Green list
Yellowhammer	<i>Emberiza citrinella</i>	29	17	25	Red list NERC S.41
Stonechat	<i>Saxicola rubicola</i>	0	0	1	Green list
Spotted flycatcher	<i>Muscicapa striata</i>	0	2	2	Red list
Corn bunting	<i>Emberiza calandra</i>	0	0	5	Red list NERC S.41
Reed bunting	<i>Emberiza schoeniclus</i>	1	0	0	Amber list
Total No.	Species 53				

Appendix C: 2021 Breeding Bird Survey Results

Species: British Common Name	Species: Scientific Name	Survey 1	Conservation Status & Protection	Breeding Status
Canada goose	<i>Branta canadensis</i>	2 + 2 flyovers	Not listed	Non-breeder UH
Mallard	<i>Anas platyrhynchos</i>	2 + 4 flyovers	Amber list	Possible H
Red kite	<i>Milvus milvus</i>	1 + 3 flyovers	Green list WCA Sch. 1	Possible H
Buzzard	<i>Buteo buteo</i>	5 + 2 flyovers	Green list	Probable A
Herring gull	<i>Larus argentatus</i>	1 flyover	Red list NERC S.41	Non-breeder F
Stock dove	<i>Columba oenas</i>	4 flyovers	Amber list	Non-breeder F
Woodpigeon	<i>Columba palumbus</i>	31 + 24 flyovers	Amber list	Possible H, S
Green woodpecker	<i>Picus viridis</i>	2	Green list	Possible H
Great spotted woodpecker	<i>Dendrocopos major</i>	5	Green list	Possible H
Kestrel	<i>Falco tinnunculus</i>	1 flyover	Amber list	Possible H
Merlin	<i>Falco columbarius</i>	1 flyover	Red list WCA Sch. 1	Non-breeder UH, U
Magpie	<i>Pica pica</i>	8	Green list	Possible H
Jackdaw	<i>Corvus monedula</i>	6 + 7 flyovers	Green list	Confirmed ON
Carrion crow	<i>Corvus corone</i>	21 + 8 flyovers	Green list	Possible H
Goldcrest	<i>Regulus regulus</i>	1	Green list	Possible H, S
Blue tit	<i>Cyanistes caeruleus</i>	17	Green list	Possible H, S
Great tit	<i>Parus major</i>	17	Green list	Possible H, S
Skylark	<i>Alauda arvensis</i>	45	Red list NERC S.41	Probable A, H, S
Swallow	<i>Hirundo rustica</i>	3 flyovers	Green list	Non-breeder F
Chiffchaff	<i>Phylloscopus collybita</i>	10	Green list	Possible H, S
Nuthatch	<i>Sitta europea</i>	2	Green list	Possible H
Blackcap	<i>Sylvia atricapilla</i>	6	Green list	Possible H, S
Whitethroat	<i>Sylvia communis</i>	21	Amber list	Possible H, S
Lesser whitethroat	<i>Sylvia curruca</i>	1	Green list	Possible H, S
Wren	<i>Troglodytes troglodytes</i>	26	Amber list	Probable A
Starling	<i>Sturnus vulgaris</i>	1 + 1 flyover	Red list NERC S.41	Confirmed FF, ON

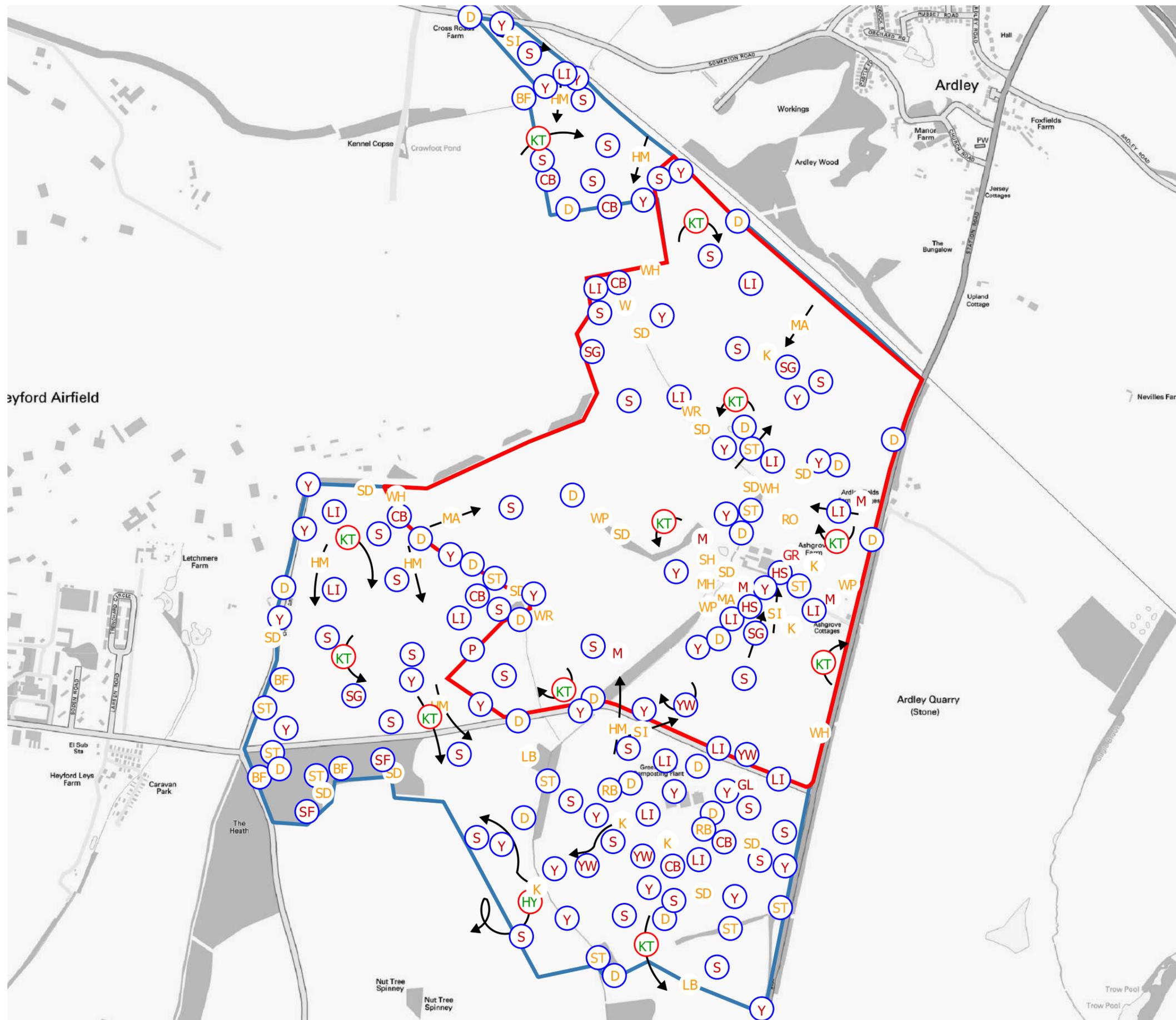
Species: British Common Name	Species: Scientific Name	Survey 1	Conservation Status & Protection	Breeding Status
Blackbird	<i>Turdus merula</i>	13 + 1 flyover	Green list	Possible H, S
Mistle thrush	<i>Turdus viscivorus</i>	11 + 2 flyovers	Red list	Possible H
Song thrush	<i>Turdus philomelos</i>	6	Amber list NERC S.41	Possible H, S
Spotted flycatcher	<i>Muscicapa striata</i>	3	Red list	Possible H
Robin	<i>Erithacus rubecula</i>	30	Green list	Possible H, S
Dunnock	<i>Prunella modularis</i>	13	Amber list NERC S.41	Possible H, S
Yellow wagtail	<i>Motacilla flava</i>	5	Red list NERC S.41	Confirmed FL, ON
Pied wagtail	<i>Motacilla alba</i>	7 + 2 flyovers	Green list	Possible H
Chaffinch	<i>Fringilla coelebs</i>	13	Green list	Possible H
Greenfinch	<i>Chloris chloris</i>	1	Red list	Possible H, S
Linnet	<i>Linaria cannabina</i>	42 + 4 flyovers	Red list NERC S.41	Probable P
Goldfinch	<i>Carduelis carduelis</i>	14 + 13 flyovers	Green list	Possible H, S
Yellowhammer	<i>Emberiza citrinella</i>	27	Red list NERC S.41	Probable A, H, S
Reed bunting	<i>Emberiza schoeniclus</i>	1	Amber list NERC S.41	Possible H, S
Corn bunting	<i>Emberiza calandra</i>	4	Red list NERC S.41	Probable A, P, S
Total No. Species: 41				

Appendix D: Desktop Study Results for Bird Species within 1km of Site

Common Name	Scientific name	Legal/Conservation status	Number of records
Barn owl	<i>Tyto alba</i>	Green list, WCA Sch.1	1
Black-headed gull	<i>Chroicocephalus ridibundus</i>	Amber list	5
Bullfinch	<i>Pyrrhula pyrrhula</i>	Amber list, NERC S.41	18
Common gull	<i>Larus canus</i>	Amber list	4
Corn bunting	<i>Emberiza calandra</i>	Red list, NERC S.41	7
Curlew	<i>Numenius arquata</i>	Red list, NERC S.41	1
Dunnock	<i>Prunella modularis</i>	Amber list, NERC S.41	32
Fieldfare	<i>Turdus pilaris</i>	Red list, WCA Sch.1	3
Grasshopper warbler	<i>Locustella naevia</i>	Red list, NERC S.41	1
Grey partridge	<i>Perdix perdix</i>	Red list, NERC S.41	1
Grey wagtail	<i>Motacilla cinerea</i>	Red list	1
House martin	<i>Delichon urbicum</i>	Amber list	5
House sparrow	<i>Passer domesticus</i>	Red list, NERC S.41	3
Kestrel	<i>Falco tinnunculus</i>	Amber list	8
Kingfisher	<i>Alcedo atthis</i>	Amber list, WCA Sch.1	1
Lapwing	<i>Vanellus vanellus</i>	Red list, NERC S.41	6
Lesser black-backed gull	<i>Larus fuscus</i>	Amber list	5
Linnet	<i>Linaria cannabina</i>	Red list, NERC S.41	3
Mallard	<i>Anas platyrhynchos</i>	Amber list	11
Marsh tit	<i>Poecile palustris</i>	Red list, NERC S.41	3
Meadow pipit	<i>Anthus pratensis</i>	Amber list	2
Merlin	<i>Falco columbarius</i>	Red list, WCA Sch.1	1
Mistle thrush	<i>Turdus viscivorus</i>	Red list	1
Peregrine	<i>Falco peregrinus</i>	Green list, WCA Sch.1	1
Red kite	<i>Milvus milvus</i>	Green list, WCA Sch.1	9
Reed bunting	<i>Emberiza schoeniclus</i>	Amber list, NERC S.41	2
Skylark	<i>Alauda arvensis</i>	Red list, WCA Sch.1	19
Snipe	<i>Gallinago gallinago</i>	Amber list	1
Song thrush	<i>Turdus philomelos</i>	Red list, NERC S.41	59
Spotted flycatcher	<i>Muscicapa striata</i>	Red list, NERC S.41	1
Starling	<i>Sturnus vulgaris</i>	Red list, NERC S.41	2
Stock dove	<i>Columba oenas</i>	Amber list	1
Swift	<i>Apus apus</i>	Amber list	13
Tree sparrow	<i>Passer montanus</i>	Red list, NERC S.41	2
Turtle dove	<i>Streptopelia turtur</i>	Red list, NERC Sch.1	2
Whimbrel	<i>Numenius phaeopus</i>	Red list, WCA Sch.1	1
Willow warbler	<i>Phylloscopus trochilus</i>	Amber list	37
Woodcock	<i>Scolopax rusticola</i>	Red list	1
Yellow wagtail	<i>Motacilla flava subsp. flavissima</i>	Red list, NERC S.41	1
Yellowhammer	<i>Emberiza citrinella</i>	Red list, NERC S.41	19

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- Initial Site Boundary
 - Extended Boundary
 - Flight line
- | | |
|----------------------------------|--------------------------------|
| BoCC Amber Listed Species | BoCC Red-Listed Species |
| BF Bullfinch | CB Corn Bunting |
| MH Moorhen | P Grey Partridge |
| RO Rook | GL Grey Wagtail |
| ST Song Thrush | GR Greenfinch |
| SH Sparrowhawk | HS House Sparrow |
| WH Whitethroat | LI Linnet |
| W Wheatear | M Mistle Thrush |
| WP Woodpigeon | S Skylark |
| WR Wren | SF Spotted Flycatcher |
| D Dunnock | SG Starling |
| HM House Martin | YW Yellow Wagtail |
| K Kestrel | Y Yellowhammer |
| LB Lesser Black-backed Gull | |
| MA Mallard | |
| RB Reed Bunting | |
| SD Stock Dove | |
| SI Swift | |
-
- BoCC Green List Species**
- HY Hobby
 - KT Red Kite

Additional Protections

- Schedule 1 Species
- NERC Species of Principle Importance

client: Oxfordshire Railfreight Limited
 project: Proposed Oxfordshire Strategic Railfreight Interchange
 drawing title: 2018 - 2020 BREEDING BIRD SURVEY RESULTS - DISTRIBUTION OF NOTABLE SPECIES
 scale: 1:11000
 drawing / figure number: **Figure 1**
 drawn: HJF / BRJ
 issue: 8/4/2022
 rev: **8308-E-04**

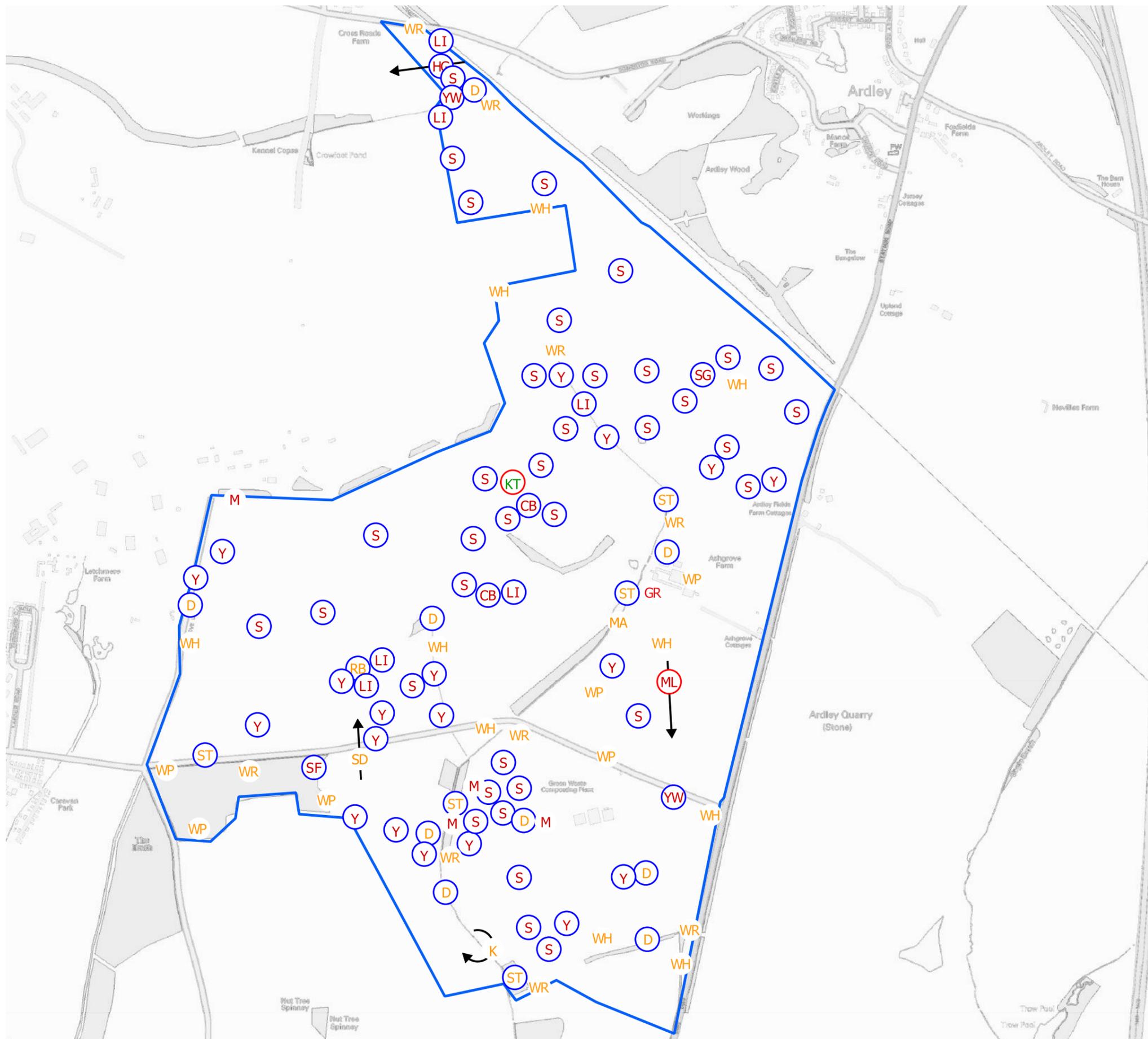
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Key

BoCC Red Listed Species		BoCC Amber Listed Species	
CB	Corn Bunting	D	Dunnock
GR	Greenfinch	ST	Song Thrush
HG	Herring Gull	WH	Whitethroat
LI	Linnet	WP	Woodpigeon
ML	Merlin	WR	Wren
M	Mistle Thrush	K	Kestrel
S	Skylark	MA	Mallard
ST	Song Thrush	RB	Reed Bunting
SF	Spotted Flycatcher	SD	Stock Dove
SG	Starling	BoCC Green Listed Species	
YW	Yellow Wagtail	KT	Red Kite
Y	Yellowhammer		

- Fly Over Only
- NERC Species of Principle Importance
- Schedule 1 Species
- ▭ Survey Area



client: Oxfordshire Railfreight Limited
 project: Proposed Oxfordshire Strategic Rail Freight Interchange
 drawing title: 2021 BREEDING BIRD SURVEY RESULTS - DISTRIBUTION OF NOTABLE SPECIES
 scale: 1:11000
 drawing / figure number: **Figure 2**
 drawn: BRJ / RG
 issue: 8/4/2022
 rev: -