

M54 to M6 Link Road
TR010054
Volume 6
6.3 Environmental Statement
Appendices
Appendix 8.8 Breeding Birds

Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009

January 2020

Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning
(Applications: Prescribed Forms and
Procedure) Regulations 2009**

**M54 to M6 Link Road
Development Consent Order 202[]**

**6.3 Environmental Statement Appendices
Appendix 8.8 Breeding Birds**

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1 Introduction

- 1.1.1 Highways England are developing a link road between the M54 and M6 to provide a link between Junction 1 of the M54, M6 North and the A460 to Cannock. The M54 to M6 Link Road (herein referred to as ‘the Scheme’) aims to reduce congestion on local / regional routes, particularly the A449 and A460 and deliver improved transport links to encourage the development of the surrounding area.
- 1.1.2 This appendix has been prepared in respect of breeding birds relating to the Scheme.
- 1.1.3 This report includes the following information:
- relevant legislation;
 - methodologies for desk and field-based assessments undertaken in 2018 and 2019;
 - competencies of the ecologists involved in undertaking the above surveys;
 - limitations to the surveys undertaken and any assumptions made as a result of incomplete data;
 - survey results; and
 - the approach for determining the nature conservation importance.
- 1.1.4 Species-specific surveys for barn owl *Tyto alba* were undertaken in 2018 and 2019, following the respective methodology for survey and are reported separately in Appendix 8.6 [TR010054/APP/6.3].
- 1.1.5 This appendix should be read in conjunction with Chapter 8: Biodiversity of the Environmental Statement [TR010054/APP/6.1] and Appendix 8.6 Barn Owl and Appendix 8.9 Wintering birds in Volume 3 of the Environmental Statement (ES) [TR10054/APP/6.3].

2 Relevant Legislation and Policy

2.1 Legislation

- 2.1.1 Appendix 8.1 Legislation and Planning Policy [TR010054/APP/6.3] provides detail on the legislation that is of direct relevance to the assessment of biodiversity.
- 2.1.2 A number of bird species recorded within the UK (including those that are resident, overwintering and migratory) are listed on Annex I of the 'Birds Directive' which requires the UK Government to take special measures, including the designation of Special Protection Areas (SPAs), to ensure the survival and reproduction of these species throughout their area of distribution.
- 2.1.3 When breeding, all birds, their nest, eggs and nestlings are afforded protection under the Schedule 5 Wildlife and Countryside Act 1981.
- 2.1.4 Birds listed on Schedule 1 cannot be intentionally or recklessly disturbed when nesting and there are increased penalties for doing so. No licences are available for disturbance during a development even in circumstances where that development is fully authorised by consents such as a valid planning permission.

2.2 Planning policy

- 2.2.1 Full detail of relevant national and local planning policy relevant to nature conservation is provided in Appendix 8.1 Legislation and Policy Framework [TR010054/APP/6.3] and a summary is provided in Chapter 8: Biodiversity of the ES [TR010054/APP/6.1].

2.3 Priority species

- 2.3.1 There are 49 species of bird that are listed on the Natural Environment and Rural Communities Act (NERC) 2006 (refer to Appendix 8.1 [TR010054/APP/6.3]) whose conservation is therefore a material planning concern.
- 2.3.2 The Staffordshire Biodiversity Action Plan (SBAP) 3rd edition (Ref 1) works at a landscape scale and replaces previous habitat and species action plans with Ecosystem Action Plans (EAP) and a River Action Plan for the county. The Scheme falls within the 'Central Farmland' EAP, which targets hedgerows, arable field margin, rivers, lowland acid grassland, heathland and meadows, native woodland, wood pasture and parkland, floodplain grazing marsh, eutrophic standing water, fens, ponds, purple moor grass and rush pasture and reedbeds, several of which are important habitats for breeding birds..
- 2.3.3 The SBAP (Ref 1) lists the following species of birds relevant to the Scheme:
- Barn owl *Tyto alba*;
 - farmland seed-eating birds:
 - bullfinch *Pyrrhula pyrrhula*;
 - corn bunting *Emberiza calandra*;
 - house sparrow *Passer domesticus*;
 - linnet *Linaria cannabina*;
 - reed bunting *Emberiza schoeniclus*;

- tree sparrow *Passer montanus*; and
- yellowhammer *Emberiza citrinella*.
- Grey partridge *Perdix perdix*;
- Lapwing *Vanellus vanellus*;
- Nightjar *Caprimulgus europaeus*;
- Skylark *Alauda arvensis*;
- Snipe *Gallinago gallinago*;
- Yellow wagtail *Motacilla flava*; and
- Woodlark *Lullula arborea*.

2.4 Birds of conservation concern

2.4.1 The Birds of Conservation Concern (BoCC) (Ref 2) is an assessment of the conservation status of all regularly occurring British birds. The lists (Red, Amber and Green), that indicate the level of conservation importance for each species, are derived from quantitative assessments from standardised criteria. The assessment is based on the most up-to-date evidence available and criteria include conservation status at global and European levels and, within the UK: historical decline, trends in population and range, rarity, localised distribution and international importance. The lists are drawn together by the UKs leading bird conservation organisations, including the Royal Society for the Protection of Birds (RSPB) and British Trust for Ornithology (BTO).

2.4.2 The criteria for birds being included in the lists are as follows:

Red List:

- globally threatened;
- historical population decline in UK during 1800–1995; and
- severe (at least 50%) decline in UK breeding population over last 25 years, or longer-term period (the entire period used for assessments since the first BoCC review, starting in 1969). Severe (at least 50%) contraction of UK breeding range over last 25 years, or the longer-term period.

Amber List:

- species with unfavourable conservation status in Europe (Species of European Conservation Concern);
- historical population decline during 1800–1995, but recovering; population size has more than doubled over last 25 years;
- moderate (25-49%) decline in UK breeding population over last 25 years, or the longer-term period;
- moderate (25-49%) contraction of UK breeding range over last 25 years, or the longer-term period;
- moderate (25-49%) decline in UK non-breeding population over last 25 years, or the longer-term period;
- rare breeder; 1–300 breeding pairs in UK;

- rare non-breeders; less than 900 individuals;
- localised; at least 50% of UK breeding or non-breeding population in 10 or fewer sites, but not applied to rare breeders or non-breeders; and
- internationally important; at least 20% of European breeding or non-breeding population in UK (NW European and East Atlantic Flyway populations used for non-breeding wildfowl and waders respectively).

Green List:

- species that occur regularly in the UK but do not qualify under any or the above criteria.

2.4.3 Although the lists confer no legal status in themselves, they are useful in evaluating the conservation significance of bird assemblages, and for assessing the potential significance of impacts and informing appropriate levels of mitigation with respect to bird populations.

3 Methodology

3.1 Desk study

- 3.1.1 Records for protected and notable¹ bird species, occurring within 2 km of the Scheme boundary, were obtained from the Staffordshire Ecological Records Centre (SERC) and the ecological records centre for Birmingham and the Black Country (EcoRecord) in 2017.
- 3.1.1 Only records up to ten years old were considered within the assessment, as any records older than ten years are unlikely to be still representative of bird species in the local area.

3.2 Field surveys

- 3.2.1 All surveys were led by experienced ornithologists with over six years of experience and all members of the Chartered Institute for Ecology and Environmental Management (CIEEM).
- 3.2.2 Field surveys for breeding birds were undertaken in 2018 and 2019 and were based on a standard territory mapping methodology for surveying breeding birds as detailed in Gilbert *et al.* (1998) (Ref 3) and Bibby *et al.* (2000) (Ref 4).
- 3.2.3 The area that was subject to surveys for breeding birds included the land up to and within 250 m of the Scheme boundary (refer to Figure 8.19 [TR010054/APP/6.2]) with the exception of a number of areas. The survey area did not include the M54 corridor, the area to the west of the A460 (south of Shareshill); the M6 corridor, north of the A460; or habitat south of the M54. Any construction along the existing road network of these areas would include minor modifications to existing habitat where species assemblages in these areas are considered to be already habituated to levels of noise and disturbance from the existing M6 and M54.
- 3.2.4 Standardised survey buffers for assessing the impacts of road schemes on bird populations do not exist, however, inclusion of a 250 m buffer from the Scheme boundary provides information on the breeding birds within the area immediately surrounding the Scheme and includes areas contiguous with the Scheme boundary, where birds may potentially be adversely affected. Depending on the sensitivity of the species, birds occurring beyond 250 m from the Scheme boundary, outside of the survey area may also be adversely affected. However, the 250 m buffer is sufficient to determine the likely impacts of the Scheme on the majority of breeding bird species occurring or likely to occur in the area.
- 3.2.5 Survey routes, where access allowed, followed the length of all hedgerows, fence-lines and field margins (including paths, tracks and roads). Deviations into areas of set-aside, stubble fields, scrub, woodland and other uncultivated habitats were made, where possible. The routes did not include ploughed or cultivated fields, due to the possibility of trampling and damaging crops. Fields containing livestock were avoided for safety reasons.

¹ A notable species is a species with a conservation designation, but no legal protection.

- 3.2.6 Survey routes were walked at a slow pace, approaching all areas of the survey area to within 50 m, where access allowed. The direction walked alternated on each visit, to ensure that all areas were covered at various times of day across the duration of the survey. Surveys were undertaken early in the morning, commencing just after sunrise and finishing before midday. During these times, breeding birds are more active and can be detected in song more frequently.
- 3.2.7 Each survey was undertaken during appropriate weather conditions and avoided, where possible, days with adverse weather conditions such as heavy rain or strong winds as birds may be harder to detect in such conditions. The survey visit dates and weather conditions are detailed in Table 3.1.

Table 3.1: Survey dates and weather conditions

| Year | Visit | Date | Weather conditions |
|------|-------|----------|---|
| 2018 | 1 | 18 April | Dry, cloud 2/8, wind F1, 16-20°C |
| | | 30 April | Dry, cloud 5/8, wind F3, 12-16°C |
| | 2 | 8 May | Dry, cloud 2/8, wind F2, c 18°C |
| | | 31 May | Dry, cloud 2/8, wind F1, c 17°C |
| | 3 | 06 June | Dry, cloud 3/8, wind F1-3, c 15-18°C |
| | | 22 June | Dry, cloud 3/8, wind F1-3, c 12-18°C |
| | 4 | 25 July | Dry, cloud 2/8, wind F1 SW, c 17°C |
| | | 31 July | Dry, cloud 1/8, wind F2, 14-25°C |
| 2019 | 1 | 20 May | Dry, cloud 2/8, wind F1 SW, c 17°C |
| | 2 | 30 May | Dry, cloud 4/8, wind F2 SW, c 8°C |
| | 3 | 10 June | Dry, cloud 5/8, wind F2 SW, c 10°C |
| | 4 | 14 June | Light rain, heavy at times, cloud 8/8, wind F2 SW, c 12°C |

Note: Wind speed is shown using the Beaufort scale, which is an empirical measure of force (F) 0-12 that relates wind speed to observed conditions. Cloud cover is shown in a scale of 0-8 where the number represents the amount of cloud cover e.g. 2/8 is 25% cover, 4/8 is 50%.

- 3.2.8 All birds seen and heard were recorded directly onto paper maps of the survey area. A fresh map was used for each survey. Registrations of birds were recorded using standard BTO two letter species codes. Specific codes were used to record bird behaviour, including: singing, calling, flights and movements between areas, carrying food, nest building, aggressive encounters and other bird behaviour.
- 3.2.9 The expected outcome from the surveys is that mapped registrations fall into clusters, approximately coinciding with territories. A cluster is generally a spatially distinct group of registrations that represent the activity of not more than one pair. Ideally, clusters include registrations of territorial behaviour across all visits and are clearly demarcated from adjacent clusters by simultaneous recording of neighbouring birds. Where a species has closely packed territories, the mapping of simultaneously singing birds becomes essential. Territory boundaries are assumed to be between such birds.

- 3.2.10 Territory mapping methods produce analysis maps of non-overlapping ellipses encircling clusters of records thought to relate to separate pairs of breeding birds. These ellipses may not show the entire extent of the pairs' actual breeding territory which may be significantly larger. However, they are likely to show those areas in which the pair is most active.
- 3.2.11 On completion of the surveys, analysis maps have been produced for each species, consisting of registrations recorded during the surveys in 2018 and 2019. From these species maps, the approximate number of territories has been calculated by identifying the number of clusters present from both years. Any duplicated territories, where the survey areas overlapped between years, are discounted.
- 3.2.12 For late-arriving migrants, e.g. spotted flycatcher *Muscicapa striata*, for which fewer potential contacts are possible, only one registration is required to form a territory cluster. Several species are not territorial and are dealt with appropriately, e.g. linnet *Linaria cannabina*, where data represent aggregations or loose colonies.
- 3.2.13 Standard registration mapping techniques have also been used to record non-breeding species.
- 3.2.14 The following definitions are used to identify the breeding territory status of each species recorded:
- **confirmed:** includes species for which territories are positively identified as a result of the number of registrations recorded; the location of an active nest; or the presence of recently fledged young / downy young;
 - **probable:** includes a species pair observed in suitable nesting habitat during surveys; or agitated behaviour / anxiety calls from adults (suggesting the presence of a nest or young nearby). Behaviour observed on insufficient occasions to confirm the presence of a territory;
 - **possible:** includes species observed during surveys in suitable nesting habitat; or a singing male present (or breeding calls heard) in suitable breeding habitat; or
 - **non-breeding:** species-specific information used to determine fly-over species, or species suspected to be summering non-breeder.

3.3 Nature conservation evaluation

- 3.3.1 The assessment of the ornithological importance of the survey area during the breeding season is made by evaluating any species afforded special statutory protection or those included on one, or more, of the lists of species of conservation interest, as detailed in Section 2 of this report. These include:
- species listed on Annex 1 of the EU Birds Directive;
 - species listed on Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended);
 - UK Biodiversity Action Plan (BAP), succeeded by the 'UK Post-2010 Biodiversity Framework', priority bird species (appendices to the NERC Act 2006) (Refer to Appendix 8.1 [TR010054/APP/6.3]);
 - NERC Act (2006) Species of Principal Importance;

- SBAP Species (Ref 1); and
- species included in the Birds of Conservation Concern Red and Amber Lists (Ref 2).

Species Abundance

3.3.2 In addition to evaluating a site based on its populations of breeding birds in relation to legal status, rarity and biodiversity importance, consideration has to be given to the value of the survey area for the population of individual species that it supports. This can be done by comparing the population present within the survey area with the national and county breeding population for certain species. National estimates for breeding birds are published in a paper on 'Population estimates of birds in Great Britain and the United Kingdom' (Ref 5). The BTO Balmer *et. al.*, Bird Atlas 2007-2011 (Ref 6) was also reviewed for species information on a national level.

3.3.3 Current county-level estimates on the breeding bird populations of most species in Staffordshire were sourced from county avifauna reports, with the most recently published report being *The Birds of Staffordshire, Worcestershire and West Midlands 2016* (Ref 7).

Species Diversity

3.3.4 The number of species recorded in an area is a simple measure of diversity that can indicate its importance at each season of the year. Table 3.2 shows the breeding species diversity criteria as outlined in Fuller, 'A method for assessing the ornithological interest of sites for conservation' (Ref 8), which provided a method for assessing the ornithological interest of sites for conservation.

Table 3.2: Breeding species diversity criteria

| Number of species recorded | | | |
|----------------------------|--------|----------|----------|
| Local | County | Regional | National |
| 25-49 | 50-69 | 70-84 | 85+ |

3.3.5 The Joint Nature Conservation Committee Guidelines for selection of Biological Sites of Special Scientific Interest (SSSI) (Ref 9) provide a scoring system for habitats based on the breeding presence of certain key species which are characteristic of the habitat and give a threshold value for SSSI selection based on the score.

3.3.6 In Staffordshire, an individual Local Wildlife Site (LWS) (historically referred to as Sites of Biological Importance (SBIs)) can be selected for birds if, breeding is confirmed in at least three out of five years at the time of selection and, following selection, species should be recorded every five years. The criteria for selection during the breeding season (Ref 10) is:

- any site which regularly supports a wild breeding population of certain bird species included in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended);
- any site which supports a regular breeding population of a rare or scarce Staffordshire breeding bird species;

- any site of significant importance for species breeding in Staffordshire listed below:
 - colonial nesting species; and
 - *Hirundines* (Swallows and Martins).
- sites that are significant colonies of species in a Staffordshire context, significant groupings of breeding waders;
- any site which supports a breeding bird assemblage with a value equal to or exceeding the following indices:
 - Woodland – 23;
 - Upland – 16;
 - Heathland – 11;
 - Lowland wet grassland – 10;
 - Fen – 10; and
 - Open Water – 18.

Importance of the breeding bird population

3.3.7 To support a focussed assessment of the population of breeding birds within the survey area, their biodiversity value has been defined with reference to the geographical level at which it matters. The frames of reference used in this appendix were made using the values presented in The Design Manual for Roads and Bridges (DMRB) LA 108 Biodiversity (Ref 11); CIEEM ‘*Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland: Terrestrial, Freshwater, Coastal and Marine*’ (Ref 12), hereafter referred to as the CIEEM Guidelines²; and professional judgement.

3.3.8 The evaluation uses a framework, linked to a geographical scale at which the receptor has been valued (international, national, regional, county, local or site) and this method represents best practice guidance. This assessment criteria, set out in Table 3.3, has been used in conjunction with species rarity, abundance and diversity within the survey area, to assess the biodiversity importance of the breeding bird populations recorded during the field surveys.

Table 3.3: Importance of ornithological features

| Importance ¹ of ornithological features | Descriptors and examples of criteria from DMRB |
|--|---|
| International or European | An internationally designated site or candidate site including SPA, potential SPAs (pSPAs) ² ; and Ramsar sites (wetlands of international importance). Areas which meet the published selection criteria for those sites listed above but which are not themselves designated as such. Resident or regularly occurring populations of species which may be considered at an international or European level ² where: <ul style="list-style-type: none"> • the loss of these populations would adversely affect the conservation |

² It is acknowledged that ‘Importance’ is used rather than ‘Value’ in the CIEEM 2018 guidance for ecological features compared to DMRB; however, the geographical frames of reference and method of determination used in the assessment is similar. ‘Importance’ and/ or ‘Value’ for ecological features is comparable. Importance has been used within the assessment reported herein

| Importance ¹ of ornithological features | Descriptors and examples of criteria from DMRB |
|--|---|
| | <p>status or distribution of the species at this geographic scale;</p> <ul style="list-style-type: none"> the population forms a critical part³ of a wider population at this scale; or the species is at a critical phase⁴ of its life cycle at this scale. |
| UK or National | <p>Sites designated at UK or national level e.g. SSSI.</p> <p>Areas which meet the published selection criteria for those sites listed above but which are not themselves designated as such.</p> <p>Areas of key or priority species identified in the UK Post-2010 Biodiversity Framework <i>i.e.</i> UKBAP, including those published in accordance with Section 41 of the NERC Act (2006) and those considered to be of principal importance for the conservation of biodiversity.</p> <p>Resident or regularly occurring populations of species which may be considered at a UK or a national level⁵ where:</p> <ul style="list-style-type: none"> the loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale; the population forms a critical part of a wider population at this scale; or the species is at a critical phase⁴ of its life cycle at this scale. |
| Regional | <p>Habitat or populations of species of importance at a regional level (<i>i.e.</i> West Midlands).</p> <p>Resident or regularly occurring populations of species which may be considered at a regional level⁶ where:</p> <ul style="list-style-type: none"> the loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale; the population forms a critical part of a wider population at this scale; the species is at a critical phase of its life cycle at this scale; or species identified in regional plans or strategies. |
| County or Unitary Authority or District | <p>Populations of species of importance at a County (<i>i.e.</i> Staffordshire) level or District (<i>i.e.</i> South Staffordshire District Council, and City of Wolverhampton Council).</p> <p>Designated sites, such as County Wildlife Site (CWS), LWS or Local Nature Conservation Sites (LNCS), Sites of Importance for Nature Conservation (SINC), Sites of Nature Conservation Importance (SNCI) and Local Nature Reserve (LNR) designated in the county or unitary authority area <i>i.e.</i> District context.</p> <p>Areas which meet the published selection criteria for those sites listed above but which are not themselves designated as such.</p> <p>Resident or regularly occurring populations of species which may be considered at a County (or District) level⁷ where:</p> <ul style="list-style-type: none"> the loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale; the population forms a critical part of a wider population at this scale; or, the species is at a critical phase of its life cycle at this scale. |
| Local | <p>Designated sites, such as CWS, LWS, LNCS, SINC, SNCI and LNR designated at a local level.</p> <p>Designated sites include LNRs designated in the local context.</p> <ul style="list-style-type: none"> populations and, or communities of species considered to appreciably enrich the habitat resource within the local context (such as veteran trees), |

| Importance ¹ of ornithological features | Descriptors and examples of criteria from DMRB |
|--|--|
| | including features of value for migration, dispersal or genetic exchange. |
| Site | (Not defined in DMRB) Habitats and associated species that is of value in the context of the site only. Populations of common and widespread species. |
| 1. | <p>pSPAs are sites which UK Government has been formally advised of but have not yet been submitted to the European Commission. These sites should be valued at an international (European) level on the basis that they meet the relevant selection criteria for a SPA but are not yet designated as such.</p> <p>2. Such species include those listed within the Directive 2009/147/EC on the Conservation of Wild Birds (<i>i.e.</i> EC Birds Directive) (codified version of Council Directive 79/409/EEC as amended).</p> <p>3. Such populations include sub-populations that are essential to maintenance of meta-population dynamics, <i>e.g.</i> critical emigration and, or immigration links between otherwise discrete populations.</p> <p>4. Seasonal activity or behaviour upon which survival or reproduction depends.</p> <p>5. Species which may be considered at the UK or national level mean: birds, which receive legal protection on the basis of their conservation interest (those listed within Schedule 1 of the Wildlife and Countryside Act 1981 (as amended); species listed for their principal importance for biodiversity (in accordance with the NERC Act 2006 Section 41 England), priority species listed within the UK Post 2010 Biodiversity Framework (<i>i.e.</i> UKBAP), or species listed within the BoCC.</p> <p>6. Such species include those listed in the appropriate Natural Character Area description</p> <p>7. Such species include those at county level (<i>i.e.</i> Staffordshire) including unitary authority area <i>i.e.</i> District level (<i>i.e.</i> South Staffordshire District Council and City of Wolverhampton Council); as listed on the LBAPs; and listed as a county designated site.</p> <p>*As well as assigning importance there is also a need to identify all legally protected species that could be affected by the Scheme in order that measures can be taken to ensure that adherence to the relevant legislation is observed. This may include the adoption of mitigation and appropriate licensing which are acceptable to Natural England.</p> |

3.4 Assumptions and limitations

Desk study

- 3.4.1 The information collected from the desk study background record search represents only those records submitted to records centres and is therefore not considered to be a definitive list of breeding birds identified within the study area. If records have not been provided, this does not confirm absence from the Scheme boundary.
- 3.4.2 The following are inherent limitations of a desk study which includes obtaining data from a Biological Records Centre (BRC):
- Recorder bias - biological records are not a representation of the distribution of species within the search area, only records of those species, so the dataset provided by a BRC may be biased towards the favoured locations / 'patches' of taxonomic preference of local recorders (and the locations / favoured 'patches' of those recorders) and the presence (or absence) of specialist bird recording groups within that county or vice county;
 - Incomplete data – the current dataset held by a BRC is considered to be the most accurate and most up-to-date representation of species within each BRC

boundary although records are largely random. Where atlases which have systematically surveyed monads, tetrads, or hectads for taxonomic groups within a given area are available these records therein are a more accurate picture of species assemblage and distribution;

- Data availability lag - Resources at BRCs can be limited, which can lead to a lag between the time that records are submitted by recorders and the time that they are verified and entered into the database for that county. Additionally, special interest recording groups (which often hold their own datasets) may only submit their records annually (if at all) which causes further lag in dataset accuracy; and
- Changes in Data due to the Verification Process –Where new information or specialist knowledge sheds light on the validity of recent or historical submitted records, the verification process may add or remove which may alter the results of a data search over time with same parameters.

Field surveys

- 3.4.3 Surveys in 2019 did not commence until 20 May 2019. It is acknowledged that the surveys commenced midway through the bird breeding season and this may have resulted in any early (and completed) breeding attempts being missed. However, the survey effort on commencement of surveys in late May was sufficient to enable determination of the presence of breeding species across the Scheme within the core breeding season as the majority of species would still be breeding within this period. Surveys of the Scheme in 2018 were undertaken in April and therefore, the absence of a March and April visit in 2019 will not have greatly affected the assessment outcome.
- 3.4.4 Due to access limitations and the presence of livestock across the survey area, some sections of the survey route and field compartments were not surveyed on all four survey visits. Whilst the full survey route was not walked within these areas on all four visits, every effort was made to approach these areas to within 100 m. Using this method, any birds that were heard singing or were observed from outside of any area with access limitations were recorded. As a result, territory information cannot be calculated for some of the species within these areas (e.g. 'quiet' species such as dunnock *Prunella modularis*) due to the low number of registrations, but an indication of the breeding species present has been made. Whilst it is accepted that individual species of note may have been missed, for the purposes of the assessment of effects of the Scheme on breeding bird populations, extrapolation of results from broadly similar habitats elsewhere along the Scheme provides an adequate prediction of the likely species and assemblages present within any un-surveyed areas. Therefore, this limitation does not affect the assessment of the breeding bird populations.
- 3.4.5 Heavy rain on 14 June 2019 meant that the survey in the southern half of the Scheme (south of Hilton Lane) had to be abandoned. However, a walkover of this area was undertaken on 11 July 2019 and any breeding bird information from this area was used to supplement the lack of data from this area from 14 June 2019. Therefore, abandoning the survey on 14 June 2019 is not considered a significant limitation on the survey results.

4 Results and Evaluation

4.1 Desk study

4.1.1 Records of 86 protected or notable bird species recorded within 2 km of the Scheme boundary and from within the last ten years, were returned from the desk study and are shown on Figure 8.20. A full list of species recorded is in Table 4.1.

Table 4.1: Data search results from SERC

| Common name | Scientific name | Designation* |
|-------------------------|-----------------------------------|----------------------------------|
| Arctic Tern | <i>Sterna paradisaea</i> | BD1, UKBAP, BAmb |
| Bee-eater | <i>Merops apiaster</i> | WCA1i |
| Black-headed Gull | <i>Chroicocephalus ridibundus</i> | BAmb |
| Bar-tailed Godwit | <i>Limosa lapponica</i> | BAmb |
| Black-tailed Godwit | <i>Limosa limosa</i> | WCA1i, BRed |
| Black-necked Grebe | <i>Podiceps nigricollis</i> | WCA1i, BAmb |
| Brambling | <i>Fringilla montifringilla</i> | WCA1i |
| Bullfinch | <i>Pyrrhula pyrrhula</i> | Sect.41, UKBAP, BAmb, LBAP |
| Cetti's Warbler | <i>Cettia cetti</i> | WCA1i |
| Common Gull | <i>Larus canus</i> | BAmb |
| Common Tern | <i>Sterna hirundo</i> | BD1, BAmb |
| Corn Bunting | <i>Emberiza calandra</i> | Sect.41, UKBAP, Bred, LBAP |
| Crossbill | <i>Loxia curvirostra</i> | WCA1i |
| Cuckoo | <i>Cuculus canorus</i> | Sect.41, UKBAP, BRed |
| Curlew | <i>Numenius arquata</i> | Sect.41, UKBAP, BRed |
| Dunnock | <i>Prunella modularis</i> | Sect.41, UKBAP, BAmb |
| Fieldfare | <i>Turdus pilaris</i> | WCA1i, BRed |
| Gadwall | <i>Anas strepera</i> | BAmb |
| Goldeneye | <i>Bucephala clangula</i> | WCA1i, BAmb |
| Golden Plover | <i>Pluvialis apricaria</i> | BD1 |
| Goshawk | <i>Accipiter gentilis</i> | WCA1i |
| Grasshopper Warbler | <i>Locustella naevia</i> | Sect.41, UKBAP, BRed |
| Great Black-backed Gull | <i>Larus marinus</i> | BAmb |
| Green Sandpiper | <i>Tringa ochropus</i> | WCA1i, BAmb |
| Grey Partridge | <i>Perdix perdix</i> | Sect.41, UKBAP, BRed, LBAP |
| Grey Wagtail | <i>Motacilla cinerea</i> | BRed |
| Greenshank | <i>Tringa nebularia</i> | WCA1i, BAmb |
| Greylag Goose | <i>Anser anser</i> | BAmb |
| Hen Harrier | <i>Circus cyaneus</i> | BD1, Sect.41, UKBAP, WCA1i, BRed |
| Herring Gull | <i>Larus argentatus</i> | BRed |

| Common name | Scientific name | Designation* |
|---------------------------|--------------------------------|----------------------------|
| Hobby | <i>Falco subbuteo</i> | WCA1i |
| House Martin | <i>Delichon urbicum</i> | BAmb |
| House Sparrow | <i>Passer domesticus</i> | Sect.41, UKBAP, Bred, LBAP |
| Kingfisher | <i>Alcedo atthis</i> | BD1, WCA1i |
| Kittiwake | <i>Rissa tridactyla</i> | BRed |
| Lapwing | <i>Vanellus vanellus</i> | Sect.41, UKBAP, Bred, LBAP |
| Lesser Black-backed Gull | <i>Larus fuscus</i> | BAmb |
| Lesser Redpoll | <i>Acanthis cabaret</i> | Sect.41, UKBAP, BRed |
| Lesser Spotted Woodpecker | <i>Dendrocopos minor</i> | Sect.41, UKBAP, BRed |
| Linnet | <i>Linaria cannabina</i> | Sect.41, UKBAP, Bred, LBAP |
| Little Egret | <i>Egretta garzetta</i> | BD1 |
| Little Ringed Plover | <i>Charadrius dubius</i> | WCA1i |
| Mallard | <i>Anas platyrhynchos</i> | BAmb |
| Marsh Tit | <i>Poecile palustris</i> | Sect.41, UKBAP, BRed |
| Meadow Pipit | <i>Anthus pratensis</i> | BAmb |
| Mediterranean Gull | <i>Larus melanocephalus</i> | BD1, WCA1i, BAmb |
| Merlin | <i>Falco columbarius</i> | BD1, WCA1i, BRed |
| Mistle Thrush | <i>Turdus viscivorus</i> | BRed |
| Mute Swan | <i>Cygnus olor</i> | BAmb |
| Oystercatcher | <i>Haematopus ostralegus</i> | BAmb |
| Peregrine Falcon | <i>Falco peregrinus</i> | BD1, WCA1i |
| Pied Flycatcher | <i>Ficedula hypoleuca</i> | BRed |
| Pink-footed Goose | <i>Anser brachyrhynchus</i> | BAmb |
| Pintail | <i>Anas acuta</i> | BAmb |
| Pochard | <i>Aythya ferina</i> | BRed |
| Quail | <i>Coturnix coturnix</i> | WCA1i, BAmb |
| Redstart | <i>Phoenicurus phoenicurus</i> | BAmb |
| Red Kite | <i>Milvus milvus</i> | BD1, WCA1i |
| Redwing | <i>Turdus iliacus</i> | WCA1i, BRed |
| Reed Bunting | <i>Emberiza schoeniclus</i> | Sect.41, UKBAP, BAmb, LBAP |
| Ring Ouzel | <i>Turdus torquatus</i> | Sect.41, UKBAP, BRed |
| Ringed Plover | <i>Charadrius hiaticula</i> | BRed |
| Ruddy Shelduck | <i>Tadorna ferruginea</i> | BD1 |
| Short-eared Owl | <i>Asio flammeus</i> | BD1, BAmb |
| Shoveler | <i>Anas clypeata</i> | BAmb |
| Skylark | <i>Alauda arvensis</i> | Sect.41, UKBAP, Bred, LBAP |
| Snipe | <i>Gallinago gallinago</i> | BAmb, LBAP |
| Song Thrush | <i>Turdus philomelos</i> | Sect.41, UKBAP, BRed |

| Common name | Scientific name | Designation* |
|--|-------------------------------|----------------------------------|
| Spotted Flycatcher | <i>Muscicapa striata</i> | Sect.41, UKBAP, BRed |
| Stock Dove | <i>Columba oenas</i> | BAmb |
| Starling | <i>Sturnus vulgaris</i> | Sect.41, UKBAP, BRed |
| Swift | <i>Apus apus</i> | BAmb |
| Tawny Owl | <i>Strix aluco</i> | BAmb |
| Teal | <i>Anas crecca</i> | BAmb |
| Tree Sparrow | <i>Passer montanus</i> | Sect.41, UKBAP, Bred, LBAP |
| Whimbrel | <i>Numenius phaeopus</i> | WCA1i, BRed |
| Whinchat | <i>Saxicola rubetra</i> | BRed |
| Whooper Swan | <i>Cygnus cygnus</i> | BD1, WCA1i, BAmb |
| Wigeon | <i>Anas penelope</i> | BAmb |
| Willow Tit | <i>Poecile montana</i> | Sect.41, UKBAP, BRed |
| Willow Warbler | <i>Phylloscopus trochilus</i> | BAmb |
| Woodcock | <i>Scolopax rusticola</i> | BRed |
| Woodlark | <i>Lullula arborea</i> | BD1, WCA1i, Sect.41, UKBAP, LBAP |
| Yellow Wagtail | <i>Motacilla flava</i> | Sect.41, UKBAP, BRed |
| Yellowhammer | <i>Emberiza citrinella</i> | Sect.41, UKBAP, Bred, LBAP |
| Yellow-legged Gull | <i>Larus michahellis</i> | BAmb |
| *BD = Birds Directive, WCA = Wildlife and Countryside Act 1981, Sect 41 = Listed on the NERC Act, UKBAP = UK Biodiversity Action Plan, LBAP = Local Biodiversity Action Plan, BRed = Red listed on the birds of conservation concern, BAmb = Amber listed on the birds of conservation concern. Refer to Appendix 8.1 and Section 2 above for further details. | | |

4.1.2 Of these 86 species:

- 14 are listed on Annex 1 of the EU Birds Directive;
- 24 are listed on Schedule 1 of the Wildlife and Countryside Act, 1981;
- 27 are listed as a priority species on the UKBAP and/ or as a species of principal importance under Section 41 of the NERC Act;
- 33 species are included on the Birds of Conservation Concern Red List;
- 37 species are included on the Birds of Conservation Concern Amber List; and
- 12 species are included as a priority species in Staffordshire.

4.1.3 Of the 86 protected / notable species returned from the data search, 19 species have the potential to breed within the survey area during the breeding season, in consideration of the available habitat within the survey area.

4.1.4 Of the 19 species identified during the desk study as having the potential to breed within the survey area, five species (Lapwing, Skylark, Song Thrush, House Sparrow and Dunnock) are confirmed as having breeding territories within the survey area during field surveys. The 14 species (not including Barn Owl as this species is reported separately) that have the potential to breed within the survey area, but were either not recorded during field surveys or were recorded within the survey area but not confirmed (or thought probable / possible) to be on breeding territories are:

- Cuckoo *Cuculus canorus*;
- Corn Bunting *Emberiza calandra*;
- Linnet;
- Marsh Tit *Poecile palustris*;
- Meadow Pipit *Anthus pratensis*;
- Mute Swan *Cygnus olor*;
- Spotted Flycatcher;
- Starling;
- Swift *Apus apus*;
- Stock Dove;
- Tawny Owl *Strix aluco*;
- Tree Sparrow *Passer montanus*;
- Yellow Wagtail; and
- Yellowhammer.

4.2 Field survey

- 4.2.1 A total of 57 species were recorded during the survey of breeding birds in 2018 and 2019. Of these 57 species, breeding territories of 32 species were confirmed and records of a further 13 species were probably or possibly on breeding territories within the survey area at the time of the surveys, resulting in a breeding bird assemblage of 45 species. Records relating to the remaining 12 species are of non-breeding species.
- 4.2.2 A summary of the breeding and conservation status of the 57 species recorded during the survey, with the numbers of breeding territories identified (or thought likely in the case of probable records) for species of conservation concern is provided in Table 4.2.
- 4.2.3 For species which are widespread throughout the survey area (e.g. blue tit *Cyanistes caeruleus*), common within Staffordshire and the UK and not of conservation concern (i.e. not listed on one or more of the lists of conservation concern as detailed in Section 3.4 of this appendix), the number of breeding territories of these species (including probable or possible) have not been calculated and these are referred to in Table 4.2 as being present (P).
- 4.2.4 Breeding territory information for records of 'possible' breeders was also not calculated, due to the low number of registrations of birds; however, an estimation of the possible number of territories is included in parentheses in Table 4.1.

Table 4.2: The breeding and conservation status of bird species recorded within the survey area in 2018 and 2019

| Species (English Name) and Scientific Name ¹ | Breeding status | Number of breeding territories | | Conservation Status | | | | | |
|---|--------------------|--------------------------------------|-------|-------------------------------|----------------|------------------|---|---|--|
| | | 2018 | 2019 | Annex 1 EU Birds Directive | WCA Schedule 1 | Priority Species | NERC Species of Principal Importance | Birds of Conservation Concern Species | Staffordshire Biodiversity Action Plan Species |
| Canada Goose <i>Branta canadensis</i> | Confirmed | P | P | - | - | - | - | - | - |
| Greylag Goose <i>Anser anser</i> | Confirmed | 2 | n/r* | - | - | - | - | Amber | - |
| Mallard <i>Anas platyrhynchos</i> | Confirmed | 0 | 1 | - | - | - | - | Amber | - |
| Moorhen <i>Gallinula chloropus</i> | Confirmed | P | n/r | - | - | - | - | - | - |
| Coot <i>Fulica atra</i> | Confirmed | P | n/r | - | - | - | - | - | - |
| Pheasant <i>Phasianus colchicus</i> | Probable | 0 | P | - | - | - | - | - | - |
| Buzzard <i>Buteo buteo</i> | Confirmed | 0 | P | - | - | - | - | - | - |
| Lapwing <i>Vanellus vanellus</i> | Confirmed | 1 | 2 | - | - | ✓ | ✓ | Red | ✓ |
| Grey Heron <i>Ardea cinerea</i> | Non-breeding | 0 | n/r | - | - | - | - | - | - |
| Lesser Black-backed Gull <i>Larus fuscus</i> | Non-breeding | n/r | 0 | - | - | - | - | Amber | - |
| Stock Dove <i>Columba oenas</i> | Probable | 0 | (1-2) | - | - | - | - | Amber | - |
| Wood Pigeon <i>Columba palumbus</i> | Confirmed | P | P | - | - | - | - | - | - |
| Collared Dove <i>Streptopelia decaocto</i> | Confirmed | 0 | P | - | - | - | - | - | - |

| Species (English Name) and Scientific Name ¹ | Breeding status | Number of breeding territories | | Conservation Status | | | | | |
|---|--------------------|--------------------------------------|------|-------------------------------|----------------|------------------|---|---|--|
| | | 2018 | 2019 | Annex 1 EU Birds Directive | WCA Schedule 1 | Priority Species | NERC Species of Principal Importance | Birds of Conservation Concern Species | Staffordshire Biodiversity Action Plan Species |
| Peregrine <i>Falco peregrinus</i> | Non-breeding | 0 | n/r | ✓ | ✓ | - | - | - | - |
| Sparrowhawk <i>Accipiter nisus</i> | Non-breeding | 0 | n/r | - | - | - | - | - | - |
| Swift <i>Apus apus</i> | Non-breeding | 0 | 0 | - | - | - | - | Amber | - |
| Great Spotted Woodpecker <i>Dendrocopos major</i> | Probable | 0 | P | - | - | - | - | - | - |
| Green Woodpecker <i>Picus viridis</i> | Probable | n/r | P | - | - | - | - | - | - |
| Magpie <i>Pica pica</i> | Confirmed | 0 | P | - | - | - | - | - | - |
| Jackdaw <i>Coloeus monedula</i> | Non-breeding | 0 | 0 | - | - | - | - | - | - |
| Jay <i>Garrulus glandarius</i> | Non-breeding | 0 | n/r | - | - | - | - | - | - |
| Carrion Crow <i>Corvus corone</i> | Confirmed | P | 0 | - | - | - | - | - | - |
| Rook <i>Corvus frugilegus</i> | Confirmed | P | n/r | - | - | - | - | - | - |
| Raven <i>Corvus corax</i> | Non-breeding | n/r | 0 | - | - | - | - | - | - |
| Coal Tit <i>Periparus ater</i> | Confirmed | n/r | P | - | - | - | - | - | - |
| Blue Tit <i>Cyanistes caeruleus</i> | Confirmed | P | P | - | - | - | - | - | - |
| Great Tit <i>Parus major</i> | Confirmed | P | P | - | - | - | - | - | - |
| Skylark | Confirmed | (3) | 9 | - | - | ✓ | ✓ | Red | ✓ |

| Species (English Name) and Scientific Name ¹ | Breeding status | Number of breeding territories | | Conservation Status | | | | | |
|--|-----------------|--------------------------------|------|----------------------------|----------------|------------------|--------------------------------------|---------------------------------------|--|
| | | 2018 | 2019 | Annex 1 EU Birds Directive | WCA Schedule 1 | Priority Species | NERC Species of Principal Importance | Birds of Conservation Concern Species | Staffordshire Biodiversity Action Plan Species |
| <i>Alauda arvensis</i> | | | | | | | | | |
| Swallow <i>Hirundo rustica</i> | Confirmed | P | P | - | - | - | - | - | - |
| House Martin <i>Delichon urbicum</i> | Non-breeding | 0 | 0 | - | - | - | - | Amber | - |
| Long-tailed Tit <i>Aegithalos caudatus</i> | Confirmed | P | P | - | - | - | - | - | - |
| Willow Warbler <i>Phylloscopus trochilus</i> | Possible | 0 | (2) | - | - | - | - | Amber | - |
| Chiffchaff <i>Phylloscopus collybita</i> | Confirmed | 0 | P | - | - | - | - | - | - |
| Sedge Warbler <i>Acrocephalus schoenobaenus</i> | Probable | n/r | P | - | - | - | - | - | - |
| Blackcap <i>Sylvia atricapilla</i> | Confirmed | P | P | - | - | - | - | - | - |
| Garden Warbler <i>Sylvia borin</i> | Probable | 0 | P | - | - | - | - | - | - |
| Whitethroat <i>Sylvia communis</i> | Probable | 0 | P | - | - | - | - | - | - |
| Goldcrest <i>Regulus regulus</i> | Probable | n/r | P | - | - | - | - | - | - |
| Wren <i>Troglodytes troglodytes</i> | Confirmed | P | P | - | - | - | - | - | - |
| Nuthatch <i>Sitta europea</i> | Confirmed | 0 | P | - | - | - | - | - | - |

| Species (English Name) and Scientific Name ¹ | Breeding status | Number of breeding territories | | Conservation Status | | | | | |
|--|-----------------|--------------------------------|------|----------------------------|----------------|------------------|--------------------------------------|---------------------------------------|--|
| | | 2018 | 2019 | Annex 1 EU Birds Directive | WCA Schedule 1 | Priority Species | NERC Species of Principal Importance | Birds of Conservation Concern Species | Staffordshire Biodiversity Action Plan Species |
| Treecreeper <i>Certhia familiaris</i> | Confirmed | n/r | P | - | - | - | - | - | - |
| Starling <i>Sturnus vulgaris</i> | Non-breeding | 0 | n/r | - | - | ✓ | ✓ | Red | - |
| Blackbird <i>Turdus merula</i> | Confirmed | P | P | - | - | - | - | - | - |
| Song Thrush <i>Turdus philomelos</i> | Confirmed | 0 | 5 | - | - | ✓ | ✓ | Red | - |
| Mistle Thrush <i>Turdus viscivorus</i> | Probable | n/r | (2) | - | - | - | - | Red | - |
| Robin <i>Erithacus rubecula</i> | Confirmed | P | P | - | - | - | - | - | - |
| House Sparrow <i>Passer domesticus</i> | Confirmed | 53 | (2) | - | - | ✓ | ✓ | Red | ✓ |
| Dunnock <i>Prunella modularis</i> | Confirmed | P | 3 | - | - | ✓ | ✓ | Amber | - |
| Yellow Wagtail <i>Motacilla flava</i> | Possible | n/r | (1) | - | - | ✓ | ✓ | Red | - |
| Grey Wagtail <i>Motacilla cinerea</i> | Non-breeding | n/r | 0 | - | - | - | - | Red | - |
| Pied Wagtail <i>Motacilla alba</i> | Confirmed | P | P | - | - | - | - | - | - |
| Chaffinch <i>Fringilla coelebs</i> | Confirmed | 0 | P | - | - | - | - | - | - |
| Bullfinch <i>Pyrrhula pyrrhula</i> | Possible | n/r | (1) | - | - | ✓ | ✓ | Amber | ✓ |

| Species (English Name) and Scientific Name ¹ | Breeding status | Number of breeding territories | | Conservation Status | | | | | |
|---|-----------------|--------------------------------|------|----------------------------|----------------|------------------|--------------------------------------|---------------------------------------|--|
| | | 2018 | 2019 | Annex 1 EU Birds Directive | WCA Schedule 1 | Priority Species | NERC Species of Principal Importance | Birds of Conservation Concern Species | Staffordshire Biodiversity Action Plan Species |
| Greenfinch <i>Chloris chloris</i> | Non-breeding | 0 | n/r | - | - | - | - | - | - |
| Goldfinch <i>Carduelis carduelis</i> | Confirmed | 0 | P | - | - | - | - | - | - |
| Yellowhammer <i>Emberiza citrinella</i> | Confirmed | 1 | (1) | - | - | ✓ | ✓ | Red | ✓ |
| Reed Bunting <i>Emberiza schoeniclus</i> | Probable | n/r | (2) | - | - | ✓ | ✓ | Amber | ✓ |

Note ¹ = species are listed in taxonomic order, as defined by the British Ornithologists Union (BOU) British List. * n/r = not recorded

4.2.5 From the breeding assemblage of 45 species, recorded during field surveys:

- nine species are listed as a priority species of principal importance under Section 41 of the NERC Act;
- seven species are included on the Birds of Conservation Concern Red list;
- seven species are included on the Birds of Conservation Concern Amber list; and
- six species are included as a priority species or additional species of interest in Staffordshire.

Specially protected species

Annex 1 and Schedule 1 listed species

4.2.6 No species listed on Annex 1 of the EU Birds Directive or included on Schedule 1 of the Wildlife and Countryside Act (1981, as amended) were breeding or holding breeding territories within the survey area in 2019.

4.2.7 Peregrine, included on both Annex 1 of the EU Birds Directive and Schedule 1 of the Wildlife and Countryside Act (1981, as amended), was recorded in 2018, but was not considered to be breeding or possibly / probably breeding within the survey area.

Species of conservation importance

Priority species

- 4.2.8 Nine species (Lapwing, Skylark, Song Thrush, House Sparrow, Dunnock, Yellow Wagtail, Bullfinch, Yellowhammer and Reed Bunting) with breeding territories confirmed or having probable / possible breeding territories within the survey area are listed as Species of Principal Importance prepared under Section 41 of the NERC Act 2006.

Birds of Conservation Concern

- 4.2.9 Breeding territories were confirmed, or thought probable / possible, for seven species within the survey area that are included on the Birds of Conservation Concern Red List. Each species and the reason for its placement on the Red List is provided below:

- Lapwing – Severe decline in the UK breeding population size (>50%) over 25 years; and severe decline in the UK breeding population, of more than 50%, over the entire period used for assessments;
- Skylark – moderate (25-50%) decline in the UK breeding population in the last 25 years and severe (>50%) decline over the entire period used for assessments since the first BoCC review in 1969;
- Song Thrush – severe (>50%) long-term decline in UK breeding population during the entire period used for assessments since the first BoCC review in 1969;
- Mistle Thrush - moderate (25-50%) decline in the UK breeding population in the last 25 years and severe (>50%) decline over the entire period used for assessments since the first BoCC review in 1969;
- House Sparrow - moderate (25-50%) decline in the UK breeding population in the last 25 years and severe (>50%) decline over the entire period used for assessments since the first BoCC review in 1969;
- Yellow Wagtail - Severe decline in the UK breeding population size (>50%) over 25 years; and severe decline in the UK breeding population, of more than 50%, over the entire period used for assessments; and
- Yellowhammer - moderate (25-50%) decline in the UK breeding population in the last 25 years and severe (>50%) decline over the entire period used for assessments since the first BoCC review in 1969.

- 4.2.10 Breeding territories were confirmed, or thought probable / possible, for seven species within the survey area that are included on the BoCC Amber List. These species and the reasons for their placement on the Amber List are provided below:

- Greylag Goose – Non-breeding population localisation. UK wintering population found in ten or fewer sites defined as SPAs or Important Bird Areas (IBAs). Also of international importance as the UK holds at least 20% of the European population in the non-breeding season;
- Mallard – moderate decline in the non-breeding population over the last 25 years;

- Stock Dove – species breeding in international importance, where figures exceed 20-30 pairs;
- Willow Warbler - moderate decline in the UK breeding population of more than 25% but less than 50% in the last 25 years and over the longer term;
- Dunnock – moderate decline in the UK breeding population of more than 25% but less than 50% over the entire period used for assessments;
- Bullfinch - moderate decline in the UK breeding population of more than 25% but less than 50% over the entire period used for assessments; and
- Reed Bunting - moderate decline in the UK breeding population of more than 25% but less than 50% over the entire period used for assessments.

4.2.11 Inclusion on the BoCC Red or Amber list does not confer any statutory protection. However, the species concerned are all of conservation importance and considered to be under varying levels of threat in a UK context.

Local Biodiversity Action Plan species

4.2.12 Breeding territories of six species (Lapwing, Skylark, House Sparrow, Bullfinch, Yellowhammer and Reed Bunting), that are listed as local priority species on the Staffordshire Biodiversity Action Plan, were confirmed in the survey area.

4.3 Species abundance assessment

- 4.3.1 No species were present within the survey area in numbers of national significance, *i.e.* 1% or more of the UK population, when compared to national population estimates as given in Musgrove *et., al.* 'Population estimates of birds in Great Britain and the United Kingdom' (Ref 5).
- 4.3.2 One species (Lapwing) was present in a number approaching 1% of the county level, when compared to the breeding population estimates for the county as detailed in The Birds of Staffordshire, Worcestershire and West Midlands 2016 (Ref 7).
- 4.3.3 The Birds of Staffordshire, Worcestershire and West Midlands report estimates the breeding population of Lapwing in Staffordshire at 287 pairs. Therefore, the two Lapwing territories recorded in the survey area would represent 0.7% of the reported number of territories within Staffordshire. However, breeding is likely to occur in more inaccessible farmland areas around Staffordshire than is reported in *The Birds of Staffordshire, Worcestershire and West Midlands*. Therefore, it is likely that the true population in Staffordshire is under-recorded and greater than that presented.
- 4.3.4 Whilst the number of pairs / territories of Lapwing breeding within the survey area do not occur at numbers approaching county significance, two pairs of Lapwing in the Wolverhampton area is likely to be of more importance, although there is no referenceable data to evaluate this against.
- 4.3.5 Therefore, the population of Lapwing within the Scheme is important at a District level only.
- 4.3.6 The numbers of breeding territories for all other species recorded in the survey area were all relatively low and did not represent significant proportions (*i.e.* 1 % or more) of the national or county populations in Staffordshire. Therefore, species' populations across the survey area are of no more than local importance.

4.4 Species diversity assessment

- 4.4.1 To measure species diversity, the breeding assemblage (45) recorded in the survey area was evaluated against the criteria developed by Fuller (Ref 8) as detailed in Section 3.6 of this appendix and taking into consideration that species diversity has declined significantly since the criteria were developed. The breeding assemblage score of 45 species would regard the value of the survey area, as being of local importance for breeding birds.
- 4.4.2 Evaluation of the breeding species assemblage and numbers recorded during surveys, with respect to criteria for selection of LWS (of County value) (as detailed in paragraph 3.3.6 of this report) highlights that the survey area:
- does not support a wild breeding population of a species included in Schedule 1 of the Wildlife and Countryside Act (1981, as amended);
 - does not support a breeding population of any rare or scarce breeding bird species in Staffordshire;
 - is not of significant importance for breeding *Hirundines* (Swallows and Martins) and does not support colonial nesting species;
 - supports a population of Lapwing, but is not a significant ‘colony’ for the species in a Staffordshire context; and
 - does not support a breeding assemblage with a value equal to, or exceeding, the indices of representative habitats (see Section 4.6) within the Scheme boundary.
- 4.4.3 The Joint Nature Conservation Committee Guidelines have developed a scoring system for the selection of Biological SSSI (Ref 9) which gives a threshold value for SSSI selection based on the total score of species that are characteristic of habitats, using the values within the selection criteria. This can be used as an indicator of the relative importance of habitat within a site, or area, for the breeding assemblage that it supports.
- 4.4.4 The scores obtained for each broad habitat type within the survey area, using the habitat types defined within the SSSI selection guidelines (Ref 9) are detailed in Table 4.3.

Table 4.3: Species assemblage scores for habitats within the survey area

| Habitat type | SSSI threshold value | Survey area score |
|---------------------------------------|----------------------|-------------------|
| Lowland open waters and their margins | 44.5 | 6 |
| Woodland | 39 | 13 |
| Lowland scrub (exc. heath) | 14 | 4 |
| Lowland farmland | 26 | 10 |

- 4.4.5 These assemblage scores are well below that required for selection as a SSSI and supports the evaluation that the habitats present within the survey area support associated breeding assemblages of no more than local importance.

4.5 Species distribution

- 4.5.1 Breeding bird territories are widely distributed across the survey area, with territories of breeding birds found within the most suitable habitats to support them, including: small waterbodies (and their margins), hedgerows, scrub, woodland and within arable farmland.
- 4.5.2 The distribution of confirmed territories of species of conservation importance that were recorded during the surveys for breeding birds in 2018 and 2019 (with any duplicate territories between years removed) are displayed in Figure 8.21 [TR010054/APP/6.3].

4.6 Evaluation of key habitat types for breeding birds

- 4.6.1 A summary of the broad habitat types present in the survey area and their key ornithological features, are presented in Table 4.4.

Table 4.4: Key ornithological features of habitat within the survey area

| Broad habitat type | Key ornithological features |
|-------------------------|---|
| Waterbodies | Small waterbodies, predominantly in the northern section of the Scheme. Supports breeding species associated with wetland features, such as Mallard and Greylag Goose. |
| Arable farmland | The predominant habitat type occurring across the survey area and wider landscape. Supports breeding species of conservation concern, including Skylark, found throughout. Individual species of conservation interest, but limited species abundance and diversity. |
| Scrub / hedgerows | Frequently occurring habitat across the survey area of varying quality. Supports breeding species such as Yellowhammer, Dunnock and Song Thrush. Individual species of conservation interest, but limited species abundance and diversity. |
| Mature trees / woodland | Restricted parcels of woodland and individual trees scattered throughout the study area. Supports breeding species such as Green Woodpecker, as well as species often found in scrub / hedgerows. Individual species of conservation interest, but limited species abundance and diversity. |

5 Summary

- 5.1.1 The results of the breeding bird surveys from 2018 and 2019 are taken into account to define appropriate mitigation measures and these are reported in the ES [TR010054/APP/6.1] and the Outline Environmental Management Plan [TR010054/APP/6.11].
- 5.1.2 From a total of 57 species recorded during the survey; 32 species were confirmed as breeding within the survey area and 13 species were probably or possibly breeding within the survey area. Of the species confirmed as breeding or considered as probably or possibly breeding, 14 species meet at least one of a range of criteria relating to special statutory protection or conservation importance.
- 5.1.3 No species afforded special protection, due to inclusion on Annex 1 of the EU Birds Directive or special statutory protection under Schedule 1 of the Wildlife and Countryside Act (1981, as amended), are breeding within the survey area.
- 5.1.4 No species confirmed as breeding or considered as probably or possibly breeding are present in any significant numbers, approaching 1% of the UK population.
- 5.1.5 The diversity of species present within the survey area is at a level indicative of local importance to breeding birds.

6 References

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- Ref 3 Gilbert *et al.*, (1998). *Bird Monitoring Methods: A Manual of Techniques for Key UK Species*.
- Ref 4 Bibby *et al.*, (2000). *Bird Census Techniques* 2nd Edition.
- Ref 5 Musgrove *et al.*, (2013), Population estimates of birds in Great Britain and the United Kingdom. *British Birds* 106 February 2013. 64-100.
- Ref 6 Balmer *et al.*, (2013). *Bird Atlas 2007-2011* The British Trust for Ornithology.
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- Ref 9 The Joint Nature Conservation Committee Guidelines for selection of Biological Sites of Special Scientific Interest. Available online at: <https://jncc.gov.uk/our-work/guidelines-for-selection-of-sssis/>. [Accessed September 2019].
- Ref 10 Bunter *et al.*, (2017), *Guidelines for the selection of Local Wildlife Sites in Staffordshire*. Version 6.
- Ref 11 Highways England (2019) LA 108 Biodiversity. Available online at: <http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section3/LA%20108%20Biodiversity-web.pdf>.
- Ref 12 CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*, CIEEM, Winchester