

A358 Taunton to Southfields Dualling Scheme

Ecological Baseline Report – Breeding Birds

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Executive summary

The A358 Taunton to Southfields Dualling scheme would provide a dual carriageway along the length of the A358 between Taunton and Ilminster in Somerset, connecting the M5 motorway to the A303 at Ilminster to the south.

Breeding bird surveys were part of the suite of habitat and protected species surveys commissioned in relation to the scheme. This report presents the results of the breeding bird surveys undertaken throughout 2021 and aims to inform the ecology baseline for the scheme.

The objectives of this report are to present the methodologies used, identify survey limitations, and provide an overview of the breeding bird assemblage residing within the study area; the results of which will be used to inform appropriate mitigation and enhancement.

All wild birds, their nests and eggs are afforded protection under the Wildlife and Countryside Act 1981 and Natural Environment and Rural Communities (NERC) Act 2006. Birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 receive further protection against intentional and reckless disturbance.

The desk study identified a large number of third-party records, comprising 62 different species, many of which were considered to be breeding or resident species. Forty of these species were classed as priority species (either listed on the Birds of Conservation Concern amber or red list for their UK breeding populations, listed as a species of principal importance in accordance with Section 41 of the NERC Act 2006, local biodiversity action plan species or listed on Schedule 1 of the Wildlife and Countryside Act 1981). The desk study information was also used to detail the locations and numbers of transect routes required to provide indicative coverage of the study area.

Fourteen transect routes, designed to cover an indicative sample of the habitats within the study area, were surveyed four times between April and June 2021. All transects were walked by an experienced ornithologist and assistant, starting within an hour of dawn and in suitable weather conditions, recording any birds by sight or sound. Data, including species and behavioural observations, was digitally recorded and mapped into ArcGIS and analysed to identify the approximate number of breeding pairs of each species around each transect within the survey area.

The scheme runs through an area of largely arable and pastoral farmland, interspersed with woodland copses and small rural settlements. These habitats offer a range of foraging and roosting opportunities for breeding birds. A total of 58 species were recorded during the field surveys. Of these, 51 were considered to be breeding (confirmed/likely/possible) within 250 metres of the scheme. Twenty-three priority species (amber and red list species listed for their UK breeding populations, species of principal importance and Schedule 1 listed species) were classed as breeding. These were stock dove, woodpigeon, moorhen, herring gull, lesser black-backed gull, sparrowhawk, kingfisher, kestrel, rook, skylark, house martin, whitethroat, wren, starling, song thrush, mistle thrush, dunnock, house sparrow, grey wagtail, bullfinch, greenfinch, linnet and yellowhammer. Kingfisher is also a Schedule 1 listed species, the only such species recorded as breeding within the survey area. Further surveys of watercourses potentially suitable for nesting kingfisher will be undertaken in 2022.

The breeding populations of stock dove, woodpigeon, moorhen, sparrowhawk, kestrel, rook, house martin, whitethroat, wren, starling, song thrush, mistle thrush, dunnock, house sparrow, greenfinch and linnet within the study area are considered to be of local

conservation value, whereas the breeding populations of herring gull, lesser black-backed gull, kingfisher, skylark, grey wagtail, bullfinch and yellowhammer within the study area are considered to be of county conservation value.

1 Introduction

1.1 Purpose and scope of this document

- 1.1.1 The A358 Taunton to Southfields Dualling scheme (hereafter referred to as ‘the scheme’) would provide a dual carriageway along the length of the A358 between Taunton and Ilminster in Somerset, connecting the M5 motorway to the A303 at Ilminster to the south. Breeding bird surveys were part of the suite of habitat and protected species surveys commissioned in relation to the scheme.
- 1.1.2 This report presents the results of the breeding bird surveys and aims to inform the ecology baseline for the scheme.
- 1.1.3 The objectives of this report are to:
- undertake a review of bird records within 2 kilometres of the scheme
 - determine the presence of bird species breeding within the study area of the scheme
 - assess the nature conservation value of bird species and breeding assemblages
 - provide sufficient information to inform an assessment of the potential impacts to breeding birds as a result of the scheme and design appropriate mitigation measures (where required)

1.2 Scheme overview

- 1.2.1 The scheme is part of a programme of improvements planned along the A303/A358 corridor aimed at improving connectivity between London, the south-east and the south-west. The A303, alongside the A30, forms part of the strategic road network (SRN) and together with the A358, provides the link between London, the south-east and the south-west.
- 1.2.2 The programme of improvements, as set out in the Government’s *Road Investment Strategy* [1] made a commitment to, “...upgrade all remaining sections of the A303 between the M3 and the A358 to dual carriageway standard, together with creating a dual carriageway link from M5 at Taunton to the A303”.
- 1.2.3 The scheme directly addresses this long-term commitment and would provide a new high quality dual carriageway link from the M5 at Taunton to the A303 at Southfields roundabout. The new dual carriageway would comprise new and upgraded stretches of the existing A358 road. Full details of the scheme are provided in *Chapter 2 The Project* of the Environmental Statement (ES). Please refer to Figure 1-1 for scheme plan.

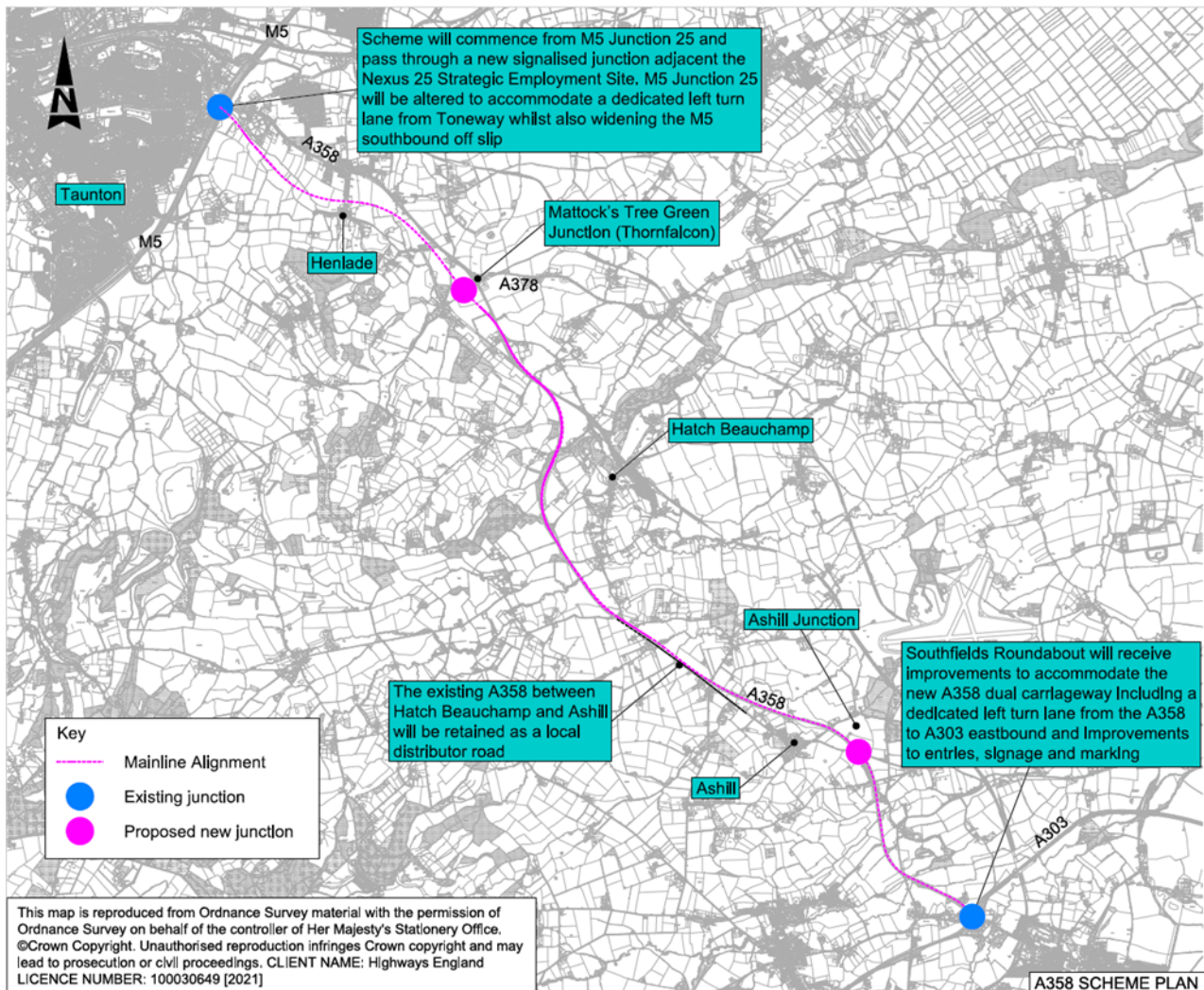


Figure 1-1 Scheme plan

1.3 Study area and zone of influence

1.3.1 The Chartered Institute for Ecology and Environmental Management (CIEEM) *Guidelines for Ecological Impact Assessment* [2] recommend that all potentially important ecological features that occur within the Zone of Influence (Zoi) for a scheme are investigated. The Zoi includes:

- areas to be directly within the land take for the scheme
- areas that would be temporarily affected during construction
- areas likely to be impacted by hydrological disruption
- areas where there is a risk of pollution and noise disturbance during construction and/or operation

1.3.2 The Zoi depends on the ecological features concerned. The Zoi was agreed in consultation with Natural England and has been defined as land within 250 metres of the ecology survey zone, which comprises the footprint of the scheme and associated site clearance area. This takes into account habitat suitability within the study area and associated disturbance from the scheme, and was discussed and agreed with Natural England in January 2021. This Zoi is hereafter referred to as the study area.

1.4 Legislation

- 1.4.1 All wild birds, their nests and their eggs are protected by the Wildlife and Countryside Act 1981 (WCA). Offences under the act include:
- intentionally killing injuring or taking any wild bird
 - intentionally taking, damaging or destroying the nest of any wild bird whilst it is in use or being built
 - intentionally taking or destroying the egg of any wild bird
- 1.4.2 Birds listed on Schedule 1 of the WCA have further protection making it an offence to intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or to disturb the dependent young of such a bird.
- 1.4.3 The WCA is supplemented by the Natural Environment and Rural Communities (NERC) Act 2006, which enhances the protection to certain habitats and species and places a duty on governments and public bodies/authorities to have regard for nature conservation.

1.5 Status of breeding birds at national level

Species of principal importance

- 1.5.1 Many bird species are listed as a UK Biodiversity Action Plan (BAP) species. Although the UKBAP 1994 – 2010 has been superseded by the UK Post-2010 Biodiversity Framework covering the period 2011 – 2020, the list of UK BAP bird species has been used to form the basis for the statutory list of Species of Principal Importance (SPI) for the conservation of biodiversity in England as listed in accordance with Section 41 of the NERC Act 2006. The list of SPIs includes 49 species of bird.

Birds of conservation concern

- 1.5.2 The fifth review of the status of wild birds in Great Britain was undertaken in 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 [3]). Species were assessed and assigned to the red, amber and green lists based on the level of conservation concern for that species. There are 70 species on the Birds of Conservation Concern (BoCC5) red list, 103 on the amber list and 72 on the green list.
- 1.5.3 The criteria for red-list species, in relation to breeding status, include the following:
- IUCN: Globally threatened
 - Historical decline in breeding population decline (severe decline between 1800 and 1995) and no subsequent recovery.
 - Severe decline of >50% in UK breeding population over last 25 years, or longer-term period (the entire period used for assessments starting in 1969)
 - Severe decline in UK breeding range of >50% between the breeding bird atlases in 1988-91 and 2007-11 or 1968-71 and 2007-11
- 1.5.4 The criteria for amber-list species, in relation to breeding status, include the following:
- ERLOB (European Red List of Birds): Threatened in Europe.

- Historical decline – recovery. Species previously re-listed for historical decline, followed by an increase of at least 100% over 25 year or the longer-term period.
- Moderate (decline (>25% but <50%) in UK breeding population size 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 breeding range decline (>25% but <50%) between the breeding bird atlases in 1988-91 and 2007-11 or 1968-71 and 2007-11.
- Rare breeder with <300 breeding pairs in UK.
- Breeding localisation with more than 50% of UK population in 10 or fewer sites (either SPAs or Important Bird Areas) in the breeding season.
- Breeding international importance with at least 20% of European population in UK during the breeding season.

1.5.5 Species that regularly occur within the UK and do not meet any of the above criteria are placed on the green list.

1.6 Status of breeding birds at county level

1.6.1 Local Biodiversity Action Plans are a means for delivering UK BAP targets at a local level. The scheme falls within the area covered by the *Taunton Deane Local Biodiversity Action Plan* [4] and the *South Somerset Biodiversity Action Plan* [5]. Lapwing (*Vanellus vanellus*) is the only bird species identified as an LBAP species (South Somerset BAP). Species listed as LBAP species are considered priority species [6].

1.7 Breeding bird ecology

1.7.1 In the UK, birds typically breed between March and August (inclusive). This is subject to species and regional variations with some species commencing breeding in late February and others being able to breed through the end of the summer period until October. Other species, such as barn owl (*Tyto alba*) or feral pigeon (*Columba livia 'domestica'*), may nest throughout the year.

1.7.2 There is also a large variation in where and how species breed. Nests can be formed in scrub, woodland and hedgerows for protection or in exposed open areas such as heathland or grassland. Some pairs of breeding birds will defend a territory around their nest until the young have fledged; proclaiming this with singing, aggressive encounters or aerial displays, whilst others will form colonies with others of the same species. Some species such as house sparrow (*Passer domesticus*) will commonly have multiple broods in a year.

2 Methodology

2.1 Desk study

- 2.1.1 A detailed biological records search was requested from the Somerset Environmental Records Centre (SERC) in February 2021. This was used to identify records of bird species within a 2 kilometre radius of the scheme and the presence of any non-statutory designated sites for which birds were a feature of interest.
- 2.1.2 A search for any statutory or non-statutory designated sites, where birds are a feature of interest, within a 2 kilometre radius of the scheme was undertaken using the Multi Agency Geographical Information for the Countryside (MAGIC) website [7] in March 2021.
- 2.1.3 Aerial imagery, OS maps and the *A358 Taunton to Southfields Dualling Scheme Breeding Bird Technical Report (March 2021)* [8] were used to inform transect design.

2.2 Field survey

- 2.2.1 The surveys were designed and carried out using elements of the *Common Bird Census (CBC)* [9] and *Breeding Bird Survey (BBS) methodology* [10] [11]. Due to the large size of the study area, and land access constraints, the survey was designed to use transect routes (similar to the BBS methodology) to undertake proportional sampling of birds present within the study area, rather than obtaining full coverage of the study area as required by the CBC methodology. Transect routes, which were decided in advance of the field survey based on available habitat information and species data derived from the desk study, were designed to cover an indicative sample of the habitats within the study area. Each transect was walked at a slow, methodical pace, with occasional pauses to scan for birds. Bird species were identified by sight (using binoculars where necessary) and/or sound. All birds seen or heard along the transect routes were recorded on a map (as per the CBC methodology) using the standard British Trust for Ornithology (BTO) codes. The behaviour and number of birds was also recorded. Only birds seen or heard ahead or at right angles to the transect line (not behind the surveyors) were recorded to prevent double counting. Birds were generally recorded within a maximum distance of 100 metres each side of the transect line, although this varied depending on the visibility offered by the habitat.
- 2.2.2 Each transect was surveyed on four occasions between April and June 2021 (as agreed in consultation with Natural England), with surveys spread out evenly across this period and undertaken at least two weeks apart. The surveys were carried out in suitable weather conditions, avoiding heavy rain and strong winds, and within peak song activity time for breeding birds (see Appendix A *Survey timings and weather conditions*). The transect route was walked in the morning, between sunrise and midday, which is considered the period of more uniform activity for birds [11]. The transect routes are annotated on the plans presented in Appendix B *Breeding bird survey – priority species locations*.
- 2.2.3 Surveys were completed by experienced ornithologists, using binoculars, who were capable of identifying a wide range of western paleo-arctic species by sight and sound. Surveys were led by experienced ornithologists Mark Lang, Adam

Cross, John Daw, Paul Parker and Daniel Hulmes, with a summary of their relevant experience provided below:

- Mark Lang is a full member of CIEEM and specialises in ornithological surveys and impact assessments. He has a wide range of survey experience and is a volunteer for Wetland Bird Survey (WeBS) for the BTO. He also runs annual bird song and call identification courses.
- Adam Cross is a full member of CIEEM and has a PhD in avian ecology. Adam has completed extensive breeding bird and winter bird surveys, vantage point surveys and other bird survey methods, and is also a licenced bird ringer.
- John Daw is a full member of CIEEM and has been involved in ornithological surveys for the past 4 years, carrying out surveys in a range of habitats and is proficient in the identification of UK and migrant species found in coastal, estuarine, marsh and farmland environments.
- Paul Parker specialises in ornithological surveys and has a wide range of survey experience for both wintering bird and breeding bird surveys in Herefordshire, Gloucestershire and Somerset.
- Daniel Hulmes is an experienced ecologist, specialising in ornithological surveys, who has worked on a wide range of projects involving the survey and monitoring of birds both in the UK and internationally.

2.3 Data evaluation and assessment

2.3.1 The field data was mapped using ArcGIS, and a basic analysis was completed to identify the approximate number of breeding pairs of each species. The following behaviours were used to identified potential breeding:

- Birds were heard singing and habitat suitable for that species to breed within was present at that location.
- A pair of birds were recorded in or near suitable breeding habitat.
- Birds exhibited territorial behaviour e.g. displaying or prolonged agitation.
- Birds were seen carrying food, nest material or the faecal sacs of young.
- Active nests, eggs and/or young were found to be present.

2.3.2 Bird records, relating to individuals in potentially suitable nesting habitat, were then further sub-divided into confirmed breeding, probable breeding, possible breeding and non-breeding according to the following BTO breeding evidence definitions [12] provided in Table 2-1.

Table 2-1 Classification of breeding status with corresponding observed behaviour

Confirmed breeding	Probable breeding	Possible breeding	Non-breeding
Distraction display or injury feigning	Pair observed in suitable nesting habitat in breeding season	Species observed in breeding season in suitable nesting habitat	Flying over
Used nest or eggshells found	Permanent territory presumed through registration of territorial behaviour (song etc) on at least two different days at the same place or many individuals on one day	Singing male present (or breeding calls heard) in breeding season in suitable breeding habitat	Species observed but suspected to be still on migration

Confirmed breeding	Probable breeding	Possible breeding	Non-breeding
Recently fledged young	Courtship and display behaviour in or near potential breeding habitat		Species observed but suspected to be summering non-breeder
Adults entering or leaving nest site or adult seen incubating	Visiting probable nest site		
Adults carrying faecal sac or food for young	Agitated behaviour or anxiety calls from adults, suggesting probable presence of nest or young nearby		
Nest containing eggs	Nesting building or excavating nest hole		
Nest with young seen or heard			

- 2.3.3 Whilst the criteria set out in Table 2-1 for classifying breeding status works well for highly territorial species, or species with small territories, it is not well suited to classifying breeding status for colonial, loose territorial or non-territorial species, and can be confused by superfluous registrations of non-breeding individuals, birds ranging outside of territories or migrants. Therefore, professional judgement has also been used to assess the likely locations of breeding species and to determine whether a species was likely to have bred within the study area based on species distributions and local abundance.
- 2.3.4 Information from each transect has been summarised to include the number of breeding species recorded and the primary habitats used by these species. The determination of the number of breeding pairs and the location of breeding pairs within the study area is an estimation reflecting the precautionary approach adopted given multiple registrations or signs of breeding across survey visits within suitable habitat.
- 2.3.5 Priority species were identified, the breeding status of each priority species was assessed using the criteria set out above, and the estimated breeding locations of each species across the site was mapped. Species nesting just outside the 250 metre buffer were also counted and mapped as the territories and/or foraging resources of these species were likely to fall within the study area. Species were identified as being priority species based on the following criteria:
- Listed on Annex 1 of the EU Birds Directive (Directive 79/409/EEC)
 - Listed on Schedule 1 of the Wildlife and Countryside Act 1981
 - SPI as listed in accordance with S41 of the NERC Act 2006
 - Listed as a local priority for conservation (LBAP species)
 - Included on the BoCC5 red list
 - Included on the BoCC5 amber list

2.4 Assumptions and limitations

- 2.4.1 Surveys were carried out in daylight hours only and therefore species most frequently observed during hours of darkness are likely to be under recorded. However, this is not considered a limitation of this survey type as no protected

nocturnal species, such as nightjar, were considered likely to be present based on the desk study results (see section 3.1).

- 2.4.2 Due to the length of the scheme, it was not possible to survey all the transects within one day. Therefore, some species may have been recorded in duplicate on consecutive days as individuals moved within the study area.
- 2.4.3 Some sections of transect routes did extend beyond the 250 metre study area. This was to allow for best coverage of habitats within the study area and also due to access constraints. Any birds noted outside of the study area but alongside a transect route were recorded and included within the report as species do move around and these species were deemed likely to use habitats within the study area.
- 2.4.4 The survey methodology does not detect all species evenly and it is acknowledged that cryptic species such as grey partridge (*Perdix perdix*), snipe (*Gallinago gallinago*) and goshawk (*Accipiter gentilis*) could be under-recorded. The desk study data (see section 3.1), including an assessment of the habitats present, does not indicate that these species are likely to be present.
- 2.4.5 Dedicated barn owl (*Tyto alba*) surveys were undertaken separately, and the results of these surveys are provided within the *Ecological Baseline Report – Barn Owl 2021* [13].
- 2.4.6 Access was denied to some areas of the scheme, most notably Hatch Park, Hatch Beauchamp. Aerial photography showed that habitats in this area included arable farmland, woodland and wood pasture which are typical of habitats encountered elsewhere along the scheme. Therefore, it is considered unlikely that the inclusion of a transect at this site would have significantly altered the total species composition of the scheme.
- 2.4.7 Due to restrictions in accessing numerous land parcels along transect routes, some of the surveys did not begin until the second half of April 2021. Some early-nesting species could have been undertaking nest-building and egg-laying behaviours prior to this date, but it is not considered a significant limitation as further indications of breeding evidence should have been picked up throughout the breeding season including territorial behaviour and the presence of juvenile birds.

3 Results

3.1 Desk study

3.1.1 SERC returned 571 records (from the past 20 years) of 62 species from within 2 kilometres of the scheme. Forty-six of the species were classed as priority species (either BoCC5 amber list, BoCC5 red list, SPI listed in accordance with Section 41 of the NERC Act 2006 or listed on Schedule 1 of the Wildlife and Countryside Act 1981), although only 40 of these 46 priority species were considered as priority species for their UK breeding populations, as detailed in Table 3-1. The six priority species listed for their UK non-breeding populations only include greylag goose (*Anser anser*), shoveler (*Spatula clypeata*), gadwall (*Mareca strepera*), wigeon (*Mareca penelope*), mallard (*Anas platyrhynchos*) and teal (*Anas crecca*). Species list order follows the British Ornithologists' Union checklist [14].

Table 3-1 Priority species records returned from third party data from 2 kilometres of the scheme

Common name	Scientific name	Conservation status
Greylag goose	<i>Anser anser</i>	BoCC5 amber list (non-breeding)
Shoveler	<i>Spatula clypeata</i>	BoCC5 amber list (non-breeding)
Gadwall	<i>Mareca strepera</i>	BoCC5 amber list (non-breeding)
Wigeon	<i>Mareca penelope</i>	BoCC5 amber list (non-breeding)
Mallard	<i>Anas platyrhynchos</i>	BoCC5 amber list (non-breeding)
Teal	<i>Anas crecca</i>	BoCC5 amber list (non-breeding)
Cuckoo	<i>Cuculus canorus</i>	BoCC5 red list; SPI
Stock dove	<i>Columba oenas</i>	BoCC5 amber list
Moorhen	<i>Gallinula chloropus</i>	BoCC5 amber list
Red-necked grebe	<i>Podiceps grisegena</i>	BoCC5 red list
Oystercatcher	<i>Haematopus ostralegus</i>	BoCC5 amber list
Whimbrel	<i>Numenius phaeopus</i>	BoCC5 red list; Schedule 1 WCA
Eurasian curlew	<i>Numenius arquata</i>	BoCC5 red list
Snipe	<i>Gallinago gallinago</i>	BoCC5 amber list
Green sandpiper	<i>Tringa ochropus</i>	BoCC5 amber list; Schedule 1 WCA
Herring gull	<i>Larus argentatus</i>	BoCC5 red list
Lesser black-backed gull	<i>Larus fuscus</i>	BoCC5 amber list
Eurasian bittern	<i>Botaurus stellaris</i>	BoCC5 amber list; Schedule 1 WCA
Sparrowhawk	<i>Accipiter nisus</i>	BoCC5 amber list
Red kite	<i>Milvus milvus</i>	Schedule 1 WCA

Common name	Scientific name	Conservation status
Tawny owl	<i>Strix aluco</i>	BoCC5 amber list
Kestrel	<i>Falco tinnunculus</i>	BoCC5 amber list
Marsh tit	<i>Poecile palustris</i>	BoCC5 red list; SPI
Skylark	<i>Alauda arvensis</i>	BoCC5 red list; SPI
House martin	<i>Delichon urbicum</i>	BoCC5 red list
Willow warbler	<i>Phylloscopus trochilus</i>	BoCC5 amber list
Grasshopper warbler	<i>Locustella naevia</i>	BoCC5 red list
Wren	<i>Troglodytes troglodytes</i>	BoCC5 amber list
Fieldfare	<i>Turdus pilaris</i>	BoCC5 red list, Schedule 1 WCA
Redwing	<i>Turdus iliacus</i>	BoCC5 amber list, Schedule 1 WCA
Song thrush	<i>Turdus philomelos</i>	BoCC5 amber list
Mistle thrush	<i>Turdus viscivorus</i>	BoCC5 red list
Spotted flycatcher	<i>Muscicapa striata</i>	BoCC5 red list; SPI
Nightingale	<i>Luscinia megarhynchos</i>	BoCC5 red list
Redstart	<i>Phoenicurus phoenicurus</i>	BoCC5 amber list
Wheatear	<i>Oenanthe oenanthe</i>	BoCC5 amber list
Dipper	<i>Cinclus cinclus</i>	BoCC5 amber list
House sparrow	<i>Passer domesticus</i>	BoCC5 red list; SPI
Dunnock	<i>Prunella modularis</i>	BoCC5 amber list
Grey wagtail	<i>Motacilla cinerea</i>	BoCC5 amber list
Meadow pipit	<i>Anthus pratensis</i>	BoCC5 amber list
Bullfinch	<i>Pyrrhula pyrrhula</i>	BoCC5 amber list; SPI
Greenfinch	<i>Chloris chloris</i>	BoCC5 red list
Linnet	<i>Linaria flavirostris</i>	BoCC5 red list
Yellowhammer	<i>Emberiza citrinella</i>	BoCC5 red list; SPI
Reed bunting	<i>Emberiza schoeniclus</i>	BoCC5 amber list; SPI

3.1.2 Included in Table 3-1 are red-necked grebe, whimbrel, green sandpiper, fieldfare and redwing. These species do not breed in southern Britain and therefore were not expected to be present within the study area as a breeding species. Historical records likely pertained to overwintering or migrating birds.

3.1.3 Five statutory and non-statutory designated sites were located within 2 kilometres of the scheme which mentioned birds in their reason for designation. The closest to the study area is South Taunton Streams Local Nature Reserve, which is located 600 metres to the south-west. Details of all five sites are provided in Table 3-2.

Table 3-2 Statutory and non-statutory designated sites, with birds as a contributory factor, within 2 kilometres of the study area

Name	Designation	Reason for designation	Distance and direction
South Taunton Streams	Local Nature Reserve (LNR)	The four sites support a wide range of flora and fauna with	600 metres west

Name	Designation	Reason for designation	Distance and direction
		colonies of water vole in several locations. Otters, kingfisher, sand martin and dippers can also be found. These linear wetland habitats are important foraging habitats for bats, especially pipistrelle, horseshoe and noctule.	
Children's Wood / Riverside	Local Nature Reserve	Habitats include the River Tone, lake, grassy banks and berms with standard trees and a small area of woodland. The reserve is an important habitat and movement corridor for a host of animals with otter and a number of bats being recorded. A large number of bird species occur including kingfisher, dipper, grey wagtail, mute swan, grey heron and reed warbler. Butterflies include small and large skipper, marbled white, small heath and small copper.	850 metres north
Barrington Hill	National Nature Reserve (NNR)	The hedgerows (some with large oaks) also support a wide range of birds, small mammals and insects. Local butterflies include common blue, meadow brown, speckled wood, brimstone and orange tip.	1.3 kilometres south-west
Staple Farm Area	Local Wildlife Site	Large arable farm with headlands and substantial areas of fallow set aside, some of which are marshy and support county notable breeding birds.	1.5 kilometres west
Donyatt Railway Cutting	Local Wildlife Site (LWS)	Mosaic of habitats with a good bird population	2 kilometres west

3.2 Field survey

3.2.1 A total of 58 species were recorded during the field surveys. Of these, 51 were considered to be breeding (confirmed/likely/possible) within the study area, 24 of which were listed as priority species. Seven other species were recorded but were not considered to be breeding with the study area. These species were: Canada goose (*Branta canadensis*), shelduck (*Tadorna tadorna*), grey heron (*Ardea cinerea*), little egret (*Egretta garzetta*), swift (*Apus apus*), raven (*Corvus corax*) and sand martin (*Riparia riparia*). A full list of species recorded during the field surveys is given in Table 3-3.

Table 3-3 Full list of species recorded during field surveys

Common name	Scientific name	Conservation status	Breeding status
Canada goose	<i>Branta canadensis</i>	Not listed	Non-breeding

Common name	Scientific name	Conservation status	Breeding status
Shelduck	<i>Tadorna tadorna</i>	BoCC5 amber list	Non-breeding
Mallard	<i>Anas platyrhynchos</i>	BoCC5 amber list (non-breeding population only)	Possible
Red-legged partridge	<i>Alectoris rufa</i>	Not listed	Possible
Pheasant	<i>Phasianus colchicus</i>	Not listed	Probable
Swift	<i>Apus apus</i>	BoCC5 red list	Non-breeding
Feral pigeon	<i>Columba livia domestica</i>	BoCC5 green list	Possible
Stock dove	<i>Columba oenas</i>	BoCC5 amber list	Probable
Woodpigeon	<i>Columba palumbus</i>	BoCC5 amber list	Confirmed
Collared dove	<i>Streptopelia decaocto</i>	BoCC5 green list	Probable
Moorhen	<i>Gallinula chloropus</i>	BoCC5 amber list	Possible
Herring gull	<i>Larus argentatus</i>	SPI; BoCC5 red list	Confirmed
Lesser black-backed gull	<i>Larus fuscus</i>	BoCC5 amber list	Confirmed
Grey heron	<i>Ardea cinerea</i>	BoCC5 green list	Non-breeding
Little egret	<i>Egretta garzetta</i>	BoCC5 green list	Non-breeding
Sparrowhawk	<i>Accipiter nisus</i>	BoCC5 amber list	Probable
Buzzard	<i>Buteo buteo</i>	BoCC5 green list	Confirmed
Kingfisher	<i>Alcedo atthis</i>	Schedule 1 WCA; BoCC5 green list	Possible
Great spotted woodpecker	<i>Dendrocopos major</i>	BoCC5 green list	Confirmed
Green woodpecker	<i>Picus viridis</i>	BoCC5 green list	Probable
Kestrel	<i>Falco tinnunculus</i>	BoCC5 amber list	Possible
Jay	<i>Garrulus glandarius</i>	BoCC5 green list	Probable
Magpie	<i>Pica pica</i>	BoCC5 green list	Confirmed
Jackdaw	<i>Corvus monedula</i>	BoCC5 green list	Confirmed
Rook	<i>Corvus frugilegus</i>	BoCC5 amber list	Confirmed
Carrion crow	<i>Corvus corone</i>	BoCC5 green list	Confirmed
Raven	<i>Corvus corax</i>	BoCC5 green list	Non-breeding
Coal tit	<i>Parus ater</i>	BoCC5 green list	Probable
Blue tit	<i>Cyanistes caeruleus</i>	BoCC5 green list	Confirmed
Great tit	<i>Parus major</i>	BoCC5 green list	Confirmed
Skylark	<i>Alauda arvensis</i>	SPI; BoCC5 red list	Probable
Sand martin	<i>Riparia riparia</i>	BoCC5 green list	Non-breeding
Swallow	<i>Hirundo rustica</i>	BoCC5 green list	Confirmed
House martin	<i>Delichon urbica</i>	BoCC5 red list	Confirmed
Long-tailed tit	<i>Aegithalos caudatus</i>	BoCC5 green list	Confirmed
Chiffchaff	<i>Phylloscopus collybita</i>	BoCC5 green list	Probable
Blackcap	<i>Sylvia atricapilla</i>	BoCC5 green list	Confirmed
Lesser whitethroat	<i>Curruca communis</i>	BoCC5 green list	Possible
Whitethroat	<i>Sylvia communis</i>	BoCC5 amber list	Confirmed
Goldcrest	<i>Regulus regulus</i>	BoCC5 green list	Probable

Common name	Scientific name	Conservation status	Breeding status
Wren	<i>Troglodytes troglodytes</i>	BoCC5 amber list	Confirmed
Nuthatch	<i>Sitta europaea</i>	BoCC5 green list	Possible
Treecreeper	<i>Certhia familiaris</i>	BoCC5 green list	Probable
Starling	<i>Sturnus vulgaris</i>	SPI; BoCC5 red list	Confirmed
Song thrush	<i>Turdus philomelos</i>	SPI; BoCC5 amber list	Confirmed
Mistle thrush	<i>Turdus viscivorus</i>	BoCC5 red list	Probable
Blackbird	<i>Turdus merula</i>	BoCC5 green list	Confirmed
Robin	<i>Erithacus rubecula</i>	BoCC5 green list	Confirmed
House sparrow	<i>Passer domesticus</i>	SPI; BoCC5 red list	Confirmed
Dunnock	<i>Prunella modularis</i>	SPI; BoCC5 amber list	Confirmed
Grey wagtail	<i>Motacilla cinerea</i>	BoCC5 amber list	Confirmed
Pied wagtail	<i>Motacilla alba</i>	BoCC5 green list	Probable
Chaffinch	<i>Fringilla coelebs</i>	BoCC5 green list	Confirmed
Bullfinch	<i>Pyrrhula pyrrhula</i>	SPI; BoCC5 amber list	Probable
Greenfinch	<i>Carduelis chloris</i>	BoCC5 red list	Probable
Linnet	<i>Carduelis cannabina</i>	SPI; BoCC5 red list	Probable
Goldfinch	<i>Carduelis carduelis</i>	BoCC5 green list	Probable
Yellowhammer	<i>Emberiza citrinella</i>	SPI; BoCC5 red list	Probable

3.2.2 The 24 priority species recorded breeding in the study area were: mallard, stock dove, woodpigeon, moorhen, herring gull, lesser black-backed gull, sparrowhawk, kingfisher, kestrel, rook, skylark, house martin, whitethroat, wren, starling, song thrush, mistle thrush, house sparrow, dunnock, grey wagtail, bullfinch, greenfinch, linnet and yellowhammer. Shelduck and swift were the only priority species recorded that were not considered to be breeding within the study area. Although mallard is an amber list species, it is listed as such for its non-breeding population only and therefore has not been considered further as a priority species for this breeding bird assessment. A summary of the number of each species breeding along each transect is provided in Table 3-4.

3.3 Transect summary

Table 3-4 Summary of breeding pairs (number per species) and species richness (number of species recorded) for each transect and breeding pair abundance (number of breeding pairs per species) across study area

Species (bold = priority species)	Transect number														Study area
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Mallard	0	0	1	0	1	0	0	0	0	0	0	0	0	1	3
Pheasant	0	0	3	0	0	2	7	3	0	0	1	0	0	0	16
Red-legged partridge	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Feral pigeon	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
Stock dove	0	1	1	0	1	1	0	2	0	1	0	2	1	0	10
Woodpigeon	8	9	9	1	2	1	8	2	0	1	6	2	1	5	55
Collared dove	0	0	0	0	2	0	1	4	0	1	2	2	0	0	12
Moorhen	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1

Species (bold = priority species)	Transect number														Study area
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Herring gull*	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Lesser black-backed gull*	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Sparrowhawk	0	1	0	0	0	0	0	0	0	1	0	0	0	0	2
Buzzard	0	0	1	1	2	1	0	2	0	2	1	0	0	0	10
Kingfisher	0	0	0	0	0	0	1	0	0	0	0	0	1	1	3
Great spotted woodpecker	0	3	2	0	3	1	4	5	3	2	3	2	1	2	31
Green woodpecker	0	2	3	0	0	0	1	1	0	3	0	1	0	1	10
Kestrel	0	0	0	1	0	0	1	0	0	1	0	0	0	0	3
Jay	0	0	0	1	1	0	2	0	0	0	1	0	0	0	5
Magpie	2	2	2	1	2	1	3	4	1	1	7	1	1	1	29
Jackdaw	0	24	4	0	5	0	5	6	1	4	2	5	2	4	62
Rook*	0	1	2	1	0	0	0	0	1	0	1	1	0	0	7
Carrion crow	2	0	4	1	0	1	4	5	1	1	3	0	2	0	24
Coal tit	0	0	1	1	1	0	0	0	0	2	0	1	0	0	6
Blue tit	14	9	13	4	10	4	20	22	12	24	16	10	7	4	169
Great tit	9	5	8	2	3	1	9	17	5	10	18	5	5	4	89
Skylark	4	0	8	5	0	0	1	2	0	5	11	0	0	0	36
Swallow	0	0	2	0	1	0	1	6	1	0	0	2	0	0	13
House martin	0	0	1	0	0	0	4	4	0	0	2	0	0	0	11
Long-tailed tit	2	0	1	0	0	0	3	5	3	2	3	2	3	2	26
Chiffchaff	19	6	11	7	8	3	17	27	9	16	15	5	6	7	156
Blackcap	15	6	11	4	13	5	17	19	11	13	11	9	7	6	137
Lesser whitethroat	0	0	0	1	0	0	0	4	0	0	0	0	0	1	6
Whitethroat	14	4	4	0	0	4	5	2	1	5	12	1	0	4	56
Goldcrest	2	2	1	1	2	1	6	9	2	9	5	2	1	1	44
Wren	32	17	18	6	15	10	28	37	17	30	38	18	11	14	291
Nuthatch	0	0	0	0	0	0	0	0	0	2	1	1	2	0	6
Treecreeper	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
Starling	0	4	0	0	0	0	1	4	0	0	1	0	0	0	10
Song thrush	7	8	2	1	4	2	3	10	0	4	11	4	1	2	59
Mistle thrush	0	0	0	0	1	0	0	0	1	1	1	1	1	0	6
Blackbird	15	9	9	7	9	6	12	16	8	11	12	10	6	6	136
Robin	11	13	12	8	18	6	22	23	19	24	23	10	12	6	207
Dunnock	14	11	16	5	6	8	6	13	6	6	13	7	3	3	117
House sparrow*	1	5	8	0	1	0	3	8	1	2	6	3	1	1	40
Grey wagtail	0	0	0	0	0	0	0	0	0	0	1	1	0	1	3
Pied wagtail	0	0	0	0	1	0	1	0	0	1	2	1	0	2	8
Chaffinch	9	5	7	5	3	7	5	21	8	13	12	9	4	4	112
Bullfinch	3	2	0	1	1	0	0	6	1	0	2	1	0	2	19
Greenfinch	4	4	2	2	1	0	4	3	0	1	3	1	0	0	25

Species (bold = priority species)	Transect number														Study area
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Linnet	0	0	3	1	0	0	2	0	0	0	4	1	0	0	8
Goldfinch	5	5	6	2	3	2	3	6	1	5	8	3	0	5	54
Yellowhammer	7	1	5	3	1	0	0	2	3	7	3	0	2	0	34
Species richness	22	26	34	26	31	20	34	34	23	33	36	32	23	28	

3.3.1 Certain species are known to be colonial nesters, and therefore the number of breeding pairs in Table 3-4 refers to the number of nesting colonies present. Species considered to be colonial breeders and counted as such were house sparrow, lesser black-backed gull, herring gull and rook (indicated with an *).

3.3.2 A map of the locations of priority species (estimated territory locations based on criteria set out in this report) is provided in Appendix B *Breeding bird survey – priority species locations*. Summaries of the species found within each transect are described below.

Transect 1

3.3.3 Transect 1 was located at the north-western side of the scheme, starting close to the Nexus 25 roundabout and finishing at Stoke Road, Lower Henlade. The transect route passed through areas of arable and pastoral farmland, with a network of hedgerows, as well as passing adjacent to woodland copses and an area of scrubland close to the Taunton Gateway Park & Ride.

3.3.4 Over the course of four survey visits, a total of 22 species were classed as breeding. Nine priority species were classed to be breeding along the transect route: woodpigeon, skylark, whitethroat, wren, song thrush, dunnock, house sparrow, greenfinch and yellowhammer.

3.3.5 The habitats of breeding importance to priority species along this route included the network of hedgerows and treelines (woodpigeon, whitethroat, wren, yellowhammer, dunnock, bullfinch, greenfinch and song thrush), arable fields (skylark) and scrubland (dunnock, bullfinch). A colony of five house sparrow pairs was observed in a hedgerow at the rear of residential properties.

Transect 2

3.3.6 Transect 2 started at Black Brook Tributary 5 and ended at Greenway Lane, Lower Henlade. The transect route passed through areas of arable and pastoral farmland, with a network of hedgerows, as well as areas of Henlade Village. At the eastern end the transect passed adjacent to Thornwater Stream (a watercourse buffered by an area of riparian woodland).

3.3.7 Over the course of the four survey visits, a total of 26 species were classed as breeding. Thirteen priority species were estimated to be breeding along the transect route: stock dove, woodpigeon, sparrowhawk, rook, whitethroat, wren, starling, song thrush, dunnock, house sparrow, bullfinch, greenfinch and yellowhammer.

3.3.8 The habitats of breeding importance to priority species along this route included the network of hedgerows and treelines (woodpigeon, stock dove, whitethroat, wren, song thrush, dunnock, bullfinch, greenfinch and yellowhammer and stock dove), woodland (woodpigeon, sparrowhawk, rook and song thrush) and

residential properties and gardens (house sparrow and starling). A total of five house sparrow colonies (counts ranged from two to ten individuals) were recorded along the route, all located within the village of Henlade.

Transect 3

- 3.3.9 Transect 3 started at Thornfalcon Farm and ended on Village Road north, close to the village of Hatch Beauchamp. The transect route passed through predominantly arable farmland, with a network of hedgerows, as well as rough grassland and adjacent to woodland copses and rural gardens.
- 3.3.10 Over the course of the four survey visits, a total of 34 species were classed as breeding. Thirteen priority species were estimated to be breeding along the transect route: stock dove, woodpigeon, rook, skylark, house martin, whitethroat, wren, song thrush, dunnoek, house sparrow, greenfinch, linnnet and yellowhammer.
- 3.3.11 The habitats of breeding importance to priority species along this route included the network of hedges and treelines (stock dove, woodpigeon, rook, whitethroat, wren, song thrush, dunnoek, linnnet and yellowhammer), residential properties and gardens (house sparrow and house martin), and arable cropfields (skylark). A total of eight house sparrow colonies were identified along the route (counts ranged from two to 30 individuals), including at Thornfalcon Farm, Glebe Cottages, Soloman's Hollow and West Hatch Road.

Transect 4

- 3.3.12 Transect 4 started at Greenway Road and culminated at a field boundary adjacent to the Somerset Progressive School. The transect route passed through predominantly arable farmland, with a network of hedgerows, as well as stands of broadleaved woodland near the start and end of the transect.
- 3.3.13 Over the course of the four survey visits, a total of 26 species were classed as breeding. Eleven priority species were estimated to be breeding along the transect route: woodpigeon, kestrel, rook, skylark, wren, song thrush, dunnoek, bullfinch, greenfinch, linnnet and yellowhammer.
- 3.3.14 The habitats of breeding importance to priority species along this route included the network of hedges and treelines (woodpigeon, kestrel, wren, song thrush, dunnoek, bullfinch, greenfinch, linnnet and yellowhammer), woodland/woodland edge (kestrel, rook and song thrush) and arable cropfields (skylark).

Transect 5

- 3.3.15 Transect 5 started at Ash Road and finished at the northern edge of Bickenhall Wood. The transect route passed through arable and pastoral farmland, with a network of hedgerows, as well as adjacent to broadleaved woodland, riparian habitat and a farmyard residence.
- 3.3.16 Over the course of the four survey visits, a total of 31 species were classed as breeding. Eleven priority species were estimated to be breeding along the transect route: stock dove, woodpigeon, moorhen, wren, song thrush, mistle thrush, dunnoek, house sparrow, bullfinch, greenfinch and yellowhammer.
- 3.3.17 The habitats of breeding importance to priority species along this route included the network of hedges and treelines (stock dove, woodpigeon, wren, song thrush, mistle thrush, dunnoek, bullfinch, greenfinch and yellowhammer) and woodland

edge (stock dove, woodpigeon, song thrush and mistle thrush). One house sparrow colony was identified (12 individuals), located near Ashe Farm caravan site and the adjacent farmyard.

Transect 6

- 3.3.18 Transect 6 started at Bickenhall Lane and culminates at Hatch Green Lane. The transect route passed through predominantly arable farmland, with a network of hedgerows, as well as a small woodland copse near the Hatch Green end of the transect route.
- 3.3.19 Over the course of the four survey visits, a total of 20 species were classed as breeding. Six priority species were estimated to be breeding along the transect route: stock dove, woodpigeon, whitethroat, wren, song thrush and dunnock.
- 3.3.20 The habitats of breeding importance these species along the route included the network of hedges and treelines (stock dove, woodpigeon, whitethroat, wren, song thrush and dunnock) that bounded the agricultural farmland, as well as the woodland copses found out both ends of the transects (stock dove, wren and song thrush).

Transect 7

- 3.3.21 Transect 7 started at Bickenhall Woods and ended at Fivehead River main channel 2 near Windsor Farm. The transect route passed through predominantly arable farmland with a network of hedgerows, as well as occasional broadleaved woodland, semi-improved grassland, grazed pasture and residential gardens.
- 3.3.22 Over the course of the four survey visits, a total of 34 species were classed as breeding. Thirteen priority species were estimated to be breeding along the transect route: woodpigeon, kingfisher, kestrel, skylark, house martin, whitethroat, wren, starling, song thrush, dunnock, house sparrow, greenfinch and linnet.
- 3.3.23 The habitats of breeding importance these species along the route included the network of hedges and treelines (woodpigeon, kestrel, whitethroat, wren, song thrush, dunnock, greenfinch and linnet), riparian zones (kingfisher), woodland edges (woodpigeon, wren, song thrush, dunnock and kestrel) and residential areas (house sparrow, house martin, starling). A total of three house sparrow colonies (colony sizes ranging from two to 11 individuals) were identified along the route, located at residential properties and gardens within Hatch Green and along Village Road, as well as within a farm property located off Capland Lane.

Transect 8

- 3.3.24 Transect 8 started at Fivehead River main channel 1, close to Hatch Green, and culminated at the village of Ashill. The transect route passed through areas of grazed pasture and arable farmland, with a network of hedgerows, as well as more urban habitats as the transect reached Ashill. Furthermore, two areas of riparian habitats were passed during the transect.
- 3.3.25 Over the course of the four survey visits, a total of 34 species were classed as breeding. Thirteen priority species were estimated to be breeding along the transect route: stock dove, woodpigeon, skylark, house martin, whitethroat, wren, starling, song thrush, dunnock, house sparrow, bullfinch, greenfinch and yellowhammer.

3.3.26 The habitats of breeding importance to priority species along this route included the network of hedges and treelines (stock dove, woodpigeon, whitethroat, wren, song thrush, dunnock, bullfinch, greenfinch and yellowhammer), arable crops (skylark) and residential areas (house martin, starling and house sparrow). A total of eight house sparrow colonies were identified along the route (colony sizes ranged from five to 20 individuals), located within the village of Ashill and in the residential areas to the north-west of the village.

Transect 9

3.3.27 Transect 9 covered the areas of agricultural land east and west of Stewley Lane. The transect passed through mostly grazed pasture, as well as arable farmland, with a network of hedgerows. Furthermore, the transect route passed adjacent to rural properties and riparian habitat.

3.3.28 Over the course of the four survey visits, a total of 23 species were classed as breeding. Eight priority species were estimated to be breeding along the transect route: rook, whitethroat, wren, mistle thrush, dunnock, house sparrow, bullfinch and yellowhammer.

3.3.29 The habitats of breeding importance to priority species along this route included the network of hedges and treelines (whitethroat, wren, mistle thrush, dunnock, bullfinch and yellowhammer), woodland (rook) and residential areas (house sparrow). A single house sparrow colony (5 individuals) was identified within a hedgerow close to residential properties on Stewley Lane.

Transect 10

3.3.30 Transect 10 started at Venner's Water, located south-east of the village of Stewley, and ended at Copse Lane. The route passed through predominantly arable farmland, with a network of hedgerows, as well as areas of grazed pasture and broadleaved woodland. Furthermore, the route passed adjacent to a number of farmyards and domestic properties.

3.3.31 Over the course of the four survey visits, a total of 33 species were classed as breeding. Twelve priority species were estimated to be breeding along the transect route: stock dove, woodpigeon, sparrowhawk, kestrel, skylark, wren, song thrush, mistle thrush, dunnock, house sparrow, greenfinch and yellowhammer.

3.3.32 The habitats of breeding importance these species along the route included the network of hedges and treelines that bounded the agricultural farmland (stock dove, woodpigeon, wren, song thrush, mistle thrush, dunnock, greenfinch and yellowhammer, dunnock, mistle thrush, song thrush, stock dove, kestrel), woodland/woodland edge (stock dove, wood pigeon, sparrowhawk, kestrel, wren, song thrush and mistle thrush), arable crops (skylark) and residential areas (house sparrow). Two house sparrow colonies were identified (colony sizes ranged from two to seven individuals), located at farm properties on Park Barn Lane and Copse Lane.

Transect 11

3.3.33 Transect 11 started at arable land and an un-named drainage ditch north of Ashill and ended at the Horton Cross Roundabout. The transect route passed through predominantly arable farmland, with a network of hedgerows, as well as adjacent to grazed pasture, broadleaved woodland and urban habitats.

- 3.3.34 Over the course of the four survey visits, a total of 36 species were classed as breeding. Sixteen priority species were estimated to be breeding along the transect route: woodpigeon, rook, skylark, house martin, whitethroat, wren, starling, song thrush, mistle thrush, dunnock, house sparrow, grey wagtail, bullfinch, greenfinch, linnet and yellowhammer.
- 3.3.35 The habitats of breeding importance for priority species along the route included the network of hedges and treelines that bounded the agricultural farmland (woodpigeon, whitethroat, wren, song thrush, mistle thrush, dunnock, bullfinch, linnet and yellowhammer), woodland/woodland edge (woodpigeon, rook, wren, song thrush and mistle thrush), arable cropfields (skylark), residential areas (house martin, starling and house sparrow) and watercourses (grey wagtail). Six house sparrow colonies were identified along the transect route (colony sizes ranging from two to ten individuals), located near residential properties in the village of Ashill, along Hastings Lane and at Horton Cross.

Transect 12

- 3.3.36 Transect 12 started at Butts Lane and ended at Jordan's Park north-west of the Horton Roundabout. The transect route passed through predominantly grazed wood pasture and arable farmland, with a network of hedgerows, as well as adjacent to a number of farm properties and riparian habitat.
- 3.3.37 Over the course of the four survey visits, a total 32 species were classed as breeding. Thirteen priority species were estimated to be breeding along the transect route: stock dove, woodpigeon, rook, whitethroat, wren, song thrush, mistle thrush, dunnock, house sparrow, grey wagtail, bullfinch, greenfinch and linnet.
- 3.3.38 The habitats of breeding importance for priority species along the route included the network of hedges and treelines (woodpigeon, wren, song thrush, mistle thrush, dunnock, bullfinch, greenfinch and linnet), woodland/woodland edge (woodpigeon, wren, song thrush, mistle thrush), watercourses (grey wagtail) and farm residences (stock dove, house sparrow). Three house sparrow colonies were identified along the transect route (colony sizes ranging from two to 12 individuals) close to residential properties along Copse Lane.

Transect 13

- 3.3.39 Transect 13 started at the River Ding, north-west of the Horton Roundabout, and ended adjacent to the A303 Ilminster Bypass. The transect route passed through a mixture of grazed wood pasture and arable farmland, with a network of hedgerows. It also passed adjacent to broadleaved woodland, riparian habitat, scrub and wetland habitats.
- 3.3.40 Over the course of four survey visits, a total of 23 species were classed as breeding. Nine priority species were estimated to be breeding along the transect route: stock dove, woodpigeon, kingfisher, wren, song thrush, mistle thrush, dunnock, house sparrow and yellowhammer.
- 3.3.41 The habitats of breeding importance for priority species along the route included the network of hedges and treelines (stock dove, woodpigeon, wren, song thrush, dunnock and yellowhammer), watercourses (kingfisher), woodland edge (stock dove, wren, song thrush and mistle thrush) and residential areas (house sparrow). A single house sparrow colony was identified along this transect, located near the Horton Cross roundabout.

Transect 14

- 3.3.42 Transect 14 started at the Horton Cross Roundabout and ran east along the River Isle, ending adjacent to the A303 Illminster Bypass. The transect route passed along predominantly riparian habitat, as well as passing through urban habitats and grazed pasture.
- 3.3.43 Over the course of the four survey visits, a total of 28 species were classed as breeding. Eleven priority species were estimated to be breeding along the transect route: woodpigeon, herring gull, , lesser black-backed gull, kingfisher, whitethroat, wren, song thrush, dunnock, house sparrow, grey wagtail and bullfinch.
- 3.3.44 The habitats of breeding importance for priority species along the route included the network of hedges and treelines (woodpigeon, whitethroat, wren, song thrush, dunnock and bullfinch), residential areas (house sparrow), urban rooftops (herring gull, lesser black-backed gull) and watercourses (kingfisher and grey wagtail). One house sparrow colony was identified along the transect route.

4 Conclusions

- 4.1.1 The scheme runs through an area of largely arable and pastoral farmland, interspersed with a network of hedgerow, woodland copses and small rural settlements. These habitats offer a range of foraging and nesting opportunities for breeding birds.
- 4.1.2 The study identified a large number of third-party desk study records, comprising 62 different species, many of which were considered to be breeding or resident species. The subsequent field study identified a total of 58 species actively using the survey area within the breeding period. However, only 51 species were considered to be breeding within the study area, and of this 51, 23 were priority species (WCA Schedule 1 listed species, SPI, BoCC5 red list or amber list for breeding populations), including kingfisher which is a WCA Schedule 1 listed species.
- 4.1.3 The number of species recorded in the transects ranged from 20 to 36, and the number of priority species recorded in the transects ranged from a low six to a high of 16. The species composition was generally typical of that found in a mixed arable landscape.

4.2 Priority species

Stock dove

- 4.2.1 Stock dove is an amber-listed species due to the UK supporting at least 20% of the European breeding population. An estimated ten pairs were breeding within the study area. These were generally associated with rural properties and farm outbuildings, although individuals were also observed using woodland edges and mature trees.
- 4.2.2 Stock dove is listed as a fairly common resident breeder, probably decreasing, in the *Somerset Birds 2017* report [15]. The *Somerset Atlas of breeding and wintering birds 2007-2012* [16] records stock dove as present within 56% of tetrads (2 x 2 kilometre squares) with breeding records widespread across Somerset. Within the two 10-kilometre squares encompassing the scheme confirmed, probable and possible breeding records were mapped, showing a greater concentration of breeding records towards the south of the scheme where breeding was recorded within every tetrad [16]. The stock dove population within the study area is considered to be of ecological importance at the local level.

Woodpigeon

- 4.2.3 Woodpigeon is an amber-listed species due to the UK supporting at least 20% of the European breeding population. An estimated 55 pairs were breeding within the study area. These were generally associated with woodland, scattered trees and hedgerows.
- 4.2.4 Woodpigeon is listed as an abundant resident breeder within Somerset [15] and is a widespread and common breeding species throughout Somerset with breeding records within every tetrad (apart from a few on Exmoor) across the county [16]. The woodpigeon population within the study area is considered to of conservation value within the local context only.

Moorhen

- 4.2.5 Moorhen is an amber-listed species due to a long-term moderate breeding population decline. Moorhen was recorded along transect 5 only associated with a pond within the scheme footprint.
- 4.2.6 Moorhen is listed as a common resident breeder within Somerset [15] and the widespread distribution of this species across Somerset may be largely explained by their habitual use of smaller waterbodies. Within the two 10-kilometre squares encompassing the scheme moorhen distribution is widespread but patchy, with a slightly higher concentration of breeding records towards the north end of the scheme [16]. The small moorhen population within the study area is considered to be of local conservation value within the scheme context only.

Herring gull

- 4.2.7 Herring gull is a SPI and BoCC5 red-listed species due to a long-term severe decline in breeding population size. The species was considered to be breeding only along transect 14, where a mixed colony of herring and lesser black-backed gulls were breeding on the roof of the Powrmatic Limited building. A total of 15 individual herring gulls were recorded at the colony. Records along other transect routes were considered to be non-breeding, as recorded activity pertained to either foraging or to birds flying over the scheme.
- 4.2.8 Herring gull is listed as a fairly common resident breeder within Somerset with populations increasing within towns [15]. Urban population sizes vary between 15 pairs (Minehead) to 400 pairs (Hinkley Point Power Station) and there are an estimated 40 breeding pairs in Taunton and small numbers in Ilminster. Breeding sites are mainly scattered along the Somerset coast and within the central part of Somerset [16]. The small population breeding at the southern end of the scheme is considered to have conservation value at the county level.

Lesser black-backed gull

- 4.2.9 Lesser black-backed gull is an amber-listed species due to localised breeding sites holding a significant portion of the UK breeding population. The species was considered to be breeding along transect 14, where a mixed colony of herring and lesser black-backed gulls were breeding on the roof of the Powrmatic Limited building. A total of 20 individual lesser black-backed gulls were recorded at the colony.
- 4.2.10 Lesser black-backed gull is listed as a fairly common migrant or resident breeder within Somerset, with populations increasing in towns [15]. The distribution of this species across Somerset is similar to that of herring gull but colony sizes are smaller, with the largest colonies comprising 40-75 pairs. Breeding colonies have been recorded within Taunton, but no other confirmed, probable or possible breeding colonies were recorded within the two tetrads that encompass the scheme [16]. The small population breeding at the southern end of the scheme is considered to have conservation value at the county level.

Sparrowhawk

- 4.2.11 Sparrowhawk is an amber-listed species due to moderate decline in breeding population over 25 years. Although the species was recorded along the length of the scheme, these records were mainly from individuals flying overhead. There were an estimated two pairs present within the study area, and nest building behaviour (carrying of nesting material) noted along transect 2.

- 4.2.12 Sparrowhawk is listed as a common resident breeder within Somerset [15]. Breeding records of sparrowhawk are widespread across Somerset, mainly concentrated in woodlands. The population is considered relatively stable, not having been as seriously affected by the effects of DDT and related pesticides in the 1950s and 1960s as other parts of the country. Breeding records within the two 10-kilometre squares encompassing the scheme are more concentrated towards the central and southern extents of the scheme and surrounding areas [16]. The small sparrowhawk population within the study area is considered to be of local conservation value.

Kingfisher

- 4.2.13 Kingfisher is listed on Schedule 1 of the Wildlife and Countryside Act 1981. Kingfisher was recorded along three of the fourteen transect routes, on the River Ding, the River Isle and Fivehead River. Although no breeding behaviour was observed, suitable nesting habitat was present on all three watercourses. Therefore, kingfisher was considered possibly breeding with three separate territories.
- 4.2.14 South Taunton Streams LNR and Children's Wood/Riverside LNR, which are located 600 metres west and 850 metres north of the scheme respectively, have both been designated for the presence of kingfisher.
- 4.2.15 Kingfisher is listed as an uncommon resident breeder within Somerset [15] and has been recorded breeding within 221 out of 947 tetrads which cover Somerset. Breeding has been recorded within 17 out of the 50 tetrads that make up the two 10-kilometre squares encompassing the scheme, mainly associated with watercourses towards the central and southern areas. The kingfisher population is considered to be stable (possibly increasing although fluctuations in counts have been associated with cold winters) [16] and nationally the population has been moved from the BoCC5 amber list to the green list [3]. However, given the relative scarcity of this species within the county, and its citation within the two LNRs, the population within the study area is considered to be of county conservation value.
- 4.2.16 Further surveys of watercourses identified as potentially suitable for nesting kingfisher will be undertaken in 2022 to determine the presence of suitable nesting habitat, potential nest holes and/or active nest holes.

Kestrel

- 4.2.17 Kestrel is an amber-listed species due to moderate breeding population declines over the past 25 years and long-term. Although no breeding behaviour was observed in the study area, where birds were recorded either foraging or flying across the site, and where suitable nesting habitat, including large mature trees and Dutch hay barns were present and accessible, kestrel was considered possibly breeding.
- 4.2.18 Kestrel territory sizes can vary depending on a range of factors including food availability and intraspecies competition, with home ranges fluctuating between 1 kilometre and 10 kilometres [17]. Given that foraging habitat was present throughout the study area, it is considered likely that three territories are present across the scheme.
- 4.2.19 Kestrel is listed as a locally fairly common resident breeder, but with a 17% reduction in the estimated Somerset population from 2016 [15]. The kestrel

population is widespread across Somerset but there has been a decline in the population to the west of the county, likely due to the shortage of small mammals resulting from modern agricultural practices. The greatest number of tetrads where breeding was proved or probable within a 10-kilometre square was 12 (ST34, Huntspill where transport lines crossed grassland) and within the two 10-kilometre squares that encompass the scheme, breeding was proved or probable within four out of the 50 tetrads. The conservation value of the small kestrel population within the study area is considered to be of local level.

Rook

- 4.2.20 Rook is an amber-listed species due to its inclusion on the European Red List (now classed as vulnerable at the European scale). Rooks were noted using arable habitats for foraging across the scheme and six rookeries (five within small woodland stands and one within an agricultural barn) were noted, with rookery sizes ranging from 3 to 26 nests.
- 4.2.21 Rook is listed as an abundant resident breeder within Somerset [15] and county-wide surveys have suggested a post-war population decrease attributed to the intensification of agriculture, widespread use of pesticides and loss of mature trees due to Dutch elm disease. The population is widespread across the county, and within the two 10-kilometre squares encompassing the scheme, and may have established over the last 30 years, or shown a further slight loss. Rookeries are more numerous within arable/woodland mixed landscapes, compared to urbanised areas or heavy woodland, and there are an estimated 12,500 rookeries within Somerset, a loss of about one-third since 1976 [16]. The estimated number of rookeries within the study area comprised less than 1% of the county total and the study population is considered to be of local conservation value.

Skylark

- 4.2.22 Skylark is a SPI and red-listed species due to a severe long-term decline in breeding population. There were estimated to be 36 pairs breeding within the study area, all associated with arable or short pasture fields.
- 4.2.23 Skylark is listed as a locally common resident breeder within Somerset with the population having decreased in many areas [15]. There has been a marked contraction both in range and numbers of skylarks within Somerset. The highest concentrations of breeding skylark are within farmland and the Southern Levels towards the east of the county, and Exmoor to the west and coastal areas. Within the two 10-kilometre squares that encompass the scheme breeding was proven or probable within only nine out of the 50 tetrads and the study area appears to lie on the margins of the eastern concentrated population [16]. Whilst the population within the study area, comprising an estimated 36 pairs, could be considered to be of local conservation value, when considered in the context of national and regional population declines and range contractions, effects on this population could have impacts at a county scale.

House martin

- 4.2.24 House martin is a red-listed species due to severe long-term decline in breeding population. The species was considered to be breeding along four of the transect routes, associated with residential locations. On transect 3, a nest was observed on a residential property at Glebe Cottages. On transect 7, individuals (estimated four pairs) were observed collecting mud for nest building purposes from a puddle

in a farmyard. On transect 8, four active nests were identified outside a property along Wood Road near Ashill, and a further two pairs were noted nesting along transect 11.

- 4.2.25 House martin is listed as a common migrant breeder within Somerset [15]. Breeding records are widespread across Somerset and within the two 10-kilometre tetrads that encompass the scheme breeding was proven or probable within 37 out of the 50 tetrads, The house martin population within the study area is considered to be of ecological importance at the local level.

Whitethroat

- 4.2.26 Whitethroat is an amber-listed species due to a long-term moderate breeding population decline. There were an estimated 56 breeding pairs across the study area, generally associated with hedgerows and scrub.
- 4.2.27 Whitethroat is listed as a common migrant breeder within Somerset [15] and breeding records are widespread across the county, with proven or probable breeding recorded in 32 out of the 50 tetrads within the two 10-kilometre squares that encompass the scheme [16]. The whitethroat population within the study area is considered to be of local conservation value.

Wren

- 4.2.28 Wren is an amber-listed species due to the UK supporting at least 20% of the European breeding population. An estimated 291 pairs were breeding within the study area. These were generally associated with hedgerows, scrub and woodland.
- 4.2.29 Wren is listed an abundant resident breeder within Somerset [15] and wrens were considered to probably breed within every tetrad covering the county, with the exception of one or two coastal fragments. Wren is considered to still be a common and widespread species in the county. The wren population within the study area is considered to be of local conservation value only.

Starling

- 4.2.30 Starling is a SPI and red-listed species due to a severe decline in breeding population over the past 25 years and long-term. There were an estimated ten breeding pairs across the study area, generally associated with residential areas or farm properties.
- 4.2.31 Starling is listed as a very local and decreasing resident breeder within Somerset [15]. Populations have decreased over wide areas in the west of the county, but starlings are still present within three-quarters of the tetrads towards the east of the county. 70% of tetrads were occupied within lowland Somerset and breeding was proven or probable within 28 out of the 50 tetrads within the two 10-kilometre squares encompassing the scheme, with more records towards the south-east [16]. The small population within the study area is considered to be of local ecological importance.

Song thrush

- 4.2.32 Song thrush is a SPI and amber-listed species (moved from red list to amber in BoCC5) due to moderate long-term breeding population decline. There were estimated to be 59 breeding pairs across the study area, generally associated

with the local network of hedgerows and woodland copses, as well as garden habitats.

- 4.2.33 Song thrush is listed as a common resident breeder within Somerset [15] and the Somerset Atlas [16] suggests they are still widespread across the county with relatively few gaps in their distribution. National population declines have been more obvious in Eastern England and although this widespread national population decline does not appear to have affected the South West until the 1980s, there may have been some recovery from a severe drop (largely noticed in lowland farmland and gardens) in the 1990s. Song thrush were recorded as proven or probable breeding in 28 out of the 50 tetrads that covered the two 10 kilometre squares that encompassed the scheme, and breeding was recorded as possible in the 32 remaining tetrads [16]. The population within the study areas, comprising an estimated 59 pairs, is considered to be of local conservation value.

Mistle thrush

- 4.2.34 Mistle thrush is a red-listed species due to a severe long-term decline in breeding population. There were an estimated six pairs breeding within the study area, generally associated with broadleaved woodland edge or large mature trees.
- 4.2.35 Mistle thrush is listed as a fairly common, but local, resident breeder within Somerset [15]. They are recorded as scarce or absent over a wide area of east-central Somerset and this general area shows up on the Bird Atlas 2007-2011 (for birds of Britain and Ireland) abundance map [18] as having the lowest population in southern England. Proven and probable breeding was recorded within 16 out of the 50 tetrads that cover the two 10-kilometre squares that encompass the scheme and scheme appears to sit on the margins of the more concentrated breeding population within the west of the county [16]. The small population of mistle thrush within the study area is considered to be of local conservation value.

House sparrow

- 4.2.36 House sparrow is a SPI and BoCC5 red-listed species due to a severe long-term breeding population decline. A total of 40 house sparrow colonies were recorded across the scheme, which were heavily associated with residential areas such as Ashill, Henlade and Hatch Green, as well as individual rural residences.
- 4.2.37 House sparrow is listed as an abundant resident breeder with population decreases noted, especially in towns [15]. This species is widespread across Somerset and has been recorded as proven or probable breeding within 47 out of the 50 tetrads covering the two 10-kilometre squares encompassing the scheme, with breeding recorded as possible within the three remaining tetrads. Although house sparrow range has not contracted, population numbers have declined with colonies, on the whole, being smaller than they once were [16]. The house sparrow population within the study area, comprising an estimated 40 colonies with colony sizes ranging between two and 30 individuals is considered to be of local conservation value.

Dunnock

- 4.2.38 Dunnock is an amber-listed species due to a long-term moderate breeding population decline. Up to 117 pairs were estimated to be breeding within the study area, and breeding territories were generally associated with the network of hedgerows bounding sections of arable and pastoral farmland, as well as to a lesser extent woodland edges and residential areas.

Dunnock is listed as a common resident breeder within Somerset [15] and is widespread across the county, with proven or probable breeding recorded within 26 out of the 50 tetrads covering the two 10-kilometre squares that encompass the scheme, with possible breeding recorded for the remaining 24 tetrads [16]. The dunnock population within the study area is considered to be of ecological importance at the local level.

Grey wagtail

- 4.2.39 Grey wagtail is an amber-listed species (moved from red list to amber in BoCC5) due to a long-term moderate decline in breeding population size. The species was estimated to be breeding at three locations across the study area; transects 11, 12 and 14. These locations were within areas of riparian habitat.
- 4.2.40 Grey wagtail is also mentioned as a reason for Children's Wood/Riverside LNR, located 850 metres north of the study area.
- 4.2.41 Grey wagtail is listed as a fairly common resident or migrant breeder within Somerset [15]. Their greatest density is within the west of the county, associated with Exmoor rivers and streams, and breeding records within the central and eastern parts of the county are much more scattered. Within the two 10-kilometre squares that encompass the scheme proven or probable breeding has been recorded within 12 out of the 50 tetrads, with presence/possible breeding recorded in a further four tetrads [16]. Due to the species' dependency on watercourses, and the fragmented nature of the breeding population within the central and eastern areas of the county, the population of grey wagtail within the study area, although small, could be considered to be of county level ecological importance.

Bullfinch

- 4.2.42 Bullfinch is a SPI and amber-listed species due to a long-term moderate breeding population decline, although since 2000 the species has shown some recovery. Up to 19 pairs were estimated to be breeding within the study area, and breeding territories were generally associated with the network of hedgerows bounding sections of arable and pastoral farmland.
- 4.2.43 Bullfinch is listed as a fairly common resident breeder within Somerset [15]. Whilst the population is fairly widespread across the county, there is a concentration of breeding records within the western and eastern parts, but fewer records with 15 kilometre belt within the central part of the county where bullfinches were only recorded in 20% to 40% of the tetrads. The scheme is situated along the southwest margin of this 15-kilometre wide belt and bullfinches were recorded as proven or probable breeding in 15 out of the 50 tetrads that make up the two 10 kilometre squares that encompass the scheme, with possible breeding recorded for a further 15 tetrads. Population numbers have fallen within Somerset with no count (within one tetrad) of over 25, and most counts were fewer than ten [16]. The bullfinch population within the study area, comprising an estimated 19 pairs, could be considered to be of county level conservation value given its location within the context of the county population distribution.

Greenfinch

- 4.2.44 Greenfinch is a red-listed species due to a severe decline in breeding population over the past 25 years and long-term. There were an estimated 25 breeding pairs

across the study area, generally associated with hedgerows and small woodland stands/scattered trees.

- 4.2.45 Greenfinch is listed as a common, but recently decreased, resident breeder within Somerset [15]. Population decreases have been attributed to a severe outbreak of trichomonosis (a parasitic disease first noticed in Somerset in 2006) and although numbers of greenfinches within the county may have fallen drastically, the population range has not been affected and greenfinches remain widespread across the county, including within the two 10-kilometre squares that encompass the scheme [16]. The greenfinch population within the study area is considered to be of ecological importance at the local level.

Linnet

- 4.2.46 Linnet is a SPI and red-listed species due to a severe long-term breeding population decline. The species were estimated to be breeding at eight locations across the scheme. Male birds in song and pairs were observed in suitable breeding habitat, and these were generally associated with the network of hedgerows bounding sections of arable and pastoral farmland.
- 4.2.47 Linnet is listed as a fairly common resident and migrant breeder within Somerset [15]. The linnet population within the county is generally accepted to have declined since about 1970, affected by the elimination of weeds but they remain present in three-quarters of all tetrads. Within the two 10-kilometre squares that encompass the scheme, linnet was recorded as proven or probable breeding in 22 out of the 50 tetrads, with a marked absence of records north of the scheme around Taunton [16]. The small population within the study area is considered to be of local conservation value.

Yellowhammer

- 4.2.48 Yellowhammer is a SPI and red-listed species due to a severe long-term decline in breeding population. There were estimated to be 34 breeding pairs located across the study area, associated exclusively with the network of hedgerows bounding sections of arable and pastoral farmland.
- 4.2.49 Yellowhammer is listed as a locally common resident breeder, with a generally decreasing within Somerset [15]. The farmland population within Somerset is believed to have halved since the 1970s (a decline attributed to the disappearance of good sources of winter grain, and now of set-aside) and populations within the best areas are also considered to be undergoing a slow but perceptible decline. Breeding populations are more concentrated towards the north-west and south-east area of the county, but yellowhammers are largely absent from the Somerset Levels, Exmoor and urban areas. Within the two 10-kilometre squares that encompass the scheme, yellowhammers were recorded as proven or probable breeding in 18 out of the 50 tetrads, with possible breeding recorded in a further 10 tetrads. There was a noticeable absence of records in area immediately north and west of the scheme (at the northern part of the scheme) and to the south of the scheme (within the southern tetrad). Given the fragmented nature of the yellowhammer population within the part of Somerset where the scheme sits, the population within the study area is considered to be county level ecological importance.

Abbreviations List

Please refer to ES Report Chapter 17 Abbreviations

Glossary

Please refer to ES Report Chapter 18 Glossary

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Appendices

Appendix A Survey timings and weather conditions

Transect	Date	Start Time	End Time	Temperature (°C)	Wind speed (Beaufort) ¹	Cloud Cover (Otkas) ²
1	19/04/21	06:49	08:45	3	1	1
1	10/05/21	05:22	06:17	9	1	4
1	24/05/21	05:29	07:10	7	1	8
1	14/06/21	07:25	08:49	17	0	1
2	19/04/21	08:49	11:00	7	0	1
2	10/05/21	07:16	08:16	12	1	5
2	24/05/21	07:18	08:57	10	3	8
2	14/06/21	05:21	07:19	14	0	1
3	16/04/21	07:37	09:58	2	1	1
3	06/05/21	06:39	08:41	4	1	7
3	26/05/21	06:07	08:10	7	1	3
3	16/06/21	06:10	07:59	11	1	0
4	19/04/21	06:50	08:55	3	1	1
4	10/05/21	07:35	09:05	12	1	4
4	24/05/21	05:55	06:35	12	1	4
4	14/06/21	07:37	08:57	14	0	1
5	19/04/21	08:55	11:37	8	0	1
5	10/05/21	05:50	07:34	8	1	4
5	24/05/21	06:51	08:35	10	3	8
5	14/06/21	05:38	07:34	14	1	0
6	20/04/21	06:38	07:15	3	0	2
6	11/05/21	05:10	06:44	8	1	6
6	25/05/21	05:54	06:32	8	2	3
6	15/06/21	08:24	08:54	15	0	2
7	07/04/21	07:40	10:35	3	1	8
7	11/05/21	06:28	08:39	7	2	2
7	25/05/21	06:06	08:06	9	3	3
7	17/06/21	06:20	07:46	14	2	7
8	20/04/21	07:30	11:00	7	0	2
8	11/05/21	06:59	09:27	10	0	2
8	25/05/21	06:49	09:13	8	0	2
8	15/06/21	05:35	08:13	14	0	2
9	20/04/21	06:28	08:40	5	0	2
9	11/05/21	08:50	10:10	11	1	4

Transect	Date	Start Time	End Time	Temperature (oC)	Wind speed (Beaufort) ¹	Cloud Cover (Otkas) ²
9	25/05/21	05:30	07:22	8	0	2
9	15/06/21	08:01	09:39	8	0	2
10	20/04/21	07:44	11:03	7	0	2
10	11/05/21	05:45	08:45	7	0	5
10	25/05/21	07:23	10:09	10	1	2
10	15/06/21	05:34	08:00	10	1	2
11	21/04/21	06:30	09:00	8	1	2
11	12/05/21	05:33	07:16	8	1	4
11	26/05/21	05:44	08:08	8	0	2
11	16/06/21	06:27	09:46	14	0	1
12	21/04/21	06:35	07:52	8	1	2
12	12/05/21	06:53	08:47	8	1	2
12	26/05/21	05:44	06:56	8	1	2
12	16/06/21	07:09	08:36	8	1	2
13	21/04/21	08:31	09:32	10	2	1
13	12/05/21	05:57	06:51	10	2	1
13	26/05/21	07:26	08:01	10	2	1
13	16/06/21	05:23	07:08	10	2	1
14	21/04/21	09:00	10:00	10	2	1
14	12/05/21	07:34	07:54	10	0	1
14	26/05/21	08:13	09:03	10	2	1
14	16/06/21	05:29	06:24	12	0	1

Table A-1 Survey details and weather conditions

¹ The Beaufort wind scale is an empirical measure for describing wind intensity and ranges from 0-12. 0 = calm, 1 = light air, 2 = light breeze, 3 = gentle breeze, 4 = moderate breeze, 5 = fresh breeze, 6 = strong breeze, 7 = near gale, 8 = gale, 9 = strong gale, 10 = storm, 11 = violent storm and 12 = hurricane.

² Cloud cover is estimated in terms of how many eighths of the sky (otkas) are covered in cloud, ranging between 0 = sky completely clear and 8 = sky completely cloudy.

Appendix B Breeding bird survey – priority species locations



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LEGEND
SEE DRAWING NUMBER HE551508-ARP-VES-ZZ-DR-LE-000259



SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS (REFERENCE SHALL ALSO BE MADE IN THE DESIGN HAZARD LOG)	
CONSTRUCTION	NONE
MAINTENANCE / CLEANING	NONE
USE	NONE
DECOMMISSIONING / DEMOLITION	NONE

Rev.	Date	Description	By	Chk'd	App'd	Auth'd
P02	20/05/22	ISSUE FOR INFORMATION	LL	MA	JS	SV

Suitability: S2
Drawing Status: SUITABLE FOR INFORMATION

TAYLOR WOODROW
together @ VINCI

ARUP **RAMBOLL**

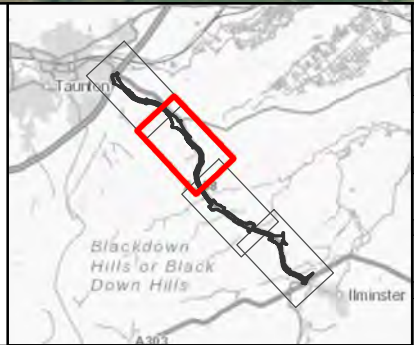
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Drawing Title: BREEDING BIRD SURVEY PRIORITY SPECIES LOCATIONS (EXCLUDING WREN AND WOODPIGEON) SHEET 1 OF 4					
Scale: 1:10,000	By: LL	Checked: MA	Approved: JS	Authorised: SV	
Original Size: A3	Date: 20/05/22	Date: 20/05/22	Date: 20/05/22	Date: 20/05/22	Date: 20/05/22
Drawing Number: HE551508 - ZZ	HE PIN: -	Originator: ARP	Volume: - VES	Revision: P02	
Location: - DR - LE - 000254	Type: -	Role: -	Number: -		



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CONSTRUCTION	NONE
MAINTENANCE / CLEANING	NONE
USE	NONE
DECOMMISSIONING / DEMOLITION	NONE

Rev.	Date	Description	By	Chk'd	App'd	Auth'd
P02	20/05/22	ISSUE FOR INFORMATION	LL	MA	JS	SV

Suitability: S2
Drawing Status: SUITABLE FOR INFORMATION

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ARUP **RAMBOLL**

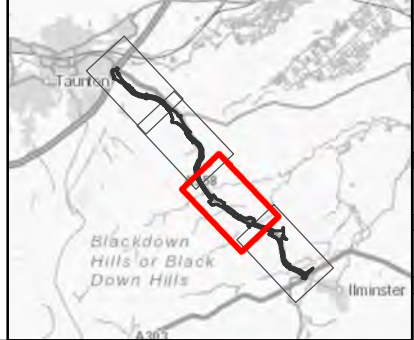
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Project Title: A358 TAUNTON TO SOUTHFIELDS DUALLING SCHEME				
Drawing Title: BREEDING BIRD SURVEY PRIORITY SPECIES LOCATIONS (EXCLUDING WREN AND WOODPIGEON) SHEET 2 OF 4				
Scale: 1:10,000	By: LL	Checked: MA	Approved: JS	Authorised: SV
Original Size: A3	Date: 20/05/22	Date: 20/05/22	Date: 20/05/22	Date: 20/05/22
Drawing Number: HE551508 - ZZ	Originator: ARP	Volume: VES	Revision: P02	
Location: HE551508 - ZZ	Type: DR	Role: LE	Number: 000255	



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LEGEND
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CONSTRUCTION	NONE
MAINTENANCE / CLEANING	NONE
USE	NONE
DECOMMISSIONING / DEMOLITION	NONE

Rev.	Date	Description	By	Chkd	App'd	Auth'd
P02	20/05/22	ISSUE FOR INFORMATION	LL	MA	JS	SV

Suitability: S2
 Drawing Status: SUITABLE FOR INFORMATION

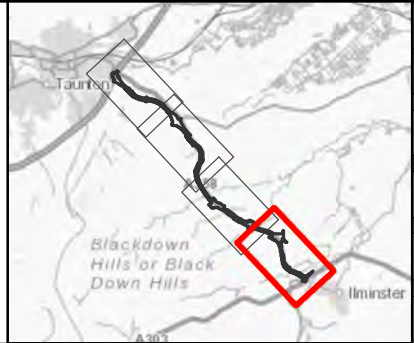
Client: national highways

Project Title					
A358 TAUNTON TO SOUTHFIELDS DUALLING SCHEME					
Drawing Title					
BREEDING BIRD SURVEY PRIORITY SPECIES LOCATIONS (EXCLUDING WREN AND WOODPIGEON) SHEET 3 OF 4					
Scale	By	Checked	Approved	Authorised	
1:10,000	LL	MA	JS	SV	
Original Size	Date	Date	Date	Date	Date
A3	20/05/22	20/05/22	20/05/22	20/05/22	20/05/22
Drawing Number		Originator		Volume	
HE551508 - ZZ		ARP		VES	
Location		Type	Role	Number	
ZZ		- DR - LE - 000256		P02	



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CONSTRUCTION	NONE		
MAINTENANCE / CLEANING	NONE		
USE	NONE		
DECOMMISSIONING / DEMOLITION	NONE		
	P02	20/05/22	ISSUE FOR INFORMATION
Rev.	Date	Description	By
			Chk'd
			App'd
			Auth'd

SUITABILITY			
S2	DRAWING STATUS: SUITABLE FOR INFORMATION		
Client	national highways		
	LL	MA	JS
	SV		

together @ VINCI

A358 TAUNTON TO SOUTHFIELDS DUALLING SCHEME					
BREEDING BIRD SURVEY PRIORITY SPECIES LOCATIONS (EXCLUDING WREN AND WOODPIGEON) SHEET 4 OF 4					
Scale	1:10,000	By	LL	Checked	MA
Original Size	A3	Date	20/05/22	Date	20/05/22
Approved	JS	Date	20/05/22	Authorised	SV
Date		Date		Date	20/05/22
Drawing Number	HE PIN	Originator	Volume	Revision	
HE551508 - ZZ	ARP	VES	- DR - LE - 000259	P02	
Location	Type	Role	Number		

LEGEND

-  ECOLOGY SURVEY ZONE
-  ECOLOGY SURVEY ZONE BUFFER - 250M

PRIORITY SPECIES LOCATIONS

-  BULLFINCH
-  DUNNOCK
-  GREENFINCH
-  GREY WAGTAIL
-  HERRING GULL
-  HOUSE MARTIN
-  HOUSE SPARROW
-  KESTREL
-  KINGFISHER
-  LESSER BLACK-BACKED GULL
-  LINNET
-  MISTLE THRUSH
-  MOORHEN
-  ROOK
-  SKYLARK
-  SONG THRUSH
-  SPARROWHAWK
-  STARLING
-  STOCK DOVE
-  WHITETHROAT
-  WOODPIGEON
-  WREN
-  YELLOWHAMMER


TRANSECT

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-  14

SPECIES CODE

- BF - BULLFINCH
- D - DUNNOCK
- GL - GREY WAGTAIL
- GR - GREENFINCH
- HG - HERRING GULL
- HM - HOUSE MARTIN
- HS - HOUSE SPARROW
- K - KESTREL
- KF - KINGFISHER
- LB - LESSER BLACK-BACK GULL
- Y. - YELLOWHAMMER
- LI - LINNET
- M. - MISTLE THRUSH
- MH - MOORHEN
- RO - ROOK
- S. - SKYLARK
- SD - STOCK DOVE
- SG - STARLING
- SH - SPARROWHAWK
- ST - SONG THRUSH
- WH - WHITETHROAT
- WP - WOODPIGEON
- WR - WREN
- Y. - YELLOWHAMMER

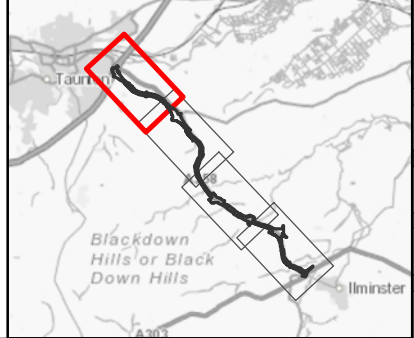
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				<p>Client</p> 		<p>Drawing Title</p> <p>BREEDING BIRD SURVEY PRIORITY SPECIES LOCATION LEGEND SHEET</p>							
<p>Scale</p> <p>-</p>		<p>By</p> <p>JE</p>	<p>Checked</p> <p>MA</p>	<p>Approved</p> <p>JS</p>	<p>Authorised</p> <p>SV</p>		<p>Original Size</p> <p>A3</p>		<p>Date</p> <p>20/05/22</p>	<p>Date</p> <p>20/05/22</p>	<p>Date</p> <p>20/05/22</p>	<p>Date</p> <p>20/05/22</p>	
<p>Drawing Number</p> <p>HE PIN</p>		<p>Originator</p> <p>ARP</p>	<p>Volume</p> <p>ZZ</p>	<p>Approved</p> <p>VES</p>		<p>Authorised</p> <p>-DR - LE - 000259</p>		<p>Revision</p> <p>P02</p>		<p>Location</p>	<p>Type</p>	<p>Role</p>	<p>Number</p>
<p>Rev.</p>		<p>Date</p>	<p>Description</p>	<p>By</p>	<p>Chk'd</p>	<p>App'd</p>	<p>Auth'd</p>						



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LEGEND
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CONSTRUCTION	NONE
MAINTENANCE / CLEANING	NONE
USE	NONE
DECOMMISSIONING / DEMOLITION	NONE

Rev.	Date	Description	By	Chk'd	App'd	Auth'd
P01	13/05/22	ISSUE FOR INFORMATION	JE	MA	JS	SV

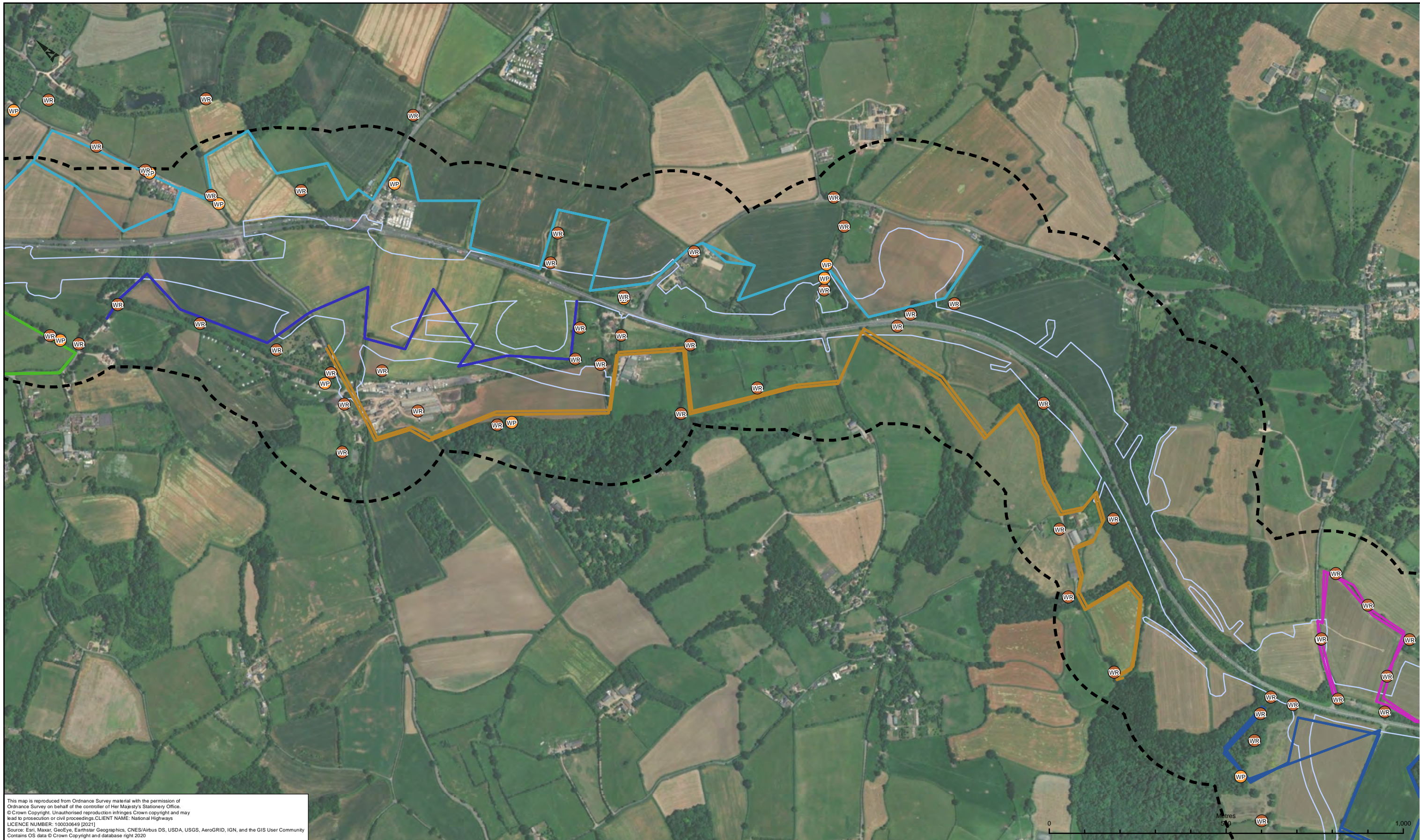
Suitability: S2
Drawing Status: SUITABLE FOR INFORMATION

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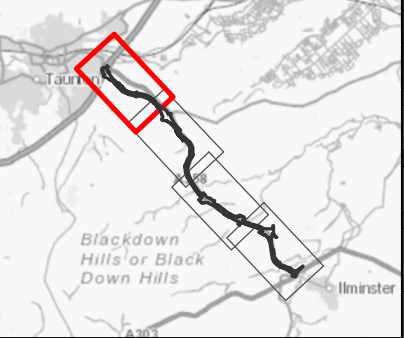
national highways

Project Title: A358 TAUNTON TO SOUTHFIELDS DUALLING SCHEME					
Drawing Title: BREEDING BIRD SURVEY PRIORITY SPECIES LOCATIONS (WREN AND WOODPIGEON) SHEET 1 OF 4					
Scale: 1:10,000	By: JE	Checked: MA	Approved: JS	Authorised: SV	
Original Size: A3	Date: 13/05/22	Date: 13/05/22	Date: 13/05/22	Date: 13/05/22	Date: 13/05/22
Drawing Number: HE551508 - ZZ	Originator: ARP	Volume: VES	Revision: P01		Location: -DR-LE-000329
Type: Location	Role: Type	Number: Role	Number: Role		



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LEGEND
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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

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CONSTRUCTION	NONE
MAINTENANCE / CLEANING	NONE
USE	NONE
DECOMMISSIONING / DEMOLITION	NONE

Rev.	Date	Description	By	Chk'd	App'd	Auth'd
P01	13/05/22	ISSUE FOR INFORMATION	JE	MA	JS	SV

Suitability: S2
Drawing Status: SUITABLE FOR INFORMATION

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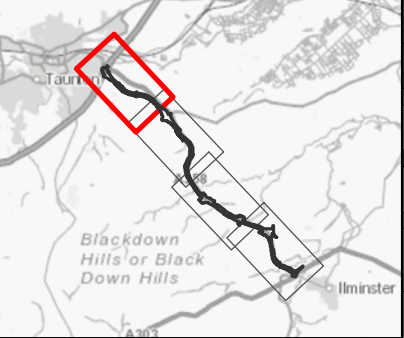
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Project Title: A358 TAUNTON TO SOUTHFIELDS DUALLING SCHEME					
Drawing Title: BREEDING BIRD SURVEY PRIORITY SPECIES LOCATIONS (WREN AND WOODPIGEON) SHEET 2 OF 4					
Scale: 1:10,000	By: JE	Checked: MA	Approved: JS	Authorised: SV	
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Drawing Number: HE551508 - ZZ	HE PIN: ARP	Originator: VES	Volume: -DR - LE - 000330	Revision: P01	
Location	Type	Role	Number		



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LEGEND
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CONSTRUCTION	NONE
MAINTENANCE / CLEANING	NONE
USE	NONE
DECOMMISSIONING / DEMOLITION	NONE

Rev.	Date	Description	By	Chk'd	App'd	Auth'd
P01	13/05/22	ISSUE FOR INFORMATION	JE	MA	JS	SV

Suitability: S2
Drawing Status: SUITABLE FOR INFORMATION

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national highways

Project Title: A358 TAUNTON TO SOUTHFIELDS DUALLING SCHEME

Drawing Title: BREEDING BIRD SURVEY PRIORITY SPECIES LOCATIONS (WREN AND WOODPIGEON) SHEET 3 OF 4

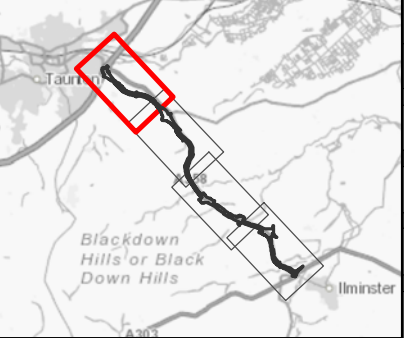
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Drawing Number: HE551508 - ZZ	Originator: ARP	Volume: VES	Revision: P01
Location: ZZ	Type: DR	Role: LE	Number: 000331



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LEGEND
SEE DRAWING NUMBER HE551508-ARP-VES-ZZ-DR-LE-000259



SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS (REFERENCE SHALL ALSO BE MADE IN THE DESIGN HAZARD LOG)

CONSTRUCTION	NONE
MAINTENANCE / CLEANING	NONE
USE	NONE
DECOMMISSIONING / DEMOLITION	NONE

Rev.	Date	Description	By	Chk'd	App'd	Auth'd
P01	13/05/22	ISSUE FOR INFORMATION	JE	MA	JS	SV

Suitability: S2
Drawing Status: SUITABLE FOR INFORMATION



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national highways

Project Title: A358 TAUNTON TO SOUTHFIELDS DUALLING SCHEME					
Drawing Title: BREEDING BIRD SURVEY PRIORITY SPECIES LOCATIONS (WREN AND WOODPIGEON) SHEET 4 OF 4					
Scale: 1:10,000	By: JE	Checked: MA	Approved: JS	Authorised: SV	
Original Size: A3	Date: 13/05/22	Date: 13/05/22	Date: 13/05/22	Date: 13/05/22	Date: 13/05/22
Drawing Number: HE551508 - ZZ	Originator: ARP	Volume: VES	Revision: P01		
Location: ZZ	Type: DR	Role: LE	Number: 000332		

LEGEND

-  ECOLOGY SURVEY ZONE
-  ECOLOGY SURVEY ZONE BUFFER - 250M

PRIORITY SPECIES LOCATIONS

-  BULLFINCH
-  DUNNOCK
-  GREENFINCH
-  GREY WAGTAIL
-  HERRING GULL
-  HOUSE MARTIN
-  HOUSE SPARROW
-  KESTREL
-  KINGFISHER
-  LESSER BLACK-BACKED GULL
-  LINNET
-  MISTLE THRUSH
-  MOORHEN
-  ROOK
-  SKYLARK
-  SONG THRUSH
-  SPARROWHAWK
-  STARLING
-  STOCK DOVE
-  WHITETHROAT
-  WOODPIGEON
-  WREN
-  YELLOWHAMMER


TRANSECT

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SPECIES CODE

- BF - BULLFINCH
- D - DUNNOCK
- GL - GREY WAGTAIL
- GR - GREENFINCH
- HG - HERRING GULL
- HM - HOUSE MARTIN
- HS - HOUSE SPARROW
- K - KESTREL
- KF - KINGFISHER
- LB - LESSER BLACK-BACK GULL
- Y. - YELLOWHAMMER
- LI - LINNET
- M. - MISTLE THRUSH
- MH - MOORHEN
- RO - ROOK
- S. - SKYLARK
- SD - STOCK DOVE
- SG - STARLING
- SH - SPARROWHAWK
- ST - SONG THRUSH
- WH - WHITETHROAT
- WP - WOODPIGEON
- WR - WREN
- Y. - YELLOWHAMMER

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				<p>Client</p> 		<p>Drawing Title</p> <p>BREEDING BIRD SURVEY PRIORITY SPECIES LOCATION LEGEND SHEET</p>					
<p>Scale</p> <p>-</p>		<p>By</p> <p>JE</p>	<p>Checked</p> <p>MA</p>	<p>Approved</p> <p>JS</p>	<p>Authorised</p> <p>SV</p>						
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<p>Location</p> <p>ZZ</p>		<p>Type</p> <p>-DR</p>	<p>Role</p> <p>LE</p>	<p>Number</p> <p>-000259</p>							
<p>Rev.</p>		<p>Date</p>	<p>Description</p>	<p>By</p>	<p>Chk'd</p>	<p>App'd</p>	<p>Auth'd</p>				
<p>P02</p>		<p>20/05/22</p>	<p>ISSUE FOR INFORMATION</p>	<p>JE</p>	<p>MA</p>	<p>JS</p>	<p>SV</p>				

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