

**ECOLOGICAL IMPACT ASSESSMENT**  
**LAND AT FARLEIGH FIELDS AND 54 AND 56 FARLEIGH ROAD,**  
**BACKWELL, NORTH SOMERSET**

carried out by



commissioned by

**PERSIMMON HOMES (SEVERN VALLEY)**

**APRIL 2021**



# ECOLOGICAL IMPACT ASSESSMENT

## LAND AT FARLEIGH FIELDS AND 54 AND 56 FARLEIGH ROAD,

## BACKWELL, NORTH SOMERSET

### CONTENTS

|   |           |
|---|-----------|
| <b>EXECUTIVE SUMMARY .....</b>  | <b>2</b>  |
| <b>1 INTRODUCTION.....</b>  | <b>4</b>  |
| 1.2 Ecological Background.....  | 4         |
| 1.3 Report Aims.....  | 5         |
| 1.4 Site Description Summary .....                                      | 5         |
| 1.5 Development Proposals.....  | 7         |
| 1.6 Quality Assurance.....  | 7         |
| 1.7 Assessment Scope / Consultation .....                               | 7         |
| <b>2 BASELINE CONDITIONS .....</b>                                      | <b>8</b>  |
| 2.1 Introduction.....   | 8         |
| 2.2 Evaluation Methodology .....  | 8         |
| 2.3 Desk Study.....   | 8         |
| 2.4 Habitat Survey .....  | 11        |
| 2.5 Protected Species Survey and Species of Conservation Concern .....  | 16        |
| 2.6 Summary of Ecological Importance .....                              | 38        |
| <b>3 ASSESSMENT OF EFFECTS .....</b>                                    | <b>39</b> |
| 3.1 Methodology.....  | 39        |
| 3.2 Summary of Development Proposals.....                               | 39        |
| 3.3 Designated Sites.....   | 41        |
| 3.4 Habitats.....   | 42        |
| 3.5 Protected Species and Species of Conservation Concern .....         | 43        |
| 3.6 Summary of Assessment of Effects .....                              | 49        |
| <b>4 CONCLUSIONS.....</b>   | <b>52</b> |
| <b>APPENDIX A: WILDLIFE LEGISLATION &amp; SPECIES INFORMATION .....</b> | <b>53</b> |
| <b>APPENDIX B: HEP CALCULATIONS .....</b>                               | <b>57</b> |
| <b>APPENDIX C: BIODIVERSITY NET GAIN CALCULATIONS.....</b>              | <b>59</b> |

|                   |   |  |             |
|-------------------|---|--|-------------|
| Project title:    | Land at Farleigh Fields and 54 and 56 Farleigh Road, Backwell, North Somerset       |  |             |
| Document title:   | Ecological Impact Assessment  | Project number:  | 6941        |
| Client:           | Persimmon Homes (Severn Valley)   | Author:  | Joel Wright |
| Version 1         | Draft for Comment   | Issued on:   | 12/04/2021  |
| Version 2         | Final for Submission  | Issued on:   | 29/04/2021  |
| Quality Assurance | Checked by:   | Approved by:   |             |
|                   | Harry Fox   | Tom Clarkson   |             |
|                   |  |  |             |

The information, data and advice which has been prepared and provided is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions. This report and its contents remain the property of Clarkson and Woods Ltd. until payment has been made in full.



---

## EXECUTIVE SUMMARY

- Clarkson and Woods Ltd. was commissioned by Persimmon Homes (Severn Valley) to carry out an Ecological Impact Assessment of Land at Farleigh Fields and 54 and 56 Farleigh Road, Backwell, North Somerset
- The proposals comprise an outline planning application for demolition of 54 and 56 Farleigh Road; residential development of up to 125 dwellings (Class C3); strategic landscaping and earthworks, surface water drainage and all other ancillary infrastructure and enabling works with means of site access (excluding internal roads) from the new junction off Farleigh Road; all other matters (internal access, layout, appearance, scale and landscaping) are reserved for subsequent approval.
- The existing habitats within the application Site comprise two improved grassland pasture fields, one arable field, a network of largely defunct, species-poor internal hedgerow field boundaries and perimeter residential garden boundaries comprising timber fences, walls and garden hedgerows.
- The application Site is located within 'Band B' of the Greater Horseshoe Bat Consultation Zone and 'Band C' of the Lesser Horseshoe Bat Consultation Zone for the North Somerset and Mendip Bats Special Area of Conservation (SAC).
- An initial Phase 1 Habitat Survey was undertaken to record the habitats within the Site and assess the potential for the presence of notable and protected species. Bat emergence surveys of 54 and 56 Farleigh Road were carried out to confirm presence or likely absence of roosting bats. Twice monthly bat activity surveys were undertaken including static detector surveys in line with the North Somerset and Mendip Bat SAC guidance on development to inform the likely impacts on horseshoe bats. Reptile surveys were undertaken to confirm presence or likely absence and breeding bird surveys were carried out to assess the importance of the Site for breeding birds.
- No bats were recorded emerging from 54 or 56 Farleigh Road. Bat activity surveys revealed that Site supports a moderate level of bat activity and a high level of species richness. The Site was of importance to both greater and lesser horseshoe bats for foraging and commuting.
- The reptile surveys recorded a good population of slow worm present on Site within the field margins of the north-east pasture field and arable field.



- During the breeding bird surveys, 34 bird species were recorded during the survey visits. Most of the bird assemblage could be considered to be typical of arable and pasture farmland with a network of hedgerows on urban fringe. Fifteen species were considered to be definitely or probably breeding on site. All hedgerows will be retained and protected during the construction phase to minimise/avoid impacts on nesting birds.
- A Construction Environmental Management Plan (CEMP) will be prepared to detail how the habitats within and surrounding the Site should be protected during the construction phase. A Risk Avoidance Method Statement (RAMS) for reptiles will be prepared and included within the CEMP which will set out how reptiles will be protected during the construction phase.
- A Landscape and Environmental Management Plan (LEMP) will be prepared for the operational site that will cover how retained habitats and newly planted areas should be managed so as to maximise their biodiversity value and achieve the objectives of ecological mitigation and compensation.
- Habitat mitigation proposed includes the retention and enhancement of the hedgerows within the application Site along with a 10m wide 'ecology buffer' surrounding the proposed built area. Approximately 1,470m of new species rich hedgerow will be planted as mitigation for a range of species. Approximately 2.5 ha of improved grassland will be enhanced to a semi improved sward through sensitive management. The enhanced grassland will also include scattered broadleaf trees and traditional orchard planting. A water attenuation area will be created within the existing arable land and will be surrounded by newly created tussocky grassland and new hedgerow planting.
- Mitigation foraging habitat of at least equivalence to what has been lost has been provided in relation to horseshoe bats, which has been formulated using the Habitat Evaluation Procedure calculations contained in the North Somerset and Mendip Bat SAC Guidance on Development. It is recommended that a detailed lighting strategy is prepared to ensure artificial lighting will not raise illumination above 0.5lux above baseline conditions within important ecological features. A lux contour plan will be produced to confirm this can be achieved.
- Overall it is considered the proposals will result in a significant increase in biodiversity on Site due to the higher quality habitats proposed and the retention and enhancement of the most valuable habitats present. This is illustrated by the Biodiversity Net Gain Calculations undertaken using the DEFRA metric 2.0.



## 1 INTRODUCTION

- 1.1.1 Clarkson and Woods Ltd. was commissioned by Persimmon Homes (Severn Valley) to carry out an Ecological Impact Assessment of Land at Farleigh Fields and 54 and 56 Farleigh Road, Backwell, North Somerset, thereafter referred to as 'the Site'.
- 1.1.2 This Impact Assessment discusses the likely effects of the Proposed Development on the ecology of the Site using information collected during a suite of surveys carried out over a number of years by Clarkson and Woods Ltd, which are listed in Table 1.
- 1.1.3 It should be noted that this Report assesses the potential ecological impacts resulting from the proposed development within the application Site (Red Line Boundary), however, the scope of the ecological surveys were extended to cover a wider area within the Applicant's wider land ownership (Blue Line Boundary) to ensure that the assessment covered the Zone of Influence of the proposed development. The area within the red line boundary is referred to within this report as 'the Site' and the area within the blue line boundary is referred to as 'the survey area'.
- 1.1.4 The assessment has been prepared by Joel Wright, an experienced ecologist, who is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). The report has been subject to a two stage quality assurance review by appropriately experienced senior consultants who are full members of CIEEM.
- 1.1.5 Unless the client indicates to the contrary, information on the presence of species collected during the surveys will be passed to the county biological records centre in order to augment their records for the area. This is in line with the CIEEM code of professional conduct<sup>1</sup>.
- 1.1.6 If no action or development of the Site takes place within twelve months of the date of this report, then the findings of the assessment and supporting surveys should be reviewed. An update of the surveys and/or assessment may be required.

## 1.2 Ecological Background

- 1.2.1 The initial Phase 1 Habitat survey was carried out in October 2013 with subsequent further surveys carried out May – September 2014 to inform a previous application for outline planning at the Site. The Phase 1 Habitat survey and further surveys for protected species were updated May – October 2020 to inform the current application for outline planning. All ecological surveys carried out at the Site are listed in Table 1 below.

**Table 1: Summary of Ecological Surveys carried out at the Site**

| Survey Type                            | Survey Date          |
|--|----------------------|
| Phase 1 Habitat Survey                 | October 2013         |
| Bat Activity Surveys                   | May – September 2014 |
| Building Inspections for Roosting Bats | May 2014             |
| Bat Emergence Surveys                  | September 2014       |
| Reptile Survey                         | May – June 2014      |
| Breeding Bird Survey                   | June – July 2014     |
| Update Phase 1 Habitat Survey          | May 2020             |
| Update Bat Activity Surveys            | May – October 2020   |
| Update Bat Emergence Surveys           | July – August 2020   |
| Update Reptile Survey                  | October 2020         |
| Update Breeding Bird Survey            | May – June 2020      |

<sup>1</sup> Code of Professional Conduct. CIEEM, January 2019.



### 1.3 Report Aims

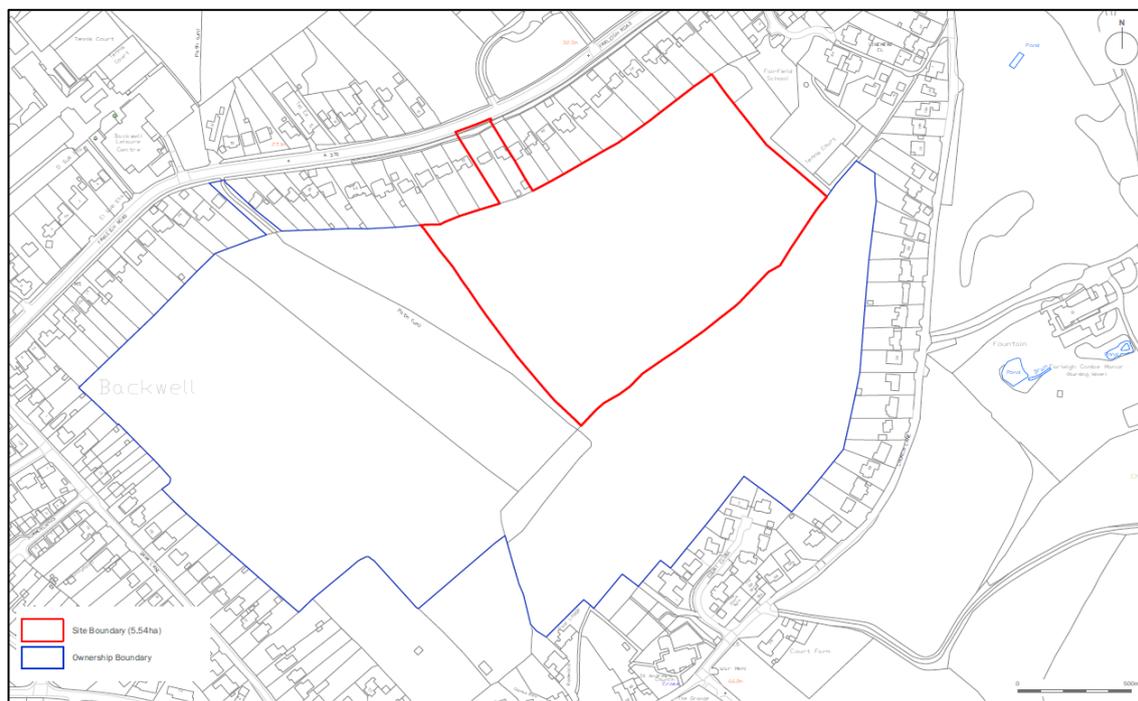
1.3.1 The aims of this report are:

- To establish, as far as possible, the baseline ecological conditions existing on Site at the time of survey and to identify any likely future changes in the baseline conditions up to the point of commencement.
- To determine likely significant effects resulting from the proposals upon the ecological features identified within the assessment.
- To assess whether the proposals are likely to be in accordance with relevant nature conservation legislation and planning policies.
- To identify where further surveys to establish baseline conditions, inform assessment or develop mitigation or compensatory measures are required.
- To identify how mitigation or compensation measures will be secured, maintained and monitored.
- To identify ecological enhancements to be carried out and how they will be implemented, maintained and monitored.

### 1.4 Site Description Summary

1.4.1 The application Site is located to the south of Farleigh Road (A370) within the village of Backwell in North Somerset and comprises one agricultural pasture field and two residential properties along Farleigh Road (Nos. 54 and 56). The field was bordered by a mixture of intact and defunct hedgerows, garden fences and patches of scrub.

1.4.2 The Site is surrounded by agricultural pasture fields to the south and west with residential properties surrounding the wider ownership boundary on all sides along with Fairfield School to the north-east, and St Andrew's Church to the south. The Site is situated within a predominantly rural landscape dominated by agricultural pasture fields and small patches of woodland. Standscombe quarry, an operational limestone quarry, is located approximately 700m to the south-east of the Site.



**Figure 1: Plan Showing Application Site (Red Line) and Survey Area (Blue Line)**

1.4.3 The application Site is 5.54 hectares (ha) in size, and the approximate centre of the Site is at OS Grid Ref. ST 49274 68793. The application Site (Red Line) and the Survey Area (applicant's land ownership boundary (Blue Line)) is shown in Figure 1. The location of the application Site and an aerial photograph of the Site is shown in Figures 2 and 3. A map showing the habitats recorded on site is shown in Figure 4.

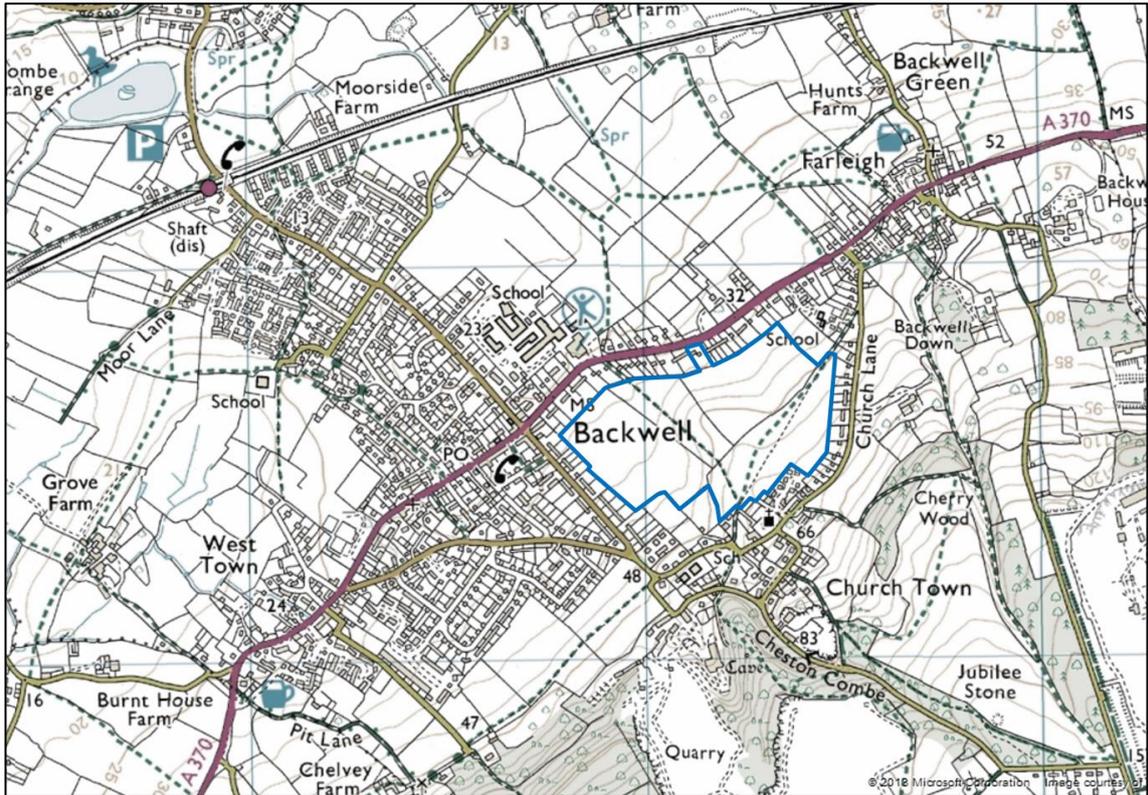


Figure 2: Ordnance Survey Map Showing Location of the Survey Area (Blue Line) (©2020 Bing Maps)



Figure 3: Aerial photograph of Survey Area (©2020 Google)



## 1.5 Development Proposals

- 1.5.1 The proposals comprise an outline planning application for demolition of 54 and 56 Farleigh Road to create a new access junction; residential development of up to 125 dwellings (Class C3); strategic landscaping and earthworks, surface water drainage and all other ancillary infrastructure and enabling works with means of site access (excluding internal roads) from the new junction off Farleigh Road; all other matters (internal access, layout, appearance, scale and landscaping) reserved for subsequent approval.
- 1.5.2 The proposals will result in the loss of 2.88 ha of improved grassland to facilitate the proposed residential development. It is proposed that 54 and 56 Farleigh Road are demolished and the associated gardens removed to facilitate the access road into the Site. The proposals will establish over 3.2ha of newly created habitats including semi improved grassland, hedgerows, orchard trees, scrub and open water features. Along with areas of amenity value including play areas and amenity grassland.
- 1.5.3 Any changes to the building design and layout and landscaping made subsequent to publication of this report should be issued to Clarkson and Woods Ltd. for review. Ecological impacts and mitigation opportunities may be affected by any such changes.

## 1.6 Quality Assurance

- 1.6.1 All ecologists employed by Clarkson and Woods are members of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow the Institute's Code of Professional Conduct<sup>2</sup> when undertaking ecological work.
- 1.6.2 The competence of all field surveyors has been assessed by Clarkson and Woods with respect to the CIEEM Competencies for Species Survey (CSS)<sup>3</sup>.
- 1.6.3 This report has been prepared in accordance with the relevant British Standard: *BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development*<sup>4</sup>. It has been prepared by an experienced ecologist who is a member of CIEEM. The report has also been subject to a two stage quality assurance review by appropriately experienced ecologists who are full members of CIEEM.

## 1.7 Assessment Scope / Consultation

- 1.7.1 The impact assessment will consider impacts arising during the construction and occupation phases of the scheme in order to encompass its entire lifespan as far as can reasonably be anticipated.
- 1.7.2 The Zone of Influence (Zoi) of the development was considered to extend beyond the application Site due to potential effects such as increased artificial light and increased human / domestic pet presence within surrounding fields. Ecological surveys therefore covered a wider area than the application Site, as shown in Figure 1, to ensure all potential impacts were assessed.
- 1.7.3 Due to the potential for significant effects on horseshoe bats which are species of qualifying interest for the North Somerset and Mendip Bats Special Area of Consultation (SAC) the development will require a Habitat Regulation Assessment to be undertaken.
- 1.7.4 The Site is located within 'Band B' for greater horseshoe bats and 'Band C' for lesser horseshoe bats of the North Somerset and Mendip Bats SAC Consultation Zones. The *Mendip District Council Special Area of Conservation: Guidance on Development v2.1 May 2019* was consulted to assess the value of the Site for greater horseshoe and lesser horseshoe bats and to calculate the amount of habitat required to replace that lost to the proposed development using the Habitat Evaluation Procedure (HEP) matrix. This calculation aims to ensure that the amount of replacement habitat for horseshoe bats proposed as mitigation would be sufficient to provide no net loss / net gain of suitable habitat for horseshoe bats.

---

<sup>2</sup> CIEEM (2013). *Code of Professional Conduct*. [www.cieem.net/professional-conduct](http://www.cieem.net/professional-conduct).

<sup>3</sup> CIEEM (2013). *Competencies for Species Survey (CSS)*. [www.cieem.net/competencies-for-species-survey-css](http://www.cieem.net/competencies-for-species-survey-css).

<sup>4</sup> The British Standards Institution (2013). *BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development*. BSI Standards Ltd.



## 2 BASELINE CONDITIONS

### 2.1 Introduction

- 2.1.1 This section sets out the results of the Desk Study and ecological field surveys along with an evaluation of their relative importance in order to inform the Impact Assessment. The methodologies associated with the baseline assessment are summarised with each ecological feature's subheading below.
- 2.1.2 The specific surveys carried out were chosen on the basis of the likelihood, in our considered opinion, of each protected species or Species of Conservation Concern being present on or within the vicinity of the Site. This is informed by the Site's geographic location and the habitat types present on and around the Site. The following species-specific baseline surveys were chosen: badgers, bats; reptiles, birds and other species of conservation concern including non-native invasive species.
- 2.1.3 Details of the legislative protection afforded to those protected species which have been identified as occurring or potentially occurring on the Site are given in Appendix A. Species of Conservation Concern are defined as those appearing in any of the following; Priority Habitats and Species under Section 41 of the Natural Environment and Rural Communities Act (2006); red or amber-listed birds within the British Trust for Ornithology's Birds of Conservation Concern (2015); and any specific local conservation priority species such as those listed in Red Data Books.

### 2.2 Evaluation Methodology

- 2.2.1 Each recorded ecological feature, whether it is a species, a habitat or a site designated for nature conservation, is described in turn in this section to provide the pre-development baseline conditions on Site. Subsequently, an evaluation of each feature's 'ecological importance' is made. The evaluation of ecological importance is informed by the criteria provided within the CIEEM Guidelines for Ecological Impact Assessment (2018)<sup>5</sup>.
- 2.2.2 With due consideration to the criteria, each feature is classified on a geographical scale of ascending importance as follows; Negligible, Site, Local, District, County, National and International. The chosen geographic level of importance is considered that which best represents the scale at which the loss of the Site's area or population of the feature would have the greatest impact. Where sufficient survey information is not available to determine the importance of a species or habitat present on the Site, the importance of the receptor is marked as 'uncertain' and based upon the professional judgement of the author together with available relevant desk study information.
- 2.2.3 Once importance has been determined for each feature, those of Local importance or above will be considered to be Important Ecological Features (IEFs). Non-IEFs will typically not be considered further within the impact assessment. However, where a feature does not qualify as an IEF but is afforded specific legal protection or coverage under a particular legislation or planning policy it will also be assessed in order to ensure the scheme's legal and policy compliance.

### 2.3 Desk Study

#### Methodology

- 2.3.1 Statutory designated sites for nature conservation were identified using the Natural England/DEFRA web-based MAGIC map database ([www.MAGIC.gov.uk](http://www.MAGIC.gov.uk)). International-level sites such as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) within 5km from the Site were searched for. National-level sites such as National Nature Reserves (NNRs) and Sites of Special Scientific Interest (SSSIs) within 2km of the Site were searched for.
- 2.3.2 The Bristol Regional Environmental Records Centre (BRERC) was consulted for records of protected species and species of conservation concern within 1km of the Site, with an extended search for bats records within 5km. BRERC was also asked to provide details of locally-designated and non-statutory sites for nature conservation within 1km of the Site.

---

<sup>5</sup> CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Chartered Institute of Ecology and Environmental Management. [www.cieem.net](http://www.cieem.net)



- 2.3.3 Clarkson and Woods' own database of ecological records derived from past survey work was also consulted for further locally-relevant data.
- 2.3.4 The Natural England/DEFRA web-based MAGIC map database was also consulted for records of European Protected Species (EPS) licences issued for mitigation projects concerning EPS within 2km of the Site. Unfortunately such data is only available for licence applications made between 2012 and 2015. Recent licence applications do not currently appear.
- 2.3.5 The North Somerset Core Strategy (Adopted January 2017) was consulted for details of planning policies relevant to designated sites, protected species and habitats, and general ecological and environmental protection.
- 2.3.6 The North Somerset Biodiversity Action Plan (BAP) was consulted for information on conservation priority species and habitats which may require further consideration and weight within Ecological Impact Assessments.
- 2.3.7 Ordnance Survey maps (1:25,000) and aerial images of the Site were examined online (bing.com/maps and maps.google.co.uk) to allow a better understanding of the context of the Site and its connections to potentially important habitats, known species records and protected sites.
- 2.3.8 The data presented within this report constitutes a summary of the data obtained from the local records centre. Should additional detail be required on any of the records described within this report Clarkson and Woods Ltd. should be contacted.

**Limitations**

- 2.3.9 No specific limitations to the desk study were encountered.
- 2.3.10 The data presented within this report constitutes a summary of the data obtained from the local records centre. Should additional detail be required on any of the records described within this report Clarkson and Woods Ltd. should be contacted.
- 2.3.11 It should be noted that the data obtained from within the search area will not constitute a complete record of habitats and species present within the search area. It is therefore possible that protected species may occur within the vicinity of the proposed development site that have not been identified within the desk study.

**Desk Study Findings**

Designated Sites

*Statutory Designated Sites*

- 2.3.12 One statutory designated sites for nature conservation was identified within the desk study and is summarised in Table 2 below.

**Table 2: Summary of Statutory Designated Sites for Nature Conservation**

| Site Name                          | Size, Distance and Direction from Site   | Reason for Designation  | Importance    |
|------------------------------------|--|---|---------------|
| North Somerset and Mendip Bats SAC | The SAC is a complex of Sites.<br><br>Brockley Hall Stables is located 2.4km south-west of the Site.<br><br>The next closest component of the SAC is 4km south of the Site (Kings Wood). | The SAC comprises a network of sites primarily designated due to the variety of important hibernation and maternity roosting sites it supports for both lesser horseshoe <i>Rhinolophus hipposideros</i> and greater horseshoe <i>Rhinolophus ferrumequinum</i> bats. The SAC network also contains a range of important habitats including semi-natural dry grassland and Tilio-Acerion forest.<br><br>Brockley Hall Stables, which has also been designated a Site of Special Scientific Interest (SSSI), supports a maternity roost for greater horseshoe bats. A larger area of the SAC is located at King's Wood 4km south-west of the site which contains disused mines that support hibernating and breeding greater horseshoe bats. | International |



|  |  |   |  |
|--|--|---|--|
|  |  | <p>The Site is located within 'Band B' for greater horseshoe bats and 'Band C' for lesser horseshoe bats of the North Somerset and Mendip Bats SAC Consultation Zones. The <i>Mendip District Council Special Area of Conservation: Guidance on Development v2.1 May 2019</i> specifies that new development should achieve no net loss of habitat for these species and gives a metric to be employed (Habitat Evaluation Procedure - used in this assessment) to demonstrate this and guide scheme design in line with legal duties (Habitats Regulations).</p> |  |
|--|--|---|--|

#### Local and Non-statutory Designated Sites

- 2.3.13 Three local or non-statutory designated sites for nature conservation were identified within 1km of the Site during the desk study.
- 2.3.14 Cheston Combe and Backwell Hill Local Wildlife Site (LWS) is situated 150m south of the Site at its closest point. It is an area 28ha in size comprising semi-natural broadleaved woodland with semi-improved neutral grassland.
- 2.3.15 Bourton Combe LWS is located 950m east of the site and comprises a significant area of area woodland that supports a variety of invertebrate species including dark green fritillary *Argynnis aglaja* and notable flora including bee orchid *Ophrys apifera*.
- 2.3.16 Chelvey Wood LWS is located 950m south-west of the site and supports a small area of ancient semi-natural broadleaved woodland.

#### Local BAP

- 2.3.17 The following habitats and species, considered relevant to the Site were identified in the North Somerset BAP.
- Field boundaries and linear features
  - Coastal and floodplain grazing marsh
  - Standing open water
  - Rivers and streams
  - Otter *Lutra lutra*
  - Water vole *Arvicola amphibius*
  - Greater horseshoe bat *Rhinolophus hipposideros*

#### Planning Policy

- 2.3.18 The following policies have been identified within North Somerset Local Plan Core Strategy" (2017), which are considered relevant to the Site.

#### **Policy CS4: Nature conservation**

The biodiversity of North Somerset will be maintained and enhanced by:

- 1) Seeking to meet local and national Biodiversity Action Plan targets taking account of climate change and the need for habitats and species to adapt to it;
- 2) Seeking to ensure that new development is designed to maximise benefits to biodiversity, incorporating, safeguarding and enhancing natural habitats and features and adding to them where possible, particularly networks of habitats. A net loss of biodiversity interest should be avoided, and a net gain achieved where possible;
- 3) Seeking to protect, connect and enhance important habitats, particularly designated sites, ancient woodlands and veteran trees;
- 4) Promoting the enhancement of existing and provision of new green infrastructure of value to wildlife;
- 5) Promoting native tree planting and well targeted woodland creation, and encouraging retention of trees, with a view to enhancing biodiversity.



## **Policy CS9: Green infrastructure**

The existing network of green infrastructure will be safeguarded, improved and enhanced by further provision, linking in to existing provision where appropriate, ensuring it is a multi-functional, accessible network which promotes healthy lifestyles, maintains and improves biodiversity and landscape character and contributes to climate change objectives. Priority will be given to:

The protection and planting of trees in woodlands and urban areas, particularly native trees, for public amenity and climate change mitigation and benefits to biodiversity, health and recreation;

The promotion of the north slopes of the Mendip Hills AONB as sub-regional corridors for biodiversity, recreation and landscape retention;

The promotion of the Congresbury Yeo, River Banwell, North Somerset Levels and Moors, and Grumblepill Rhyne as local corridors for biodiversity and landscape enhancement;

The protection and enhancement of biodiversity;

The continued development of a network of green spaces, water bodies, paths and cycleways and bridleways in and around the urban areas, recognising the value of sustainable drainage systems for green infrastructure;

The management, maintenance, upgrading and extension of the public rights of way network including improved connectivity to areas of green infrastructure within and outside North Somerset;

The provision of strategically significant green spaces in association with all areas of development.

## **2.4 Habitat Survey**

### **Habitat Survey Methodology**

- 2.4.1 A habitat survey was carried out based on standard field methodology set out in the *Handbook for Phase 1 Habitat Survey* (2010 edition)<sup>6</sup>. The survey was completed by Harry Fox, MCIEEM. Harry has 13 years' experience undertaking ecological surveys and has a BSc in a relevant subject.
- 2.4.2 Botanical names follow Stace (1997)<sup>7</sup> for higher plants and Edwards (1999)<sup>8</sup> for bryophytes.
- 2.4.3 The results of the Phase 1 Habitats Survey are included in map form on Figure 4 at the end of this Section. Habitats are mapped following the codes and conventions described within the Phase 1 Habitat Survey Handbook and Target Notes (Table 5) are used to describe habitats not readily conforming to recognised types and evidence of, or potential for, protected species and species of conservation concern.

### **Improved Grassland**

#### Desk Study Information

- 2.4.4 The desk study information from BRERC returned no records of plant species associated with grasslands since 2010 although there were historic records of early purple orchid *Orchis mascula*, bee orchid *Ophrys apifera*, green winged orchid *Orchis morio* and common corn salad *Valerianella locusta* which are found in grassland habitats have been recorded within 1km of the Site before 2010.
- 2.4.5 Clarkson and Woods Ltd in house records indicate both improved and semi-improved neutral pasture is a common habitat in the local area.

#### Field Survey Results

- 2.4.6 Three fields of improved pasture were present within the survey area, all of which contained a species-poor, improved sward with a low proportion of flowering herbs. The fields had been grazed by cattle on a rotational basis and the southern field was heavily poached in places at the time of the survey.

<sup>6</sup> Nature Conservancy Council. (1990 - 2010 edition). *Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit*, Joint Nature Conservation Committee

<sup>7</sup> Stace, C. (1997). *New Flora of the British Isles Second Edition*. Cambridge University Press

<sup>8</sup> Edwards, S.R. (1999). *English Names for British Bryophytes*. BBS, Cardiff



2.4.7 The sward was dominated by perennial rye grass *Lolium perenne* with regular creeping bent *Agrostis stolonifera* and rough stalked meadow grass *Poa trivialis*. A low diversity of broadleaved herb species were noted including creeping buttercup *Ranunculus repens*, broad-leaved dock *Rumex obtusifolius*, dandelion *Taraxacum officinale*, scentless mayweed *Tripleurospermum inodorum*, spear thistle *Cirsium vulgare*, common nettle *Urtica dioica* and white clover *Trifolium repens*.

Evaluation

2.4.8 The improved grassland was considered to be of **Site** importance.

**Arable**

Desk Study Information

2.4.9 The desk study information from BRERC returned no records of plant species associated with arable agriculture since 2010.

2.4.10 Clarkson and Woods in house records indicate arable agriculture is a common habitat in the local area.

Field Survey Results

2.4.11 The westernmost field was used for arable agriculture and had recently been ploughed in preparation for planting crops. A narrow (<1m) field margin had been left around the perimeter of the cultivated area which supported grass, broadleaved herb and scrub species such as cock's foot *Dactylis glomerata*, false oat grass *Arrhenatherum elatius*, Yorkshire fog *Holcus lanatus*, common nettle, lesser celandine *Ficaria verna*, spear thistle and bramble *Rubus fruticosus*.

Evaluation

2.4.12 The arable land was considered to be of **Negligible** importance.

**Hedgerows**

Desk Study Information

2.4.13 Field boundaries and linear features are habitats listed on the North Somerset Biodiversity Action Plan. The desk study information from BRERC returned no records of plant species associated with hedgerows or hedgerow trees from within 1km of the Site.

Field Survey Results

2.4.14 The internal field boundaries comprised a network of hedgerows which are described in detail in Table 3 below and mapped in Figure 4. A large proportion external field boundaries which backed onto residential gardens at the perimeter of the survey area were made up of timber fences and walls. One of the hedgerows (H2) was considered 'Important' under the criteria set out in the Hedgerow Regulations 1997 as it was species-rich, intact and overgrown. All other hedgerows were not considered Important under the criteria set out in the Hedgerow Regulations 1997 as they were species poor and largely defunct.

**Table 3: Hedgerow Descriptions**

| Hedgerow Reference No. | Hedgerow Description   | Hedgerow Assessment  |
|------------------------|--|--|
| H1                     | A species-poor, defunct (gappy) and uncut hedgerow that was dominated by woody species such as elder <i>Sambucus nigra</i> , English elm <i>Ulmus procera</i> and hawthorn <i>Crataegus monogyna</i> with one mature sycamore <i>Acer pseudoplatanus</i> at its centre. The base of the hedgerow supported species such as common nettle and bramble.  | Species-poor, defunct and not considered Important under the hedgerow regulations. |
| H2                     | This hedgerow comprised a species-rich assemblage of unmanaged mature trees with species including hawthorn, holly <i>Ilex aquifolium</i> , elder, field maple <i>Acer campestre</i> , blackthorn <i>Prunus spinosa</i> , ash <i>Fraxinus excelsior</i> and elm. Species present within the associated ground flora included bramble, nettle, herb Robert <i>Geranium robertianum</i> and common ivy <i>Hedera helix</i> . | <b>Species-rich</b> , intact and <b>Important</b> under the hedgerow regulations.  |



| Hedgerow Reference No. | Hedgerow Description   | Hedgerow Assessment   |
|------------------------|--|---|
| H3                     | A species-poor, intact, mature hedgerow with lower growth cut back to prevent spread into the cultivated area. The species recorded included hawthorn, English elm and elder. A variety of tree species were present within the gardens along the western boundary of the site, some of which had crown spread within the Site boundary and included copper beech <i>Fagus sylvatica f. purpurea</i> , Monterey pine <i>Pinus radiata</i> , cherry <i>Prunus avium</i> , ash, field maple and plum <i>Prunus domestica</i> . | Species-poor and not considered Important under the hedgerow regulations          |
| H4                     | A species-poor, unmanaged, mature hedgerow that contained several large gaps and a single outgrown field maple. Other species included hawthorn, elder, ash and elm with associated ground flora including lesser celandine, hedge bedstraw <i>Galium album</i> and bramble.   | Species-poor, defunct and not considered Important under the hedgerow regulations |
| H5                     | A series of hedgerows and timber fence lines formed the field boundary where it backed onto residential gardens. The hedgerows were intermittent and predominantly well managed with woody species such as hazel <i>Corylus avellana</i> Leyland cypress <i>Cupressus leylandii</i> and honeysuckle <i>Lonicera periclymenum</i> . Other standard trees within this boundary included elder, beech <i>Fagus sylvatica</i> , horse chestnut <i>Aesculus hippocastanum</i> , holly and ash.                                    | Species-poor, defunct and not considered Important under the hedgerow regulations |
| H6                     | A species-poor, intact overgrown hedgerow with no standard trees. It contained species such as hawthorn, elder, elm and dogrose <i>Rosa canina</i> .   | Species-poor, intact and not considered Important under the hedgerow regulations  |

#### Evaluation

2.4.15 Overall the hedgerows on site are considered to be of **Local** importance.

#### **Scrub**

##### Desk Study Information

2.4.16 The desk study information from BRERC returned no records of plant species associated with scrub habitat since 2010.

##### Field Survey Results

2.4.17 There were several strips of scrub within the field margins of all fields as shown on Figure 4, which were dominated by bramble with frequent spear thistle and nettle.

##### Evaluation

2.4.18 Overall the scrub on site is considered to be of **Negligible** importance.

#### **Scattered Trees**

##### Desk Study Information

2.4.19 BRERC returned records of uncommon native tree species such as small-leaved lime *Tilia cordata*, whitebeam *Sorbus aria* and wych elm *Ulus glabra* within 1km of the Site.

##### Field Survey Results

2.4.20 The three residential properties along Farleigh Road that form part of the application Site contained a number of broadleaved and coniferous trees including black pine *Pinus nigra*, Norway spruce *Picea abies*, sycamore, silver birch *Betula pendula* and magnolia *Magnolia sp.*

##### Evaluation

2.4.21 Overall the scattered trees on site are considered to be of **Site** importance



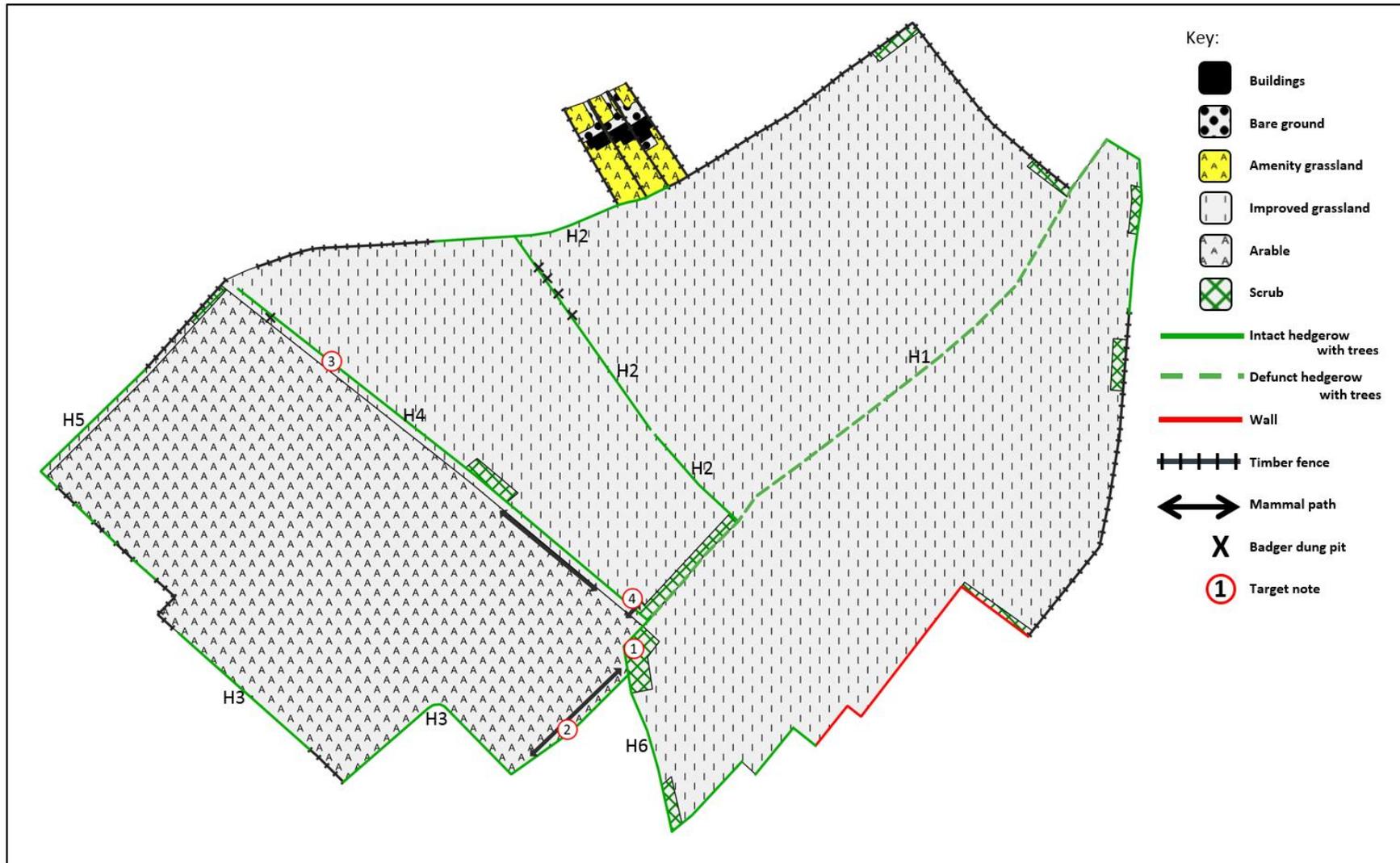
## **Buildings**

### Field Survey Results

- 2.4.22 Two residential properties along Farleigh Road (54 and 56 Farleigh Road) form part of the application Site and are proposed to be demolished to facilitate provision of an access road onto the Site. 58 Farleigh Road was also included as part of the ecological surveys but lies outside of the application Site and will be retained as part of the proposals. A description of the buildings along with an assessment of their suitability to support roosting bats is provided in the Bats Section below.

**Table 4: Target Notes (relating to Figure 4 overleaf)**

| No. | Description   |
|-----|---|
| TN1 | Veteran ash tree with moderate bat roosting potential |
| TN2 | Badger Main sett                                      |
| TN3 | Badger Outlier sett.                                  |
| TN4 | Badger Annex sett                                     |



- Key:
- Buildings
  - Bare ground
  - Amenity grassland
  - Improved grassland
  - Arable
  - Scrub
  - Intact hedgerow with trees
  - Defunct hedgerow with trees
  - Wall
  - Timber fence
  - Mammal path
  - Badger dung pit
  - Target note



|   |                               |                                  |
|---|-------------------------------|----------------------------------|
| Project<br><b>Farleigh Fields, Backwell</b> | Project Number<br><b>6941</b> | Figure Number<br><b>Figure 4</b> |
| Title<br><b>Phase 1 Habitat Plan</b>        | Scale<br><b>Not to Scale</b>  | Date<br><b>23/03/2021</b>        |



## 2.5 Protected Species Survey and Species of Conservation Concern

### Badgers

#### Methodology

- 2.5.1 A search was made for badger *Meles meles* setts, and any sett entrances found were checked for signs of use by badgers or other mammals. Setts were classified into the following categories; Main, Subsidiary, Annexe or Outlying<sup>9</sup>. Sett entrances found were counted and mapped to record tunnel direction and their relative level of usage.
- 2.5.2 Field signs such as 'snuffle holes' (holes dug by badgers when searching for invertebrates), pathways through vegetation, 'latrines' (small pits in which badgers deposit their faeces) and 'day nests' (nests of bedding material made by badgers for sleeping above ground) were also mapped, if found.

#### Limitations

- 2.5.3 Areas with dense ground cover such as the hedgerows and scrub were examined closely. If impenetrable vegetation prevented entry then the perimeter was examined in order to detect badger paths suggesting a hidden sett within the area. It cannot be guaranteed that all the entrances have been located, especially if a small sett is currently inactive or used seasonally and concealed in an area of thick scrub. Badgers may dig new holes and create new setts in a very short space of time.

#### Desk Study Information

- 2.5.4 Numerous records of badger *Meles meles* were revealed in the BRERC data search which were concentrated within the 1km grid square immediately to the west of the site.
- 2.5.5 Clarkson and Woods in-house database did not return any records of badger within 1km of the application Site.

#### Field Survey Results

- 2.5.6 Numerous mammal paths likely to have been used by badgers, foxes and rabbit were located around the edges of the fields particularly in the western edge of the southern field. Badger dung pits were noted along Hedgerows 2 and 4 (marked with 'x' in Figure 4).
- 2.5.7 A Main sett was located within Hedgerow 3 in the south-west corner of the survey area (Target Note 2). It comprised 10 well used sett entrances with large spoil heaps indicating a significant underground tunnel network. There were several latrines within a close vicinity of the sett. This sett is likely to constitute the principal location of shelter and breeding for the social group of badgers located in the area.
- 2.5.8 An Outlier sett with one well used entrance was located within Hedgerow 4 (Target Note 3). The entrance to the sett was situated within the grassy verge on the edge of the cultivated area. The tunnel was noted to continue in a north-west direction beneath the cultivated field.
- 2.5.9 An Annex sett with one well used entrance was situated 85m north-east of the Main sett approximately 1m east of Hedgerow 4 (Target Note 4) and within the improved grassland field.
- 2.5.10 The survey area is likely to encompass an important part of the territory of the badger clan that are primarily based at the main sett identified on site. The grazed pasture grassland and hedgerows provide good foraging opportunities, with the hedgerows and tress providing fruit and the pasture grassland providing earthworms and other invertebrate prey.

#### Evaluation

- 2.5.11 Badgers on site are considered to be of **Local** level importance.

---

<sup>9</sup> Lewns, P., Clarkson, T. & Lewns, D. (2019). *Badger Survey and Mitigation Guidelines (The Mammal Society Mitigation Guidance Series)*. Eds. Fiona Mathews and Paul Chanin. The Mammal Society, London. (as yet unpublished)



## **Bats**

### Methodology

- 2.5.12 The assessment of the suitability of the Site for foraging and roosting bats was based on current guidance set out by the Bat Conservation Trust<sup>10</sup> and supplementary guidance laid out in the North Somerset and Mendip Bat SAC guidance on development<sup>11</sup>

### *Buildings*

- 2.5.13 The exteriors of the buildings were examined through the use of ladders, torches and binoculars for potential roosting features (PRFs). Wherever possible, these points were thoroughly investigated using ladders and a video fibrescope to determine the likelihood of their occupation and evidence of presence. Extra factors taken into consideration included the potential for noise disturbance to the potential roost feature, exposure to the elements, lighting levels, proximity/connectivity of vegetation and water and whether these PRFs led on to cavities further into the structure.
- 2.5.14 Internally, all accessible roof voids and accessible parts of the building were entered where safe and possible to do so in order to describe their characteristics and to look for PRFs. A 1 million candle-power torch, ladders and a video fibrescope were used where necessary. Any signs of occupation including urine staining, prey remains, fur rubbing marks and droppings were noted where found. Droppings were compared against reference material to identify likely species, but DNA analysis may be undertaken in certain circumstances to confirm species identification
- 2.5.15 Following the inspections, each building was assigned a 'high', 'medium', 'low' or 'negligible' category as a guide to inform any necessary further survey effort as stipulated in the Bat Surveys Good Practice Guidelines (Bat Conservation Trust, 2016).

### *Trees*

- 2.5.16 An inspection of trees on site was carried out from the ground, using binoculars, to record any signs of use of the tree by bat species. A ladder, powerful torch and a video fibrescope were available. Features such as frost cracks, rot cavities, flush cuts, split or decaying limbs (including hazard beams), loose bark and dense plates of ivy were inspected and recorded. Any signs of staining (from urine or fur rubbing) and scratch marks below potential access points were noted, and a search was made for droppings underneath these features.

### *Habitat*

- 2.5.17 The habitats within the Site were appraised for their suitability for use by foraging and commuting bats. In particular, the connectivity of the habitats on site to those lying beyond was taken into account. Vegetated linear features are typically important for many species to navigate around the landscape, while the presence of woodland, scrub, gardens, grassland and wetland features increases a site's foraging resource value to bats. The potential for noise or lighting disturbance which may affect commuting links was also recorded.

### *Bat Emergence Survey*

- 2.5.18 Emergence surveys of 56 Farleigh Road were carried out on 8<sup>th</sup> and 15<sup>th</sup> September 2014 and an update survey was carried out on 5<sup>th</sup> August 2020. An emergence survey of 54 Farleigh Road was carried out on 28<sup>th</sup> July 2020. The surveys were undertaken to confirm the presence or likely absence of roosting bats within the buildings, identify the numbers and species of any bats using the buildings and to identify key access points for bats. Surveyors were equipped with ultrasonic bat detectors and digital file recorders for later analysis. Surveyors recorded all bat activity, but particularly focussed their attention on whether bats emerged or re-entered the buildings. Surveyors documented the results by noting the time, bat species and behaviour. Surveyors had good lines of sight for bat surveying and it is highly unlikely that even quietly echolocating bats

---

<sup>10</sup> Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3<sup>rd</sup> edn). The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1.

<sup>11</sup> Burrows L. North Somerset and Mendip Bat SAC guidance on development v2.1



were missed. Each survey commenced at least 10 minutes prior to sunset and continued for at least 1.75 hours.

- 2.5.19 All emergence surveys were carried out at suitable times of year and during suitable weather to record bat activity: no rain, no strong wind and air temperatures above 8°C.

#### *Bat Activity Transects*

- 2.5.20 Surveys were undertaken according to the Bat Conservation Trust's Bat Surveys: Good Practice Guidelines (2016) and involved the walking of predetermined transect by two surveyors considered by Clarkson and Woods to be competent to undertake the survey and experienced in the use of bat detectors and in carrying out bat activity surveys.
- 2.5.21 The surveys were only undertaken when weather conditions were suitable for bats to emerge and to feed: i.e. little or no rain; no strong wind; and air temperatures above 8°C.
- 2.5.22 A continuous transect route was pre-determined around the Site to cover linear and other features likely to be used by bats such as hedgerows, lines of trees, tracks, open pasture, and field boundaries. The transect route included walked sections as well as static listening points which covered a variety of habitat features spread across the site.
- 2.5.23 The transects commenced 15 minutes before sunset and were walked at a slow pace for at least three hours, with three minutes spent at each static listening point. The starting position changed with each survey to increase the range of locations in which surveyors collected data at particular times.
- 2.5.24 Surveyors documented the results by noting the time, bat species and behaviour onto pre-designed survey sheets and site plans. Commuting bats and their direction of travel were easily observed immediately following sunset, when light levels were high. As light levels dropped, observation of bat behaviour was often not possible and therefore behaviour such as: 'pass'; 'foraging'; or simply 'heard not seen' was recorded. Foraging was only recorded if feeding buzzes were heard or bats were observed catching or attempting to catch prey. Single bat passes were defined as bat calls that separated from other bat calls by at least one second.
- 2.5.25 Surveyors during the 2014 surveys were equipped with ultrasonic bat detectors: either a Batbox Duet (heterodyne and frequency Division), Pettersson D240x (heterodyne and time expansion – used in conjunction with the frequency division output from the Batbox Duet) or Anabat (frequency division – used in conjunction with either Pettersson D240x or Batbox Duet) bat detectors. Most bat species were identified in the field, using the heterodyne outputs. However, digital WAV or MP3 recorders (Zoom or iRiver recorders) were also used to record all bat calls for later analysis using BatSound or Analook computer software. This analysis was only carried out by experienced operatives.
- 2.5.26 During the 2020 update surveys surveyors were equipped with handheld bat detectors Echo Meter Touch with an iPad Mini (Wildlife Acoustics), which feature integrated recorders. The survey recordings were later analysed on a computer using Kaleidoscope (Wildlife Acoustics) software to confirm or identify species.
- 2.5.27 Table 6 below provides the dates, weather conditions, sunset/sunrise times, survey start and end times for each of the walked transects and Figure 5 shows the transect route, stopping points and static detector locations.

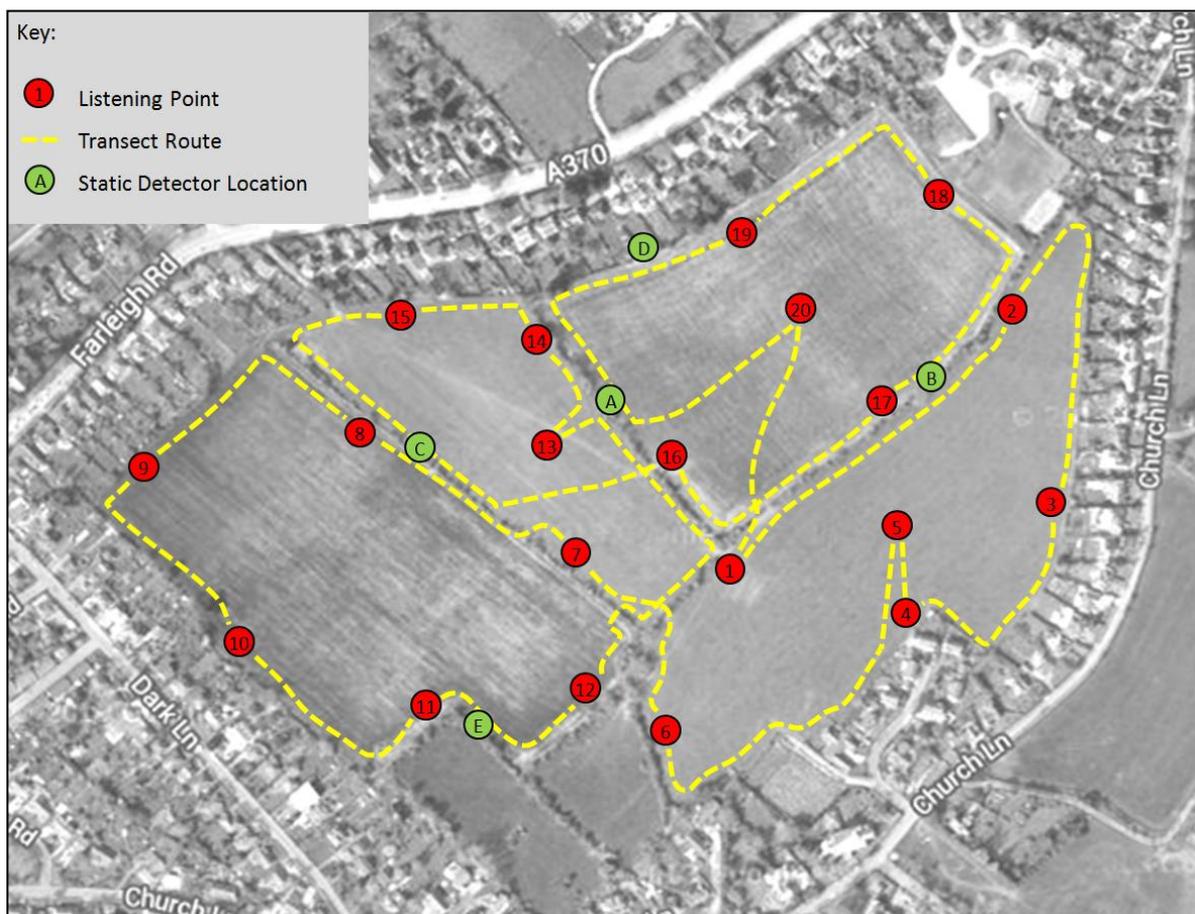


**Table 5: Bat Activity Transect Details**

| Date       | Sunset | Start time | Temp at start (°C) | Temp at end (°C) | Wind (Beaufort scale) | General Weather Conditions              | End time |
|------------|--------|------------|--------------------|------------------|-----------------------|---|----------|
| 15/05/14   | 20:55  | 20:40      | 15                 | 13               | 1                     | Dry, scattered clouds                   | 23:40    |
| 28/05/2014 | 21:13  | 20:58      | 11                 | 11               | 2                     | Predominantly dry, mostly cloudy        | 00:00    |
| 09/06/2014 | 21:25  | 21:10      | 15                 | 15               | 1                     | Dry, mostly cloudy                      | 00:10    |
| 30/06/2014 | 21:30  | 21:15      | 15                 | 13               | 1                     | Dry, partly cloudy with light breeze    | 00:15    |
| 16/07/2014 | 21:20  | 21:05      | 17                 | 16               | 1                     | Mostly dry with short showers at 23:10. | 00:10    |
| 29/07/2014 | 21:03  | 20:48      | 19                 | 16               | 0                     | Dry, mostly clear and still             | 23:50    |
| 07/08/2014 | 20:48  | 20:33      | 15                 | 15               | 1                     | Dry, mostly clear with light breeze     | 23.40    |
| 19/08/2014 | 20:25  | 20:05      | 12                 | 10               | 0                     | Dry, scattered clouds and still         | 23:20    |
| 03/09/2014 | 19:52  | 19:37      | 18                 | 15               | 1                     | Dry, mostly cloudy with light breeze    | 22:45    |
| 08/09/2014 | 19:41  | 19:25      | 16                 | 13               | 1                     | Dry, mostly clear with light breeze     | 22:30    |
| 19/05/2020 | 21:02  | 21:00      | 16                 | 14               | 1                     | Dry, mostly clear with light breeze     | 00.00    |
| 11/06/2020 | 21:27  | 21:27      | 14                 | 13               | 2                     | Dry, overcast                           | 00.25    |
| 29/06/2020 | 21:31  | 21:31      | 14                 | 13               | 2                     | Dry, overcast                           | 00.30    |
| 06/07/2020 | 21:28  | 21:28      | 16                 | 14               | 2                     | Clear, dry                              | 00.25    |
| 21/07/2020 | 21:14  | 21:19      | 17                 | 13               | 1                     | Dry, scattered clouds                   | 00.15    |
| 12/08/2020 | 20:42  | 20:42      | 17                 | 14               | 0                     | Dry, clear                              | 23:45    |
| 26/08/2020 | 20:12  | 20:12      | 19                 | 14               | 1                     | Scattered clouds, dry                   | 23:15    |
| 15/09/2020 | 19:22  | 19:22      | 20                 | 17               | 3                     | Mostly clear, dry                       | 22:25    |
| 24/09/2020 | 19:03  | 19:03      | 12                 | 11               | 2                     | Scattered cloud, dry                    | 22:05    |
| 08/10/2020 | 18:32  | 18:32      | 13                 | 12               | 0                     | Overcast, dry                           | 21:30    |

#### Static Detector Survey

- 2.5.28 During the 2014 surveys, one automated full spectrum static detector (SM2BAT or SM2BAT+) was deployed once a month May -October to record over five consecutive days. During the 2020 surveys this was increased to five static detectors (Anabat Swift, SM2BAT+), which were deployed each month May – October to record over 7 days. Detector locations remained the same over the two survey periods and were selected to focus on key habitat features identified during the activity surveys and areas that are likely to be most affected by the proposed development (Figure 5). The detectors were programmed to start recording 0.5 hrs before sunset until 0.5 hrs after sunrise.
- 2.5.29 Data downloaded from the static detectors was processed using Wildlife Acoustics' Kaleidoscope Pro automatic species recognition software. Subsequently the outputs from the automated analysis were manually verified using the Kaleidoscope software or using Titley Scientific's Anlook software. Manual checks were made of all non-identified files and upto 10% of the noise files were examined to ensure significant numbers of bats calls had not been missed. Rare species were also manually checked to ensure these were correctly identified.



**Figure 5: Map showing transect route, stopping points and static detector locations**

### Limitations

- 2.5.30 Bats are very small creatures, capable of secreting themselves away into extremely small spaces and it is possible that these animals, or their signs, might have been missed during the survey if they are normally present opportunistically or in small numbers for a short period of time each year.
- 2.5.31 Not all features in trees or buildings suitable for use by bats are visible from the ground and there can be no external evidence of use of features by bats; consequently it is only possible to make a best effort when carrying out such a survey.
- 2.5.32 Bat detectors are known to be more sensitive to certain bat calls than to others for reasons such as varying bat call loudness and directionality of certain calls. For example, a call from a horseshoe bat is directional and a bat detector will only be able to record the call if the bat echo-locates directly at the detector whereas a common pipistrelle call is less directional and can be recorded even when the call is aimed away from the microphone. This can result in certain bat species (notably horseshoe bats and long-eared bats) being under-recorded due to the limitations of the current bat detectors. The difference in recording efficiency may therefore bias any results and this has been taken into account where possible during any assessment of the results.
- 2.5.33 Static detector data has been analysed using the latest Kaleidoscope Pro automated analysis software. This software has been specifically designed to automatically classify the known bat calls of Britain and Ireland.
- 2.5.34 The programme automatically identifies bat calls using various algorithms and provides statistical levels of confidence associated with each classified call. The confidence levels reflect the fact that there will be certain classification errors related to every classified bat call. With experience of using the software it appears that, on the whole, it is reliable when identifying certain bat calls (common and soprano pipistrelles, noctule, serotine, Leisler's, lesser and greater horseshoe bats) but less reliable when identifying other species (long-eared and barbastelle bat species).



- 2.5.35 The software does not distinguish between the various *myotis* species and simply classifies them to genus level (ie *Myotis* sp.). This is in line with classification that would be achieved by manual identification due to the similar nature of *Myotis* calls making species classification subject to a high degree of error.
- 2.5.36 Steps have been taken to compensate for the inherent under or over recording of some species; all records of greater horseshoe, lesser horseshoe, barbastelle, myotis and long-eared species identified by the automated software have been manually verified and where appropriate the call identity corrected. The Kaleidoscope classifications have been presented unaltered but with the addition of a note (where applicable) below the data outlining the results of any manual verification/correction.
- 2.5.37 Where the software is unsure of a bat call, it will classify the call as 'NoID'. Where a relatively high number of calls are classified as NoID (more than 10% of a data set), these calls were also manually verified by an experienced ecologist. NoID results are included within this report.
- 2.5.38 In conclusion, the classification data produced from Kaleidoscope, along with any manual verification of certain problem/important species, is considered to provide an accurate record of the bat species recorded by a static bat detector and as such has been used with confidence within this report.

#### Desk Study Information

- 2.5.39 The application Site is located within 'Band B' of the Greater Horseshoe Bat Consultation Zone and 'Band C' of the Lesser Horseshoe Bat Consultation Zone for the North Somerset and Mendip Bats Special Area of Conservation (SAC). Greater horseshoe bat is listed as a priority species within the North Somerset BAP.
- 2.5.40 The BRERC data search revealed records of thirteen bat species within 5km of the survey area including common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, lesser horseshoe *Rhinolophus hipposideros*, greater horseshoe *Rhinolophus ferrumequinum*, brown long-eared bat *Plecotus auritus*, serotine *Eptesicus serotinus*, noctule *Nyctalus noctula*, Leisler's bat *Nyctalus leisleri*, Natterer's bat *Myotis nattereri*, Daubenton's bat *Myotis daubentonii*, Brandt's bat *Myotis brandtii*, whiskered bat *Myotis mystacinus* and barbastelle *Barbastella barbastellus*.
- 2.5.41 Of these, at least six species have been recorded within 500m of the survey area including common pipistrelle, soprano pipistrelle, serotine, greater horseshoe, brown long-eared bat and *Myotis* species. Serotine bats have been recorded foraging within the survey area boundaries.
- 2.5.42 A number of bat roosting sites have been recorded within 1km of the Site including a maternity roost for both common pipistrelle and serotine bat species located approximately 500m west of the Site. A significant serotine maternity roost was also recorded 750m north-east of the Site with 65 individuals counted in 2003. A greater horseshoe night roosting site was recorded in 2001 within the same 1km grid square as the survey area. A hibernation site for small numbers of both lesser horseshoe and greater horseshoe was discovered 1km east of the Site in 2000.

#### Field Survey Results

##### *Habitat Assessment*

- 2.5.43 The vegetated habitats present on within the survey area (Blue Line Boundary) are suitable for both foraging and navigation by a range of bat species. The field boundaries, comprising uncut and often defunct overgrown hedgerows with trees, provide suitable navigational features for dispersing bats as they link into the wider agricultural hedgerow network, as well as the wooded northern slopes of the Mendips. The boundaries are also likely to be used for foraging by species such as pipistrelle, long-eared, greater horseshoe, lesser horseshoe and *Myotis* sp. bats. Although the low plant species diversity is not expected to support a rich invertebrate food source, their collective size means the open fields of improved pasture are suitable for foraging by species including serotine, noctule, Leisler's and greater horseshoe bats. The regular grazing by cattle will provide foraging opportunities for greater horseshoe bats in the form of dung beetles. However the short cattle grazed pasture is unlikely to support the macro moth communities favoured by lesser horseshoe bats. Overall the habitat on Site is considered to be of moderate value to foraging and commuting bats.

##### *Buildings*

- 2.5.44 Three residential properties along Farleigh Road (54, and 56 Farleigh Road) form part of the application Site and 54 are proposed to be demolished to facilitate provision of an access road onto the Site. 58 Farleigh



Road was also included as part of the ecological surveys but lies outside of the application Site and will be retained as part of the proposals. A description of the buildings along with an assessment of their suitability to support roosting bats is provided in Table 6 below.

**Table 6: Building Descriptions**

| Building reference                     | Building description   | Wildlife potential   |
|--|--|--|
| B1<br>(54 Farleigh Road)               | Mid-20 <sup>th</sup> Century two storey detached house with pebble-dash elevations, a hipped roof with clay tiles and a concrete ridge. The roofing tiles were tightly sealed in the most part, although several gaps under the tiles above the guttering at eaves level on the southern elevation were noted. A wooden soffit box was present beneath the eaves of the roof with several narrow gaps present where the box met the exterior wall, particularly on the western elevation. Three chimneys were present that contained intact lead flashing at their bases. Although the loft had been converted into a living space in the large part, the building did feature a small void in the lower portions of the roof. The roof void was lined with bitumen felt that was intact and supported conditions suitable for roosting bats such as low light levels and a stable warm temperature. . No evidence of open-roosting bats, such as brown long-eared bat <i>Plecotus auritus</i> , was recorded within the loft void and although the exterior of the building contained several potential access points for bats it was generally considered to have a low bat roosting potential for crevice-dwelling species. | <b>Low</b> potential for roosting bats from a small number of sub optimal features.<br><br>Suitable for nesting birds. |
| B2<br>(56 Farleigh Road)               | Mid-20 <sup>th</sup> Century two storey detached house with pebble dash elevations and clay tiled hipped roof that comprised two distinct conjoining sections. The clay tiles were found to be tightly sealed with limited gaps that could provide access for roosting bats. A large wooden soffit box was present beneath the eaves that had several narrow gaps at the corner joints particularly on the southern elevations. Two separate roof voids were present in the northern and southern sections of the building. Both were found to be lined with bitumen felt and supported suitable conditions for roosting bats such as low light levels and a stable temperature. No evidence of open-roosting bats was recorded within either of the loft voids and although the exterior of the building contained several potential access points for bats it was generally considered to have a low bat roosting potential for crevice-dwelling species.  | <b>Low</b> potential for roosting bats from a small number of sub optimal features.<br><br>Suitable for nesting birds. |
| B3<br>(56 Farleigh Road, Garden Shed ) | A recently built garden shed was present at the southern end of the rear garden at 56 Farleigh Road. The shed had timber clad elevations and a pitched clay tiled roof. The shed did not contain a roof void and no crevices suitable for use by roosting bats. The building was considered to have negligible potential for use by roosting bats.   | <b>Negligible</b> potential for roosting bats.<br><br>Suitable for nesting birds.                                      |
| B4<br>(58 Farleigh Road)               | A recently renovated two storey residential building with rendered elevations and a clay tiled steeply pitched roof with dormer windows. The tiles were modern and tightly sealed with no potential access points for bats observed. Several gaps were noted where the pan tiles met the wood panelled exterior of the dormer windows on the northern elevation. Several gaps were also noted beneath the lead flashing where the dormer windows met the tiled pitched roof. The internal roof void was lined with a breathable roofing membrane and was well insulated and contained low light levels that were considered suitable for roosting bats. No evidence of open-roosting bats, such as brown long-eared bat, was recorded within either of the loft voids and the building was generally considered to have a low bat roosting potential for crevice-dwelling species.   | <b>Low</b> potential for roosting bats from a small number of sub optimal features.<br><br>Suitable for nesting birds. |



## Trees

- 2.5.45 Occasional mature trees were present within the hedgerow network on site and within the residential properties of 54, 56 and 58 Farleigh Road. These were assessed for their suitability to support roosting bats during the initial ecological survey in October 2013. In the most part the trees were not seen to contain the deep fissures, cracks and splits which can offer suitability for roosting bats and were therefore classified as Category 3 according to the Bat Conservation Trust: Good Practice Guidelines (2016), meaning they do not currently have the potential to support roosting bats.
- 2.5.46 The exception was one large veteran ash tree (Target Note 1, Figure 4) within Hedgerow 6 that contained features that had definite bat roosting potential at least for individual bats if not larger maternity colonies and was therefore classified as Category 1 according to the Bat Conservation Trust's Good Practice Guidelines (2016). A large knothole was present on the north-east side of the main trunk 2.5m above the ground and a second knothole was present on the primary limb on the eastern side of the tree, approximately 6m from the ground. These features were inspected on 15<sup>th</sup> May 2014 using a ladder and a video fibrescope. The tree inspection found no evidence of roosting bats within either of the two features described above.

## Activity Transect Surveys

- 2.5.47 Ten bat activity surveys were undertaken in 2014 and were repeated in 2020 in line with the guidance set out in the North Somerset and Mendip Bat SAC guidance on development (2019) and the Bat Conservation Trust Good Practice Guidelines (2016). The details of the dates and conditions during the surveys are provided in Table 6 above and the location of stopping points is shown in Figure 5.
- 2.5.48 The analysis of bat activity within this impact assessment focuses on the data collected during the 2020 surveys only as this is the most up to date, relevant and comprehensive information to inform the impact assessment for the current proposals. The data collected during the 2014 surveys are provided in Appendix C.
- 2.5.49 Overall at least 9 species of bat were recorded during the transect surveys which included the following
- Serotine *Eptesicus serotinus*
  - Myotis Sp (potentially comprising *M. daubentonii*, *bechsteini*, *brandtii*, *mystacinus* & *nattereri*)
  - Noctule *Nyctalus noctula*
  - Leisler's bat *Nyctalus leisleri*
  - Common pipistrelle *Pipistrellus pipistrellus*
  - Soprano pipistrelle *Pipistrellus pygmaeus*
  - Brown long-eared bat *Plecotus auritus*
  - Greater horseshoe *Rhinolophus ferrumequinum*
  - Lesser horseshoe *Rhinolophus hipposideros*
- 2.5.50 Myotis Sp are likely to constitute more than one species but these species are grouped due to the similar nature of their calls making classification subject to a high degree of error.
- 2.5.51 Overall 1218 passes were recorded throughout all of the bat activity surveys which are summarised in Table 7 below. An illustrated summary of the location of passes recorded is given in Figure 6 below to show the variation in activity levels across the Site.
- 2.5.52 Activity levels varied seasonally with the highest levels of activity being recorded in between mid-July and mid-September with smaller peaks in early June and early October and lower activity recorded in May, late June to early July and late September. Activity was slightly higher in the second half of the survey season. Overall bat activity was considered to be moderate to high when compared with other semi-rural / urban fringe sites in the south-west that Clarkson and Woods have surveyed with approximately 40 calls per hour across all of the surveys undertaken.

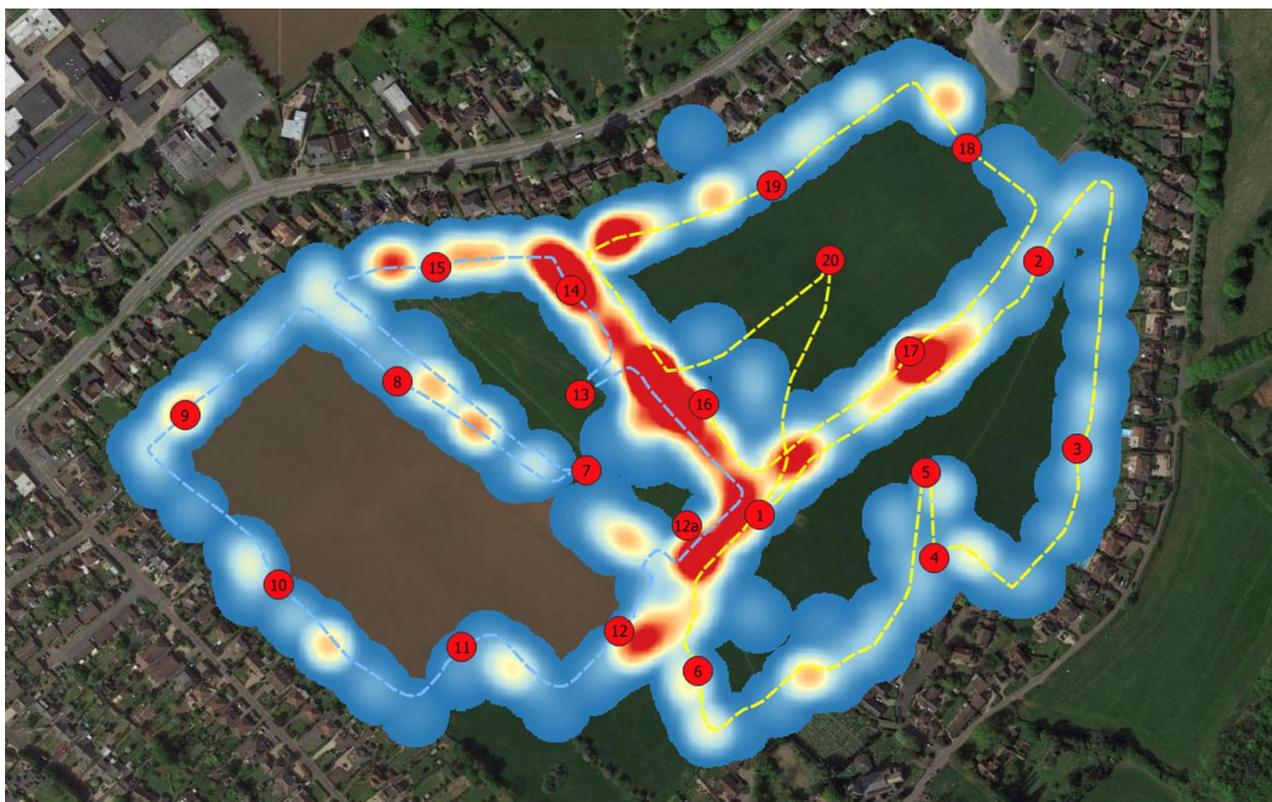


**Table 7: Number of Calls Per Species Recorded During Manned Transect Surveys (2020)**

| Species of bat                  | 30-May-20 | 11-Jun-20  | 29-Jun-20 | 06-Jul-20 | 21-Jul-20  | 12-Aug-20  | 26-Aug-20  | 15-Sep-20  | 24-Sep-20 | 08-Oct-20  | Total calls per species |
|---------------------------------|-----------|------------|-----------|-----------|------------|------------|------------|------------|-----------|------------|-------------------------|
| Serotine                        | 36        | 0          | 20        | 45        | 81         | 77         | 42         | 52         | 0         | 2          | <b>355</b>              |
| <i>Myotis S.p</i>               | 5         | 1          | 6         | 2         | 12         | 3          | 15         | 7          | 0         | 7          | <b>58</b>               |
| Noctule                         | 0         | 3          | 0         | 1         | 2          | 10         | 0          | 23         | 1         | 0          | <b>40</b>               |
| Leisler's Bat                   | 1         | 0          | 0         | 5         | 4          | 8          | 2          | 0          | 0         | 0          | <b>20</b>               |
| Common pipistrelle              | 49        | 105        | 33        | 4         | 50         | 83         | 97         | 88         | 12        | 110        | <b>631</b>              |
| Soprano pipistrelle             | 2         | 15         | 12        | 0         | 0          | 19         | 15         | 6          | 10        | 2          | <b>81</b>               |
| Brown long-eared                | 0         | 0          | 1         | 0         | 2          | 2          | 2          | 2          | 0         | 4          | <b>13</b>               |
| Greater horseshoe               | 2         | 3          | 2         | 0         | 1          | 0          | 6          | 2          | 0         | 0          | <b>16</b>               |
| Lesser horseshoe                | 0         | 0          | 0         | 0         | 0          | 0          | 2          | 0          | 1         | 1          | <b>4</b>                |
| <b>Total calls per transect</b> | <b>95</b> | <b>127</b> | <b>74</b> | <b>57</b> | <b>152</b> | <b>202</b> | <b>181</b> | <b>180</b> | <b>24</b> | <b>126</b> | <b>1218</b>             |

2.5.53 As illustrated in Figure 6 below, the spatial distribution of bat calls was not even across the Site with bat activity concentrated along the hedgerow network and lower activity recorded within the field centres; although common pipistrelle, serotine and noctule bats were occasionally observed foraging and commuting within the centres of the fields. Different field boundaries were also found to have varying levels of bat activity with the central hedgerows (particularly Hedgerows 1 and 2) supporting higher levels of bat activity compared with the field boundaries along the perimeter of the Site. Hedgerow 2 was found to support the highest level of activity and was considered to be the most important feature for foraging and commuting bats during the manned surveys.

2.5.54 Overall common pipistrelle was the most frequently recorded species comprising 51.81% (631 passes) of the total calls. Serotine bats (29.15%, 355 passes) were also frequently encountered. Soprano pipistrelle (6.65%, 81 passes), *Myotis Sp* (4.76%, 58 passes) and noctule (3.28%, 40 passes) were encountered in low numbers during the majority of surveys. The remaining bat species were recorded in very low numbers during some surveys and were not recorded at all in several surveys; brown long-eared (1.07%, 13 bat passes, 4 surveys in which none were recorded), Leisler's bat (1.64%, 20 bat passes, 5 surveys in which none were recorded) greater horseshoe (1.31%, 16 passes, 4 surveys in which none were recorded) and lesser horseshoe (0.33%, 4 passes, 7 surveys in which none were recorded).



**Figure 6: A Heatmap Showing the Spatial Distribution of Bats Recorded during the Activity Surveys**

- 2.5.55 Common pipistrelle were the most frequently recorded species on each of the transect surveys, accounting for 51.87% of overall bat passes. This species was recorded foraging across a range of habitats on Site although most bats were observed foraging along linear vegetated features, particularly Hedgerows 1 and 2. Common pipistrelle was occasionally recorded relatively early in the evening which suggests that a roosting Site is potentially within the vicinity of the survey area. Soprano pipistrelle had significantly lower levels of recorded activity with peaks in June and August and no activity recorded in July.
- 2.5.56 A total of 355 serotine bat passes were recorded over the ten surveys with a peak of activity occurring between July to early September with significantly lower activity in Spring and Autumn. The vast majority of passes on site were from foraging individuals recorded at least 1 hour after sunset which suggests that individuals were commuting into the survey area from surrounding roost sites in order to utilise the foraging resources on site. The high abundance of serotine recorded overall indicates that the survey area is of local importance as a foraging resource for this species.
- 2.5.57 Noctule bats were recorded in low numbers in each month with no passes from this species occurring May. The majority of noctule recordings were single passes from commuting individuals flying high above the fields with no particular association to the habitats on site. Noctule bats were observed foraging on site on two occasions. Noctule bats were commonly the first species to be recorded during the survey with passes occurring between 0 – 30 minutes after sunset on five surveys. Leisler's bat were infrequently recorded during July and August and were largely absent in Spring and Autumn.
- 2.5.58 Myotis bat species were recorded relatively consistently throughout the survey period with low numbers recorded in each month. The majority of observations from these species were from bats foraging along the internal hedgerow boundaries.
- 2.5.59 Brown long-eared bat were recorded very infrequently throughout the survey period with low numbers recorded each month except May. This species typically emits very quiet echolocation calls and as such may be underrepresented in the data.
- 2.5.60 Lesser horseshoe bats were only recorded after mid-August with a peak count of 2 passes in August and 1 pass in September and October which were recorded along the southern boundary of the survey area and Hedgerows 1 and 2. These results indicate that the field boundaries of the survey area are utilised by a small number of lesser horseshoe bats for foraging and commuting across the landscape, possibly only on a seasonal basis in late summer and early autumn.



- 2.5.61 Greater horseshoe bats were recorded in low numbers in each month except October. This species was recorded along the perimeter boundaries of the survey area which back onto residential gardens as well as utilising the interior mature hedgerows such as Hedgerows 1 and 2. No instances of foraging behaviour being recorded during the surveys although it is likely that greater horseshoe bats make use of the habitats within the survey area for both occasional foraging and commuting.
- 2.5.62 Greater and lesser horseshoe bats emit highly directional echolocation calls which are often difficult to detect and therefore may be underrepresented in the data.

#### Static Detector Surveys

- 2.5.63 Static detector location references are shown in Figure 5. A summary of the number of passes per bat species is included in Figure 7 below and a summary of the total number of calls each month is included in Table 8 and the relative use of each detector location is provided in Table 9.

**Table 8: Summary of Bat Activity Recorded During Static Detector Surveys**

| Species                | May         | Jun         | Jul         | Aug         | Sep         | Oct         | Total passes (%)     |
|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|----------------------|
| Common pipistrelle     | 3123        | 3266        | 4906        | 2205        | 2015        | 1602        | <b>19119 (59.7%)</b> |
| Soprano pipistrelle    | 441         | 210         | 233         | 229         | 339         | 85          | <b>1507 (5.3%)</b>   |
| Nathusius' pipistrelle | 0           | 2           | 0           | 5           | 4           | 7           | <b>18 (0.1%)</b>     |
| Serotine               | 1081        | 814         | 548         | 391         | 76          | 16          | <b>2926 (10.2%)</b>  |
| Noctule                | 121         | 237         | 257         | 223         | 353         | 159         | <b>1350 (4.7%)</b>   |
| Leisler's              | 179         | 32          | 184         | 226         | 156         | 150         | <b>927 (3.2%)</b>    |
| Myotis                 | 208         | 272         | 355         | 58          | 119         | 73          | <b>1085 (3.8%)</b>   |
| Brown long-eared       | 50          | 59          | 90          | 23          | 50          | 11          | <b>283 (1.0%)</b>    |
| Barbastelle            | 3           | 3           | 7           | 16          | 2           | 2           | <b>33 (0.1%)</b>     |
| Greater horseshoe      | 144         | 178         | 293         | 164         | 122         | 15          | <b>916 (3.2%)</b>    |
| Lesser horseshoe       | 161         | 104         | 44          | 71          | 100         | 45          | <b>525 (1.8%)</b>    |
| <b>Total</b>           | <b>5511</b> | <b>5177</b> | <b>6917</b> | <b>3611</b> | <b>3336</b> | <b>2165</b> | <b>28689</b>         |

- 2.5.64 Overall at least 11 species of bat were recorded during the automated static detector surveys as shown above in Table 8. This is likely to be an underestimate as the Myotis Sp. are likely to constitute more than one bat species. The static detector survey recorded an additional two species when compared with the activity transect surveys with Nathusius' pipistrelle and barbastelle bat being recorded at very low rates, both species accounting for 0.1% of total bat passes.
- 2.5.65 The relative levels of activity noted during the automated survey was largely similar to the manned activity transects with common pipistrelle the most frequently recorded species, accounting for almost 60% of all passes. Common pipistrelle were recorded more frequently in the first three months but maintained relatively high activity throughout the survey season. Common pipistrelle was recorded fairly evenly when comparing the different static detector locations, with Location B (Hedgerow 1) recording the highest levels of activity for this species.
- 2.5.66 Serotine was again the second highest recorded species but the percentage of passes was significantly lower when compared with the manned transects at 10.2%. Serotine were recorded most frequently at the start of the survey season, in May (a month with fewer recording nights), and rates declined steadily in each subsequent month. The highest levels of serotine activity were recorded in Locations A (Hedgerow 2) and D (garden fences along northern boundary).



- 2.5.67 Moderate rates of Soprano pipistrelle (5.3%) calls were recorded at relatively consistent levels across all detector locations and all months with a decline in October. The two *Nyctalus* species, Noctule and Leisler's bat, were also recorded at moderate levels (4.7% and 3.2% respectively) with no significant patterns in the spatial or temporal distribution of the data. Leisler's were recorded in significantly lower numbers in June. *Myotis* species (3.8%) were recorded in moderate numbers, with much higher abundance in the first half of the survey season.
- 2.5.68 Low numbers of brown long-eared (1%) were recorded across the survey season, with a peak of activity in July. Very low numbers of barbastelle and Nathusius' pipistrelle were recorded (both 0.1%) with barbastelle recorded relatively consistently throughout the season but Nathusius' pipistrelle abundance increasing in the second half
- 2.5.69 Relative levels of greater horseshoe activity was higher during the static detector survey compared with the manned transects. 916 greater horseshoe passes (3.2%) were recorded during the survey which constitutes a moderate level of activity for this species which is considered rare and has a restricted distribution in the UK. Greater horseshoe bat had a relatively even spatial distribution across the survey area with highest activity levels recorded at Location B (Hedgerow 1). This east to west field boundary running across the survey area may be the favoured route for commuting across the Site.
- 2.5.70 Lesser horseshoe were recorded in low numbers across the survey season, with lower activity recorded in July and August. This coincides with the main period for giving birth and weaning pups for this species and individuals may forage closer to maternity roost sites at this time. As with greater horseshoes, Location B (Hedgerow 1) recorded the highest levels of activity and is likely to constitute a significant commuting route for this species.
- 2.5.71 The criteria for being able to class horseshoe bat activity on site as 'foraging' makes use of Miller's (2001) Activity Index. Call sequences with a negative minute on either side (i.e. a minute in which the species was not recorded) are judged to be commuting contacts, whereas contacts in two consecutive minutes or more are judged to be foraging contacts. Both greater and lesser horseshoe bats were confirmed as foraging in all of the static detector locations using the above criteria. This demonstrates that the whole Site is used by foraging horseshoe bats.

**Table 9: Summary of Static Detector Results at each Location**

| Location Ref          | May         | June        | July        | August      | September   | October     | Location totals |
|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-----------------|
| A                     | 1114        | 791         | 2498        | 800         | 780         | 931         | <b>6914</b>     |
| B                     | 1518        | 1031        | 1453        | 1792        | 1235        | 428         | <b>7457</b>     |
| C                     | 751         | 1580        | 1222        | 475         | 166         | 314         | <b>4508</b>     |
| D                     | 815         | 1141        | 840         | 123         | 654         | 446         | <b>4019</b>     |
| E                     | 1284        | 634         | 906         | 421         | 501         | 46          | <b>3792</b>     |
| <b>Monthly totals</b> | <b>5482</b> | <b>5177</b> | <b>6919</b> | <b>3611</b> | <b>3336</b> | <b>2165</b> |                 |

- 2.5.72 Overall, bat activity across the survey area was variable with highest activity levels recorded at Location A (Hedgerow 2) and B (Hedgerow 1) which corresponds with the analysis of the manned transect survey data. These internal overgrown hedgerows have been identified as supporting high levels of bat activity and are considered to be important features for foraging and commuting bats. The perimeter boundaries along with Hedgerow 4 were recorded as having lower levels of bat activity but are still considered to be of importance for foraging and commuting due to the moderate levels of use and species diversity, especially the persistent presence of high rates of serotine bat activity along the northern boundary. Monthly totals were higher within the first half of the survey season. The data suggests that the survey area supports a moderate level of bat activity when compared to similar semi-rural/urban fringe sites that C&W have conducted surveys on in the South West of England. The survey area supported a high level of species richness with at least 11 species recorded.



### Evaluation

- 2.5.73 Overall due to the frequent use (foraging and commuting) of the Site by horseshoe bats associated with the Internationally designated North Somerset and Mendips bat SAC along with the broad species assemblage recorded it is considered that the bats on the site are of **District** Importance.

### **Dormouse**

#### Methodology

- 2.5.74 Any hedgerows, scrub and woodlands were assessed during the walkover for their suitability to support dormice *Muscardinus avellanarius*. Particular consideration was paid to the abundance of food sources within them, density for nesting and overnight shelter and the strength of connectivity to other suitable habitats leading off site. In addition, any direct sightings, nests or feeding signs during the site visit were also recorded. Where hazel *Corylus avellana* was recorded on site, a search for gnawed hazelnuts was conducted.

#### Limitations

- 2.5.75 There was very little hazel on site and not enough fruiting hazel to undertake a nut search.

#### Desk Study Information

- 2.5.76 The BRERC data search returned records of dormice *Muscardinus avellanarius* within Cheston Coombe Wood and Jubilee Stone Wood with the closest record approximately 650m south of the application Site.

#### Field Survey Results

- 2.5.77 The Site was isolated from optimal dormouse habitat in the wider landscape due to the survey area being encircled by residential houses and roads which would likely present physical barriers to dormouse dispersal onto the Site.
- 2.5.78 The hedgerows within the survey area were largely species-poor, gappy and lacked the structural diversity and foraging resources to present optimal nesting and foraging opportunities for this species.
- 2.5.79 Due to the isolated nature of the Site, together with the sub optimal habitat within the survey area, it is considered unlikely that a population of dormice would be present within the Site.

### Evaluation

- 2.5.80 Dormouse are likely to be absent and as such are of **Negligible** importance.

### **Great Crested Newts and Toads**

#### Methods

- 2.5.81 All waterbodies within 250m of the Site were identified using Ordnance Survey maps and aerial imagery. Waterbodies within the site ownership and on publically accessible land were assessed during the field survey for their suitability to support amphibian species where access was possible.
- 2.5.82 Where suitable water bodies were identified on accessible land a Habitat Suitability Index (HSI) score was calculated for each one following the methodology described by Oldham et al<sup>12</sup>. HSI scores give a relative indication of the likelihood that a water body would support breeding great crested newts. Factors which increase these scores include the presence of other ponds nearby, water quality, pond size, absence of fish/waterfowl, vegetation cover and shading.
- 2.5.83 Terrestrial habitats were also assessed for their suitability for foraging and sheltering great crested newts. This species requires habitats such as grassland, scrub, woodland and hedgerows for dispersal and hibernation. Further hibernation features include buried rubble and logs, or mammal burrows.

---

<sup>12</sup> Oldham, R.S., Keeble L., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4), 143-155.

### Limitations

- 2.5.84 Three ponds located within 250m of the application Site were all located on private land and were not assessed for their suitability to support breeding populations of great crested newt.

### Desk Study Information

- 2.5.85 Defra's MAGIC map facility was checked for records of GCN in the local area from licence returns and eDNA surveys undertaken to inform the GCN district licence scheme for the area. Two ponds were identified as supporting a population of great crested newt within 1km and were located 445m and 553m south of the application Site.

### Field Survey Results

- 2.5.86 The heavily grazed improved grassland fields on site provided limited suitability as terrestrial habitat for amphibians and severe poaching by cattle in the spring, summer and autumn is likely to deter any amphibian from using the land, although the area might be used on a very occasional basis for opportunistic use or dispersal only. The ground associated with the hedgerows did provide suitable habitat for amphibians seeking summer refuge or winter hibernation.
- 2.5.87 Three ponds were identified within 500m of the survey area as shown in Figure 8. The three ponds were all located on private land and were not assessed for their suitability to support breeding populations of great crested newt. The ponds were located between 129m and 200m east of the survey area on the far side of a minor road and a row of residential houses. Although these features would not necessarily present physical barriers for great crested newt dispersal the gardens and small copses surrounding the ponds present higher quality terrestrial habitat than that within the site. Furthermore, it is unlikely that a dispersal route onto the site exists as the habitats on site were extensive and not seen to lead westwards toward further optimal habitat or waterbodies. No great crested newt records recorded beneath the refugia laid out for the reptile surveys carried out at the Site in 2014 and 2020. Taking all of the above into consideration it is though unlikely that this species would be present within the survey area in order to disperse to or away from the ponds identified.
- 2.5.88 It is possible that a small number of amphibians such as common frog *Rana temporaria* and common toad *Bufo bufo*, a UKBAP priority species, may disperse onto the site from adjacent habitats. It is unlikely that the site supports its own population of amphibians.



**Figure 8: Map of Ponds in Relation to the Application Site**



## Evaluation

- 2.5.89 Overall GCN are considered to be absent and therefore of **Negligible** importance

## **Reptiles**

### Methods

- 2.5.90 Features on Site were assessed for their potential to provide suitable habitats for use by reptile species. These include rough, tussocky grassland, scrub, disturbed land or refugia such as wood piles, rubble or compost heaps. Where present, suitable existing refugia were inspected for sheltering reptiles, and the ground was scanned whilst walking to look for basking species.
- 2.5.91 Following the baseline survey a reptile survey was undertaken between May and June 2014 and then repeated in October 2020. A total of 130 squares (0.5m X 0.5m) of roofing felt were deployed across areas of suitable reptile habitat such as the rough grassland field margins and hedgerow banks surrounding the fields. The tins and felts function as artificial refugia that reptiles will use to bask, providing areas where reptiles can be effectively recorded.
- 2.5.92 The survey was undertaken during the optimal survey season when reptiles are most active between April and September. The refugia were left undisturbed for at least seven days prior to the first check to allow reptiles to become accustomed to their presence, locate and use them. All refugia were then subsequently checked on seven separate occasions when the weather conditions were suitable (Froglife (1999) Advice Sheet 10, Halesworth) to establish whether reptiles were present on Site, and determine the population size. The locations of refugia, as well as the results of the survey, are provided in Figure 9 below and weather and surveyor details are included in Table 10 below.

### Limitations

- 2.5.93 During the second visit during the 2014 survey, it was noted that the majority of the refugia placed within the southern field had been trampled and torn/eaten by cattle and that the field margins had become heavily poached by the herd reducing the suitability of this field for reptiles. The refugia present a risk to the health of the cattle within the fields and therefore inappropriate to deploy refugia within the field whilst cattle were present. Due to the presence of cattle within the southern field throughout the survey period the refugia were not replaced.
- 2.5.94 The reptile survey was repeated in October 2020. This survey was carried out outside of the optimal survey season for reptiles and was therefore aimed to confirm the continued presence of reptiles at the Site rather than provide a reliable population estimate.

### Desk Study Information

- 2.5.95 Three species of reptile including grass snake *Natrix natrix*, slow worm *Anguis fragilis* and adder *Vipera berus* have been recorded approximately 750m south of the site with Cheston Coombe and Backwell Hill LWS.

### Field Survey Results

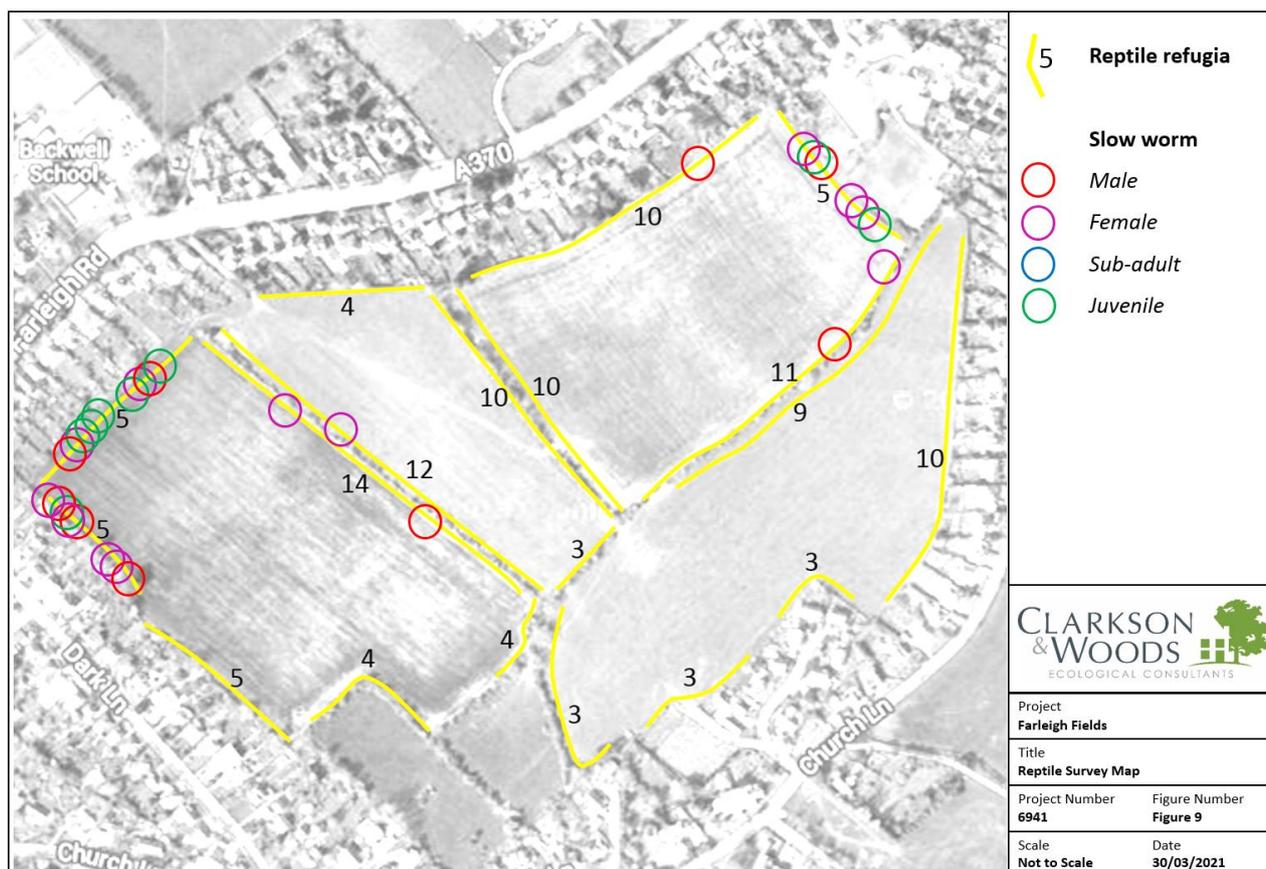
- 2.5.96 The heavily grazed improved grassland fields supported a species-poor and structurally homogeneous sward that provided limited cover and foraging opportunities for reptiles. Similarly, the cultivated field did not provide suitable habitat for reptile species.
- 2.5.97 The field margins that back onto residential gardens comprising longer grass and scrub patches, particularly within the arable field at the western end of the site and adjacent to Farleigh School at the eastern end, offered some suitability for widespread reptiles such as slow worm *Anguis fragilis* and grass snake *Natrix natrix*.
- 2.5.98 The results of the reptile survey are presented in Table 10 and are mapped within Figure 9. The survey revealed a 'good' population of slow worms at the Site according to the Froglife Advice Sheet, with a peak count of 9 individuals recorded on the fourth visit. It should be noted this is at the lower end of the good population size category, especially for a survey area of this size, however, the high proportion of juveniles indicate recent breeding success.
- 2.5.99 As illustrated in Figure 9, slow worms were primarily recorded within the north and western field margins of the arable field and the eastern field margin of the north eastern field, which backs onto Farleigh School. Smaller numbers of slow worm were also recorded within the eastern field margin of the arable field, the western

field margin of the central northern field and the northern and southern field boundaries of the eastern field. No other reptile species were recorded during the survey.

**Table 10: Reptile Survey Results**

| Visit | Date       | Weather                              | Slow worm |   |    |     |
|-------|------------|--------------------------------------|-----------|---|----|-----|
|       |            |                                      | M         | F | SA | Juv |
| 1     | 22/05/2014 | 15°C, Dry, Wind 2, Cloud 4           | 0         | 2 | 0  | 2   |
| 2     | 27/05/2014 | 13°C, Dry, Wind 2, Cloud 4           | 1         | 2 | 0  | 0   |
| 3     | 05/06/2014 | 15°C, Light showers, Wind 3, Cloud 5 | 4         | 4 | 0  | 6   |
| 4     | 09/06/2014 | 17°C, Dry, Wind 1, Cloud 1           | 1         | 4 | 0  | 4   |
| 5     | 13/06/2014 | 17°C, Dry, Wind 1, Cloud 1           | 0         | 2 | 0  | 1   |
| 6     | 16/06/2014 | 15°C, Dry, Wind 2, Cloud 2           | 3         | 0 | 0  | 1   |
| 7     | 20/06/2014 | 15°C, Dry, Wind 1, Cloud 3           | 0         | 2 | 0  | 1   |

2.5.100 During the update survey to confirm the continued presence of reptiles, carried out in October 2020, one female slow worm was recorded within the margins of the arable field. It is thought that the slow worm population at the Site had started to enter into hibernation due to early onset of cold weather and the 2020 survey should therefore not be used as an estimate of population size.



**Figure 9: Results of the Reptile Survey**

Evaluation

2.5.101 The reptiles recorded on Site are considered to be of **Local** Importance.



## Birds

### Methodology

2.5.102 All parts of the survey area were surveyed for signs of use by nesting birds and any birds seen or heard during the survey were noted. The Site's potential to support bird species of particular conservation concern (i.e. Schedule 1, NERC S41 and Red List species) was assessed, taking into consideration the bird species assemblage observed during the survey, the habitats present on and around the site, the context of the site in the wider landscape and the results of the desk study.

### Breeding Bird Survey

2.5.103 The survey area was surveyed for birds four times May - June 2014 and was updated with four surveys carried out May – June 2020. The aim of the surveys was to determine which bird species were using the survey area for breeding or exhibiting territorial behaviour and which habitats appeared to be of greatest value in terms of shelter and foraging. The surveys were carried out on the following days, under the weather conditions described in Table 11 below.

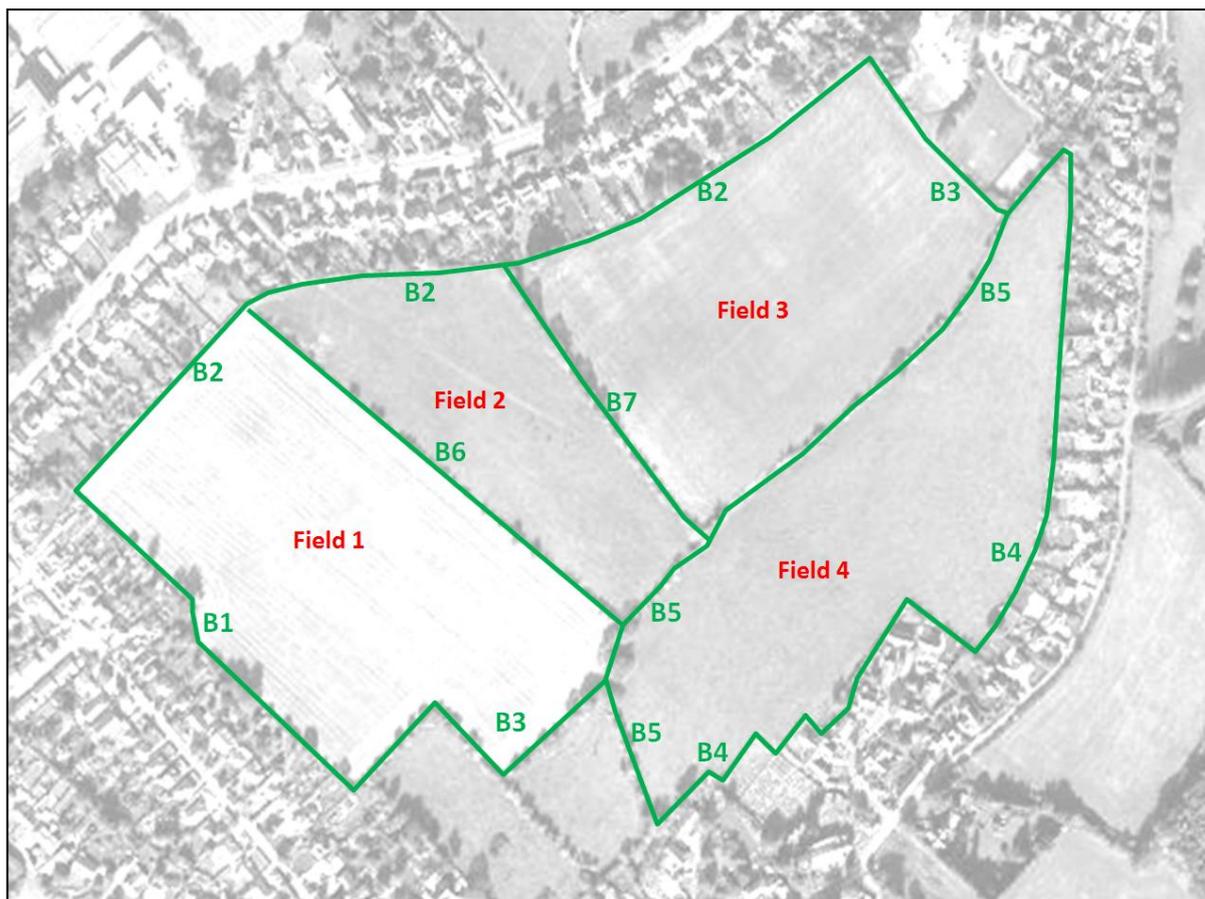
**Table 11: Breeding Bird Survey Dates and Weather Condition**

| Survey Number | Date       | Description of weather                                     | Temperature | Times         |
|---------------|------------|--|-------------|---------------|
| 1             | 29/05/2014 | Dry, mid, overcast. Recent drizzle                         | 12 - 14 °C  | 08:45 – 10:15 |
| 2             | 13/6/2014  | Sunny, dry, calm   | 13 - 16 °C  | 08:45 – 10:15 |
| 3             | 17/6/2014  | Sunny, warm light breeze.                                  | 13 - 16°C   | 08:45 – 10:15 |
| 4             | 20/6/2014  | Warm, sunny, calm  | 16 - 20 °C  | 07:45 – 09:15 |
| Update 1      | 14/05/2020 | Clear , dry, calm  | 8-12°C      | 8:30 – 10:15  |
| Update 2      | 28/05/2020 | Dry, overcast, light breeze                                | 13 - 15°C   | 08:45 – 10:15 |
| Update 3      | 11/06/2020 | Overcast, light breeze, mostly dry with short light shower | 14°C        | 07:45 – 09:45 |
| Update 4      | 24/06/2020 | Dry, clear   | 20°C        | 08:30 – 10:30 |

2.5.104 The survey followed BTO guidelines, where the observer systematically walked through the survey area, ensuring that all points on site were visited to within 50m. The location and behaviour of all birds and flocks of birds seen was noted on large-scale survey maps which were later collated onto master maps for interpretation. Particular attention was paid to bird exhibiting breeding behaviour, for instance birds in full song, exhibiting antagonistic behaviour/calling, carrying nest material, carrying food, and returning to nesting sites. Standard BTO Common Birds Census symbology and species codes were used to create a survey map of each individual visit.

2.5.105 The survey area was divided up into four different survey zones, representing the four fields. The main boundary features in and around the survey zones were also attributed boundary numbers. This allows comparisons between the relative usage of the site's habitats by notable species or numbers of species to be made. Territory numbers for most species for the site and descriptions of the pattern of presence for each species across the various survey zones are discussed in Section 5.

2.5.106 The layout of features described within the analysis below are shown in Figure 10.



**Figure 10: Habitat Codes Used for Breeding Bird Analysis**

Limitations

- 2.5.107 This survey involved 8 survey events over two breeding seasons and provided a series of 'snapshots' of bird activity recorded on the Site. It takes no account of any species which might choose to take up residence subsequently. At the same time a lack of signs of any particular species does not confirm its absence, merely that there was no indication of its presence during this survey.
- 2.5.108 Due to the date at which the surveys were commissioned it was not possible to undertake surveys within the early part of the survey season (April). As such, certain seasonal variations in the use of the site by breeding birds may not have been observed.
- 2.5.109 If no action or development of this land takes place within twelve months of the date of this report, then the findings of this survey should be reviewed and may need to be updated. After three years the findings will be out of date and the full survey should be repeated.

Desk Study Information

- 2.5.110 A large number of bird records relating to the surrounding 1km since 2010 were returned from BRERC, those species that have an enhanced conservation classification are listed in Table 12 below.

**Table 12: Bird Species Recorded within 1km of the Application Site**

| Species                  | Latin                             | Designation                                 |
|--------------------------|-----------------------------------|---|
| Linnet                   | <i>Carduelis cabaret</i>          | BTO Red list, UKBAP Priority Species, SPI   |
| Bullfinch                | <i>Pyrrhula pyrrhula</i>          | BTO Amber list, UKBAP Priority Species, SPI |
| Black headed gull        | <i>Chroicocephalus redibundus</i> | BTO Amber list                              |
| Lesser black-backed gull | <i>Larus fuscus</i>               | BTO Amber list                              |
| Dunnock                  | <i>Prunella modularis</i>         | BTO Amber list, UKBAP Priority Species, SPI |
| Fieldfare                | <i>Turdus pilaris</i>             | BTO Red list                                |
| House Sparrow            | <i>Passer domesticus</i>          | BTO Red list, UKBAP Priority Species, SPI   |
| Mistle thrush            | <i>Turdus viscivorus</i>          | BTO Amber list                              |



| Species                   | Latin                       | Designation                               |
|---------------------------|-----------------------------|---|
| Redwing                   | <i>Turdus iliacus</i>       | BTO Red list                              |
| Song thrush               | <i>Turdus philomelos</i>    | BTO Red list, UKBAP Priority Species, SPI |
| Starling                  | <i>Sturnus vulgaris</i>     | BTO Red list, UKBAP Priority Species, SPI |
| Swallow                   | <i>Hirundo rustica</i>      | BTO Amber list                            |
| Kestrel                   | <i>Falco tinnunculus</i>    | BTO Amber list                            |
| Skylark                   | <i>Alauda arvensis</i>      | BTO Red list, UKBAP Priority Species, SPI |
| Goldcrest                 | <i>Regulus regulus</i>      | BTO Amber list                            |
| Lesser spotted woodpecker | <i>Dendrocopos minor</i>    | BTO Red list, UKBAP Priority Species, SPI |
| House martin              | <i>Delichon urbica</i>      | BTO Amber list                            |
| Swift                     | <i>Apus apus</i>            | BTO Amber list                            |
| Yellowhammer              | <i>Emberiza citrinella</i>  | BTO Red list, UKBAP Priority Species, SPI |
| Reed bunting              | <i>Emberiza schoeniclus</i> | BTO Amber list                            |
| Wheatear                  | <i>Oenanthe oenanthe</i>    | BTO Amber list                            |
| Whinchat                  | <i>Saxicola rubetra</i>     | BTO Amber list                            |

### Field Survey Results

- 2.5.111 In total, 34 bird species were recorded during the update survey in 2020 which was an increase of 2 species compared with the 2014 surveys. The additional species recorded during the 2020 surveys included mallard, collared dove, house martin, pied wagtail and whitethroat, however, nuthatch, grey wagtail and bullfinch were not recorded in 2020 having been recorded in 2014. Ten of these were Species of Conservation Concern of which five were 'red listed' birds and five were 'amber listed' according to the British Trust for Ornithology's studies into population declines among British birds within the last 30 years<sup>13</sup>. All five of the red listed birds were also listed under Section 41 of the Natural Environment and Rural Communities Act 2006 as being Species of Principal Importance (SPI) for nature conservation. One other non-red listed species also fell under this category.
- 2.5.112 Birds were recorded utilising all habitats present within the survey area with the following habitats ordered in terms of value to key species:
- The field boundary hedgerows
  - Back garden hedgerows
  - Grazed pasture
  - Arable fields, particularly field margins
  - Small areas of low scrub
- 2.5.113 The patterns of abundance and distribution of birds are discussed later in this section, with greatest detail given to Birds of Conservation Concern and SPIs which are given their own subheading and individual territories maps where they aid discussion. Other bird species that do not come under the classifications above, but are locally significant, are also given particular attention.
- 2.5.114 Table 13 shows the numbers of species encountered across all the survey visits with the peak count of sightings highlighted and an indication of the level of protection each species receives according to the above criteria. This enables patterns in changing abundance of each species to be observed over the course of the breeding period, the general level of association between the site and the species concerned and

<sup>13</sup> Eaton MA, Brown AF, Noble DG, Musgrove AJ, Hearn R, Aebischer NJ, Gibbons DW, Evans A and Gregory RD (2009) Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. British Birds 102, pp296-341.

Red list species are those that are globally threatened, whose population or range has declined rapidly in recent years (i.e. >50% in 25 years), or which have declined historically and not recovered. Amber list species are those whose population or range has declined moderately in recent years (>25% but <50% in 25 years) declined historically but recovered recently, rare breeders (fewer than 300 pairs), internationally important populations in the UK, localised populations and those with an unfavourable conservation status in Europe.



likelihood of breeding territories being present (Y=Confirmed Breeding, PR=Probable breeding, PO=Possible breeding, N=Not breeding).

**Table 13: Results of the Breeding Bird Survey (2020) by Survey Visit**

| Species                                | Total counts for each visit |         |         |         |             | Breeding Status |
|--|-----------------------------|---------|---------|---------|-------------|-----------------|
|  | Visit 1                     | Visit 2 | Visit 3 | Visit 4 | Total Count |                 |
| Mallard                                | 4                           | 0       | 0       | 0       | 4           | N               |
| Buzzard                                | 1                           | 0       | 0       | 0       | 1           | N               |
| <b>Herring Gull</b>                    | 2                           | 1       | 2       | 0       | 5           | N               |
| <b>Lesser Black-Backed Gull</b>        | 1                           | 0       | 2       | 2       | 5           | N               |
| Wood Pigeon                            | 0                           | 0       | 0       | 1       | 1           | Y               |
| Collared Dove                          | 1                           | 0       | 0       | 0       | 1           | PR              |
| Green Woodpecker                       | 0                           | 0       | 0       | 1       | 1           | PO              |
| Great-Spotted Woodpecker               | 1                           | 0       | 0       | 1       | 2           | PO              |
| Magpie                                 | 3                           | 3       | 3       | 5       | 14          | PR              |
| Jackdaw                                | 19                          | 2       | 17      | 30      | 68          | N               |
| Carrion Crow                           | 1                           | 1       | 2       | 2       | 6           | PO              |
| Goldcrest                              | 1                           | 1       | 0       | 0       | 2           | PO              |
| Blue Tit                               | 13                          | 4       | 3       | 5       | 25          | PR              |
| Great Tit                              | 4                           | 4       | 4       | 2       | 14          | PR              |
| Long-Tailed Tit                        | 1                           | 0       | 0       | 0       | 1           | PR              |
| Coal Tit                               | 1                           | 1       | 0       | 2       | 4           | PR              |
| <b>Swallow</b>                         | 1                           | 2       | 0       | 0       | 3           | N               |
| <b>House Martin</b>                    | 1                           | 0       | 5       | 3       | 9           | N               |
| Chiffchaff                             | 4                           | 3       | 1       | 1       | 9           | PR              |
| <b>Willow Warbler UKBAP</b>            | 0                           | 0       | 0       | 1       | 1           | PR              |
| Blackcap                               | 1                           | 3       | 0       | 3       | 7           | PR              |
| Nuthatch (Recorded in 2014)            | 0                           | 0       | 0       | 0       | 0           | PO              |
| Wren                                   | 6                           | 6       | 10      | 11      | 33          | Y               |
| Blackbird                              | 11                          | 4       | 4       | 13      | 32          | Y               |
| <b>Starling</b>                        | 1                           | 0       | 1       | 0       | 2           | PO              |
| <b>Song Thrush</b>                     | 1                           | 2       | 2       | 0       | 5           | N               |
| Robin                                  | 8                           | 9       | 1       | 5       | 23          | Y               |
| <b>Duncock</b>                         | 11                          | 8       | 15      | 7       | 41          | Y               |
| <b>House Sparrow</b>                   | 4                           | 9       | 4       | 4       | 21          | N               |
| <b>Grey Wagtail (Recorded in 2014)</b> | 0                           | 0       | 0       | 0       | 0           | N               |
| Pied Wagtail                           | 2                           | 0       | 0       | 0       | 2           | PO              |
| Chaffinch                              | 0                           | 1       | 0       | 0       | 1           | PR              |
| <b>Bullfinch (Recorded in 2014)</b>    | 0                           | 0       | 0       | 0       | 0           | PO              |
| Greenfinch                             | 8                           | 3       | 7       | 4       | 22          | PR              |
| <b>Linnet</b>                          | 0                           | 0       | 0       | 2       | 2           | PO              |
| Goldfinch                              | 9                           | 21      | 8       | 17      | 55          | PR              |
| Whitethroat                            | 0                           | 1       | 0       | 0       | 1           | PO              |

**Table 14: Key to the Features of Table 13**

| Key                |  |
|--------------------|--|
| <b>Bold text</b>   | Species of Principal Importance under NERC Act 2006 / UKBAP Species        |
| <b>Red fill</b>    | 'Red listed' species according to BTO/RSPB Bird of Conservation Concern    |
| <b>Orange fill</b> | 'Amber listed' species according to BTO/RSPB Bird of Conservation Concern  |
| <b>Peach fill</b>  | Peak Count of Survey   |
| <b>Y</b>           | Breeding confirmed (nests located or adults with food/nest material seen), |
| <b>Pr</b>          | Breeding probable  |
| <b>Po</b>          | Breeding possible  |
| <b>N</b>           | Not likely to breed on site  |



### *Song thrush*

- 2.5.115 Song thrush is a red listed bird of conservation concern, whose habitat of pasture, dense hedgerows and scrubland has been degraded and lost in recent decades. This combined with the intensification of agricultural practices which reduce the overall abundance of invertebrate food has led to a significant decline in the UK population.
- 2.5.116 Song thrush had a peak count of 2 on Surveys 2 and 3 which was an increase on the 2014 survey. Song thrushes can forage over considerable distances to exploit different food resources and at Farleigh Fields their territory probably extended well beyond the survey area. In this respect the survey area, whilst not appearing to support a breeding song thrush population probably made a valuable contribution to its available foraging resources. As only low numbers of this species was recorded it is not considered to be breeding on the Site.

### *Linnet*

- 2.5.117 Linnets are found on farmland wherever there is a plentiful supply of seeds throughout the year. Mixed farmland is particularly valuable, including a proportion of arable crop. They nest in dense hedgerows, gorse, bramble or other types of scrub.
- 2.5.118 Linnet numbers have dropped substantially over the past few decades, with the UK population estimated to have declined by 57 per cent between 1970 and 2008. This is largely the result of a lack of food sources in modern farming. Linnet is a red listed bird of conservation concern and a Species of Principal Importance.
- 2.5.119 Within the survey area, linnets occurred as individuals on only Survey 4 with a peak count of 2 which is a decline in numbers from the 2014 survey (peak count of 9). Linnets often forage widely in groups and may well range further than this site. Sections of dense hedgerow where occurring in B5, B6 and B7 would have provided suitable nesting habitat, however, due to the low numbers of individuals recorded it is considered unlikely that this species was breeding within the survey area.

### *House sparrow*

- 2.5.120 The House sparrow is a 'Red Listed' species of conservation concern and a SPI. It is found from the centre of cities to the farmland of the countryside. It typically feeds and breeds near to human habitation and nests in cavities in buildings as well as in hedgerows and trees. It has vanished from the centre of many cities, but can still be common in most towns and villages. National monitoring suggests a severe decline in the UK house sparrow population, recently estimated as dropping by 71% between 1977 and 2008 with substantial declines in both rural and urban populations.
- 2.5.121 The house sparrows occurred along boundaries B1, B4, B5 and B6, predominantly at the perimeter of the survey area which back onto gardens. As there are houses close by around most part of the Site the pool of breeding house sparrows will have come from the surrounding houses, however the foraging resource at the Site is important in sustaining the local population.

### *Dunnock*

- 2.5.122 The dunnock inhabits any well vegetated areas with scrub, brambles and hedges, including farmland edges and residential gardens. They spend large amounts of time on the ground but also remain close to vegetation cover.
- 2.5.123 Dunnock is an amber listed species and SPI. The distribution patterns indicated that approximately seven breeding territories were present on site along most of the hedgerows.

### *Willow warbler*

- 2.5.124 Willow warblers occur in open woodland, scrub and hedgerows. They have a widespread distribution across the UK, however their population, especially in southern Britain, has undergone a moderate decline over the past 25 years. For this reason they are classified as an Amber Species of Conservation Concern.
- 2.5.125 This species was recorded on only one occasion during Survey 4. One singing male was recorded indicating one single breeding territory core may be present within the survey area.



### *Blackcap*

- 2.5.126 Blackcaps breed in shrubby undergrowth and are well adapted to use the small blocks of scrub that typically occur within suburban and even urban habitats. Over recent decades there has been a rapid increase in the numbers of Blackcaps, from central Europe, wintering in Britain & Ireland, with many of these birds benefiting from the supplementary food being provided in gardens. The breeding population of summer visitors has had more stable numbers.
- 2.5.127 Two potential territories were found spanning all four fields and were focussed on boundaries B3, B4 and B5. Most of the occurrences were at the junctions between hedges. These junctions are particularly valuable as they usually provide a thicker, denser length of hedge, potentially providing higher quality foraging and nesting habitat in comparison to other parts of those hedgerows plus close access to several suitable linear habitats.

### *Swallow*

- 2.5.128 Swallows occur in open countryside and farmland, particularly where there is grazed pasture or open water. They are an Amber listed Species of Conservation Concern due to their decline in Europe. Swallows were observed, on two of the survey occasions foraging on the wing in Fields 1 and 4. The grazed pasture in field 4 will have been particularly valuable as a source of airborne insect food. This species almost certainly has a foraging range that extends well beyond the Site.

### *House Martin*

- 2.5.129 Like swallows, house martins occur in open countryside and farmland, particularly where there is grazed pasture or open water. They are an Amber listed Species of Conservation Concern due to their decline in Europe. House martins were observed, on three of the survey occasions foraging on the wing. The grazed pasture is likely to be valuable as a source of airborne insect food. This species almost certainly has a foraging range that extends well beyond the site.

### *Other Birds*

- 2.5.130 Other birds recorded were species commonly encountered within farmland and woodland such as tits, finches, wren, great spotted woodpecker, nuthatch (in 2014), blackbird and various corvids such as magpie, jackdaw and carrion crow. The majority of these birds were recorded within the hedgerows, particularly where they were thickest or where there was a headland of coarse grassland on the margins between the arable land and the hedge.
- 2.5.131 Birds such as blue tit, house sparrow, wren and dunnoek were occasionally observed close to houses on the east side of the site where the small gardens may have provided supplementary foraging or additional nesting opportunities in built features, holes in walls or in nest boxes.
- 2.5.132 A buzzard was seen circling over the site on occasion, although this site is not considered to be an important part of its territory which will have extended over a considerably larger area, most probably encompassing more rural landscapes. However the presence of this species circling over the site is an indication that the site offered sufficient foraging potential to warrant some time spent there.

### Evaluation

- 2.5.133 For an area of arable and pasture farmland with a network of hedgerows on urban fringe there is a good assemblage of bird species. However in view of the low numbers of likely breeding species that are red/amber species of conservation concern or are Species of Principal Importance the wider assemblage of breeding birds is considered to be of **Local Value**.

### ***Invertebrates***

#### Methods

- 2.5.134 Any notable invertebrates identified during the survey were recorded. The habitat was also assessed for its suitability for notable invertebrates, including the presence of specific species known to be foodplants or larval plants or habitats which may be favoured by invertebrates (such as bare ground, deadwood or grass tussocks). The habitat structure was also considered, such as mosaics, brownfield or unmanaged areas.



### Field Survey Results

2.5.135 The surveys carried out at the Site did not encounter any invertebrates of conservation significance. The grassland is likely to support a good assemblage of dung beetles due to the high level of grazing. These insects will be utilised by horseshoes bats during the maternity season. Due to the short closely grazed grassland it is considered the fields would not support a good assemblage of moths or other flying insects. The hedgerows are variable but most contain a variety of woody species and some contain mature trees which will be used by a variety of invertebrates. Some of these features contain limited amounts of dead wood of value to saprophytes.

### Evaluation

2.5.136 Overall the invertebrates on Site are considered to be of **Site** importance

## 2.6 Summary of Ecological Importance

2.6.1 Table 15 below gives all the identified ecological features on Site and their individual assessment of importance. Those coloured green are considered to be Important Ecological Features and will form the basis of the Assessment of Effects in Section 5. Those coloured yellow will be included on the basis of their specific legal protection or applicable planning policies.

**Table 15: Ecological Importance**

| Feature   | Importance          |
|---|---------------------|
| Designated Sites  |                     |
| North Somerset and Mendips Bat SAC                        | International       |
| Cheston Combe and Backwell Hill Local Wildlife Site (LWS) | Local (outside ZOI) |
| Bourton Combe LWS   | Local (outside ZOI) |
| Chelvey Wood LWS  | Local (outside ZOI) |
| Habitats  |                     |
| Improved grassland  | Site                |
| Arable  | Negligible          |
| Hedgerows   | Local               |
| Scrub   | Negligible          |
| Scattered Trees   | Site                |
| Species   |                     |
| Badgers   | Local               |
| Bats  | District            |
| Dormouse  | Negligible          |
| Great Crested Newt  | Negligible          |
| Reptiles  | Local               |
| Birds   | Local               |
| Invertebrates   | Site                |



### **3 ASSESSMENT OF EFFECTS**

#### **3.1 Methodology**

- 3.1.1 Continuing from the valuation of Important Ecological Features (IEFs), this section lists each IEF in turn together with a characterisation of any potential impacts upon them likely to arise from the proposals. This takes into consideration any measures inherent to the designed scheme which seek to avoid such impacts altogether. Next, any agreed mitigation measures chosen to reduce likely impacts are then set out, along with the mechanism(s) through which these would be secured.
- 3.1.2 Residual effects, being those effects which would likely still arise despite any avoidance measures or agreed mitigation efforts, are subsequently discussed. Residual effects are determined to be either significant or not significant and any significant residual effects are given a geographical scale at which they might be felt. This assessment methodology is in accordance with that set out in the CIEEM Guidelines for Ecological Impact Assessment, 2018.
- 3.1.3 Where residual effects are identified compensatory measures may be proposed to make up for the loss or permanent damage to an IEF, as far as possible. Monitoring or management schemes which may be necessary to ensure the long-term achievement of all intended mitigation and compensation are discussed.
- 3.1.4 Where potential for cumulative impacts upon IEFs in association with other proposed or ongoing local development are identified these are described as appropriate for the affected IEF. The Zone of Influence for each IEF, together with their level of ecological importance will be of relevance when considering the scope of a cumulative impact assessment.
- 3.1.5 Ecological enhancement measures that will be incorporated into the development are given in line with the National Planning Policy Framework.

#### **3.2 Summary of Development Proposals**

- 3.2.1 The proposals comprise an outline planning application for demolition of 54 and 56 Farleigh Road; residential development of up to 125 dwellings (Class C3); strategic landscaping and earthworks, surface water drainage and all other ancillary infrastructure and enabling works with means of site access (excluding internal roads) from the new junction off Farleigh Road; all other matters (internal access, layout, appearance, scale and landscaping) reserved for subsequent approval.
- 3.2.2 The proposals will result in the loss of 2.88 ha of improved grassland to facilitate the proposed residential development. It is proposed that 54 and 56 Farleigh Road are demolished and the associated gardens removed to facilitate the access road into the Site.
- 3.2.3 The proposals will establish over 3.2ha of ecologically valuable habitats including semi improved grassland managed for wildlife, newly planted native hedgerows and treelines, orchard trees, scrub and an open water feature. A 10m wide 'ecology buffer' is proposed surrounding the built area to ensure that dark corridors are maintained along the perimeter hedgerows and treelines. The ecology buffer will be managed to promote a species-rich, tussocky sward with small patches of scrub. A new hedgerow will be planted along the inside of the ecology buffer, creating a double, parallel hedgerow which will clearly define the green corridor and help to reduce artificial light spill.
- 3.2.4 Areas of amenity value including play areas and amenity grassland are also proposed.
- 3.2.5 A Construction Environmental Management Plan (CEMP) will be prepared to detail how the habitats within and surrounding the Site should be protected during the construction phase in order to avoid unlawful acts in relation to wildlife legislation. The CEMP should include details of appropriate fencing to restrict access into key ecological areas, information on any timing restrictions and measures to prevent damage to water bodies and sensitive ecological habitats. Typically the preparation of a CEMP will be a conditional requirement of the planning permission.
- 3.2.6 A Landscape and Environmental Management Plan (LEMP) will be prepared for the operational site and will cover how retained habitats and newly planted areas should be managed so as to maximise their biodiversity value and achieve the objectives of the horseshoe mitigation habitat and other ecological mitigation and compensation. The LEMP should also set out any measures necessary to ensure protected species are appropriately accommodated within the operational site. Typically the preparation of a LEMP will be a conditional requirement of the planning permission.



Figure 11: Indicative Framework Masterplan (20/04/2021 - edp6976\_d003c)



### 3.3 Designated Sites

#### **Statutory Designated Sites**

##### Potential Impacts

- 3.3.1 The North Somerset and Mendip Bats Special Area of Conservation (SAC) is located 2.4km from the application Site at its closest point and is designated for the populations of breeding and hibernating greater horseshoe and lesser horseshoe bats that it supports. The application Site is located within 'Band B' of the Greater Horseshoe Bat Consultation Zone and 'Band C' of the Lesser Horseshoe Bat Consultation Zone for the North Somerset and Mendip Bats Special Area of Conservation (SAC).
- 3.3.2 During bat surveys carried out within the survey area, moderate (greater horseshoe) and low (lesser horseshoe) levels of activity were recorded and both species were confirmed as using the habitats within the Site for foraging and commuting.
- 3.3.3 The development has the potential to result in adverse impacts on horseshoe bats through the loss of foraging habitat on Site and potentially the fragmentation of commuting routes in the absence of robust mitigation. Consequently, in the absence of mitigation, proposals have the potential to have a significant effect on qualifying species of the SAC.

##### Mitigation, Compensation, Enhancement and Monitoring

- 3.3.4 Impacts on foraging horseshoe bats associated with the North Somerset and Mendip Bat SAC, will be mitigated for by the proposed habitat creation and enhancement within the ownership boundary of the Site which will be detailed within a Landscape and Ecological Management Plan that will be prepared for the Site.
- 3.3.5 The proposed layout plan of the Site was designed in close consultation with Clarkson and Woods with the aim of reducing the potential for impacts on horseshoe bats. The layout and landscape features designed to reduce the potential impacts on horseshoe bats include a 10m wide 'ecology buffer' surrounding the built area with the aim of creating dark corridors along the perimeter hedgerows and treelines. New native hedgerow and tree planting has been designed to create double parallel hedgerows within the application Site which will clearly define the green corridors and help to reduce artificial light spill. Access to the ecological buffer will be discouraged through the creation of scrub patches within the grassland and promotion of amenity grassland and LEAP area to the south of the residential area for leisure and exercise.
- 3.3.6 Existing defunct hedgerows, including Hedgerow 1 where highest horseshoe activity levels were recorded, will be reinforced with native tree planting to enhance linear vegetated features for commuting and foraging. A large retained area to the south of the built area and adjacent to Hedgerow 1 will be sensitively managed for the creation of semi-improved, tussocky grassland to increase the suitability for invertebrate prey species.
- 3.3.7 Other new habitat features include open water / wetland attenuation areas with surrounding tussocky grassland and treelines.
- 3.3.8 An area of arable land (0.8 ha) within the wider ownership boundary in size has been secured and will be managed specifically to increase its suitability for foraging horseshoe bats. The land will be seeded with a grass and wildflower mix of local provenance and will be managed to promote a tussocky, species rich sward.
- 3.3.9 The Habitat Evaluation Procedure (HEP), developed specifically for the North Somerset and Mendip Bat SAC, was used to calculate the amount of habitat required to replace that lost to the horseshoe bat population resulting from the proposed development, with the aim that the Site continues to support viable populations of horseshoe bats. The HEP calculations undertaken as part of the SAC guidance are detailed in the bats section below (Section 3.5, Bats). Provided the proposed measures are implemented, the proposals should not have a negative impact on the foraging of bat species associated with this component of the SAC.

##### Residual Effects

- 3.3.10 Provided the habitat provision for bats (to be secured through LEMP) and other mitigation measures described below (Section 3.5, Bats) are implemented the scheme is not likely to result in residual adverse impacts on the statutory designated sites identified in the desk study.



## 3.4 Habitats

### ***Biodiversity Net Gain Calculations***

- 3.4.1 To ensure the Site is compliant with the NPPF a biodiversity net gain calculation has been undertaken using the DEFRA metric 2.0 to give a relative measure of the biodiversity value of the Site pre and post development. The baseline value of the Site was 13.24 habitat units and 4.33 hedgerow units. Overall the development will result in net gain of 6.50 habitat units and 7.18 hedgerow units resulting in an overall value of 19.74 habitat units and 11.52 hedgerow units. This equates to a 49.10% increase in the biodiversity value of the habitat present within the wider ownership boundary and a 165.69% increase in the value of the hedgerows. The headline report of the calculation is given in Appendix D and the detailed calculation spreadsheet is available from Clarkson and Woods Ltd upon request.
- 3.4.2 Overall the dramatic increase in value has been achieved due to the very low value of the improved grassland and arable habitats present within the existing landholding. The increase in grassland value through the management proposed below along with the additional hedgerows, attenuation waterbody and tree plantings proposed will enhance the biodiversity value significantly.

### ***Hedgerows***

- 3.4.3 The internal hedgerows were largely found to be species-poor, gappy and not considered Important under the Hedgerow Regulations 1997 with the exception being Hedgerow 2 which was species-rich, intact and considered Important. The perimeter field boundaries largely comprised timber fences, walls and regularly managed garden hedgerows which were of negligible importance.
- 3.4.4 Hedgerows have high intrinsic conservation value and are likely to provide valuable navigational and foraging features for bats and support a range of nesting and foraging bird species. In addition, field boundaries and linear features are listed as Priority Habitats within the North Somerset and are capable of being a material consideration during the planning process.

### Potential Impacts

- 3.4.5 All hedgerows are to be retained and protected as part of the proposals and no sections require removal. A 10m fenced buffer is proposed to protect the hedgerows from adverse effects during construction (physical damage, increased dust etc) and occupation phases (artificial lighting) of the development.
- 3.4.6 During the occupation phase of the Site there is the potential for impacts to the hedgerows through lighting, pollution (litter) and lack of sensitive management leading to a loss of hedgerow quality either by house holders or a management company.

### Mitigation, Compensation, Enhancement and Monitoring

- 3.4.7 To protect the retained hedgerows and hedgerow trees during the construction process tree protection fencing will be installed. This will be outlined within the CEMP. This will be installed at 10m (to demarcate the ecology buffer) from the outer edge of the retained hedgerows wherever possible. This will be constructed to the British standard BS 5837:2012. The areas within the tree protection fencing will be off limits to construction vehicles and will not be used to store materials.
- 3.4.8 To manage the retained and newly created hedgerows management prescriptions will be outlined in the LEMP for the Site. This will include detailed restoration and management prescriptions to ensure the hedgerows are managed to maximise their ecological value.
- 3.4.9 Operational impacts will be limited through the inclusion of 10m ecology buffers, to be maintained as wildlife grassland, outside private ownership and fencing which will protect boundary features. The inclusion of buffers will keep all of the existing hedgerows outside of the ownership boundaries of new properties and as such is likely to reduce the likelihood of residents managing or removing the boundary hedgerows. Additional hedgerow planting is proposed along the inside of the ecology buffers to create double parallel hedgerows which will clearly define the green corridors and help protect the existing hedgerows from increased artificial light spill (detailed further in Section 3.5, Bats, below).
- 3.4.10 The hedgerows within the application Site will remain unmanaged to ensure they remain bushy and provide foraging and nesting opportunities for a range of species.



- 3.4.11 The defunct hedgerow along the southern boundary of the application Site (H1) will be reinforced with infill native planting with locally appropriate species such as hawthorn, blackthorn, hazel, goat willow, pedunculate oak, spindle *Euonymus europaeus*, field maple.
- 3.4.12 Approximately 1,470m of new native hedgerows / treelines are proposed to be planted across the ownership boundary to enhance the Site. Most of the new planting will be within the application Site and are located 10m from existing hedgerows with the aim of creating a network double hedgerows (dark wildlife corridors).

#### Residual Effects

- 3.4.13 The enhancement of degraded hedgerows, sensitive management of the retained and new hedgerows and significant extents of new hedgerow planting will ensure there are no significant residual impacts to the hedgerows present on Site and that a likely significant additional benefit to wildlife associated with hedgerows will result from the development.

### **3.5 Protected Species and Species of Conservation Concern**

#### **Badger**

- 3.5.1 Badger activity was noted within and directly adjacent to the application Site. A Main sett was recorded in the south-western edge of the survey area which is likely to be the main place of shelter and breeding for the social group of badgers within the area (Target Note 2, Figure 4). An Annex sett, defined as being closely associated with a Main sett but not connected by underground tunnels was situated 85m north east of the Main sett, close to Hedgerow 4 (Target Note 4, Figure 4). A well-used Outlier sett was also discovered at the northern end of Hedgerow 4 (Target Note 3, Figure 4).

#### Potential Impacts

- 3.5.2 All setts recorded within the survey area are located more than 100m from the application Site and will not be directly impacted by the proposals.
- 3.5.3 The survey area is likely to represent a large proportion of the resident badger clan's territory and the improved grassland fields and the arable field in certain stages of cultivation will constitute an important foraging resource for this species. The development proposals will reduce the overall area that is suitable for foraging badgers within the Site although large areas of open space will be retained within the survey area, particularly around the Main sett. The area of arable land closest to the main sett will be managed to increase its value for wildlife and will be converted to tussocky grassland. As a result, it is not anticipated that the development will have a significant impact on the available foraging habitat for badgers.

#### Mitigation, Compensation, Enhancement and Monitoring

- 3.5.4 In view of the presence of established setts within the survey area, it is strongly recommended that a survey of the development Site and boundary hedgerows for newly excavated badger setts is carried out no more than three months prior to the commencement of construction. This will ensure that no unlawful damage of setts or disturbance to badgers occurs during the onset of construction.
- 3.5.5 The fragmentation of suitable badger foraging areas and commuting routes will be minimised through the preservation of unlit ecology buffers around the perimeter of the residential area.
- 3.5.6 The landscaping proposals for the Site include extensive planting of native hedgerows, planting of an orchard and creation of tussocky grassland which will enhance foraging opportunities for badger. Hedgerow planting should include a proportion of fruit bearing species such as crab apple and elder to enhance the foraging opportunities for badgers and mitigate for the loss of foraging habitat resulting from the proposed development.
- 3.5.7 Within the development area, depending on expected traffic volumes, provision should be made for the incorporation of traffic-calming measures in order to reduce the likelihood of badger road mortality.
- 3.5.8 Measures such as covering excavations or providing badgers a means of escape, as well as the update badger survey mentioned above, will be outlined in the CEMP for the Site. A quarterly check of the Site and surrounding land should be undertaken by a suitably qualified ecologist to ensure badger setts adjacent to the Site remain adequately protected and no new setts have been created.



### Residual Effects

- 3.5.9 Presuming the mitigation and enhancement measures described above are put in place the proposals will not result in any significant adverse effects on badgers and are likely to result in a minor enhancement for this species through increase in the value of the habitats on Site.

### **Bats**

- 3.5.10 The Site is used by a wide range of bat species including rare and vulnerable horseshoe bats associated with the North Somerset and Mendip Bat SAC which have been recorded foraging throughout the Site. The fields are of value to foraging horseshoe bats and the hedgerows are likely to be used by commuting and foraging bats. No bats have been recorded roosting within the buildings on Site and the majority of trees offer limited potential to support roosting bats.

### Potential Impacts

#### *Roosting Bats*

- 3.5.11 It is considered unlikely the proposals will affect roosting bats due to the lack of suitable roosting locations identified within the Site and the likely absence of roosting bats confirmed within the buildings proposed to be demolished.

#### *Foraging and Commuting Bats*

- 3.5.12 In the absence of mitigation the development will reduce the availability of foraging and commuting habitat for a range of bat species including greater and lesser horseshoe bats. Specifically the proposals will result in the removal of around 2.88ha of improved pasture grassland within the Site for the provision of housing, gardens, roads and associated infrastructure. The pasture grassland was found to be used regularly by common pipistrelle, noctule and serotine bats for foraging and commuting. Although not recorded within the field centre, greater horseshoe bats commonly forage within cattle grazed open pasture, as beetles of the *Scarabaeinae* family (dung beetles) are a favoured prey species. The relative importance of the fields in comparison with the hedgerow habitat on site is low, with many more records of bats using hedgerows as compared to the field centres. However, the loss of pasture grassland could have a detrimental impact on bats associated with the North Somerset and Mendip Bat SAC.
- 3.5.13 The introduction of street lighting for access roads, security lighting and lighting transmitted from within the proposed dwellings could result in light spill onto retained and newly created habitats within and adjacent to the Site. The majority of bat species, particularly horseshoe, long-eared and *Myotis* species, will actively avoid lit areas due to the increased risk of predation.
- 3.5.14 Artificial light can create a physical barrier to bat movement within the landscape which, in this location, may have significant consequences given the connectivity of the Site's hedgerows to those associated with the Kings Wood and Urchin Wood Component of the SAC. Several species including common pipistrelle, soprano pipistrelle, serotine, noctule and Leisler's, however, will forage for insects attracted to streetlamps. This is often to the detriment of other light sensitive bat species as insect food becomes scarcer in surrounding darker areas as a result.
- 3.5.15 Light pollution can result in a significant change in how bats utilise a landscape. If, for example, a flight path between a roost and foraging habitat is affected by light pollution, a roost may be abandoned if it is no longer energetically viable for the bats to remain there (i.e. they would need to fly for longer to reach seasonal foraging habitat). Light pollution can, therefore, have a significant detrimental impact on individual bats and potentially colonies.

#### *Disturbance and predation*

- 3.5.16 There is some potential for bats to be disturbed through construction activities such as temporary lighting or the storage of materials in key habitats. There is also potential for the increased number of domestic cats to predate bats associated with the Site.



## Mitigation, Compensation, Enhancement and Monitoring

### *Roosting Bats*

- 3.5.17 No bat roosts were identified during the building inspections, subsequent emergence surveys or during the bat activity surveys and as such, no mitigation is required.
- 3.5.18 If in the very unlikely event a bat or signs of roosting bats are identified during the demolition of 54 and 56 Farleigh Road, works will be postponed and a bat licence will be applied for to be able to legally destroy the roost.
- 3.5.19 In the initial Phase 1 Habitat Survey only one tree was identified as supporting roosting features for bats which is located outside of the application Site. However, the assessment of trees to support roosting bats was undertaken in 2013 and is now out of date. Any trees to be removed should be preceded by a check by an appropriately experienced Ecologist to assess its suitability to support roosting bats and further surveys may be required.

### *Commuting bats*

- 3.5.20 To ensure the development does not reduce connectivity for bats locally the scheme has been designed to retain and enhance all of the boundary hedgerows. Those which contain gaps will receive infill planting as described in the hedgerow section.
- 3.5.21 The proposed layout plan of the Site was designed with the aim of reducing the potential for impacts on bats foraging and commuting throughout the application Site. The main layout feature designed to reduce the potential impacts on bats is the provision of a 10m wide 'ecology buffer' surrounding the built area to ensure dark corridors are maintained along the perimeter hedgerows and treelines. The 'ecology buffers' will be managed to promote tussocky grassland that will enhance these areas for moth prey species. Residents will be discouraged from accessing and trampling the ecology buffers through the creation of scrub patches and provision of amenity grassland and LEAP area for leisure and exercise outside of the ecology buffers.
- 3.5.22 New native hedgerow and tree planting has been positioned on the inside of the ecology buffer to create double parallel hedgerows within the application Site which will clearly define the green corridors and help to reduce artificial light spill.
- 3.5.23 The defunct hedgerow along the southern boundary of the application Site (H1), which was found to be an important feature for commuting and foraging bats and recorded the highest levels of greater and lesser horseshoe activity, will be reinforced with infill native planting with locally appropriate species such as hawthorn, blackthorn, hazel, goat willow, pedunculate oak, spindle *Euonymus europaeus*, field maple.
- 3.5.24 Approximately 1,470m of new native hedgerows / treelines are proposed to be planted across the ownership boundary to enhance the Site for foraging and commuting bats. A proportion of the new planting will be within the application Site and are located approximately 10m inside existing hedgerows with the aim of creating a network of double hedgerows (dark wildlife corridors). A new hedgerow will also be planted along the southern ownership boundary (outside of the application Site) to enhance this area for bats, which did not support high levels of activity relative to other field boundaries within the survey area.
- 3.5.25 The implementation of hedgerow restoration measures, creation of buffers and substantial foraging areas along with strict lighting controls (detailed later in this section) will ensure that commuting function of the Site for bats is preserved. It will ensure that bats can continue to access valuable habitats surrounding the Site as well as being able to access newly created and retained habitats both on Site and in the local area.

### *Foraging Bats*

- 3.5.26 Mitigation for foraging bats has been focused on horseshoe bats and quantified using the Habitat Evaluation Procedure contained in the North Somerset and Mendip Bat SAC Supplementary Guidance for Development. HEP calculations for both greater horseshoes and lesser horseshoes were carried out but greater horseshoe HEP was more onerous for this Site and therefore the required replacement habitat was calculated using the greater horseshoe HEP. Using the HEP matrix it has been calculated that 42.30 habitat units will be lost as a result of the development (40.43 units of improved grazed grassland, 2.00 units of arable land). The HEP matrix calculated that 2.49ha of equivalent replacement habitat would be required to achieve no net loss of suitable horseshoe habitat.



- 3.5.27 In total, it has been calculated that 2.70 hectares of replacement habitat will be provided within the ownership boundary which results in a slight net gain in horseshoe habitat on Site. The majority of the replacement habitat is delivered within the application Site with the exception of 0.8 ha of arable land being converted to tussocky grassland and a newly planted hedgerow along the southern ownership boundary. A large proportion of the equivalent hectares is provided through the creation of semi-improved, tussocky grassland within the retained areas to the south of the built area and the ecology buffers. This habitat creation will be achieved through sensitive management during the occupancy phase and will be prescribed within the LEMP for the Site. Other replacement habitats include planting approximately 1,470m of new hedgerow within the Site and creation of an attenuation waterbody that will be managed sensitively for wildlife with surrounding tussocky grassland habitat.
- 3.5.28 A LEMP will be prepared to ensure the replacement habitat is appropriately created and managed to provide valuable habitat to horseshoe bats.
- 3.5.29 It has been confirmed that the existing pasture fields outside of the application Site but within the ownership boundary will continue to be grazed by cattle which ensures the continued importance of these areas for foraging horseshoe bats.

#### *Lighting*

- 3.5.30 In order to accurately assess the impact of increased artificial light upon bat populations a detailed lighting strategy should be prepared in conjunction with a suitably qualified lighting engineer to ensure that existing important features and mitigation habitats remain unlit.
- 3.5.31 The lighting strategy should demonstrate that the important foraging and commuting routes identified on Site (H1 and H2) are not directly illuminated more than 0.5lux above baseline levels as a result of street lighting for access roads, security lighting and lighting transmitted from within the proposed dwellings. The 10m habitat buffers should be seen as 'light attenuation zones' which serve to screen the hedgerows from lighting, but in themselves should not receive more than 5lux of illuminance. It is recommended that lighting throughout the Site is minimised through the use of screening and low-level, directional lighting, particularly focussing on avoidance of light-spill onto the hedgerows and retained grassland.
- 3.5.32 External lighting and glazing must be set at the minimum level required for safety purposes and be directed away from habitat features suitable for bats (hedgerows, trees, bushes, grassland areas, artificial bat roosts, utilising lighting hoods and cowls where necessary. Street lamps must utilise a warm white LED colour temperature of no greater than 3000K. Any outside security lighting should be set on a motion-sensor and short timer to decrease the light pollution impacts. These lights should also be directed away from hedgerows (and hooded/cowled where necessary) and be of the lowest intensity/brightness necessary for their purpose.

#### *Monitoring*

- 3.5.33 A check of the lighting impacts on the retained habitats will be undertaken in the first year after the completion of the proposals to ensure the low lux level targets are being reached in the key areas and that lighting is not creating unforeseen barriers to the commuting or foraging potential of the Site. This will be undertaken using a Konica Minolta t10a Light Meter at the new moon stage. Taking reading of light transmission to the retained habitats at 0.5m and ground level on the horizontal plane and potentially on key commuting features on the vertical plane if any of these look to be illuminated. If areas identified as falling in the sensitive lighting zone are being illuminated over the 0.5 and 10lux targets remedial measures including screening, planting, removal of luminaires or additional shielding may be required.
- 3.5.34 Due to the importance of the application Site for foraging horseshoe bats some initial monitoring of the Site is proposed. This will be undertaken during years 1 and 5 after the completion of construction. The monitoring survey will comprise a single walked transect (undertaken during May- September) covering both the application Site and adjacent areas. The surveys will also deploy a static bat detector during the same month for comparison. The aim of this survey is to ensure the horseshoe mitigation measures which have been put in place continue to allow greater horseshoe bats to access key features and continue to forage within the Site. It will also provide assurance that the offsite mitigation habitat is being used by the target species. If the results of the survey indicate horseshoe activity has substantially decreased remedial measures such as additional planting or the reinstatement of a grazing regime may be required.



### Residual Effects

- 3.5.35 If the recommendations in this report are implemented there should be no significant residual effects in relation to foraging or commuting bats including horseshoe bats associated with the North Somerset and Mendip Bat SAC.

### **Great Crested Newt**

#### Potential Impacts

- 3.5.36 No ponds or water bodies were present within the survey area, but a review of maps and aerial photographs, identified three ponds between 129m and 200m east of the survey area and between 240m and 340m from the proposed construction zone. It should be noted that the ponds were identified using OS mapping, and that visual assessments were not undertaken due to a lack of access. The ponds may in fact be wholly unsuitable for breeding, especially when considering the closest of the three was a large garden pond likely to have been stocked with ornamental fish.
- 3.5.37 Studies by Jehle & Arntzen (2000) and Cresswell & Whitworth (2004) identified that great crested newts will generally stay in close proximity to their breeding ponds, generally within <50m. The great crested newt guidelines note that migration over 250m only occurs in exceptional circumstances.
- 3.5.38 Approximately 2.8ha of land within 250m of the nearest pond is situated within the survey area the vast majority of which lies outside of the construction zone. The habitat within this area comprises heavily grazed improved grassland considered unsuitable terrestrial habitat for this species.
- 3.5.39 Although the use of the three ponds by great crested newts cannot be completely ruled out, due to the large distance between the ponds and the development area and the largely unsuitable terrestrial habitat within the Site it is considered highly unlikely that newts would be affected by the development proposals even if they were present within 500m.
- 3.5.40 To reduce the risk of delays, and to confirm the likely presence or absence of GCN within 250m of the application Site, eDNA surveys of the three ponds identified within 250m of the application site should be completed. Where the absence of newts can be demonstrated precautionary measures associated with site clearance would not be necessary.
- 3.5.41 Survey for GCN is seasonally restricted to between the 15<sup>th</sup> of April and the 30<sup>th</sup> of June to establish likely absence. If GCN are found to be present in any of the ponds identified the development will need to further consider options in relation to this species. Given the small scale of the potential impacts, it is likely that either the implementation of a RAMS would remain a suitable approach or a low impact licence would be obtained from Natural England.
- 3.5.42 In the highly unlikely event that a great crested newt is found at any time whilst work is taking place then work must stop immediately and Clarkson and Woods Ltd contacted for advice. Clarkson and Woods Ltd would subsequently assess the need for a European Protected Species (EPS) Licence to proceed or whether Natural England needs to be informed.

#### Mitigation, Compensation, Enhancement and Monitoring

- 3.5.43 It is highly unlikely that GCN would be present within the proposed construction zone. The preparation of a Risk Avoidance Method Statement for reptiles (detailed in Reptiles below) will also be applicable for newts should GCN or other amphibians be present within the application Site. The 10m ecology buffer around the perimeter of the field will be retained and protected during construction in the unlikely event that GCN are present within field boundaries.
- 3.5.44 The proposed landscape planting and habitat creation, including the creation of an attenuation waterbody, will increase the suitability of the Site for GCN and other amphibians.

### Residual Effects

- 3.5.45 The proposals will not result in any significant adverse effects on GCN and are likely to result in a minor enhancement for this species through increase in the value of the habitats on Site.



## **Reptiles**

### Potential Impacts

- 3.5.46 A population of slow worms have been recorded within the field margins of the application Site including the grazed north-east field (proposed for residential development) and the arable field (proposed attenuation area). The heavily grazed improved grassland and cultivated area of the arable field was unsuitable for this species and the population of slow worms are likely to be confined to the field boundaries, immediate margins and adjacent gardens.

### Mitigation, Compensation, Enhancement and Monitoring

- 3.5.47 Given the unsuitable nature of habitat within the construction areas it is recommended that a Risk Avoidance Method Statement (RAMS) is prepared and implemented during construction to avoid impacts upon reptiles. The RAMS should involve supervised clearance of habitat on the site at the outset of construction. The 10m ecology buffer is provided to protect the population of slow worms during construction within the field margins. The field margin within the arable field will also be retained and protected during construction of the attenuation area. No vehicles, machinery or excavations will occur within the ecology buffer or arable field margins and will be protected using Heras-style fencing to be checked by an Ecologist prior to the commencement of works. Given the nature of habitats affected it is not considered necessary to protect the active construction site from reptiles (through reptile fencing and translocation). The RAMS should be included with the CEMP for the site.
- 3.5.48 The proposed landscape planting and habitat creation, including the creation of a large area of semi-improved, tussocky grassland within the retained southern section of the application Site and the tussocky grassland within the existing arable field will significantly increase the value of the Site for reptiles (approximately 2.86ha increase of suitable habitat).

### Residual Effects

- 3.5.49 The proposals will not result in any significant adverse effects on reptiles and are likely to result in an enhancement for this species through increase in the value of the habitats on Site.

## **Birds**

- 3.5.50 In total 34 bird species were recorded during the survey visits. Most of the bird assemblage could be considered to be typical of arable and pasture farmland with a network of hedgerows on urban fringe. Fifteen species were considered to be definitely or probably breeding on site.

### Potential Impacts

- 3.5.51 The hedgerow network within the application Site will be retained which reduces the potential for significant adverse impacts. Some scattered trees and garden shrubs within 54 and 56 Farleigh Road will require removal which will result in the loss of a small amount of suitable nesting and foraging habitat.
- 3.5.52 The introduction of additional household pets, particularly cats, is also likely to have a detrimental impact on the local bird population. Bird populations may be subject to increased disturbance by residents and dogs.

### Mitigation, Compensation, Enhancement and Monitoring

- 3.5.53 To ensure no nesting birds are harmed or disturbed by the construction of the proposals any woody vegetation which requires removal should be removed outside of the nesting bird season (March- August inclusive) or be preceded by a check for nesting birds undertaken by a suitably qualified ecologist. Similarly the buildings to be removed should be demolished outside of the nesting bird season which falls between September and February to avoid impacts to nesting birds. If the buildings require demolition during the active season they will require an inspection beforehand by a suitably qualified ecologist.
- 3.5.54 The ecology buffer will be managed to create a tussocky grassland and scrub mosaic with the aim of providing shelter for birds from potential disturbance from residents and dogs and predation from cats.
- 3.5.55 The management of the grassland to create a less intensively managed longer sward along with the hedgerow and tree plantings proposed will enhance the Site for foraging birds. These habitats will provide additional invertebrates along with sources of fruit and flower. The longer grassland is also likely to encourage additional small mammals which are a useful food source for foraging barn owl which are present locally.



---

The SUDS proposed may also attract waterfowl particularly moor hen as the wetland habitat they contain matures.

- 3.5.56 It is recommended that new nesting opportunities for birds are incorporated into the new development. This should be at a ratio of one feature for every four new dwellings. Nesting features should include swift boxes installed on the new dwellings. Other features can also be attached to the dwellings or incorporated into the construction of new walls, leaving a maintenance-free and discreet opening. Further boxes can be affixed to retained trees around the site edges. It is recommended that 30 boxes should be installed along the boundary of the site within suitable vegetation.
- 3.5.57 It is suggested that those areas where biodiverse grassland is to be developed should have log piles from large, mature trees that are to be allowed to decay in situ. These provide excellent habitat for invertebrates, which in turn provide a food resource for bird species such as great spotted woodpecker and nuthatches.

#### Residual Effects

- 3.5.58 Providing the above measures are implemented the proposals will not result in any significant adverse effects on birds.

### **3.6 Summary of Assessment of Effects**

The assessment of effects is summarised in Table 16 overleaf, which also outlines the proposed method to secure any relevant mitigation associated with reducing impacts.

**Table 16: Summary of Assessment of Effects**

| Feature                           | Importance    | Mitigation/Compensation Proposed   | Residual Effect and Significance  | Proposed Mechanism to Secure                  | Monitoring Required?  |
|-----------------------------------|---------------|--|---|---|---|
| Designated Sites                  |               |  |   |   |   |
| North Somerset and Mendip Bat SAC | International | Physical impacts to the Site from construction controlled through the Construction Environmental Management Plan.<br><br>Mitigation proposed for bats associated with this designated Site in line with North Somerset and Mendip Bat SAC guidance on development. | No residual effects anticipated   | CEMP<br>LEMP<br>Monitoring Surveys            | Yes in relation to horseshoe bats.                                      |
| Habitats                          |               |  |   |   |   |
| Improved Grassland                | Negligible    | 2.5ha will be retained and enhanced through management. This habitat will provide onsite habitat mitigation for bats and increase suitability of the site for reptiles, amphibians and invertebrates.  | A residual loss of poor quality habitat extent. Overall no significant effect due to the enhancement of the retained grassland. | Landscape & Ecological Management Plan (LEMP) | Yes/habitat establishment will require management and annual monitoring |
| Hedgerows                         | Local         | Physical damage to these features to be controlled through appropriate tree and hedgerow protection measures as outlined in the CEMP and denoted in arboriculture report.  | Significant enhancement of this habitat is anticipated through infil and additional hedgerow provision.                         | CEMP<br>LEMP                                  | N/A   |
| Species                           |               |  |   |   |   |
| Badgers                           | Local         | Habitat mitigation for foraging potential from grassland and orchard planting.<br><br>Update pre-construction badger surveys within three months prior to commencement to ensure no new setts excavated on site.   | No residual effects anticipated   | LEMP.   | N/A   |

| Feature             | Importance | Mitigation/Compensation Proposed  | Residual Effect and Significance   | Proposed Mechanism to Secure  | Monitoring Required?   |
|---------------------|------------|---|--|---|--|
| Bats                | District   | Large areas of suitable foraging habitat are provided within the Site. This includes the grassland, SUDS, retained and planted hedgerows, traditional low intensity orchard. Detailed Lighting Strategy will be prepared with appropriate controls will also be put in place.   | Providing the measures described in the report are put in place both commuting and foraging potential for local bats including greater horseshoe bats will be preserved in the local area. | Detailed Landscaping Proposals within LEMP, Detailed Lighting Strategy. | Yes post construction light monitoring in year 1. Bat activity and static detector surveys in years 1 and 5. |
| Great Crested Newts | Negligible | Implementation of a RAMS to avoid impacts during site clearance.<br><br>Alternatively an eDNA survey may be completed to confirm presence or absence. Where presence is confirmed either a RAMS would be adopted or a low impact licence obtained from Natural England.<br><br>The landscaping proposals for the application Site will increase the suitability of the area for amphibians during their terrestrial phase post-development. | No residual effects anticipated irrespective of the outcome of further eDNA surveys.   | CEMP<br>LEMP  | None   |
| Reptiles            | Local      | Strimming of improved grassland 48hrs prior to construction and protection of ecology buffer during construction. Provision of tussocky grassland which will increase the area of suitable habitat for reptiles by approximately 2.86ha.  | Anticipated residual enhancement in the suitability of the site for reptiles.  | CEMP<br>LEMP  | Yes/ Monitoring of fencing throughout construction phase   |
| Nesting birds       | Site       | Removal of the any woody vegetation and demolition of the barns outside of the nesting bird season or proceeded by a check by a suitably qualified ecologist.<br><br>Provision of increased areas of hedgerows, treelines and scrub suitable for nesting and foraging birds.  | None Anticipated   | CEMP / LEMP   | No   |



---

## 4 CONCLUSIONS

- 4.1.1 The proposed development has the potential to result in **adverse impacts** upon a number of ecological features ranging from **International to Negligible** importance. Avoidance and mitigation measures have been proposed to ensure that potential adverse impacts are reduced as far as possible. This includes the avoidance and protection of important hedgerow habitats and the provision of a 10m ecology buffer surrounding the proposed development
- 4.1.2 Habitat mitigation is proposed through the creation of semi-improved, tussocky grassland and 1,470m of newly planted treelines and hedgerows. This habitat also provides appropriate replacement foraging habitat for horseshoe bats associated with North Somerset and Mendip Bat SAC which has been calculated using the HEP matrix.
- 4.1.3 Assuming the successful implementation of the measures described above the proposed development can be considered in line with planning policies CS4 and CS9 contained in the North Somerset Local Plan Core Strategy. These policies seek to ensure that new development is designed to maximise benefits to biodiversity, incorporating, safeguarding and enhancing natural habitats and features and adding to them where possible. In addition they require the protection and enhancement of biodiversity, planting of trees and provision of strategically important green spaces.



## APPENDIX A: WILDLIFE LEGISLATION & SPECIES INFORMATION

### BADGERS

Badgers and their setts are protected under the Protection of Badgers Act 1992 (as amended) against damage or destruction of a sett, or disturbance, death or injury to the badgers. The Act defines a sett as "any structure or place which displays signs indicating current use by a badger". The definition of current use is subject to considerable debate. Natural England have produced guidance on the definition of current use. (*Badgers and Development – A guide to best practice and development* . Natural England 2011). Given the ambiguity surrounding the definition in all circumstances we would recommend an assessment of current use is always undertaken by a qualified ecologist. Natural Resources Wales (NRW) have a slightly different definition of current use. Please see the NRW website for further information. Penalties for offences against badgers or their setts include fines of up to £5,000 and/or up to six months in prison.

Disturbance of badgers could be caused by any digging activity or scrub clearance within 30 metres of an occupied sett and therefore every case needs to be assessed individually. Felling of trees close to a badger sett may also cause disturbance in some situations. Some activities such as pile driving may cause disturbance at even greater distances, and should be discussed with Natural England or NRW.

Licences are issued by Natural England (or NRW in Wales) to allow the disturbance of badgers, and the destruction of their setts in certain circumstances, in relation to development. Full planning permission must be obtained before a licence application will be considered. Although licences can be applied for at any time of year, disturbance of badgers or exclusion of badgers from a sett can only take place between 1 July and 30 November, to avoid the breeding season when dependant young may be underground. This restriction may be relaxed in some cases where a sett is seasonal and badgers can be shown to be absent from a sett at that time of year.

This report contains information of a confidential nature relating to the location of badger setts. Public access to this data should be restricted to those who have a legitimate need to assess the information and to know the exact situation of the setts rather than simply that badgers are present.

### BATS

All 17 species of bat known to breed in England and Wales, and their roost sites, are protected under the Conservation of Habitats and Species Regulations 2017, known as the 'Habitats Regulations'. This makes it an offence to deliberately kill or injure a bat, or to deliberately disturb a bat such that its ability to hibernate, breed or rear young, or such that the species' distribution, were significantly affected. It is also an offence to damage or destroy any breeding site or resting place. Intentional or reckless disturbance of bats in their resting places, and damage to or obstruction of resting places are also offences under the Wildlife and Countryside Act 1981 (as amended). Under UK law a bat roost is "any structure or place which any wild [bat]...uses for shelter or protection". As bats tend to reuse the same roosts, legal opinion is that the roost is protected whether or not the bats are present at the time. Penalties for offences against bats or their roosts include fines of up to £5,000 and/or up to six months in prison.

As a result, development works which are likely to involve the loss of or alteration to roost sites, or which could result in killing of or injury to bats, need to take place under licence. Works which could disturb bats may also be licensable, though this needs to be assessed on a case by case basis, as bats' sensitivity to disturbance varies depending on normal background levels, and the definition of disturbance offences under the Habitats Regulations is complex. In practice this means that works involving modification or loss of roosts (typically in buildings, trees or underground sites) or significant disturbance to bats in roosts are likely to be licensable.

Licences can be obtained from Natural England or the Welsh Government to permit works that would otherwise be illegal, provided it can be demonstrated that the proposed works are needed to protect public health or safety, or for other reasons of overriding public interest including social and economic reasons. It is also necessary to demonstrate that there is no satisfactory alternative to the proposed works, and that the conservation status of bats in the area will be maintained. Appropriate mitigation and post-construction monitoring are therefore a requirement of all licences.

### AMPHIBIANS

Great Britain supports seven native amphibian species. The four most widespread species; smooth and palmate newts, common frog, and common toad, receive partial protection under the Wildlife and Countryside Act 1981 (as amended) which prohibits sale, barter, exchange, transporting for sale and advertising to sell or to buy. The great crested newt, pool frog and natterjack toad are also fully protected in England and Wales under the Conservation of Habitats and Species Regulations 2017. Penalties for offences against amphibian species include fines of up to £5,000 and/or up to six months in prison.

Four amphibian species (great crested newt, pool frog, common toad, natterjack toad) are listed as priority species under the UK Biodiversity Action Plan, and are therefore considered to be Species of Principal Importance in England and Wales (excluding the pool frog, which does not occur in Wales) under the Natural Environment and Rural Communities (NERC) Act 2006. All public bodies including local and regional authorities have a duty under this legislation to have regard for the conservation of biodiversity.



## GREAT CRESTED NEWTS

Great crested newts are protected in England and Wales under the Conservation of Habitats and Species Regulations 2017, known as the 'Habitats Regulations'. This makes it an offence to deliberately kill or injure a great crested newt, or to deliberately disturb a great crested newt such that its ability to hibernate, breed or rear young, or such that the species' distribution, were significantly affected. It is also an offence to damage or destroy any breeding site or resting place for great crested newts. Intentional or reckless disturbance of great crested newts in places of shelter (ponds or terrestrial refuges), and damage to or obstruction of places of shelter are also offences under the Wildlife and Countryside Act 1981 (as amended). Penalties for offences against great crested newts include fines of up to £5,000 and/or up to six months in prison.

As a result, development works which are likely to involve the loss of ponds or terrestrial habitat, or which could result in killing of or injury to great crested newts, need to take place under licence. Works which could disturb great crested newts may also be licensable, though this is rarely the case unless loss of great crested newt habitat is also proposed, and should be assessed on a case by case basis. In practice this means that works involving any removal of or significant modification to ponds or terrestrial habitats (typically rough grassland, scrub, hedgerow bases and woodland) supporting great crested newts are likely to be licensable.

Licences can be obtained from Natural England or the Welsh Government to permit works that would otherwise be illegal, provided it can be demonstrated that the proposed works are needed to protect public health or safety, or for other reasons of overriding public interest including social and economic reasons. It is also necessary to demonstrate that there is no satisfactory alternative to the proposed works, and that the conservation status of great crested newts in the area will be maintained. Appropriate mitigation and post-construction monitoring are therefore a requirement of all licences.

## REPTILES

All six native reptile species receive protection under the Wildlife and Countryside Act 1981 (as amended). The four more common species (common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, adder *Vipera berus* and grass snake *Natrix natrix*) receive partial protection which makes it an offence to intentionally kill or injure a reptile. The two other reptile species (smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis*), both of which are rare with very restricted UK ranges receive full protection under the Conservation of Habitats and Species Regulations 2017. Penalties for offences against reptile species include fines of up to £5,000 and/or up to six months in prison.

Works such as site clearance or topsoil stripping which could result in killing or injury of reptiles could be considered result in an offence unless measures are taken to minimise the risk of this occurring. Any inadvertent impacts on common reptile species despite these mitigation measures being in place would be considered an 'incidental result of an otherwise lawful operation' which 'could not reasonably have been avoided' and therefore not an offence. Works which could affect smooth snakes or sand lizards, or their habitats, would need to take place under licence from Natural England or Natural Resources Wales. However sites supporting smooth snakes or sand lizards are very rarely affected by development proposals.

In practice, mitigation for impacts of development on common reptiles generally comprise one or more of the following techniques: displacement, in which reptiles are encouraged to move to suitable retained habitat by changing the management of areas affected by development; exclusion, where reptile-resistant fencing is provided between a development site and suitable retained habitat allowing reptiles to be trapped from the development footprint and released elsewhere on the site; and translocation, where animals are trapped from a development site and released on another suitable site nearby. Reptile mitigation proposals, particularly those involving translocation of animals, should be agreed in advance with the local planning authority.

## BIRDS

All British birds, their nests and eggs (with certain exceptions) are protected under the Wildlife & Countryside Act 1981 (as amended) which makes it an offence to: intentionally kill, injure or take a wild bird; intentionally take, damage or destroy nests which are in use or being built; intentionally take or destroy birds' eggs; or possess live or dead wild birds or eggs. A number of species receive additional protection through inclusion on Schedule 1 of the Wildlife and Countryside Act; for these it is also an offence to intentionally or recklessly disturb birds while nest building, or at a nest containing eggs or young, or to disturb the dependant young of such a bird. Penalties for offences against bird species include fines of up to £5,000 and/or up to six months in prison.

General licences for control of some bird species are issued by Natural England and Natural Resources Wales in order to prevent damage or disease, or to preserve public health or public safety, but it is not possible to obtain a licence for control of birds or removal of eggs/nests for development purposes. Consequently if nesting birds are present on a development site when works are programmed to start it is usually necessary to delay works, at least in the areas supporting nests, until any chicks have fledged and left the nest. It is usually possible, once chicks have hatched, for an experienced ecologist to predict approximately when they are likely to fledge, in order to inform programming of works on site.

## PLANNING POLICY IN RELATION TO BIODIVERSITY - ENGLAND

The National Planning Policy Framework (NPPF), was published in March 2012 and revised in February 2019. Additional guidance can be found online at <http://planningguidance.planningportal.gov.uk/blog/guidance/>. The NPPF simplifies and collates a number of previous planning documents and outlines the government's objective towards biodiversity.



The NPPF identifies ways in which the planning system should contribute to and enhance the natural and local environment (Paragraph 170), including:

- (a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- (b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- (d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- (e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- (f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate. protecting and enhancing valued landscapes, geological conservation interests and soils;

It also emphasises the importance of conserving biodiversity and areas covered by landscape designations (Paragraph 172):

Great weight should be given to conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to landscape and scenic beauty. The conservation of wildlife and cultural heritage are important considerations in all these areas, and should be given great weight in National Parks and the Broads.

When determining planning applications, the NPPF states that local planning authorities should aim to conserve and enhance biodiversity (Paragraph 175) by applying principles including:

- (a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- (b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- (c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons<sup>6</sup> and a suitable compensation strategy exists; and
- (d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

The following should be given the same protection as habitats sites:

- (a) potential Special Protection Areas and possible Special Areas of Conservation;
- (b) listed or proposed Ramsar sites<sup>7</sup>; and
- (c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

There is a general presumption in favour of sustainable development within the NPPF. It is noted in Paragraph 177 that this presumption does not apply where the plan or project is likely to have a significant effect on a habitat site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

The Natural Environment and Rural Communities Act (2006) states that a public authority must, "in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity; Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat". DEFRA issued further guidance on implementation of this act in the document; Guidance for Local Authorities on Implementing the Biodiversity Duty (May 2007), which notes that "Conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them".

## ECOLOGICAL ENHANCEMENTS

The Natural Environment and Rural Communities Act (2006) states that a public authority must, "in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity; Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat". DEFRA issued further guidance on implementation of this act in the document; Guidance for Local Authorities on Implementing the Biodiversity Duty (May 2007), which notes that "Conserving biodiversity can include restoring or enhancing a population or habitat".

In England, the National Planning Policy Framework (NPPF), issued in February 2019, states that the planning system should contribute to "minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are



more resilient to current and future pressures;. It also states that "opportunities to incorporate biodiversity in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity".

## UK BIODIVERSITY ACTION PLANS

The UK Biodiversity Action Plan (UK BAP) 2011 is a policy first published in 1994 to protect biodiversity and stems from the 1992 Rio Biodiversity Earth Summit. The policy is continuously revised to combine new and existing conservation initiatives to conserve and enhance species and habitats, promote public awareness and contribute to international conservation efforts. Each plan details the status, threats and unique conservation strategies for the species or habitat concerned, to encourage spread and promote population numbers.

Species or habitats identified as priorities under the UK Biodiversity Action Plan receive some status in the planning process through their identification as Species/Habitats of Principal Importance in England and Wales, under the Natural Environment and Rural Communities (NERC) Act 2006 (as amended).

Current planning guidance in England, the National Planning Policy Framework, does not specifically refer to Species or Habitats of Principal Importance, though it includes guidance for conservation of biodiversity in general. Supplementary guidance is available online at <http://planningguidance.planningportal.gov.uk/blog/guidance/> and this guidance indicates that it is 'useful to consider' the potential effects of a development on the habitats or species on the Natural Environment and Rural Communities Act 2006 section 41 list.

## THE HEDGEROWS REGULATIONS

In England and Wales the Hedgerows Regulations (1997) as amended confer a level of protection on hedgerows (though hedgerows within or bordering domestic gardens are excluded), particularly those hedgerows classified as 'Important' under the legislation. The Regulations require those wishing to remove hedgerows to submit a Hedgerow Removal Notice to the Local Planning Authority (LPA), which will then determine whether the hedgerow affected is classified as 'Important' under the Regulations. If it is, the LPA will either approve the proposed hedgerow removal, or issue a retention notice. It is an offence to remove or destroy a hedgerow which is subject to a retention notice, or to remove one without a removal notice.

Routine management of hedgerows, removal of hedgerows for development which has been granted planning consent, and certain other situations are allowed under the Regulations, which also specifically exclude hedgerows within or bordering domestic gardens. Determination of whether a hedgerow should be classified as 'Important' is based on a number of criteria including assessment of its likely historic value (e.g. old parish boundary or part of an ancient monument), ecological value (e.g. presence of protected species, and/or diversity of tree/shrub species in the hedgerow), and landscape value (e.g. associated with a public footpath, or being associated with hedgebanks, ditches, hedgerow trees etc).

Ancient and species-rich hedgerows are listed as a priority habitat in the UK Biodiversity Action Plan (2011)



## APPENDIX B: HEP CALCULATIONS

The Habitat Evaluation Procedure calculations made as part of the North Somerset and Mendip bat SAC supplementary guidance on development are provided below for both greater and lesser horseshoe bats. As can be seen from the calculations with the additional offsite land the scheme will be compliant with this guidance providing equivalence in foraging potential for both species. Lesser horseshoe bats in particular will enjoy a significant enhancement to the value of foraging habitat available in the local area. Greater horseshoe will receive a slight net gain of 0.15 habitat units from the proposals as can be seen from the calculations appended below.

### Greater horseshoe bat HEP calculations existing habitat value within site ownership boundary and HEP provision

| Habitat  | Primary Habitat |       | Matrix |       | Formation |       | Management / Land use |       | HSI Score | Density Band Score | Hectares  | Habitat Units |                      |             |
|--|-----------------|-------|--------|-------|-----------|-------|-----------------------|-------|-----------|--------------------|---|---------------|----------------------|-------------|
|  | Code            | Score | Code   | Score | Code      | Score | Code                  | Score |           |                    |   |               |                      |             |
| Improved Grassland, cattle grazed  | GI0             | 3     |        | 0.0   |           | 1.00  | GM11                  | 1.00  | 3.00      | 2.5                | 5.39  | 40.43         |                      |             |
| Important hedgerow, overgrown with stand   | LF111           | 6     |        | 0.0   |           | 1.00  | LM31                  | 1.00  | 6.00      | 2.5                | 0.0675  | 1.01          |                      |             |
| Important hedgerow, overgrown with stand   | LF111           | 6     |        | 0.0   |           | 1.00  | LM31                  | 1.00  | 6.00      | 2.5                | 0.093   | 1.40          |                      |             |
| Fence  | LF26            | 1     |        | 0.0   |           | 1.00  |                       | 1.00  | 1.00      | 2.5                | 0.00725   | 0.02          |                      |             |
| Fence  | LF26            | 1     |        | 0.0   |           | 1.00  |                       | 1.00  | 1.00      | 2.5                | 0.0145  | 0.04          |                      |             |
| Arable   | CR0             | 1     |        | 0.0   |           | 1.00  | CL1                   | 1.00  | 1.00      | 2.5                | 0.8   | 2.00          |                      |             |
|  |                 |       |        |       |           |       |                       |       |           |                    | 6.37225   |               |                      |             |
|  |                 |       |        |       |           |       |                       |       |           |                    | Habitat Units   | 44.89         |                      |             |
|  |                 |       |        |       |           |       |                       |       |           |                    | <b>Hectares Required</b>  | <b>2.49</b>   |                      |             |
|  |                 |       |        |       |           |       |                       |       |           |                    | <b>Equivalent Hectares Provided</b>   |               | <b>2.64</b>          |             |
| Value from 'Replacement Habitat' worksheet   |                 |       |        |       |           |       |                       |       |           |                    | <b>Equivalent Hectares of Existing Habitat on Receptor</b>  |               | <b>0.00</b>          |             |
| If there is significant residual replacement habitat that cannot be met within the proposed development site off site enhancement will be amount required will be increased by the value of the existing habitat on site (see A5.54 in the Technical Guidance) |                 |       |        |       |           |       |                       |       |           |                    | If required, Value from Receptor Habitat Worksheet  |               |                      |             |
|  |                 |       |        |       |           |       |                       |       |           |                    | If deficit then further input is required into either 'Replacement Habitat' and/or Off-site Replacement Habitat' worksheets until an equal or gain is provided. (Non-significant amounts of loss need to be agreed with planning authority ecologist) |               | <b>Gain/ Deficit</b> | <b>0.15</b> |

### Greater horseshoe replacement habitat calculation

| Habitat   | Primary Habitat |       | Matrix |       | Formation |       | Management / |       | HSI Score | Hectares | Delivery Risk                                | Temporal Risk | Spatial Risk                |                             | Equivalent Hectares |
|---|-----------------|-------|--------|-------|-----------|-------|--------------|-------|-----------|----------|--|---------------|-----------------------------|-----------------------------|---------------------|
|   | IHS Code        | Score | Code   | Score | Code      | Score | Code         | Score |           |          |  |               | Development Site Band Score | Replacement Site Band Score |                     |
| Built up (not including ecology buffer)                             | URO             | 1     |        | 0     | 1.00      | UA3   | 0.00         | 0.00  | 2.880     | 1.00     | 1.000  | 2.5           | 2.5                         | 0.00                        |                     |
| Semi-improved grassland (Southern retained land and ecology buffer) | GU0             | 4     | SC2    | 1     | 1.00      | GL2   | 1.00         | 5.00  | 2.060     | 1.00     | 0.965  | 2.5           | 2.5                         | 9.94                        |                     |
| Semi-improved grassland managed for wildlife (former arable)        | GU0             | 4     |        | 0     | 1.00      | GL211 | 1.00         | 4.00  | 0.800     | 1.00     | 0.837  | 2.5           | 2.5                         | 2.68                        |                     |
| Amenity Grassland   | GI0             | 3     |        | 0     | 1.00      | GL1   | 0.10         | 0.30  | 0.450     | 1.00     | 0.837  | 2.5           | 2.5                         | 0.11                        |                     |
| Attenuation waterbody   | AS0             | 4     |        | 0     | AP1       | 0.50  | 1.00         | 2.00  | 0.340     | 1.00     | 1.000  | 2.5           | 2.5                         | 0.68                        |                     |
| Important hedgerow, overgrown with standards                        | LF111           | 6     |        | 0     | 1.00      | LM31  | 1.00         | 6.00  | 0.0675    | 1.00     | 1.000  | 2.5           | 2.5                         | 0.41                        |                     |
| Important hedgerow, overgrown with standards                        | LF111           | 6     |        | 0     | 1.00      | LM31  | 1.00         | 6.00  | 0.093     | 1.00     | 1.000  | 2.5           | 2.5                         | 0.56                        |                     |
| New boundary hedgerow   | LF11            | 6     |        | 0     | 1.00      | LM3   | 1.00         | 6.00  | 0.029     | 1.00     | 0.837  | 2.5           | 2.5                         | 0.15                        |                     |
| New boundary hedgerow   | LF11            | 6     |        | 0     | 1.00      | LM3   | 1.00         | 6.00  | 0.058     | 1.00     | 0.837  | 2.5           | 2.5                         | 0.29                        |                     |
| New hedgerow along existing to form double hedgerow                 | LF11            | 6     |        | 0     | 1.00      | LM3   | 1.00         | 6.00  | 0.0675    | 1.00     | 0.837  | 2.5           | 2.5                         | 0.34                        |                     |
| New hedgerow along existing to form double hedgerow                 | LF11            | 6     |        | 0     | 1.00      | LM3   | 1.00         | 6.00  | 0.06      | 1.00     | 0.837  | 2.5           | 2.5                         | 0.30                        |                     |
| New southern boundary uncut hedgerow (2 - 3m)                       | LF11            | 6     |        | 0     | 1.00      | LM22  | 0.80         | 4.80  | 0.1       | 1.00     | 0.837  | 2.5           | 2.5                         | 0.40                        |                     |
|   |                 |       |        |       |           |       |              |       |           |          | <b>Value of Habitat Provided in Hectares</b> |               | <b>2.642</b>                |                             |                     |



### Lesser horseshoe bat HEP calculations existing habitat value within site ownership boundary and HEP provision

| Field No  | Habitat                               | Primary Habitat |       | Matrix |       | Formation |       | Management / Land use |       | HSI Score   | Density Band Score                                | Hectares                 | Habitat Units |
|---|---------------------------------------|-----------------|-------|--------|-------|-----------|-------|-----------------------|-------|---|---|--------------------------|---------------|
|   |                                       | Code            | Score | Code   | Score | Code      | Score | Code                  | Score |   |   |                          |               |
| F1  | Improved Grassland, cattle grazed     | GI0             | 2     |        | 0.0   |           | 1.00  | GM11                  | 1.00  | 2.00  | 1.5   | 5.39                     | 16.17         |
| HR1 (west)  | Important hedgerow, overgrown with st | LF111           | 6     |        | 0.0   |           | 1.00  | LM31                  | 1.00  | 6.00  | 1.5   | 0.0675                   | 0.61          |
| HR2 (south)   | Important hedgerow, overgrown with st | LF111           | 6     |        | 0.0   |           | 1.00  | LM31                  | 1.00  | 6.00  | 1.5   | 0.093                    | 0.84          |
| HR3 (east)  | Fence                                 | LF26            | 0     |        | 0.0   |           | 1.00  |                       | 1.00  | 0.00  | 1.5   | 0.0075                   | 0.00          |
| HR4 (north)   | Fence                                 | LF26            | 0     |        | 0.0   |           | 1.00  |                       | 1.00  | 0.00  | 1.5   | 0.0145                   | 0.00          |
| F2  | Arable                                | CR0             | 1     |        | 0.0   |           | 1.00  | CL1                   | 1.00  | 1.00  | 1.5   | 0.8                      | 1.20          |
|   |                                       |                 |       |        |       |           |       |                       |       |   |   | 6.3725                   |               |
|   |                                       |                 |       |        |       |           |       |                       |       |   |   | Habitat Units            | 18.81         |
|   |                                       |                 |       |        |       |           |       |                       |       |   |   | <b>Hectares Required</b> | <b>1.05</b>   |
|   |                                       |                 |       |        |       |           |       |                       |       | Value from 'Replacement Habitat' worksheet  | <b>Equivalent Hectares Provided</b>               | <b>2.42</b>              |               |
| Note: Where there is significant residual replacement habitat that cannot be accommodated within the proposed development site off site enhancement will be needed. The amount required will be increased by the value of the existing habitat on the receptor site (see A5.54 in the Technical Guidance) |                                       |                 |       |        |       |           |       |                       |       | If required, Value from Receptor Habitat Worksheet  | <b>Equivalent Hectares of Existing Habitat on</b> | <b>0.00</b>              |               |
|   |                                       |                 |       |        |       |           |       |                       |       | If deficit then further input is required into either 'Replacement Habitat' and/or Off-site Replacement Habitat' worksheets until an equal or gain is provided. (Non-significant amounts of loss need to be agreed with planning authority ecologist) | <b>Gain/ Deficit</b>                              | <b>1.37</b>              |               |

### Lesser horseshoe replacement habitat calculation

| Habitat                                      | Primary Habitat |       | Matrix |       | Formation |       | Management / |       | HSI Score | Hectares | Delivery Risk | Temporal Risk | Spatial Risk                |                             | Equivalent Hectares |
|--|-----------------|-------|--------|-------|-----------|-------|--------------|-------|-----------|----------|---------------|---------------|-----------------------------|-----------------------------|---------------------|
|  | IHS Code        | Score | Code   | Score | Code      | Score | Code         | Score |           |          |               |               | Development Site Band Score | Replacement Site Band Score |                     |
| Built up (not including ecology buff         | UR0             | 1     |        | 0     |           | 1.00  | UA3          | 0.00  | 0.00      | 2.880    | 1.00          | 1.000         | 1.5                         | 1.5                         | 0.00                |
| Semi-improved grassland (Southern            | GU0             | 3     | SC2    | 1     |           | 1.00  | GM2          | 1.00  | 4.00      | 2.060    | 1.00          | 0.965         | 1.5                         | 1.5                         | 7.95                |
| Semi-improved grassland managed              | GU0             | 3     |        | 0     |           | 1.00  | GL211        | 1.00  | 3.00      | 0.800    | 1.00          | 0.837         | 1.5                         | 1.5                         | 2.01                |
| Amenity Grassland                            | GU1             | 2     |        | 0     |           | 1.00  | GL1          | 0.10  | 0.20      | 0.450    | 1.00          | 0.837         | 1.5                         | 1.5                         | 0.08                |
| Attenuation waterbody                        | AS0             | 6     |        | 0     | AP1       | 1.00  | AP1          | 1.00  | 6.00      | 0.340    | 1.00          | 1.000         | 1.5                         | 1.5                         | 2.04                |
| Important hedgerow, overgrown w              | LF111           | 6     |        | 0     |           | 1.00  | LM31         | 1.00  | 6.00      | 0.0675   | 1.00          | 1.000         | 1.5                         | 1.5                         | 0.41                |
| Important hedgerow, overgrown w              | LF111           | 6     |        | 0     |           | 1.00  | LM31         | 1.00  | 6.00      | 0.093    | 1.00          | 1.000         | 1.5                         | 1.5                         | 0.56                |
| New boundary hedgerow                        | LF11            | 6     |        | 0     |           | 1.00  | LM3          | 1.00  | 6.00      | 0.029    | 1.00          | 0.837         | 1.5                         | 1.5                         | 0.15                |
| New boundary hedgerow                        | LF11            | 6     |        | 0     |           | 1.00  | LM3          | 1.00  | 6.00      | 0.058    | 1.00          | 0.837         | 1.5                         | 1.5                         | 0.29                |
| New hedgerow along existing to fo            | LF11            | 6     |        | 0     |           | 1.00  | LM3          | 1.00  | 6.00      | 0.0675   | 1.00          | 0.837         | 1.5                         | 1.5                         | 0.34                |
| New hedgerow along existing to fo            | LF11            | 6     |        | 0     |           | 1.00  | LM3          | 1.00  | 6.00      | 0.06     | 1.00          | 0.837         | 1.5                         | 1.5                         | 0.30                |
| New southern boundary uncut hed              | LF11            | 6     |        | 0     |           | 1.00  | LM22         | 0.80  | 4.80      | 0.1      | 1.00          | 0.837         | 1.5                         | 1.5                         | 0.40                |
| <b>Value of Habitat Provided in Hectares</b> |                 |       |        |       |           |       |              |       |           |          |               |               |                             |                             | <b>2.420</b>        |



## APPENDIX C: BIODIVERSITY NET GAIN CALCULATIONS

As can be seen from the headline results appended below the biodiversity net gain calculations clearly show that the onsite habitat mitigation will provide a significant enhancement to biodiversity locally.

The baseline value of the Site was 13.24 habitat units and 4.33 hedgerow units. Overall the development will result in net gain of 6.50 habitat units and 7.18 hedgerow units resulting in an overall value of 19.74 habitat units and 11.52 hedgerow units. This equates to a 49.10% increase in the biodiversity value of the habitat present within the wider ownership boundary and a 165.69% increase in the value of the hedgerows.

Overall the dramatic increase in value has been achieved due to the very low value of the improved grassland and arable habitats present within the existing landholding. The increase in grassland value through the management proposed below along with the additional hedgerows, attenuation waterbody and tree plantings proposed will enhance the biodiversity value significantly.

|  |                       |                |
|--|-----------------------|----------------|
| <b>On-site post-intervention</b><br>(Including habitat retention, creation, enhancement & succession)  | <i>Habitat units</i>  | <b>19.74</b>   |
|  | <i>Hedgerow units</i> | <b>11.52</b>   |
|  | <i>River units</i>    | <b>0.00</b>    |
| <b>Off-site baseline</b>   | <i>Habitat units</i>  | <b>0.00</b>    |
|  | <i>Hedgerow units</i> | <b>0.00</b>    |
|  | <i>River units</i>    | <b>0.00</b>    |
| <b>Off-site post-intervention</b><br>(Including habitat retention, creation, enhancement & succession) | <i>Habitat units</i>  | <b>0.00</b>    |
|  | <i>Hedgerow units</i> | <b>0.00</b>    |
|  | <i>River units</i>    | <b>0.00</b>    |
| <b>Total net unit change</b><br>(including all on-site & off-site habitat retention/creation)          | <i>Habitat units</i>  | <b>6.50</b>    |
|  | <i>Hedgerow units</i> | <b>7.18</b>    |
|  | <i>River units</i>    | <b>0.00</b>    |
| <b>Total net % change</b><br>(including all on-site & off-site habitat creation + retained habitats)   | <i>Habitat units</i>  | <b>49.10%</b>  |
|  | <i>Hedgerow units</i> | <b>165.69%</b> |
|  | <i>River units</i>    | <b>0.00%</b>   |



**Clarkson and Woods Ltd.**

Overbrook Business Centre,  
Poolbridge Road, Blackford,  
Somerset BS28 4PA

t: 01934 712500

e: [info@clarksonwoods.co.uk](mailto:info@clarksonwoods.co.uk)

[www.clarksonwoods.co.uk](http://www.clarksonwoods.co.uk)