# BAT SURVEY REPORT

Land Value Alliances LLP

## Selwood Garden Village

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# 1. INTRODUCTION

## Purpose of this report

1.1 This bat survey report has been produced by Grass Roots Ecology to inform emerging proposals for up to 1,700 residential dwellings, employment land, a local centre, education provision and social infrastructure together with other supporting infrastructure, public open space, parks and wildlife corridors.

1.2 This report sets out the findings of a series of bat surveys that were performed at the site to inform the emerging proposals. In doing so, it also serves to provide further detail in supplementing the Ecology and Nature Conservation Environmental Statement (ES) chapter which accompanies the submitted planning application.

## Background

1.3 The proposals fall within the bat consultation zone in relation to the Mells Valley Special Area of Conservation (SAC), designated for its nationally important population of Greater Horseshoe bats. Thus, an appropriate approach to survey and assessment was devised with reference to the guidance note produced by Mendip District Council and advice sought from Somerset Ecology Services' former Senior Ecologist, Mr Larry Burrows.

1.4 This bat survey report concerns both bat populations which utilise the buildings contained within the site for roosting purposes and the habitats present within the site for foraging and navigation. This report presents the findings of an extensive series of bat surveys.

1.5 The surveys have been completed in line with best practice guidelines including the Bat Mitigation Guidelines (Mitchell-Jones, A.J. 2004) and The Bat Conservation Trusts' Bat Surveys Good Practice Guidelines (Collins, J. 2016) and in doing so provide sufficient information pertaining to bats to allow Mendip District Council to determine the value of the site for bats.

## 2. LEGISLATION

2.1 All UK bat species are afforded full legal protection under schedule 5 of The Wildlife and Countryside Act 1981 (as amended) and schedule 2 of The Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations). This also applies to their breeding and resting places (i.e. roosting sites).

2.2 This legislation makes it an offence to deliberately, intentionally or recklessly:

- Kill, injure or capture a bat;
- Obstruct access to any structure or place used for shelter or protection by bat;
- Disturb a bat while it is occupying a structure or place which is uses for that purpose;
- Disturb bats in such a way it would affect the ability of any significant group of bat to survive, breed, rear or nurture or affect a local distribution or abundance;
- Damage or destroy a breeding or resting place of a bat.

2.3 Moreover, the Natural Environment and Rural Communities (NERC) Act 2006 places a duty on public bodies to consider enhancement of biodiversity within all their actions, and this Act also includes measures to protect species considered to be of Principal Importance that are highlighted as requiring particular conservation action by the UK Biodiversity Action Plan (UK BAP) and relevant local BAPs.

2.4 In terms of the Mells Valley SAC, this is notified under the Habitats Directive 92/43/EEC, transposed into UK law under the Conservation of Habitats and Species Regulations (2017). Therefore, owing to their international level of importance, bat populations supported by this statutory designated site are afforded high levels of protection, with a legal obligation to prevent damage to their roosts or adversely impact their feeding grounds and navigation routes.

## 3. METHODOLOGY

### Desk Study

3.1 Both Somerset Environmental Records Centre (SERC) and Wiltshire & Swindon Biological Records Centre (WSBRC) were contacted in December 2017 to provide bat records (within a 4km search radius from the centre of the site) and information on designated sites (6km search radius). Data received has informed this bat survey report where required and (subject to any confidentiality restrictions) is available on request.

### Building Surveys

3.2 Given the full legal protection[1] afforded to all UK bat species under schedule 5 of The Wildlife and Countryside Act 1981 (as amended) and schedule 2 of the Habitats Regulations, all built structures within the site were assessed for their potential to support roosting bats. This involved both external and internal inspections.

3.3 The inspections were aided by binoculars (8x42 magnification) and high-powered torches (3,800 lumens), targeting any features that may present roosting/entry opportunities for bats.

3.4 A number of farm buildings at Sandy's Hill Farm were also subject to a series of bat activity surveys involving dusk emergence and dawn re-entry visits. The surveys were conducted from 15 minutes before sunset to approximately 90 minutes after sunset and from 90 minutes before sunrise during the dawn survey work with surveyors equipped with Titley Scientifics' Anabat SD1 and Scout automated bat recording detectors.

3.5 Bat calls were analysed using Titley Scientifics' bat analysis software with the aid of British Bat Calls: A Guide to Species Identification (Russ, 2012) where required.

[1] where both the species and its habitat (roosting sites) are protected.

**Tree Surveys**

3.6 In addition, trees were assessed for their potential to support roosting bats on account of the presence of a range of features (e.g. rot/woodpecker holes, flaking/peeling bark, splits).

3.7 Those which were assessed to represent moderate potential or higher were also subject to targeted emergence surveys in 2018. A surveyor was utilised per tree until 60 minutes after sunset and proceeded to supplement the wider activity transect surveys. Each tree was subject to three survey visits.

3.8 Again, bat calls were analysed using Titley Scientifics' bat analysis software with the aid of British Bat Calls: A Guide to Species Identification (Russ, 2012).

**Wider Activity Surveys**

3.9 In line with MDC's guidance relating to the nearby SAC, placing the site in bat consultation zone C (with the exception of a very small area in the northwest being at the boundary to zone B), multiple automated bat recording detectors (Titley Scientifics' Anabat Express) were deployed at strategic locations across the site, for extended periods of remote monitoring, throughout the 2018 survey season, with supplementary monitoring carried out in 2019 and 2020. A series of transect surveys were also carried out during the 2018 survey season.

3.10 The presence of nearby horseshoe bat populations necessitated an increased level of survey effort with activity surveys performed across the months May–October. The surveys involved surveyors equipped with bat recording detectors (Titley Scientifics' Anabat SD1 and Scout) and recording activity along transects and were conducted for an extended time period of three hours. Survey effort was further increased by deploying a number of automated bat recording detectors in strategic locations to record bat activity over extended periods in 2018, 2019 and 2020. An assessment of the management regime was also performed in order to establish whether any habitats (e.g. cattle-grazed pasture) were of particular value to Greater Horseshoe bats.

3.11 Again, bat calls were analysed using Titley Scientifics' bat analysis software with the aid of British Bat Calls: A Guide to Species Identification (Russ, 2012).

**Surveyors**

3.12 All surveys were performed under the direction of Alexander Heath who holds a current Natural England Survey Licence (2015-15821-CLS-CLS) and has been surveying for bats for over 12 years.

**EcoBat Analysis**

3.13 Following consultation, Somerset Ecology Services requested that the automated static bat monitoring data relating to Greater and Lesser Horseshoe bats were uploaded to EcoBat. This enabled an assessment of the frequency of horseshoe bat (both lesser and greater) registrations, relative to elsewhere in the local area (100km$^2$ radius), so as to more rigorously determine the correct bat consultation zone for the site. This was done as requested.

3.14 As also recommended by Somerset Ecology Services, the median percentile metric for each monitoring location was used to determine its value for each species and as an indicator of the bat consultation zone for the Mells Valley SAC (Low = zone C, Moderate = zone B, High = zone A).

**Calculating Required Replacement Habitat**

3.15 Somerset's Habitat Evaluation Procedures (HEP) matrix was used to calculate the amount of replacement habitat required, relevant to that lost, for Greater and Lesser Horseshoe bats.

3.16 The HEP matrix assesses the value of the current habitats and calculates the minimum area of replacement habitat required, to effectively mitigate the loss/fragmentation of the original habitat. Furthermore, proposed habitats post-development were also factored into the matrix, to calculate the amount of replacement habitat provided.

3.17 The current and proposed habitats are allocated a Habitat Suitability Index (HSI) score based on the habitat matrix present within each land parcel, in addition to their formation and/or management. The management of the land is illustrated on Figure 7.3 and this has informed the appointed management and land use

codes within the HEP matrix. The Bat Consultation Zone band under which the habitat falls in relation the Mells Valley SAC, is also scored within the matrix.

3.18 Following further consultation with Somerset Ecology Services the HSI score was increased to 2.0 based on a precautionary approach with regard to the potential for an additional Horseshoe bat roost (which may be functionally linked to the nearby Mells Valley SAC) being in close proximity and to reflect Bat Consultation Zone B.

## 4. RESULTS

### Desk Study

4.1 Records for Common Pipistrelle, Soprano Pipistrelle, Noctule bat, Serotine bat, Brown Long-eared bat, Brandt's bat, Whiskered bat, Daubenton's bat, Natterer's bat, Barbastelle bat, Bechstein's bat, Lesser Horseshoe bat and Greater Horseshoe bat were returned within the requested search area. All bats species of bats found in Somerset are included on the BAP.

4.2 As already mentioned, a population of Greater Horseshoe bats is known to be present at the nearby Mells Valley SAC located approximately 2.5km to the northwest of the site. Lesser Horseshoe (and Greater Horseshoe) bat populations are also known to be present in the local area, being associated with the Old Ironstone Mells Site of Special Scientific Interest located approximately 4km to the northwest. These statutory designated sites are shown on Plan GRE 1 within the Extended Phase 1 Habitat Survey Report.

4.3 Consultation with Somerset Ecology Services also reported of a potential Greater Horseshoe bat roost in close proximity to the site and this potentially being functionally linked with the nearby Mells Valley SAC populations.

### Building Surveys

4.4 Activity surveys of the buildings at Sandy's Hill Farm during June–September 2019 confirmed that the main farmhouse and adjoining barn within the centre of the application site supports a small Common Pipistrelle summer roost, as shown on Plan GRE 1.

### Tree Surveys

4.5 The trees identified as offering bat roosting potential are shown on plan GRE 1 and these were subject to a series of emergence surveys in 2018 as part of the wider activity transect surveys.

4.6 No evidence of roosting was identified, however, as features capable of support crevice-dwelling bat species can continue to develop in time, these trees are judged to be of low value (local-level importance) for local bat populations.

**Activity surveys**

4.7 The results of the bat activity surveys are presented on plan GRE 2 and within tables 1-6 appended to this report. A summary of the main findings is discussed below.

Transect Surveys

4.8 Plan GRE 2 illustrates the distribution of Horseshoe bat registrations recorded during these transect surveys. In addition to Horseshoe bats, other species that were recorded included Common Pipistrelle, which dominated, Soprano Pipistrelle, Noctule bat and *Myotis* species.

4.9 In terms of Horseshoe bats, Greater Horseshoe bat registrations were relatively more frequent, being picked up in May, July and September, with Lesser Horseshoe bat represented in May, August and September. Locations and timing tended to correlate with navigating along the linear features, in particular the hedgerows either side of Paddles Lane and Little Keyford Lane. Only one registration (Greater Horseshoe bat) was recorded along the River Frome corridor.

Automated Static Surveys

4.10 Further automated (static) surveys were also performed during 2018, 2019 and 2020, the latter following consultation with Somerset Ecology Services' Senior Ecologist who requested further survey data to be gathered for the latter part of the survey season (i.e. September and October).

4.11 Common Pipistrelle, Soprano Pipistrelle, Noctule, Serotine, Brown Long-eared bat, Greater Horseshoe bat, Lesser Horseshoe bat, Natterer's bat, Brandt's/Whiskered bats, Daubenton's bat and Barbastelle bat were recorded across eight sampling locations over the course of the 2018, 2019 and 2020 surveillance monitoring.

4.12 Activity levels varied, as summarised below with the range of registrations in a one-night period and peak night indicated in brackets:

- Detector 1: 0-41 (19-Jul-18)
- Detector 2: 0-77 (03-May-18)
- Detector 3: 0-305 (03-May-18)
- Detector 4: 8-520 (04-Jun-18)
- Detector 5: 0-2,811 (17-Sep-18)
- Detector 6: 9-34 (16-Jul-18)

4.13 The majority of bat activity (attributed to Pipistrelle species) was judged to be low-moderate although detector 5 located between Little Keyford Lane and Sandy's Hill Farm showed higher levels of activity.

4.14 In relation to Barbastelle bat, one of rarer bat species, occasional passes were recorded on detector 1 in the south of the site in June and July (2018), with no other activity recorded on the other detectors. Given registrations were absent from the other detector locations it is considered that the site is not of any particular importance for this species.

4.15 Aside from Horseshoe bats, which are addressed separately in more detail below, the site is judged to be of overall low-medium value for foraging bats with habitat features not uncommon for the local area.

**Horseshoe Bat Assessment and EcoBat Analysis**

4.16 The automated static monitoring data were uploaded to EcoBat. For Lesser Horseshoe bat, all locations were considered to have recorded low to moderate or low activity levels. For Greater Horseshoe bat, one of the locations (detector 5) was considered to have recorded moderate activity levels, two being considered low to moderate and the remaining five detector locations indicative of low levels of activity.

4.17 In light of moderate activity levels being suggestive of habitat of elevated value in relation to the Mells Valley SAC, further late-season monitoring was carried out

during September and October 2020, as advised by Somerset Ecology Services. These data were also uploaded to EcoBat, as shown on tables A-B which are appended to this report. Although a number of nights of moderate to high activity were recorded, the median percentile for overall Greater Horseshoe bat activity at all sample locations, equated to low activity levels. As such, the site is judged to fall within bat consultation zones B/C.

4.18 However, subsequent consultation with Somerset Ecology Services requested that Bat Consultation Zone B was more appropriate for the site – the same precautionary approach taken for the neighbouring planning applications.

**Calculating Required Replacement Habitat**

4.19 The HEP worksheet was used to calculate the required amount of replacement habitat. The completed calculations are appended to this report.

4.20 In the case of the site, the HSI score was increased to 2.0 to be reflective of Bat Consultation Zone B.

4.21 The HEP matrix calculations confirmed that 17.18ha of replacement habitat would be required to compensate for the loss associated with the proposed development.

4.22 The proposed development, inclusive of species-rich neutral grassland, broadleaved plantation woodland, broadleaved parkland and un-intensively managed orchards, would provide 21.04ha of replacement bat habitat, yielding a habitat net gain of 3.86ha for Greater Horseshoe bat. Such replacement habitat is also considered to benefit local Lesser Horseshoe bat populations given that they have similar habitat requirements.

SELWOOD GARDEN COMMUNITY
PLAN GRE 1:
Building and Tree Bat Survey Plan

grassroots ecology

| | |
|---|---|
| CLIENT: | Land Value Alliances |
| REF: | 1162 |
| REV: | v3 |
| DATE: | 13.07.2021 |
| SCALE: | nts |

north

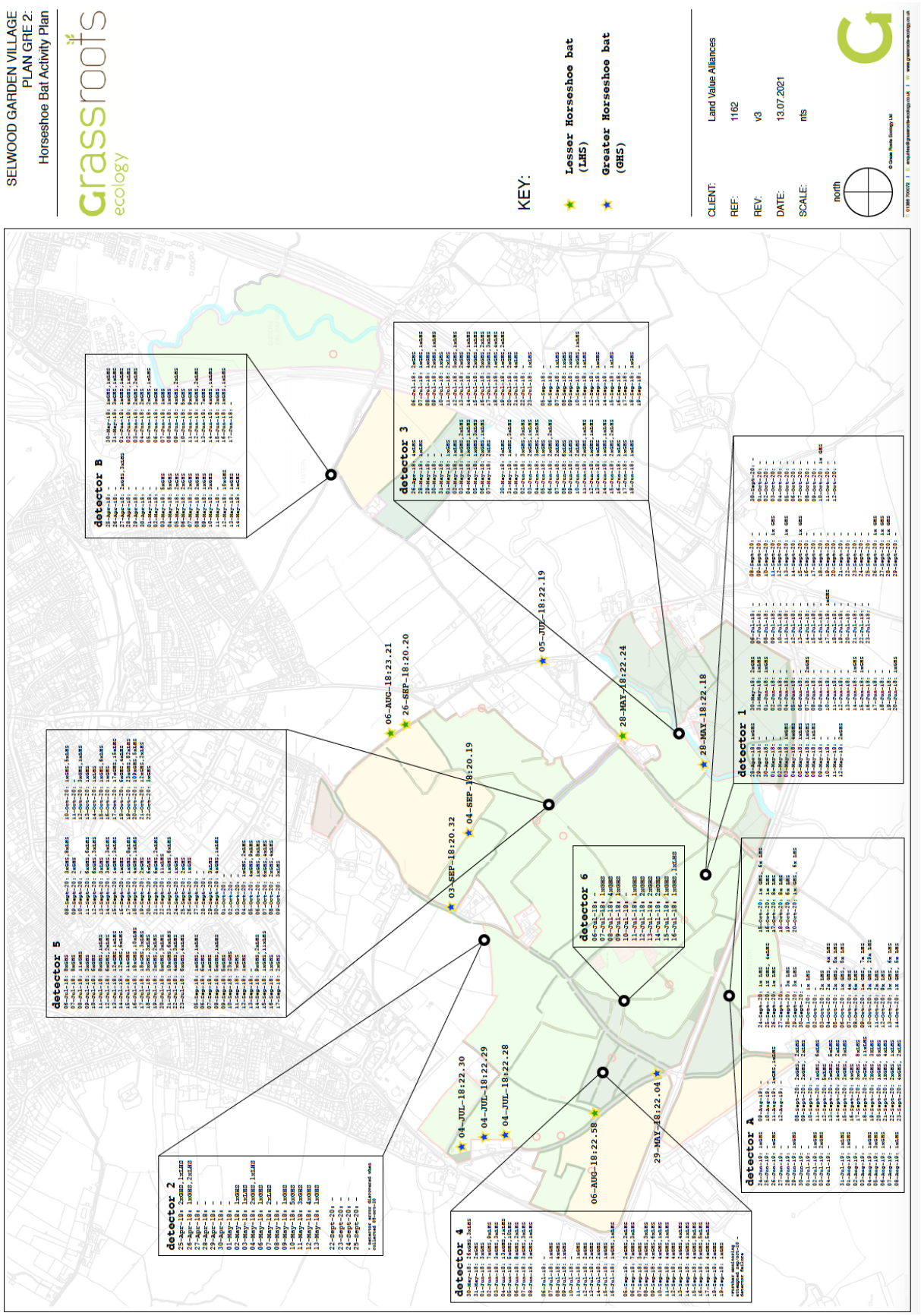
SELWOOD GARDEN VILLAGE
PLAN GRE 2:
Horseshoe Bat Activity Plan
grassroots
ecology
KEY:
Lesser Horseshoe bat (LHS)
Greater Horseshoe bat (GHS)
CLIENT: Land Value Alliances
REF: 1162
REV: v3
DATE: 13.07.2021
SCALE: nts
north
detector 1
detector 2
detector 3
detector 4
detector 5
detector 6
detector A
detector B
04-JUL-18:22.30
04-JUL-18:22.29
04-JUL-18:22.28
06-AUG-18:22.58
29-MAY-18:22.04
03-SEP-18:20.32
04-SEP-18:20.19
06-AUG-18:23.21
26-SEP-18:20.20
28-MAY-18:22.24
28-MAY-18:22.18
05-JUL-18:22.19

**Table 1:** Total number of bat registrations per species, per night, recorded by detector 1 (Lat: 51.20929, Long: 2.32717).

| Night | Common Pipistrelle | Soprano Pipistrelle | Noctule | Serotine | Brown Long-eared | Lesser Horseshoe | Greater Horseshoe | Myotis sp. | Natterer's | Brandt's/ Whiskered | Daubenton's | Barbastelle | Unknown | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25/04/2018 | 0 | 13 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **15** |
| 26/04/2018 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **3** |
| 27/04/2018 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **2** |
| 28/04/2018 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | **1** |
| 29/04/2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 30/04/2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 01/05/2018 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **3** |
| 02/05/2018 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1** |
| 03/05/2018 | 3 | 8 | 13 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | **27** |
| 04/05/2018 | 5 | 8 | 1 | 1 | 3 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | **22** |
| 05/05/2018 | 5 | 4 | 7 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | **20** |
| 06/05/2018 | 0 | 4 | 5 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | **12** |
| 07/05/2018 | 6 | 5 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **17** |
| 08/05/2018 | 1 | 3 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **7** |
| 09/05/2018 | 3 | 3 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **9** |
| 10/05/2018 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | **6** |
| 11/05/2018 | 6 | 1 | 8 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | **17** |
| 12/05/2018 | 4 | 2 | 3 | 0 | 1 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | **16** |
| 30/05/2018 | 2 | 7 | 7 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | **19** |
| 31/05/2018 | 5 | 3 | 3 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **13** |
| 01/06/2018 | 2 | 1 | 3 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | **8** |
| 02/06/2018 | 1 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **6** |
| 03/06/2018 | 2 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | **13** |
| 04/06/2018 | 1 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **5** |
| 05/06/2018 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | **8** |
| 06/06/2018 | 5 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | **14** |
| 07/06/2018 | 4 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 2 | **15** |
| 08/06/2018 | 3 | 3 | 7 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | **16** |
| 09/06/2018 | 2 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | **11** |
| 10/06/2018 | 13 | 3 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | **23** |
| 11/06/2018 | 9 | 4 | 3 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **20** |
| 12/06/2018 | 3 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **6** |
| 13/06/2018 | 1 | 2 | 4 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | **11** |
| 14/06/2018 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | **4** |
| 15/06/2018 | 18 | 7 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | **30** |
| 16/06/2018 | 1 | 3 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | **10** |
| 17/06/2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18/06/2018 | 3 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **10** |
| 19/06/2018 | 14 | 2 | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | **26** |
| 20/06/2018 | 11 | 3 | 5 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 2 | 0 | **24** |
| 21/06/2018 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | **5** |
| 22/06/2018 | 1 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | **8** |
| 23/06/2018 | 16 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | **20** |
| 24/06/2018 | 1 | 0 | 4 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | **10** |
| 25/06/2018 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | **5** |
| 06/07/2018 | 3 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | **12** |
| 07/07/2018 | 4 | 2 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | **12** |
| 08/07/2018 | 5 | 3 | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | **16** |
| 09/07/2018 | 5 | 3 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | **13** |
| 10/07/2018 | 2 | 3 | 3 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | **11** |
| 11/07/2018 | 3 | 3 | 9 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | **18** |
| 12/07/2018 | 1 | 4 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **12** |
| 13/07/2018 | 1 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | **6** |
| 14/07/2018 | 2 | 3 | 1 | 2 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | **12** |
| 15/07/2018 | 1 | 4 | 5 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | **15** |
| 16/07/2018 | 0 | 1 | 4 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | **9** |
| 17/07/2018 | 5 | 22 | 5 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | **35** |
| 18/07/2018 | 2 | 3 | 6 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | **17** |
| 19/07/2018 | 4 | 24 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | **41** |
| 20/07/2018 | 7 | 12 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | **28** |
| 21/07/2018 | 3 | 11 | 12 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | **30** |
| 22/07/2018 | 5 | 7 | 15 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | **29** |
| 23/07/2018 | 4 | 5 | 29 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | **40** |

**Table 2:** Total number of bat registrations per species, per night, recorded by detector 2 (Lat: 51.21442, Long: -2.32895).

| Night | Common Pipistrelle | Soprano Pipistrelle | Noctule | Serotine | Brown Long-eared | Lesser Horseshoe | Greater Horseshoe | Myotis sp. | Natterer's | Brandt's/ Whiskered | Daubenton's | Barbastelle | Unknown | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25/04/2018 | 6 | 2 | 0 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | **12** |
| 26/04/2018 | 25 | 8 | 1 | 0 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | **38** |
| 27/04/2018 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **7** |
| 28/04/2018 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **4** |
| 29/04/2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 30/04/2018 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **6** |
| 01/05/2018 | 17 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **20** |
| 02/05/2018 | 10 | 10 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | **22** |
| 03/05/2018 | 50 | 19 | 4 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | **77** |
| 04/05/2018 | 17 | 1 | 7 | 0 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | **30** |
| 05/05/2018 | 15 | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | **20** |
| 06/05/2018 | 25 | 11 | 7 | 1 | 2 | 0 | 1 | 12 | 0 | 0 | 0 | 0 | 0 | **59** |
| 07/05/2018 | 13 | 7 | 2 | 1 | 0 | 2 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | **31** |
| 08/05/2018 | 10 | 7 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | **22** |
| 09/05/2018 | 25 | 23 | 3 | 1 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | **59** |
| 10/05/2018 | 10 | 1 | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | **17** |
| 11/05/2018 | 15 | 28 | 5 | 0 | 3 | 0 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | **59** |
| 12/05/2018 | 13 | 10 | 0 | 1 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | **29** |
| 13/05/2018 | 12 | 7 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | **23** |

**Table 3:** Total number of bat registrations per species, per night, recorded by detector 3 (Lat: 51.20995, Long: -2.32214).

| Night | Common Pipistrelle | Soprano Pipistrelle | Noctule | Serotine | Brown Long-eared | Lesser Horseshoe | Greater Horseshoe | Myotis sp. | Natterer's | Brandt's/ Whiskered | Daubenton's | Barbastelle | Unknown | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25/04/2018 | 8 | 23 | 0 | 1 | 7 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | **45** |
| 26/04/2018 | 13 | 35 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | **56** |
| 27/04/2018 | 3 | 10 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | **17** |
| 28/04/2018 | 2 | 12 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | **17** |
| 29/04/2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 30/04/2018 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **5** |
| 01/05/2018 | 6 | 7 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | **17** |
| 02/05/2018 | 34 | 46 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | **84** |
| 03/05/2018 | 72 | 217 | 2 | 0 | 5 | 2 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | **305** |
| 04/05/2018 | 16 | 33 | 1 | 0 | 4 | 1 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | **61** |
| 05/05/2018 | 26 | 13 | 2 | 1 | 2 | 3 | 1 | 6 | 0 | 0 | 0 | 0 | 2 | **56** |
| 06/05/2018 | 25 | 24 | 1 | 0 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 4 | **59** |
| 07/05/2018 | 24 | 36 | 7 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 7 | **78** |
| 30/05/2018 | 28 | 38 | 1 | 3 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | **75** |
| 31/05/2018 | 22 | 51 | 6 | 5 | 1 | 3 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | **91** |
| 01/06/2018 | 11 | 14 | 5 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | **32** |
| 02/06/2018 | 6 | 7 | 1 | 1 | 1 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | **24** |
| 03/06/2018 | 13 | 6 | 3 | 1 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | **27** |
| 04/06/2018 | 21 | 22 | 7 | 0 | 0 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | **55** |
| 05/06/2018 | 8 | 5 | 4 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | **19** |
| 06/06/2018 | 14 | 10 | 1 | 1 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | **32** |
| 07/06/2018 | 67 | 16 | 0 | 0 | 0 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | **89** |
| 08/06/2018 | 44 | 8 | 3 | 0 | 2 | 6 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | **65** |
| 09/06/2018 | 23 | 12 | 3 | 0 | 0 | 1 | 0 | 4 | 0 | 0 | 0 | 0 | 1 | **44** |
| 10/06/2018 | 34 | 10 | 4 | 0 | 1 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 1 | **56** |
| 11/06/2018 | 30 | 14 | 4 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | **52** |
| 12/06/2018 | 20 | 2 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | **26** |
| 13/06/2018 | 25 | 6 | 2 | 0 | 2 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | **44** |
| 14/06/2018 | 14 | 4 | 5 | 0 | 1 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | **29** |
| 15/06/2018 | 33 | 23 | 4 | 0 | 0 | 2 | 2 | 3 | 0 | 0 | 0 | 0 | 2 | **69** |
| 16/06/2018 | 9 | 9 | 3 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | **26** |
| 17/06/2018 | 12 | 7 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | **24** |
| 18/06/2018 | 20 | 10 | 10 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | **43** |
| 19/06/2018 | 14 | 2 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **22** |
| 06/07/2018 | 12 | 16 | 6 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 3 | **44** |
| 07/07/2018 | 12 | 20 | 10 | 0 | 1 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | **51** |
| 08/07/2018 | 10 | 14 | 6 | 0 | 2 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | **35** |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 09/07/2018 | 12 | 42 | 13 | 0 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | **73** |
| 10/07/2018 | 16 | 6 | 3 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 1 | **34** |
| 11/07/2018 | 9 | 28 | 4 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | **45** |
| 12/07/2018 | 25 | 46 | 3 | 0 | 0 | 1 | 3 | 1 | 0 | 0 | 1 | 0 | 0 | **80** |
| 13/07/2018 | 13 | 10 | 9 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | **37** |
| 14/07/2018 | 8 | 11 | 4 | 0 | 0 | 1 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | **29** |
| 15/07/2018 | 17 | 28 | 8 | 0 | 1 | 1 | 2 | 5 | 0 | 0 | 1 | 0 | 0 | **63** |
| 16/07/2018 | 7 | 9 | 3 | 3 | 1 | 2 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | **29** |
| 17/07/2018 | 11 | 74 | 3 | 8 | 0 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 2 | **106** |
| 18/07/2018 | 7 | 12 | 1 | 1 | 1 | 4 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | **30** |
| 19/07/2018 | 11 | 36 | 7 | 1 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | **59** |
| 20/07/2018 | 8 | 22 | 6 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | **40** |
| 21/07/2018 | 18 | 26 | 13 | 2 | 0 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | **65** |
| 22/07/2018 | 20 | 75 | 5 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | **102** |
| 23/07/2018 | 28 | 30 | 11 | 2 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | **74** |
| 05/09/2018 | 3 | 7 | 12 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | **25** |
| 06/09/2018 | 3 | 10 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **21** |
| 07/09/2018 | 2 | 4 | 2 | 1 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | **12** |
| 08/09/2018 | 6 | 14 | 7 | 3 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 8 | **42** |
| 09/09/2018 | 7 | 6 | 5 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 6 | **26** |
| 10/09/2018 | 7 | 18 | 4 | 3 | 1 | 1 | 2 | 3 | 0 | 0 | 0 | 0 | 6 | **45** |
| 11/09/2018 | 1 | 7 | 8 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | **20** |
| 12/09/2018 | 1 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **8** |
| 13/09/2018 | 2 | 3 | 1 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | **13** |
| 14/09/2018 | 8 | 11 | 2 | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 5 | **32** |
| 15/09/2018 | 4 | 20 | 5 | 1 | 0 | 1 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | **38** |
| 16/09/2018 | 8 | 17 | 12 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | **39** |
| 17/09/2018 | 4 | 11 | 2 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 2 | **23** |
| 18/09/2018 | 1 | 14 | 2 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | **20** |
| 19/09/2018 | 2 | 6 | 6 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | **18** |

**Table 4:** Total number of bat registrations per species, per night, recorded by detector 4 (Lat: 51.21147, Long: -2.33388).

| Night | Common Pipistrelle | Soprano Pipistrelle | Noctule | Serotine | Brown Long-eared | Lesser Horseshoe | Greater Horseshoe | Myotis sp. | Natterer's | Brandt's/ Whiskered | Daubenton's | Barbastelle | Unknown | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30/05/2018 | 10 | 5 | 13 | 60 | 0 | 3 | 26 | 7 | 0 | 0 | 0 | 0 | 2 | **126** |
| 31/05/2018 | 2 | 0 | 3 | 16 | 0 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | **28** |
| 01/06/2018 | 5 | 0 | 4 | 13 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | **25** |
| 02/06/2018 | 7 | 9 | 5 | 21 | 0 | 9 | 7 | 0 | 0 | 0 | 0 | 0 | 1 | **59** |
| 03/06/2018 | 2 | 1 | 4 | 19 | 0 | 3 | 3 | 21 | 0 | 0 | 0 | 0 | 0 | **53** |
| 04/06/2018 | 317 | 127 | 2 | 16 | 1 | 1 | 13 | 23 | 0 | 0 | 0 | 0 | 20 | **520** |
| 05/06/2018 | 18 | 20 | 0 | 0 | 0 | 10 | 5 | 30 | 0 | 0 | 0 | 0 | 32 | **115** |
| 06/06/2018 | 28 | 33 | 1 | 0 | 0 | 2 | 8 | 64 | 0 | 0 | 0 | 0 | 42 | **178** |
| 07/06/2018 | 27 | 18 | 3 | 0 | 0 | 3 | 3 | 46 | 0 | 0 | 0 | 0 | 23 | **123** |
| 08/06/2018 | 27 | 25 | 9 | 0 | 0 | 1 | 3 | 13 | 0 | 0 | 0 | 0 | 25 | **103** |
| 05/09/2018 | 6 | 5 | 3 | 0 | 0 | 2 | 2 | 21 | 0 | 0 | 0 | 0 | 0 | **39** |
| 06/09/2018 | 22 | 172 | 6 | 0 | 0 | 3 | 7 | 46 | 0 | 0 | 0 | 0 | 0 | **256** |
| 07/09/2018 | 4 | 1 | 3 | 0 | 0 | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | **15** |
| 08/09/2018 | 1 | 8 | 7 | 0 | 1 | 3 | 7 | 13 | 0 | 0 | 0 | 0 | 0 | **40** |
| 09/09/2018 | 7 | 1 | 9 | 0 | 0 | 6 | 4 | 10 | 0 | 0 | 0 | 0 | 0 | **37** |
| 10/09/2018 | 3 | 3 | 6 | 1 | 1 | 1 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | **22** |
| 11/09/2018 | 1 | 3 | 5 | 0 | 0 | 1 | 4 | 10 | 0 | 0 | 0 | 0 | 2 | **26** |
| 12/09/2018 | 4 | 2 | 0 | 1 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | **12** |
| 13/09/2018 | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 21 | 0 | 0 | 0 | 0 | 1 | **29** |
| 14/09/2018 | 3 | 0 | 2 | 0 | 1 | 1 | 4 | 15 | 0 | 0 | 0 | 0 | 0 | **26** |
| 15/09/2018 | 4 | 0 | 5 | 0 | 0 | 8 | 4 | 12 | 0 | 0 | 0 | 0 | 0 | **33** |
| 16/09/2018 | 6 | 4 | 5 | 0 | 0 | 5 | 5 | 2 | 0 | 0 | 0 | 0 | 2 | **29** |
| 17/09/2018 | 7 | 3 | 1 | 0 | 0 | 5 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | **23** |
| 18/09/2018 | 2 | 2 | 5 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | **16** |
| 19/09/2018 | 1 | 0 | 3 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | **8** |

**Table 5:** Total number of bat registrations per species, per night, recorded by detector 5 (Lat: 51.21279, Long: -2.32434).

| Night | Common Pipistrelle | Soprano Pipistrelle | Noctule | Serotine | Brown Long-eared | Lesser Horseshoe | Greater Horseshoe | Myotis sp. | Natterer's | Brandt's/ Whiskered | Daubenton's | Barbastelle | Unknown | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 06/07/2018 | 113 | 108 | 19 | 0 | 0 | 0 | 8 | 22 | 0 | 0 | 0 | 0 | 1 | **271** |
| 07/07/2018 | 82 | 64 | 25 | 0 | 0 | 0 | 8 | 19 | 0 | 0 | 0 | 0 | 0 | **198** |
| 08/07/2018 | 70 | 22 | 39 | 0 | 0 | 0 | 11 | 9 | 0 | 0 | 0 | 0 | 6 | **157** |
| 09/07/2018 | 42 | 9 | 15 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | **71** |
| 10/07/2018 | 46 | 62 | 19 | 0 | 0 | 0 | 6 | 8 | 0 | 0 | 0 | 0 | 2 | **143** |
| 11/07/2018 | 61 | 86 | 17 | 0 | 0 | 1 | 8 | 19 | 0 | 0 | 0 | 0 | 0 | **192** |
| 12/07/2018 | 46 | 45 | 11 | 0 | 0 | 2 | 6 | 15 | 0 | 0 | 0 | 0 | 2 | **127** |
| 13/07/2018 | 52 | 14 | 1 | 0 | 0 | 1 | 12 | 6 | 0 | 0 | 0 | 0 | 6 | **92** |
| 14/07/2018 | 66 | 20 | 7 | 0 | 0 | 6 | 12 | 9 | 0 | 0 | 0 | 0 | 1 | **121** |
| 15/07/2018 | 124 | 29 | 0 | 0 | 0 | 0 | 11 | 17 | 0 | 0 | 0 | 0 | 1 | **182** |
| 16/07/2018 | 190 | 29 | 1 | 0 | 0 | 10 | 18 | 22 | 0 | 0 | 0 | 0 | 3 | **273** |
| 17/07/2018 | 119 | 61 | 1 | 0 | 0 | 3 | 18 | 8 | 0 | 0 | 0 | 0 | 2 | **212** |
| 18/07/2018 | 73 | 23 | 8 | 0 | 0 | 3 | 3 | 7 | 0 | 0 | 0 | 0 | 0 | **117** |
| 19/07/2018 | 29 | 39 | 2 | 0 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | **75** |
| 20/07/2018 | 99 | 75 | 2 | 0 | 0 | 3 | 5 | 11 | 0 | 0 | 0 | 0 | 1 | **196** |
| 21/07/2018 | 217 | 150 | 10 | 0 | 0 | 6 | 10 | 39 | 0 | 0 | 0 | 0 | 0 | **432** |
| 22/07/2018 | 182 | 64 | 18 | 0 | 0 | 3 | 4 | 17 | 0 | 0 | 0 | 0 | 1 | **289** |
| 23/07/2018 | 88 | 81 | 8 | 0 | 0 | 4 | 6 | 10 | 0 | 0 | 0 | 0 | 4 | **201** |
| 05/09/2018 | 363 | 155 | 0 | 0 | 0 | 1 | 1 | 100 | 0 | 0 | 0 | 0 | 0 | **620** |
| 06/09/2018 | 470 | 102 | 3 | 0 | 0 | 0 | 6 | 69 | 0 | 0 | 0 | 0 | 2 | **652** |
| 07/09/2018 | 191 | 76 | 2 | 0 | 0 | 0 | 1 | 29 | 0 | 0 | 0 | 0 | 1 | **300** |
| 08/09/2018 | 898 | 296 | 0 | 0 | 0 | 1 | 5 | 133 | 0 | 0 | 0 | 0 | 1 | **1334** |
| 09/09/2018 | 816 | 101 | 3 | 0 | 0 | 0 | 5 | 80 | 0 | 0 | 0 | 0 | 5 | **1010** |
| 10/09/2018 | 1365 | 187 | 2 | 0 | 1 | 0 | 23 | 130 | 0 | 0 | 0 | 0 | 0 | **1708** |
| 11/09/2018 | 401 | 63 | 3 | 0 | 2 | 0 | 7 | 35 | 0 | 0 | 0 | 0 | 0 | **511** |
| 12/09/2018 | 47 | 9 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | **63** |
| 13/09/2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 14/09/2018 | 1387 | 148 | 0 | 0 | 4 | 2 | 9 | 192 | 0 | 0 | 0 | 0 | 0 | **1742** |
| 15/09/2018 | 551 | 200 | 1 | 0 | 0 | 11 | 1 | 131 | 1 | 0 | 0 | 0 | 5 | **901** |
| 16/09/2018 | 2060 | 391 | 18 | 0 | 14 | 0 | 1 | 270 | 1 | 0 | 0 | 0 | 0 | **2755** |
| 17/09/2018 | 2034 | 492 | 10 | 0 | 0 | 0 | 2 | 272 | 0 | 0 | 0 | 0 | 1 | **2811** |

**Table 6:** Total number of bat registrations per species, per night, recorded by detector 6 (Lat: 51.21131, Long: -2.33203).

| Night | Common Pipistrelle | Soprano Pipistrelle | Noctule | Serotine | Brown Long-eared | Lesser Horseshoe | Greater Horseshoe | Myotis sp. | Natterer's | Brandt's/ Whiskered | Daubenton's | Barbastelle | Unknown | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 06/07/2018 | 0 | 1 | 11 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 15 |
| 07/07/2018 | 2 | 0 | 7 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 14 |
| 08/07/2018 | 1 | 1 | 14 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 4 | 25 |
| 09/07/2018 | 1 | 3 | 6 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 4 | 17 |
| 10/07/2018 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 9 |
| 11/07/2018 | 0 | 1 | 8 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 1 | 14 |
| 12/07/2018 | 1 | 3 | 15 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 24 |
| 13/07/2018 | 3 | 4 | 4 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 7 | 21 |
| 14/07/2018 | 8 | 4 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 8 | 26 |
| 15/07/2018 | 7 | 2 | 2 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 15 |
| 16/07/2018 | 6 | 7 | 6 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 11 | 34 |

Table A: Results of EcoBat analysis inclusive of 2018-2019 surveillance monitoring data. Total nights of recording = 92.

| Detector | Species | Nights of High Activity | Nights of Moderate/High Activity | Nights of Moderate Activity | Nights of Low/Moderate Activity | Nights of Low Activity | Median Percentile | Level of Activity |
|---|---|---|---|---|---|---|---|---|
| 1 | *Rhinolophus ferrumequinum* | 0 | 0 | 1 | 3 | 8 | 0 | Low |
| 1 | *Rhinolophus hipposideros* | 0 | 0 | 0 | 0 | 3 | 0 | Low |
| 2 | *Rhinolophus ferrumequinum* | 0 | 0 | 2 | 3 | 5 | 11 | Low |
| 2 | *Rhinolophus hipposideros* | 0 | 0 | 0 | 2 | 3 | 0 | Low |
| 3 | *Rhinolophus ferrumequinum* | 0 | 0 | 1 | 16 | 18 | 0 | Low |
| 3 | *Rhinolophus hipposideros* | 0 | 0 | 5 | 14 | 22 | 0 | Low |
| 4 | *Rhinolophus ferrumequinum* | 0 | 2 | 12 | 19 | 1 | 40 | Low to Moderate |
| 4 | *Rhinolophus hipposideros* | 0 | 0 | 8 | 7 | 5 | 33 | Low to Moderate |
| 5 | *Rhinolophus ferrumequinum* | 0 | 7 | 14 | 4 | 5 | 49 | Moderate |
| 5 | *Rhinolophus hipposideros* | 0 | 1 | 4 | 7 | 4 | 33 | Low to Moderate |
| 6 | *Rhinolophus ferrumequinum* | 0 | 0 | 1 | 3 | 5 | 0 | Low |
| 6 | *Rhinolophus hipposideros* | 0 | 0 | 0 | 0 | 1 | 0 | Low |
| A | *Rhinolophus ferrumequinum* | 0 | 0 | 0 | 4 | 14 | 0 | Low |
| A | *Rhinolophus hipposideros* | 0 | 0 | 0 | 0 | 4 | 0 | Low |
| B | *Rhinolophus ferrumequinum* | 0 | 0 | 9 | 14 | 7 | 22 | Low to Moderate |
| B | *Rhinolophus hipposideros* | 0 | 0 | 0 | 4 | 7 | 0 | Low |

Table B: Results of EcoBat analysis inclusive of 2020 surveillance monitoring data. Total nights of recording = 44. No *Rhinolophus hipposideros* registrations were recorded by detector 1.

| Detector | Species | Nights of High Activity | Nights of Moderate/High Activity | Nights of Moderate Activity | Nights of Low/Moderate Activity | Nights of Low Activity | Median Percentile | Level of Activity |
|---|---|---|---|---|---|---|---|---|
| 1 | *Rhinolophus ferrumequinum* | 0 | 0 | 0 | 0 | 7 | 0 | Low |
| 5 | *Rhinolophus ferrumequinum* | 1 | 3 | 8 | 8 | 12 | 28 | Low to Moderate |
| 5 | *Rhinolophus hipposideros* | 1 | 3 | 12 | 9 | 4 | 42 | Moderate |
| A | *Rhinolophus ferrumequinum* | 0 | 0 | 3 | 13 | 9 | 22 | Low to Moderate |
| A | *Rhinolophus hipposideros* | 0 | 3 | 19 | 9 | 6 | 47 | Moderate |

## HEP matrix calculations

| Field No | Habitat | Primary Habitat Code | Primary Habitat Score | Matrix Code | Matrix Score | Formation Code | Formation Score | Management / Land use Code | Management / Land use Score | HSI Score | Density Band Score | Hectares | Habitat Units | Species / Notes | Band |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Cereal crops, Agriculture | CR2 | 1 | | 0 | | 1.00 | CL1 | 1.00 | 1.00 | 2.0 | 5.523 | 11.05 | Density Band Score incresed - nearby roost | C for GH |
| 2 | Improved grassland, Silage | GI0 | 3 | | 0 | | 1.00 | GM21 | 0.20 | 0.60 | 2.0 | 1.327 | 1.59 | Density Band Score incresed - nearby roost | C for GH |
| 3 | Improved grassland, Silage | GI0 | 3 | | 0 | | 1.00 | GM21 | 0.20 | 0.60 | 2.0 | 3.975 | 4.77 | Density Band Score incresed - nearby roost | C for GH |
| 4 | Improved grassland, Silage | GI0 | 3 | | 0 | | 1.00 | GM21 | 0.20 | 0.60 | 2.0 | 1.308 | 1.57 | Density Band Score incresed - nearby roost | C for GH |
| 5 | Improved grassland, Silage | GI0 | 3 | | 0 | | 1.00 | GM21 | 0.20 | 0.60 | 2.0 | 4.334 | 5.20 | Density Band Score incresed - nearby roost | C for GH |
| 6 | Improved grassland, Silage | GI0 | 3 | | 0 | | 1.00 | GM21 | 0.20 | 0.60 | 2.0 | 1.306 | 1.57 | Density Band Score incresed - nearby roost | C for GH |
| 7 | Improved grassland, Silage | GI0 | 3 | | 0 | | 1.00 | GM21 | 0.20 | 0.60 | 2.0 | 3.147 | 3.78 | Density Band Score incresed - nearby roost | C for GH |
| 8 | Semi-improved grassland, Hay & Cattle grazed | GU0 | 4 | | 0 | | 1.00 | GM22/GM1 | 0.65 | 2.60 | 2.0 | 2.03 | 10.56 | Density Band Score incresed - nearby roost | C for GH |
| 9 | Semi-improved grassland, Hay & Cattle grazed | GU0 | 4 | | 0 | | 1.00 | GM22/GM1 | 0.65 | 2.60 | 2.0 | 1.797 | 9.34 | Density Band Score incresed - nearby roost | C for GH |
| 10 | Improved grassland, Silage | GI0 | 3 | | 0 | | 1.00 | GM21 | 0.20 | 0.60 | 2.0 | 2.245 | 2.69 | Density Band Score incresed - nearby roost | C for GH |
| 11 | Improved grassland, Silage | GI0 | 3 | | 0 | | 1.00 | GM21 | 0.20 | 0.60 | 2.0 | 2.022 | 2.43 | Density Band Score incresed - nearby roost | C for GH |
| 12 | Improved grassland, Silage | GI0 | 3 | | 0 | | 1.00 | GM21 | 0.20 | 0.60 | 2.0 | 1.308 | 1.57 | Density Band Score incresed - nearby roost | C for GH |
| 13 | Improved grassland, Silage | GI0 | 3 | | 0 | | 1.00 | GM21 | 0.20 | 0.60 | 2.0 | 5.212 | 6.25 | Density Band Score incresed - nearby roost | C for GH |
| 14 | Improved grassland, Silage & Cattle Grazed | GI0 | 3 | | 0 | | 1.00 | GM21/GM1 | 0.60 | 1.80 | 2.0 | 3.706 | 13.34 | Density Band Score incresed - nearby roost | C for GH |
| 15 | Improved grassland, Silage & Cattle Grazed | GI0 | 3 | | 0 | | 1.00 | GM21/GM1 | 0.60 | 1.80 | 2.0 | 1.844 | 6.64 | Density Band Score incresed - nearby roost | C for GH |
| 16 | Cereal crops, Agriculture | CR2 | 1 | | 0 | | 1.00 | CL1 | 1.00 | 1.00 | 2.0 | 7.324 | 14.65 | Density Band Score incresed - nearby roost | C for GH |
| 17 | Cereal crops, Agriculture | CR2 | 1 | | 0 | | 1.00 | CL1 | 1.00 | 1.00 | 2.0 | 1.562 | 3.12 | Density Band Score incresed - nearby roost | C for GH |
| 18 | Semi-improved grassland, Dense/continuous sc | GU0 | 4 | SC11 | -3 | | 1.00 | GM4 | 1.00 | 1.00 | 2.0 | 0.683 | 1.37 | Density Band Score incresed - nearby roost | C for GH |
| 19 | Improved grassland, Silage & Cattle Grazed | GU0 | 3 | | 0 | | 1.00 | GM21/GM1 | 0.60 | 1.80 | 2.0 | 4.361 | 15.70 | Density Band Score incresed - nearby roost | C for GH |
| 20 | Improved grassland, Silage & Cattle Grazed | GI0 | 3 | | 0 | | 1.00 | GM21/GM1 | 0.60 | 1.80 | 2.0 | 7.638 | 27.50 | Density Band Score incresed - nearby roost | C for GH |
| 21 | Improved grassland, Silage | GI0 | 3 | | 0 | | 1.00 | GM21 | 0.20 | 0.60 | 2.0 | 3.502 | 4.20 | Density Band Score incresed - nearby roost | C for GH |
| 22 | Semi-improved grassland, Horse grazed & Hay | GU0 | 4 | | 0 | | 1.00 | GM13/GM2 | 0.55 | 2.20 | 2.0 | 4.091 | 18.00 | Density Band Score incresed - nearby roost | C for GH |
| 23 | Semi-improved grassland, Horse grazed & Hay | GU0 | 4 | | 0 | | 1.00 | GM13/GM2 | 0.55 | 2.20 | 2.0 | 6.393 | 28.13 | Density Band Score incresed - nearby roost | C for GH |
| 24 | Semi-improved grassland, Horse grazed & Hay | GU0 | 4 | | 0 | | 1.00 | GM13/GM2 | 0.55 | 2.20 | 2.0 | 1.108 | 4.88 | Density Band Score incresed - nearby roost | C for GH |
| 25 | Improved grassland, Silage | GI0 | 3 | | 0 | | 1.00 | GM21 | 0.20 | 0.60 | 2.0 | 1.734 | 2.08 | Density Band Score incresed - nearby roost | C for GH |
| 26 | Semi-improved grassland, Horse grazed | GU0 | 4 | | 0 | | 1.00 | GM13 | 0.80 | 3.20 | 2.0 | 0.668 | 4.28 | Density Band Score incresed - nearby roost | C for GH |
| 27 | Improved grassland, Cattle grazed | GI0 | 3 | | 0 | | 1.00 | GM11 | 1.00 | 3.00 | 2.0 | 2.636 | 15.82 | Density Band Score incresed - nearby roost | C for GH |
| 28 | Improved grassland, Silage & Cattle Grazed | GI0 | 3 | | 0 | | 1.00 | GM21/GM1 | 0.60 | 1.80 | 2.0 | 1.417 | 5.10 | Density Band Score incresed - nearby roost | C for GH |
| 29 | Improved grassland, Silage & Cattle Grazed | GI0 | 3 | | 0 | | 1.00 | GM21/GM1 | 0.60 | 1.80 | 2.0 | 1.105 | 3.98 | Density Band Score incresed - nearby roost | C for GH |
| 30 | Improved grassland, Silage & Cattle Grazed | GI0 | 3 | | 0 | | 1.00 | GM21/GM1 | 0.60 | 1.80 | 2.0 | 0.942 | 3.39 | Density Band Score incresed - nearby roost | C for GH |
| 31 | Improved grassland, Silage | GI0 | 3 | | 0 | | 1.00 | GM21 | 0.20 | 0.60 | 2.0 | 1.159 | 1.39 | Density Band Score incresed - nearby roost | C for GH |
| 32 | Improved grassland, Silage | GI0 | 3 | | 0 | | 1.00 | GM21 | 0.20 | 0.60 | 2.0 | 2.305 | 2.77 | Density Band Score incresed - nearby roost | C for GH |
| 33 | Semi-improved grassland, Hay & Cattle grazed | GU0 | 4 | | 0 | | 1.00 | GM22/GM1 | 0.65 | 2.60 | 2.0 | 1.882 | 9.79 | Density Band Score incresed - nearby roost | C for GH |
| 34 | Cereal crops, Agriculture | CR2 | 1 | | 0 | | 1.00 | CL1 | 1.00 | 1.00 | 2.0 | 3.071 | 6.14 | Density Band Score incresed - nearby roost | C for GH |
| 35 | Semi-improved grassland, Hay | GU0 | 4 | | 0 | | 1.00 | GM22 | 0.30 | 1.20 | 2.0 | 3.891 | 9.34 | Density Band Score incresed - nearby roost | C for GH |
| 36 | Cereal crops, Agriculture | CR2 | 1 | | 0 | | 1.00 | CL1 | 1.00 | 1.00 | 2.0 | 4.621 | 9.24 | Density Band Score incresed - nearby roost | C for GH |
| 37 | Improved grassland, Silage & Cattle Grazed | GI0 | 3 | | 0 | | 1.00 | GM21/GM1 | 0.60 | 1.80 | 2.0 | 9.71 | 34.96 | Density Band Score incresed - nearby roost | C for GH |
| | Built-up area and gardens | UR0 | 1 | | 0 | | 1.00 | UA3 | 0.00 | 0.00 | 2.0 | 2.554 | 0.00 | Density Band Score incresed - nearby roost | C for GH |
| | Broadleaved woodland, native semi-natural | WB3 | 6 | | 0 | WF11 | 1.00 | WM0 | 1.00 | 6.00 | 2.0 | 0.0909 | 1.09 | Density Band Score incresed - nearby roost | C for GH |
| | | | | | | | | | | | | *115.5319* | | | |
| | | | | | | | | | | | Habitat Units | | 309.24 | | |
| | | | | | | | | | | | **Hectares Required** | | **17.18** | | |

| | | |
|---|---|---|
| Value from 'Replacement Habitat' worksheet | **Equivalent Hectares Provided** | **21.04** |
| If required, Value from Receptor Habitat Worksheet | **Equivalent Hectares of Existing Habitat on Receptor Site** | **0.00** |
| 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) | **Gain/ Deficit** | **3.86** |

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)

| 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 | |
| uilt-up area and gardens | UR0 | 1 | | 0 | | 1.00 | UA3 | 0.00 | 0.00 | 65.800 | 1.00 | 0.90 | 2.0 | 2.0 | 0.00 |
| roadleaved woodland, native semi-natural | WB3 | 6 | | 0 | WF11 | 1.00 | WM0 | 1.00 | 6.00 | 0.091 | 1.00 | 0.90 | 2.0 | 2.0 | 0.49 |
| eutral grassland, Species-rich conservation grassland | GN0 | 6 | | 0 | | 1.00 | GL211 | 1.00 | 6.00 | 11.894 | 0.67 | 0.90 | 2.0 | 2.0 | 42.79 |
| roadleaved woodland, Plantation | WB3 | 6 | | 0 | WF2 | 0.75 | WG4 | 0.50 | 2.25 | 3.034 | 0.67 | 0.49 | 2.0 | 2.0 | 2.24 |
| emi-improved grassland, Amenity | GU0 | 4 | | 0 | | 1.00 | GL1 | 0.10 | 0.40 | 1.811 | 1.00 | 0.90 | 2.0 | 2.0 | 0.65 |
| tanding open water, artificial | AS0 | 4 | | 0 | AO1 | 0.25 | | 1.00 | 1.00 | 0.524 | 0.67 | 0.84 | 2.0 | 2.0 | 0.29 |
| roadleaved woodland, Plantation, Parkland | WB3 | 6 | | 0 | WF2 | 0.75 | WM5 | 1.00 | 4.50 | 12.370 | 0.67 | 0.70 | 2.0 | 2.0 | 26.11 |
| nundadtion vegetation | EM22 | 0 | | 0 | | 1.00 | | 1.00 | 0.00 | 0.786 | 1.00 | 0.84 | 2.0 | 2.0 | 0.00 |
| eutral grassland, Scattered trees, Un-intensivly managed orcl | GN0 | 6 | TS0 | 0 | | 1.00 | CL3 | 1.00 | 6.00 | 1.000 | 1.00 | 0.70 | 2.0 | 2.0 | 4.20 |
| eutral grassland, Sheep grazed | GN0 | 6 | | 0 | | 1.00 | GM12 | 0.75 | 4.50 | 18.222 | 0.670 | 0.90 | 2.0 | 2.0 | 49.45 |
| | | | | | | | | | | 115.532 | | | | | |
| | | | | | Value of Habitat Provided in Hectares | | | | | | | | | | 21.036 |