Lime Down
Solar Park

Environmental Statement

Volume 3, Appendix 9-3: Bat Survey Report

September 2025

Revision 1

Planning Inspectorate Reference: EN010168

Document Reference: APP/6.3

APFP Regulation 5(2)(a)

List of Contents

List of Tables

Appendix 9-3: Bat Survey Report

1.1 Introduction

1.1.1 Clarkson and Woods Limited has been commissioned by Lime Down Solar Park Limited (the Applicant) to conduct a suite of ecological surveys across the Lime Down Solar PV Sites and Cable Route Corridor (CRC), including surveys for bats.

1.1.2 A series of automated static bat detector surveys, ground-level tree assessments (GLTAs) and daytime building inspections have been carried out within the Study Area at the Solar PV Sites between June 2023 and June 2025. An assessment of habitat suitability for bats, GLTAs and external daytime building inspections have been undertaken within the CRC during Extended UKHabitat Surveys, comprising classification of all habitat types present on site and considering their potential value for protected species, between April 2025 and July 2025. Full Extended UKHabitat Survey methodology is presented within **ES Volume 3, Appendix 9-1: Ecological Baseline Report, [EN010168/APP/6.3].**

1.1.3 Surveys followed 3rd edition Good Practice Guidelines set out by the Bat Conservation Trust (BCT) (Ref 9-3-1). BCT Guidelines have subsequently been updated to a 4th edition, following commencement of surveys (Ref 9-3-2). Consultation with Natural England and Wiltshire Council has been undertaken to agree the scope of surveys.

1.1.4 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 Chartered Institute of Ecology and Environmental Management (CIEEM) Code of Professional Conduct (Ref 9-3-3).

Aims

1.1.5 Surveys for bats have been undertaken to establish a baseline of the level of use by foraging and commuting bats, along with species composition and abundance within the Study Area for the Solar PV Sites. Building inspections and GLTAs within the Study Area for the Solar PV Sites and CRC have been undertaken to identify potential roost features (PRFs) and to provide an indication of the value of habitats within the Study Area for roosting bats.

1.1.6 This report details the methods and results of the surveys undertaken between June 2023 and July 2025, and an evaluation of each species in relation to the Scheme.

1.1.7 This information will be used within **ES Volume 1, Chapter 9: Ecology and Biodiversity, EN010168/APP/6.1** to inform the detailed ecological evaluation of

roosting, foraging and commuting bats, and the habitats used within the Study Area, and to characterise the impacts on bats considered likely to result from the Scheme.

Study Area

1.1.8 A detailed description of the Scheme is provided within **ES Volume 1, Chapter 3: The Scheme, EN010168/APP/6.1** and in **ES Volume 1, Chapter 9: Ecology and Biodiversity, EN010168/APP/6.1** in relation to the ecology of the Solar PV Sites and CRC, and the habitats present.

Solar PV Sites (Lime Down A-E)

1.1.9 Lime Down A-E predominantly comprise large, open and relatively flat arable fields of varying crop types. Some, generally smaller, fields of permanent pasture and/or grassland cut for hay/silage, were also present. Fields within the Solar PV Sites are bounded by an extensive network of largely species-rich hedgerows and agricultural drainage ditches, with narrow field margins alongside both, where present. A large number of mature trees are present within hedgerows, as well as a small number of individual, standard trees within fields. The habitats within the Solar PV Sites are generally contiguous with the surrounding landscape, which is agricultural in character. The land to the north and west of the Solar PV Sites rises gently to form the hills and valleys associated with the Cotswolds National Landscape, part of which lies adjacent to the Order Limits.

1.1.10 A small number of woodland parcels are present within the Solar PV Sites, connecting with and forming part of a network of woodland habitat in the surrounding landscape, with several parcels also located immediately adjacent the Order Limits. Several ponds are present within the Solar PV Sites and constitute part of a wider pond network, as a relatively high number of ponds are present within the surrounding landscape. Ditches within the Solar PV Sites are largely seasonally-dry, with wet ditch features generally concentrated within Lime Down D. The priority river known as Gauze Brook, and Gabriel's Well stream run through Lime Down D and E, respectively.

Cable Route Corridor

1.1.11 The CRC runs for approximately 22 km from the Solar PV Sites to the Existing National Grid Melksham Substation. The CRC is of similar character to the Solar PV Sites; habitats generally comprise agricultural fields bounded by hedgerows and ditches, with occasional ponds and blocks of woodland. Several watercourses and roads, including the M4, transect the route.

Quality Assurance

1.1.12 All ecologists employed directly by Clarkson and Woods are members, or pending members, of CIEEM and follow the Institute's Code of Professional Conduct when undertaking ecological work.

1.1.13 The competence of all field surveyors has been assessed by Clarkson and Woods with respect to the CIEEM Competencies for Species Survey (Ref 9-3-4).

1.1.14 This report has been prepared in accordance with the relevant British Standard: *BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development* (Ref 9-3-5). 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 members of CIEEM.

1.2 Methodology

1.2.1 The section below sets out the methodology that has been applied to inform the assessment of the Scheme in relation to bats.

Desk Study

1.2.2 A comprehensive desk study and data search has been undertaken for the Scheme. The specific elements of the desk study, of relevance to bats, are as follows:

- A search for 'International' designated sites for nature conservation within 30 km of the Study Area using the Multi-Agency Graphic Information for the Countryside (MAGIC) website (Ref 9-3-6) for which bats are a qualifying feature of designations. Internationally designated sites included Special Areas of Conservation (SACs),as well as proposed or potential SACs;
- A search for 'National' designated sites for nature conservation within 5 km of the Study Area (using the MAGIC website) for which bats are a qualifying feature of designations. National designated sites included Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) and Local Nature Reserves (LNRs);
- Information on 'Local' designated sites which cite bats as a reason for designation within 2 km of the Study Area was obtained from the Wiltshire and Swindon Biodiversity Records Centre (WSBRC). Relevant locally designated sites included Local Wildlife Sites (LWSs);
- Information pertaining to existing records on bats within 2 km of the Solar PV Sites and within 500 m of the CRC obtained from WSBRC; and

- The MAGIC website was consulted for records of European Protected Species (EPS) licences issued for mitigation projects concerning bats within 2 km of the Solar PV Sites and within 500 m of the CRC.

1.2.3 The desk study also included a review of relevant national and local planning policy and legislation in relation to bats.

1.2.4 The distances used in the search radii outlined above are considered proportionate to the scale of protection and likely sensitivity of the features listed, as well as typical dispersal distance of bats associated with the features. It is considered unlikely that the Scheme would give rise to impacts on designated sites beyond these distances and as such are therefore considered to include the Zone of Influence of the Scheme.

1.2.5 The chosen, standard, search radii are considered to remain appropriate when considering the potential for cumulative impacts from other solar development proposals.

Survey Methods

Building Inspections

1.2.6 All efforts were made to access and inspect buildings that were inside the Order Limits, and those buildings within or immediately adjacent the Study Area at the Solar PV Sites.

1.2.7 The exteriors of surveyed buildings were examined through the use of ladders, torches and binoculars for 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.

1.2.8 Following the inspections, each surveyed 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.

1.2.9 As all buildings are expected to be retained, no further detailed surveys to establish the presence or likely absence of roosts within the buildings have been undertaken.

Ground-Level Tree Assessments

1.2.10 An inspection of all trees within the Study Area was carried out from the ground, using binoculars, to record any signs of use of the tree by bat species. Features such as frost cracks, rot cavities, flush cuts, split or decaying limbs (including

hazard beams), loose bark and dense plate of ivy were inspected and recorded using the methodology set out within the Bat Tree Habitat Key (Ref 9-3-7) and in line with 3rd edition bat survey guidelines. Any signs of staining (from urine or fur rubbing) and scratch marks below potential access points were noted, and a search was made from droppings underneath these features. All trees were categorised as having either 'high', 'moderate', 'low' or 'negligible' bat roost potential.

1.2.11 The methodology for assessing tree suitability was updated in the 4th edition of the bat survey guidelines. Since most survey work had been completed prior to the publication of the updated guidelines, subsequent surveys continued using the 3rd edition methodology to ensure consistency across all surveys.

1.2.12 Trees were not inspected to the level of detail described for detailed GLTAs under the updated guidelines. For example, while obvious PRFs were recorded, individual PRFs were not systematically described and categorised. However, the survey scope went above and beyond that typically expected of a Preliminary Ecological Appraisal (PEA) for bats during a Daytime Bat Walkover (DBW). The level of survey effort was considered proportionate to the likely impacts, as suitable trees were safeguarded by integrating buffer distances into Scheme design. The approach taken was based on the intention to determine an appropriately sized protective buffer in the scheme design to safeguard trees, rather than to exhaustively categorise bat roosting suitability and find evidence of use. Should any trees be impacted, more detailed follow-up surveys will be completed. This will be set out in the **Outline Ecological Protection and Mitigation Strategy (OEPMS) [EN010168/APP/7.19].**

Bat Activity Surveys

Solar PV Sites (Lime Down A-E)

1.2.13 Existing habitats within the Study Area at the Solar PV Sites principally comprise large arable fields, with a small number of pasture grassland fields, bounded by a network of hedgerow, ditches, ponds and small blocks of woodland. These habitat types are ubiquitous within the local landscape.

1.2.14 The assessment of the suitability of habitats within the Study Area for foraging, commuting and roosting bats was based on 3rd edition guidance set out by the BCT which was current at the time surveys commenced, although has since been updated to its 4th edition. Since most survey work had been completed prior to the publication of the updated guidelines, subsequent surveys continued using the 3rd edition methodology to ensure consistency across all surveys.

1.2.15 In general, the most suitable habitat for foraging and commuting bats (woodland, hedgerows and watercourses) are expected to be retained, although creation of a small number of new field accesses is anticipated to facilitate construction and operational maintenance tracks, as well as the laying of On-

Site and Interconnecting Cable (further details of anticipated habitat loss are provided in **Chapter 9: Ecology and Biodiversity, EN010168/APP/6.1**). Areas of permanent grassland habitat within the Solar PV Sites, utilised either for cattle grazing or hay/silage cutting, provide suitable foraging opportunities for bats, particularly species such as greater horseshoe *Rhinolophus ferrumequinum*, lesser horseshoe *Rhinolophus hipposideros* and serotine *Eptesicus serotinus*. However, permanent pasture coverage at the Solar PV Sites is relatively low compared to other habitat types, comprising approximately 16.20 ha or 2.2 % of the total land area at the Solar PV Sites, split between Lime Down C and D (namely field C23, E9, E11, E12, and E19). Nevertheless, grassland habitats will be retained within the Scheme, and enhanced where possible, although management practices, i.e. grazing or cutting, will be finalised within the detailed Landscape and Ecological Management Plan (LEMP) for the Scheme. The large arable fields, which comprise the majority of the Study Area, were considered to provide sub-optimal habitat for foraging bats due to monoculture cropping and application of agricultural pesticides, herbicides and fertilisers which are likely to limit the abundance of invertebrate prey. Consequently, the Solar PV Sites were considered to represent habitat of 'Moderate' suitability for foraging and commuting bats in accordance with the BCT guidelines. Further details of the habitat assessment for bats are provided in Section 1.3.

1.2.16 The BCT guidelines detail methods for undertaking automated static bat detector surveys, as well as manual activity surveys. Although a number of research papers suggest that static detector surveys are more effective than manual activity surveys (e.g. Stahlschmidt and Bruhl (2012) (Ref 9-3-8), Braun de Torrez et al. (2017) (Ref 9-3-9) and Teets et al. (2019) (Ref 9-3-10)), BCT guidelines nevertheless recommend that static detector surveys are augmented with manual surveys to enable qualitative observations of how bats interact with a site.

1.2.17 Walked activity survey transects are a type of survey methodology for the collection of bat activity data typically used in baseline bat activity assessments. Walked activity transects involve the seasonal or monthly completion of 2-3 hr evening surveys where routes around a site are walked by surveyors using hand-held bat detectors to collect information on species, location and behaviour. As walked transects are comparatively brief survey events and are considered to represent poor data-collection efficiency in comparison to the longer-term deployment of automated static bat detectors, it was concluded in this case that a more complete and reliable bat species assemblage baseline could be derived from preferentially using an augmented number of automated detectors. This was considered especially appropriate when the relative homogeneity of the habitats within the Study Area and wider landscape is taken into account, as well as the near-wholesale retention of the likely best foraging and commuting habitat inherent within the Scheme.

1.2.18 Furthermore, considering the size of the Solar PV Sites, the practicalities and logistics of undertaking a suite of walked transects was considered disproportionate to the likely scale of potential impact the Scheme would have on suitable bat habitats and would provide only a 'glimpse' of bat activity on site.

1.2.19 Consequently, it was considered an appropriate precautionary measure to carry out the level of static detector survey usually recommended for 'High' suitability habitats (according to BCT guidelines) in lieu of walked activity transects, thereby obtaining as robust a baseline as practically possible.

1.2.20 As such, 28 detector locations were initially selected, and one automated detector survey was carried out per month for each deployment location during June to October 2023 and April to May 2024.

1.2.21 In February 2024, approximately 67.1 ha of land was added to the Order Limits, 14.4 ha of which was added to Lime Down C with 52.7 ha added to Lime Down D (specifically fields C27, C28, and fields D19 to D24). Additionally, approximately 44 ha of land was added to Lime Down C in June 2024 (fields C29 to C36). Three supplementary static detector locations within the additional land at Lime Down C and D added in March 2024 were selected and one automated detector survey was carried out per month for each deployment location during April to October 2024. Two further supplementary static detector locations within the additional land at Lime Down C added in June 2024 were selected and one automated detector survey was carried out per month for each deployment location during July to October 2024 and April to June 2025.

1.2.22 In total, 33 static detector locations were selected and surveyed across the Solar PV Sites during the survey period.

1.2.23 Automated static detectors (Song Meter Mini, Anabat Swift) were deployed at each of the deployment locations for a minimum of seven consecutive nights per deployment. Locations were chosen to cover the Study Area as evenly as possible and were selected to focus on key habitat features for bats such as hedgerows and woodland edges. The detectors were programmed to begin recording at least 30 minutes before sunset and finish recording 30 minutes after sunrise each night. All detectors were placed at boundary habitats, selected based on their potential as foraging areas or commuting routes within the Study Area, as identified during the habitat walkover survey. Due to ongoing agricultural activities, detectors could not be deployed in the middle of fields. The detector locations remained consistent throughout the survey period to ensure comparability of data.

1.2.24 The deployment dates, weather details and durations of the static detector surveys are detailed in Error! Reference source not found., and a plan showing all detector deployment locations is provided in **ES Volume 2, Figure 9-3-1: Bat Static Detector Locations, [EN010168/APP/6.2]**.

Table 9-3-1: Static Detector Survey Details – Solar PV Sites

Month	No. Locations	Deployment Date	Collection Date	No. Survey Nights	Summary of weather conditions	Nightly temperature range
June 2023	28	21/06/2023	28/06/2023	7	Dry with light to gentle winds	Low: 14˚C High: 18˚C
July 2023	28	20/07/2023	27/07/2023	7	Dry with light winds, moderate breezes on 22/07/23	Low: 10˚C High: 18˚C
August 2023	28	24/08/2023	31/08/2023	7	Dry with light winds	Low: 11˚C High: 14˚C
September 2023	28	21/09/2023	28/09/2023	7	Dry with light to gentle winds, fresh breezes on 24/09/23 and 27/09/23	Low: 8˚C High: 16˚C
October 2023	28	18/10/2023	25/10/2023	7	Generally dry with light to gentle winds, light rain on 24/10/23	Low: 7˚C High: 13˚C
April 2024	31	10/04/2024	17/04/2024	7	Generally dry with light to gentle winds, moderate breeze on 15/04/24 and 16/04/24 and light rain on 10/04/24	Low: 6˚C High: 12˚C
May 2024	31	08/05/2024	15/05/2024	7	Generally dry with light to gentle winds, light rain on 13/05/24	Low: 10˚C High: 15˚C
June 2024	3 (additional land added in March 2024 only)	04/06/2024	11/04/2024	7	Generally dry with light winds, a moderate breeze and light rain on 09.06.24	Low: 6˚C High: 12˚C
July 2024	5 (all additional land)	02/07/2024	09/07/2024	7	Generally dry with light to gentle winds, light rain on 05/07/24 and 08/07/24	Low: 9˚C High: 14˚C

Month	No. Locations	Deployment Date	Collection Date	No. Survey Nights	Summary of weather conditions	Nightly temperature range
August 2024	5	06/08/2024	13/08/2024	7	Generally dry with light winds, light rain and a moderate breeze on 08/08/24	Low: 12˚C High: 21˚C
September 2024	5	03/09/2024	10/09/2024	7	Generally dry with light to gentle winds, drizzle on 05/09/24	Low: 9˚C High: 16˚C
October 2024	5	01/10/2024	08/10/2024	7	Dry with light to gentle winds	Low: 7˚C High: 12˚C
April 2025	2 (additional land added in June 2024 only)	08/04/2025	15/04/2025	7	Dry with light to gentle winds	Low: 1 ˚C High: 19 ˚C
May 2025	2	06/05/2025	13/05/2025	7	Dry and clear, with gentle winds	Low: 4 ˚C High: 20 ˚C
June 2025	2	03/06/2025	10/06/2025	7	Generally dry with light winds and sporadic light showers on 04/06/2025, 05/06/2025, and 07/2025	Low: 8 ˚C High: 15 ˚C

Analysis Protocol

1.2.25 Recordings made were subsequently analysed using Kaleidoscope software, and bat species and the number of bat passes recorded was identified. All automatically identified bat calls from notable species (namely lesser horseshoe, greater horseshoe and barbastelle) were manually verified using the analysis software. A proportion of calls that Kaleidoscope was unable to automatically identify ('NoIDs') were also manually analysed, with further manual verification of calls undertaken where notable or abnormal findings were identified (i.e. a high number of 'noise' files were mis-identified by Kaleidoscope as bat calls).

Cable Route Corridor

1.2.26 Given the temporary and limited nature of impacts associated with cable route construction, with all habitat expected to be reinstated following a relatively short construction period, bat activity surveys for the CRC were not considered proportionate considering the potential impacts. Furthermore, given the similarity of habitats and topography within the CRC relative to that found within the Solar PV Sites, it is anticipated that bat activity within the CRC will be relatively comparable to that recorded within the Solar PV Sites.

Evaluation of Importance

1.2.27 The importance of the Solar PV Sites and CRC for bats in general was evaluated using the standard approach applied in the UK to Ecological Impact Assessment, developed by CIEEM in 2018 and revised in 2019 (Ref 9-3-11). This guidance recommends that valuation of site importance is made with reference to a geographical framework, e.g. a site is of Local, District, County, Regional, National or International value. Additional categories of 'Site' or 'Negligible' importance are also applied, where relevant.

1.2.28 The assessment of value of the Solar PV Sites for foraging and commuting bats specifically employs a modified version of the methodology described by Wray et. al (Ref 9-3-12). The original assessment method was written as a guide to the valuation of sites for bats and was prepared before the use of static detectors was prevalent. Having employed the unmodified assessment method for some time, Clarkson and Woods have modified the method to more accurately reflect the findings of current surveys and to better align the outputs with the opinions of its staff. Details of this evaluation methodology are provided in Section 1.4.

Limitations

Desk Study

1.2.29 The desk study data presented within the report should not be seen as exhaustive. Data obtained from within the search radii highly are unlikely to constitute a complete record of habitats and species within the search area. It is therefore possible that badgers may occur within the vicinity of the Scheme that have not been identified within the desk study.

1.2.30 The data search for the Solar PV Sites was obtained in 2023 and for the CRC in 2024 and does not include records made subsequently. The datasets only provide records where information exists and should not be relied upon as a complete listing of all bat species which may occur within the search areas.

General Bat Survey Limitations

1.2.31 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.

This can result in certain bat species (notably horseshoe, barbastelle 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 will be taken into account where possible during any assessment of the results.

1.2.32 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. Bats are also very small animals and may take refuge in extremely small spaces. Therefore, it is possible that bats or their signs may not have been evident during the survey, especially if they are normally present opportunistically or in small numbers for a short period of time each year. However, a reasonable level of effort was always employed when carrying out survey work.

1.2.33 As of August 2025, approximately 17 ha of land within the CRC has not been accessed for ecological survey due to a lack of access permission. Trees and buildings, if present, within these areas have therefore not been assessed for their potential to support roosting bats. An assumption of the likely habitats present has been made, based on available desk study information (using satellite imagery and open-source datasets, where relevant), and the context of other habitats present within the local landscape. The precautionary principle has been applied when considering the suitability of habitats for foraging and commuting bats. Access agreements are being sought for these areas, and it is intended for all currently un-surveyed areas of the CRC to be assessed for their suitability to support roosting, foraging, and commuting bats. Following completion of the outstanding survey work, the results of the surveys will be submitted into the Examination and amendments to this appendix will be made, if required.

Equipment Failure

1.2.34 A small number of instances of equipment malfunctioning occurred during the surveys conducted between June 2023 and June 2025. Across the Solar PV Sites, detector failure occurred in July 2023 at Locations D1 and B1, in August 2023 at Location B3, in September 2023 at Location B1, in October 2023 at Location C1 and in May 2024 at Location A1. In all these instances the detectors failed to record any data.

1.2.35 Due to the large amount of data collected during the static detector surveys, it is not considered that these failures will ultimately significantly affect the assessment.

Call Detection and Analysis

1.2.36 Kaleidoscope Pro 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 is, on the whole, reliable when identifying certain bat calls, especially horseshoe bat calls due to their simple and unmistakeable parameters. Other straightforward species are common pipistrelle, soprano pipistrelle, noctule and serotine. However, the software has been found to be less reliable when identifying other species (long-eared, Leisler's and barbastelle bat species).

1.2.37 The software does not accurately distinguish between the various Myotis species and simply classifies them to genus level (i.e. 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.

1.2.38 Due to the software limitations a percentage of calls are manually verified to confirm the identification made by the software is accurate. Furthermore, where the software is unsure of a bat call, it will classify the call as 'NoID'. NoID files were classified where appropriate for completeness. Noise files were not checked as the vast majority of these cannot be analysed or attributed to bats or their calls.

1.2.39 Additionally, automated detectors are triggered to record when suitable ultrasound is detected and will not cease recording until either a window of 1 second of silence is recorded (or if 30s elapses since the trigger, whichever is sooner). If more than one species is present within a trigger, the software is only able to classify one species per trigger and so is forced to decide which species is 'dominant'. This potentially results in an under-recording of species which are quieter (such as horseshoe bats) or species which have a longer pulse repetition rate.

1.2.40 In conclusion, the classification data produced from Kaleidoscope Pro, along with manual verification of records is considered to provide an acceptably accurate record of bat species recorded by a static bat detector and as such has been used within this report.

1.3 Results

1.3.1 This section contains the desk study results, along with the results of the bat surveys completed between June 2023 and June 2025. A brief assessment of overall habitat quality for bats within the Study Area is also provided.

Desk Study

1.3.2 A summary of desk study results relating to bats is provided below. Refer to **ES Volume 3, Appendix 9-1: Ecological Baseline Report, [EN010168/APP/6.3]** for full data search results and associated figures.

Solar PV Sites (Lime Down A-E)

Designated Sites

1.3.3 One internationally designated site for which bats are listed as a qualifying feature was identified within 30 km of the Solar PV Sites during the desk study. Bath and Bradford on Avon (BaBOA) Bats SAC is located approximately 12.56 km south of Lime Down C at its nearest point and is designated for internationally significant hibernation sites for greater horseshoe and Bechstein's bats. The SAC comprises extensive networks of caves, mines and man-made tunnels which also support breeding and mating, as well as overwintering, bats.

1.3.4 No nationally or locally designated sites for bats were identified during the desk study, using the search parameters set out within Paragraph 1.2.2.

Protected Species Records

1.3.5 A total of 99 records of bats, including records of 14 species, were returned by WSBRC during the desk study, using the search parameters set out within Paragraph 1.2.2. Of these records, 35 were confirmed roost sites for a total of at least six species. Records of six granted EPS licences relating to bats were also returned.

Cable Route Search Corridor

Designated Sites

1.3.6 There are no internationally designated sites for nature conservation within the CRC. However, the BaBOA Bats SAC lies approximately 3.77 km to the west of the CRC at the closest point. A 2015 guidance document provided by Natural England and Wiltshire Council 'Bat Special Areas of Conservation – Planning Guidance for Wiltshire (Ref 9-3-13) details a network of sensitive features used by the bat populations of the BaBOA Bats SAC. These include 'Core Roosts', which are defined in the guidance but in summary are those roost sites where large numbers of the relevant bat species are known to regularly hibernate and breed, and which are judged to have a functional and demographic connection with the SAC population.

1.3.7 The guidance also highlights the landscape surrounding these Core Roosts are likely to be of particular importance for populations of the associated species for foraging and commuting, and are identified as 'Core Areas'. For the bat species of the BaBOA Bats SAC, the Core Areas have been defined as:

- 4 km surrounding greater horseshoe Core Roosts;
- 2 km surrounding lesser horseshoe Core Roosts; and
- 1.5 km surrounding Bechstein's Core Roosts.

1.3.8 Since the publication of this guidance the extent of the consultation zones has undergone amendments. A Core Roost for lesser horseshoe bats near the village of Grittleton (approximately 2 km to the south of Lime Down C – the precise location is withheld) and a corresponding Core Area were declassified in September 2020 due to the roost no longer having been found to meet the Core Roost criteria as set out in the guidance. In 2024 a new Core Area of 1.5 km was applied around three recently identified Bechstein's bat maternity roosts sites near Lackham, to the south of Chippenham.

1.3.9 An amalgamation of up-to-date Core Areas are presented within the 'Impact Zones for Bat Species' layer on the publicly available 'Wiltshire Planning Explorer' map (Ref 9-3-13). The CRC intersects an Impact Zone for Bat Species for approximately 1.5 km (covering an area of approximately 10.5 ha) to the south east of Corsham. The location of the Impact Zones for Bat Species in relation to the CRC is presented in **ES Volume 2, Figure 9-1-4: Wiltshire Impact Zones for Bats [EN010168/APP/6.2]**.

1.3.10 No nationally or locally designated sites for which bats are cited as a reason for designation were identified within the CRC during the desk study, using the search parameters set out within Paragraph 1.2.2.

Protected Species Records

1.3.11 A total of 176 records of bats, including records of at least 10 species, were returned by WSBRC during the desk study, using the search parameters set out within Paragraph 1.2.2. Of these records, 18 were confirmed roost sites for a total of at least five species. Records of five granted EPS licences relating to bats were also returned.

Overview of Habitat Suitability for Bats

1.3.12 This section provides a brief summary of the habitat suitability for bats within the Study Area.

Solar PV Sites (Lime Down A-E)

1.3.13 The Solar PV Sites largely comprise arable fields with frequent arable margins, and pasture fields predominantly of limited botanical diversity but some species-rich pastures occasionally present at Lime Down E. The fields are bounded by an extensive network of species-rich hedgerows containing mature, standard trees, plus agricultural drainage ditches. The Solar PV Sites are bounded in several places by blocks of ancient and broadleaved woodland, which are present throughout the local landscape. Occasional patches of scrub and numerous ponds are also present within the Solar PV Sites, with a small number of agricultural buildings.

1.3.14 The large arable fields, which comprise the majority of the Study Area, were considered to provide sub-optimal habitat for foraging and commuting bats due to monoculture cropping and application of agricultural pesticides, herbicides and fertilisers which are likely to limit the abundance of invertebrate prey. Relatively limited areas of permanent grassland habitat within the Solar PV Sites, utilised either for cattle grazing or hay/silage cutting, provide suitable foraging opportunities for bats, particularly species such as greater and lesser horseshoe and serotine. The woodland, hedgerows and watercourses provide the most suitable habitat for foraging and particularly commuting bats, connecting the Solar PV Sites to the wider landscape.

1.3.15 Although the majority of habitats at the Solar PV Sites, namely monoculture arable fields, represent low suitability habitat for bats, based on the precautionary principle and to reflect the value of more diverse habitats and connective boundary features, the Solar PV Sites as a whole were considered to represent habitat of 'Moderate' suitability for foraging and commuting bats in accordance with the BCT guidance.

1.3.16 Numerous roosting opportunities for bats were identified within the Study Area, namely comprising trees with suitable ecological niches within hedgerows, in fields, and at woodland edges, as well as a small number of buildings identified as having bat roost potential.

Cable Route Corridor

1.3.17 Habitats within the CRC are of similar character to the Solar PV Sites, as described above. Habitats generally comprise mixed-use agricultural fields bounded by hedgerows and ditches, with occasional ponds, streams and blocks of woodland. The CRC is therefore considered to be of similar suitability for bats, as described within Paragraph 1.3.13 above, with the CRC representing habitat of 'Moderate' suitability for foraging and commuting bats.

1.3.18 Mature trees with PRFs visible from ground level were frequent within hedgerows and woodland within the CRC, providing opportunities for roosting bats throughout the CRC.

<u>Bath and Bradford on Avon Bats SAC – Core Areas</u>

1.3.19 The CRC passes through an Impact Zone of the BaBOA Bats SAC for approximately 1.5 km in one location to the southeast of Corsham and west of Gastard. The area of Impact Zone intersected by the CRC is approximately 10.5 ha and is shown on **Figure 9-1-4 [EN010168/APP/6.2]**. With reference to the 2015 Natural England/Wiltshire Council guidance, it appears this area of Impact Zone where the CRC passes through is at the eastern edge of a Greater Horseshoe bat 'Core Area' extending 4km from the Box Mine component site of the SAC. The CRC does not intersect a 'Core Area' for Bechstein's or lesser horseshoe bat according to the 2015 Natural England/Wiltshire Council

guidance. It can be taken that this 10.5 ha of land within the CRC is functionally linked land for the SAC.

1.3.20 Habitats within these areas comprised arable fields, grassland fields used for cattle and sheep grazing, grassland fields used for silage/hay cutting, a small (0.4 ha) area of woodland, native hedgerows, and a section of watercourse known as Byde Mill Brook.

1.3.21 Grassland fields, particularly cattle-grazed pasture, within this section of the CRC represent valuable foraging habitat for greater horseshoe bats, with mature hedgerows and riparian corridors providing connectivity within the landscape for a range of commuting bat species.

1.3.22 Bechstein's bats typically roost in woodlands and have been known to roost in standard hedgerow trees with suitable features; numerous trees with bat roost potential have been identified within the Core Areas within the CRC.

1.3.23 All habitats within the CRC that lie within the Core Areas are assumed to be functionally linked to the BaBOA Bats SAC.

1.3.24 The CRC also lies between the BaBOA Bats SAC and a Core Area applied around three Core Roosts for Bechstein's bats identified in 2021 and 2022, near Lackham, to the south of Chippenham. In a Technical Note provided to Clarkson and Woods by Wiltshire Council in October 2024, it was clarified that these roosts are considered by the council to be functionally and demographically linked to the BaBOA Bats SAC, in the absence of evidence to the contrary. Although the CRC does not intersect this Core Area, it does run between the Core Area (which lies to the east of the CRC) and the SAC (which lies to the west). It can therefore be assumed that Bechstein's bats associated with the Core Roosts to the east of the CRC may utilise habitats within the CRC to commute between those Core Roosts and the SAC.

Building Inspections for Roosting Bats

Solar PV Sites (Lime Down A-E)

1.3.25 Surveys of buildings within and immediately adjacent to the Study Area at the Solar PV Sites were carried out to assess their potential to support roosting bats, the results of which are presented in

1.3.26 **Table** 9-3-2 and within **ES Volume 2, Figure 9-3-2 to 9-3-6: Bat Roosting Opportunities – Solar PV Sites [EN010168/APP/6.2]** which comprise:

- **ES Volume 2, Figure 9-3-2: Bat Roosting Opportunities – Lime Down A, [EN010168/APP/6.2]**;
- **ES Volume 2, Figure 9-3-3: Bat Roosting Opportunities – Lime Down B, [EN010168/APP/6.2]**;
- **ES Volume 2, Figure 9-3-4: Bat Roosting Opportunities – Lime Down C, [EN010168/APP/6.2]**;
- **ES Volume 2, Figure 9-3-5: Bat Roosting Opportunities – Lime Down D, [EN010168/APP/6.2]**; and
- **ES Volume 2, Figure 9-3-6: Bat Roosting Opportunities – Lime Down E, [EN010168/APP/6.2]**.

1.3.27 A total of six buildings were inspected, with two located within the Study Area at Lime Down A, one adjacent to Lime Down B, and one at each of Lime Down C, D and E.

1.3.28 No evidence of bat presence was recorded within any building that was surveyed. Of the six buildings, two were assessed as having moderate potential, two were recorded as having low potential and two were recorded as having negligible potential for roosting bats. It is possible that a low number of bat roosts are present within the buildings that are within or immediately adjacent to the Study Area at the Solar PV Sites.

1.3.29 As all buildings are expected to be retained within the Scheme, no further inspections or detailed surveys of any of the buildings have taken place.

Cable Route Corridor

1.3.30 Surveys of buildings within the CRC were carried out to assess their potential to support roosting bats, the results of which are presented in

1.3.31 **Table** 9-3-2 and **ES Volume 2, Figure 9-3-7 to 9-3-17: Bat Roosting Opportunities – Cable Route Corridor [EN010168/APP/6.2]** which comprise:

- **ES Volume 2, Figure 9-3-7: Bat Roosting Opportunities – Cable Route Corridor (1 of 11), [EN010168/APP/6.2]**;
- **ES Volume 2, Figure 9-3-8: Bat Roosting Opportunities – Cable Route Corridor (2 of 11), [EN010168/APP/6.2]**;
- **ES Volume 2, Figure 9-3-9: Bat Roosting Opportunities – Cable Route Corridor (3 of 11), [EN010168/APP/6.2]**;
- **ES Volume 2, Figure 9-3-10: Bat Roosting Opportunities – Cable Route Corridor (4 of 11), [EN010168/APP/6.2]**;
- **ES Volume 2, Figure 9-3-11: Bat Roosting Opportunities – Cable Route Corridor (5 of 11), [EN010168/APP/6.2]**;
- **ES Volume 2, Figure 9-3-12: Bat Roosting Opportunities – Cable Route Corridor (6 of 11), [EN010168/APP/6.2]**;
- **ES Volume 2, Figure 9-3-13: Bat Roosting Opportunities – Cable Route Corridor (7 of 11), [EN010168/APP/6.2]**;
- **ES Volume 2, Figure 9-3-14: Bat Roosting Opportunities – Cable Route Corridor (8 of 11), [EN010168/APP/6.2]**;
- **ES Volume 2, Figure 9-3-15: Bat Roosting Opportunities – Cable Route Corridor (9 of 11), [EN010168/APP/6.2]**;
- **ES Volume 2, Figure 9-3-16: Bat Roosting Opportunities – Cable Route Corridor (10 of 11), [EN010168/APP/6.2]**; and
- **ES Volume 2, Figure 9-3-17: Bat Roosting Opportunities – Cable Route Corridor (11 of 11), [EN010168/APP/6.2]**.

1.3.32 A total of four buildings were identified within the CRC and inspected by surveyors, of which one was assessed as having moderate bat roost potential and one of low potential for both day and night roosting, and two were considered to be of negligible potential for day roosting bats and low potential for night roosting only.

Table 9-3-2: Results of Building Inspections – Solar PV Sites

Site	Location	Description	Bat Roost Potential	Photograph
Solar PV Sites				
Lime Down A	**On Site** Located in the south-west corner of Field A4. ST 86117 84971	An open-fronted dilapidated barn, constructed from stone with a metal single-pitched roof on steel supports. Wooden cladding present on each gable end. Lots of holes in the roof, quite light and draughty inside. Several holes in stonework of walls. Obscured by vegetation.	Moderate	

Site	Location	Description	Bat Roost Potential	Photograph
Lime Down A	**On Site** Located in the north-west corner of Field A11, within an area of hardstanding. ST 86241 85489	A block building with a collapsed corrugated asbestos sheeting roof. The blockwork was largely intact with no obvious PRFs.	Negligible	
Lime Down B	**Off Site** Located adjacent to the south-west corner of Field B5, outside of the Site Boundary. ST 87961 85019	A disused, brick built agricultural building with a corrugated metal roof. A barn owl roost identified in the building.	Low	

Site	Location	Description	Bat Roost Potential	Photograph
Lime Down C	**On Site** Located at the western end of Field C25. ST 86663 83500	An open-fronted barn with a corrugated metal roof and walls on three sides. Walls broken on two sides. Interior very exposed. Building in use as a hay store. Numerous owl pellets noted.	Low	
Lime Down D	**On Site** Located in the south-west corner of Field D17. ST 90391 82969	A newly built corrugated metal structure. No PRFs.	Negligible	

Site	Location	Description	Bat Roost Potential	Photograph
Lime Down E	**On Site** Located in the north-west corner of Field E32. ST 93169 81768	A stone-built barn, with a pitched metal roof. Timbers partially collapsed. Holes in render in elevations. The interior was generally light due to collapsed roof. Building unsafe to enter.	Moderate	
Cable Route Corridor				
CRC	Located within CRW1. ST 89973 66228	Domed, corrugated metal shelter, open on the north aspect with dark internal conditions at southern end.	Low	

Site	Location	Description	Bat Roost Potential	Photograph
CRC	Located within CRW1. ST 89973 66266	Open-fronted, brick-built animal stall with corrugated cement fibre pitched roof. Open to the rafters and thermally unstable inside.	Negligible for day roosting. Low potential for night roosting only.	
CRC	Located within CRF117. ST 87640 82549	Agricultural barn with metal walls and corrugated cement gable roof, with a single pitch extension on the south face of the structure. No PRFs noted, and internal conditions open and drafty.	Negligible for day roosting. Low potential for night roosting only.	

Site	Location	Description	Bat Roost Potential	Photograph
CRC	Located within CRF133. ST 86522 83920	Stone and mortar, open-fronted agricultural storage building, with stone supporting pillars. Original structure likely to be of considerable age. Roof comprising wooden beams, with lath and plaster lining and clay tiles. Several PRFs noted, lifted tiles, cracks in stonework and at joins between beams. Potential for day roosting, particularly for crevice-roosting species, and night roosting.	Moderate	

Ground-Level Tree Assessments for Roosting Bats

Solar PV Sites (Lime Down A-E)

1.3.33 Surveys of all trees within the Study Area at the Solar PV Sites were carried out to assess their potential to support roosting bats and were categorised as having high, moderate, low or negligible bat roost potential. The results of the surveys are presented in the **ES Volume 2, Figure 9-3-2 to 9-3-6: Bat Roosting Opportunities – Solar PV Sites [EN010168/APP/6.2]** which comprise:

- **ES Volume 2, Figure 9-3-2: Bat Roosting Opportunities – Lime Down A, [EN010168/APP/6.2]**;
- **ES Volume 2, Figure 9-3-3: Bat Roosting Opportunities – Lime Down B, [EN010168/APP/6.2]**;
- **ES Volume 2, Figure 9-3-4: Bat Roosting Opportunities – Lime Down C, [EN010168/APP/6.2]**;
- **ES Volume 2, Figure 9-3-5: Bat Roosting Opportunities – Lime Down D, [EN010168/APP/6.2]**; and
- **ES Volume 2, Figure 9-3-6: Bat Roosting Opportunities – Lime Down E, [EN010168/APP/6.2]**.

1.3.34 A total of 126 high bat roost potential trees, 166 moderate bat roost potential trees and 344 low bat roost potential trees were recorded within the Solar PV Sites. It is considered reasonably probable that a number of bat roosts are present within the trees that are located within the Solar PV Sites from a range of different species.

Cable Route Corridor

1.3.35 Surveys of all trees within the CRC were carried out to assess their potential to support roosting bats and were categorised as having high, moderate, low or negligible bat roost potential. The results of the surveys are presented in the following figures:

- **ES Volume 2, Figure 9-3-7 to Figure 9-3-17: Bat Roosting Opportunities – Cable Route Corridor, [EN010168/APP/6.2].**

1.3.36 A total of 29 high bat roost potential trees, 83 moderate bat roost potential trees and 136 low bat roost potential trees were recorded within the CRC. It is considered reasonably probable that a number of bat roosts are present within the trees that are located within the CRC from a range of different species.

Automated Static Bat Detector Surveys

Solar PV Sites (Lime Down A-E)

1.3.37 A total of 252,645 bat passes have been recorded at Lime Down A to E between June 2023 and June 2025, over 1,571 detector recording nights at 33 deployment locations. This equates to an average of 160.82 bat passes per detector per night. This is considered to represent a moderate level of bat activity in comparison to other sites Clarkson and Woods have undertaken surveys at throughout South-West England.

1.3.38 The following (minimum) 10 bat species have been recorded during the surveys between June 2023 and June 2025:

- **Barbastelle** *Barbastella barbastellus*;
- **Serotine** *Eptesicus serotinus*;
- **Myotis species** Myotis sp. (an aggregation of common Myotis species is likely to include Daubenton's bat *Myotis daubentonii*, Natterer's bat *Myotis nattereri*, Brandt's bat *Myotis brandtii* and whiskered bat *Myotis mystacinus*);
- **Nyctalus species** *Nyctalus sp* [1];
- **Nathusius' pipistrelle** *Pipistrellus nathusii*;
- **Common pipistrelle** *Pipistrellus pipistrellus*;
- **Soprano pipistrelle** *Pipistrellus pygmaeus*;
- **Long-eared species** *Plecotus sp* [2];
- **Lesser horseshoe** *Rhinolophus hipposideros*; and
- **Greater horseshoe** *Rhinolophus ferrumequinum.*

[1] The kaleidoscope sonagram software is known to be unreliable when distinguishing between noctule and Leisler's bat calls. Both of these species occupy similar ecological niches. Noctule is a more common species and is relatively widespread species across Wiltshire and based on the known populations and distributions of both species, it is likely that the majority of recorded Nyctalus passes are made by noctule. Although relatively few Leisler's bat records exist in Wiltshire, it has been recorded, particularly in the west of the county, and it is likely that some proportion of Nyctalus calls can be attributed to this species.

[2] It is not possible to distinguish between brown long-eared (BLE) and grey long-eared (GLE) bats using their echolocation call alone; therefore, all recorded long-eared species are identified to genus level only. The conservation status of the two species varies, with brown long-eared being relatively common within Wiltshire and grey long-eared being at the northern extent of its distribution (restricted to southern Britain only) and subsequently very rare. Based on the known distribution and habitat preferences of the two species, it is likely the species recorded is the more common brown long-eared.

1.3.39 When taken individually, Lime Down A-E had the following level of bat activity and are ordered highest to lowest in terms of relative recorded bat activity:

- Lime Down A – an average of 212.64 passes per night (considered to be a moderate level of activity in comparison to other sites in the South-West Clarkson and Woods have surveyed);
- Lime Down E – an average of 206.52 passes per night (considered to be a moderate level of activity);
- Lime Down C - an average of 133.33 passes per night (considered to be a low level of activity);
- Lime Down D - an average of 119.57 passes per night (considered to be a low level of activity); and
- Lime Down B - an average of 106.66 passes per night (considered to be a low level of activity).

1.3.40 Lime Down A had the highest average passes per night for three species, including serotine, common pipistrelle and soprano pipistrelle. Lime Down C had the highest average passes per night for barbastelle and lesser horseshoe, and Lime Down E had the highest average passes per night for Myotis sp. and Nyctalus sp..

1.3.41 A summary of bat activity recorded within the Study Area at each of Lime Down A-E is provided in **Table 9-3-4**.

1.3.42 Relative activity rates by each species are given in the paragraphs below in order of highest activity to lowest.

Common Pipistrelle

1.3.43 A high level of activity has been recorded by common pipistrelle between June 2023 and June 2025, accounting for over 50 % of all bat activity with an average of 82.30 passes per night across the deployment locations. Average passes per night for common pipistrelle ranged from 59.13 (Lime Down B) to 108.86 (Lime Down A). Common pipistrelle activity was well spread throughout the Study Area, although the highest levels were recorded at deployment location E5 (208.88 passes per night). This was located within a hedgerow bounding a botanically diverse parcel of Lowland Meadow habitat (Chalkenhams LWS) outside of the Study Area, which is likely to support abundant invertebrate prey species.

1.3.44 Common pipistrelle is the most common species of bat across the UK, and forages within a wide range of habitats. The relatively high levels of activity compared to other species and widespread distribution across the Study Area is what can be typically expected for the location and habitats present.

Soprano Pipistrelle

1.3.45 Soprano pipistrelle is the next highest recorded species between June 2023 and June 2025, accounting for 19.29 % of all passes and an average of 31.02 passes per night across the deployment locations, which is considered to be a moderate level of activity. Average soprano pipistrelle passes per night ranged from 16.33 (Lime Down C) to 70.79 (Lime Down A). The highest levels of activity were recorded at deployment Location A1 (110.40 passes per night). This was located within a hedgerow bounding an arable field, which was connected to a nearby off-site woodland, and the relatively high level of activity may indicate roosts for this species nearby. Generally speaking, soprano pipistrelle displayed a stronger associated within Lime Down A compared to other areas at the Solar PV Sites.

1.3.46 Soprano pipistrelle is a relatively common and widespread species and displays similar foraging and roosting behaviour to common pipistrelle, which is reflected by the levels of activity and distribution across the Study Area between June 2023 and June 2025.

Nyctalus Bats

1.3.47 Nyctalus activity recorded between June 2023 and June 2025 is considered to be an aggregation of noctule and Leisler's bat, the majority of which is highly likely to be noctule based on the known population sizes and distribution of both species.

1.3.48 Moderate levels of Nyctalus sp. activity have been recorded across the Study Area (average of 18.50 passes per night). Average passes per night for this group ranged from 8.95 (Lime Down A) to 27.38 (Lime Down E). Nyctalus appeared to be more strongly associated with Lime Down C and E, with generally lower levels of activity across Lime Down A and B between June 2023 and June 2025.

Myotis Bats

1.3.49 Across the Solar PV Sites, moderate levels of activity were recorded from Myotis sp. (13.58 passes per night) although this ranged from 5.66 passes per night (Lime Down B) - considered to be low levels of activity - to 15.45 passes per night (Lime Down C).

1.3.50 Myotis bats were recorded at all locations, with activity levels generally higher at Lime Down C and E compared to the other areas at the Solar PV Sites. The level of activity at Lime Down B was noticeably lower than Lime Down A, C, D, and E. The highest levels of activity have been recorded at Location C13, which is along a tall hedgerow in the centre of Lime Down C, to the south of a modified grassland field.

Serotine

1.3.51 Across Lime Down A-E combined, a relatively low level of activity by serotine has been recorded (average of 5.70 passes per night). Activity has been generally consistent across the Solar PV Sites, with total average passes per night ranging from 2.12 (Lime Down D) up to 6.00 (Lime Down A). Hotspots of activity were noted at detector Locations C3 (on a hedgerow just south of a woodland block), C7 (a tall hedgerow connecting two woodlands) and E5 (a hedgerow bounding Chalkenhams LWS). It can be speculated that these areas could form key commuting routes between roosts and foraging areas, and/or are close to areas with abundant invertebrate prey.

Barbastelle

1.3.52 Barbastelle activity has been recorded at relatively low levels during surveys between June 2023 and June 2025 (4.79 average passes per night across all Sites). Lime Down C appears to be used preferentially over the rest of the Solar PV Sites, with an average of 7.52 passes per night which is a moderate level of activity. Each of Lime Down A, B, D, and E recorded an average of less than 4 passes per night.

1.3.53 A particularly high incidence of activity was noted at Location C3 (a hedgerow close to an area of broadleaved woodland) during August 2023, when passes per night averaged 73.89. Activity in this location during all other months was much lower. This is indicative of this location being potentially of some importance for a nearby roost used by barbastelles during the late summer.

Lesser Horseshoe

1.3.54 Lesser horseshoe activity recorded between June 2023 and June 2025 has been low across the Solar PV Sites (1.94 average passes per night). Between Lime Down A-E, activity ranges from 0.33 passes per night (Lime Down D) to 3.20 passes per night (Lime Down C). This species was recorded at every detector location, with a minimum of three calls recorded at Location D4. The detector location with the highest levels of activity recorded is at is at Location C3, which averaged over 10 passes per night through July to October 2023 and in April 2024. All other deployment locations averaged less than 6.2 passes per night.

Lesser Horseshoe – Lime Down C

1.3.55 A Core Roost for lesser horseshoe bats, associated with the BaBOA Bats SAC, near the village of Grittleton (approximately 2 km to the south of Lime Down C – the precise location is withheld) and a corresponding Core Area were declassified in September 2020 due to the roost no longer having been found to meet the Core Roost criteria as set out in the guidance.

1.3.56 However, given that Lime Down C was identified as a particular hotspot for lesser horseshoe activity across the surveys, and given the proximity of Lime

Down C to a known lesser horseshoe roost, further interrogation of the lesser horseshoe activity from detectors at Lime Down C was considered prudent to determine whether or not habitats within the Solar PV Sites constitute land that is functionally linked to the existing roost.

Time of Recorded Passes

1.3.57 Lesser horseshoes were generally recorded at Lime Down C shortly after dusk, with the earliest pass recorded at 18:36 in October 2023 at Locations C3 and C6, approximately half an hour after sunset. Given that half an hour after sunset is the typical emergence time for the species, this data is indicative of lesser horseshoe roosting in close proximity to Lime Down C, as no suitable roosting structures were recorded within Lime Down C itself.

1.3.58 Lesser horseshoe activity was recorded at Lime Down C throughout the night at most detector locations, suggesting that habitats within Lime Down C are utilised for both foraging and commuting. Given that lesser horseshoes travel approximately 2.5 km per night on average from their roosts to their foraging grounds and have been known to travel even further distances in a night, the possibility of suitable habitats at Lime Down C being functionally linked to the now declassified Core Roost near Grittleton cannot be ruled out.

Variation in Activity Between Detector Locations

1.3.59 The total number of lesser horseshoe passes recorded over the survey period at each detector location is provided in **Table 9-3-3** below, with detector locations shown in **ES Volume 2, Figure 9-3-1: Bat Static Detector Locations, [EN010168/APP/6.2]**.

Table 9-3-3: Total Number of Lesser Horseshoe Passes per Static Detector Location

Detector Location	Total No. Passes	Detector Location	Total No. Passes
C1	22	C8	466
C2	110	C9	203
C3	710	C10	19
C4	112	C11	256
C5	105	C12	31
C6	149	C13	166
C7	205		

1.3.60 The greatest total number of passes were recorded at Location C3 (710 passes) and Location C8 (466). Detectors at these locations were sited immediately adjacent to off-site woodland blocks, Kingway Covert and Lords Wood LWS respectively. Lesser horseshoes tend to forage in sheltered habitats, with woodland edges that are well-connected to the wider landscape by mature hedgerows, scrub and riparian corridors constituting optimal habitat for the species.

Variation in Activity Between Months

1.3.61 Lesser horseshoe activity recorded at Lime Down C varied throughout the year, with peaks in activity noted in August 2023 (Locations C3 and C6), October 2023 (Locations C2 and C4), April 2024 (Locations C3, C7, and C8) and September 2024 (Locations C11, C12, and C13).

1.3.62 Peaks of activity in April and October, at the beginning and end of the typical active season, could be indicative of proximity of Lime Down C to hibernation or transitional roosts. Similarly, peaks of activity in August and September following the maternity period, could be indicative of proximity to a maternity roost. However, these fluctuations in lesser horseshoe activity could be attributable to a variety of factors, such as prey abundance at Lime Down C and movement of lesser horseshoes within the local landscape.

1.3.63 It should however be noted that drawing comparisons between activity data at Locations C1 – C10, C11, and C12 - C13 is limited by the spanning of static detector deployments across multiple seasons (2023 – 2025).

1.3.64 The detailed bat activity data for lesser horseshoes at Lime Down C is provided in full in Annex A of this report.

Long-eared Bats

1.3.65 Low levels of activity by long-eared species (assumed to be brown long-eared bat) have been recorded at the Solar PV Sites between June 2023 and June 2025, (1.84 passer per night), with activity relatively evenly spread across the Solar PV Sites. The deployment locations with the highest level of long-eared activity were Locations C8 and E3 (average 8.22 and 7.59 passes per night respectively). Brown long-eared bat displays a preference for deciduous woodland for foraging, and both of these locations are within hedgerows in close proximity to ancient woodland.

Nathusius' Pipistrelle

1.3.66 Nathusius' pipistrelle has been recorded at very low levels overall (0.13 passes per night) and at each Site with passes per night ranging from 0.04 (Lime Down A) to 0.30 (Lime Down B). This species was recorded at 26 of the 33 deployment locations. Nathusius' pipistrelle was recorded at higher levels during the deployment at Location B2 in June 2023 when 6 passes per night were recorded. Nathusius' pipistrelle bats are documented to be associated with woodlands and watercourses associated with large waterbodies. This species is known to migrate long distances, and most records of this species from Wiltshire come from the Cotswold Water Park, approximately 14.5 km to the north east of the Solar PV Sites.

Greater Horseshoe

1.3.67 Very low greater horseshoe activity has been recorded at the Solar PV Sites, with 57 total passes at an average of 0.04 passes per night. This species has

only been recorded at 16 of the 33 detector locations between June 2023 and June 2025, and has not been recorded at all at Lime Down B. The detector location with the highest levels of activity recorded is at D4, where 26 passes were recorded in June 2023 (3.71 passes per night). No more than 5 passes have been recorded at any other location or deployment month between June 2023 and June 2025.

Table 9-3-4: Summary of Static Detector Survey Results

Site	Total no. bat species / passes recorded	Species	Total no. passes	Average no. of passes per night	% of activity
Lime Down A	10+ species 38,699 passes 185 detector nights 212.64 (avg. passes per night)	Barbastelle	614	3.17	1.59 %
		Serotine	1,140	6.00	2.95 %
		Myotis sp.	2,487	12.97	6.43 %
		Nyctalus sp.	1,668	8.95	4.31 %
		Nathusius' pipistrelle	7	0.04	0.02 %
		Common pipistrelle	19,589	108.86	50.62 %
		Soprano pipistrelle	12,851	70.79	33.21 %
		Long eared sp.	115	0.67	0.30 %
		Lesser horseshoe	227	1.18	0.59 %
		Greater horseshoe	1	0.01	<0.00 %
Lime Down B	9+ species 18,494 passes 175 detector nights 106.66 (avg. passes per night)	Barbastelle	332	1.86	1.80 %
		Serotine	600	3.40	3.24 %
		Myotis sp.	992	5.66	5.36 %
		Nyctalus sp.	2,358	12.89	12.75 %
		Nathusius' pipistrelle	58	0.30	0.31 %
		Common pipistrelle	9,988	59.13	54.01 %

Site	Total no. bat species / passes recorded	Species	Total no. passes	Average no. of passes per night	% of activity
		Soprano pipistrelle	3,702	20.76	20.02 %
		Long eared sp.	149	0.88	0.81 %
		Lesser horseshoe	315	1.79	1.70 %
		Greater horseshoe	0	0	0 %
Lime Down C	10+ species 100,486 passes 630 detector nights 133.33 (avg. passes per night)	Barbastelle	5,479	7.52	5.45 %
		Serotine	4681	5.32	4.66 %
		Myotis sp.	9,693	15.45	9.65 %
		Nyctalus sp.	11,997	16.88	11.94 %
		Nathusius' pipistrelle	93	0.10	0.09 %
		Common pipistrelle	50,519	64.94	50.27 %
		Soprano pipistrelle	12,656	16.33	12.59 %
		Long eared sp.	1,346	2.05	1.34 %
		Lesser horseshoe	2,242	3.20	2.23 %
		Greater horseshoe	16	0.02	0.02 %
Lime Down D	10+ species 34,250 passes 287 detector nights 119.57 (avg. passes per night)	Barbastelle	489	2.04	1.43 %
		Serotine	671	2.12	1.96 %
		Myotis sp.	2,831	9.67	8.27 %
		Nyctalus sp.	4,982	15.27	14.55 %
		Nathusius' pipistrelle	29	0.08	0.08 %

Site	Total no. bat species / passes recorded	Species	Total no. passes	Average no. of passes per night	% of activity
		Common pipistrelle	17,649	63.79	51.53 %
		Soprano pipistrelle	7,258	25.38	21.19 %
		Long eared sp.	231	0.78	0.67 %
		Lesser horseshoe	79	0.33	0.23 %
		Greater horseshoe	31	0.09	0.09 %
Lime Down E	10+ species 60,716 passes 294 detector nights 206.52 (avg. passes per night)	Barbastelle	615	2.09	1.01 %
		Serotine	1,868	6.35	3.08 %
		Myotis sp.	5,338	18.16	8.79 %
		Nyctalus sp.	8,051	27.38	13.26 %
		Nathusius' pipistrelle	20	0.07	0.03 %
		Common pipistrelle	31,553	107.32	51.97 %
		Soprano pipistrelle	12,260	41.70	20.19 %
		Long eared sp.	1,044	3.55	1.72 %
		Lesser horseshoe	182	0.62	0.30 %
		Greater horseshoe	9	0.03	0.01 %
Total (All Sites)	10+ species 252,645 passes 1,571 detector nights 160.82 (avg. passes per night)	Barbastelle	7,529	4.79	2.98 %
		Serotine	8,960	5.70	3.55 %
		Myotis sp.	21,341	13.58	8.45 %
		Nyctalus sp.	29,056	18.50	11.50 %

Site	Total no. bat species / passes recorded	Species	Total no. passes	Average no. of passes per night	% of activity
		Nathusius' pipistrelle	207	0.13	0.08 %
		Common pipistrelle	129,298	82.30	51.18 %
		Soprano pipistrelle	48,727	31.02	19.29 %
		Long eared sp.	2,885	1.84	1.14 %
		Lesser horseshoe	3,045	1.94	1.21 %
		Greater horseshoe	57	0.04	0.02 %

1.4 Evaluation and Conclusion

1.4.1 This section sets out summary of the results of surveys completed between June 2023 and June 2025 and provides an evaluation of the importance of bat species within the Order Limits and surrounding area, with the potential to be impacted by the Scheme.

Evaluation Criteria

1.4.2 The species status within Wiltshire is considered by Clarkson and Woods to be as set out in **Table 9-3-5**. This is considered to be a qualitative assessment building upon known population sizes and distribution in Wiltshire (Ref 9-3-14).

Table 9-3-5: Status of Bat Species in Wiltshire

Species	County Status
Barbastelle	Rarest
Serotine	Less Common
Myotis sp. (Natterer's, whiskered, Brandt's, Daubenton's)	Less Common
Rare Myotis Sp. (Alcathoe, Bechstein's, Geoffroy's)	Rarest
Noctule	Less Common
Leisler's	Rarer
Nathusius' pipistrelle	Rarer
Common pipistrelle	Common

Soprano pipistrelle	Common
Brown Long-eared	Common
Lesser horseshoe	Rarer
Greater horseshoe	Rarest

1.4.3 The criteria for calculating the importance of a site, based on the methodology adapted from Wray et al is set out in **Table 9-3-6**.

Table 9-3-6: Criteria for Calculating the Importance of a Site for Each Species of Bat

Species Status		Average Number of Passes (per night in any month per static detector deployed)		Likelihood of Proximity to roost/SSSI/SAC		Type and Complexity of Linear Feature/Habitat	
Common	1	≤ 1	1	None	1	Unsuitable Habitat or Absence of Linear Features	1
Less Common	3	> 1 ≤ 2	2	Unlikely (bats recorded in middle of night)	2	Un-vegetated Fences, large fields, intensive agriculture, suburban habitats	2
Rarer	5	> 2 ≤ 10	3	Moderate Likelihood (small number of bats early on)	4	Fragmented landscape with some linear features but poorly connected, managed habitats	3
Rarest	10	> 10 ≤ 20	5	Highly Likely (large number of bats early on or close to SSSI for species)	5	Hedgerows/boundaries of moderate value/quality and good connectivity with mixed agriculture or on edge of small rural settlements	4
		> 20 ≤ 50	10	Within SAC roost sustenance zone	10	Complex network of mature hedgerows, rivers, streams, woodlands and wetland areas.	5
		> 50 ≤ 100	15	Within SAC for the species	20		
		100+	20				

1.4.4 For each species recorded the following calculation has been completed:

Species Status	+	Max Average Number of Passes per night in any month	+	Likelihood of Proximity to roost/SSSI/SAC	+	Type and Complexity of Linear Feature/Habitat	=	Species Score

1.4.5 The scores under each of the above categories are added together to give an overall species score. This is then compared against the following criteria to ascribe a geographic value to the site for a particular species, as shown in **Table 9-3-7**. Whilst this model produces, in Clarkson and Wood's opinion, a more accurate reflection of value to the outputs from the Wray et. al model, the output is still subject to review based on professional judgement and adjusted where considered appropriate.

1.4.6 Due to the roost size and behaviour of common and soprano pipistrelle bats, both species typically present very high number of passes when present on a site, at a level not typical of all other species. For this reason, it is generally recommended that the level of geographic importance selected for these pipistrelle species should be one level lower than the results of the output this assessment.

1.4.7 An adjustment also needs to be made for those species which are most difficult to detect, as the survey techniques will tend to under record these species. Therefore, in general the importance of the site for brown long-eared and lesser horseshoe should be increased by one level of geographic importance.

Table 9-3-7: Determination of Geographic Importance

Level of Geographic Importance	Score
International	>50
National	41 – 50 (9)
Regional	33 – 40 (7)
County	26 – 32 (6)
District	20 – 25 (5)
Local	16 – 19 (4)
Site	11 – 15 (4)
Not Important	0 – 10

Evaluation

Solar PV Sites

1.4.8 This section provides an analysis of the importance of bat populations identified as occurring within or in proximity to the Solar PV Sites. The valuation of bats employs the scoring method described by Wray et al (as adapted) and reflects the rarity and conservation status of each species as well as its relative abundance and activity levels on site.

1.4.9 At least 10 species of bat were recorded using the Solar PV Sites during combined surveys. **Table 9-3-8** below provides the status of each bat species recorded and also the importance of the Solar PV Sites to each species based on the combined survey results.

Table 9-3-8: Ecological Evaluation for Each Species of Bat

Bat species	UK status (current estimated UK population size (Ref 9-3-15))	County status	Level of activity on site	Calculated score {modified Wray et al. 2010})	Importance of Solar PV Sites to species
Barbastelle	Unknown (insufficient data)	Rarest	Low	10+3+4+4 = **21**	**District**
Serotine	136,000	Less common	Low	3+3+4+4 = **14**	**Site**
Myotis sp. (Aggregation of Natterer's, whiskered, Brandt's, Daubenton's, Alcathoe, Bechstein's, & Geoffroy's)	2,024,800+	Rarest to Less common	Moderate	3 to 10+5+4+4 = **16 to 23**	**Local to District**
Nyctalus sp. (Aggregation of Leisler's & Noctule)	656,900+	Rarer to Less Common	Moderate	3 to 5+3+4+4 = **14 to 16**	**Site to Local**
Nathusius' pipistrelle	Unknown (insufficient data)	Rarer	Very Low	5+1+2+4 = **12**	**Site**
Common pipistrelle	3,040,000	Common	Very High	1+15+5+4 = **25**	**Local** (decreased by one level)
Soprano pipistrelle	4,670,000	Common	Moderate	1+10+5+4 = **20**	**Site** (decreased by one level)

Bat species	UK status (current estimated UK population size (Ref 9-3-15))	County status	Level of activity on site	Calculated score {modified Wray et al. 2010})	Importance of Solar PV Sites to species
Long-eared sp. (assumed Brown Long-eared)	934,000	Common	Low	1+2+2+4 = **9**	**Site** (increased by one level)
Lesser horseshoe	50,400	Rarer	Moderate	5+2+4+4 = **15**	**District** (increased by one level)
Greater horseshoe	12,900	Rarest	Very Low	10+1+2+4 = **17**	**District** (increased by one level)

1.4.10 Bat surveys of the Solar PV Sites completed between June 2023 and June 2025, have recorded a diverse assemblage of bat species across the Sites, with at least 10 species recorded utilising the Solar PV Sites for commuting and/or foraging. The level of activity recorded by the surveys was considered to represent a moderate level of bat activity in comparison to other sites Clarkson and Woods have undertaken surveys at throughout South-West England.

1.4.11 A large number of trees at the Solar PV Sites have the potential to support roosting bats, and a small number of buildings within and immediately adjacent to the Solar PV Sites were assessed as having low to moderate potential to support roosting bats.

1.4.12 Overall, given the general assemblage and rate of activity recorded, foraging and commuting bats within the Solar PV Sites are considered to be of **Local Importance.**

1.4.13 Given the abundance of suitable roosting habitat, and in the absence of detailed survey data to confirm presence/likely absence of roosting bats within suitable features, roosting bats within the Solar PV Sites are considered to be of **District Importance.**

Cable Route Corridor

1.4.14 Given that habitats within the CRC have been assessed as being of similar value to bats as the Solar PV Sites, and in the absence of detailed survey data, the importance of the CRC for bats is considered to be consistent with the Solar PV Sites. Foraging and commuting bats within the CRC are considered to be of **Local Importance**, and roosting bats are considered to be of **District Importance**.

Conclusion

1.4.15 The presence of a wide assemblage of bat species has been confirmed across the Study Area at the Solar PV Sites. Habitats throughout the Study Area represent suitable foraging, commuting and roosting habitat for bat species. Based on the information available, the presence of unidentified roosts within the Order Limits supporting qualifying species of the BaBOA Bats SAC cannot be ruled out, and land at Lime Down C and within Core Areas within the CRC represent functionally linked land.

1.4.16 Appropriate avoidance, mitigation, compensation and enhancement measures relating to bats are detailed within **Chapter 9: Ecology and Biodiversity [EN010168/APP/6.1].**

1.5 References

Ref 9-3-1 Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1.

Ref 9-3-2 Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London. ISBN-978-1-7395126-0-6.

Ref 9-3-3 CIEEM (February 2022) Code of Professional Conduct. [redacted]

Ref 9-3-4 CIEEM (2013) Competencies for Species Survey (CSS). [redacted]

Ref 9-3-5 The British Standards Institution (2013) BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development. BSI Standards Ltd.

Ref 9-3-6 Available at: https://magic.defra.gov.uk/MagicMap.html

Ref 9-3-7 BTHK 2020. Bat Tree Habitat Key – 4th Edition. AEcol, Bridgwater

Ref 9-3-8 Stahlschmidt, P. & Bruhl, C. (2012) Bats as bioindicators – the need of a standardized method for acoustic bat activity surveys. *Methods in Ecology and Evolution* **3** (3): 503-508.

Ref 9-3-9 Braun de Torrez, E.C., Wallrichs, M,A., Ober, H,K., & McCleery, R,A. (2017) Mobile acoustic transects miss rare bat species: implications of survey method and spatio-temporal sampling for monitoring bats. I5:e3940 [redacted]

Ref 9-3-10 Teets, K.D., Loeb, S.C. and Jachowski, D.S. (2019) Detection probability of bats using active versus passive monitoring. *Acta Chiropterologica* **21**: 205-213.

Ref 9-3-11 CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management. Available at: https://cieem.net/

Ref 9-3-12 Wray, S., Wells, D., Long, E. and Mitchell-Jones, T. (2010). Valuing Bats in Ecological Impact Assessment. In Practice, December 2010. Chartered Institute of Ecology and Environmental Management.

Ref 9-3-13 Natural England and Wiltshire Council (September 2015) Bat Special Areas of Conservation (SAC) – Planning Guidance for Wiltshire. Available at: [redacted]

Ref 9-3-14 Harris G & Linham P (2017) Mammals in Wiltshire. 2nd Edition. Wiltshire & Swindon Biological Records Centre, Wiltshire Mammal Group & Wiltshire Bat Group

Ref 9-3-15 Mathews et al (2018). A Review of the Population and Conservation Status of British Mammals: Technical Summary. A report by the Mammal Society under contract to Natural England, Natural Resources Wales and Scottish Natural Heritage. Natural England, Peterborough

Annex A Detailed Lesser Horseshoe Bat Activity Data – Lime Down C

Location		2023					2024							2025		
		Jun	Jul	Aug	Sep	Oct	Apr	May	Jun	Jul	Aug	Sep	Oct	Apr	May	Jun
C1	Total No. of Passes	3	9	4	1	0	3	2								
	Avg. Passes per Night	0.43	1.29	0.57	0.14	-	0.43	0.29								
	Time of First Pass	23:20	22:34	22:16	03:18	-	20:56	00:45								
	Time of Latest Pass	04:41	03:26	03:09	03:18	-	04:41	02:27								
C2	Total No. of Passes	13	24	1	19	27	15	11								
	Avg. Passes per Night	1.86	3.43	0.14	2.71	3.86	2.14	1.57								
	Time of First Pass	00:34	22:32	22:15	19:50	19:01	21:06	22:04								
	Time of Latest Pass	03:28	04:14	22:15	05:16	02:35	04:29	00:29								
C3	Total No. of Passes	3	89	163	90	74	287	4								
	Avg. Passes per Night	0.43	12.71	23.29	12.86	10.57	41.00	0.57								
	Time of First Pass	02:45	21:51	20:49	19:57	18:36	20:51	23:07								
	Time of Latest Pass	03:02	04:27	05:18	05:36	06:41	05:33	23:07								
C4	Total No. of Passes	0	12	11	8	71	4	6								
	Avg. Passes per Night	-	1.71	1.57	1.14	10.14	0.57	0.86								
	Time of First Pass	-	22:18	21:27	19:57	18:41	21:08	01:16								
	Time of Latest Pass	-	01:02	02:55	01:47	04:17	03:23	03:11								
C5	Total No. of Passes	3	2	3	21	35	14	27								
	Avg. Passes per Night	0.43	0.29	0.43	3.00	5.00	2.00	3.86								
	Time of First Pass	00:13	22:52	22:22	20:24	18:39	23:19	22:45								

Location		2023					2024							2025		
		Jun	Jul	Aug	Sep	Oct	Apr	May	Jun	Jul	Aug	Sep	Oct	Apr	May	Jun
	Time of Latest Pass	03:38	03:18	01:13	05:44	06:34	03:23	03:58								
C6	Total No. of Passes	2	1	48	39	34	25	0								
	Avg. Passes per Night	0.29	0.14	6.86	5.57	4.86	3.57	-								
	Time of First Pass	22:51	23:02	20:40	19:38	18:36	04:22	-								
	Time of Latest Pass	03:47	23:02	05:20	06:11	06:49	05:19	-								
C7	Total No. of Passes	27	28	8	41	38	56	7								
	Avg. Passes per Night	3.96	4.00	1.14	5.86	5.43	8.00	1.00								
	Time of First Pass	22:34	22:09	21:11	19:56	19:13	20:44	22:19								
	Time of Latest Pass	03:36	04:15	02:02	06:12	06:35	05:04	03:38								
C8	Total No. of Passes	5	9	33	35	21	356	7								
	Avg. Passes per Night	0.71	1.29	4.71	5.00	3.00	50.86	1.00								
	Time of First Pass	23:40	23:24	20:32	19:49	18:46	21:11	00:37								
	Time of Latest Pass	03:37	03:34	04:28	02:24	02:58	04:54	03:52								
C9	Total No. of Passes	27	86	8	41	38	2	1								
	Avg. Passes per Night	3.86	12.29	1.14	5.86	5.43	0.29	0.14								
	Time of First Pass	22:34	21:57	21:11	19:56	19:13	00:28	22:15								
	Time of Latest Pass	02:29	03:35	03:42	05:03	20:26	00:34	22:15								
C10	Total No. of Passes	1	0	2	4	7	0	5								
	Avg. Passes per Night	0.14	-	0.29	0.57	1.00	-	0.71								
	Time of First Pass	23:17	-	21:37	20:25	19:06	-	21:48								

Location		2023					2024							2025		
		Jun	Jul	Aug	Sep	Oct	Apr	May	Jun	Jul	Aug	Sep	Oct	Apr	May	Jun
	Time of Latest Pass	23:17	-	21:39	00:11	03:21	-	04:11								
C11	Total No. of Passes						12	31	3	25	40	96	49			
	Avg. Passes per Night						1.71	4.43	0.43	3.57	5.71	13.71	7.00			
	Time of First Pass						22:07	21:36	00:37	22:27	21:28	20:31	19:49			
	Time of Latest Pass						04:55	03:50	02:51	03:34	05:07	05:56	05:53			
C12	Total No. of Passes									3	4	8	4	0	8	0
	Avg. Passes per Night									0.43	0.57	1.14	0.57	-	1.14	-
	Time of First Pass									23:15	22:01	20:34	20:33	-	03:51	-
	Time of Latest Pass									03:22	01:45	05:20	06:02	-	04:16	-
C13	Total No. of Passes									3	13	70	5	5	2	3
	Avg. Passes per Night									0.43	1.86	10.00	0.71	0.71	0.29	0.43
	Time of First Pass									02:06	22:00	20:42	19:46	21:31	03:41	22:20
	Time of Latest Pass									03:10	01:12	05:16	06:24	04:05	04:18	02:53