



BJ Collins
PROTECTED SPECIES SURVEYORS

PHASE II BAT SURVEYS

PROPOSED ARTIFICIAL PITCH
MILLENNIUM HALL
BRITANNIA ROAD
BURBAGE
LEICESTERSHIRE

A report to:

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SUMMARY

This report describes the results of phase II bat surveys with regards to bats and the proposal to construct an artificial turf pitch, along with an associated sports turf floodlighting scheme, on the grounds of Millennium Hall, Britannia Road Sportsground.

The survey was undertaken to inform the bat fauna in the local area and to assess the effect of the proposal. This was in the form of a 13-night static monitoring period in August 2025, the peak survey season. Supported by a night-time bat walkover and vantage point survey in August 2025.

The surveys identified that the bats predominant on the site are almost entirely Common pipistrelle bats, by far the most dominant species with over 96% of all sonograms recorded. In contrast, bat species which are adversely affected by artificial lighting made up less than 0.4% of activity.

Following the detailed site survey the bat population on the site was assessed using the framework provided by Wray *et al.* This determined that the playing field is of local or district value for bat species. The population was then compared to other populations monitored in the region using the Ecobat analysis package. This identified that the bat populations on site sit in the lowest percentile of activity compared to other static monitoring studies in the region, with the exception of Noctule bat. This identifies that there will be no significant impact upon the favourable conservation status of bats on the playing field from the proposal.

In order to comply with best practice the ecological mitigation hierarchy was used in the development of the floodlighting scheme for the new facility. There are four steps to the mitigation hierarchy. The first step is to avoid any environmental impact and that is not possible and provide a sports surface which is viable and functional. Therefore the second step of the hierarchy has been implemented, with a modern controlled sports turf floodlighting scheme.

Summarised Conclusions

- The surveys found that the playing field boundaries are used almost entirely by commuting and foraging Common pipistrelle bats. The second greatest extent of activity was by Noctule bat, with a high level of activity compared to other studies regionally. Both of these bat species are categorised as being tolerant of artificial lighting and made up over 99% of activity.
- The extent of activity by light sensitive bats was extremely low. These bats are rare on the boundary of the playing field with 0.4% of activity combined (13 sonograms). Furthermore, only two of those sonograms were recorded from both survey stations before the 22:00 floodlight curfew.
- The proposed sports turf floodlighting scheme, despite mitigation, spills up to 25 lux of lighting onto the western hedgerow, the area with the greatest activity by light tolerant bats, but only 2 sonograms from Brown long-eared bat and 3 sonograms from a Myotis species. This is at most 1.25 minutes of activity by bats which are affected by artificial lighting.
- The southern boundary hedgerow is the closest to the artificial pitch, this had approximately half the activity of the western hedgerow and this will be largely unaffected, apart from at the eastern end where it will be subject to up to 15 lux of lighting in isolated areas.
- The impact of artificial lighting on the playing field is further mitigated by a floodlight curfew of 22:00 hours, meaning for the largest part of the night the entire playing field is in darkness.
- By using two individual metrics, the bat population on site has been identified as of local or district value and, when compared to other population analyses in the region (with the exception of Noctule), is at the lower end of the lowest percentile, indicating that there will be no detrimental impact upon the favourable conservation status of bats in the local area from the adverse effect of the proposed sports turf floodlight scheme.

Considering the above bullet points, the conclusion is that the proposed artificial pitch, and in particular the mitigated floodlight scheme, when combined with the floodlight curfew of 22:00 hours should have a minimal impact upon bat activity in the immediate vicinity.

1. INTRODUCTION

This report has been prepared by B J Collins – Protected Species Surveyors Limited for Surfacing Standards Limited. It provides the results of phase II bat surveys undertaken in the summer of 2025.

The survey was carried out to inform the potential ecological impact upon bat species from the proposal to install a new artificial grass sports pitch, with an associated floodlighting scheme, on the northern playing field associated with Millennium Hall, Britannia Road, Burbage, Leicestershire. LE10 2HF.

The aim of the survey was to document the bat species which currently use the boundaries of the affected area of playing field, to allow an assessment of any impact from the new pitch and its proposed artificial sportsturf floodlighting, and to develop a mitigation strategy to result in a reduction in any ecological impact from the proposal.

The legislation with regards to the target species relevant to the survey is listed below.

1.1 Legislation applicable to bats

All species of British bat and their roosts are protected under British law by the Wildlife and Countryside Act 1981 (as amended), and bats are classified as European Protected Species under the Conservation of Habitats and Species Regulations 2017 ('the 2017 Regulations'). This has recently been amended by the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations (2019) which continue the same provision for European protected species, licensing requirements, and protected areas after Brexit.

The legislation makes it an offence to kill, injure or disturb a bat and/or to damage or destroy a breeding site or resting place for a bat. It is also an offence to disturb the animals such that it impairs their ability to survive, to reproduce, to nurture their young, or such that it impairs their ability to hibernate or migrate. Under this legislation development work that could affect a bat or bat roost can only be permitted under a licence from Natural England.

Licences in respect of European Protected Species affected by development can be granted under Section 55(2) (e) of The Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations (2019), for the purpose of preserving public health or public safety or other imperative reasons of overriding public interest including those of social or economic nature and beneficial consequences of primary importance for the environment.

Under Section C Regulation 55(9) of the Regulations licences can only be issued if Natural England is satisfied that:

- There is no satisfactory alternative to the work specification and
- The action authorised will not be detrimental to the maintenance of the population of the species at a favourable conservation status in their natural range.

Natural England aim to process EPS licence applications within 35 working days of receipt and Low Impact Class licenses are typically registered within 14 working days of receipt.

Lighting in the vicinity of a bat roost, which may cause disturbance and even a potential abandonment of the roost, may be classed as an offence both to a population and/or individuals.

2. SITE DESCRIPTION

2.1 Location of the proposed Artificial Turf Pitch

The proposed location for the artificial turf pitch is over an existing rugby pitch located on the northern playing fields and to the south of the town of Burbage at the 8 figure Ordnance Survey grid reference of SP 4392 9204.



Figure 1: The survey area (yellow), courtesy of Google Earth.

The area for the proposed artificial pitch sits within an area of modified grassland used for rugby. To the immediate south of the proposal are further grass pitches extending onto open countryside to the south, southeast and southwest of that.

The pitch is bounded to the west and south by unmanaged native hedgerows with occasional trees. To the north by fences associated with residential properties and the council depot, to the east by a tarmac access road, with a play park and tarmac car parking beyond, with the hedgerow boundary to residential properties to the south-east.

The pitch is proposed for the northern section of playing field over the existing rugby pitch.

The two habitat features with the greatest potential for commuting and foraging bats are the native hedgerows located on the west and south boundaries of the affected area of amenity grassland.



Photograph 1 - view of the western hedgerow (categorised as a pLWS) looking north from the southern end of the hedge



Photograph 2 - view of the eastern half of the south side of the southern hedgerow from the west

3. SURVEY METHODOLOGY

3.1 Desktop Study

An ecological records search was commissioned from the Leicestershire and Rutland environmental resources centre (LRERC) on 11 October 2025. This comprised a request for records of wildlife sites and wildlife species for a 1km circumference from the centre of the proposed sports pitch. Key elements of these with regards to bat species have been extracted and described within this report.

3.2 Night-time bat walkover (NBW) and Vantage Point Survey

To allow the physical observation of bat activity, and to assess bat activity over the peak foraging period, a single NBW(transect) and combined Vantage Point Count was undertaken. The transect route was specifically designed to assess the importance of the boundaries of the playing field for bat species, and allow an assessment of the impact on the west boundary of the affected section of playing field, compared to the unaffected boundaries.

The transect survey was designed and implemented by Mr B J Collins MSc MCIEEM, a licensed bat ecologist with over two decades of experience assessing habitat use by bats.

The survey and transect route was also designed to sample a period of up to approximately 90 minutes following sunset, following the methodology for sampling bat activity by the Bat Conservation Trust NBMP Field Survey combined with national best practice guidelines (reference 4). The surveyor was static for a five-minute period at each of the designated stop points (vantage point) but then continued to record bat passes for a three-minute walking period between. All bat activity being counted and recorded for the entire walked transect. The transect was then reversed at the north-east corner of the playing fields and returned back to the proposed artificial turf pitch.

The NBW and VPS route is shown in figure 7, chapter 4. There were 8 point counts.

The transect was undertaken on the 22nd of August 2025. The survey began 30 minutes after sunset (triggered by bat activity). The transect was undertaken by one surveyor, who was equipped with a Full Spectrum detector, continuously recording bat echolocation calls throughout the surveys. All bat activity/passes were counted and attributed to species (where possible) during the transect, with species identification confirmed by sonogram analysis using Kaleidoscope pro software.

3.3 Static/automated bat survey

A period of remote monitoring was undertaken over 13 nights between 22 August to 4 September 2025. The objective of this survey period was to identify the species of bat present on the site and the occurrence of bat activity to allow comparison with the proposed floodlighting scheme and 22:00 hour floodlight curfew.

To facilitate this, two Wildlife Acoustics Song Meter Mini Bat detectors were placed out. The first was placed onto a tree branch on the edge of the western hedgerow. A second detector was then placed onto the southern hedgerow boundary. The western hedgerow was the perceived most valuable linear habitat potentially affected by the proposal.

To operate, the units were set to switch on 30 minutes before sunset and run continually until 30 minutes after sunrise. On completion, the units were collected, and sonograms analysed. The detectors were set to monitor over a 13-night period over August/September 2025. At this time of year this amounted to a total of approximately 10 hours of recording per night between sunset and sunrise, amounting to 260 hours from the two units combined.

Sunrise and Sunset Times

Table 11. The times of sunset and sunrise the following morning for surveys beginning on the date shown.

Night (y-m-d)	Sunset (h:m)	Sunrise (h:m)	Night Length (hours)
2025-08-22	20:18	06:02	9.7
2025-08-23	20:16	06:04	9.8
2025-08-24	20:14	06:06	9.9
2025-08-25	20:11	06:07	9.9
2025-08-26	20:09	06:09	10.0
2025-08-27	20:07	06:11	10.1
2025-08-28	20:05	06:12	10.1
2025-08-29	20:03	06:14	10.2
2025-08-30	20:00	06:16	10.3
2025-08-31	19:58	06:17	10.3
2025-09-01	19:56	06:19	10.4
2025-09-02	19:53	06:21	10.5
2025-09-03	19:51	06:22	10.5

Table 1 – sunset and sunrise times across the static survey period

3.4 Survey effort

The survey effort was designed to assess bat activity over an extended period during the peak bat activity season, as identified within best practice guidelines. The survey cycle was carried out in August/September 2025. Best practice guidance provides an indication of the survey effort required for the level of risk to bat populations affected by development.

The 13-night monitoring period identified a diversity of bat fauna that reflects the bat records for the vicinity. This is an overwhelming abundance of bats that are tolerant of artificial lighting, and a rarity of bats sensitive to artificial lighting.

Over the peak season monitoring period there were only 7 sonograms recorded for *Myotis* bats and 6 from Brown long-eared bats combined from both detectors on the western and south hedgerows. This compares to 6,115 sonograms from 'light tolerant' bat species. The extent of activity from light sensitive bats occurring before the lighting curfew of 22:00 hours, totalled 2 sonograms.

As a result, this report proportionately addresses the requirement of a bat survey to inform the proposed impact from the artificial pitch, as described by Clause 4.1.2 of BS42020 and section 2.2.17 and 8.2.47 of best practice guidelines (reference 2) as below:

When planning surveys it is important to take a proportionate approach. The number and arrangement of manual and automated/classic surveys undertaken should be determined in consideration of the following factors: likelihood of bats being present, likely species concerned, type and diversity of habitats affected, levels of activity/relative abundance, predicted impact of the proposed development on bats, type and scale/size of the proposed development.

3.5 Weather conditions

The weather for the transect was as follows:

Survey	Temperature	Cloud cover	Wind speed
28 August 2025 – SS 19:51	20.3°C start, 14.8°C finish	70% / 80%	B2 – B1

Table 2 – climate conditions at the beginning and after the bat transect study

3.6 Personnel

The static monitoring and the walking transect was both designed and carried out by B J Collins – Protected Species Surveyors Limited. The surveys were carried out by Mr Barry J Collins MSc MCIEEM, Bat Licence: 2015-13152-CLS-CLS and Registered Consultant RC110 and B32RC002. BJ Collins is an experienced bat ecologist, qualified to hold two class licenses from Natural England that are only issued to individuals that can demonstrate sufficient experience and competency, and with regards to CL32, for bat roosts of regional and national significance. He is also an experienced trainer having carried out training on behalf of Natural England, The Bat Conservation Trust and CIEEM in bat survey methodologies. The remote monitoring units were set up and deployed by Mr B J Collins, the sonograms collected were analysed using Kaleidoscope pro software, manually verified and then specific species calls verified using the BTO pipeline.

3.7 Ecobat analysis

Ecobat is a measure of relative bat activity obtained using the secure online tool Ecobat (<http://www.mammal.org.uk/science-research/ecostat/>) (reference 10), initially designed by the University of Exeter and now hosted and developed by the Mammal Society and the University of Sussex (Lintott et al., 2018). The tool compares data entered by the user with bat survey information collected from similar areas at the same time of year and in comparable weather conditions.

Ecobat is a free online tool that gives context to acoustic data recorded from bat surveys. Users upload their data and receive a report which gives a wide range of tables and graphs to explain more about the data they have collected compared to bat records already held in the Ecobat database.

The data from the southern hedgerow by the proposed pitch area was selected for analysis. This data was chosen being the detector closest to the proposed artificial pitch. This was then used to provide regional context in the abundance of bat sonograms recorded by this study.

3.8 Categorisation of bat species to light tolerance

In the analyses throughout this report bats are grouped together depending upon the impact upon individual species from artificial lighting, as described by research and technical publications from 3 sources (references 7, 8 and 9), and also as displayed in Guidance Note 08/23: Bats and Artificial Lighting at Night (reference 6), see overleaf:

Table 1: Summary of the effect of ALAN on UK bat species.

Species	Roost	Flight Corridor	Foraging Area	Drinking Site	Migration	Landscape Level	Habitat Type
Greater Horseshoe <i>Rhinolophus ferrumequinum</i>		na	na	na	na	na	clutter
Lesser Horseshoe <i>Rhinolophus hipposideros</i>			na	na	na		clutter
Brown Long-eared <i>Plecotus auritus</i>					na		clutter
Grey Long-eared <i>Plecotus austriacus</i>	na	na	na	na	na	na	clutter
Bechstein's <i>Myotis bechsteinii</i>	na	na	na	na	na	na	clutter
Natterer's <i>Myotis nattereri</i>		na	na		na	na	clutter
Daubenton's <i>Myotis daubentonii</i>	na			na	na		edge
Whiskered <i>Myotis mystacinus</i>	na	na	na	na	na	na	edge
Brandt's <i>Myotis brandtii</i>	na	na	na	na	na	na	edge
Alcathoe <i>Myotis brandtii alcathoe</i>	na	na	na	na	na	na	edge
Western Barbastelle <i>Barbastella barbastellus</i>					na		edge
Common Pipistrelle <i>Pipistrellus pipistrellus</i>	na				na		edge
Soprano Pipistrelle <i>Pipistrellus pygmaeus</i>				na			edge
Nathusius' Pipistrelle <i>Pipistrellus nathusii</i>	na	na	na	na			edge
Common Noctule <i>Nyctalus noctula</i>	na			na	na		open
Lesser Noctule <i>Nyctalus leisleri</i>	na	na	na		na		open
Serotine <i>Eptesicus serotinus</i>	na	na	na	na	na		open



Positive effect
No effect
Negative effect
na

Data in table is indicative only, is drawn predominantly from European studies (where data available) and shows numerous data gaps due to lack of research data, therefore bat behaviour within the UK may vary and needs assessing on a site by site basis.

Table 3 - the summary table on the effects of artificial lighting on bats species from best practice guidance (reference 6).

4. SURVEY RESULTS

4.1 Desktop Study Results – Bats

Bats

The search of the MAGIC mapping software recorded no EPS licences for bats within 1 km of the site.

There are 74 records of bats from the 1km search area of the centre of the proposed artificial pitch. This includes for the Brown long-eared bat (*Plecotus auritus*), Common pipistrelle (*Pipistrellus pipistrellus*), a *Myotis* bat, Nathusius pipistrelle (*Pipistrellus nathusii*), Noctule (*Nyctalus noctula*), and Soprano pipistrelle (*Pipistrellus pygmaeus*).

Of those records only 4 relate to bat roosts, 1 a day roost site for a brown long-eared bat and three unidentified bat species, where droppings only have been recorded from a building.

The distribution of the 74 records is below:



Figure 3 -showing the abundance of bat records from the desktop study, BLE and Myotis labels represent bats which are sensitive to artificial lighting.

4.2 Species verification

To investigate sonograms potentially incorrectly attributed by the Kaleidoscope auto ID function, dubious calls were extracted and sent to the BTO pipeline. This confirmed that the one Serotine call could not be confidently attributed, and that most of the Leisler's bat sonograms were likely to be Noctule bat. The findings are therefore used in the following chapters.

SCIENTIFIC NAME	ENGLISH NAME	PROBABILITY	WARNINGS
<i>Eptesicus serotinus</i>	Serotine	0.48	Low confidence
<i>Nyctalus leisleri</i>	Leisler's Bat	0.46	Low confidence
<i>Nyctalus leisleri</i>	Leisler's Bat	0.45	Low confidence
<i>Nyctalus leisleri</i>	Leisler's Bat	0.82	
<i>Nyctalus noctula</i>	Noctule	0.99	
<i>Nyctalus noctula</i>	Noctule	0.99	
<i>Nyctalus noctula</i>	Noctule	0.99	
<i>Nyctalus noctula</i>	Noctule	0.91	

Table 4 – highlighted results of the BTO pipeline analysis

4.3 Static/automated bat survey

To provide detailed information with regards to the bat species which are present in the local area, the bat species which utilise the affected landscape of the playing fields and the time that the activity occurs, a period of remote monitoring was undertaken utilising full spectrum bat detectors.

As previously described, the full spectrum detectors were positioned in two locations, on a tree in the overgrown hedgerow to the west boundary of the proposed artificial pitch and secondly on the hedge line that forms to south boundary of the affected section of playing field.

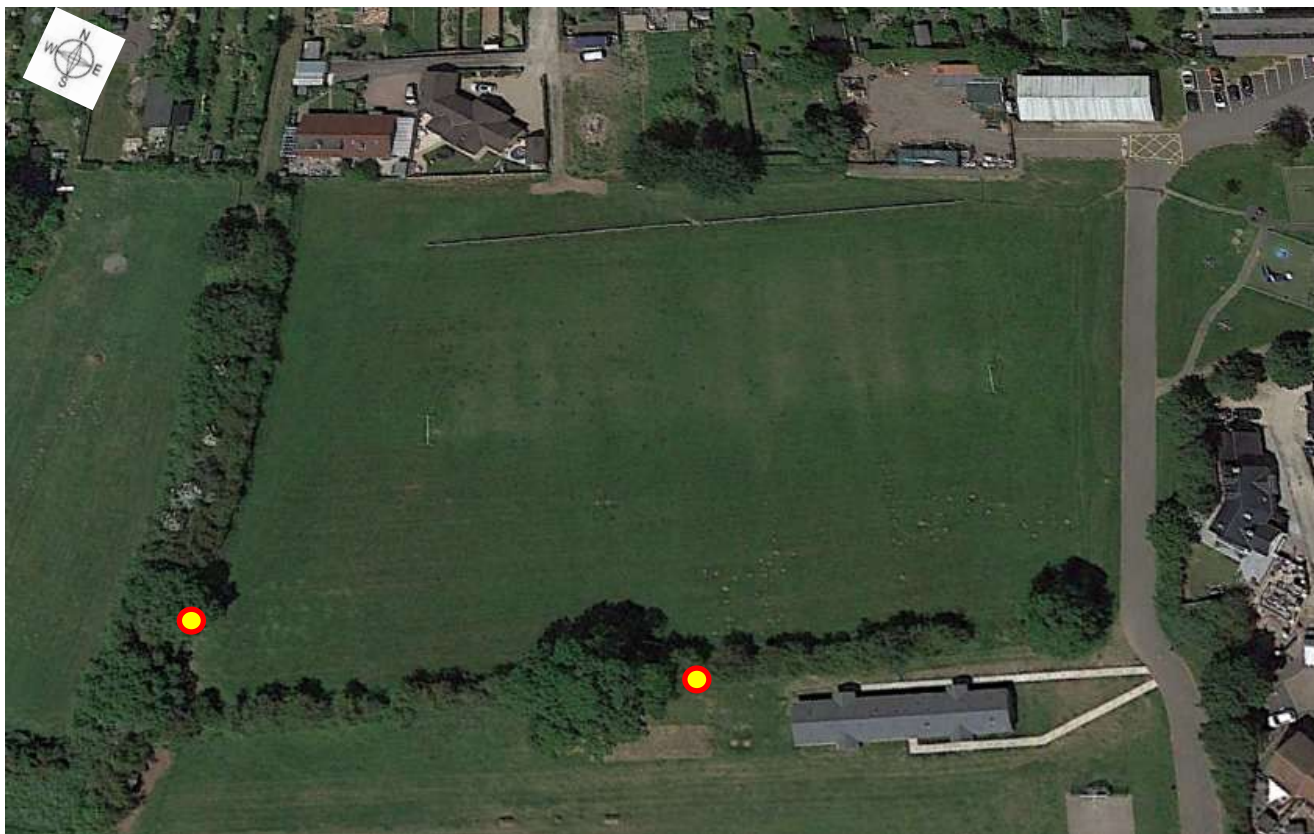


Figure 4 – position of the static detectors



Photograph 5 - siting of the bat detector placed on a tree branch on the west boundary hedgerow of the pitch.



Photograph 6 - siting of the bat detector placed on the southern boundary hedgerow of the playing field.

4.3.1. Detector monitoring the western hedgerow

This detector proved to be the most productive of the two detectors, not surprising given the position of the bat detector on the junction of two hedgerows and with the western hedgerow providing the greatest connectivity (see figure 4). In fact in this location it recorded twice the extent of bat activity to the detector positioned on the southern hedgerow. There was a grand total of 4,086 sonograms in this location (compared to 2,042 on the southern hedge). All but 5 of the sonograms were from species categorised as being tolerant of artificial lighting, this included a domination of Common pipistrelle (with 3,974 sonograms) and Soprano pipistrelle with 36 sonograms. There was then a total of 59 sonograms typical of *Nyctalus* bats, all of those being attributed to Noctule bat (*Nyctalus noctula*)

The 5 sonograms generated by bats which are sensitive to artificial lighting comprised of 2 sonograms from Brown long-eared bat and 3 sonograms from *Myotis* species.

At most this amounts to 1.25 minutes of activity by these bats over a total of 130 hours of night time monitoring.

Of further note is that whilst “light sensitive” bats were extremely rare in the dataset, none of the sonograms occurred before 23:00 hours, relevant considering the 22:00 hour floodlight curfew.

The occurrence of activity, over the hours of the night combined, by the ‘light tolerant’ bats and the ‘light averse’ bats is provided below graphically.

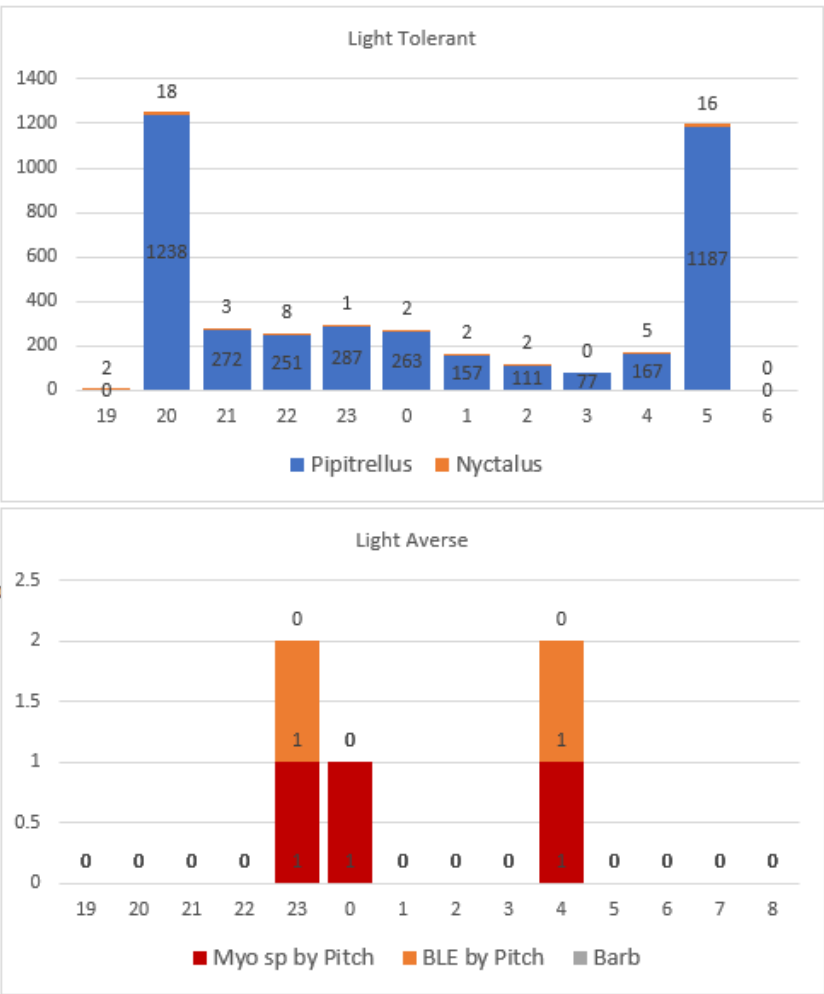


Figure 5 - the distribution of sonograms recorded from bat species categorised as ‘light tolerant’ and ‘light averse’ during the monitoring period on the group of trees to the north-west corner of the existing redgra pitch.

4.3.2. Detector monitoring the southern hedgerow

This is the boundary closest to the proposed pitch.

On this boundary there was only half the overall bat activity recorded from the hedgerow to the west of the playing field. This comprised of a total of 2,042 sonograms, 2,036 of which were from bats tolerant of artificial lighting. This included Common pipistrelle, with 1,955 sonograms, 8 sonograms attributed to Soprano pipistrelle and 60 sonograms by Noctule bat.

This detector ran for a period of 13 nights and in that period it recorded 8 sonograms from Myotis and Brown long-eared bat species combined.

The occurrence of these 8 sonograms varied from the western hedgerow with one Myotis pass some 15 minutes before sunset, this is an unusual occurrence with this bat typically emerging at 28 to 33 minutes after sunset (Andrews & Pearson, 2016). There was then a single Brown long-eared sonogram recorded at 21:31 hours, 30 minutes after sunset. The remaining 6 sonograms occurred after the 22:00 hour curfew for the proposed floodlights.

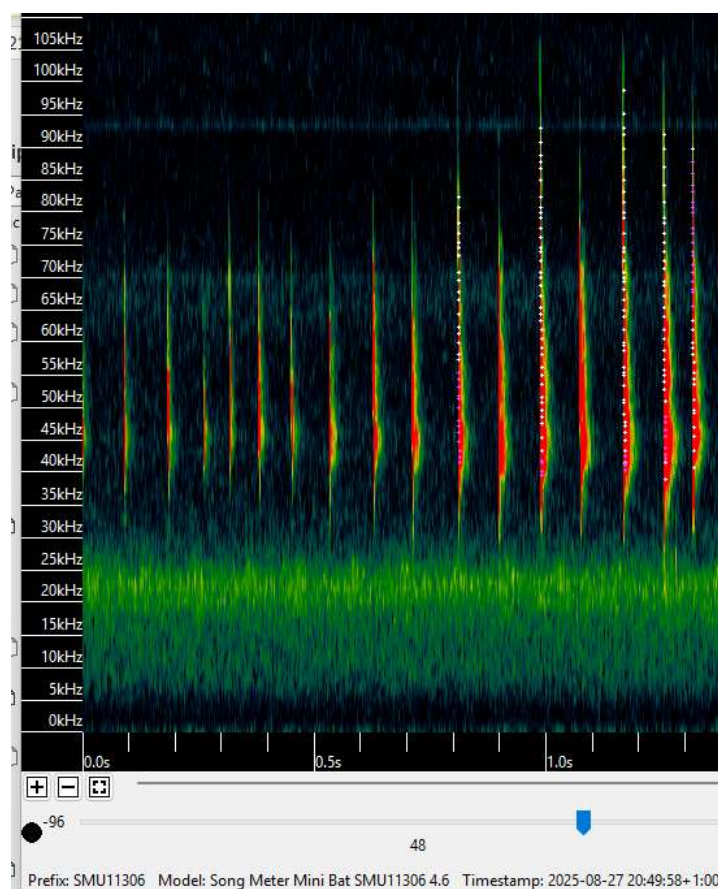


Figure 6 – sonogram of a Myotis bat recorded 15 minutes before sunset (21:04) on the 27 August.

The distribution of sonograms are indicated in figure 7 overleaf:

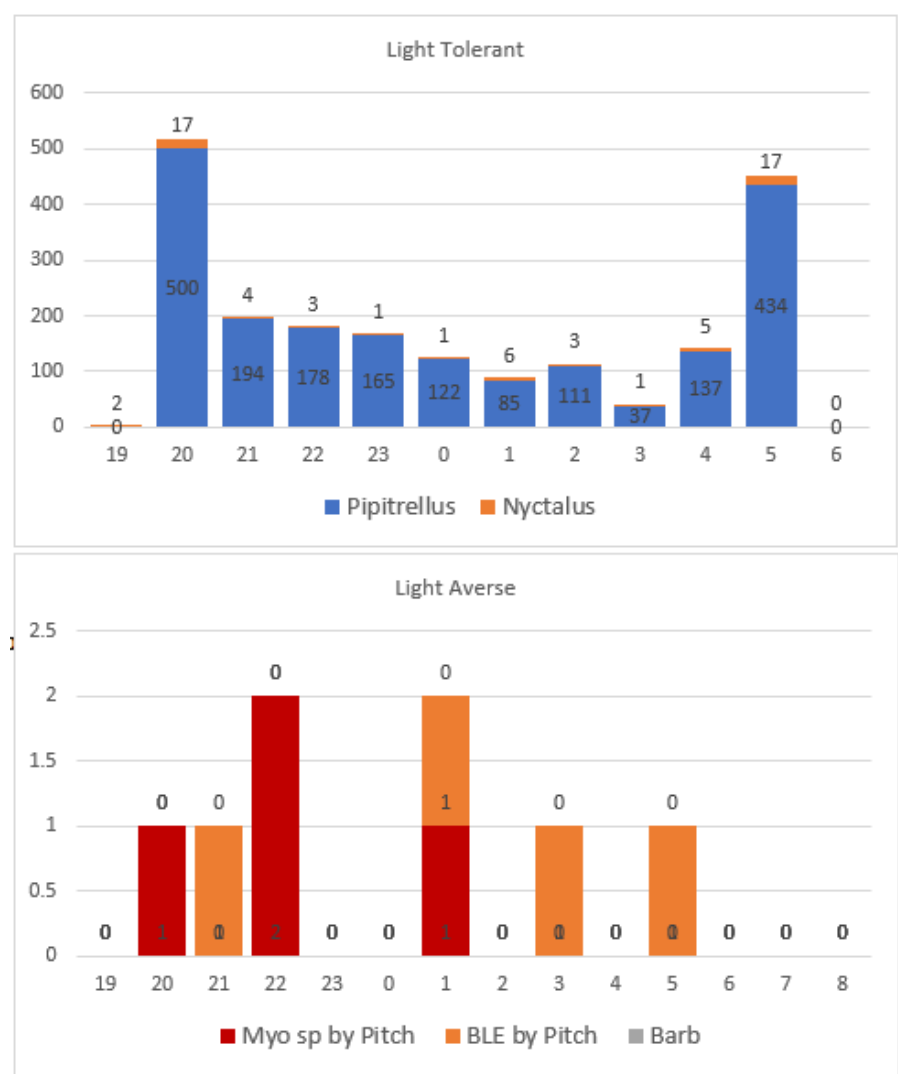


Figure 7 - the distribution of sonograms recorded from the hedgerow on the south boundary of the playing field.

4.4 Night-time bat walkover (NBW) and Vantage Point Survey

There was a single July 2025 transect survey undertaken and the results are shown overleaf. The map contains a cumulative total of the number of passes recorded at the relevant stop point (Vantage point survey) and the subsequent walking section following it (night-time bat walkover).

The transect results were dominated by Common pipistrelle bat, with 42 of the 46 bat passes, the vast majority were on the northern boundary and the southern hedgerow boundary.

The only other species recorded were the Noctule bat with 3 sonograms and a single sonogram from a Soprano pipistrelle.

Only light tolerant bats were recorded from this survey.

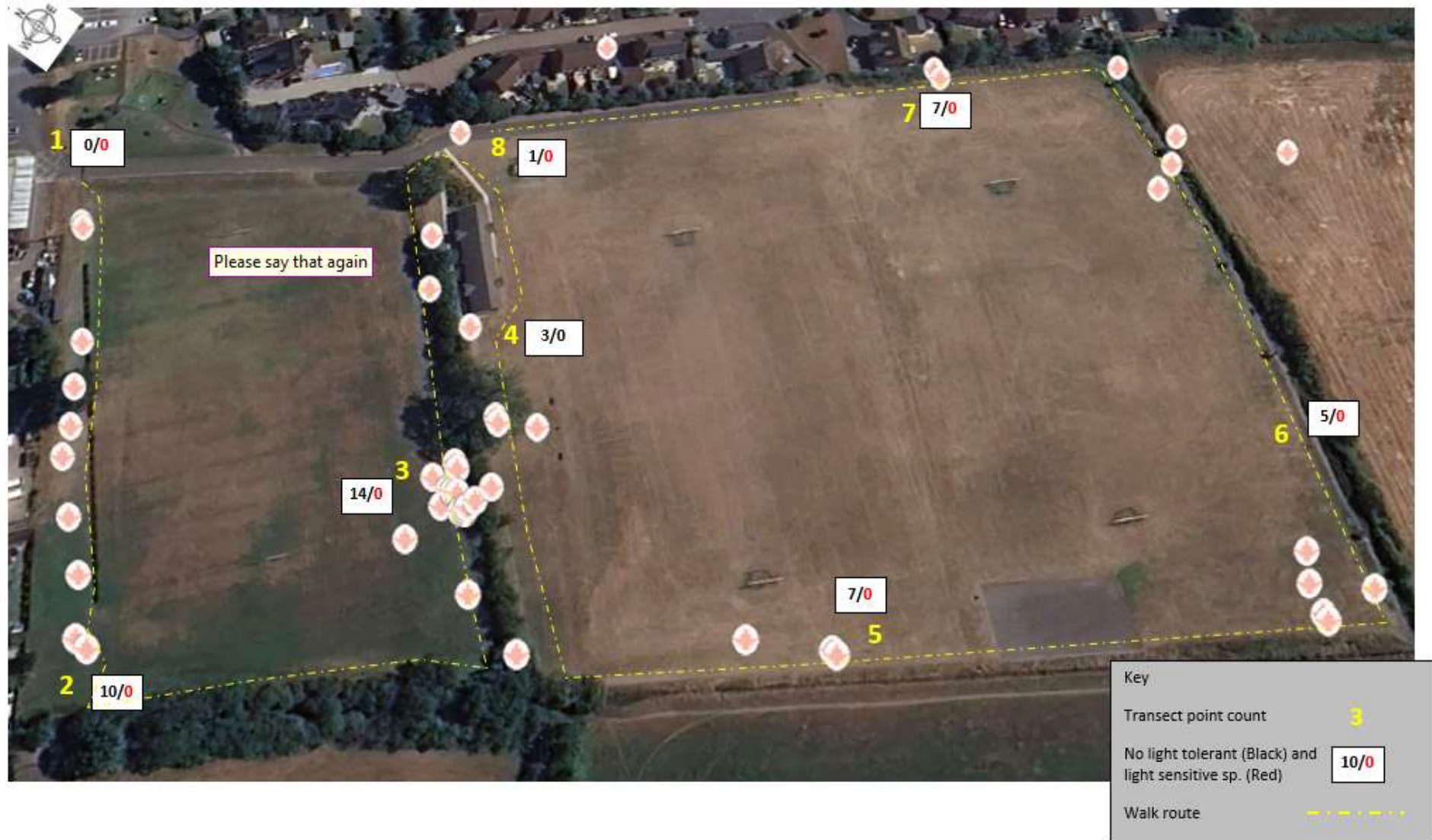


Figure 7 - the distribution of sonograms recorded from the NBW/VPS in relation to the overall playing field, note that the symbols relate to sonograms of either Pipistrellus (the most abundant) or Nyctalus bats. There were no light sensitive bat species identified by this survey.

5. STATUS OF THE RECORDED POPULATION

5.1 Valuing Bats in Ecological Impact Assessment

The status of the recorded bat fauna adjacent to the proposed pitch can be assessed in accordance with Wray *et al* (2010) (reference 9). The following tables are extracted from that assessment methodology:

Table 4: Valuing commuting routes

Species	Number of bats	Roosts/potential roosts nearby	Type and complexity of linear features
Common (2)	Individual bats (5)	None (1)	Absence of (other) linear features (1)
-	-	Small number (3)	Unvegetated fences and large field sizes (2)
Rarer (5)	Small number of bats (10)	Moderate number/Not known (4)	Walls, gappy or flailed hedgerows, isolated well-grown hedgerows, and moderate field sizes (3)
-	-	Large number of roosts, or close to a SSSI for the species (5)	Well-grown and well-connected hedgerows, small field sizes (4)
Rarest (20)	Large number of bats (20)	Close to or within a SAC for the species (20)	Complex network of mature well-established hedgerows, small fields and rivers/streams (5)

Table 5: Valuing foraging areas

Species	Number of bats	Roosts/potential roosts nearby	Foraging habitat characteristics
Common (2)	Individual bats (5)	None (1)	Industrial or other site without established vegetation (1)
-	-	Small number (3)	Suburban areas or intensive arable land (2)
Rarer (5)	Small number of bats (10)	Moderate number/Not known (4)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)
-	-	Large number of roosts, or close to a SSSI for the species (5)	Larger or connected woodland blocks, mixed agriculture, and small villages/hamlets (4)
Rarest (20)	Large number of bats (20)	Close to or within a SAC for the species (20)	Mosaic of pasture, woodlands and wetland areas (5)

Table 4 - extracted from Wray *et al* for the purposes of categorising the bat population recorded from the bat surveys.

Table 3: Scoring system for valuing commuting and foraging bats

Geographic frame of reference	Score
International	>50
National	41 - 50
Regional	31 - 40
County	21 - 30
District, local or parish	11 - 20
Not important	1 - 10

Table 5 - using the above assessment to establish the importance of populations, extracted from the same reference paper.

Using the above metrics, there were only common bat species present, resulting in a species score of 2, the number of sonograms are indicative of a small number of bats at any one time, scoring 5, the occurrence of one *Myotis* sonogram before sunset suggests the potential presence of a day roost in the locality and therefore this scores 3, and the habitat value of the overgrown hedgerows, with their connectivity scores 4.

As a result, using the framework provided by Wray *et al* the current data collected scores 14 for both commuting and foraging bats, valuing the hedgerow boundaries of the playing field as being of District, Local or Parish value for bat species.

5.2 Bat activity – ‘Ecobat’ analysis

For the purpose of assessing the results of the static monitoring against other static monitoring projects in the region, the data for the 13 nights, between 22/08/2025 and 03/09/2025, from the static bat detector that was positioned directly alongside the proposed pitch was analysed through the Ecobat database system.

The following figures are extracted from that analysis report and effectively demonstrate that compared to other monitoring on a regional basis, all of the bat species recorded on site fell into a category of “low bat activity”. The exception to this is the *Nyctalus* records where there are two recorded nights of exceptional activity and five recorded nights of moderate/high activity, this is a group of bats who are categorised as being tolerant of artificial lighting. Note that Ecobat requires a reference range of 200+ nights to be confident in the relative activity level, and in this instance there were only 60 nights contained within the regional data.

With regards to light sensitive bat species the *Myotis* bats were compared against a reference range of 309 nights and in that period the amount of activity was categorised as “low”, which would be expected with such a small number of sonograms recorded. The same status was allocated to Brown long-eared bat, although note the number of nights within the reference range was 58 below the confidence level. Despite this, with only four sonograms from *Myotis* bats and four sonograms from *Plecotus* bats, amounting at most as 15 seconds of activity per sonogram, over a period of 130 hours of night-time monitoring, indicates a scarcity of light sensitive bats on the boundary of the playing field.

The two methods of analysis indicate that the site does not support an important population of bats and that as a result there is unlikely to be a detrimental impact upon the favourable conservation status of the bat species which forage and commute across this playing field.

Table 4. Summary table showing key metrics for each species recorded. The reference range is the number of nights for each species that your data were compared to. We recommend a Reference Range of 200+ to be confident in the relative activity level.

Detector ID	Species/Species Group	Median Percentile	95% CIs	Max Percentile	Nights Recorded	Reference Range
SMU11306	<i>Myotis</i>	16	16 - 16	16	3	309
SMU11306	<i>Nyctalus</i>	71	38 - 85.5	100	10	60
SMU11306	<i>Pipistrellus pipistrellus</i>	6	4.5 - 12	18	13	33956
SMU11306	<i>Pipistrellus pygmaeus</i>	1	0.5 - 0.5	1	12	3861
SMU11306	<i>Plecotus auritus</i>	9	9 - 9	9	3	142

Per Site

In this ‘Per Site’ section of the analysis, all values are taken from across all of the detectors to provide site-wide averages/medians.

Table 7. Summary table showing the number of nights recorded bat activity fell into each activity band for each species.

Species/Species Group	Nights of Exceptional Activity	Nights of High Activity	Nights of Moderate/High Activity	Nights of Moderate Activity	Nights of Low/Moderate Activity	Nights of Low Activity
<i>Myotis</i>	0	0	0	0	0	3
<i>Nyctalus</i>	2	0	5	0	0	3
<i>Pipistrellus pipistrellus</i>	0	0	0	0	0	13
<i>Pipistrellus pygmaeus</i>	0	0	0	0	0	12
<i>Plecotus auritus</i>	0	0	0	0	0	3

Table 5 - showing the number of nights when bat activity levels fell into a percentile band for bat activity surveys in the eco-bat analysis, compared to other studies in a regional context.

6. DISCUSSION

6.1 Survey effort

The basis of this monitoring report is a single survey cycle carried out over an extended period in the peak survey season as described by best practice guidelines. These guidelines specify that habitats that have a “low suitability for bats” should be monitored over an entire season including spring, summer and autumn cycles. There is however a caveat that if the development impacts upon a habitat with low suitability and with relatively few features affected, that proportionality should be considered. Given the results within this document, it is considered that the results of the 13-night summer survey (a combined 260 hours of monitoring) and supporting transect are sufficient to inform the potential ecological impact of this constrained ecological impact, subject to the implementation of a mitigated floodlighting scheme.

Table 8.3. Minimum recommended number of repeats for activity surveys.

Survey type	Low suitability habitat for bats ^a	Moderate suitability habitat for bats	High suitability habitat for bats
NBW	One survey visit ^a per season (spring – April/May, summer – June/July/August, autumn – September/October) ^a . Further surveys may be required if these visits, or the results of static detector surveys, reveal activity of interest that requires more observation on site.		
Automated/static bat detector surveys ^d The same locations should be used for each survey for comparison.	Data to be collected for a minimum of five consecutive nights per season (spring – April/May, summer – June/July/August, autumn – September/October) ^a in appropriate (or the best available) weather conditions for bats.	Data to be collected for a minimum of five consecutive nights per month (April to October) ^a in appropriate (or the best available) weather conditions for bats.	
^a If the habitat has been classified as having low suitability for bats, particularly on small sites with relatively few features, an ecologist should make a professional judgement on how to proceed based on all of the evidence available. It may or may not be appropriate for bat activity surveys to be carried out in low suitability habitats. However, caution should be exercised in fringe areas (e.g. some areas of Scotland) where 'low suitability habitat for bats' may be important to local bat populations due to the relative scarcity of better habitats. In such situations, bats are likely to also be more widely dispersed and may use a larger number of sites, therefore survey effort may actually need to be increased to detect use on the proposed site in question.			

Table 5 - extract from national best practice guidelines (2023)

6.2 Bat activity

The most valuable element of the survey was the period of remote monitoring that was undertaken overnight over 13 nights between 22 August and 3 September 2025.

The overall survey found that there was greater activity by bats overall on the western hedgerow bounding the affected section of playing field. There was twice the extent of bat activity in this location than on the southern boundary hedgerow.

The activity in both areas was totally dominated by Common pipistrelle bat, a species which is highly tolerant of artificial lighting and, as such, one frequently encountered in the urban environment. Over the 13 nights of monitoring on the western boundary hedgerow where there were 3,974 sonograms from the 4,086 recorded attributed to Common pipistrelle, and only 5 sonograms by bats which are sensitive to artificial lighting.

This indicates that the bat species on the playing field are less likely to be adversely affected by the proposed artificial pitch floodlighting operation.

7. MITIGATION

The combined seasonal static monitoring and the NBW/VPS survey results found that the species that utilise the area of sports ground affected by the proposal are bats which are tolerant of artificial lighting.

Comparing the bat populations against others in the region, all of the bat species on the site fall at the lower end of the lowest population percentile, using Ecobat. The abundance of 'light sensitive' bats is particularly low, with 0.4% of activity combined.

Despite this, the mitigation hierarchy should be used to avoid, minimise, restore or offset biodiversity loss. In this instance, it is not possible to provide a viable and functional sports facility without artificial lighting and therefore it is impossible to avoid light pollution from the proposed sports turf floodlighting.

Therefore, the second phase of the mitigation hierarchy has been implemented, in minimising the potential impact. This is by the ecologist and the lighting engineer consulting with regards to mitigating floodlighting with modern technology.

The end result is a scheme which reduces light spillage on the western and southern hedgerows, but, due to the scheme requirements and the small area of playing field inside the boundaries, there is insufficient space to fully avoid illuminating the site hedges.

The lighting contour plan for the scheme is provided overleaf.

Further mitigation is then provided by the floodlight curfew of 22:00 hours. Over the monitoring period in August/September 2025 only 2 of the 13 sonograms from "light sensitive" bat species were recorded on the boundaries prior to the 22:00 hour lighting curfew.

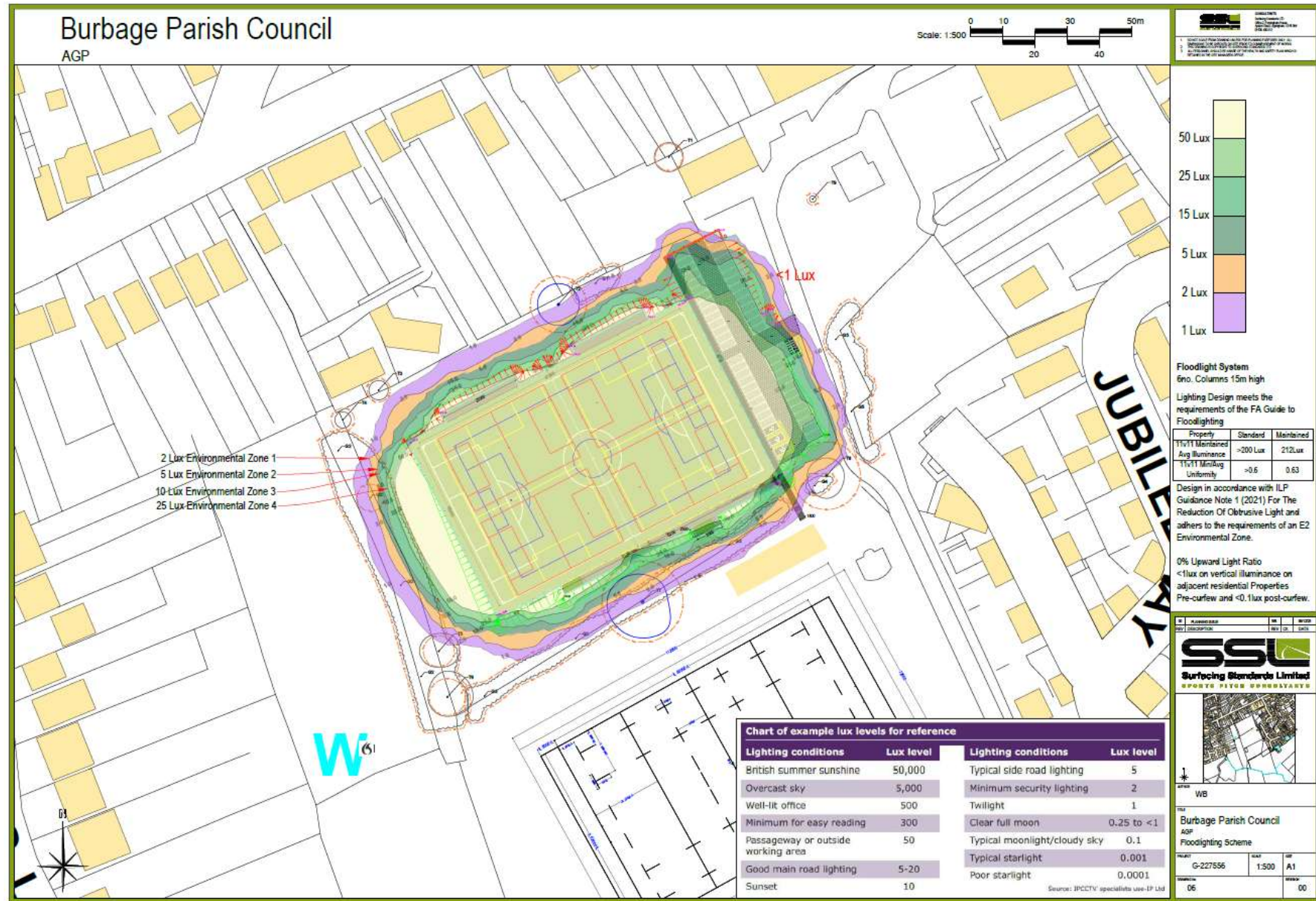


Figure 8 - showing the light spillage mitigation from the proposed artificial pitch floodlighting scheme.

8. CONCLUSIONS AND RECOMMENDATIONS

6.3 Results of Bat Activity Surveys

The transect survey and remote monitoring survey identified that the bats predominant on the site are almost entirely Common pipistrelle bats, by far the most dominant species with over 97% of all sonograms recorded.

The remote monitoring did identify the presence of 2 species/groups of bat that are sensitive to artificial lighting. However, the combined total of activity by this group of bats, from both detectors, was only 13 of the 6,328 sonograms recorded from Myotis (7 sonograms) and Brown long-eared bats (6 sonograms). Whilst the total number of sonograms from both detectors combined for Common pipistrelle alone was 5,969.

Proportionally, there was 96.65% activity by Common pipistrelle and 2.95% of activity by *Nyctalus* bats. The light sensitive bats then comprised of 0.4% of activity combined.

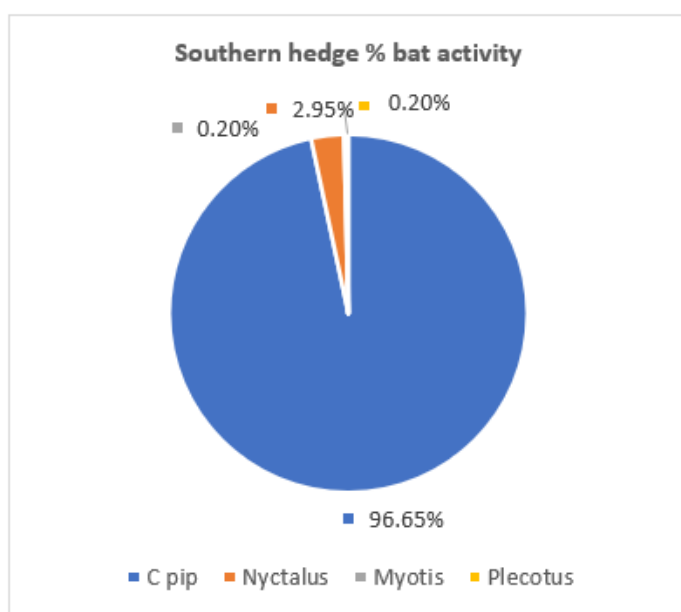


Figure 9 - proportions of bat surveys from the detector positioned on the southern hedge

6.4 Summarised Conclusions

The conclusions of this report with regards to foraging and commuting bats are therefore as follows:

- The surveys found that the playing field boundaries are used almost entirely by commuting and foraging Common pipistrelle bats. The second greatest extent of activity was by Noctule bat, with a high level of activity compared to other studies regionally. Both of these bat species are categorised as being tolerant of artificial lighting and made up over 99% of activity.
- The extent of activity by light sensitive bats was extremely low. These bats are rare on the boundary of the playing field with 0.4% of activity combined (13 sonograms). Furthermore, only two of those sonograms were recorded from both survey stations before the 22:00 floodlight curfew.
- The proposed sports turf floodlighting scheme, despite mitigation, spills up to 25 lux of lighting onto the western hedgerow, the area with the greatest activity by light tolerant bats, but only 2 sonograms from Brown long-eared bat and 3 sonograms from a Myotis species. This is at most 1.25 minutes of activity by bats which are affected by artificial lighting.

- The southern boundary hedgerow is the closest to the artificial pitch, this had approximately half the activity of the western hedgerow and this will be largely unaffected, apart from at the eastern end where it will be subject to up to 15 lux of lighting in isolated areas.
- The impact of artificial lighting on the playing field is further mitigated by a floodlight curfew of 22:00 hours, meaning for the largest part of the night the entire playing field is in darkness.
- By using two individual metrics, the bat population on site has been identified as of local or district value and, when compared to other population analyses in the region (with the exception of Noctule), is at the lower end of the lowest percentile, indicating that there will be no detrimental impact upon the favourable conservation status of bats in the local area from the adverse effect of the proposed sports turf floodlight scheme.

Considering the above bullet points, the conclusion is that the proposed artificial pitch, and in particular the mitigated floodlight scheme, when combined with the floodlight curfew of 22:00 hours should have a negligible impact upon bat activity in the immediate vicinity.

9. REFERENCES AND BIBLIOGRAPHY

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6.5 Appendix A – Proposed Mitigated Floodlight Design

The lighting spillage from the designed mitigated floodlighting scheme for the artificial pitch is provided overleaf, as provided by Surfacing Standards

