Lagan Homes

Land West of Ratby, Leicestershire

INTERIM BAT REPORT

September 2024

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1.0 INTRODUCTION

1.1 The following report has been prepared by FPCR Environment & Design Ltd. on behalf of Lagan Homes and details the findings of a suite of bat surveys undertaken during 2024 on Land West of Ratby, Leicestershire (Central grid ref: SK 50744 06004).

Site Location and Context

1.2 The site is approximately 33 ha in size, dominated by farmland including arable fields and pastureland, bound, and divided by hedgerows. Field compartments to the north of Burroughs Road comprised temporary grass and clover ley, with woodland and willow plantation present to the northwest. Habitats to the south of Burroughs Road were dominated by grassland, with cattle present to the south. Several mature trees were noted within hedgerows and field compartments. The surrounding landscape is dominated by woodland, arable and pastureland with the village of Ratby located to the north and east. A small stream is located between the two redline compartments, which flows under Burroughs Road and through mature woodland bordering the site to the southwest.

Development Proposals

1.3 Proposals include an outline planning application (with all matters reserved apart from access) for a phased, mixed-use development comprising about 470 dwellings (Use Class C3) or, in the alternative, about 450 dwellings and care home (Use Class C2). Provision of land for community hub (Use Class F2); provision of land for 1FE primary school (Use Class F1); and associated operations and infrastructure including but not limited to site re-profiling works, sustainable urban drainage system, public open space, landscaping, habitat creation, internal roads/routes, and upgrades to the public highway.

2.0 LEGISLATION

2.1 Bats are afforded full protection under the Wildlife & Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended).

2.2 Under Regulation 43 of the Conservation of Habitats and Species Regulations 2017 (as amended) it is illegal to:

- Deliberately capture, injure or kill any wild animal of a European Protected Species (EPS),
- Deliberately disturb wild animals of an EPS (affecting ability to survive, breed or rear young) – disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young,
- Deliberately disturb wild animals of an EPS (impairing ability to migrate or hibernate) – disturbance of animals includes in particular any disturbance which is likely to impair their ability in the case of hibernating or migratory species to hibernate or migrate,
- Deliberately disturb wild animals of an EPS (affecting local distribution and abundance) – disturbance of animals includes in particular any disturbance which is likely to affect significantly the local distribution or abundance of the species to which they belong,
- Deliberately disturb wild animals of an EPS (whilst occupying a structure of place used for shelter or protection) – intentionally or recklessly disturb any wild animal while it is occupying a structure or place which it uses for shelter or protection,
- Damage or destroy a breeding site or resting place of a wild animal an EPS.

2.3 Under the Wildlife and Countryside Act 1981 (as amended) it is illegal to:

- Recklessly or intentionally kill, injure or take any wild animals included in Schedule 5.
- Recklessly or intentionally damage or destroy, or obstruct access to any structure or place which any wild animal included in Schedule 5 uses for shelter or protection,
- Recklessly or intentionally disturb any such animal while it is occupying a structure or place which it uses for shelter or protection.

2.4 If impacts to bats or their roosts cannot be avoided a European Protected Species Licence from Natural England is required in order to allow proposals to derogate from the Legislation (Licences cannot be obtained to provide protection against offences under the Wildlife & Countryside Act 1981 (as amended)). As part of the application process a number of 'Tests' have to be met by the application.

2.5 Natural England Guidance Note: European Protected Species and the Planning Process – Natural England's Application of the 'Three Tests' to Licence Applications (March 2011) states:

"In determining whether or not to grant a licence Natural England must apply the requirements of Regulation 53[5] of the Regulations and, in particular, the three tests set out in sub-paragraphs (2)(e), (9)(a) and (9)(b)[6].

(1) ***Regulation 53(2)(e****) states: a licence can be granted for the purposes of "preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment".*

(2) ***Regulation 53(9)(a)*** *states: the appropriate authority shall not grant a licence unless they are satisfied "that there is no satisfactory alternative".*

(3) ***Regulation 53(9)(b)*** *states: the appropriate authority shall not grant a licence unless they are satisfied "that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range."*

2.6 Conservation status is defined as *"the sum of the influences acting on the species concerned that may affect the long term distribution and abundance of its population within its territory"*. It is assessed as favourable when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long term basis as a viable component of its natural habitats, and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, or will probably continue to be, a sufficiently large habitat to maintain its populations on a long term basis.

2.7 These tests must not only reach agreement with Natural England when assessing a Licence application, they must also be assessed by the planning authority when determining a planning application.

3.0 METHODOLOGY

Desktop Study

3.1 A desk study was undertaken to collate existing information for the site and its surroundings in relation to bat species. This included a review of:

- biological records requested from Leicestershire and Rutland Environmental Records Centre;
- granted EPS licences for bats from https://magic.defra.gov.uk/magicmap.aspx
- statutory designated sites that include bat species as part of their designation from https://magic.defra.gov.uk/magicmap.aspx; and
- publicly available aerial imagery showing connectivity across the site and to the wider landscape.

3.2 Bat records were searched for at a resolution of 2km around the site and were limited to records from within the last 20 years.

Field Surveys

Tree Surveys

Ground-Based Tree Assessments

3.3 Preliminary Roost Assessments (PRA) were undertaken from ground level, with the aid of binoculars on the 12th – 14th February 2024 by a suitably experienced ecologist from FPCR. Potential Roosting Features (PRFs) (based on p.16, British Standard 8596:2015 Surveying for bats in trees and woodland, October 2015) which were sought included:

- Natural holes (e.g. knot holes) arising from naturally shed branches or branches previously pruned back to a branch collar;
- Man-made holes (e.g. cavities that have developed from flush cuts or cavities created by branches tearing out from parent stems;
- Woodpecker holes;
- Cracks/splits in stems or branches (horizontal and vertical);
- Partially detached, loose or platy bark;
- Cankers (caused by localised bark death) in which cavities have developed;
- Other hollows or cavities, including butt rots;
- Compression of forks with occluded bark, forming potential cavities;
- Crossing stems or branches with suitable roosting space between;
- Ivy stems with diameters in excess of 50mm with suitable roosting space behind (or where roosting space can be seen where a mat of thinner stems has left a gap between the mat and the trunk); and
- Bat or bird boxes.

3.4 Certain factors such as orientation of the feature, its height from the ground, the direct surroundings, and its location in respect to other features may enhance or reduce the potential value.

3.5 Using professional judgement, the ground-based PRA assessment classified any trees identified based upon the presence of suitable features as set out in Bat Surveys for Professional Ecologists: Good Practice Guidelines (BCT, 2023[1]) in which the general bat roost potential groups are defined (refer Table 4.2 of the guidelines).

3.6 Each PRF was then categorised as outlined in Table 1.

Table 1: Bat Classification and Survey Requirements for Bats in Trees

Classification of Tree	Description of Category and Associated Features (based on Potential Roosting Features listed above)	Likely Further Survey work / Actions
Negligible/ No potential	Negligible/no habitat features likely to be used by roosting bats	None.
Likely PRF-I	A tree with one or more Potential Roosting Features that are suitable for only individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats. Examples include (but are not limited to); loose/lifted bark, shallow splits exposed to elements or upward facing holes.	No further survey is required but appropriate compensation must be provided in advance of impacts and a precautionary working method statement must be applied. [A]
Likely PRF-M	A tree with PRF's which could support multiple bats and may therefore be used by a maternity colony. Examples include (but are not limited to); woodpecker holes, larger cavities, hollow trunks, hazard beams, etc.	Three aerial assessments of PRF's by appropriately licensed/ accredited tree climbers to determine presence or likely absence of roosting bats[B]. Surveys were undertaken between May and September (with at least two surveys between May and August and spread at least three weeks apart).[C] If roost sites are confirmed and the roost is affected by proposals a licence from Natural England will likely be required. After completion of survey work (and the presence of a bat roost is discounted), a precautionary pre-felling survey or working method statement may still be appropriate.

[A] In circumstances where there are lots of trees grouped together with PRF-I then further surveys may still be appropriate.

[B] Nocturnal surveys using NVA's may be appropriate if a tree or PRF cannot be sufficiently accessed or fully assessed.

[C] If the initial aerial inspection was undertaken during the optimum survey period, this can count as one of the three surveys

[1] Collins, J. (ed.) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition).* The Bat Conservation Trust, London.

3.7 Where features suitable to be used as a roost site were identified, evidence that bats had used the site as a roost where features, where accessible, was sought. Such evidence comprises live or dead bats, droppings, urine staining, and grease/scratch marks on wood.

Habitat Assessment

3.8 This assessment was undertaken to identify the suitability of the site to foraging and commuting bats or areas which may be important for exhibiting various social behaviours. This was informed by the results of the initial UKHab survey and also from information gathered in the desk study to ensure that potential effects are considered in the context of the onsite habitats within the wider area.

3.9 The site was also categorised for its habitat suitability for bats, which would inform the necessary survey effort. The habitat suitability was assessed using guidance from 'Bat Surveys for Professional Ecologists: Good Practice Guidelines' (Bat Conservation Trust, 4th Edition, 2023). Table 4.1 of those guidelines provides an outline for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape. This should be applied using professional judgement. This groups a site into five categories based on habitat suitability for foraging and commuting bats which has been further summarised in 2, below.

Table 2: Criteria for Assessing Habitat Suitability for Commuting and Foraging Bats - Based on Table 4.1 (Collins, 2023)

Categories	Description for Habitats	Proposed Further Survey Requirements
High Suitability	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.	Automated static detector monitoring on a monthly basis and nighttime bat walkover surveys (flight path and transect) on a seasonal* basis.
Moderate Suitability	Continuous habitat connected to the wider landscape that could be used by bats for flight-paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.	Automated static detector monitoring on a monthly basis and nighttime bat walkover surveys (flight path and transect) on a seasonal* basis.
Low Suitability	Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.	Automated static detector monitoring and nighttime bat walkover surveys (flight path and transect) on a seasonal* basis.
Negligible Suitability	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.	No further surveys required
No Suitability	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).	No further surveys required

Categories	Description for Habitats	Proposed Further Survey Requirements
*Seasonal surveys should be increased to monthly where Annex II species are expected/ detected or if significant commuting routes are identified.		

Bat Activity Surveys

3.10 Bat activity surveys were undertaken because the site was considered to provide moderate suitability for bats. These surveys were undertaken to identify the value of the site to foraging and commuting bats or areas which may be important for exhibiting various social behaviours so that the effects of the proposals can be assessed.

3.11 In order to inform an impact assessment, where possible the bat activity surveys aim to identify:

- The presence or absence of bats, abundance and species using the site whilst away from the roost;
- The usage of the habitats on the site by bats;
- The temporal (both seasonally and nightly) and spatial distribution of recorded bat activity on site and any associations in terms of timings or particular features;
- Any connectivity in terms of habitats within the site and/or the surrounding area;
- The effect of any existing lighting on the existing bat population.

3.12 Bat activity surveys were designed and lead by an ecologist with expertise meeting the BCT level 3 competency.

Static Monitoring

3.13 Static (passive) monitoring was undertaken using an automated logging system (Wildlife Acoustics Inc. Song Meter® SM4BAT FS bat detectors with SMM-U2 microphones), positioned within the site to record bat registrations for at least five consecutive nights per month.

3.14 The number of static detectors used and location of deployment was determined to allow a representative sample of all habitats within the site to be monitored. The locations were subjectively predetermined using professional judgment in consideration of likely impacts and were positioned at least 15m away from any known or likely roosts. To provide rigorous analysis, static detectors were placed in the same location during each survey; locations are shown on Figure 1.

3.15 The devices were deployed for 5 consecutive nights during suitable weather conditions that were typical for the season/ month of deployment and were programmed to activate 30 minutes before sunset and record continuously until 30 minutes following sunrise.

3.16 A total of four static detectors were deployed each month during the following periods (to date);

- 18th to 23rd April 2024 (Position D redeployed 25th – 30th April due to technical malfunction);
- 15th to 20th May 2024;
- 12th to 17th June 2024;
- 10th to 15th July 2024
- 7th to 11th August 2024

3.17 The data was analysed as soon as possible after retrieval of the static units using the SonoBat UK software package to assess the amount of bat activity on site based on the number and species composition of bat registrations recorded. Auto-analysis using SonoBat Classifier was undertaken, and subsequent manual vetting was then carried out based on internal statistical analysis to ascertain a robust confidence level in the auto-analysis process. The vetting process took measurements including peak frequency, inter-pulse interval, call duration and end frequency were taken to aid in species identification. This analysis was completed by a suitably experienced ecologist (analysts are audited internally for quality control purposes and to maintain consistent results).

Night-time Bat Walkover (Flightpath / Transects Surveys)

3.18 In line with current guidance (Collins, 2024) night-time bat walkovers are undertaken in two parts. The first part is undertaken by stationary surveyors positioned on habitat features most likely to be utilised as commuting routes by bats. Once conditions become too dark to see or once commuting activity has been observed, and has largely ended, surveyors begin a walked transect sampling all areas and habitats within the site, noting any bat activity that is heard or observed along the way. Whilst this includes two elements it is one survey designed to record information to provide further context to elements that static detectors cannot always identify such as bat behaviour or abundance of bats.

3.19 The first part of the survey to observe flightpaths involved 4 surveyors being positioned at predetermined locations as shown on Figure 1. The survey started just before sunset and lasted for between 30 minutes and one hour after sunset. After this the walked transect was started and continued until two to three hours after sunset. The route followed during each transect was repeated on each survey occasion, however the starting point was varied throughout the season. Figure 2 shows the route of the transect and the start/ end points of each survey.

3.20 Due to the size of the site, two transect routes were walked during the night-time bat walkover, with bat activity across the site noted during the survey.

3.21 Surveyors were equipped with Wildlife Acoustics Inc. Echo Meter Touch® bat detectors in conjunction with Echo Meter Touch® app and Samsung Galaxy Tab Active 3® during the night-time bat walkover surveys to detect bats and aid species identification.

Table 3: Night-time Bat Walkover Timings

Survey Date	Sunset Time	Start Time (commuting)	Start Transect	End Transect
25.04.24	20:22	20:22	21:28	22:58
20.08.24	20:18	20:18	21:23	22:28

Table 4: Night-time Bat Walkover Conditions

Survey Date	Start Temp	Wind Beaufort Scale	Rain	Cloud cover (%)
25.04.24	8°C	1	Dry	75%
20.08.24	16°C	1	Dry	15%

3.22 The data from the nighttime Bat Walkover survey was analysed as soon as possible after the survey using the Kaleidoscope Viewer© (Wildlife Acoustics, Inc.) software package to assess the amount of bat activity on site by recording the number of bat registrations. Measurements including

peak frequency, inter-pulse interval, call duration and end frequency were taken to aid in species identification. This analysis was completed by a suitably experienced ecologist (analysts are audited internally for quality control purposes and to maintain consistent results).

Limitations

3.23 To ensure the security of static detectors these were not positioned in open habitats due to the presence of cattle and several public footpaths across the site.

3.24 Where calls could not be identified to species level, for example due to the lower quality of those recordings or where there are overlapping call parameters between species echolocation calls (particularly for *Myotis* and *Nyctalus* species bats) making a definite identification difficult, contacts were identified to genus only.

3.25 The analysis of the SM4Bat FS files recorded can highlight the presence of more than one bat if they are recorded simultaneously on the same sound file. However, it is not possible to determine whether consecutive sound files have been recorded as the result of multiple single bats passing the detector or a single individual repeatedly triggering the detector as it forages in close proximately for an extended period. Therefore, each sound file is counted as a single bat registration.

3.26 Whilst the static data cannot be used to estimate total bat numbers, calculation of the number of bat registrations per hour does reflect the relative importance of the detector location to foraging/commuting bats.

3.27 Owing to the difficulty of detecting brown long-eared bats, *Plecotus auritus,* due to the low volume of their calls it is considered that the nocturnal data may represent an underestimation of brown long-eared bat activity levels and numbers present.

3.28 The Spring transect was undertaken in April when the nighttime air temperature was a couple of degrees below optimal survey conditions. April is a ‘shoulder’ month, and it is recommended that professional judgement is applied to determine whether surveys are completed. The survey was undertaken during the bat active period, on what is considered to be a typical night during April this year, which overall was a wet and cold spring. Bats were recorded during the survey, indicating that although sub-optimal, temperatures were suitable.

3.29 As of the date of issue for this report, the full suite of activity surveys and automated static bat detector surveys and analysis have not been completed. The additional survey data will be submitted in a finalised report once completed, with recommendations made based on activity levels and species composition recorded to date.

4.0 RESULTS

Desktop Study

4.1 Numerous records of bat species were identified from LRERC within 1km of the site, however, no records were returned for the site itself. Records of species included brown long-eared bats *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus*, long-eared bat species *Plecotus* sp., *Myotis* species, *Pipistrellus* species, and unidentified bat species *Chiroptera;* locations are shown on Figure 3. The majority of these records were located in association with the woodland to the north of the site. Full desk study results are presented in the Ecological Appraisal for the site.

4.2 Two records of granted bat European Protected Species Licences (EPSL) were recorded within 1km of the site boundary, which are as follows:

- Approximately 50m east of the site, Natural England reference 2014-3975-EPS-MIT – Common pipistrelle, non-breeding site. Licence valid between October 2014 and October 2015.
- Approximately 50m east of the site, Natural England reference 2014-3975-EPS-MIT-1 – Common pipistrelle, non-breeding site. Licence valid between April 2015 and October 2015.

4.3 These EPSL are for the same location.

Field Surveys

Tree Surveys

Ground-Based Assessment of Trees

4.4 18 trees were assessed as likely PRF-M and 6 trees were assessed as likely PRF-I as shown in Figure 4. Appendix A summarises the features which were identified during the ground-based assessment.

General Habitat Suitability

4.5 The onsite hedgerows were considered to have value for commuting and foraging bats, providing dispersal corridors around the site and into to the wider environment; including to suitable off-site habitats including the woodland and stream to the southwest. The modified grassland and arable fields were considered to be of low value to bats, due to the lack of floristic diversity which would likely result in limited numbers of invertebrate prey. Other onsite habitats of value to bats included the other neutral grassland, scrub parcels, broadleaved woodland, willow plantation to the west of the site, and the onsite ponds.

4.6 Several mature trees were identified as having potential to provide roosting habitat for bats.

Bat Activity Surveys

Static Monitoring

4.7 Unit locations onsite are shown on Figure 1 and a summary of results per unit is provided within Table 5 below. Please note, in this context, the term ‘registration’ refers to a unique sound files created over the course of a number of seconds. Based on this, one ‘registration’ does not

necessarily refer to one bat as one bat can create a number of registrations, for example a bat which is foraging in the area surrounding the microphone for a sustained period of time.

Table 5: Static Detector Results

Survey Period	Position	Unit Number	Avg. Registrations per Hour	Total Registrations	Most Recorded Species (number of registrations)	Other Species Recorded (number of registrations)
April 18th – 23rd / 25th – 30th	A	4	3.796	201	Common Pipistrelle 180	Soprano Pipistrelle 8 Noctule 8 Myotis Species 2 Nathusius' pipistrelle 1 Nyctalus Species 1 Brown Long-eared 1
	B	15	4.306	228	Common Pipistrelle 218	Brown Long-eared 5 Soprano Pipistrelle 2 Noctule 2 Myotis Species 1
	C	17	33.237	1760	Common Pipistrelle 1663	Soprano Pipistrelle 54 Noctule 16 Brown Long-eared 10 Myotis Species 8 Nyctalus Species 4 Nathusius' pipistrelle 3 Nyctalus / Eptesicus 2
	D	8	1.853	94	Common Pipistrelle 84	Soprano Pipistrelle 4 Noctule 3 Nyctalus / Eptesicus 2 Myotis Species 1

Survey Period	Position	Unit Number	Avg. Registrations per Hour	Total Registrations	Most Recorded Species (number of registrations)	Other Species Recorded (number of registrations)
May 15th – 20th	A	15	23.483	1059	Common Pipistrelle 933	Myotis Species 61 Nathusius' pipistrelle 20 Nyctalus Species 14 Soprano Pipistrelle 11 Brown Long-eared 9 Noctule 8 Nyctalus / Eptesicus 2 Pipistrelle Species 1
	B	4	50.980	2299	Common Pipistrelle 2255	Soprano Pipistrelle 27 Nathusius' pipistrelle 6 Brown Long-eared 5 Noctule 3 Myotis Species 3
	C	16	23.018	1038	Common Pipistrelle 646	Brown Long-eared 247 Nyctalus / Eptesicus 46 Nyctalus Species 33 Noctule 31 Soprano Pipistrelle 24 Myotis Species 6 Nathusius' pipistrelle 3 Pipistrelle Species 1 Serotine 1
	D	14	17.363	783	Common Pipistrelle 741	Noctule 12 Soprano Pipistrelle 9 Nathusius' pipistrelle 7 Brown Long-eared 6 Nyctalus Species 5 Nyctalus / Eptesicus 2 Myotis Species 1

4.8 Relative usage of the site per species, as shown by percentage of all bat registrations recorded over the duration of the static monitoring period, is shown in Table 6 below.

Table 6: Species Recorded During Static Detectors Surveys

Species	Total Registrations	Percentage (%)
Common Pipistrelle	6720	90.056%
Brown Long-eared	283	3.793%
Soprano Pipistrelle	139	1.863%
Noctule	83	1.112%
Myotis Species	83	1.112%
Nyctalus Species	57	0.764%
Nyctalus / Eptesicus	54	0.724%
Nathusius' pipistrelle	40	0.536%
Pipistrellus Species	2	0.027%
Serotine	1	0.013%

Static Monitoring Survey Summary

4.9 Common pipistrelle was the most frequent bat species recorded over the static monitoring surveys comprising approximately 90.1% of the contacts. Brown long-eared was the second most common species recorded with unidentified *Pipistrellus* species and serotine *Eptesicus serotinus* the least common.

4.10 Activity was spread evenly across the site with position D recording the most contacts in April and position B recording the most contacts in May.

Night-time Bat Walkover (Flightpath / Transect Surveys)

Spring 25th April 2024

Flightpath Surveys

4.11 Flightpath locations and commuting bats observed are detailed in Figure 5.

4.12 Position 1 recorded a non-visual commuting common pipistrelle at 20:57.

4.13 Position 2 recorded a common pipistrelle at 20:54 commuting in a northwestern direction along the urban edge/hedge H20.

4.14 Position 3 recorded one foraging common pipistrelle at 20:56 moving in a southerly direction along hedge H2, two commuting common pipistrelle (of which one was non-visual recorded at 21:04 and one was commuting east along hedgerow H1 at 21:10), and one non-visual commuting brown long-eared bat at 21:06.

4.15 Position 4 recorded two common pipistrelle at 20:41 and 20:58 respectively (both of which were commuting in a westerly direction along the southern boundary of the site).

Activity Transect Surveys

4.16 No bat contacts were recorded during the transect survey on either route and as such no figure is provided for the walked transect survey.

Summer 20th August 2024

Flightpath Surveys

4.17 Flightpath locations and commuting bats observed are detailed in Figure 6a.

4.18 Position 1 recorded five common pipistrelle (of which three were commuting and two were foraging), four commuting soprano pipistrelle *Pipistrellus pygmaeus*, one commuting noctule *Nyctalus noctula* and one commuting brown long-eared.

4.19 Position 2 recorded eight common pipistrelle (of which four were commuting and four were foraging), three soprano pipistrelle (of which two were foraging and one was commuting), and one commuting noctule.

4.20 Position 3 recorded thirteen common pipistrelle (of which eight were foraging and five were commuting), four foraging soprano pipistrelle, three commuting noctule, two foraging unidentified *Myotis* species, and two brow long-eared (of which one was commuting and one was foraging).

4.21 Position 4 recorded six common pipistrelle (of which three were commuting and three were foraging.

4.22 The earliest recorded bat was a common pipistrelle recorded by Position 4 at 20:20. The earliest record of brown long-eared was at 20:58 by Position 3.

Activity Transect Surveys

4.23 The walked transect routes and bat contacts are detailed in Figure 6b.

4.24 During the walked transects, twenty bat contacts were recorded. These comprised seventeen common pipistrelle, one noctule, one serotine, and one brown long-eared bat.

Night-time Bat Walkover Survey Summary

4.25 Night-time bat walkovers undertaken to date recorded low levels of bat activity across the site. Features with the most recorded activity included the hedgerows and woodland edge habitats to the west. No activity was recorded in association with the central open areas of field compartments. Common and soprano pipistrelle made up most of the activity, with low levels of noctule, brown long-eared, and serotine also recorded. Behaviours recorded comprised commuting and foraging bats.

5.0 DISCUSSION & RECOMMENDATIONS

Impact Assessment

Trees

5.1 Twenty four trees with potential to support roosting bats were identified onsite; of which 18 had features which were suitable for use by multiple bats or maternity roosts (PRF-M), and six were identified with features which were suitable for use by individual or a small number of bats (PRF-I). All trees are currently proposed for retention, following ecological input into the masterplan, and they will be suitably buffered from development impacts such that there will be no/negligible impacts on tree roosting species and no further survey of trees is considered necessary.

5.2 Providing a sensitive lightly strategy should be implemented to avoid any indirect impacts. It is recommended that a lighting plan showing LUX levels and light spill is provided once detailed proposals are finalised, to confirm there will be no lighting impacts on trees. Additional advice on lighting is detailed below within the Artificial Lighting Section.

5.3 Should proposals change at the detailed design stage, requiring any trees to be removed or pruned, or where trees may be lit by artificial lighting, then further survey will be required. In line with new guidance, further survey should include aerial inspection (May-August/September). Alternatively, where trees cannot be safely climbed, nocturnal surveys (May-August/September) would be required. Should a roost be identified a Natural England European Protected Species Licence (EPSL) would be required.

General Habitat Assessment/ Bat Activity

5.4 The site provides potential foraging and commuting habitats to the local bat population, with mature tree lines, hedgerows, woodland edge, and scrub offering higher value habitats. The site was dominated by large open field compartments comprising grass ley and modified grassland, considered to provide minimal foraging value, however the presence of cattle onsite may attract insects associated with livestock, offering a very localised foraging resource. Potential suitable roosting habitat was present in the form of mature trees. The results of the remaining nighttime bat walkover survey and the static detector surveys (as detailed in the Methodology section) are needed in order to draw any definitive conclusions regarding levels of activity across the site, however, findings based on the results for surveys undertaken to date are provided below.

5.5 Across the static surveys completed to date, a total of ten species or genera were identified using the site, five of which were also recorded during the night-time bat walkovers. Species assemblage comprised common pipistrelle, brown long-eared, soprano pipistrelle, *Myotis* species, noctule, *Nyctalus* species, *Nyctalus / Eptesicus* species, Nathusius' pipistrelle *Pipistrellus nathusii*, *Pipistrellus* species, and serotine.

5.6 Common pipistrelle is one of the UK's most common species and was the most frequently encountered across the site during the static bat detector surveys and the night-time bat walkover surveys. Brown long-eared bats comprised c. 3.7% of static registrations, followed by *Myotis* which made up approximately 1%; both of which are considered more sensitive to artificial light. Nathusius' pipistrelle, unidentified *Pipistrellus* species, and serotine were recorded at a low frequency rate across the site.

5.7 Activity levels during the spring night-time bat walkover survey were very low overall. Bats were noted commuting along hedgerows during the flightline survey, with six registrations for common pipistrelle and a single registration for a brown-long eared bat. Activity levels were higher on the summer night-time bat walkover with 52 bat contacts recorded across all four surveyor locations during the flightline survey. Based on the size of site and habitat present the level of activity is also considered to be low overall. Of these contacts, 19 were visual and the flightpaths indicate movement in all directions across the site.

5.8 No significant levels of commuting activity by bats indicating the presence of a maternity roost were recorded in association with any hedgerows or linear habitat features.

5.9 No bats were recorded during the walked transect part of the April night-time bat walkover survey, suggesting that during April the site is used for commuting, offering limited foraging value to bats in spring. Habitats associated with bat activity in summer comprised hedgerows, urban edge, woodland, and woodland edge habitats, with the majority of activity concentrated along boundary hedgerows and the woodland edges. This level of activity is what would be expected of such features; with the woodland and tributaries of Rothley brook supporting invertebrate species and therefore providing a foraging resource for bats.

Annex II and Notable Species

5.10 No species listed as Annex II under the Habitats Directive have been identified onsite during surveys to date.

5.11 Two notable species were recorded onsite, Nathusius' pipistrelle and serotine. Nathusius' pipistrelle were recorded on two of the April statics and all of the May statics, but not during the night-time walkovers. Two records of serotine were recorded onsite, one on the summer night-time bat walkover and one on the May static (Position C). Both records were in association with the woodland to the west of the site. The level of activity associated with these species is consistent with their known abundance at a regional and national scale and is not considered to be significant.

5.12 Based on the above, it is considered that proposals are likely to result in a minor impact on the local bat population at a site level. Levels of activity and species composition is typical for a site of this size and the habitats present within and bounding the site. The majority of species recorded are common and widespread generalists that will continue to use the site once the development is complete. The more notable Nathusius' pipistrelle and serotine were recorded at very low frequencies, and it is reasonable to assume that these species are using the site infrequently and largely to commute. As such, the site is likely to comprise a minor part of these species' ranges, and consequently the development of the site will have negligible impact on the favourable conservation status of both species.

Potential Impacts

5.13 Higher value habitats to bats, including the woodland parcels and hedgerows are proposed for retention. This, in addition to the proposed newly planted hedgerows across the site and the scrub planting to act as a buffer to the woodland and watercourse along the western boundary, will allow the continued provision of commuting opportunities; retaining connectivity across the site and to the surrounding landscape. To ensure the woodland and hedgerows can continue to be utilised for commuting bats they will need to be retained as dark corridors, in accordance with the sensitive lighting scheme detailed below. The grassland and arable land will be lost under proposals,

however, the proposed green infrastructure (GI) and National Forestry Contribution planting will more than mitigate for this loss. Habitats along the west and south of the site will consist of a mosaic of habitats including scrub, broadleaved woodland, wildflower grassland, and Sustainable Urban Drainage (SUDs) features. These habitats are of greater value to bats than the arable fields and modified grassland currently present onsite; the increased floristic diversity of these habitats will likely attract and provide microhabitats for a more diverse assemblage of invertebrates, increasing foraging opportunities for the local bat population.

5.14 Under current proposals, most of the internal hedgerows and the boundary features are to be retained. The retention of these features as green corridors and landscape buffers will allow bats to enter the development area and continue to utilise the area for foraging and commuting. However, this is dependent on minimising disturbance to these areas, particularly where segments of hedgerow are to be removed, as described below in the hop-overs and lighting sections. This is particularly important due to the presence of brown long-eared bats within the site as these are a light-sensitive species and require an adequate amount of canopy cover.

5.15 Green infrastructure should seek to provide habitats of greater value to bats, with areas of herb rich grassland and scrub to provide a foraging resource, with well-structured linear wood-edge habitats to provide movement corridors. Any trees felled as part of the development should be used to create a number of log piles located in the greenspaces and along the retained hedgerows. This will provide additional habitat for insects which will increase the number of prey items available to foraging bat species. It is considered that with the above recommendations the green infrastructure being created is not only sufficient for the existing bat species populations onsite but will increase the foraging opportunities available for the local bat population.

5.16 It is recommended that up to 135 bat boxes are included in the development to increase the availability of suitable roosting sites for bats. Bat boxes should be located on existing mature trees or integrated into suitably located houses/ garages at the development peripheries or next to habitat corridors.

5.17 Boxes will be installed following advice from an ecologist, at least 4m from the ground on buildings and 3m high on existing mature trees. Boxes should be positioned on south-eastern or south-western aspects, away from artificial light sources. This should include the provision of boxes in close proximity to newly created habitats within the onsite greenspace.

5.18 A range of models should be used consisting of the below types, or similar, to suit a range of species. These should include types suitable for use by *Pipistrellus* species, due to the levels of activity from this species group recorded onsite during surveys to date. Examples of suitable boxes include the 2F Schwegler Bat Box, 1MF Schwegler Bat and Swift Box, Beaumaris Woodstone Bat Box and the Low Profile WoodStone Bat Box. The provision of such features would be in accordance with National and Local Planning Policy helping to enhance biodiversity within the local area.

Hop-overs

5.19 In order to minimise any potential impact to commuting and foraging routes, in the event that any hedgerows are to be broken, such as H1, H5, and H9 (e.g., to incorporate proposed accesses/roads), the retained hedgerows should be reinforced with native species planting to create hop-overs to aid crossing of these breaks for bats. These measures are detailed in Highways Agency Interim Advice Note Nature Conservation Advice in Relation to Bats and require

the retention or planting of semi-mature / standards to grow above the level of vehicle movement. Where the proposed breach of the hedgerow exceeds 7m in length the planting will also include the implementation of standard trees adjacent to the road/footpath which will grow to be above the level of vehicle movement. The lower branches of such trees should be regularly pruned back to the trunk to ensure that the most suitable flight line is above the maximum traffic height (where applicable low-level lighting columns may also be used in this instance to reduce the likelihood of the bats using the lower tree regions). The trees growth merges with that of the existing hedgerow to create an alternative route over the road. The implementation of such 'hop-overs' will allow continued echolocation across the break thereby allowing continued usage of the hedgerow as a foraging/commuting area. It will also reduce the potential for road traffic accidents to bats (and for birds).

5.20 Whilst the hop-overs will take a time to establish, the tree standards to be used shall be of an appropriate size and will be planted early in the development cycle. Whilst the breach will be present during the construction period until the hop-over is established due to the small size of the proposed breaches the impacts upon bats potentially commuting along them is considered to be minor.

Artificial Lighting

5.21 In particular, the presence of light sensitive species including brown long-eared and *Myotis* species is of particular concern and must be accommodated accordingly, including with an adequate amount of canopy cover.

5.22 Illumination either of external lighting or light spill from the development may impact on bats commuting and foraging along the retained site boundaries, ponds and newly-created habitats. The lighting and layout of the proposed development will be designed to minimise light-spill onto habitats both within and adjacent to it that are used by the local bat population foraging or commuting. This will be achieved by ensuring that the design of lighting is based upon guidelines presented in the Bat Conservation Trust '*Guidance Note GN08/23 Bats and Artificial Lighting At Night*'[2]. Therefore, the lighting scheme will include the following:

- During the construction period no lighting is present at night.
- Any upward lighting should be avoided.
- The strategic use of landscaping and planting to avoid light spill on sensitive habitats (particularly hedgerows and woodland plantations)
- The avoidance of direct lighting of existing hedgerows, trees, scrub, woodland, or proposed areas of habitat creation / landscape planting.
- Unnecessary light spill will be controlled through a combination of directional lighting, low lighting columns, hooded / shielded luminaires or strategic planting.
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).
- Lighting that is incorporated into the development design should be LED luminaires due to their sharp cut-off, lower intensity, good colour rendition and dimming capability. All luminaires

[2] Bat Conservation Trust (2023) Guidance Note GN08/23 Bats and Artificial Lighting At Night, Bat Conservation Trust [online] Available from: https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/

should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used.

- Where appropriate, luminaires on the site boundary will be fitted with light baffles to prevent light spill.

5.23 With the implementation of the mitigation proposed above, residual effects on the local population of bats are likely to be negligible.

5.24 Following the above mitigation is provided, it is expected that there will be little to no impacts on bats roosting or utilising the site for commuting and foraging. The species recorded to date have comprised common and widespread species and through the implementation of a sensitive lighting plan, retention and buffering of all major habitat corridors, creation of new seminatural habitats, and the national forestry planting scheme, there will be no impact on the favourable conservation status of bats in the locality post-development.

5.25 The mitigation recommended is considered appropriate for the numbers and assemblage of species recorded onsite throughout the surveys completed to date. Mitigation measures may change following the completion and analysis of subsequent surveys as definitive conclusions relating to how bats utilise the site throughout the year cannot be drawn until all surveys are complete.

Key

- **Site Boundary**
- **Static Locations**
- **Flightline Surveyor Locations**
- **Flightline Viewing Directions**

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client
Lagan Homes

project
Land West of Ratby, Leicestershire

drawing title
STATIC DETECTOR AND FLIGHTLINE SURVEYOR LOCATION PLAN

scale @ A3	drawn	issue date
1:3500	KGF	5/9/2024

drawing / figure number
Figure 1

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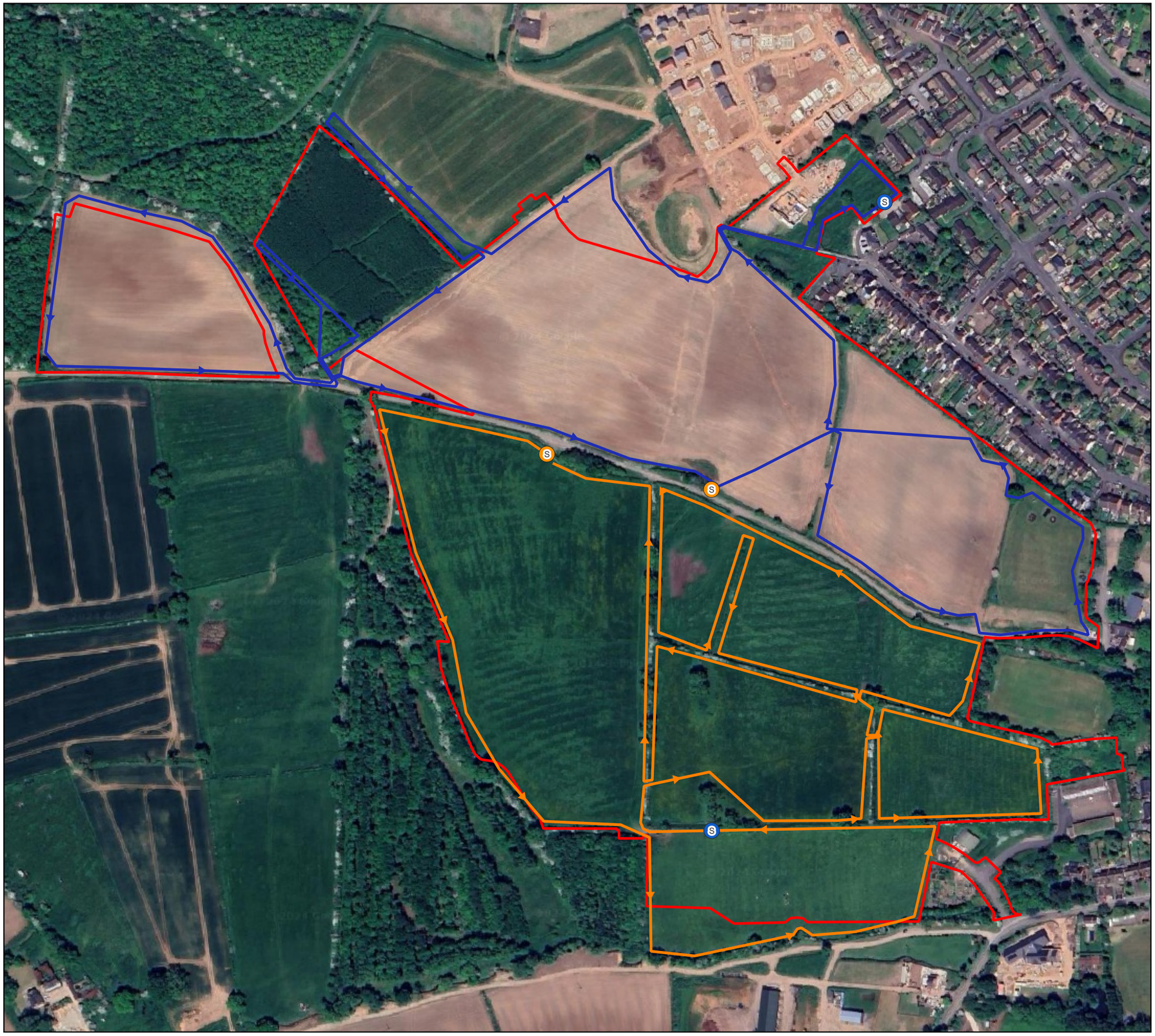

Key

- Site Boundary
- Transect Route North
- Transect Route South

Start Points

- Spring
- Summer

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client
Lagan Homes

project
Land West of Ratby, Leicestershire

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WALKED TRANSECT ROUTE PLAN

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Figure 2

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