Technical Appendix 5.4: Bat Survey Reports

Kirknewton Solar & BESS EIA Report

Trio Power Ltd

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164-182 Oxford Street
London
United Kingdom
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Prepared by:

SLR Consulting Limited

The Tun, 4 Jackson's Entry, Edinburgh, EH8 8PJ

SLR Project No.: 405.065786.00001

11th December 2025

Revision: 2.0

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Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
1.0	08.10.2025	JD	AT	KWB
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Basis of Report

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Executive Summary

SLR Consulting Ltd (SLR) was commissioned by Trio Power Limited, to undertake bat activity surveys of a mature beech tree located off Leyden Road near Kirknewton, West Lothian.

The tree lies at the edge of a proposed solar array and Battery Energy Storage System (BESS) development and within 15 m of a proposed access track.

An aerial inspection of the tree was completed by R&D Ecology, on behalf of SLR Consulting, in August 2025. Whilst no evidence of roosting bats was found, the tree was assessed as containing two features suitable to support multiple bats, including a roost of conservation significance (PRF-M) (R&D Ecology, 2025). Due to the depth and complexity of the features they could not be fully inspected using an endoscope and further emergence surveys were recommended to confirm presence or absence of roosting bats.

Two emergence surveys were completed in September 2025, and no evidence of roosting bats within the tree was found. During the surveys low numbers of bats were active including common pipistrelle, soprano pipistrelle and *Myotis*. On both visits a single soprano pipistrelle was active close to sunset, and it likely that this bat is roosting within another tree to the north within the same woodland belt.

Good practice recommendations in relation to bats are outlined within the report.

Table of Contents

Acronyms and Abbreviations

BCT	Bat Conservation Trust
EPS	European Protected Species
LBAP	Local Biodiversity Action Plan
SBL	Scottish Biodiversity List
SNH	Scottish Natural Heritage (now NatureScot)

1.0 Introduction

1.1 Overview

SLR Consulting Ltd (SLR) was commissioned by Trio Power Ltd, to undertake bat emergence surveys of a single mature beech (*Fagus sylvatica*) tree located off Leyden Road, near Kirknewton, West Lothian, EH27 8DQ, OS Grid Reference NT 10341 64928 (hereafter referred to as the 'Site') as shown on Drawing 1.

1.2 Development Proposal

The survey was undertaken to inform a planning application for a proposed solar array and Battery Energy Storage System (BESS) development ('the Proposed Development'). The tree is to be retained and protected throughout works, however an access track is to be constructed within 15 m which could result in disturbance to any bats present within the tree at the time of the works due to the associated noise, dust and vibration.

1.3 Aims of the Study

To confirm presence or absence of roosting bats and inform further survey requirements, an aerial inspection of the tree was completed in August 2025 by R&D Ecology (R&D Ecology, 2025) and the tree was found to contain two features that could not be fully inspected using an endoscope, due to the depth and/or complexity of each feature. The features were assessed as having suitability to support multiple bats, including a significant roost (PRF-M) though no evidence of roosting bats was found. To confirm presence or absence of roosting bats, two emergence surveys were completed during September 2025.

2.0 Legislation and Guidance

An overview of the relevant legislation and guidance is provided below.

2.1 Legislation

Bats are protected as European Protected Species under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). For any wild bat species, it is an offence to deliberately or recklessly:

- Capture, injure or kill a bat;
- Harass a bat or group of bats;
- Disturb a bat in a roost (any structure or place it uses for shelter or protection);
- Disturb a bat while it is rearing or otherwise caring for its young;
- Obstruct access to a bat roost or otherwise deny an animal use of a roost;
- Disturb a bat in a manner or in circumstances likely to significantly affect the local distribution or abundance of the species;
- Disturb a bat in a manner or in circumstances likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young; and
- Disturb a bat while it is migrating or hibernating.

It is also an offence to:

- Damage or destroy a breeding site or resting place of such an animal (whether or not deliberately or recklessly); and

- Keep, transport, sell or exchange, or offer for sale or exchange any wild bat (or any part or derivative of one) obtained after 10 June 1994.

It is a strict liability offence to damage or destroy a bat roost. A bat roost is protected at all times irrespective as to whether any bats are using the roost at a given time. If the work proposed is to affect bats or their roosts, an EPS licence, issued by NatureScot will be required in order to permit an otherwise illegal activity.

2.2 Best Practice Ecological Guidance

In preparing this work, cognisance has been taken of the Chartered Institute of Ecology and Environmental Management (CIEEM) good practice guidelines and survey methods including the following:

- Competencies for Species Survey: Bats (CIEEM, 2013); and
- Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2023).

2.3 Biodiversity Priorities

2.3.1 Scottish Biodiversity List

Scottish Ministers created the SBL in 2005 to satisfy the requirements under Section 2(4) of the Nature Conservation (Scotland) Act 2004, and to assist public bodies in carrying out conservation of biodiversity, as well as to provide the general public with information regarding conservation within Scotland. The SBL comprises species and habitats listed using both scientific and social criteria (NatureScot, 2020). Only scientific criteria are considered relevant to this report. They include the following:

- All UK Priority Species present in Scotland;
- Species which Scotland has an international obligation to safeguard;
- All species defined as nationally rare at a GB or UK level that are present in Scotland;
- Species with populations present (resident, wintering or breeding) in five or fewer 10km squares or sites in Scotland;
- All species that are endemic to Scotland;
- Any sub-species or race that is widely recognised and accepted by the scientific (or other relevant) community and that is endemic to Scotland, if it also meets one of the other criteria; and
- Natural and semi-natural habitats that are known to be particularly important for supporting assemblages of plant or animal groups that are data deficient, such as fungi, bryophytes, lichens, algae and invertebrates.

Bat species listed on the SBL are pipistrelle bat (*Pipistrellus* species), soprano pipistrelle (*Pipistrellus pygmaeus*), Nathusius' pipistrelle (*Pipistrellus nathusii*), Brandt's bat (*Myotis brandtii*), Daubenton's bat (*Myotis daubentonii*), Natterer's bat (*Myotis nattereri*), whiskered bat (*Myotis mystacinus*), noctule bat (*Nyctalus noctula*) and brown long-eared bat.

2.3.2 Local Biodiversity Action Plan

Working Together for Nature a Biodiversity Action Plan for West Lothian 2025 – 2035 was published in 2025 (West Lothian Council, 2025). The mission of the BAP is to '*reverse biodiversity loss and to effectively restore and protect biodiversity throughout West Lothian into the foreseeable future*'.

The LBAP identifies eight key ecosystems which each incorporate a variety of habitats and key priority species. Those of relevance to the Site or surrounding area and which include bats as priority species are detailed in **Table 1** below.

Table 1: Ecosystems, Habitats and Priority Species of Relevance to the Site

Ecosystem	Associated Habitats	Associated Bat Species
Aquatic	Ditches Swamp Standing Open Water	Daubenton's bat (*Myotis daubentonii*)
Grassland	Amenity grassland Semi-improved grassland	Common pipistrelle (*Pipistrellus pipistrellus*) Soprano pipistrelle (*Pipistrellus pygmaeus*)
Woody	Forest Broadleaved and mixed woodlands Wet woodland Wood pasture Hedgerows Plantations	Common pipistrelle Soprano pipistrelle Natterer's bat (*Myotis nattereri*) Noctule bat (*Nyctalus noctule*) Daubenton's bat Brown long-eared bat (*Plecotus auritus*)
Urban	Parks and greenspaces Private gardens Woodland and shelterbelts Vacant and derelict land Transport and active travel corridors	Common pipistrelle Soprano pipistrelle

3.0 Methodology

3.1 Bat Activity Surveys

A location plan is provided as **Drawing 1**, Photographs are provided in **Table A1, Annex A**.

3.1.1 Overview

Based on the Bat Conservation Trust Guidelines (Collins, 2023) trees assessed as PRF-M require three surveys during the bat active season. If a feature can be fully inspected, these surveys can comprise an inspection by a licensed bat worker using an endoscope and high-powered torch searching for evidence of roosting bats (e.g. bats, droppings) during three separate visits. The guidance recommends that survey visits are spread over the active season (May to September) with a minimum of three weeks between visits.

Where a feature cannot be fully assessed, emergence surveys are required to confirm presence or absence of roosting bats. In this case an aerial inspection, followed by two emergence surveys have been completed. The following report should be read in conjunction with this document, for an overview of the aerial bat survey methods and results:

- R&D Ecology (2025) Aerial Bat Survey, Kirknewton dated 25.08.2025.

3.1.2 Dusk Emergence

The dusk emergence surveys commenced at least 15 minutes prior to sunset and continued for a minimum of ninety minutes after sunset. During the survey, two surveyors watched for bats existing or entering the potential roost features.

3.1.3 Surveyors

The emergence surveys were carried out by experienced ecologists Jenny Diack BSc (Hons) MCIEEM (NatureScot Bat Licence 253674) and Adrian Taylor BSc (Hons) C. Env. MCIEEM.

3.1.4 Bat Recording Devices

The following equipment was used to record all bat activity during the survey, allowing identification of bats to species (or genera in the case of more cryptic species):

- Anabat Express; and
- Echometer Touch 2.

3.1.5 Night Vision Aids

To assist with observing bat activity in low light conditions and darkness, the following night vision equipment was used by each surveyor:

- Nightfox Whisker Night Vision Binoculars.

3.1.6 Analysis

Recordings were analysed using Kaleidoscope and Analook Insight software for identification of bat calls to species level.

3.2 Survey Limitations

The emergence surveys were undertaken during the bat active season and under good weather conditions. Due to the lateness in the season when commissioned to do the surveys, it was not possible to carry out the surveys within the active bat season whilst also having the recommended three weeks between survey visits. This meant that there was 2.5 weeks between each visit. However, this is not considered to be a significant limitation to the surveys and the results are still considered to be an accurate representation of bat and roosting activity at the Site.

4.0 Results and Evaluation

4.1 Bat Activity Surveys

The results of the active season surveys are summarised below. Photographs are contained within **Annex A**. Full survey results are included within **Annex B**.

4.1.1 Survey Dates and Conditions

Table 2 below summarises survey dates and conditions for the active season survey visits.

Table 2: Summary of active season survey weather conditions

Date	Survey Type	Temp (ºC) Start	Temp (ºC) End	Rain	Wind	Cloud Cover
12.09.2025	Dusk emergence	12	10	Mostly dry, light drizzle on one occasion	F2-3	80%
30.09.2025	Dusk emergence	14	12	Dry	F2	80%

4.1.2 Survey visit 1, Dusk Emergence, 12.09.2025

See Photograph 1 for the location of the potential roost features and Photographs 2 and 3 for the lightest and darkest points of the survey, viewed through the NVAs.

During the survey, low numbers of bats were active with a maximum of two bats recorded at any one time. The first bat, a soprano pipistrelle, was recorded at 19:46, ten minutes after sunset, indicating the likely presence of a roost close to the site. This bat continued to forage and commute north to south along the tree line. At 20.27 a common pipistrelle was recorded which also continued to forage along the tree line for the remainder of the survey. One *Myotis* bat pass was recorded at 21:03, c. 85 minutes after sunset.

No bats emerged from the potential roost features.

4.1.3 Survey visit 2, Dusk Emergence, 30.09.2025

See Photographs 4 and 5 for the lightest and darkest points of the survey, viewed through the NVAs.

During the survey, low numbers of soprano and common pipistrelle bat were active. Once again, the first bat recorded was a soprano pipistrelle approximately 13 minutes after sunset, and it appeared close to a mature beech tree further north along the tree line. A common pipistrelle was active from 19.21 approximately 30 minutes after sunset. Overall, there were more common pipistrelle passes than soprano pipistrelle, but activity was similar to the previous survey with activity focused on foraging up and down the tree belt.

No bats emerged from the potential features.

5.0 Discussion and Recommendations

5.1 Bats

5.1.1 Assessment

5.1.1.1 Overview

All native bat species are fully protected as European Protected Species (EPS) under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended), and the nine species

found in Scotland are all listed on the SBL as species on which negative impacts should be avoided.

5.1.1.2 Summer Roost Potential

The aerial inspection and emergence surveys have found no evidence that the features are currently used by roosting bats. As bats are known to use tree roosts opportunistically, particularly as transition roosts in the autumn, the presence of individual bats at any time cannot be completely ruled out. However, there is no evidence that the tree contains a roost of conservation significance (e.g. maternity).

5.1.1.3 Winter Roost Potential

The feature in the tree is a large open cavity and there appears to be some water ingress in the upper reaches making it less suitable for use by hibernating bats who require a stable environment whilst in torpor, without fluctuations in temperature and humidity.

5.1.2 Recommendations

5.1.2.1 Minimum Protection Zone

It is recommended that in advance of works commencing, a minimum protection zone (2 m) is installed to protect the tree from accidental damage.

5.1.2.1 Sensitive Lighting Scheme

The tree line provides bats with a sheltered foraging and commuting route and surveys have indicated the presence of a summer, non-breeding, soprano pipstrelle roost within a tree to the north, along the edge of the Site.

As artificial lighting can disrupt bat foraging and commuting behaviour, and delay roost emergence times, a sensitive lighting scheme must be adopted to minimise illumination of edge habitat both during works and post-construction. To reduce obtrusive light and light spill, the following measures should be incorporated into the design of temporary lighting during the construction phase, and the permanent lighting scheme:

- The design of lighting must ensure that boundary features such as woodland edges, hedgerows, treelines and ditches are not illuminated as bats (and other mammals) will often avoid lit areas.
- During construction, task lighting must be switched off when not in use.
- LED Luminaires must be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (ideally <2700 Kelvin, max 4000 Kelvin) must be adopted to reduce the blue light component.
- Column heights must be designed to minimise light spill.
- Only luminaires with an upward light ratio of 0% and with good optical control are to be used.
- Luminaires must be mounted on the horizontal (i.e. no upward tilt).
- Any lighting will be directional (using fittings such as hoods, cowls, or shields to direct light downwards wherever possible and avoid unnecessary light spill).

5.1.3 Repeat Surveys

In line with NatureScot guidance, the bat survey data is considered valid for two survey seasons. If works do not progress before the end of September 2027, further surveys should be undertaken as per the method section of this report to identify any change to the baseline results.

6.0 References

CIEEM (2013). Competencies for species surveys: Bats. Available at: https://cieem.net/wp-content/uploads/2019/02/CSS-BATS-April-2013.pdf (accessed October 2025).

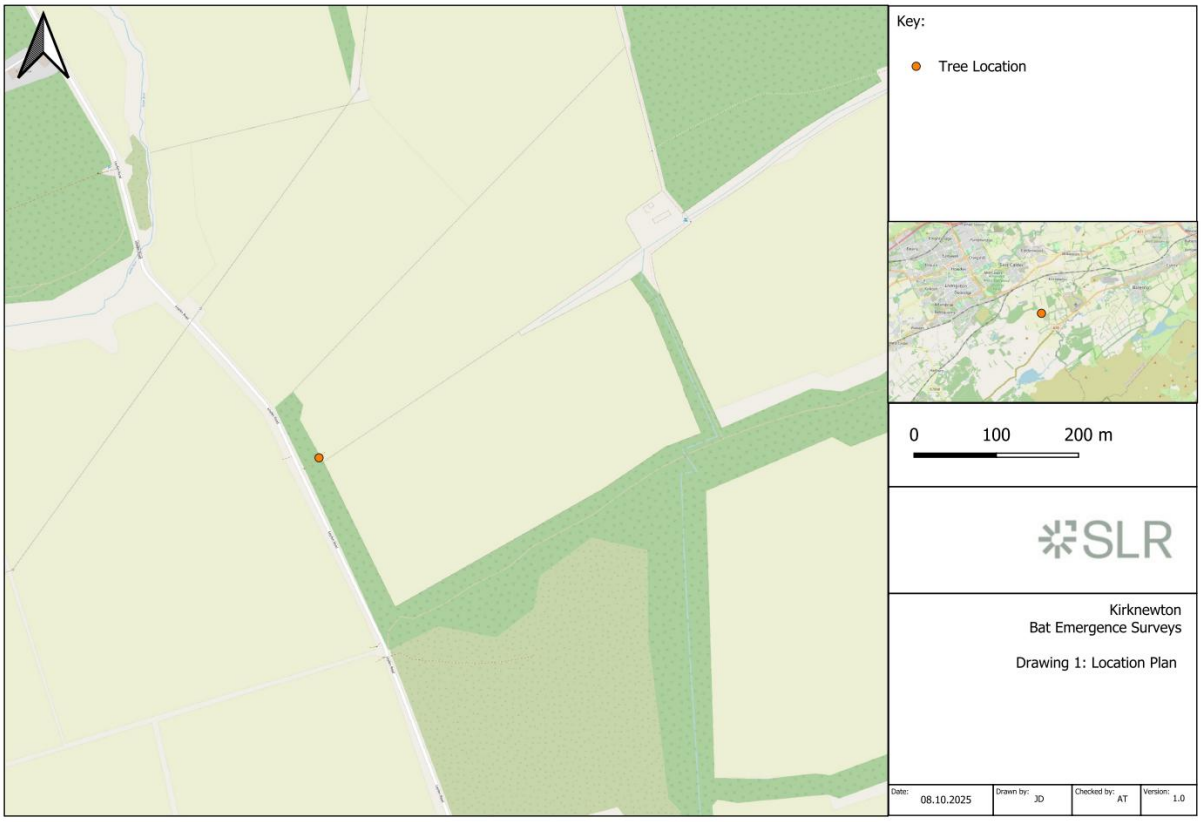
Collins J (ed.) (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines, Fourth Edition. The Bat Conservation Trust, London.

NatureScot (2020). Scottish Biodiversity List v1.4. Available online at: https://www.nature.scot/doc/scottish-biodiversity-list#:~:text=The%20Scottish%20Biodiversity%20List%20is%20a%20list%20of,of%20principal%20importance%20for%20biodiversity%20conservation%20in%20Scotland (accessed October 2025).

R&D Ecology (2025). Aerial Bat Survey, Kirknewton dated 25.08.2025.

West Lothian Council (2025). Working Together for Nature A Biodiversity Action Plan for West Lothian 2025 – 2035. Available at: https://www.westlothian.gov.uk/media/65952/Working-Together-for-Nature-A-Biodiversity-Action-Plan-for-West-Lothian-2025-35/pdf/WL_BAP_2025-35_Text_Approved_-_updated.pdf (accessed October 2025).

Drawing 1: Location Plan



Annex A: Photographs

Bat Activity Surveys

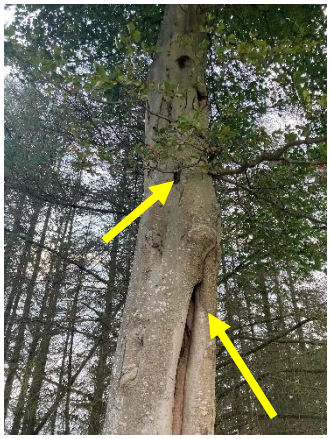
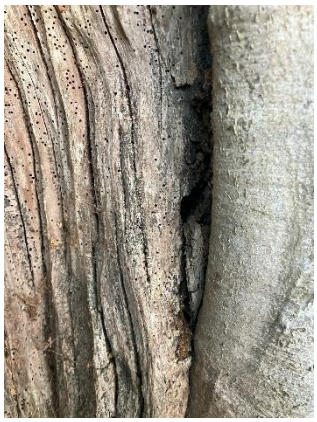
Kirknewton Solar & BESS

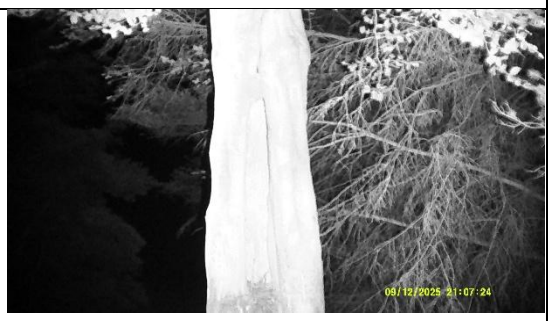
Trio Power Limited

SLR Project No.: 405.065786.00001

08 October 2025

Table A-1: Photographs

Photograph Ref	Description	Photograph
1	Mature beech tree with basal cavity on eastern aspect. Second cavity approximately 6 m above ground level on south-east aspect, may lead into same feature. In the lower feature there is a gap behind the dead wood approximately 1m agl.	 East aspect of tree  South-east aspect, yellow arrows indicate feature access points  Crevice at 1 m agl at base of basal cavity.

Photograph Ref	Description	Photograph
2	Emergence 12.09.2025 – lightest point of the survey	 Feature 1  Feature 2
3	Emergence 12.09.2025 – darkest point of the survey	 Feature 1  Feature 2

Photograph Ref	Description	Photograph
4	Emergence 30.09.2025 – lightest point of the survey	 Feature 1  Feature 2
5	Emergence 30.09.2025 – darkest point of the survey	 Feature 1  Feature 2

Annex B: Survey Forms

Bat Emergence Surveys

Kirknewton Solar & BESS

Trio Power Limited

SLR Project No.: 405.065786.00001

08 October 2025

Survey Form 1 – 12.09.2025

Survey Location	Date	Surveyor	Grid Ref
Kirknewton	12.09.2025	JD and AT	NT 10331 64924
Sunset	**Start Time**	**Finish Time**	**Detector / recorder type**
19:36	19:21	21:06	AT – EM2 Touch JD – Anabat Express

CLOUD COVER (in eighths E.G 1/8, 2/8)		RAIN		WIND*		TEMPERATURE	
Start of Survey	7/8	Start of Survey	Nil	Start of Survey	F2-3	Start of Survey	14
End of Survey	7/8	End of Survey	Nil	End of Survey	F3	End of Survey	12

*Beaufort Wind Scale 1 – 6, 1 -Calm, 2 – Light Breeze, 3 – Gentle Breeze, 4 – moderate breeze, 5 – fresh breeze. Beyond 4 maybe too windy for survey unless in sheltered area.

Time	Species	No of bats	No. Passes	Notes (e.g. foraging, commuting, roosting, direction of travel)
19:46	Soprano pipistrelle	1	4	Visual on bat flying along tree to north, possibly emerged from tree further along the tree line.
19:58	Soprano pipistrelle	1	1	Foraging and commuting, moving south along tree line
20:01	Soprano pipistrelle	1	1	Foraging and commuting, HNS
20:02	Soprano pipistrelle	1	3	Foraging and commuting, moving up and down tree line
20:03	Soprano pipistrelle	1	1	Foraging and commuting, HNS
20:04	Soprano pipistrelle	1	1	Foraging and commuting
20:05	Soprano pipistrelle	1	5	Foraging and commuting
20:06	Soprano pipistrelle	1	2	Foraging and commuting
20:07	Soprano pipistrelle	1	3	Foraging and commuting
20:08	Soprano pipistrelle	1	3	Foraging and commuting

20:09	Soprano pipistrelle	1	3	Foraging and commuting
20:10	Soprano pipistrelle	1	3	Foraging and commuting
20:11	Soprano pipistrelle	1	3	Foraging and commuting
20:12	Soprano pipistrelle	1	3	Foraging and commuting
20:13	Soprano pipistrelle	1	3	Foraging and commuting
20:14	Soprano pipistrelle	1	1	Foraging and commuting
20:15	Soprano pipistrelle	1	2	Foraging and commuting
20:15	Soprano pipistrelle	1	1	Foraging and social calls
20:16	Soprano pipistrelle	1	3	Social calls, foraging and commuting
20:17	Soprano pipistrelle	1	2	Foraging and commuting
20:18	Soprano pipistrelle	1	2	Foraging and commuting
20:19	Soprano pipistrelle	1	5	Foraging and commuting
20:20	Soprano pipistrelle	1	3	Foraging and commuting
20:21	Soprano pipistrelle	1	5	Foraging and commuting
20:22	Soprano pipistrelle	1	3	Foraging and commuting
20:24	Soprano pipistrelle	1	4	Foraging and commuting
20:25	Soprano pipistrelle	1	3	Foraging and commuting
20:26	Soprano pipistrelle	1	3	Foraging and commuting

20:27	Common pipistrelle	1	2	Foraging and commuting
20:27	Soprano pipistrelle	1	2	Foraging and commuting
20:28	Soprano pipistrelle	1	3	Foraging and commuting
20:29	Soprano pipistrelle	1	3	Foraging and commuting
20:30	Soprano pipistrelle	1	3	Foraging and commuting
20:31	Soprano pipistrelle	1	1	Foraging and commuting
20:31	Common pipistrelle	1	1	Foraging and commuting
20:32	Common pipistrelle	1	1	Foraging and commuting
20:33	Soprano pipistrelle	1	1	Foraging and commuting
20:36	Soprano pipistrelle	1	1	Foraging and commuting
20:37	Soprano pipistrelle	1	2	Foraging and commuting
20:40	Soprano pipistrelle	1	1	Foraging and commuting
20:41	Soprano pipistrelle	1	2	Foraging and commuting
20:44	Common pipistrelle	1	1	Foraging and commuting
21:00	Common pipistrelle	1	1	Foraging and commuting
21:01	Common pipistrelle	1	1	Foraging and commuting
21:03	*Myotis*	1	1	Foraging and commuting
		Total passes	**99**	

Survey Form 2 – 30.09.2025

Survey Location	Date	Surveyor	Grid Ref
Kirknewton	30.09.2025	JD and AT	NT 10331 64924
Sunset	**Start Time**	**Finish Time**	**Detector / recorder type**
18:51	18:30	20:21	AT – EM2 Touch JD – Anabat Express

CLOUD COVER (in eighths E.G 1/8, 2/8)		RAIN		WIND*		TEMPERATURE	
Start of Survey	7/8	Start of Survey	Nil	Start of Survey	F2	Start of Survey	12
End of Survey	7/8	End of Survey	Nil	End of Survey	F2	End of Survey	10

*Beaufort Wind Scale 1 – 6, 1 -Calm, 2 – Light Breeze, 3 – Gentle Breeze, 4 – moderate breeze, 5 – fresh breeze. Beyond 4 maybe too windy for survey unless in sheltered area.

Time	Species	No of bats	No. Passes	Notes (e.g. foraging, commuting, roosting, direction of travel)
19:04	Soprano pipistrelle	1	3	Visual on bat to north along tree line, possibly emerged from tree further along tree line.
19:06	Soprano pipistrelle	1	1	Foraging and commuting
19:09	Soprano pipistrelle	1	2	Foraging and commuting
19:10	Soprano pipistrelle	1	5	Foraging and commuting
19:11	Soprano pipistrelle	1	1	Foraging and commuting
19:20	Soprano pipistrelle	1	1	Foraging and commuting
19:21	Common pipistrelle	1	1	Foraging and commuting
19:21	Soprano pipistrelle	1	1	Foraging and commuting
19:24	Soprano pipistrelle	1	1	Foraging and commuting
19:27	Common pipistrelle	1	1	Foraging and commuting

19:27	Common pipistrelle	1	1	Foraging and commuting
19:28	Soprano pipistrelle	1	1	Foraging and commuting
19:30	Common pipistrelle	1	1	Foraging and commuting
19:31	Common pipistrelle	1	1	Foraging and commuting
19:32	Common pipistrelle	1	1	Foraging and commuting
19:34	Common pipistrelle	1	1	Foraging and commuting
19:36	Common pipistrelle	1	2	Foraging and commuting
19:38	Common pipistrelle	1	2	Foraging and commuting
19:39	Common pipistrelle	1	1	Foraging and commuting
19:41	Common pipistrelle	1	1	Foraging and commuting
19:43	Common pipistrelle	1	1	Foraging and commuting
19:45	Common pipistrelle	1	1	Foraging and commuting
19:47	Common pipistrelle	1	1	Foraging and commuting
19:48	Common pipistrelle	1	1	Foraging and commuting
19:49	Common pipistrelle	1	1	Foraging and commuting
19:51	Common pipistrelle	1	1	Foraging and commuting
19:53	Common pipistrelle	1	1	Foraging and commuting
19:55	Soprano pipistrelle	1	1	Foraging and commuting
19:57	Common pipistrelle	1	1	Foraging and commuting

20:10	Common pipistrelle	1	1	Foraging and commuting
20:14	Common pipistrelle	1	1	Foraging and commuting
20:18	Common pipistrelle	1	1	Foraging and commuting
20:22	Common pipistrelle	1	2	Foraging and commuting
20:24	Common pipistrelle	1	1	Foraging and commuting
		Total passes	**44**	

R & D Ecology

Aerial Bat Survey

Kirknewton

Ref: RDECO00180/523/01/B

Date: 09.09.2025

Prepared For:

SLR

Prepared By:

Dawn Thompson BSc (Hons) MCIEEM MEnvCW

Rhys Newell ACIEEM

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Contents

1. EXECUTIVE SUMMARY

1.1. This document outlines the findings of the aerial roost assessment of a single tree (NT 10341 64928), undertaken at Kirknewton August 2025.

1.2. The survey concluded that the tree offers potential to support a large number of roosting bats, including a maternity roost.

1.3. Due to the inaccessibility of the full cavity, bat activity surveys (with thermal recording) have been recommended for the tree, in accordance with current Bat Conservation Trust guidelines.

2. INTRODUCTION

BACKGROUND

2.1. R & D Ecology Ltd have been appointed by SLR to undertake an aerial bat survey for a single tree at Kirknewton.

SCOPE OF THE ASSESSMENT

2.2. The primary aims of the survey are:

- To assess the potential use of the tree by bats
- To indicate any further requirements
- To provide guidance in relation to protected species and Proposed Development

STATEMENT OF AUTHORITY

2.3. Dawn Thompson is an experienced ecologist with over eighteen years of experience in ecological surveys and assessments and holds a BSc (Hons) in Environmental Biology. Dawn is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM), and the Association of Environmental Clerks of Works (AEnvCoW). Dawn has experience in undertaking and managing a range of surveys and assessments for a variety of developments including renewables, utility, roads, flood prevention, residential and commercial. Dawn also holds NatureScot bat and otter survey licences.

2.4. Rhys Newell is an ecologist with over eight years ecological surveying experience including badger, otter, beaver, breeding birds and bats. Rhys is an associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Projects that Rhys has worked on include a flood prevention scheme, renewables, utilities, residential and commercial developments.

3. LEGISLATION, POLICY AND GUIDANCE

LEGISLATION

3.1. All species of bats and their breeding sites or resting places (roosts) are protected under regulation 39 of the Conservation (Natural Habitats) regulations 1994 (amended 2007 and 2009) and section 9 of the Wildlife and Countryside Act 1981.

3.2. It is an offence to –

- Deliberately capture, injure or kill a bat.
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats.
- Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time).
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat.
- Intentionally or recklessly obstruct access to a bat roost.

3.3. The conservation (natural habitats) Regulations 1994 amendment of 2007/2009 clarifies 'disturbance' of bats as any activity that will impair their ability:

- To survive, breed, or rear or nurture their young.
- In the case of animals of a hibernating or migratory species, to hibernate or migrate.
- To affect significantly the local distribution or abundance of the species to which they belong

3.4. If a known bat roost is to be disturbed or damaged for reasons of development, a European protected species licence must be obtained from NatureScot Licensing Team Landscapes before demolition of the buildings may proceed. NatureScot requires approximately 6-8 weeks to process the licence application - the exact length of time depends on the complexity of the individual case, and the provision of comprehensive information in the application. The application can only be made once detailed planning consent has been obtained. European protected species licences may be issued 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.

3.5. And in every case, a licence cannot be granted unless:

- There is no satisfactory alternative.
- 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.
- Favourable conservation status' is defined in the Habitats and Species Directive as:
- The sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its population within the territory.

3.6. 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.

GUIDANCE DOCUMENTS

3.7. The following guidance documents have been considered during this assessment:

- Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition)[1];
- Bat Roosts in Trees[2];
- Chartered Institute of Ecology and Environmental Management (CIEEM) UK Bat Mitigation Guidelines [3];
- Chartered Institute of Ecology and Environmental Management (CIEEM) Ecological Report Writing[4]; and
- NatureScot's Developing with Nature guidance[5].

[1] Collins, J. (ed) (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines[1] (4th edition). Bat Conservation Trust
[2] Andrews, H. (2018) Bat Roosts in Trees – A Guide to identification and Assessment for Tree-Care and Ecology Professionals. Bat Tree Habitat Key.
[3] Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Version 1.1. Chartered Institute of Ecology and Environmental Management, Ampfield.
[4] CIEEM (2017) Guidelines for Ecological Report Writing
[5] NatureScot (2023) Developing with Nature Guidance

4. METHODOLOGY

4.1. An aerial assessment of the single tree was undertaken on 22nd August 2025 by qualified climbers (Dawn Thompson BSC (Hons) MCIEEM MECW (NatureScot Bat Survey Licence Number: 292142) and Rhys Newell ACIEEM).

4.2. Surveyors used an endoscope and a high-powered torch where necessary for signs of bat presence and suitable roosting features.

4.3. Weather conditions were fair at the time of the survey – dry and bright, 25% cloud cover and gentle breeze.

4.4. All survey works and assessment has been undertaken in accordance with best practice guidance[6].

4.5. Signs of bats commonly found during searches are:

- Droppings – typically found on the ground beneath roof exits, or within cavities
- Urine spots on window glass and other smooth surfaces.
- Fur oil stains, indicating a roost entrance.

4.6. The following categories have been used for the assessment of the suitability of trees for bats:

Table 4-2: Assessing Suitability of Trees for Bats

Suitability	Description
None	No Potential Roost Features (PRFs)
FAR	Further assessment required to establish if PRFs are present within tree
PRF	A tree with at least one PRF

4.7. The following categories have been used for the categorisation of potentially suitable PRFs:

Table 4-3: Categorisation of PRFs in Trees

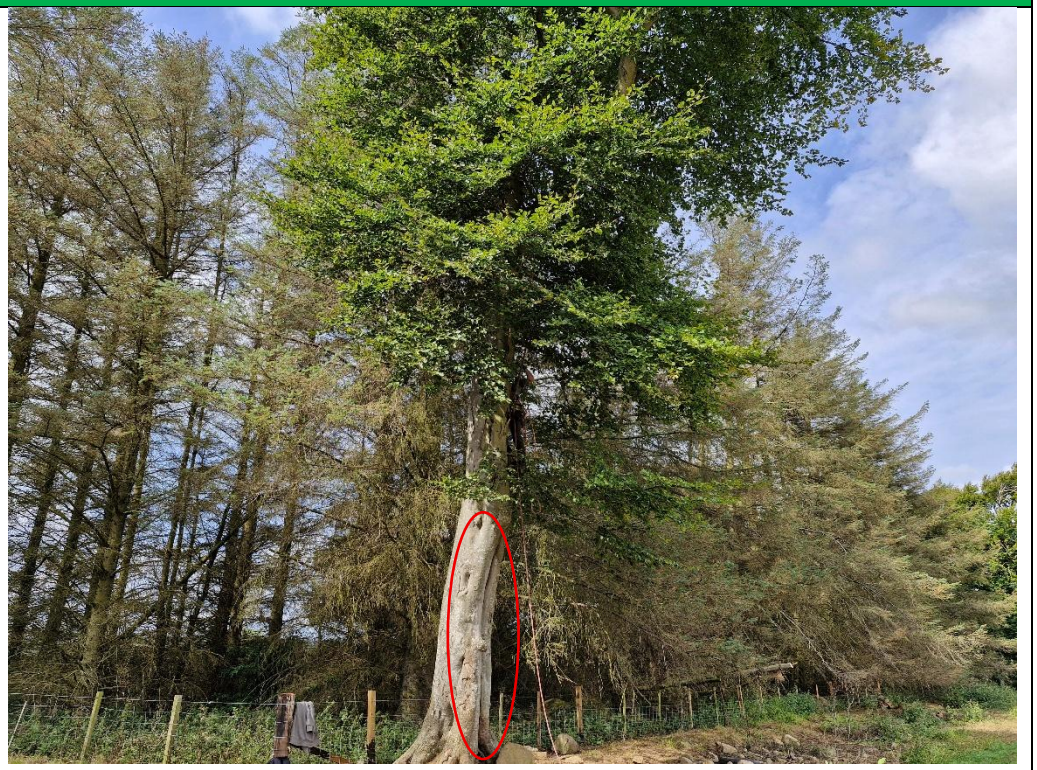
Suitability	Description
PRF-I	PRF is only suitable for supporting individual or very small number of bats
PRF-M	PRF is suitable for multiple bats and therefore may be used by a maternity colony

[6] Collins, J. (ed) (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines[6] (4th edition). Bat Conservation Trust

5. RESULTS

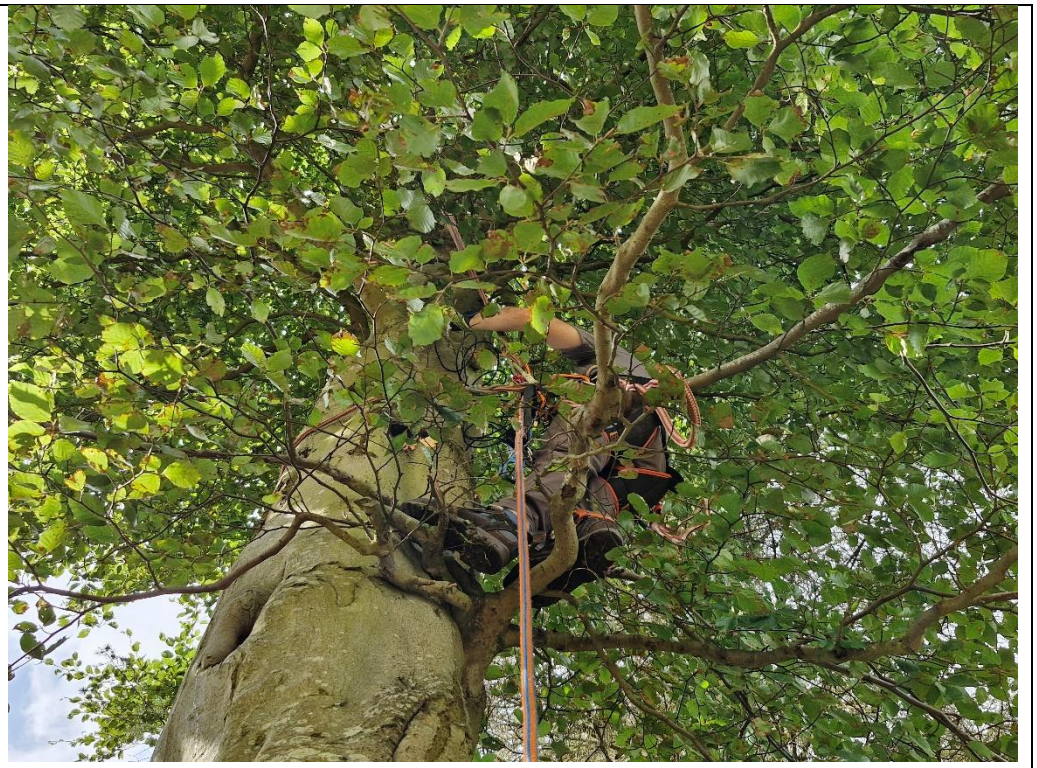
5.1. Please refer to **Table 5-1** below for a summary of the survey findings.

Table 5-1: Results

Photo ID	Notes of Feature	Photograph
1	Large open crack on lower section of the main stem (likely a frost crack) as noted on adjacent photo. Crack faces northeast. This lower section is open to the elements and does not offer suitable roosting habitat for bats. **Bat Roost Suitability: None**	

2	Further investigation confirmed a cavity directly above the exterior crack, extending a significant distance up the main stem. No light was noted within the upper section of the cavity, and it is therefore considered that the cavity is protected from the elements. Endoscope survey concluded the cavity is suitable to support a large number of bats, including a maternity roost. Although no bats were recorded during the endoscope survey, the cavity was noted to be too large to fully reach all areas. Bat Roost Suitability: PRF-M	

3	A single cavity on the eastern side of main stem was noted to extend downwards, into the large cavity. This section may offer potential to support an individual bat, or provide an alternative access point into the cavity within the main stem. Bat Roost Suitability: PRF-I / PRF-M	

4	All other potential cavities / knotholes were noted to be superficial. Rot and cracked bark were noted within the upper sections of the tree; however, no features suitable to support roosting bats are present. **Bat Roost Suitability: None**	

6. CONCLUSIONS AND RECOMMENDATIONS

6.1. The large cavity present within the main stem of the tree extends upwards for an unknown distance (1m+), with two access points; the bottom section of the cavity (Photographs 1 & 2) and the knothole part way up the stem (Photograph 3), which extends into the large cavity.

6.2. As this large cavity is protected from the elements, it provides good potential for supporting bats in larger groups, including a maternity roost.

6.3. It is therefore recommended that additional surveys are undertaken in accordance with Bat Conservation Trust Guidelines.

6.4. As the extensive cavity is not able to be fully assessed by endoscope, it is recommended that emergence activity surveys are undertaken, with the aid of thermal cameras.

6.5. Suitable mitigation and compensation measures, and the requirement for a 'Works Affecting Bats' licence will be outlined upon completion of the additional surveys, as appropriate.