

Technical Note

To: Alice Riley

From: Alex Blackburn	Email:
Date: 31/07/2023	Phone:
Ref: 5221914	cc: Dan Wales; Laura Haig; Rob Davies (Altrad)

Subject: Calder Land Clearance - Sellafeld Bat Emergence Surveys

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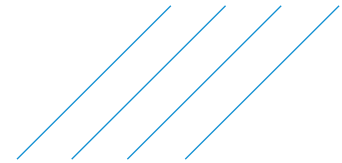
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Document history

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
1.0	Issue	AB	DW	JL	AR	31/07/2023



1. Introduction

1.1. Terms of Reference

Atkins, member of SNC-Lavalin Group, was commissioned by Sellafield Ltd to undertake bat emergence surveys in connection with the proposed demolition of two ancillary buildings, as part of a scheme known as 'Calder Land Clearance' (hereafter referred to as the Proposed Scheme).

The Proposed Scheme is located within the Sellafield site near Calder Bridge, Cumbria, as identified by the red line boundary shown on the Site Location Plan (Figure A1) in 4. Appendix A (hereafter referred to as the Site). Atkins previously carried out a site walkover in connection with an Ecological Impact Assessment (EclA) in November 2020¹, followed by an update site walkover survey in August 2022² to ground-truth site conditions and update the ecological baseline after a two-year gap in ecology site walkovers. The 2022 survey report identified the requirement for further detailed surveys for bats prior to demolition of the ancillary buildings, due to the presence of potential roost features (PRFs) for bats identified in the buildings.

In line with the results of the walkover survey undertaken in 2022² and in accordance with good practice guidance³ and CIEEM competencies⁴ for undertaking bat surveys, it was recommended that Building F3 and Building F4b (referred to in the 2022 report as B1 and B5b, respectively⁵) were subject to dusk emergence and/ or dawn re-entry surveys within the active season (between May and September) due to the presence of PRFs, in order to determine presence or likely absence of roosting bats.

The assessment provided following the 2022 walkover survey² stated that Building F4a (previously B5a) had Low potential for bats (due to the presence of a single PRF), however recommended that this could be appropriately and proportionately considered through working under Precautionary Methods, rather than mandate it be subject to a dusk emergence or dawn re-entry survey. However, given that surveyors were able to access this building and surrounding area while on Site to survey Building F4b, Building F4a was scoped into the bat survey effort.

During a subsequent visit to the Site on 3rd April 2023 (to deliver a Toolbox Talk covering works to separate buildings not concerned within this report), the PRF in Building F3 was discounted as having suitability for roosting bats due to evidence of nesting birds within the PRF (multiple nesting feral pigeons nesting within and blocking the large gap in brickwork that was previously described as a PRF). Therefore, Building F3 was omitted from further bat survey effort prior to demolition works and this report discusses the bat surveys undertaken for Building F4a and Building F4b only.

1.2. Summary of Buildings to be Surveyed

Descriptions of the buildings subject to further dusk emergence and/ or dawn re-entry bat surveys survey are provided in Table 2-1 below.

¹ Atkins (2021) Calder Land Clearance – Ecological Impact Assessment.

² Atkins (2022) CLC Sellafield Update Walkover Technical Note

³ Collins, J (ed.) (2016) Bat Survey Guidelines for Professional Ecologists: Good Practice Guidelines (3rd Edn). The Bat Conservation Trust, London.

⁴ Bat Conservation T (2013) CIEEM – Competencies for Species Survey: Bats. Available online at: <https://cieem.net/wp-content/uploads/2019/02/CSS-BATS-April-2013.pdf> [Accessed 01.07.2023].

⁵ Note: Building references used within this report have changed from those used within the previous reports provided. This has been done so that references to buildings in this report are in line with the names commonly used elsewhere as part of the CLC Scheme. The old and new building references are provided in Table 2-1.

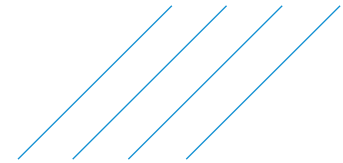
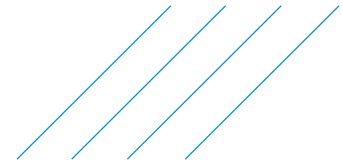


Table 2-1 – Building Descriptions in Relation to Potential Support for Roosting Bats

Building Reference	Description	Suitability to support roosting bats & PRFs
F4a (previously B5a)	Office block of brick build construction with flat roof. F4a has no internal connectivity to F4b.	One PRF is present on the western face of the north end of the building. This PRF comprises a crack in the brickwork just below the roof, classed as providing Low bat roosting potential.
F4b (previously B5b)	The southern section of Building F4 comprises a single storey changing room building of brick build construction with a flat roof (adjoining F4a, but not internally connected). The changing room area contains a suspended ceiling. This suspended ceiling roof space of F4b is self-contained and has no connectivity to the F4a.	Multiple PRFs are present on this building. One PRF is present on the eastern face of this building, located above the main entrance doorway. This PRF comprises a crack in the brickwork offering Low suitability. Numerous PRFs are present on the southern face of this area of the building. These PRFs comprise multiple gaps underneath the soffit board on the southern face. Another gap is located at the western end of the soffit board where it meets the brickwork. Further PRFs comprise numerous gaps in the brickwork on this southern face. These PRFs are considered to provide Moderate bat roosting potential. Anecdotal reports have been provided of sightings of bats inside the changing room area, and underneath the soffit board on the southern face of the building, however, no evidence/ signs of bats has been recorded internally during the previous inspection (carried out in August 2022). Given these anecdotal reports of bats internally (although no evidence was recorded), on a precautionary basis it is considered that there is a confirmed roost present within this building.



2. Survey Methodology

The surveys were undertaken by experienced ecologists who have been assessed to be at least of capable experience following the CIEEM competency framework⁶ and thus adhere to the rules of professional conduct of the Institution. All relevant UK and EU legislation relating to bats were considered when completing the assessments.

2.1. Bat Emergence Survey

Building F4b, which is considered to be a confirmed roost, was subject to three dusk emergence surveys on 9 May 2023, 24 May 2023, and 7 June 2023.

Building F4a, which is of Low bat roost potential, was subject to one dusk emergence survey on 24 May 2023.

In accordance with current best practice guidance³, dusk emergence surveys were undertaken from approximately fifteen minutes before sunset until ninety minutes after sunset, under suitable weather conditions (see Table 3-1 below for further information).

Two ecologists were present for each survey of Building F4b, covering all PRFs (as detailed in Table 2-1 above). One ecologist covered the feature on Building F4a.

Each surveyor was provided with a heterodyne detector, which was used to pick up bat echolocation calls and convert them into a frequency audible to humans. Detectors used were either an *Titlery Scientific Anabat Walkabout* or an *Wildlife Acoustics Echo Meter Touch 2 Pro*. Survey Limitations

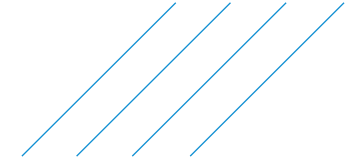
Due to restrictions on taking photographs on Sellafeld Site, photographs have been provided by a third party, with no additional photographs of the Site available. Photographs taken are also limited to up-close photographs of important features only, with no wider angles of the whole building, or any further context of the Sellafeld Site available.

The latest Interim Bat Conservation Trust (BCT) Guidance Note⁷ recommends the use of thermal or infrared cameras during dusk emergence surveys. However, obtaining approval to use cameras or other video footage recording devices within the wider Sellafeld Site was not possible within the timescale of the planned surveys. As such, it was not possible to utilise infrared or thermal cameras for any of the emergence surveys. Regardless of this, surveyors were able to position themselves in such a manner to obtain clear line-of-sight of all PRFs. Therefore, the lack of camera availability is not considered to constitute a significant limitation to the assessment.

The latest Interim BCT Guidance Note⁷ outlines some recent research which questions and draws doubts upon the efficacy of dawn surveys for determining presence or likely absence of bats, and instead favours the use of dusk surveys. Therefore, taking this into account and combining with professional judgement, it was decided that only dusk surveys would be carried out when surveying to inform the Proposed Scheme. There were no further limitations to the bat emergence surveys.

⁶ CIEEM (2023). CIEEM's Competency Framework. Available online at: <https://www.cieem.net/competency-framework>. [Accessed 01.07.2023].

⁷ BCT (2022) Interim Guidance Note: Use of night vision aids for bat emergence surveys and further comment on dawn surveys.



3. Results

3.1. Bat Emergence Survey

Table 3-1 below details the survey conditions and the results of all bat surveys.

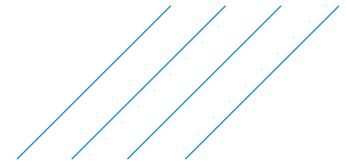
Table 3-1: Survey details and results summary

Survey Date	Sunset	Start/ End Time	Start/ End Temp (°C)	Start/ End Wind (Beaufort scale)*	Start/ End Precipitation	Start/ End Cloud Cover (Oktas)***	Feature surveyed	Results Summary
9 May 2023	21:01	20:46/ 22:31	12/ 12	1/ 1	0/ 0	1/ 1	Building F4b	Emergence of common pipistrelle (n=24) from two locations. Foraging activity recorded (common pipistrelle).
24 May 2023	21:26	21:11/ 22:56	13/ 13	3/ 3	0/ 0	0/ 0	Building F4a	No emergence recorded. Foraging activity (common pipistrelle) recorded.
							Building F4b	Emergence of common pipistrelle (n=25) from two locations. Foraging activity recorded (common pipistrelle). One pass by a noctule.
7 June 2023	21:44	21:29/ 23:14	14/ 14	3/ 3	0/ 0	0/ 0	Building F4b	Emergence of common pipistrelle (n=17) from two locations. Foraging activity recorded (common pipistrelle).

*Wind speed was calculated using the Beaufort scale where 0 = calm, 2 = light breeze, 4 = moderate breeze, 6 = strong breeze, 7 = high wind, 9 = strong gale, 12 = hurricane.

** Estimated precipitation intensity on a scale of 0-5 where 0 = Dry, 1 = light drizzle, 2 – light rain, 3 – moderate rain, 4 – heavy rain, 5 – torrential rain

*** Estimated cloud cover calculated using the Okta scale where 0 = sky completely clear, 4 = sky half cloudy and 8 = sky completely cloudy.



Building F4a

The single dusk emergence survey undertaken of Building F4a recorded no bats emerging from the PRF. It is therefore considered that roosting bats are likely absent from Building F4a.

Building F4b

Bats were recorded emerging from building F4b during all three dusk emergence surveys completed. A peak count of 25 common pipistrelle bats were recorded emerging from the soffit boards of Building F4b (spanning two exit locations as shown by Photographs 3-1 and 3-2 below) on 24 May 2023. 23 common pipistrelles exited from the northern location and 2 common pipistrelles exited from the southern location.

Common pipistrelles were also recorded emerging from these two locations during the other two surveys, in fewer numbers.

No other bat species were found to be roosting within the building.

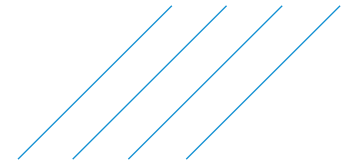


Photograph 3-1: Exit location on the northern face of Building F4b



Photograph 3-2: Exit location on the southern face of Building F4b

The results of the surveys indicate that the building is currently being used as a **maternity breeding roost** by a moderate number of common pipistrelle bats (peak count 25). It is considered that the two exit locations from the building both lead into the same shared false ceiling space, and therefore constitute the same individual roost.



4. Discussion and Recommendations

Building F4a

With no bats recorded emerging from Building F4a, it is considered that roosting bats are likely absent from Building F4a. However, the PRF observed may still offer opportunistic bat roosting opportunity during the summer months.

It is recommended that demolition of this building proceed following a Precautionary Method of Working (PMW). As a minimum this will include:

- Briefing to site staff on identification of bat roosts and what to do if a bat is found; and
- An endoscopic inspection of the feature, immediately prior to demolition;

If evidence of roosting bats is found all works must cease and a European Protected Species Mitigation Licence from Natural England must be applied for and granted before works can continue.

If works are not undertaken within 12 months, a repeat survey would be required, in order for data to remain valid, in line with good practice guidance³.

Building F4b

One common pipistrelle roost considered to be a maternity roost has been identified within Building F4b. The roost is considered to be of low-to-moderate conservation status, in line with good practice guidelines⁸. Whilst common pipistrelle bat numbers have declined in the last few decades, their population is showing signs of recovery and pipistrelles are one of the UK's most common bat species; common pipistrelle are generally also tolerant of urban settings and artificially lit urban environments⁹.

The demolition of the Building F4b will result in the disturbance to, and permanent loss of, a maternity roost for common pipistrelle.

Bats at the Site have limited suitable features for roosting (e.g. buildings) in the immediate surrounding area and the loss of these roosts are considered to be of moderate impact in the wider context. Therefore, disturbance to the roosts within the maternity period, or demolition of the building and, therefore, loss of roost sites without mitigation would cause high level long-term impact at site level.

Under mitigation guidelines⁸, it is a requirement that suitable replacement roosting opportunities are created to compensate for the loss of roosts. It is considered that the creation of suitable replacement roosting opportunity (above and beyond the value of that to be lost as part of the development, as outlined below) will mitigate for the loss; therefore, the resultant impact is considered to be negligible.

It is important to note that no works to Building F4b can take place that may disturb or damage the confirmed roost without acquisition of a mitigation licence. Some minor works may be able to proceed prior to demolition (or disturbing works) with prior agreement from a bat licenced ecologist.

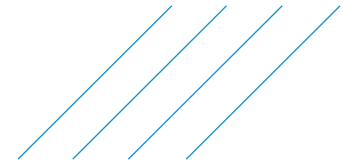
If works are not undertaken within 12 months, a repeat survey would be required, in order for data to remain valid, in line with good practice guidance³.

Mitigation Licence

As a result of the destruction of the bat roost within Building F4b, a European Protected Species Mitigation Licence, granted by Natural England (NE), will be required prior to the proposed demolition commencing, and also prior to any disturbing or potentially damaging activities to the building. It is recommended that a bat licenced ecologist is consulted before any proposed activities at the buildings take place, to avoid unintentionally disturbing the bat roost.

⁸ English Nature (2004) Bat Mitigation Guidelines.

⁹ Bat Conservation Trust (2010) Species factsheet: common pipistrelle.



As the building includes a low-to-moderate conservation status roost, it will be a requirement of the mitigation licence that like-for-like replacement bat roosting opportunities are to be provided prior to the destruction of the roost within Building F4b caused by demolition of the building.

The following points comprise elements that would be expected by NE within a mitigation licence application, although exact mitigation and compensation measures are to be agreed between a bat licensed ecologist and site personnel responsible for works to the building.

Avoidance Measures

Demolition of the Building F4b under licence from NE will require works to avoid the maternity period (May to August inclusive); during this period bats and their young are most sensitive to disturbance.

Works are currently understood to begin in late September 2023, with full demolition of the building not taking place until October 2023.

Method Statement

The works must proceed under a method statement, agreed between a bat licensed ecologist and the site personnel responsible for works to the building, and agreed with Natural England as part of the licence application process.

Immediately prior to demolition, a bat licensed ecologist will undertake an internal inspection of the building to ensure there are no bats present. This will include a check of any PRFs where possible, utilising an endoscopic camera. Contractors will be briefed beforehand on the possible presence of bats, appropriate demolition techniques to use and the protocol should bats be found. A bat licensed ecologist will be present on Site during the most sensitive demolition phase to oversee works, such as (but not limited to) the removal of roofing layers (including the false ceiling) and soffit boards. All areas where bats may be present will be 'soft stripped' in a careful manner, to allow the bat licensed ecologist to continue to monitor the area for any present of bats in areas not previously exposed.

The full demolition of the building cannot take place until all areas that bats may be present have been declared free of bats, with no PRFs remaining across the interior or exterior of the building.

A bat rescue plan must be agreed prior to any works occurring. Should any bats be found during the demolition, work in that area must stop immediately, and the bat licensed ecologist will attempt to capture bats to move them to a safe location. The bat licensed ecologist may use their own judgement on whether bats are able to safely naturally disperse, but it is more like that bats would be moved to the new replacement roosting features (as described below).

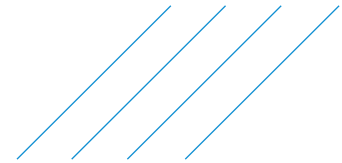
Replacement Bat Boxes

According to the Bat Mitigation Guidelines⁸: *"the aim of the consultant and developer should be to achieve one of the following outcomes, in decreasing order of preference. Each of these scenarios should be designed to satisfy Regulation 44(3)(b) (see 2.2 Exceptions and licensing):"*

- *Avoidance of impact; no negative impact on bat populations or existing roosts and hence bat populations;*
- *On-site mitigation; compensation by the improvement of existing roosts or the provision of new roost opportunities within the site or building;*
- *Off-site compensation; where on-site mitigation is not possible, the creation of new roosts of an appropriate type in an appropriate nearby location."*

Sellafield site is undergoing a long term decommissioning, wherein further development and building destruction is due to take place with the aim to clear Sellafield site of most industrial activities. However, Sellafield site retains some industrial processes aside from decommissioning, and Sellafield policy is to attempt to exclude fauna from the site boundary to ensure the safety of animals.

As such, the creation of compensatory roosts must take place off-site, and is considered more appropriate to take place outside of the Sellafield site boundary, at a location free from any near-future or distant future decommissioning activity. An area of suitably mature woodland habitat that has been used as a mitigation area for previous developments (hereafter referred to as the Bat Mitigation Area) has been identified approximately 820 m north of the existing roost location; the Bat Mitigation Area is shown by Appendix B. This Bat Mitigation Area provides the closest accessible



area of habitat suitable for supporting bat species, while not falling within the footprint (or disturbance zone) of the current and likely future developments within the Sellafeld site. The Bat Mitigation Area is outside of Sellafeld site, but is in ownership of the Nuclear Decommissioning Authority (NDA), the parent company of Sellafeld. The Bat Mitigation Area is also adjacent to the River Calder and further woodland habitat, therefore proximate to ample commuting pathways and foraging locations.

One *Schwegler 1FS* bat roosting box (suitable for supporting maternity colonies) and six *Schwegler 2F* bat roosting boxes (considered to be a 'general purpose' bat box facilitating smaller roosts) must be erected within the Bat Mitigation Area. These boxes must be situated on appropriately mature trees (i.e. at a suitable height, with a trunk of suitable diameter at breast height), in an area that will not be illuminated by any lighting. The exact placement of all boxes within the Bat Mitigation Area is to be agreed by a bat licensed ecologist.

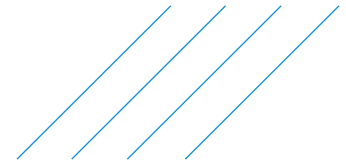
General Mitigation

Other general mitigation is to be considered as part of the mitigation licence application.

No night-time working (taken as the 30 minutes before sunset until 30 minutes after sunrise) should be undertaken to ensure that any lighting does not disturb bat species. If night-time working is required, all lighting should be minimised and directed away from the confirmed bat roost, watercourses, adjacent vegetation and the areas of woodland. In addition, lighting should adhere to the BCT lighting guidelines¹⁰.

Where possible, throughout all works to and around the building, noise and vibration is to be kept to the lowest level possible. Any noisy or high vibration activities must be undertaken as a licensable activity.

¹⁰ Bat Conservation Trust Lighting Guidelines- <https://cdn.bats.org.uk/pdf/Resources/ilp-guidance-note-8-bats-and-artificial-lighting-compressed.pdf?mtime=20181113114229>



Appendix A. Site Location Plan



Legend

Red line boundary

Building

Bat Roost Potential of building

Negligible

Low

Confirmed roost

Was the building subject to dusk/ emergence survey?

Yes

No

Surveyor Location

F4a surveyor

F4b surveyor

Field of view for F4a surveyor

Field of view for F4b surveyor

Atkins Limited ©
Monarch Road
Newcastle Business Park
Newcastle upon Tyne
NE4 7YB

Project: Calder Land Clearance

Client: Sellafeld Ltd

Title: Survey Area

Figure number: C5b

Original scale: 1:600

Job Number: 5210089

Page: 1/1

Drawn:
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Checked:
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Reviewed:

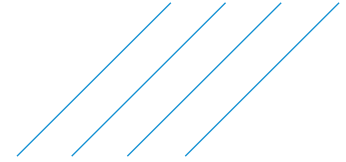
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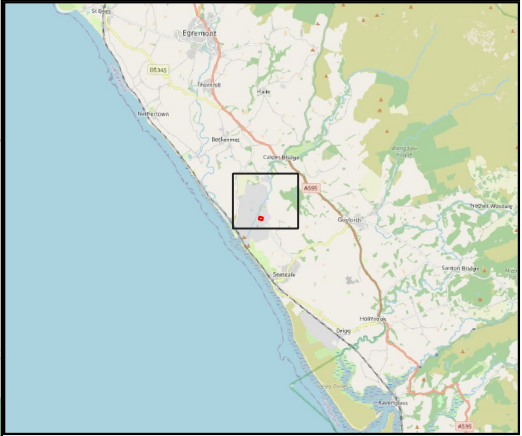


Appendix B. Bat Mitigation Area Location Plan



ATKINS

Member of the SNC-Lavalin Group



Legend

-  Red line boundary
-  Bat Mitigation Area

Atkins Limited ©
Monarch Road
Newcastle Business Park
Newcastle upon Tyne
NE4 7YB

Project: Calder Land Clearance

Client: Sellafield Ltd

Title: Mitigation/ Compensation Area

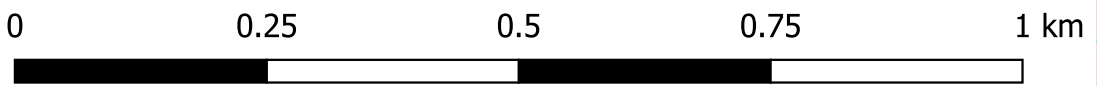
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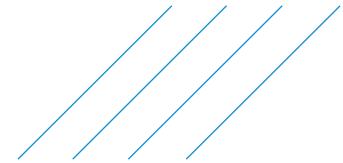
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Date: August 2023	Date: August 2023	Date: August 2023	Date: August 2023





Appendix C. Summary of Legislation

Species	Legislation	Offences	Licensing Procedures and Guidelines
Bats (European protected species)	Conservation of Habitats and Species Regulations 2017 (as amended) Reg 43	Deliberately ¹¹ capture, injure or kill a bat; deliberate disturbance ¹² of bats; or damage or destroy a breeding site or resting place used by a bat. [The protection of bat roosts is considered to apply regardless of whether bats are present.]	A Natural England (NE) licence in respect of development is required. Guidance documents: - NE Standing Advice for protected species 2022 - European Protected Species: Mitigation Licensing- How to get a licence (NE 2013) - Bat Mitigation Guidelines (English Nature 2004) - Bat Workers Manual (JNCC 2004)
	Wildlife and Countryside Act 1981 (as amended) S.9	Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb ¹³ a bat in such a place.	Licence from NE is required for surveys (scientific purposes) that would involve disturbance of bats or entering a known or suspected roost site.

¹¹ Deliberate capture or killing is taken to include "accepting the possibility" of such capture or killing

¹² Deliberate disturbance of animals includes in particular any disturbance which is likely a) to impair their ability (i) to survive, to breed or reproduce, or to rear or nurture their young, or (ii) in the case of animals of hibernating or migratory species, to hibernate or migrate; or b) to affect significantly the local distribution or abundance of the species to which they belong.

¹³ Lower levels of disturbance not covered by the Conservation of Habitats and Species Regulations 2017 remain an offence under the Wildlife and Countryside Act 1981 although a defence is available where such actions are the incidental result of a lawful activity that could not reasonably be avoided.