

Pennine Autos, Grange Moor

Sensitive Lighting Scheme



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Client Atlas Retailers Ltd
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1. Introduction

1.1 Project Brief

- 1.1.1 Rachel Hacking Ecology Ltd was commissioned in January 2026 by Atlas Retailers Ltd to provide ecology consultancy services to support the discharge of condition for an approved change of use application at Pennine Autos, Wakefield Road, Grange Moor, hereafter referred to as the 'site'.
- 1.1.2 This commission was to provide a sensitive lighting scheme to mitigate potential impacts on bats flightpaths at the site.

1.2 Background

- 1.2.1 The proposals are a change of use to car dealership, erection of extensions, alterations to existing buildings and alterations of hard standing (Planning reference 2023/62/92129/E).
- 1.2.2 Condition 12 of the approval states:
- 'No external lighting shall be installed on the development until a detailed lighting scheme, developed in accordance with established guidance (e.g. Bat Conservation Trust and Institute of Lighting Professionals (2023) Bats and Artificial Lighting at Night), has been submitted and agreed with the Council. The Sensitive Lighting Strategy will demonstrate that the proposed lighting will not impact upon ecological networks and/or sensitive features. Thereafter the agreed lighting scheme shall be implemented, subject to any variations approved in writing by the planning authority. All external lighting shall be installed strictly in accordance with the specifications and locations set out within the Lighting Strategy.'*

1.3 Site Location

- 1.3.1 The site is located in a semi-rural setting with the residential and commercial properties of Grange Moor surrounding the site to the south and east (OS grid reference: SE 21959 15466). To the north and west the landscape is dominated by pastoral land with parcels of woodland. There is a network of hedgerows and drainage ditches present which may provide some bat foraging and commuting habitat, although this is likely to be of low to moderate value. A drainage pond is present just off the north of the site and allotments are located adjacent to the east of the site.
- 1.3.2 A preliminary ground based assessment was undertaken in 2023 (Bat Roost Suitability assessment, Brooks Ecological, 2023), which recorded three buildings on site as having 'low' suitability for roosting bats (BCT, 2023). The associated desk study returned records within 2km of roosting common pipistrelle *Pipistrellus pipistrellus*, Brown long-eared bat *Plecotus auritus*, Whiskered bat *Myotis*



mystacinus and Noctule *Nyctalus noctule*. Of these, brown long-eared bats and whiskered bats are particularly vulnerable to changes in artificial light and are known to avoid foraging and commuting in highly-lit areas¹. A further detailed Roost Inspection Survey was undertaken in January 2026 by Rachel Hacking Ecology (RHE 2026) to facilitate the discharge of a planning condition for a bat survey pre-commencement. This survey involved close inspection of all potential roost features in the buildings via endoscope, with access facilitated by a MEWP. The survey recorded no observations of any evidence suggesting the presence of a current/recent bat roost.

1.4 Summary of Guidelines

1.4.1 As per the Bat Conservation Trusts (BCT) latest guidance on light and bats at night¹, individual trees and hedgerows are classified as Supporting Habitat. The guidance recommends employing a zonal approach to habitats in the vicinity of lighting at night and Supporting Habitat (Zones B and C) which would act as a 'light attenuation zone', but remain within the user's realm, and so receive reduced light levels. Figure 1 depicts the zoning of these habitats and recommended artificial lighting levels. Figure 1 depicts the zoning of these habitats and recommended artificial lighting levels.

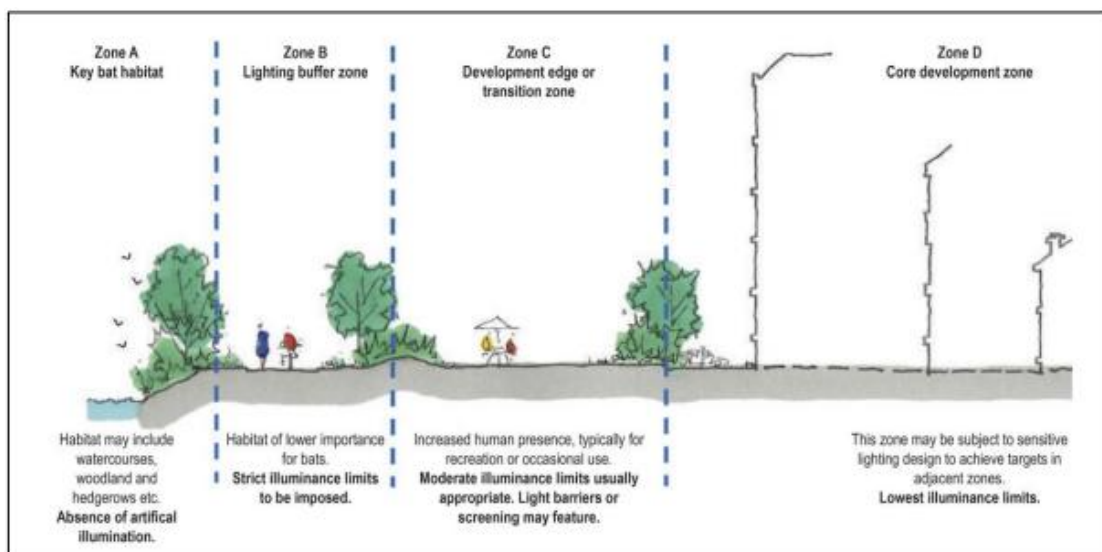


Figure 1 showing an example of illumination limit zonation

1.5 The Existing Light Environment and Bat Activity Levels

1.5.1 It is understood that existing artificial light in the vicinity includes street lighting along the A642 to the south and security lighting on the southern and eastern aspect of the building. These lights directly illuminate the southern and eastern aspects of the site, with a level of light spill present to the north

¹ Bat Conservation Trust (BCT), 2023. GN08/23 – *Bats and Artificial Lighting at Night*

and west. The darkest part of the site is the north of the site, adjacent to the existing woodland. Figure 2 shows the areas subject to artificial lighting.



Figure 2 Areas that are currently directly illuminated (Red), have some light spill (Orange) and where artificial light is absent (Green).

1.5.2 Bat activity surveys have not been undertaken on site due to the small scale of the scheme and anticipated lack of significant impacts to foraging/commuting bats. However, an estimated level/distribution of activity is shown in Figure 3, based on the habitat features present and interpretation of how bats typically utilise landscape features.

1.5.3 An estimated level of bat activity can be reasonably inferred from the habitat features present and from established patterns of habitat use recorded in ecological research. Bats typically show a strong preference for dark, sheltered habitats, particularly woodland edges, hedgerows, and riparian corridors, which support high insect abundance and provide navigational structure. This is consistent across numerous studies in Britain, which repeatedly demonstrate that broadleaved woodland, riparian habitats and linear features such as hedgerows are among the most frequently selected foraging environments for a wide range of bat species (Walsh & Harris, 1996)². Open habitats are generally

² Walsh, A. L., & Harris, S. (1996). *Foraging habitat preferences of vespertilionid bats in Britain*. *Journal of Applied Ecology*, 33(3), 508–518.

used less frequently, although feeding does occur over unmanaged or rough grassland where invertebrate biomass is high.

- 1.5.4 Linear features—including hedgerows, woodland edge, tree lines and other connective vegetation—are especially important as commuting corridors. These features offer shelter from wind, reduce predation risk, and enhance the efficiency of echolocation. Multiple studies confirm that bats consistently select linear vegetation networks to move between roosts and foraging areas.
- 1.5.5 Based on these well established relationships between habitat structure and bat behaviour, it is reasonable to anticipate that the highest levels of activity around the site would occur within woodland edge and hedgerow zones, with moderate activity across semi natural grassland and lowest activity in open or heavily illuminated areas.
- 1.5.6 The anticipated highest levels of activity (Zone A) are displayed on Figure 3 in pink, moderate levels (Zone B) in purple, and low levels (Zone C) in blue. Given the low to moderate value of the surrounding habitat, it is anticipated that low numbers of common species are likely utilising the site.



Figure 3 showing area of anticipated levels of use. Highest levels of activity (Zone A) in pink, moderate levels (Zone B) in purple, and low levels (Zone C) in blue.

1.6 The Proposed Lighting Scheme

- 1.6.1 As the site will require lighting for operational purposes, external lighting cannot be avoided. However, the site plans show no loss of vegetation and no increase in building footprint, therefore lighting and areas of light spill would not be increased by the proposals. Any bats utilising the site are likely to be

accustomed to the level of lighting meaning the proposed lighting would not result in disturbance impacts to bats.

1.6.2 Nonetheless, the following measures will be incorporated within the scheme:

- All external lighting will be controlled by motion sensors and short (1min) timers.
- Luminaires will be shielded/cowled units to prevent upwards spill and should utilise narrow beam angles to avoid illuminating adjacent vegetation.
- The bulb specifications will be restricted to warm-white LEDs (2700k or lower); blue-rich and cool-white lighting profiles will be avoided and there will be no UV-emitting lamps, metal halide or mercury vapour sources.
- Peak wavelengths for light sources will be higher than 550nm to avoid lights disturbing bats¹.
- No lighting will be installed on the western elevation of the main building on site as this is the location of the proposed bat boxes.

2. Conclusions

2.1.1 The proposed development already experiences moderate levels of artificial lighting, and the proposed scheme does not introduce an increase in building footprint or loss of vegetation, meaning light spill will remain comparable to existing conditions. Although no bat roosts were identified during the detailed roost inspection, it is reasonable to assume that low numbers of common species may utilise the surrounding habitats for foraging and commuting.

2.1.2 The sensitive lighting strategy has been designed in accordance with current best practice guidance to minimise ecological disturbance. Measures including warm white, low intensity LED lighting, directional shielding, motion sensitive activation, and avoidance of illumination near woodland edges and proposed bat boxes will ensure that key habitat features remain as dark as practically possible. These design safeguards will protect the integrity of linear features, hedgerows and woodland edges that are most likely to support bat activity.

2.1.3 Overall, with the implementation of the outlined lighting mitigation, the scheme is considered to pose a low risk to bats and is consistent with guidance intended to protect nocturnal ecological networks. The lighting strategy therefore provides an appropriate and proportionate approach to discharging the planning condition relating to external lighting.

3. References

References Cited

Bat Conservation Trust (BCT). (2023). *Bats and Artificial Lighting at Night – Guidance Note GN08/23*. Institution of Lighting Professionals.

Walsh, A. L., & Harris, S. (1996). *Foraging habitat preferences of vespertilionid bats in Britain*. *Journal of Applied Ecology*, 33(3), 508–518.

Acronyms

Abbreviation	Meaning
RHE	Rachel Hacking Ecology Ltd
BCT	Bat Conservation Trust
LED	Light Emitting Diode
UV	Ultraviolet
OS Grid Ref	Ordnance Survey Grid Reference
LPA	Local Planning Authority