

Superseded

Construction of 6 Dwellings and Associated Works

Land at Main Road, Dyffryn Cellwen

Lighting Scheme to satisfy Planning Condition 14

of

Planning Permission P2019/0194

August 2020

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1.0 Introduction

- 1.1 Planning condition 14 of the above consent requires the following:
- 1.2 *“Prior to occupation of any dwelling hereby approved, a lighting scheme for the site which shall incorporate best practice guidance to ensure the adjacent bat roost and commuting routes are not lit shall be submitted to and approved in writing by the local planning authority. The scheme shall be implemented as may be approved prior to occupation of the dwellings.”*

2.0 Rationale and Methodology

- 2.1 Inevitably, wherever human habitation spreads, so does artificial lighting. This increase in lighting has been shown to have an adverse effect on our native wildlife, particularly on those species such as bats that have evolved to be active during the hours of darkness. As a result of this, development needs to carefully consider what lighting is necessary and where possible reduce any unnecessary lighting. This short report therefore assesses how lighting at the proposed development site can be minimised, incorporating best practice guidelines to ensure that any adjacent bat roosts and commuting routes are not lit.
- 2.2 Much of the content of the report is based on the guidance given in the ILP Publication *Guidance Note 8 – Bats and Artificial Lighting* published in October 2018.
- 2.3 The detrimental effect of artificial lighting can be most clearly seen in bats. The UK’s resident bat species have all suffered dramatic reductions in their numbers in the past century. Light falling on a bat roost exit point, regardless of species, will at least delay bats from emerging, which shortens the amount of time available to them for foraging. As the main peak of nocturnal insect abundance occurs at and soon after dusk, a delay in emergence means this vital time for feeding is missed. At worst, the bats may feel compelled to abandon the roost. Bats are faithful to their roosts over many years and disturbance of this sort can have a significant effect on the future of the colony. It is likely to be deemed a breach of the national and European legislation that protects British bats and their roosts.
- 2.4 In addition to causing disturbance to bats at the roost, artificial lighting can also affect the feeding behaviour of bats and their use of commuting routes. There are two aspects to this: one is the attraction that short wave length light (UV and blue light) has to a range of insects; the other is the presence of lit conditions. Many night-flying species of insect are attracted to lamps that emit short wavelength component. Studies have shown that, although noctules, serotines, pipistrelle and Leisler’s bats, take advantage of the concentration of insects

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around white street lights as a source of prey, this behaviour is not true for all bat species. The slower flying, broad-winged species, such as long-eared bats, barbastelle, greater and lesser horseshoe bats and the Myotis species (which include Brandt's, whiskered, Daubenton's, Natterer's and Bechstein's bats) generally avoid external lights.

- 2.5 Artificial lighting is known to be particularly harmful if it illuminates important foraging habitats such as river corridors, woodland edges and hedgerows used by bats. Studies have also shown that lighting along roads creates barriers which some bat species cannot cross. It is also known that insects are attracted to lit areas from further afield. This could result in adjacent habitats supporting reduced numbers of insects, causing a further impact on the ability of light-avoiding bats to feed.

3.0 Design Principals and Technical Considerations

- 3.1 Therefore, when determining what mitigating measures can be adopted in this scheme the following Design Principles need to be considered:

- Minimising the amount of lighting
- Avoiding light ecologically sensitive areas
- Avoiding the use of reflective materials under lights
- Minimising light spread
- Minimising the height of any lighting
- Avoiding lighting wherever possible
- Limiting the period of illumination from the light sources

- 3.2 The following Technical Considerations will significantly mitigate any detrimental effect on the adjacent bat roost and bat commuting routes:

- Using narrow spectrum light sources to lower the range of species affected by lighting.
- Using light sources that emit minimal ultra-violet light
- Using lights that have a wavelength of no higher than 550 nm
- Avoiding white and blue wavelengths of the light spectrum

4.0 Lighting Specification

Taking the above considerations into account it would seem reasonable to specify the use of the following generic lighting types in order to mitigate any detrimental effect on the adjacent bat roost and bat commuting routes.

- 4.1 Highway – it is proposed that the development will be served by an unadopted highway and therefore there is no requirement for street lighting.

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- 4.2 Paths around individual dwellings - LED hooded brick lights located 150mm above ground level (see Appendix for photographic detail).
- 4.3 Access points to individual dwellings (front and rear doors) - LED down lighters operated by a PIR with a maximum 5 min run-on. Lights to be located between 1.8 and 2.0m above outside ground level (see Appendix for photographic detail).
- 4.4 Driveways to individual properties and off street car parking areas - LED flood lighting operated by a PIR with a maximum 5 min run-on. Lights to be located between 2.4 and 3.0m above ground level and angled at less than 70 degrees. (see Appendix for photographic detail).
- 4.5 Garden Areas and Rear Patios - LED flood lighting operated by a PIR with a maximum 5 min run-on. Located between 3.5 and 4.0m above ground level and angled at less than 70 degrees. (see Appendix for photographic detail).

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Appendix - Photographs

Hooded Brick Light



LED down lighters



LED Floodlighting

