

Ecology Solutions Limited  
Cokenach Estate  
Barkway  
Royston  
Hertfordshire  
SG8 8DL

+44(0)1763 848084  
east@ecologysolutions.co.uk



---

## LAND AT WARISH HALL FARM, NORTH OF JACK'S LANE, TAKELEY | UTT/22/3126/FUL

### **BRIEFING NOTE: BYWAY IMPROVEMENTS – LIGHTING DESIGN**

---

#### **Introduction**

1. Two notes on the proposed improvements to the byway at Jack's Lane were produced in June and July 2023, focusing on general ecological effects and on the results of bat survey work respectively. The latter included some reference to the emerging approach to lighting design.
2. Subsequently, at the S62A Hearing, there was further discussion in relation to the proposed lighting design and the requirements of the Highways Authority. Ultimately, the Inspector refused the application, partly on grounds of insufficient information regarding the lighting design. The relevant excerpt from the Inspector's Report is as follows:

**It has not been adequately demonstrated that lighting and loss of vegetation, particularly in relation to access works and off-site proposals to improve the restricted byway Takeley 48/25 would not result in unacceptable harm to the established character and appearance of the surrounding area and to the significance of Smiths Green Lane (Warish Hall Road), a protected lane and non-designated heritage asset. This is contrary to policies S7, ENV9 and GEN2 of the Uttlesford Local Plan and paragraphs 130 c), 185 c) and 203 of the National Planning Policy Framework.**

3. There was subsequently further consideration of this issue by the project team, with more detailed design of the lighting scheme undertaken. This note reviews the material prepared by the lighting consultants, MMA Lighting Consultancy Ltd. It is noted that since the Hearing an updated version of *Guidance Note 8 Bats and Artificial Lighting* has been published by the Institution of Lighting Professionals and the Bat Conservation Trust.

#### **Summary of Bat Survey Results**

4. Initial walkover assessments identified potential foraging, commuting and roosting opportunities for bat species. In order to appropriately assess the use of the site by bats, an activity survey and static detector survey was conducted.
5. The activity survey demonstrated use of the byway predominantly by Common Pipistrelles *Pipistrellus pipistrellus*, with some use by Soprano Pipistrelles *Pipistrellus pygmaeus*.

6. Static detectors found significant Common Pipistrelle presence overall, constituting 95% of recordings. Some Soprano Pipistrelle presence and minor Noctule *Nyctalus noctula* presence was also noted. Early (pre-sunset) Common Pipistrelle recordings indicate that this species is roosting within or near to the site, possibly within the trees along the byway identified as having suitable roost features.
7. No notable species were recorded / observed. However, previous reports of Brown Long-eared Bat *Plecotus auritus* and Barbastelle *Barbastella barbastellus* presence within the wider Warish Hall Farm site suggests that these species may also utilise the byway.

### **Review of Lighting Design**

8. The following information is reproduced from the MMA Lighting Consultancy Lighting Impact Assessment, dated 22.09.23.

**7.5 Within the proposed lighting scheme it is recommended by the Bat Conservation Trust, together with guidance documents from the Institution of Lighting Engineers, a correlated colour temperature (CCT) of 3000k should be used across the site to ensure minimum impact on the sensitive ecology areas.**

**7.6 In order to minimise the impact of light spill onto the site boundary and any ecologically sensitive areas, black painted rear light shields should be fitted on lighting units where appropriate.**

**7.7 Any proposed luminaires for this site should come with the option of a side shield so to ensure flexibility and further control of light spill onto the ecologically sensitive areas across the site.**

**7.8 It is important that the lighting can be minimised by using accepted methods of lighting control, essentially limiting illuminance, and controlling light spill. It is proposed that the external lighting shall be installed on 6m street lighting columns. Generally lighting shall be selected to provide safety and security without polluting the site boundary.**

**7.9 Dimming and trimming the street lighting output at strategic times of the evening allows for a reduction in the overall lighting impact on ecologically sensitive areas and will help to reduce the general evening 'sky glow' from the site. It is recommended that an appropriate 'Stepped Dimming' profile be considered for this site and that should look similar to the example profile that is set out below: -**

**Suggested Stepped Dimming profile: -**

**Dusk – 21.00 – 100% output \***  
**21.00 – 00.30 – 75% output \***  
**00.30 – 05.30 – 0% output \***  
**05.30 – 06.00 – 75% output \***  
**06.00 – Dawn – 100% output \***

9. Under Lighting Design Requirements, the report includes the following:

**8.3 Institution of Lighting Professionals Guidance Notes for the Reduction of Obtrusive Light (GN01: 2021) should be adhered to. This will ensure that lighting designs produced are suitable and sensitive to their surroundings.**

**8.4 External street lighting should be designed to ensure that it is focused in the appropriate areas, preventing upward light above the horizontal plane. Design proposals should aim to reduce unnecessary light pollution, energy consumption and nuisance light spill onto neighbouring properties.**

**8.5 It is assumed that all street lighting will be positioned to avoid light spill beyond the PRoW in order to avoid and minimise effects on sensitive ecological habitats.**

**8.6 Selected luminaires shall prevent upward light spill and should have a colour rendering index (Ra) greater than or equal to 60Ra. Colour rendering index relates to the accuracy of colours perceived, relative to daylight.**

**8.7 As part of this assessment we consider the use of 6m columns for all adoptable and non-adoptable routes to be suitable.**

**8.8 All luminaires shall have a 3000 Kelvin Correlated colour temperature (CCT) to minimise impact of the artificial lighting on ecologically sensitive areas.**

...

**8.12 Any lantern specified for the new development / scheme will be supplied with DALI enabled drivers to enable dimming to be undertaken at set times.**

**8.13 All proposed luminaires should have a minimum IP rating of IP65 which is the recommended minimum requirement for Ingress Protection.**

**8.14 Luminaires will need to have the facility to enable shields or internal baffles to be fitted to prevent the back / sideways spill of light.**

...

**8.16 Five-degree tilts should NOT be applied to the lantern in the lighting design calculations, as tilting the lantern encourages light to spill above the horizontal plane and other light ingress issues.**

...

**8.18 Final CMS dimming or trimming profiles should be as directed by the local authority lighting engineer.**

**8.19 As directed by the local authority and general street lighting design guidance, all external lighting shall produce only UV-free, narrow spectrum, low-intensity light output, with a wavelength of 550nm or more.**

10. The Horizontal Illuminance plan accompanying the report shows that areas of 2 lux will be present around the luminaires, though this reduces to 1 lux and lower over a short distance, meaning that areas of vegetation illuminated to lower than 1 lux will remain along the corridor. This approach, combined with the stepped dimming profile recommended, will avoid significant adverse effects on bats using the byway for foraging or commuting.
11. The comment on bollard lighting in the earlier report has been reviewed in light of these designs and the latest guidance from the ILP and BCT. The use of bollard or low-level downward-directional luminaries is now generally discouraged due to issues such as glare, poor illumination efficiency, upward light output, upward light scatter from surfaces, and poor facial recognition.
12. The proposed design for the byway, as summarised here and described more fully in the MMA Lighting Consultancy report, represents a best practice approach, taking into account all relevant ecological constraints and well as the issues of public safety.