

Planning Permission F/20/89500 Lower Acre Lighting Design Strategy for Biodiversity, Security and Amenity: Planning Condition 24

1. Background

Eastleigh Borough Council granted planning permission for the 'Erection of 381 residential units with public open space, hard and soft landscape works, internal roads, footway/cycleways, associated parking spaces, substation, SuDS and associated infrastructure (This application is subject to Environmental Impact Assessment)'. The area associated with this permission is referred to as the Lower Acre and forms part of the One Horton Heath new community.

Planning Condition 24, associated with permission ref F/20/89500 states:

"Within 6 months of the commencement of development (excluding site clearance), a final lighting design strategy for biodiversity, security and amenity shall be submitted to and approved in writing by the local planning authority. The strategy shall:

a) identify those areas/ecological features and the species they support that are particularly sensitive to artificial lighting and where artificial lighting is likely to cause disturbance in or around their breeding sites and resting places or along important routes used to access key areas of their territory, for example, for foraging; and

b) show how and where external lighting will be installed (through the provision of appropriate lighting contour plans and technical specifications so that it can be clearly demonstrated that areas to be lit will not disturb or prevent species using their territory or having access to their breeding sites and resting places.

Within, 6 months of commencement Unless otherwise agreed in writing by the Local Planning Authority, the lighting strategy shall broadly accord with the submitted Lighting Assessment Addendum ESSEN-09820 Rev P03 scheme and with the submitted External Lighting Layout Plan ref OHH-HYD-XX-XX-DR-E-8000 Rev P02 and Sections 4.2-4.3 of the Lighting Assessment Addendum ESSEN-09820 Rev P03 and follow the advice and guidance of the Institute of Lighting Professional (ILP)'s publication "Guidance Notes for the Reduction of Obtrusive Light" and the Bat Conservation Trust and ILP Guidance Note 08/18 "Bats and artificial lighting in the UK. All external lighting shall be installed in accordance with the specifications and locations set out in the strategy, and these shall be

maintained thereafter in accordance with the strategy. Under no circumstances should any other external lighting be installed without prior consent from the local planning authority."

2. About this document

This Technical Note presents the Lighting Design Strategy for Biodiversity, Security and Amenity for the Lower Acre residential area. It sets out key information about artificial lighting at night (ALAN) and biodiversity, highlights those species sensitive to ALAN associated with the setting of the Lower Acre residential area and key habitats features, sets out the lighting design rationale, presents the lighting locations, specifications and lux contours associated with the scheme, in relation to retained ecological features and sensitivities, and provides conclusions on its suitability.

Figure 1 shows the block plan and boundary for the Lower Acre.

Figure 2 shows the proposed layout of the Lower Acre and its associated infrastructure, set within the context of the One Horton Heath Masterplan. This highlights the Lower Acre (in the SE corner) is framed by adjacent retained and enhanced areas of green infrastructure and areas of green infrastructure within this new residential area. As such, lighting levels need to be managed to support the ongoing use of green spaces and habitats by nocturnal wildlife, whilst ensuring these areas can also be used with public safety and amenity needs also being met.

Lighting design also needs to consider roads, residential and other accessible parts of the Lower Acre. Notably balancing safety and security with amenity/nuisance aspects, especially in relation to residential properties, minimising excessive lighting levels, particularly on upper floors and bedrooms.



Figure 1. Lower Acre Block Plan

3. Urban Lighting and Biodiversity

Natural lighting plays a key role in the everyday activities and tasks undertaken by humans, however, not everyone around the world experiences long sunlit days, natural light is not always sufficient or appropriate and humans undertake a vast range of activities at night. Artificial lighting at night is therefore essential in certain locations and for certain activities (supporting safety, security, and amenity). Humans have transformed the outdoor night-time light environment in terms of natural cycles of light and darkness that have been consistent over geological periods of time. Typically, artificial lighting is associated with public and private lighting sources associated with street lighting, architectural lighting, security lighting, domestic lighting, and vehicle lighting.

One Horton Heath is home to a rich biodiversity including a wide range of nocturnal wildlife that uses the green and blue spaces that lead to, from and across the development area including watercourses, woodlands, grasslands and farmland, but will also include parks, recreational areas, new ponds and residential gardens. The biodiversity includes nocturnal species (and associated key functional habitat) that are afforded legal and policy protection including bats, owls, badger, hedgehog, fish, amphibians and invertebrates.

Artificial lighting at night can affect nocturnal wildlife in a number of different ways. Two key areas of effect are related to disorientation and attraction/repulsion. The addition of artificial lighting to an environment can affect foraging and reproductive behaviour, predator-prey interactions, habitat use, community structure and physiology. An example of this is where bats have shown a change in foraging behaviour, flight routes and evening emergence times in response to artificial lighting. There is a considerable body of academic evidence relating to this. It is likely that effects of artificial lighting at night are species specific and associated with the role that ambient lighting plays on physiology and behaviour and the type of artificial lighting used in a specific location.

With such a range of fundamental effects on wildlife, it is critical that appropriate measures are introduced to consider the need for lighting, the best design and location for lighting and the ability to control lighting in a way that is compatible with nocturnal wildlife. With an ever-growing population and increase in urban living, it is critical to understand the implications of artificial lighting at night on people and the environment to ensure nature conservation and recovery can go hand in hand with the necessary provision of artificial lighting that humans require. This is reflected in the Government's objective for halting the biodiversity crisis and driving forward nature recovery, other legislation and associated mechanisms.

The approach to designing the lighting for the Lower Acre at One Horton Heath has taken these issues into account from the outset, including through the Environmental Impact Assessment process and in the detailed design work carried out by Hampshire County Council and Enerveo (as set out in Section 4). For the purposes of this assessment, Johns Associates has taken the 1 lux contour as being relatively acceptable for nocturnal wildlife, noting that some species are more light sensitive and some more tolerant.

4. Light Sensitive Biodiversity/Habitat Features Associated with the Lower Acre

Figure 2 illustrates the baseline sensitive ecological features associated with the southern parts of One Horton Heath which includes the Lower Acre. The land associated with the Lower Acre and this planning condition (located south east corner of the OHH site beyond the GCN licence area) passes through terrestrial habitats used by great crested newt, woodland used by dormouse, bats and badger and open grassland areas and through hedgerows used by badger, bats and owls.

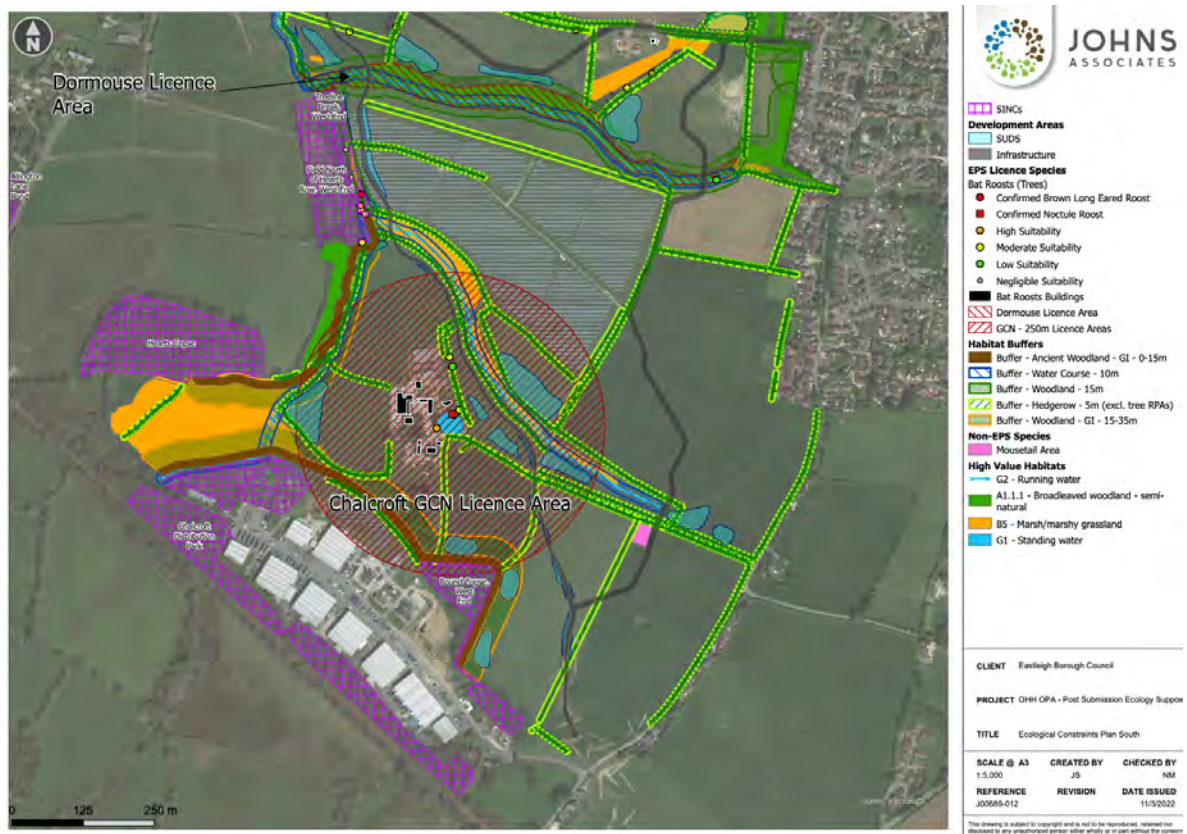


Figure 2 One Horton Heath South

In particular the proximity of the Lower Acre to retained hedgerows and woodland boundaries are perhaps the most light sensitive location in this part of the site as they could be used by foraging bats, owls, night flying invertebrates and badger. Elsewhere, beyond the boundary of the Lower Acre, grassland and hedgerow habitats will be used by great crested newt associated with Chalcroft.

Figure 2 illustrates the future areas of green space being created as part of the Lower Acre proposals and how they are integrated into retained adjacent habitats. This will largely introduce new areas of green spaces, trees within the street scene and residential gardens, but also seeking to reinforce retained habitats, and enhance the biodiversity compared to the typically species poor grassland originally present.

5. Lighting Design Rationale

Enervo has worked with Johns Associates to ensure that the site specific ecological requirements were met and that the lighting strategy broadly accords with the submitted Lighting Impact Assessment recommendations and conclusions and follows the advice and guidance of the Institute of Lighting Professionals (ILPs) publication “Guidance Notes for the reduction of Obtrusive Light” and the Bat Conservation Trust and ILP Guidance Note 08/18 “Bats and artificial lighting in the UK.

The proposed lighting design has been carried out by specialist consultancy Enerveo, using the following non-exhaustive list of standards and documents:

- BS 5489-1:2020, Code of practice for the design of road lighting - Part 1: Lighting of roads and public amenity areas.
- BS EN 13201-2:2015, Road lighting — Part 2: Performance requirements
- ILP Professional Lighting Guide 02, PLG02, The Application of Conflict Areas on the Highway.
- ILP Guidance Note, GN01:2021, Guidance Notes for the Reduction of Obtrusive Light.

Light intrusion has been kept below Hampshire County Council (HCCs) desired level of 2 lux for most plots. This has been achieved using rear louvres on most columns and careful positioning of columns. Whilst the lighting is not adoptable HCCs more stringent light intrusion limit was targeted to minimise the risk of residents’ complaints.

All light intrusion levels are below the maximum 10 lux (pre-curfew) level for an E3 zone set out in TG13. Post curfew levels were not deemed appropriate as the private lighting is to have conventional photocells with no dimming or part night operation.

The designer has been notified by the client about site-specific Environmental Impact Assessments.

Bats are present in the area, but particularly outside of the Lower Acre, therefore 3000K Warm White LEDs have been used in line with HCC TG13 v3.0 3.29.1, and all the adoptable lighting proposed as part of this site.

6. Lighting Lux Contours and Retained Features

Enerveo has kindly provided plans showing lux contours for the whole of the Lower Acre scheme. Johns Associates has reviewed these against and background information to enable a detailed review of the lux levels in relation to known ecological sensitivities associated with the Lower Acre and adjacent areas. These can be seen in Appendix A.

7. Conclusions and Recommendations

A careful and considered review of the lighting demonstrates that through the majority of the Lower Acre, the proposed street lighting is positioned close to the carriageway and pavements/footpaths and away from where there are sensitive retained features of likely ecological importance e.g. hedgerows used by commuting or foraging bats and that generally, the 1 lux level is maintained close to the edge of all retained areas of adjacent green infrastructure and care and consideration has been given to the new areas of habitat integrated into the Lower Acre. This supports the conclusion that, the areas of green space surrounding and within the Lower Acre streetlight footprint will not be illuminated by the artificial lighting at night in a manner that will have a significant effect on nocturnal wildlife.

As such, it is considered reasonable to conclude that the information set out in this document will satisfactorily discharge the requirements of Condition 24 and that the delivery and operation of the Lower Acre and its lighting will also accord with the requirements of Planning Condition 24.

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APPENDIX A DETAILED LIGHTING PLANS AND SPECIFICATIONS