



Williams Lighting Consultants Ltd.

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Lighting Mitigation Report

Prepared for: Chidden Farms

Project No.	Project Name	Document Ref:	Prepared by:	Date:	Approved by:	Date:
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1. Introduction

- 1.1 This Lighting Mitigation Report has been prepared by Williams Lighting Consultants Ltd. for and on behalf of Chidden Farms. The report assesses the proposed lighting and methods used to reduce its impact on the surrounding area.

2. Proposed Lighting

2.1 Lighting Levels and Selection

Lighting Class Selection For Subsidiary Roads					BS5489-1:2013	
Project No:		WLC208				
Road Name:		Camp Fields, Havant		Speed of Road:	30	
Road Descriptio		Residential subsidiary road				
Selection Criteria	Parameter	Options	Limits	Weighting Value Vw	Selected	
	Speed	Low	$v \leq 30$ mph	1	1	
		Very Low	≥ 20 mph	0		
	Traffic Flow	Busy - local amenities such as clubs, shopping facilities, public houses, etc.		1	-1	
		Normal - equivalent to a housing estate access road.		0		
		Quite - equivalent to a residential road and mainly associated with the adjacent properties or properties on other equivalent roads accessed from this road.		-1		
	Ambient Luminance	High - Shopping windows, advertisements, station areas, sports fields, storage areas		1	0	
		Moderate - Normal - E3 or E4		0		
		Low - Rural - E1 or E2		-1		
		Extra Low - E0		-2		
Risk Assessment	Traffic Composition	Pedestrians, motorized traffic and medium - high number of cyclists, evidence such as cycle lanes		2	1	
		Pedestrians and motorized traffic (low number of Cyclists)		1		
		Pedestrians and cyclists only		1		
		Pedestrians only		0		
		Cyclists only		0		
	Complexity of task	High Risk - parked cars, school entrances, traffic calming features		2	0	
		Medium Risk - parked cars, school entrances, traffic calming features		1		
		Low Risk - low number parked cars not causing a visibility issue		0		
	Crime Risk / Facial Recognition	Necessary If facial recognition is important then an ES lighting class from BS EN 13201-2:2003, Table 5, or an ESC lighting class from CIE 115:2010 [N1], Table 7, can be selected as an additional criterion. Good colour rendering contributes to better facial recognition. (The ES lighting class in BS EN 13201-2:2003 is expected to be replaced by SC upon publication of the revised edition.)		1 if crime risk with no facial recognition requirement	0	
		Not Necessary		0		
Designers Comments				Adjustment	0	
P Lighting Class Selection					P5	

- 2.1.1 The site has been assessed as requiring illumination to lighting class P5. The below levels are to be achieved (covering roads and paths):

Average Illuminance (Lux)	Minimum Illuminance (Lux)
3-4.50*	0.60*
*SP Ratios are to be applied upon luminaire selection.	

2.2 Lighting Columns

- 2.2.1 5m columns are proposed to reduce light pollution and light spill onto surrounding areas. Columns have been positioned to reduce impact on dark corridor.

2.3 Luminaires

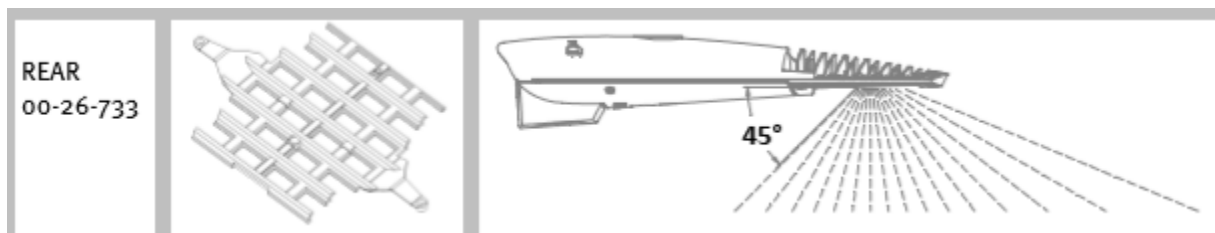
- 2.3.1 The following section reviews the ILP Guidance Note 08/18 Bats and artificial lighting in the UK recommendations for appropriate luminaire specification.

Recommendation 1: All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used.

Proposal: All proposed lighting utilizes LED light sources and avoids light sources with high UV content.

Recommendation 2: LED Luminaires should be used where possible due to their sharp cut off, lower intensity, good colour rendition and dimming capability.

Proposal: LED luminaires have been specified. Careful consideration has been given to the selection of luminaires. The proposed road units come with integrated lenses (back louvres) to reduce back light spill as shown in the figure below:



Recommendation 3: Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).

Proposal: All light sources proposed have a colour temperature of 3000K avoiding the green / blue end of the spectrum.

Recommendation 4: Column heights should be carefully considered to minimize light spill.

Proposal: Maximum proposed mounting height is 5m. Light spill has further been reduced through the specification of luminaires with built in louvres (shields).

Recommendation 5: Luminaires should always be mounted on the horizontal, ie no upward tilt.

Proposal: All proposed units are set at the horizontal (0° tilt).

2.4 Further mitigation measures

- 2.4.1 It is possible to further reduce impact by the installation of physical shields to the columns, although this is not deemed necessary.

2.5 Proposed Lighting Levels (refer to Lighting Calculation Report and drawing WLC208-1300-001)

- 2.5.1 Horizontal and vertical lux levels have been provided to show minimal impact on site perimeters and vegetation.
- 2.5.2 The ILP Guidance Note makes the following statement:

N.B. It is acknowledged that, especially for vertical calculation planes, very low levels of light (<0.5 lux) may occur even at considerable distances from the source if there is little intervening attenuation. It is therefore very difficult to demonstrate 'complete darkness' or a 'complete absence of illumination' on vertical planes where some form of lighting is proposed on site despite efforts to reduce them as far as possible and where horizontal plane illuminance levels are zero. Consequently, where 'complete darkness' on a feature or buffer is required, it may be appropriate to consider this to be where illuminance is below 0.2 lux on the horizontal plane and below 0.4 lux on the vertical plane. These figures are still lower than what may be expected on a moonlit night and are in line with research findings for the illuminance found at hedgerows used by lesser horseshoe bats, a species well known for its light averse behaviour (Stone, 2012).

Comments: The 0.2 and 0.5 lux contour lines have been shown on drawing WLC208-1300-001. The vertical calculations also provided show little to zero impact on the surrounding vegetation areas up to a height of 5m.

3. Limitations

3.1 Indoor Lighting

- 3.1.1 Indoor lighting has not been considered.

3.2 Lighting Levels

- 3.2.1 The blocking effect of buildings / trees has not fully been considered. If considered the blocking effect would be advantageous as it provides shaded areas.
- 3.2.2 Some areas could not meet the P5 lighting class (shown on drawing WLC208-1300-001). Usage in these areas is anticipated to be minimal.