



Proposed Lighting for Sweet Pea Bowling Green Care Home

This document is provided to show how the proposed lighting installation at this location meets the recommendations of Guidance Note 01/21, The Reduction of Obtrusive Light, published by The Institution of Lighting Professionals.

1.0 Site Location

The site is to the South West of Hinckley, a short distance from the town centre. It is bounded by Coventry Road to the North; Granville Gardens to the East; with adjacent domestic properties on Brandon Rd, Merevale Cl, and Merevale Ave bordering the South and West. The plot was formerly a local social club & bowling green.

All surrounding roads have existing local authority lighting columns of 6-8m height and with modern LED road lanterns.

2.0 Environmental Zone

We are not aware of an extant Environmental Zone classification for the site. We suggest that in line with ILP GN01/21, the site would be classed as Environmental Zone E3, being a suburban location, in a well inhabited urban settlement with medium district brightness. The adjacent streets would fall within the same category.

3.0 Proposed Lighting

The applicant is proposing a low key lighting installation. The target illuminance is low and intended to minimise contrast with the existing surrounding street lighting. The scheme consists of building mounted lighting to illuminate the perimeter access/escape route for the building and 4 no columns to illuminate the building carpark. The height of lighting columns has been minimised to avoid reduce overspill to surrounding areas. Because of the shape of the carpark, the columns need to be placed on one edge, and have been positioned on the boundary so that the forward throw of the light does not affect neighbouring properties. Due to the proximity to the boundary a luminaire has been selected with an optic and baffle designed to reduce rearward throw.

Refer to Appendix A for drawing 21179-E-101.

4No 5m lighting columns are proposed. Each column to be fitted with a single asymmetric LED lantern, as TamLite City RLB T4, 40W, 4000Lumen, 4000K. See Appendix B for luminaire data sheet.

Luminaires will be controlled by dusk to dawn photocell. It is not proposed to dim the luminaires but to avoid light spill both pre and post curfew.

4.0 Recommended Values of Light Parameters for the Control of Obtrusive Light

ILP GN01/21 gives the following limits for Environmental Zone E3





4.1 Limitation of illumination on surrounding premises

Illuminance on vertical plane (Ev) – Pre-curfew 10Lux

Post-curfew 2Lux

To be obtained by calculation at affected windows of surrounding buildings.

4.2 Limitation of Skyglow

Maximum upward light ratio of luminaire (ULR) – 5%

To be obtained from manufacturer's luminaire data.

4.3 Limitation of the effects on transport systems

The positions of the proposed luminaires on the site mean they do not meet the definition of luminaires visible from the road network according to the values given in CIE 150 2017 Table

4. Therefore, source intensity limitations established in 3.2 apply.

4.4 Limitations of the effect of over-lit building facades and signs

Not applicable to this proposal. No illumination of facades or signs is proposed.

5.0 **Calculation Method**

The site has been modelled using Relux lighting design software.

The surrounding buildings have been modelled using simple cuboids to approximate their dimensions.

Manufacturers photometric data has been used for the proposed site lighting.

A horizontal measuring surface represents the ground level for the extent of the proposed car park site.

Vertical illuminance measuring surfaces have been included to represent the rear elevations of the adjacent buildings with windows above ground floor facing the proposed site

6.0 **Calculation Results**

See Appendix C for Relux report.

The calculated horizontal illuminance for the extent of the car park site (see page 6 & 23 of 23);

Average (Em) – 13.1Lux

Minimum (Emin) – 3.1Lux

Uniformity – 0.24

Maximum vertical illuminance on adjacent building facades (recommendation 4.1);

Worst Reference plane M11 – Max 1.95Lux, Average 0.98Lux (see page 48 of 55)





7.0 Compliance

The equipment selected and calculations produced compare with the ILP recommendations as follows.

7.1 Limitation of illumination on surrounding premises

The recommended post-curfew maximum illuminance is met given that no point on an adjacent window is above 2lux.

7.2 Limitation of Skyglow

As can be observed from the polar distribution diagram included in the manufacturer's data sheet, the luminaires have zero upward light distribution. There is almost no output between horizontal and 15° below horizontal. This would allow an upward tilt of 15° before there was any upward light distribution. The maximum tilt for the proposed scheme is 10°. The recommendation is met.

Revision	Date	Amendment	By
-	11.05.2023	First Issue	CJA





APPENDIX A – Drawings

21179.E.101 – LIGHTING LAYOUT AND LUX PLOT





APPENDIX B – Lighting Calculation Results

Relux report 11.05.2023, 55 pages. – PLEASE REFER TO DRAWING FOR DETAILS OF LOCATION OF REFERENCE PLANES

