

Our Ref: EVO20024963-SL-001-B

Your Ref: 000244505

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Project Delivery
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Dear Shaun Harkin,

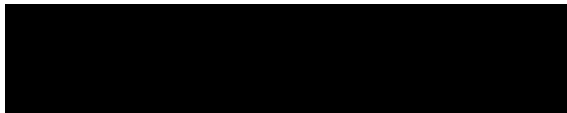
Lower Acre Footpaths & Parking One Horton Heath

Thank you for your scheme enquiry regarding Lower Acre Footpaths & Parking at One Horton Heath.

We have undertaken a lighting design for the area using Axia 3.1 lanterns on 6 metre post top columns. Lighting has been designed in accordance with BS5489-01:2020, and a lighting class of P5, P6 was applied.

Following the completed design work if there are changes to the road layouts which require design revisions these may incur further charges.

Yours sincerely,



James Duffin BA (Hons) IEng MILP
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Design Commentary

Lower Acre Footpaths & Parking One Horton Heath

1. Introduction

- 1.1. Enerveo has been commissioned by Eastleigh Borough Council to develop a detailed lighting design for the non-Hampshire adoptable parking areas and footpath/cyclepaths.
- 1.2. The purpose of this document is to provide commentary on the lighting design methodology adopted for the proposed works including decisions for design constraints and deviations from design standards.

2. Drawings

- 2.1. Drawing at 1:500 scale.

3. Standards

- 3.1. The proposed lighting design has been carried out 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, GN01/21, *Guidance Notes for the Reduction of Obtrusive Light*.
 - ILP Guidance Note, GN08/23, *Bats and Artificial Lighting at Night*.
 - ILP Professional Lighting Guide 23, PLG23, *Lighting for Cycling Infrastructure*.

4. General Layout

- 4.1. The location of the proposed works is Lower Acre, One Horton Heath.
- 4.2. The works consist of

5. Street Lighting Class

- 5.1. The lighting design for footpaths and cyclepaths has been carried out in accordance with the requirements of BS5489-01:2020, Table A.5.

Footpaths & Cyclepath	
Reference Table	A.5
Environmental Zone	E3, moderate ambient brightness
Traffic flow	Normal / Quiet
Traffic composition	Pedestrians & cyclists
Road Speed	N/A
Other Considerations	None
Lighting Class	P5 / P6

Lighting Class	Average Illuminance, Eave (Lux)	Average Illuminance Maximum, Eave (Lux)	Minimum Illuminance, Eave (Lux)
P5	3.00	4.50	0.6
P6	2.00	3.00	0.4

5.2. The lighting design for car parks has been carried out in accordance with the requirements of BS5489-01:2020, Table 4, Maintained lighting levels for outdoor car parks.

5.3. The car park has been classified as light traffic.

Table 4 — Maintained lighting levels for outdoor car parks

Type of area and usage	Values in lux	
	$\bar{E}$	U_o
Light traffic, e.g. parking areas of shops, terraced and apartment houses; cycle parks	5	0.25
Medium traffic, e.g. parking areas of department stores, office buildings, plants, sports and multipurpose building complexes	10	0.25
Heavy traffic, e.g. parking areas of major shopping centres, major sports and multipurpose sports and building complexes	20	0.25

6. Lighting Design Notes

- 6.1. The lighting has been designed to adoptable standards to allow EBC to have the lighting maintained under the PFI as they do with their other lighting assets e.g. car parks.
- 6.2. Car park and footpath lighting has been designed to minimise spill light. At all places spill light onto the residential properties has been kept below the 10 lux (pre-curfew) maximum set out in GN01/21 Table 3 and for many places below the more stringent 2 lux that HCC request in TG13. This will help minimise the risk of complaints about light intrusion.

Table 3 (CIE 150 table 2): Maximum values of vertical illuminance on premises

Light technical parameter	Application conditions	Environmental zone				
		E0	E1	E2	E3	E4
Illuminance in the vertical plane (E_v)	Pre-curfew	n/a	2 lx	5 lx	10 lx	25 lx
	Post-curfew	n/a	<0.1 lx*	1 lx	2 lx	5 lx

* If the installation is for public (road) lighting then this may be up to 1 lx.

- 6.3. Most columns within private areas are proposed to be installed with at least 0.8 metre setback, however, there are locations where the setback is less and not in-line with HCC adoptable standards. This is because greater setbacks couldn't be achieved due to site constraints e.g. Walls or fences <1 metre from the parking bay.
- 6.4. Glare has been controlled using G1 optics as the short sections and frequent bends make the use threshold increment (TI) inappropriate as it requires many columns in a row to be accurately calculated.

7. Environmental

- 7.1. The designer has been notified by the client about site-specific Environmental Impact Assessments.
- 7.2. Bats are present on the site, therefore 2700K Warm White LEDs have been used in line with GN08/23.
- 7.3. Optics are chosen to minimise spill light beyond the task and rear louvres on the majority of lanterns are used to minimise spill light further.

8. Maintenance Factor

- 8.1. Environmental maintenance factor assuming a 48-month clean is 0.94.
- 8.2. Luminaire maintenance is 0.9 (this considers lumen depreciation and LED failures, L90B10).
- 8.3. Giving overall maintenance factors of 0.85 (as per HCC TG13).

9. Column Locations

- 9.1. Columns are to be installed either rear of footpath or rear of verge.
- 9.2. Where verges are at least 1 metre wide columns are to be installed rear of verge.
- 9.3. Any deviation from rear of path or verge are noted on the drawing.

10. Column Type

- 10.1. Columns to be 6 metre galvanized tubular steel straight shaft (no outreach bracket), painted (factory finished),
- 10.2. Column to be finished in BS4800, 00E53 black.
- 10.3. All columns are raise and lower and are to be of the mid hinge type.

11. Lantern Type

- 11.1. Urbis Axia 3 with DALI dimming ballast fitted with Mayflower six pin NEMA socket, post-top mounted, tilt 0 degree.
- 11.2. Lanterns to be finished in BS4800, 00E53 black.
- 11.3. Every lighting scheme is required to install one Mayflower Complete Lighting Control DALI Sub-master unit to control Nodes and link to Central Management System.

12. Rev B Changes

- 12.1. Isolux contours shown on layout drawing in line with GN08/23.
- 12.2. Column positions from separate designs for Lower Acre shown for information only.
- 12.3. Column positions updated to avoid clashes as per comments from EBC.