



Light Pollution Report

Camden Lock Village
Project No: 2801

January 2, 2012



DAYLIGHT+SOLAR DESIGN





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2801 - Camden Lock Village Light Pollution Report

Sources of information:

- IR47 | 67 | 68 | 70

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Client	Chelsfield + Stanley Sidings
Architect	AHMM + MAKE
Project Title	Camden Lock Village
Project Number	2801
Report Title	Light Pollution Report
Dated	January 2, 2012

Written by	Simone Pagani
Checked by	CC
Type	Issue

Revisions	Date:	Notes:	Signed:
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1. Policies, Guidance, Legislation and Standard

1.1. National policy and guidance

1.1.1. Environmental Protection Act 1990

An amendment contained within the Clean Neighborhoods and Environment Act 2005 to section 79 of the Environmental Protection Act 1990 states:

“Artificial light emitted from premises so as to be prejudicial to health and nuisance constitutes a ‘Statutory Nuisance’ and it shall be the duty of every local authority to cause its area to be inspected from time to time to detect any statutory nuisances which ought to be dealt with under section 80 and, where a complaint of a statutory nuisance is made to it by a person living within its area, to take such steps as are reasonably practicable to investigate the complaint”.

1.1.2. Guidance notes for the reduction of obtrusive light, ILE (2005)

The ILE guidelines quantify the levels of Sky Glow, Light Trespass, Glare/Source Intensity and Building Luminance seen as acceptable for varying environmental zones:

- E1: Intrinsically dark landscapes (National Parks, Areas of Outstanding Natural Beauty, etc)
- E2: Low district brightness areas (Rural, small village, or relatively dark urban locations)
- E3: Medium district brightness areas (Small town centres or urban locations)
- E4: High district brightness areas (Town/city centres with high levels of night time activity)

The limitations below may be supplemented or replaced by the LPA's own planning guidance for exterior lighting installation.

Sky Glow is the brightening of the of the night sky over our towns, cities and countryside. This can be quantified by measuring the *Upward Light Ratio* (ULR). This is the maximum permitted percentage of luminaire flux for the total installation that goes directly into the sky. The values suggested in the table below are the maximum allowable levels for their respective environmental zones.

Light Trespass is the spilling of light beyond the boundary of the proposed development. This is assessed as vertical illuminance in lux (E_v) measured flat at the centre of the sensitive receptor. The values in the table below are suggested maximum allowable levels taking into account the existing light trespass at the point of measurement in each environmental zone (pre and post-curfew).

Glare/Source Intensity is the uncomfortable brightness of a light source when viewed against a dark background. This applies to each source visible from the sensitive receptor and is measured as source intensity (I) [kcd]. The values in the table below are the suggested maximum allowable levels in each environmental zone (pre and post curfew).

Building Luminance can cause an increase in the brightness of the general area. This is measured in cd/m² (L) as an average over the building façade caused only by external lighting. The values suggested in the table below are the suggested maximum allowable pre-curfew levels in each environmental zone.

The ILE guidelines suggest that in many cases the levels below may not be obtainable. These specific cases will be dealt individually and maximum mitigation should be utilised to ensure that the impact is minimised.

1.1.3. Lighting of Work Places – Part 2: Outdoor Work Places, British Standards BS 12464-2:2007 (ref 4)

This document mirrors the recommendations made in the ILE guidelines above. The only variations are higher maximum Upward Lighting Ratio (sky glow) limits. This report will refer to the levels suggested by the ILE guidelines thereby assuring compliance with both documents.

Environmental Zone	Sky Glow ULR [Max %] ⁽¹⁾	Light Trespass (into Windows) Ev [Lux] ⁽²⁾		Source Intensity I [kcd] ⁽³⁾		Building Luminance Pre-curfew ⁽⁴⁾
		Pre- curfew	Post- curfew	Pre- curfew	Post- curfew	Average, L [cd/m ²]
E1	0	2	1*	2.5	0	0
E2	2.5	5	1	7.5	0.5	5
E3	5.0	10	2	10	1.0	10
E4	15.0	25	5	25	2.5	25

Curfew: The time after which stricter requirements (for the control of obtrusive light) will apply; often a condition of use of lighting applied by the local planning authority. If not otherwise stated 23:00 is suggested.

*: From Public road lighting installations only



2. Methodology

In order to undertake the light pollution assessments set out above, and in accordance with your instructions, we have prepared a 3D computer model and used specialist lighting simulation software.

The 3D representation of the proposed development is based on AHMM and MAKE's drawings. This has been placed in the context of its surrounding buildings which have been modelled from survey. This allows for a precise model, which in turn ensures that analysis accurately represents the levels of light spillage.

2.1. Simulation assumptions

Where no values for reflectance, transmittance and maintenance factor were specified by the designer the following values from *BS 8206-2:2008, Annex A, tables A.1-A.6* were used for the calculation Average Daylight Factor values:

Reflectance values

Surrounding walls	0.2
Pavement	0.2
Internal walls	0.65
Internal ceiling	0.85
Internal floor	0.3

Transmittance values:

Double glazing:	0.74
Single glazing:	0.89
Balustrades:	0.8
Framing factor:	0.8

Maintenance factors

Vertical glazing	0.92
Horizontal glazing	0.76

Light Sources

The light fittings specified by the lighting designer have been incorporated within the 3D model in .ies format. A maintenance factor has been applied representing expected lamp life, luminaire life and dirt build up.

In this instance the chosen light fittings were:

Down lighters: Make – WE-EF

Model - DAC240[M]-Ceiling Luminaires

Bollards: Make – WE-EF

Model - NTY184-Bollards and Pathway Luminaires

Columns: Make – WE-EF

Model - PFL230[A]-Street and Area Lighting



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Site overview

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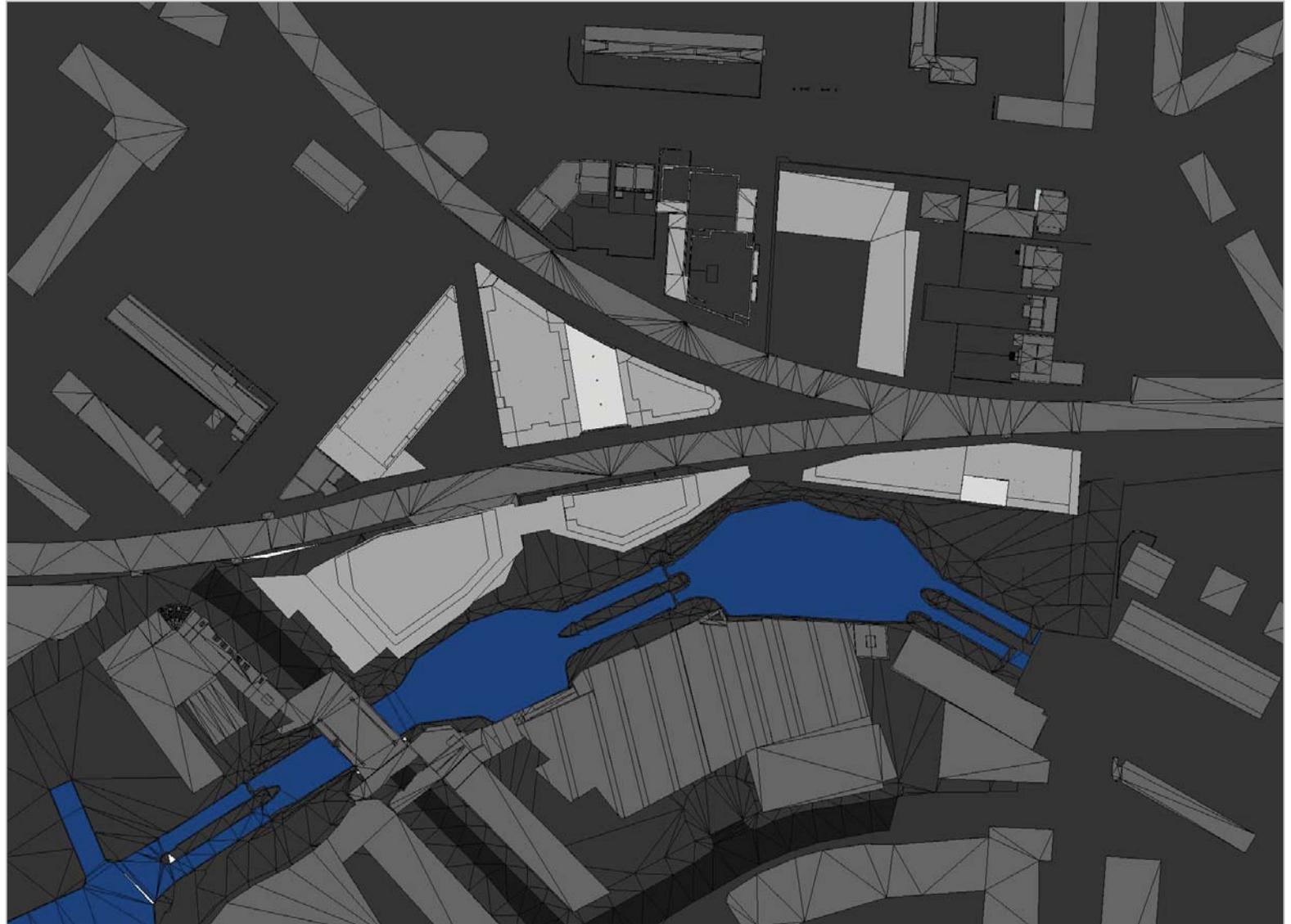


Figure 1: Top view



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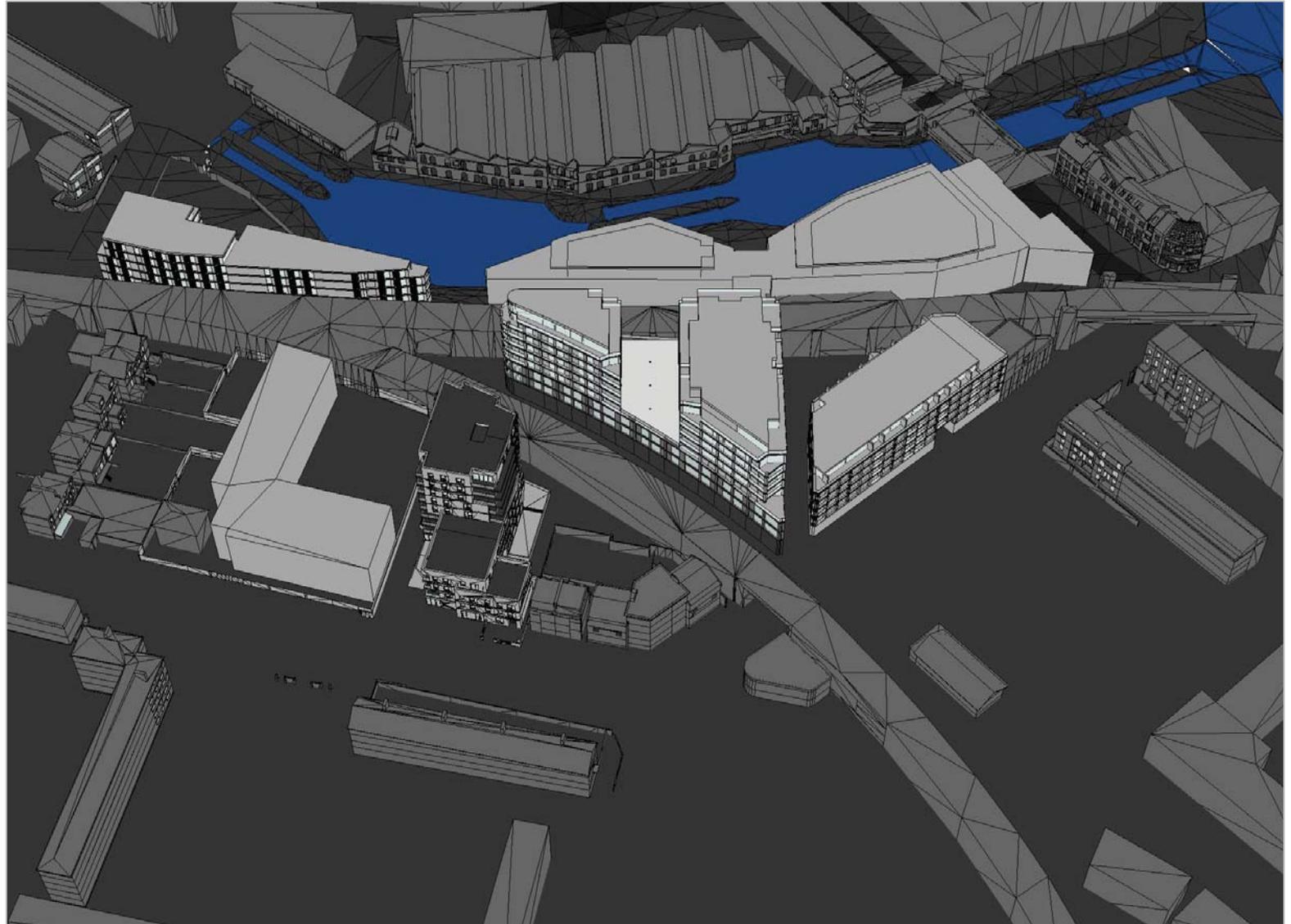


Figure 2: Bird's eye view



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Lighting strategy - Ground floor

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— Site boundary line

Recommended minimum Lux levels per area type:

- Covered shopping arcades - 75 avg. | 50 min.
- Open public/private space - 10 avg. | 3 min.
- Pedestrian foot paths - 5 avg. | 1 min.
- Under railway arches - 50 avg. | 25 min.
- Pedestrian + local services - 15 avg. | 5 min.
- Public/private terraces - 5 avg. | 1 min.

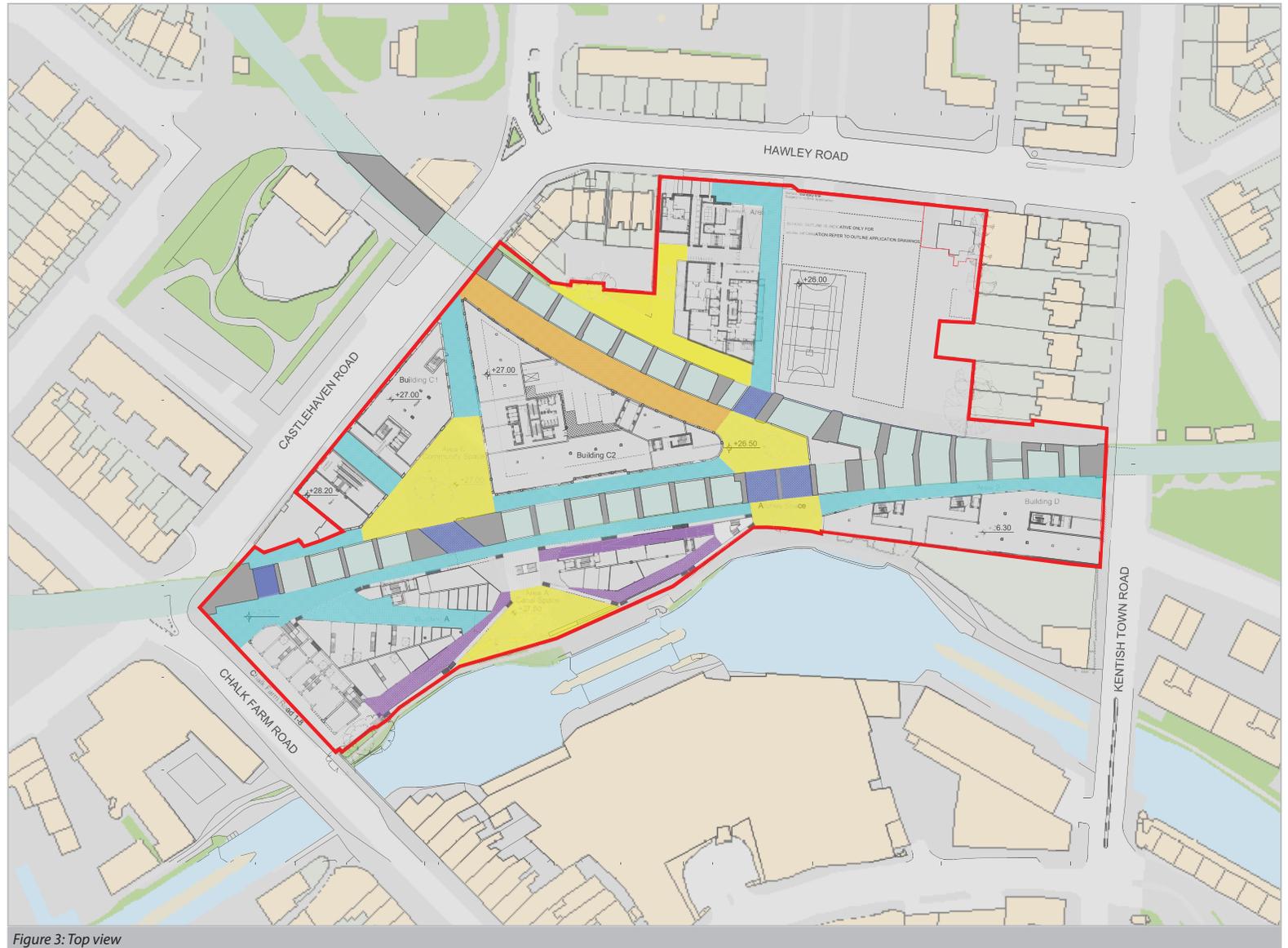


Figure 3: Top view