



LIGHTING CONSULTANCY

Exterior Lighting Design Specialists

North End Road, Yapton Section S38 Lighting

Environmental Impact Assessment & Lighting Design Category Selection Process

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Produced by: Simon Winch

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MMA Lighting Consultancy Ltd

Summer Field House

99 Old Bath Road, Charvil, Reading, Berkshire, RG10 9QN

Tel: +44 (0) 0118 321 5636

Fax: +44 (0) 0118 321 5636

www.mma-consultancy.co.uk

info@mma-consultancy.co.uk

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EXTERNAL LIGHTING ASSESSMENT

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1.0 INTRODUCTION

This external lighting environmental impact assessment is a desk top exercise to establish the baseline conditions and the likely impact to the surrounding environment of the proposed lighting on the new development at North End Road in Yapton.

2.0 LEGAL REQUIREMENTS

This section summarises government policy on the environment with respect to external lighting.

2.1 STATUTORY DOCUMENTS

The research paper 'clean neighbourhoods and environment bill', bill 11 of 2004-05 suggests under Town and County Planning (assessment of environmental effects) Regulations 1988, developers should submit an assessment of the impact proposed external lighting will have on the environment. While not specifically requiring external lighting schemes to be submitted for approval it does suggest planning authorities have the right to request such information as part of the approval process.

"The Clean Neighbourhoods and Environment Act 2005 has made light pollution a statutory nuisance under the Environmental Protection Act 1990, which came into force on 6th April 2006."(1)Section 79 of the Environmental Protection Act 1990 (c43) is amended as follows: "artificial light emitted from premises so as to be prejudicial to health or a nuisance." Although this specific act refers to artificial light emitted from a premises it is good practice to ensure any newly installed external street lighting does not emit light on property frontages. Nor should any new installation produce excessive upward light (known as light pollution) or be installed so as to 'over light' any street in relation to the external street lighting requirements detailed in the British and European lighting standards.

No prescriptive limits or rules are set for such assessments, but the following guidance documents have been referred to while compiling this assessment and in producing the external street lighting design for this specific project:

- British and European Standards for External Street lighting – BS5489:2013
- Guidance notes for the reduction of obtrusive light – The Institute of Lighting Professionals (ILP).
- Environmental considerations for exterior lighting – Chartered Institute of Building Services Engineers (CIBSE).
- Outdoor Environment. Lighting guide 6 – CIBSE.
- CDM2015 Regulations.

3.0

SITE LOCATION

The proposed site location for the new development on North End Road in Yapton:-



4.0

BASELINE CONDITIONS

The following describes the site in relation to existing sources of lighting. Sensitive receptors to light are identified. A review of areas and features of the landscape are also described. The new development at North End Road in Yapton will require a completely new lighting system. The surrounding area to the proposed development consists of mixture of residential dwellings and rural areas. All the surrounding streets are currently lit by systems of street lighting which is owned and maintained by the local council. The chosen lighting equipment for this area follows the specifications agreed with West Sussex County Council. Sensitive receptors to light are surrounding residential properties and local wildlife.

Using table 12.1 below, it would indicate that the area would be classified as E2 Low District Brightness Areas.

Table 12.1: Obtrusive Light Limitations for Exterior Lighting Installations

Guidelines and threshold values for the environmental zones published by the ILP provides a guideline on technical limits

Environmental Zones	Sky Glow UWLR (Max%)	Light into Windows Ev (Lux) Before Curfew	Light into Windows Ev (Lux) After Curfew	Source Intensity I (Kcd) Before Curfew	Source Intensity I (Kcd) After Curfew	Building Luminance L (Cd/m2) Average Before Curfew
E1 - Intrinsically Dark Landscapes	0	2	1	2.5	0	0
E2 - Low District Brightness Areas	2.5	5	1	7.5	0.5	5
E3- Medium District Brightness Areas	5	10	2	10	1	10
E4 - High District Brightness Areas	15	25	5	25	2.5	25

Notes to table:

UWLR (Upward Light Ratio) is the maximum permitted percentage of luminaire flux that goes directly into the sky; Ev is Vertical illuminance in Lux; I is Light Intensity in Candelas; L is Luminance in Candelas per square metre.

5.0

ENVIROMENTAL IMPACT ASSESSMENT CONCLUSION

The proposed lighting scheme will ensure that the neighbouring residences do not have light spillage onto their property as that would be deemed to be unacceptable in line with current guidelines. It is proposed that the lighting impact can be minimised by using accepted methods of lighting control, essentially limiting illuminance and controlling light spill. It is proposed that the external lighting shall be installed on 6m columns. Generally lighting shall be selected to provide safety and security without polluting the boundary site residents.

All luminaires are to have electronic drivers. The light source specified for this lighting scheme is LED, this is a low lumen output high efficiency light source. The electronic drivers and LED lamps running together produce a very efficient

street lighting system which reduces overall energy usage and environmental impact on natural resources.

Desk top assessments on the proposed street lighting installation indicate (with respect to identified sensitive receptors) that overall surrounding light pollution levels will not be significantly influenced by the proposed street lighting. It is proposed that the lighting impact can be minimised using accepted methods of lighting control, essentially limiting illuminance and controlling light spill. These accepted methods have all been adopted within the proposed lighting design to keep the overall impact of the lighting to a minimum.

In summary it is our considered opinion that the proposed street lighting installation will not have any significant negative impact on the immediate environment with respect to lighting pollution or energy usage and that all sensible steps have been taken within the design stage of this lighting scheme to keep the impact to the environment to a minimum.

6.0 LIGHTING DESIGN SELECTION PROCESS

The following lighting class has been set out in the Design Brief prepared by Louise Howlings. The lighting levels shall be as per the British Standard BS 5489: 2013 and BS EN 13201: 2015. recommendations: -

North End Road, Yapton S38 - Lighting Class P5 with SP Ratio of 1.96

Minimum maintained illuminance (Eav) = 1.82 Lux
Maximum maintained illuminance (Emin) = 2.73 Lux
Minimum illuminance (Emin) = 0.40 Lux

The above has been made on the assumption that the proposed street lighting installation will be a 'Quiet Traffic Flow' area where traffic usage is of a level equivalent to a residential road and solely associated with the adjacent properties. The 'Environmental Zone' has been selected as an 'E2' denoting a 'Low District Brightness' area and the 'Crime Rate' for this street is currently unknown so it has been selected as a 'Moderate' area. This has been selected using table A.5 taken from BS 5489: 2013.

The chosen lighting equipment for this area follows the specifications supplied by West Sussex County Council. The street lighting proposals for this development have been submitted using a total of **twelve** new 1.20km Philips Micro Luma Cool White LED luminaires. All luminaires shall be installed on new **6m** standard West Sussex County Council specification steel lighting columns, which are to be factory finished to BS12C39. All luminaires are to be installed with a 0-degree tilt, wired for DALI control and fitted with a 6 pin NEMA socket for a Mayflower Complete Lighting Control DALI external node. **A new Submaster unit may be required for this development.**

Stats provided by the developer shows underground HV cables within the site. The developer has advised that there are no existing MP/HP gas service. Correct/up to date stats should be obtained by the contractor/developer, and all services are to be located and identified prior to installing any lighting columns. Works should be carried out in accordance with GS6, G39/1 and HSE regulations.

7.0 SITE SAFETY, CDM AND RISK ASSESSMENTS

All street lighting installation works should be carried out whilst taking into account the current Health and Safety regulations and also where applicable the current CDM²⁰¹⁵ regulations. Projects after the 6th April 2015 shall comply with CDM15 or be in the transitional process.

As the 'Designer' under the CDM 2015 Regulations, MMA Lighting Consultancy expects the 'Client' to fully understand their duties and responsibilities under the current CDM 2015 Regulations; this statement is set out to make the client aware of "client duties" required under CDM. As a designer it is our responsibility to reduce and eliminate foreseeable health and safety risks to anyone effected by the project, take steps to reduce or control risks that cannot be eliminated and take account of any pre-construction information provided to us by the client or principal designer. On submission of this design to the client, the client must pass the full MMA Lighting Consultancy design pack onto the Principal Designer (if involved) for inclusion in the pre-construction information and health and safety file.

Under CDM15 a project is notifiable if construction work lasts longer than 30 working days AND has more than 20 workers working simultaneously at any point, or exceeds 500 person days. An F10 form must be submitted if the above applies and the form can be found online at www.hse.gov.uk.

This form must be submitted by the Client to the Health and Safety Executive. The only exception to this is where the project is for a domestic scheme, in this instance the responsibility automatically passes to the Contractor (or Principal Contractor). The Principle Designer can assume the responsibility for notification of a domestic project, but only where there is a written agreement between the domestic client and the Principal Designer that that they will carry out the client duties. Works that do not exceed the 30 day, 20 workers or 500 person days rule may still need to have the CDM²⁰¹⁵ regulations applied but may not be notifiable. It is advised that the companies CDM²⁰¹⁵ regulations trained personnel assess the project and make the necessary arrangements to meet the CDM²⁰¹⁵ regulation requirements. **If in doubt it is recommended that the company seeks professional advice.**

As designers under the CDM²⁰¹⁵ regulations it is our duty to recommend that an 'ASLEC' approved contractor be used for the electrical installation works. All lighting installation works should comply with the IET 18th Edition Wiring Regulations (BS 7671 The IET Wiring Regulations). This is the national standard to which all domestic and industrial wiring installations must conform to.

A Generic Risk assessment should be carried out by the approved contractor prior to the commencement of any site work. Specific Risk Assessments should then be carried out for all electrical street lighting works.

It is recommended that the approved contractor undertakes site supervision of the new installation at all times. Once the contractor has completed the installation works the contractor is to confirm the installation complies with the IET 18th Edition Wiring Regulations by producing electrical test certificates. All electrical test certificates shall be submitted to the West Sussex County Council Lighting Engineer.

Prepared By: -

 (Signed) Simon Winch (Print Name) 23rd March 2020 (Date)

Reviewed By: -

 (Signed) Mark Chandler (Print Name) 23rd March 2020 (Date)