

LIGHTING STRATEGY

PROJECT: A3 SERVICES SITE, LIPHOOK NORTHBOUND

PREPARED FOR: LIPHOOK A3 SERVICES LTD

APRIL 2021

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1. Introduction

1.1 General

- 1.1.1 Designs for Lighting Ltd were commissioned by Liphook A3 Services Ltd to develop a sensitive lighting strategy to support the Proposed Development, for the purposes of minimising the impacts of lighting on potentially sensitive residential receptors.
- 1.1.2 This lighting strategy is provided by Designs for Lighting Ltd, a specialist lighting design consultancy with experience and knowledge in lighting impact assessments, mitigation, and lighting design in relation to bats.
- 1.1.3 The Proposed Development is for the construction of a new drive-thru lane to an existing hospitality business, and the conversion of an existing hotel building to offices. Car Parking is to be extended or converted to both premises, at the A3 Services Northbound at Liphook (hereafter referred to as the Application Site).
- 1.1.4 The Proposed Development requires artificial lighting for safety, security, and amenity. Lighting can be applied sensitively to ensure that the potential for obtrusive light is suitably minimised in compliance with the predetermined obtrusive light limits within the Environmental Zone in which the Application Site is located.
- 1.1.5 The lighting strategy proposes good practice and outlines a suitable approach to apply to the installation of the proposed lighting. The aim of the strategy is to outline a minimally obtrusive approach to lighting, which is functional as well as ensuring sensitivity to the environment and sensitive ecology.
- 1.1.6 Lighting within the Application Site will comply with GN01:2021 - Guidance Notes for the Reduction of Obtrusive Light outlined by the Institution of Lighting Professionals (ILP).

2. Standards and Policies

2.1 Relevant National Policies

Environmental Protection Act 1990 / Clean Neighbourhoods and Environment Act 2005

- 2.1.1 Since 2005, artificial light has been incorporated as a potential statutory nuisance. An amendment to section 79 of the Environmental Protection Act 1990, contained within the Clean Neighbourhoods and Environment Act 2005 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”.

National Planning Policy Framework 2019

- 2.1.2 The National Planning Policy Framework (NPPF) sets out the government’s planning policies for England and how they are expected to be applied and provides a framework for local plans. With regard to light pollution, the NPPF was updated in November 2019 and states that the following elements are to be considered:

“Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and

c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.”

Planning Practice Guidance

- 2.1.3 Guidance for assessing the effects of proposed artificial lighting is outlined in the planning practice guidance (PPG). The guidance states:

“Does a new development proposal, or a major change to an existing one, materially alter light levels outside the development and/or have the potential to adversely affect the use or enjoyment of nearby buildings or open spaces?”

Does an existing lighting installation make the proposed location for a development unsuitable? For example, this might be because:

- *the artificial light has a significant effect on the locality;*
- *users of the Proposed Development (e.g. a hospital) may be particularly sensitive to light intrusion from the existing light source.*

Does a proposal have a significant impact on a protected site or species e.g. located on, or adjacent to, a designated European site or where there are designated European protected species that may be affected?”

Is the development in or near a protected area of dark sky or an intrinsically dark landscape where it may be desirable to minimise new light sources?

Are forms of artificial light with a potentially high impact on wildlife (e.g. white or ultraviolet light) being proposed close to sensitive wildlife receptors or areas, including where the light shines on water?

Does the Proposed Development include smooth, reflective building materials, including large horizontal expanses of glass, particularly near water bodies (because it may change natural light, creating polarised light pollution that can affect wildlife behaviour)?”

Institution of Lighting Professionals (ILP) Professional Lighting Guide (PLG) 05 “The Brightness of Illuminated Advertisements”.

- 2.1.4 The Proposed Development features a commercial premises at the northern site boundary, which will function as a coffee shop, with an associated drive-through lane. Drive-through ordering displays, illuminated menus, and illuminated window displays (along with any other illuminated signage), will need to be considered with reference to PLG 05.
- 2.1.5 PLG 05 provides guidance on how to assess the impact of proposed signage. It provides guidance limits on luminance levels of illuminated signs based upon their size, along with recommended limits on the frequency of change for digital signage.
- 2.1.6 Luminance is the luminous intensity projected from a given area and in a specific direction and is measured in Cd/m² (where Cd is the abbreviation for candela which is the term for luminous intensity). Brightness, however, is a human visual sensation associated with luminance and it is affected by four main factors; luminance, size, contrast, and the observer themselves. In considering luminance, various factors should be taken into account;
- As a sign face is generally non-uniform, the luminance will vary across it;
 - The details on signs will cause variations in the luminance, as the material refracts the light differently at certain points;
 - The luminance of the sign will also vary with the direction of viewing. Maximum luminance values of the sign are typically observed during frontal observation of the sign;
 - The design of the sign and the nature of the materials used also affects the way light is refracted.

2.2 Relevant Local Policies

- 2.2.1 The most relevant Local Authority policies that inform the lighting strategy are outlined within the East Hampshire District Local Plan (Adopted June 2014). The following policy is applicable:

- **CP27 Pollution**

“Development must not result in pollution which prejudices the health and safety of communities and their environments.

Developments that may cause pollution, and developments sensitive to pollution, will only be permitted if they are appropriately separated and designed to remove the risk of unacceptable impacts. Engineering or administrative controls may be required to provide sufficient protection to focus on reducing pollution at source.

Development which includes a lighting scheme will not be permitted unless the minimum amount of lighting necessary to achieve its purpose is proposed. Glare and light spillage from the site must be minimised. In determining an application, consideration will be given to the aesthetic effect of the light produced and to its effect on local residents, vehicle users, pedestrians and the visibility and appreciation of the night sky.

Development will not be permitted if it would have an unacceptable effect on the amenity of the occupiers of neighbouring properties through loss of privacy or through excessive overshadowing.

Any development which is likely to lead to a significant effect on an internationally designated site is required to undertake an appropriate assessment under the Habitats Regulations. As part of any mitigation/avoidance package any impacts on air quality will require a regime for continued air quality monitoring to be set up before the introduction of any mitigation measures, and thereafter maintained.”

2.2.2 East Hampshire District Council are in the process of reviewing their Local Plan, and have released a draft local plan covering the period from 2017 - 2036. Whilst this plan has not yet been adopted, it is prudent to consider the existing policy references where they concern lighting, as these policies are likely to be relevant in future. The following policy with the plan is most applicable:

- **Policy S27: Design and local character**

“New development will be permitted where it would help to establish a strong sense of place, by reinforcing or enhancing local character, and would function well with its surroundings. This means that development proposals should:...

i. minimise or if possible avoid light pollution (such as glare or light spillage from the site) by proposing the minimum amount of light necessary to achieve its purpose and by designing buildings to reduce the impact of light spill from internal lighting;”

2.2.3 Whilst the Application Site sits outside the boundary of the South Downs National Park (SDNP), the relevant SDNP policies should be considered for the Proposed Development to ensure that lighting does not adversely affect the International Dark-Sky Association (IDA) reserve.

2.2.4 The most relevant policy within the SDNP Local Plan is Strategic Policy SD8: Dark Night Skies. This policy applies to any proposal which involves the installation of external lighting, and where the design of developments may result in light spill from internal lighting, which could adversely affect the dark night sky. Policy SD8 states:

2.2.5 Policy **SD8** states the following:

(1) *‘Development proposals will be permitted where they conserve and enhance the intrinsic quality of dark night skies and the integrity of the Dark Sky Core as shown on the Policies Map.*

(2) *Development proposals must demonstrate that all opportunities to reduce light pollution have been taken, and must ensure that the measured and observed sky quality in the surrounding area is not negatively affected, having due regard to the following hierarchy:*

(a) *The installation of lighting is avoided;*

(b) *If lighting cannot be avoided, it is demonstrated to be necessary and appropriate, for its intended purpose or use:*

(i) *any adverse impacts are avoided; or*

(ii) *if that is not achievable, then adverse impacts are mitigated to the greatest reasonable extent.'*

2.2.6 Paragraph 5.59 goes on to state the following:

'The Authority will encourage further reductions, for example towards the limits of an E0 dark sky zone, or by removing below or near horizontal light paths from fixtures. Often this can be achieved with little further disruption. Examples of how this can be done include:

- *Lighting should be subject to control measures to reduce unnecessary light pollution. Examples include:*
 - *'Curfews' or automatic timers;*
 - *Proximity 'PIR' sensors, timers or any additional shielding or coving, including angling the front surface of lights to the horizontal;*
 - *Different surface types to reduce the amount of reflectivity;*
 - *Appropriate use of glazing to reduce light transmittance; and*
 - *Screening or shielding to reduce the impact of reflectivity.*

Location	Requirements for level of protection				
	ILP guidance ³⁵	Landscape impact	Maximum Lux level (suggested 10 Lux)	Preferred lights-off curfew	Astronomical darkness curfew
E0 Dark Sky Core and areas outside this zone with a SQM ³⁶ of 20.5+	✓	✓	✓		✓
E1(a) 2km Buffer Zone and areas outside this and the above zone which are of intrinsic rural darkness with a SQM range of 20 to 20.5	✓	✓	✓	✓	
E1(b) Transition Zone and areas outside this and the above zones with a SQM range of ~15 to 20	✓	✓	✓		
E3/4 Urban zone with an SQM of <15	✓	✓			
4. Outdoor lighting proposals are required to provide a statement to justify why the proposed lighting is required.					

Table 1: SD8 Policy

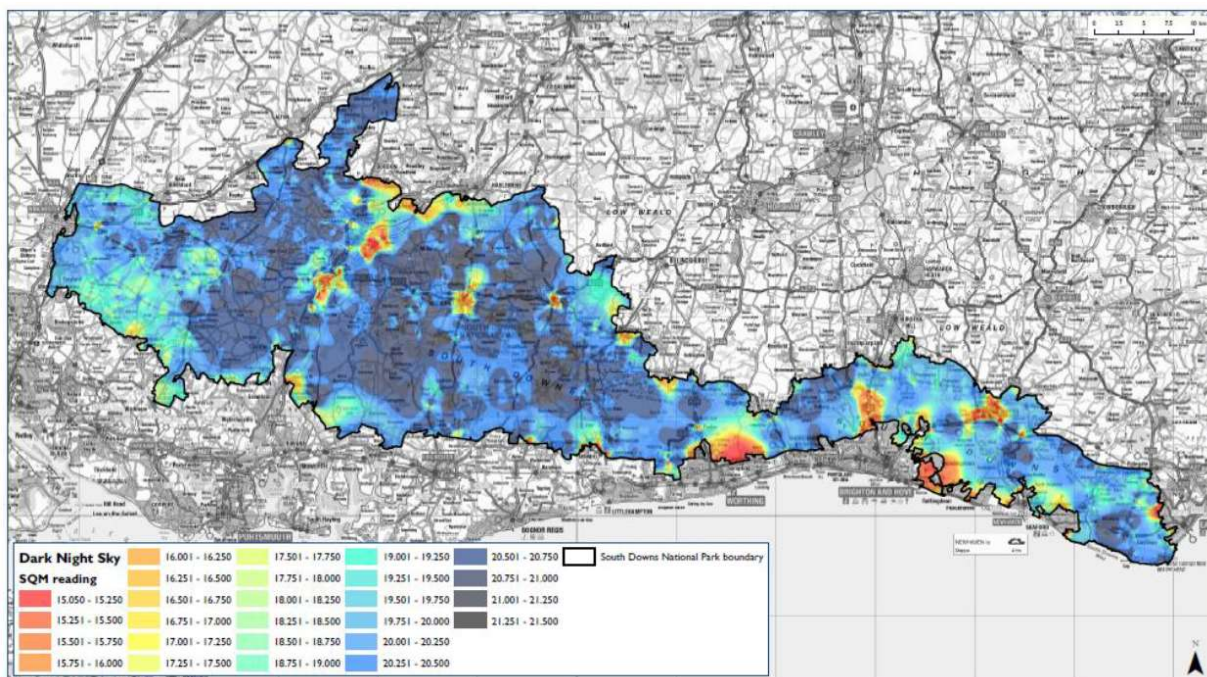


Figure 1: SDNP International Dark-Skies Reserve Sky Quality Map

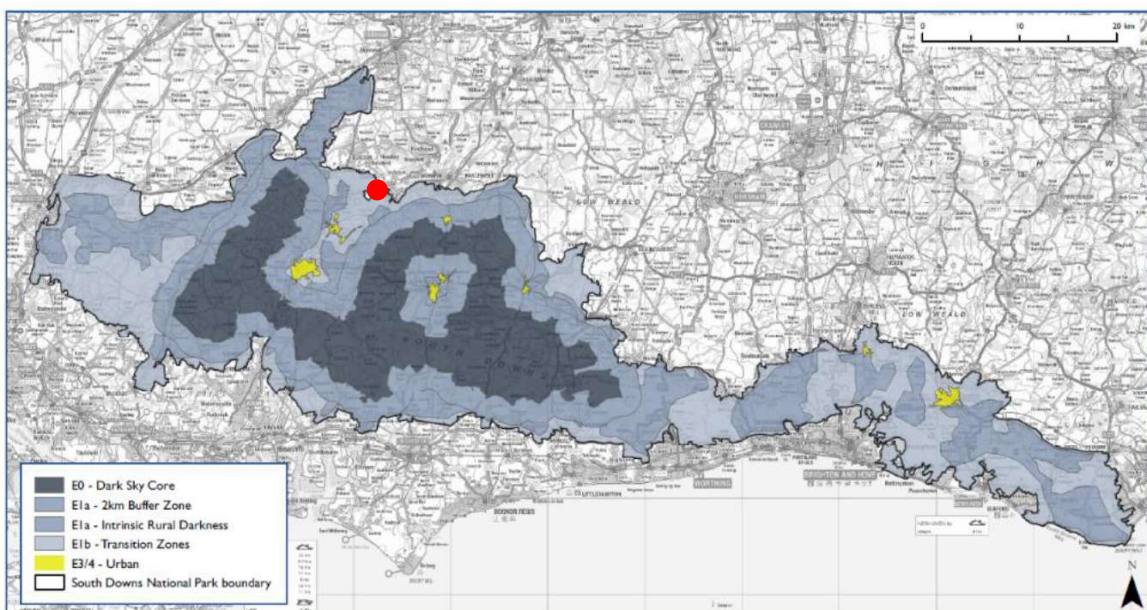


Figure 2: SDNP Dark Sky Core (Policy / Environmental Zone Map) (Approximate site location shown in red)

2.2.7 The South Downs Technical Advice Note “Dark Skies” (April 2018) is also applicable to the Proposed Development, as it provides supplementary guidance to SDNP Policy **SD8**. Specifically, the guidance advises on key principles that help towards achieving the principles of the Local Plan policy.

2.3 Guidance

Guidance Notes for the Reduction of Obtrusive Light (GN01:2021) Institution of Lighting Professionals

- 2.3.1 The lighting strategy shall be informed by industry guidance notes which aim to reduce the potential for obtrusive light to occur, caused by poorly designed and installed exterior artificial lighting. The lighting strategy is informed by the most relevant sections of GN01/21 (published 2021) to reduce the potential for obtrusive light from a wide range of exterior lighting applications.
- 2.3.2 The environmental zone criteria detailed within **Tables 1** and **2** will form the basis for the lighting strategy.

Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark (SQM 20.5 +)	Astronomical Observable dark skies, UNESCO starlight reserves, IDA Dark Sky Parks
E1	Natural	Intrinsically dark (SQM 20 to 20.5)	Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty etc
E2	Rural	Low district brightness (SQM ~ 15 to 20)	Sparsely inhabited rural areas, Village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Well inhabited rural and urban settlements, Small town centres or suburban locations
E4	Urban	High district brightness	Town / City centres with high levels of night-time activity

Table 2 Environmental Zone Descriptions

Notes:

1. Where an area to be lit lies on the boundary of two zones the obtrusive light limitation values used should be those applicable to the most rigorous zone.
2. Rural zones under protected designations should use a higher standard of policy.
3. Zone E0 must always be surrounded by an E1 Zone.
4. Zoning should be agreed with the local planning authority and due to local requirements a more stringent zone classification may be applied to protect special/specific areas.
5. SQM (Sky Quality Measurements) referenced by the International Dark-Sky Association (IDA), the criteria for E0 being revised in mid-2019 but not retrospective.
6. Astronomical observable dark skies will offer clearer views of the Milky Way and of other objects such as the Andromeda galaxy and the Orion Nebula.
7. Although values of SQM 20 to 20.5 may not offer clear views of astronomical dark sky objects such as the Milky Way, these skies will have their own relative intrinsic value in the UK.

Environmental Zones	Sky Glow ULR (Max %)	Light Trespass (into Windows) E_v (lux)		Building Luminance Average, Pre-curfew
		Pre-Curfew	Post-Curfew	Average L (cd/m ²)
E0	0	0	0	0
E1	0	2	0 (1*)	0
E2	2.5	5	1	5
E3	5	10	2	10
E4	15	25	5	25

Table 3 Obtrusive light criteria relating to each Environmental Zone

Notes to table:

- **ULR (Upward Light Ratio) is the maximum permitted percentage of luminaire flux that goes directly into the sky;**
- **E_v is Vertical Illuminance in Lux;**
- **I is viewed Light source Intensity in Candelas;**
- **L is Luminance in Candelas per square metre; and**

- **Curfew refers to a time when the local planning authority has agreed that the lighting installation should be switched off; this typically refers to 23h00 – 07h00.**
- (*) Permitted only from Public road lighting installations.

2.4 Relevant British Standards

- 2.4.1 Lighting design criteria outlined within *BS 5489-1:2020 – Code of Practice for the Design of Road Lighting – Lighting of Roads and Public Amenity Areas* is applicable to the proposed public highways associated with the Proposed Development whether adopted or retained under private ownership and management.
- 2.4.2 Lighting design criteria outlined within *BS EN 12464-2:2014 – Lighting of workplaces (Outdoor Workplaces)* is applicable to the lighting of car parking areas associated with the individual businesses.

3. Lighting Strategy

3.1 Brief

- 3.1.1 The Proposed Development will require lighting for safety, amenity, and security during the hours of darkness. This section outlines the requirements for the lighting design, ensuring that it is fit for purpose and sensitive to the environment surrounding the Application Site.
- 3.1.2 The Application Site is set within an E2 environmental zone, adjacent to the unilluminated A3 to the south, Liphook services petrol station to the immediate south west, and opposite the illuminated southbound services further to the south. Residential properties are situated in the local area, with housing approximately 150m to the South East, 215m to the North East, and 500m to the North West. More broadly, the Application Site is set within a rural area, with the edge of Liphook beginning 150m to the South East.
- 3.1.3 Whilst not identified to specifically have high levels of environmental sensitivity, the rural land surrounding the Application Site may contain potentially sensitive environmental receptors, and light spill onto the Application Site boundaries should be minimised. The lighting strategy has been developed to ensure that lighting associated with the Proposed Development is compliant with British Standards and lighting industry guidance produced for the protection and preservation of the environment surrounding where lighting is required.
- 3.1.4 Whilst this lighting strategy seeks to outline the most sensitive approaches to lighting whilst meeting intended lighting levels, it is not intended to supersede pre-existing Local Authority specifications where these are applicable.

3.2 Key Areas Requiring Lighting

3.2.1 Lighting will be required in the following areas:

- Coffee shop Car Park and Drive-through Lane; and
- Office Car Parking;

3.2.2 Illuminated signage may be present at the commercial premises at the north of the Application Site. Drive-through ordering displays, illuminated menus, and illuminated window displays (along with any other illuminated signage), will need to be considered with reference to PLG 05, Table 4:

Illuminated area (m²)	Zone E0	Zone E1	Zone E2	Zone E3	Zone E4
Up to 10	0	100	400	600	600
Over 10	0	n/a	200	300	300

Table 4: ILP PLG 05 Table 4: - Luminance limits in England

3.3 Coffee Shop Car Park and Drive-through Lane

- 3.3.1 Car Parking Areas and the Drive-through Lane associated with the coffee shop to the southwest of the Application Site will be illuminated for safety, amenity, and security during the hours of darkness.
- 3.3.2 Lighting is to be provided to the requirements for lighting for Outdoor Car Parks with Heavy Traffic levels, as laid out in *BS5489-1:2020 – Table 4 – Maintained light levels for outdoor car parks*.
- 3.3.3 Luminaires will be used that direct light downwards only, ensuring that light is contained within the site.
- 3.3.4 Luminaires will be sensitive to adjacent premises through compliance with the recommendations outlined in ILP GN01/21.
- 3.3.5 Lighting performance parameters for the Coffee Shop Drive-through Lane are outlined in **Table 5**.

Equipment Specification	Description
Location	Coffee Shop Car Park and Drive-through Lane
Light Source	LED [Light Emitting Diode]
Luminaire Type	Philips Lumistreet (or similar approved)
CCT of Light Source (Kelvin)	3000K (maximum)
Luminous Intensity Class	G3 (minimum)
Luminaire Tilt	0 degrees from horizontal
Dimming and switching requirements	Luminaires to be dimmed by PIR control between 23:00pm and 05:00am.
Design Guidance	
Lighting Standard	BS 5489-1: 2020 - <i>Code of practice for the design of road lighting</i>
Lighting Class	(Average: 20.0 Lux / Uniformity: 25%) (<i>BS5489 -1 :2020 Table 4 – Maintained light levels for outdoor car parks</i>)
Mounting Arrangement	Post Top
Restrictions	<p>The peak beam angle of all lights directed towards any potential observer is not to be more than 70 degrees when the luminaire is installed with a tilt angle of 0 degrees.</p> <p>6.0 metre maximum column height</p> <p>Where possible columns to be setback at the rear of the carriageway at a distance no less than as stated in BS 5489-1:2020.</p> <p>Luminaires with internal shields to be installed to limit light spill onto sensitive receptor areas.</p>

Table 5 Lighting performance parameters – Coffee Shop Drive-through Lane

3.4 Office Car Parking

- 3.4.1 The Car Parking associated with the office to the east of the Application Site will be illuminated for safety, amenity, and security during the hours of darkness.
- 3.4.2 Lighting is to be provided to the requirements for lighting for Outdoor Car Parks with Medium Traffic levels, as laid out in *BS5489-1:2020 – Table 4 – Maintained light levels for outdoor car parks*.
- 3.4.3 Luminaires will be used that direct light downwards only, ensuring that light is contained within the site.
- 3.4.4 Luminaires will be sensitive to adjacent premises through compliance with the recommendations outlined in ILP GN01/21.
- 3.4.5 Lighting performance parameters for the car park lighting are outlined in **Table 6**.

Equipment Specification	Description
Location	Office Car Parking
Light Source	LED [Light Emitting Diode]
Luminaire Type	Philips Lumistreet (or similar approved)
CCT of Light Source (Kelvin)	3000K (maximum)
Luminous Intensity Class	G3 (minimum)
Luminaire Tilt	0 degrees from horizontal
Dimming and switching requirements	Luminaires to be dimmed by PIR control between 23:00pm and 05:00am.
Design Guidance	
Lighting Standard	BS 5489-1: 2020 - Code of practice for the design of road lighting
Lighting Class	(Average: 10.0 Lux / Uniformity: 25%) (<i>BS5489 -1 :2020 Table 4 – Maintained light levels for outdoor car parks</i>)
Mounting Arrangement	Post Top / Side Entry
Restrictions	<p>The peak beam angle of all lights directed towards any potential observer is not to be more than 70 degrees when the luminaire is installed with a tilt angle of 0 degrees.</p> <p>6.0 metre maximum column height</p> <p>Where possible columns to be setback at the rear of the carriageway at a distance no less than as stated in BS 5489-1:2020.</p> <p>Luminaires with internal shields to be installed to limit light spill onto sensitive receptor areas.</p>

Table 6 Lighting performance parameters – Car Park Lighting

4. Technical Assessment

4.1 Brief

- 4.1.1 Lighting for the Proposed Development is to be implemented according to the strategy outlined in **section 3**.
- 4.1.2 The implementation of this strategy will enable lighting to be minimally obtrusive within the environment and to any nearby potentially sensitive receptors with views of the Application Site.

4.2 Existing Lighting

- 4.2.1 There is existing interior and exterior lighting associated with, and immediately adjacent to the Application Site, contributing to the ambient lighting levels:
- The existing Starbucks coffee shop at the western end of the Application Site is internally illuminated, and exterior lighting is present to the entrances. Illuminated signage is mounted to the sides of the building, below the gutters.
 - The existing hotel car park has poorly controlled 'globe' style lighting throughout, and tilted floodlighting is mounted to the sides of the building, which can give rise to unnecessary light spill and upward light with the potential to cause localised sky-glow.
 - The wider Liphook service station is already illuminated, with column mounted lighting, under-canopy lighting to the refuelling station and illuminated signage throughout.

4.3 Proposed Lighting

- 4.3.1 Lighting is proposed to the coffee shop and office, according to the lighting strategy and luminaire specifications set out in **Section 3**.
- 4.3.2 Lighting is to be provided by well controlled LED luminaires, mounted at 0 degrees to the horizontal. All luminaires proposed are to have a 0% Upward Light Output Ratio (ULOR) when mounted at 0 degrees.
- 4.3.3 Lighting is to be warm white, at colour temperatures not exceeding 3000 Kelvin, in accordance with guidance set out in GN01:2021.
- 4.3.4 Lighting is to be energy efficient, and applied only where needed, reducing the overall energy consumption of the Proposed Development, and the existing areas to be relit.

4.4 Likely Impacts

- 4.4.1 Whilst the lighting level within the Application Site is likely to increase, the use of well controlled LED luminaires will limit the potential for significant levels of obtrusive light to leave the site.
- 4.4.2 The use of luminaires with a 0% ULOR, in accordance with GN01:2021, will significantly limit the potential for the Proposed Development to contribute to local levels of sky glow, and limit the amount of light required.
- 4.4.3 Lighting is to be applied where needed only, and a comprehensive dimming and control regime is to be implemented to limit the impact of the proposed lighting outside of the main hours of use.
- 4.4.4 On balance, the impacts associated with lighting for the Proposed Development are likely to be Minor (beneficial) in significance, as lighting levels outside the Application Site are unlikely to increase and luminaires with enhanced optical control will replace existing light sources that are typically more obtrusive due to the use of obsolete lamp technology.

- 4.4.5 Isolux Contours showing the relatively low levels of spill light leaving the Application Site are presented in **Appendix 1**. Contours are presented for horizontal illuminance at a Lux levels of 1.0, 0.5, and 0.2; demonstrating that levels of spill light affecting nearby residential amenity are significantly lower than the 5.0 Lux pre-curfew maximum for an E2 environmental zone outlined in GN01:2021.
- 4.4.6 Light spill modelling presents the absolute adverse scenario, and does not consider the blocking or shading effects of screening in the form of site topography or planting features; thus, the isolux contours presented are typical of the on-site scenario at start of life.

5. Conclusion

5.1 Introduction

- 5.1.1 This strategy document is provided to outline a Lighting Strategy and associated Technical Assessment for the lighting of a Proposed Development at the A3 Services Site, Liphook Northbound.
- 5.1.2 The Proposed Development is for the for the construction of a new drive-thru lane to an existing hospitality business, and the conversion of an existing hotel building to offices. Car Parking is to be extended or converted to both premises, at the A3 Services Northbound at Liphook.

5.2 Lighting Strategy

- 5.2.1 The lighting strategy provided outlines the criteria for the lighting design of the Proposed Development to ensure that the lighting is fit for purpose, whilst maintaining sensitivity to human and environmental receptors through compliance with relevant British Standards and Guidance.
- 5.2.2 To ensure that the potential for obtrusive light is minimised, it is necessary to restrict the mounting heights of the luminaires, tilt angle, colour temperature and lumen output of exterior light sources to those specified in **Section 3**.

5.3 Technical Assessment

- 5.3.1 Compliance with the lighting strategy will allow a safe and sensitive level of light to enable the usage of the Proposed Development at night, whilst limiting obtrusive light to a negligible level and in compliance with ILP GN01:2021, which seeks to reduce light spill onto site boundaries. Lighting proposed within the strategy would demonstrate a beneficial effect on the environment through reducing obtrusive light components associated with the existing lighting technology installed on site.
- 5.3.2 Whilst the lighting level within the Application Site is likely to increase, the Lighting Strategy proposed will limit the potential for significant levels of obtrusive light to leave the site.
- 5.3.3 Due to the replacement of existing luminaires within the boundary of the Application Site, the impacts associated with the Proposed Development are likely to be Minor (beneficial) in significance, as the luminaires to be replaced are likely to generate significant levels of obtrusive light due to the use of obsolete lamp technology.

5.4 Summary

- 5.4.1 Overall levels of light spill are highly unlikely to exceed the Institution of Lighting Professionals guidance set out in GN01:2021 for an E2 environmental zone.
- 5.4.2 It is anticipated that monitoring of the light levels would be completed post installation to verify that the light levels and technical parameters are compliant with the lighting strategy, British Standards, and Guidance.

Appendix 1 – Light Spill Diagram

See separate file: 1831-DFL-ILG-XX-CA-13004-S3

