



Shinfield Studios Temporary Backlot

LIGHTING STRATEGY REPORT

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PROJECT No. 1485

PREPARED FOR:

Ecological Planning & Research Ltd



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Calculations and predictions of internal and external light spill to ecological dark zones rely on the accuracy of the lighting software, the modelling assumptions, and the implementation of the mitigation measures detailed in this report. The results should be viewed as predictions only, as they are subject to numerous variables. Therefore, although every effort has been taken to ensure the results are reliable, it cannot be guaranteed that the results calculated will be the same as in the real world. It is recommended that post monitoring is undertaken where dark zones are required to be maintained at certain levels of illuminance, and that allowance is made for further remedial action by the developer/ Client if required.

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1 Introduction

1.1 General

This Lighting Strategy is provided by The Lighting Bee Ltd, a specialist lighting design consultancy with experience and knowledge in lighting impact assessments, mitigation and lighting design in relation to light sensitive ecological receptors.

The author of this report is a fully qualified Lighting Designer and Chartered Electrical Engineer, with full membership of the Institute of Lighting Professionals, Society of Light and Lighting, and Chartered Institute of Building Services Engineers.

The Lighting Bee Ltd have been commissioned by Ecological Planning & Research Ltd to provide a Lighting Strategy for the temporary (for a period of 5 years) film studio backlot, on land south of Oldhouse Farm, Shinfield (Planning reference: 222906).

1.2 Scope of the Report

This lighting strategy covers the lighting proposals for the full planning application for the proposed erection of a temporary Film Studio Backlot (for a period of 5 years). The strategy has been prepared to address Condition 16, as stated below:

16. Ecology - Prior to occupation, a 'lighting design strategy for biodiversity' for the backlot shall be submitted to and approved in writing by the local planning authority.

The strategy shall:

a) identify those areas/features on site that are particularly sensitive for bats and badgers and that are likely to cause disturbance in or around their breeding sites and resting places or along important routes used to access key areas of their territory, for example, for foraging; and

b) A strategy that displays the maximum level of external lighting that will be installed on site which may affect the sensitive areas of the site as identified within part (a) of this condition so that it can be clearly demonstrated that areas to be lit will not significantly disturb or prevent the above species using their territory or having access to their breeding sites and resting places. the use of external lighting of the site shall thereafter be in accordance with the strategy unless otherwise subsequently agreed in writing with the Local Planning Authority.

Reason: To ensure that the development is not detrimental to protected species and retain ecological permeability as per MDD policy TB23.

This lighting strategy has therefore been prepared to address lighting impacts to ecological receptors only.

No permanent lighting is proposed for the site. The lighting provided will be temporary, and erected to suit the requirements of each film set.

Therefore, it is not possible to provide any lighting calculations and lux contour plans based on the proposals to provide a basis for an assessment, as would typically be provided. It is not possible to *'display the maximum level of external lighting that will be installed on site'* as stated in the condition, as the external lighting required for each film set will vary, and is therefore unquantifiable.

A general description of the proposed lighting is given within this strategy report, with a set of parameters to be applied, to help reduce the impacts of the lighting in terms of ecological receptors. These parameters have been summarised on the External Lighting Strategy drawing, which can be given to the Contractors building the film sets, and the Operators of the lighting during filming, as a reference to the site's lighting requirements.

1.3 Site Location

The Site is located approximately 5 kilometres (km) to the south-east of Reading town centre and approximately 1km to the north east of the village of Shinfield.

Directly to the north of the site lies a farm track which runs from Oldhouse Farm, and beyond this farm track is mature vegetation. The boundary of the site in question is shown on Barton Willmore drawing RG-LP-04 Revision J, dated 11 August 2022.

A smaller area of land previously befitting from prior approval for use as a backlot for external filming, this expired in April 2023.

The application site is located within the administrative boundary of Wokingham Borough Council (WBC).

1.4 Sensitive Receptors

The site has limited ecological sensitivity when considering light adverse species.

The Revised Ecology Statement (dated 18 January 2023) outlines that bat activity within the site is limited to occasional foraging by 1-2 Common and Soprano Pipistrelles, with the occasional pass of other species including Noctule, Serotine and on one occasion a Myotis species of bat. The main area of foraging was the edge of the recent woodland block that is located to the north of the proposed backlot site. The open and low-biodiversity habitats of the site itself are not providing any significant habitat value for bats. Also, the species of bats recorded are not particularly light sensitive, so the sensitivity of the site with regards to lighting is limited.

Recent bat surveys have recorded small day roosts of Common and Soprano Pipistrelles and Brown Long-eared Bat in some of the buildings of Oldhouse Farm located just to the northwest of the site. These are however confined to the buildings in the western side and north-eastern corner of the building complex, and are not adjacent to the main part of the backlot site in which light generating activities will be taking place.

It is required that there is no direct lighting onto the area of woodland and scrub to the north of the site, and to buildings of Oldhouse Farm as mentioned above. However, illuminance limits, or dark zones, have not been designated for within the site. Therefore a plan has not



been provided to address Part A of Condition 16, although the sensitive woodland to the north has been highlighted on the Lighting Strategy drawing shown in Appendix A.

For further information refer to the Ecology Statement prepared by EPR.



2 Relevant Guidance

Institute of Lighting Professionals (ILP) and Bat Conservation Trust (BCT) (2023)
Guidance Note 08/ 23 Bats and Artificial Lighting At Night

This guidance document was jointly published in 2018 by the ILP and BCT, and subsequently updated in 2023. It is intended to raise awareness of the impacts of artificial lighting on bats, and mitigation is suggested for various scenarios.

This guidance has been considered during the preparation of this strategy, however the mitigation measures outlined are predominantly not applicable, due to the nature of the installation. The guidance refers to lighting for typical building developments, with no specific reference made to temporary lighting installations.

3 Proposed Lighting

A set of parameters/ mitigation measures have been devised, which have been summarised within a lighting strategy drawing, this is contained within Appendix B of this report. This drawing will be provided to the set designers/ contractors when they are building the set to ensure lighting is sensitive and adheres to the strategy.

There will be no permanent lighting in the backlot area. Any lighting provided will be temporary, used for the creation of film sets and external filming. It is also an area where trailers may be parked during filming.

The site use can be split into two phases:

- Build Phase – when the set is being built, mobile tower lights will be used, similar to construction site lighting, to allow for safe work.
- Filming Phase – when filming is in progress, the lighting required will be extremely varied depending on the set. LED lights, and light boxes may be utilised and would be mounted on cranes.

The colour and colour temperature of the light sources proposed is also unknown.

Levels of illuminance during the Build Phase are likely to be lower than the Filming Phase. These are expected to be in the region of 50 lux to 300 lux, depending on the level of detail and risk of the task being undertaken. They are also expected to be more localised to the work areas, and at time when work is taking place.

For the Filming Phase, high levels of illuminance may be required over quite a large area, which is expected to be comparable to the lighting of a typical community football pitch in terms of scale. Typically, sporting events may require levels of illuminance ranging from 200 lux, up to 2,000 lux for televised events. Due to the potential size of the areas that may require lighting, the levels of illuminance likely to be required, and the mounting heights of lights, there is potential for light to spill to considerable distances, especially if considering light spill to very low levels of light, such as 0.5 lux. There is no way to quantify or predict the light spill based on the known parameters.

It should be noted that although the frequency and timings of night time lighting is unknown, it is not expected to be required continuously. Typically the requirements for night-time lighting will be 1-2 weeks per set, which may not be continuous. The duration of each set may also vary and is unknown.

The lighting is expected to be manually switched, with no set times of use or curfew applied. The lighting may therefore be operational throughout the night.

The following parameters will be applied to minimise light spill and impacts to bats:

- Any lighting erected in the northern half of the site will be directed away from the northern boundary, towards the centre of the site. Any lighting proposed in the

southern half of the site will be directed away from the southern boundary towards the centre of the site.

- A 20m unlit buffer zone is proposed to the northern boundary, where no lighting will be erected.
- Consideration will be given to minimising the mounting heights of any lighting, with lights only being erected to a height that is necessary for the task, and will be limited in all cases to 15m (50ft) above ground level.
- Floodlights are to be directed completely downwards wherever possible, with no upward tilt. Where the floodlight is required to be tilted, this should be predominantly be minimised to 5-15 degrees, with a complete limit set at 70 degrees in line with the typical requirements for temporary construction lighting.

Planting is proposed to the southern edge of the site, and part of the northern boundary, which will also aid in screening light spill.

Due to the site having limited ecologically sensitivity when considering light adverse/ light sensitive species, further parameters, mitigation measure or limits are not considered to be required.

4 Proposed Monitoring/ Recording

A table has been prepared and included in Appendix A, that will be issued with the External Lighting Strategy drawing to the set designers/ contractors on each occurrence that the site is lit.

This is to record details of the lighting provided on each occasion.

Completed monitoring forms will be collated and reviewed after 1 year has passed from the date at which this Lighting Strategy was first implemented, and mitigation measures will be adjusted if necessary on the basis of the findings of that review.

5 Conclusion/ Summary

This lighting strategy covers the lighting proposals for the full planning application for the proposed erection of a temporary Film Studio Backlot (for a period of 5 years). This lighting strategy has been prepared to address lighting impacts to ecological receptors only.

The open and low-biodiversity habitats of the site itself are not providing any significant habitat value for bats. Also, the species of bats recorded are not particularly light sensitive, so the sensitivity of the site with regards to lighting is limited.

No permanent lighting is proposed for the site. There will be no permanent lighting to this area. Any lighting provided will be temporary, used for the creation of film sets and external filming.

Therefore, it is not possible to provide any lighting calculations and lux contour plans based on the proposals to provide a basis for an assessment, as would typically be provided. It is not possible to *'display the maximum level of external lighting that will be installed on site'* as stated in the condition, as the external lighting required for each film set will vary, and is therefore unquantifiable.

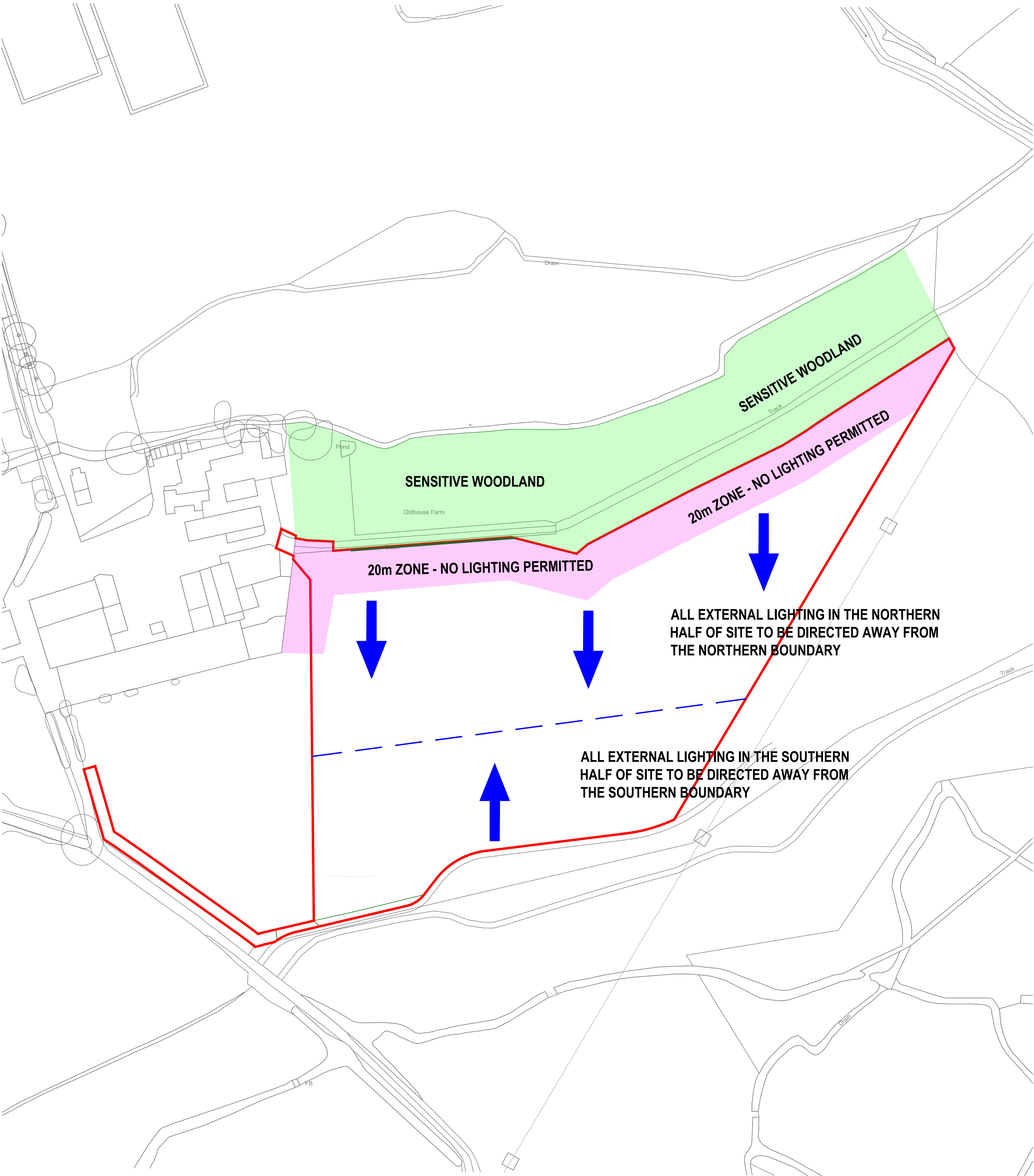
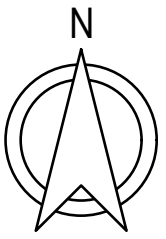
A description of the proposed lighting is given within this strategy report, with a set of parameters to be applied, to help reduce the impacts of the lighting in terms of ecological receptors. These have been summarised on the External Lighting Strategy drawing, which can be given to the Contractors building the film sets, and the Operators of the lighting during filming, as a reference to the site's lighting requirements. A table has been prepared and included in Appendix A, that will also be issued with the External Lighting Strategy drawing to the set designers/ contractors on each occurrence that the site is lit. This is to record details of the lighting provided on each occasion.

It is required that there is no direct lighting onto the area of woodland and scrub to the north of the site. However, illuminance limits, or dark zones, have not been designated for within the site. Therefore a plan has not been provided to address Part A of Condition 16, although the sensitive woodland to the north has been highlighted on the Lighting Strategy drawing shown in Appendix A.



External Lighting Strategy and Record
Sheet - to be issued to, and completed by, the set
designers/ contractors

APPENDIX A



The following parameters are to be applied to minimse light spill and impacts to bats:

- Any lighting erected in the northern half of the site will be **directed away from the northern boundary, towards the centre of the site.** Any lighting proposed in the southern half of the site will be directed away from the southern boundary towards the centre of the site.
- A **20m unlit buffer zone** is proposed to the northern boundary, where no lighting will be erected.
- Consideration will be given to minimising the mounting heights of any lighting, with lights only being erected to a height that is necessary for the task, and will be limited in all cases to **15m (50ft)** above ground level.
- Floodlights are to be directed completely downwards wherever possible, with no upward tilt. Where the floodlight is required to be tilted, this should be predominantly be minimised to 5-15 degrees, with a complete limit set at 70 degrees in line with the typical requirements for temporary construction lighting.

This Drawing is protected by Copyright. It may not be reproduced in any form or by any means for any purpose without the written consent of The Lighting Bee Ltd. Do not scale: All Dimensions to be checked on Site and verified prior to commencing Works / Manufacture. Any discrepancies to be reported to The Lighting Bee Ltd. These Drawings reflect the layouts for the purposes of design only. The Contractor shall be responsible for producing their own Working and Co-ordination drawings prior to commencing their installations. If these drawings are used for Construction purposes it is done so at the Contractor's Risk.

Legend

- = Sensitive Woodland
- = No external lighting to be installed within this zone
- = Lighting to be directed towards the centre of the site, and away from the northern and southern boundaries
- = Application Boundary

- Notes
- This drawing is provided for planning purposes to show the external lighting strategy, describing the parameters only, as the lighting installation will not be permanent. Refer to the External Lighting Strategy Report for full details.

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Rev	Details:	By / Reviewed	Date



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CLIENT



ECOLOGICAL EXPERTISE, EVOLVED

PROJECT TITLE
Shinfield Studios Creative Media Hub
Studio Backlot
For External Filming & Set Creation

DRAWING TITLE
External Lighting Strategy

SCALE AT A1
1:1250

DISCIPLINE
Lighting

DRAWING NUMBER
1485-LB-EX-XX-SY-E-7080-01

Project - Originator - Zone - Level - Type - Role - NBS class - Sequential Number

STATUS Preliminary	ISSUE P02
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Shinfield Studios Temporary Backlot – Lighting Installation Record

Please provide as much information as possible on the lighting installed, marking up the attached plan with locations and details, and completing the table below.

Date of installation:	
Brief description of Site use/ Lighting use for this occasion:	
Duration: <i>Number of days that the site lighting will be operational. Include dates.</i>	
Timings: <i>Times that the site lighting will be operational during those dates. How late into the night will it be switched on?</i>	
Number of lights installed:	
Types of lighting (i.e. flood lights, etc):	
Light source types, and colour temperatures if known (e.g LED):	
What is the maximum height in metres that lighting has been mounted at?	
Are any of the lights tilted upwards? <i>If so, indicate the angle of tilt upwards from horizontal.</i>	
Lighting positions- Please mark the light positions on the plan provided . Include light type, mounting heights, tilted angle of lights, and direction of lights noted next to each light	
Light Outputs: If known, please provide details of each lights output in lumens.	



Lighting Terminology

APPENDIX B



Lighting Terminology and Abbreviations

Glossary of terms

For the purpose of this report, the definitions given below apply. For further definitions the International Lighting Vocabulary (ILV), published by the CIE, can be found at <http://eilm.cie.co.at/>

Colour Rendering Index (CRI): A scale of the colour appearance of an object under a particular light source compared to its colour appearance under a reference light source. Expressed on a scale of 1 to 100 Ra, where 100 Ra represents the colour rendering of natural daylight i.e. perfect colour.

Curfew: The time after which stricter requirements (for the control of obtrusive light) will apply; often a condition of use of lighting applied by a government controlling authority, usually the local government (CIE, 2003).

Disability Glare: Glare which impairs the vision of objects but may not cause discomfort.

Discomfort Glare: Glare causing discomfort which may not impair the ability to see objects.

Environmental Zones: Area where specific activities take place or are planned and where specific requirements for the restriction of obtrusive light are recommended. Zones are indicated by the zone rating (E1... E4) (CIE, 2003).

Illuminance: Illuminance is the quantity of light, or luminous flux, falling on a unit area of a surface. It is designated by the symbol E. The unit is the lux (lx). One lux equals one lumen per square metre (lm/m²).

Horizontal Illuminance: Illuminance incident on a horizontal surface or calculation plane.

Vertical Illuminance: Illuminance incident on a vertical surface or calculation plane.

Isolux Diagram: A diagram showing lines joining points of equal illuminance. Sometimes also referred to as Isolines.

Light Pollution: The spillage of light into areas where it is not required.

Light Intrusion: Light that impacts on a surface outside of the area designed to be lit by a lighting installation.

Obtrusive Light: Spill light which because of quantitative, directional or spectral attributes in a given context, gives rise to annoyance, discomfort, distraction or a reduction in the ability to see essential information (CIE, 2003).

Photocell: A unit which senses light to control luminaires.

Residential Property: Land upon which a dwelling exists (CIE, 2003).



Sky Glow: The brightening of the night sky caused by artificial lighting resulting from the reflection of radiation (visible and non-visible), scattered from the constituents of the atmosphere (gas molecules, aerosols and particulate matter), in the direction of observation. It comprises two separate components as follows:

(a) *Natural sky glow* - That part of the sky glow which is attributable to radiation from celestial sources and luminescent processes in the Earth's upper atmosphere.

(b) *Man-made sky glow* - That part of the sky glow which is attributable to man-made sources of radiation (e.g. outdoor electric lighting), including radiation that is emitted directly upwards and radiation that is reflected from the surface of the Earth (CIE, 2003).

Spill Light (Stray Light): Light emitted by a lighting installation which falls outside the boundaries of the property for which the lighting installation is designed (CIE, 2003).

Upward Light Ratio: The maximum permitted percentage of luminaire flux for the total installation that goes directly into the sky.

Abbreviations

CIBSE	Chartered Institute of Building Services Engineers
CIE	International Commission on Illumination
CNEA	Clean Neighbourhoods and Environment Act
ILP	Institute of Lighting Professionals
SLL	Society of Light and Lighting



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