

UTILITA BOWL

LIGHTING SURVEY REPORT

DFL-UK

17 City Business Centre, Hyde Street, Winchester, SO23 7TA
+44(0)1962 855080 | info@dfi-uk.com | www.dfi-uk.com



Designs for Lighting (DFL) is a business built on successfully collaborating with our clients. We have over 20 years proven experience in our industry, listening to the challenges our clients face, developing the best solutions and being innovators in our specialism. Our role is to find the most effective and sustainable outcome to enhance and support your projects. We proudly work with recognised industry bodies to promote and shape the future of the industry and ensure our staff are trained to exceed the required competency levels of our industries. Above all, we ensure each project delivers against our values.



Clear Advice

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Executive Summary

This report is to outline the findings of the Baseline Survey undertaken by DFL (Designs for Lighting Ltd), a lighting design consultancy specialising in Lighting Impact Assessments, obtrusive light mitigation and detailed lighting design.

The purpose of this report is to summarise the results of the baseline survey led by James Probut on 22/07/2026, this will aid in the conclusion of the accompanying Lighting Impact Assessment.

The results (**Table 2**) show that the Application Site has a large amount of lighting with impact from existing light sources and temporary lighting generators. The outer edge of the site on the golf course is intrinsically dark with little artificial lighting present and no lighting located within the boundary. Lighting is visible from within the Application Site with the stadium lighting visible from all areas of the Application Site. The brightest area is localised to the western side of the stadium where no blocking elements are present.

The survey included; on-site measurements of light levels and night-time photography to show how the area is currently illuminated. Readings were taken at a number of locations across the site and surrounding area to capture both brighter and darker conditions

The photographs taken during the survey support the measured results and show the main sources of light and the darker conditions found on the Application Site.

1. INTRODUCTION

- 1.1.1. This Lighting Survey Report has been written by DFL (Designs for Lighting Ltd), a lighting design consultancy specialising in Lighting Impact Assessments, obtrusive light mitigation, and detailed lighting design.
- 1.1.2. The Lighting Survey Report assess the existing lighting installed at Botley Rd, West End, Southampton SO30 3XH and the existing lighting environment surrounding this area.
- 1.1.3. The lighting survey was carried out by two competent lighting professionals with experience in conducting such surveys.
- 1.1.4. This report outlines the following:
 - > Details of the lighting baseline at the Application Site
 - > An assessment of the effects of the Proposed Lighting on surrounding dwellings
 - > Recommendations to improve the lighting

2. BASELINE LIGHTING SURVEY

2.1. Introduction

- 2.1.1. To provide an objective assessment of the lighting baseline levels within and surrounding the Application Site, a lighting baseline survey has been undertaken.
- 2.1.2. This survey consisted of recorded illuminance levels and photography of the existing lighting at night.

2.2. Methodology

- 2.2.1. Illuminance measurements were taken at the horizontal plane with the illuminance meter being placed on the ground above the measurement point, and in the vertical plane at approximately 1.5 m in height facing north, east, south, and west. This totalled 5 illuminance readings per measurement location, with two reading locations 53 and 54 being taken at a height of 4m in height to account for the groundskeeper dwelling nearing the Application Site.
- 2.2.2. Measurements were taken using a Konica Minolta T-10A illuminance meter (serial number: 20015648) which has a current calibration certificate (certificate no: STD_137059). A copy of the calibration certificate can be found in **Appendix 1**. This is a handheld illuminance meter.
- 2.2.3. All photography was recorded in locations within and surrounding the Application Site, to provide an overview of the existing lighting, and to provide context to the illuminance and sky quality readings that were recorded.
- 2.2.4. Photographs were recorded using a DSLR camera mounted on a tripod.
- 2.2.5. The location of all illuminance measurements and the photography locations can be seen in **Appendix 1**.

2.3. Weather Conditions During the Survey

Date	Astronomical Twilight	Moon Phase	Weather Conditions (night)	Night-time Phase Start
22.07.2026	23:15	waxing gibbous	dry, although there was increasing cloud cover	23:30

Table 1: Weather Conditions During Lighting Survey

2.4. Illuminance Measurements

- 2.4.1. Measurement Location 1 was situated near a portable lighting generator. As a result, the measurements recorded at this location are elevated due to the influence of the generator.

Reading number	Eh	Ev North	Ev East	Ev South	Ev West
1	805	267	1037	21.6	21.92
2	4.65	1.20	15.40	10.30	1.62
3	4.84	0.37	5.75	7.62	2.28
4	2.99	0.24	6.74	10.4	3.33
5	2.75	0.19	5.56	7.11	2.19
6	2.58	0.49	5.01	7.40	4.77
7	1.88	0.22	6.10	11.74	1.89
8	0.42	0.08	2.09	4.31	0.68
9	1.37	0.08	2.76	5.21	0.33
10	0.21	0.06	2.77	2.70	0.04
11	0.40	0.07	2.81	3.53	0.06
12	1.29	0.09	2.46	3.45	007.
13	0.10	0.07	3.13	3.36	0.05
14	1.26	1.65	5.71	2.49	0.17
15	2.07	4.11	6.00	3.40	0.18
16	1.91	2.97	7.65	5.69	0.27
17	3.84	3.36	18.36	4.25	0.51
18	0.88	1.92	3.60	2.02	0.11
19	9.64	1.34	4.91	12.6	6.91
20	5.70	0.73	0.41	5.50	5.31
21	0.59	0.04	0.06	1.14	2.06
22	0.08	0.07	0.02	0.11	0.14
23	0.12	0.09	0.03	0.08	0.28
24	0.27	0.35	0.03	0.08	1.31
25	0.25	0.03	0.05	0.68	0.66
26	0.14	0.09	0.04	0.03	0.25
27	0.26	0.17	0.14	0.08	0.99
28	0.12	0.16	0.04	0.19	1.06
29	0.31	0.23	0.03	0.09	1.30
30	0.03	0.61	0.02	0.05	1.02
31	0.38	0.88	0.04	0.07	2.02
32	0.29	0.99	0.06	005.	0.95
33	0.05	0.24	0.02	0.01	0.14
34	0.05	0.21	0.02	0.02	0.10
35	0.02	0.02	0.01	0.02	0.02
36	0.05	0.05	0.01	0.03	0.09

37	0.14	0.18	002.	0.02	0.37
38	0.05	0.13	0.09	0.04	009.
39	0.05	0.04	0.02	003.	0.07
40	1.99	2.40	0.36	0.43	4.17
41	3.05	1.52	0.51	0.52	5.04
42	4.30	5.92	040.	2.70	9.66
43	2.51	3.09	0.31	1.30	8.90
44	1.64	4.22	0.24	0.47	4.73
45	2.23	4.17	0.28	0.36	5.36
46	1.24	3.45	0.32	0.51	4.81
47	1.87	4.93	085.	0.19	6.41
48	0.34	3.97	0.63	0.26	1.18
49	0.26	2.73	0.61	0.11	0.88
50	0.01	4.48	3.22	1.18	1.64
51	0.84	3.42	0.24	0.15	1.38
52	0.27	1.64	0.89	0.08	0.47
53	N/A	3.73	0.61	0.45	3.49
54	N/A	2.36	0.45	0.59	3.65

Table 2: Baseline Illuminance Results

- 2.4.2. The results of the illuminance survey demonstrate a variation in recorded light levels across the Application Site, with readings ranging from relatively low to high illuminance levels across both the horizontal (Eh) and vertical (Ev) planes.
- 2.4.3. The highest illuminance level recorded during the survey was **1,037 lux**. This reading was taken externally, near a temporary lighting generator, and is therefore representative of the higher levels of illumination present both within and around the Site.
- 2.4.4. Overall, the illuminance levels across the Application Site vary considerably, with areas of both high and low levels of illumination. Particularly low readings were recorded across the golf course, reflecting the comparatively limited levels of artificial light in this area.

2.5. Nighttime Photography

- 2.5.1. To provide some visual context to the illuminance readings photography has been recorded across the Application Site.
- 2.5.2. The photography taken during the lighting survey can be seen below (**Figure 1 – Figure 11**).

Photography Location 001 – Facing Northeast



Figure 1: View from Photography Location 001 – Facing Northeast

This page is only for electronic viewing only and the brightness of the screen used to view should be set to maximum brightness.

Photo Parameters:

F-stop: f/10

Exposure Time: 3 Seconds

ISO Speed: ISO- 200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



Photography Location 001 – Facing East

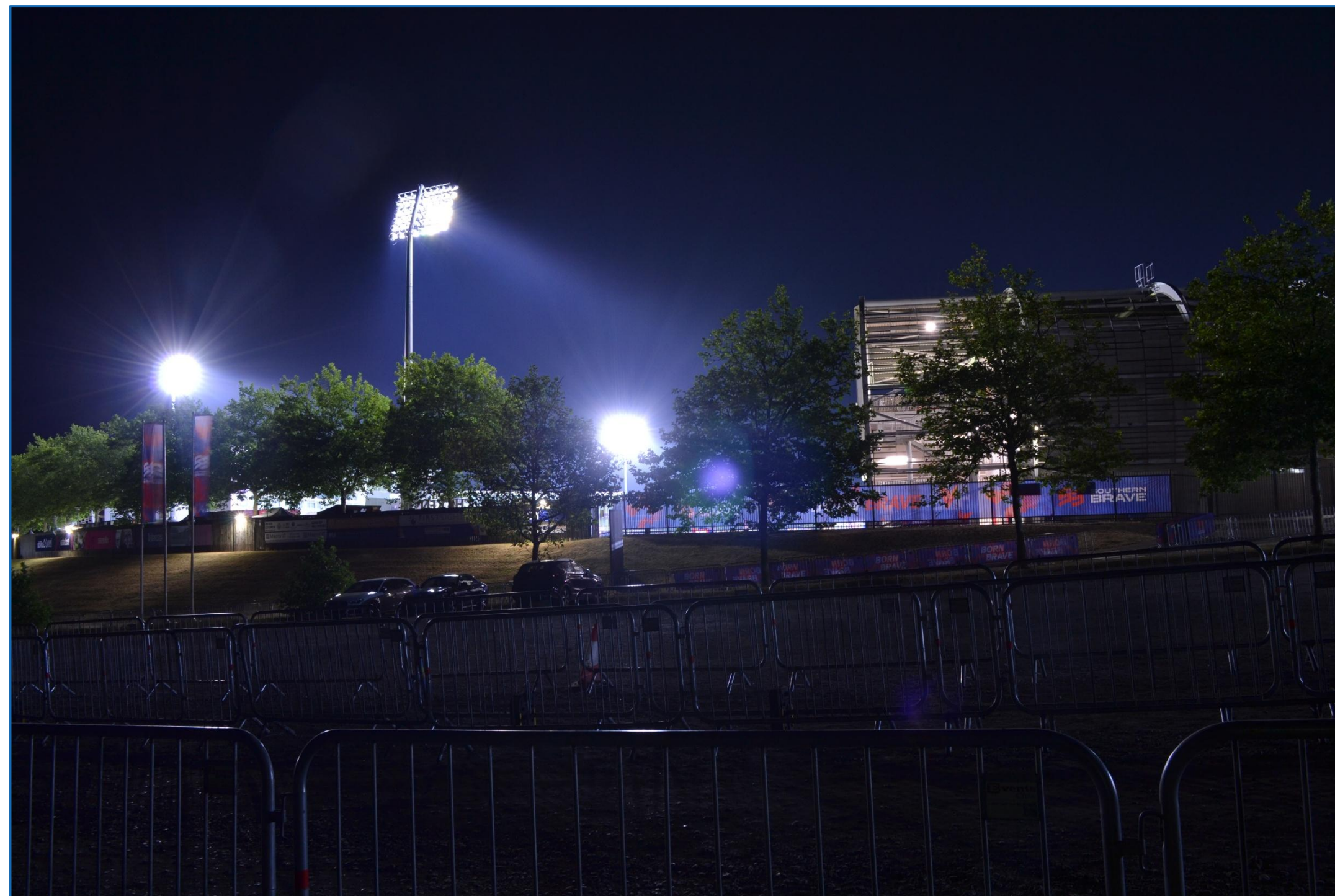


Figure 2: View from Photography Location 001 – facing East

Photo Parameters:

F-stop: f/10

Exposure Time: 3 Seconds

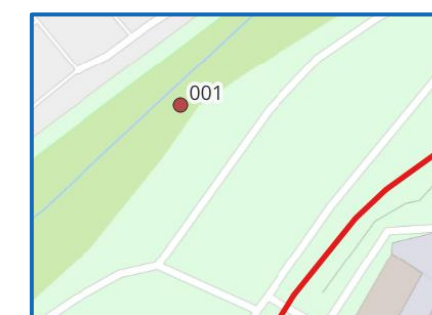
ISO Speed: ISO- 200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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Photography Location 001 – Facing Southeast



Figure 3: View from Photography Location 001 – Facing Southeast

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Photo Parameters:

F-stop: f/10

Exposure Time: 3 Seconds

ISO Speed: ISO- 200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



Photography Location 002 – Facing East



Figure 3: View from Photography Location 002 – facing East

Photo Parameters:

F-stop: f/10

Exposure Time: 3 Seconds

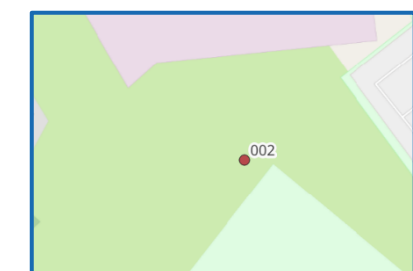
ISO Speed: ISO- 200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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Photography Location 002 – Facing Southwest



Figure 4: View from Photography Location 002 – facing Southwest

Photo Parameters:

F-stop: f/10

Exposure Time: 6 Seconds

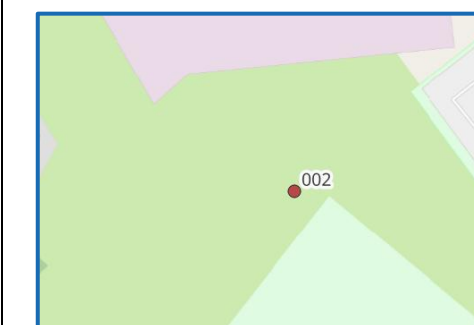
ISO Speed: ISO- 200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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Photography Location 003 – Facing Northwest



Figure 5: View from Photography Location 003 – facing Northwest

Photo Parameters:

F-stop: f/10

Exposure Time: 4 Seconds

ISO Speed: ISO- 200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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Photography Location 004 – Facing Southeast



Figure 6: View from Photography Location 004 – facing Southeast

Photo Parameters:

F-stop: f/10

Exposure Time: 2.5 Seconds

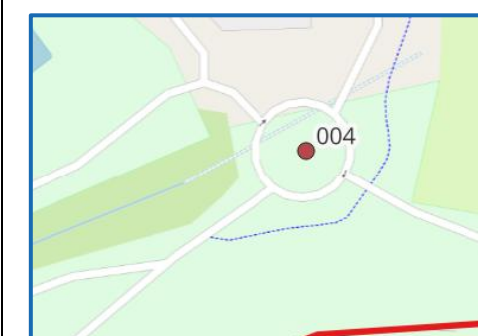
ISO Speed: ISO- 200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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Photography Location 005 – Facing Southwest



Figure 7: View from Photography Location 005– facing Southwest

Photo Parameters:

F-stop: f/10

Exposure Time: 2.5 Seconds

ISO Speed: ISO- 200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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Photography Location 006 – Facing South



Figure 8: View from Photography Location 006 – facing South

Photo Parameters:

F-stop: f/10

Exposure Time: 2.5 Seconds

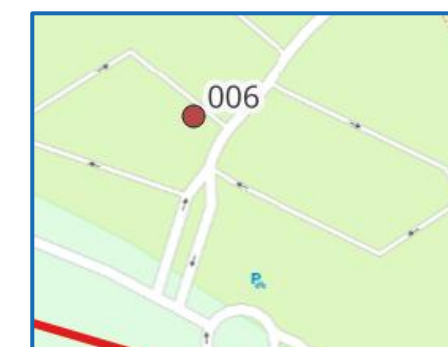
ISO Speed: ISO- 200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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Photography Location 007 – Facing Northwest



Figure 9: View from Photography Location 007– facing Northwest

Photo Parameters:

F-stop: f/10

Exposure Time: 15 Seconds

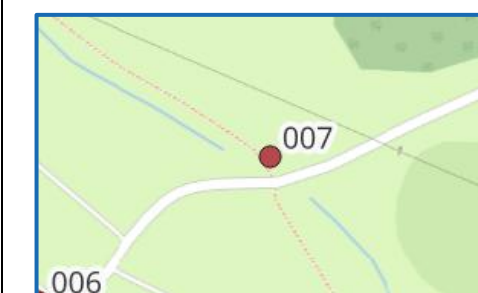
ISO Speed: ISO- 200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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Photography Location 007 – Facing West

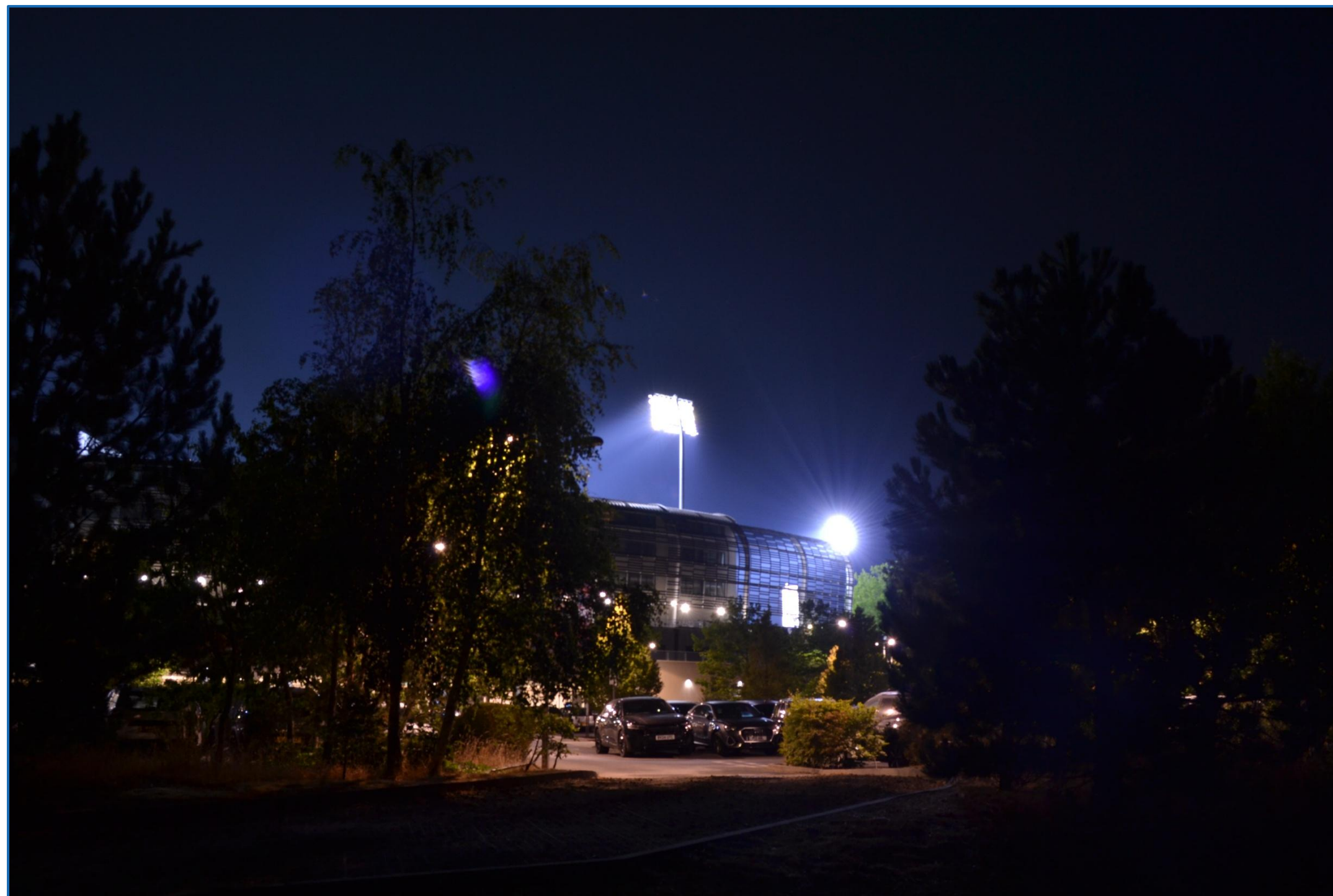


Figure 10: View from Photography Location 007 – facing West

Photo Parameters:

F-stop: f/10

Exposure Time: 5 Seconds

ISO Speed: ISO- 200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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Photography Location 008 – Facing West



Figure 11: View from Photography Location 008 – facing West

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Photo Parameters:

F-stop: f/10

Exposure Time: 5 Seconds

ISO Speed: ISO- 200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



Photography Location 009 – Facing West



Figure 11: View from Photography Location 009 – facing West

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Photo Parameters:

F-stop: f/10

Exposure Time: 15 Seconds

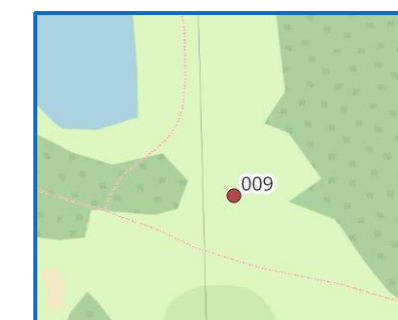
ISO Speed: ISO- 200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



Photography Location 010 – Facing West



Figure 11: View from Photography Location 010 – facing West

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Photo Parameters:

F-stop: f/10

Exposure Time: 6 Seconds

ISO Speed: ISO- 200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



Photography Location 011 – Facing West



Figure 11: View from Photography Location 011 – facing West

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Photo Parameters:

F-stop: f/10

Exposure Time: 6 Seconds

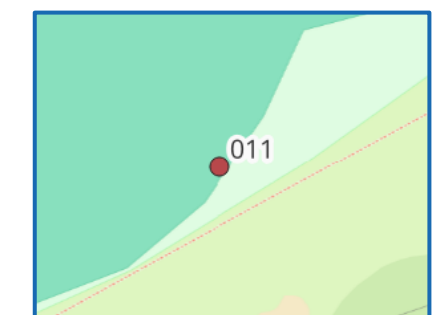
ISO Speed: ISO- 200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



Photography Location 011 – Facing Northwest



Figure 11: View from Photography Location 011 – facing Northwest

Photo Parameters:

F-stop: f/10

Exposure Time: 2 Seconds

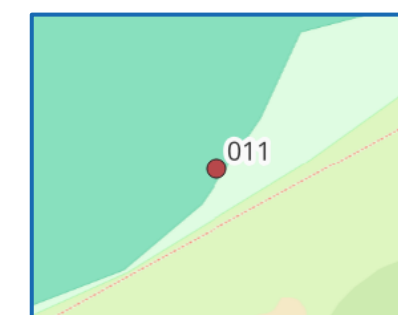
ISO Speed: ISO- 200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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Photography Location 012 – Facing North



Figure 11: View from Photography Location 012 – facing North

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Photo Parameters:

F-stop: f/10

Exposure Time: 2 Seconds

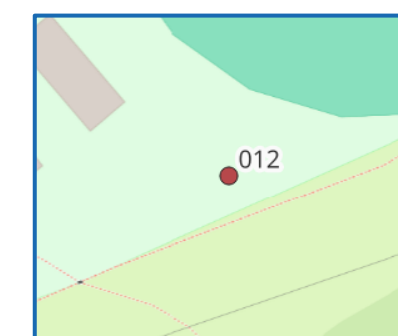
ISO Speed: ISO- 200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



Photography Location 013 – Facing North



Figure 11: View from Photography Location 013 – facing North

Photo Parameters:

F-stop: f/10

Exposure Time: 2.5 Seconds

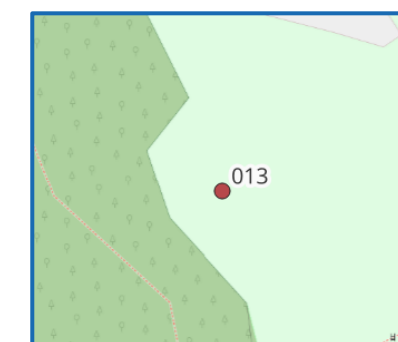
ISO Speed: ISO- 200

Exposure Bias: 0 step

Focal Length: 18 mm

Max Aperture: 3.6

Location:



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2.6. Lighting Baseline Summary

- 2.6.1. The lighting baseline survey for Utilita Bowl shows that the majority of the Application Site experiences a high level of light from the currently installed floodlighting with some areas showing results that are lower, but these results were taken in locations further away from the Application Site. Based on the illuminance readings and photographic evidence collected during the site survey, it is evident that lighting is visible from areas outside the Application Site, with associated effects from light spill extending into the surrounding environment. Temporary lighting powered by a localised generator has been installed throughout the surrounding area, resulting in noticeable illumination of the trees and hedgerows adjacent to the Application Site.
- 2.6.2. Photography was taken in areas outside of the Application Site for all photography points, these locations show the surrounding lit environment observed during the survey. These views provide an arcuate visual to the views around the Application Site with light present in most areas visited. Most notable is the lighting within the Hampshire Nursery Ground (Photography Locations 11 and 12), which shows the lighting visible through a gap with no building blocking elements like on other sides of the stadium. These locations show a high level of light within the area with little to block or shield the lighting.

3. CONCLUSION

- 3.1.1. This baseline lighting survey has established the existing night-time lighting environment at Utilita Bowl and within the surrounding area.
- 3.1.2. The results demonstrate that existing light levels across the site vary, with the majority of the site recording either high levels of light or low levels. The highest illuminance levels are recorded (Reading point 1), both horizontally (805) and vertically (1037 facing east). This measurement point is located nearby to a portable lighting generator. This indicates the surrounding area is impacted from the lighting within the Application Site with only some areas being absent from existing lighting.
- 3.1.3. Overall, the lighting baseline survey of the Utilita Bowl demonstrates that, while the majority of the Application Site experiencing a high level of light from the current installation of floodlights, some areas do show results that are lower but these results were taken in locations further away from the Application Site. The survey also identified visible lighting and associated spill light extending beyond the Application Site, contributing to the wider lit environment. This is particularly evident at locations within the surrounding area, including the Hampshire Nursery Ground, where gaps in the intervening vegetation and built form provide clear views towards the stadium lighting. In addition, the temporary lighting located throughout the surrounding area contributes to the overall levels of illumination and results in noticeable light spill onto nearby trees and hedgerows. The photography and illuminance measurements therefore indicate that existing lighting is already a prominent characteristic of the Application Site and its surrounding environment.

- 3.1.4. The wider surrounding environment is more representative of an **E3 environmental zone** in descriptive terms; however, the existing lighting conditions in the vicinity of the Application Site are more closely aligned with an **E4 environmental zone**. This is also consistent with the previous lighting design prepared by Musco Sports Lighting and installed in accordance with the previous application, which was designed on the basis of an **E4 environmental zone**.

APPENDIX 1

Lighting Baseline Survey Maps and Equipment Calibration



Figure 4: Illuminance Measurement Locations



Figure 5: Photography Locations

Certificate of Calibration

Issued by:BSRIA Limited

Date of issue:29 July 2024

Certificate number
STD_154400

Page 1 of 2 pages



Laboratory address:

Old Bracknell Lane West, Bracknell,
Berkshire RG12 7AH

T: +44 (0) 1344 459 314 | 0800 254 5566

E: instruments@bsria.co.uk

W: www.bsria.com/uk/instrument/



MARTIN TROTTER

Approved signatory

Customer: Designs for Lighting UK Ltd
Fao Fran Goodyear 17 City Business Centre Hyde Street
Winchester Hampshire SO23 7TA

Date received: 13 July 2024

Instrument: BSRIA I.D.: 129521
Description: Light meter
Manufacturer: Konica Minolta
Model: T-10A
Serial number: 36621008
Procedure version: BLT264V1

Laboratory conditions:

Temperature: 20 °C ± 4 °C

Relative humidity: < 75 %rh

Mains voltage: 240 V ± 10 V

Mains frequency: 50 Hz ± 1 Hz

Comments:

Instrument calibration conducted as found - no adjustments undertaken.
This certificate only relates to the range shown within.
At time of calibration the instrument was fitted with the measurement head serial number 55611050.

Calibration information:

The instrument was calibrated by comparison against laboratory reference equipment whose values are traceable to recognised National Standards. This is an electronic document that has been signed digitally.

The uncertainties quoted refer to the calibration only and are not intended to indicate any long-term instrument specification/performance. This certificate only relates to the items calibrated and was performed at the above laboratory address.

Calibrated by: D. M. Tovey



Date of calibration: 29 July 2024

This certificate provides traceability of measurement to recognised National Standards, and to the units of measurement realised at the National Physical Laboratory or other recognised National Standards laboratories.

Copyright of this certificate is owned by the issuing laboratory and may not be reproduced except with the prior written approval of the issuing laboratory. This certificate complies with the requirements of BS EN ISO 10012:2003.

Figure 6: Illuminance Meter Calibration Certificate Page 1

Certificate of Calibration

As Found Results

Certificate number
STD_154400

Page 2 of 2 pages

Reference equipment used in the calibration:

Instrument description	Serial number	Certificate number	Last cal. date	Cal. period
Light Bench (ZZMLB02)	18425/2 & 18426/1	ZZMLB02 - March 2024	14/03/2024	12 Months
Light Bench (ZZMLB03)	18425/1 & 18427/1	ZZMLB03 - March 2024	14/03/2024	12 Months
Distance Measuring System (ZZMLB04)	4816	ZZMLB04 - Feb 2024	15/02/2024	12 Months

Calibration uncertainties:

Illuminance : 0 to 2000 lux ±5 % of applied value or 0.1 lux whichever is greatest.
Measurement uncertainty equals the above plus the devices resolution as reported in the results section, added in quadrature.

Calibration procedure, Illuminance:

The instrument was calibrated against laboratory standards which are themselves traceable back to National Standards.

The illuminance measurements were conducted in accordance with the methodology contained in BS 667 using a tungsten filament lamp with a colour temperature of 2856 k. Illuminance levels were calculated using an inverse square law with respect to distance away from a tungsten filament lamp source.

The light meters reference plane was taken to be the front face of the diffuser.

The illuminance meter was zeroed prior to calibration.

Calibration results, Illuminance:

Range	Applied	Indicated	Correction	Specification	% of Spec.	Comment
Auto	0.00 lux	0.00 lux	0.00 lux	±0.01 lux	0.0 %	
	50.0 lux	50.5 lux	-0.5 lux	±1.1 lux	45.5 %	
	100.0 lux	100.5 lux	-0.5 lux	±2.1 lux	23.8 %	
	250.0 lux	248.8 lux	1.2 lux	±5.1 lux	23.5 %	
	500.0 lux	496 lux	4.0 lux	±11.0 lux	36.4 %	
	1000.0 lux	985 lux	15.0 lux	±21.0 lux	71.4 %	
	2000.0 lux	1966 lux	34.0 lux	±41.0 lux	82.9 %	

Any test points marked with a * do not comply with instrument specification.

End.

Figure 7: Illuminance Meter Calibration Certificate Page 2

DFL
17 City Business Centre, Hyde Street, Winchester, SO23 7TA
+44(0)1962 855080 | info@dfi-uk.com | www.dfi-uk.com

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TECHNICAL DESCRIPTIONS, DEFINITIONS & ABBREVIATIONS

PHAR: is an abbreviation for a potential human amenity receptor, a location where an observer could have the potential to be affected by the proposed lighting to be installed *Abbreviation used by DFL LI&P.*

PSER: is an abbreviation for an area identified as or treated as a location that may host a potentially sensitive ecological receptor. This is generally used where light sensitive bats have the potential to live, forage or use as a flight path, other ecologically sensitive receptors such as (but not limited to) the Great Crested Newt may also be identified by this term. *Abbreviation used by DFL LI&P.*

PSR: is an abbreviation for an area where an individual maybe susceptible to light brightness (Light intensity) which may have the potential to cause a hazardous situation. *Abbreviation used by DFL LI&P.*

Obtrusive Light: refers to excessive or bothersome artificial light that goes where it shouldn't, causing discomfort and disruption. *Spill light which because of quantitative, directional or spectral attributes in a given context gives rise to annoyance, discomfort, distraction or reduction in the ability to see essential information.* CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.

Sky glow: When lights are directed upwards or light is scattered by particles in the air, like dust or water droplets, it creates a glow that makes it hard to see stars. *The increase in diffuse illuminance of the night sky above that produced by natural sources such as the moon and visible star.* CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.

Vertical Illuminance: is how much light lands on upright surfaces like walls. It's measured in lux or footcandles and matters for places where the view from a vertical angle is important. *Lighting of vertical surfaces such as walls, windows, statues, sculptures and people's faces.* CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.

Correlated colour temperature (CCT): the appearance of light emitted by a light source measured in Kelvin (K), Lower CCT values such as 2700K represent warmer, more yellowish light, *similar to the light from older incandescent lamps. (Tcp)The temperature of the Planckian radiator whose perceived colour most closely resembles that of a given stimulus at the same brightness and under specified viewing conditions, measured in absolute temperature on the kelvin (K) scale.* CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.

Lux: measures the brightness of light as perceived by the human eye at a specific point on a surface. *The SI derived unit of illuminance, measuring luminous flux per unit area (1 lux = 1 lumen/m²).* CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.

Lumens: measure how bright a light appears to our eyes. *The SI derived unit of luminous flux; a measure of the total quantity of visible light emitted by a source or received by a surface (unit: lumen).* CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.

Glare: refers to an excess of bright light that makes you uncomfortable or hinders your vision. It happens when there's a big difference between a bright light and the rest of the surroundings. *Glare: condition of vision in which there is discomfort or a reduction in the ability to see details or objects, caused by an unsuitable distribution or range of luminance, or by extreme contrasts.* BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.1.8

Luminous intensity: is light brightness or how intense the light source is. light intensity is how intense a light source is emitted or received in a particular direction, this is measured candelas and is termed as luminous intensity I_v <of a source, in a given direction> quotient of the luminous flux, $d\Phi_v$, leaving the source and propagated in the element of solid angle $d\Omega$ containing the given direction, by the element of solid angle (unit: $cd = lm \cdot sr^{-1}$). BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.2.2.

Candela: is a measurement for the brightness of a light source, taking into account the direction in which the light is emitted. Base unit of luminous intensity in the International System of Units (SI); the luminous power per unit solid angle emitted by a point light source in a particular direction. CIBSE LG21 Lighting Guide 21: Protecting the night-time environment.

Uniformity (Uo): is an explanation for the even distribution of light across an area or surface. The overall uniformity shall be calculated as the ratio of the lowest luminance, occurring at any grid point in the field of calculation, to the average luminance. BS EN 13201-3-2015, Calculation of Performance Section 8.3.

Luminance: is how bright a surface appears to our eyes. It considers the light coming from or reflected by an object. L_v <in a given direction, at a given point of a real or imaginary surface> quantity defined by the formula (unit: $cd \cdot m^{-2} = lm \cdot m^{-2} \cdot sr^{-1}$) BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.2.3.

Illuminance is how much light lands on a surface per square meter. It's measured in lux. More lux means a brighter area. E_v (unit: $lx = lm \cdot m^{-2}$) 1. <at a point of a surface> quotient of the luminous flux $d\Phi_v$ incident on an element of the surface containing the point, by the area dA of that element 2. <at a point of a surface> equivalent definition: integral, taken over the hemisphere visible from the given point, of the expression. BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.2.10.

Luminaire: a light fixture, this is also sometimes referred to as a lantern or a light fitting, is a product that produces artificial light. apparatus which distributes, filters or transforms the light transmitted from one or more lamps and which includes, except the lamps themselves, all the parts necessary for fixing and protecting the lamps and, where necessary, circuit auxiliaries together with the means for connecting them to the electric supply BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.3.3

ULOR: upward light output ratio or ULOR refers to the amount of light the light fixture will produce upwards as a percentage of its total light output. $RULO$ <of a luminaire> ratio of the upward luminous flux of the luminaire, measured under specified practical conditions with its own lamp(s) and equipment, to the sum of the individual luminous fluxes of the same lamp(s) when operated outside the luminaire with the same equipment, under specified conditions BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.3.12.

Maintenance factor (MF): is an allowance for how well the lights keep working overtime. It considers things like dirt on the light fittings and "wear and tear". DEPRECATED: light loss factor ratio of illuminance produced by the lighting installation after a certain period to the illuminance produced by the installation when new Note 1 to entry: The term depreciation factor has been formerly used to designate the reciprocal of the above ratio. Note 2 to entry: The maintenance factor takes into account light losses caused by dirt accumulation on luminaires and room surfaces (in interiors) or other relevant surfaces (in exteriors, where appropriate), and the decrease of the luminous flux of lamps. BS EN 12665-2018, Light and lighting - Basic terms and criteria for specifying lighting requirements, Section 3.5.18.

Tilt: is how much the luminaire is lifted based on the fitting facing flat to the ground.

Outreach: how far away the fitting is from the column/wall its mounted on to the light source.

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James Probut
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+44 (0)1962 855080



James.Probut@dfi-uk.com



www.dfi-uk.com/



17/18 City Business Centre, Hyde
Street, Winchester, Hampshire,
SO23 7TA