



• LIGHTING DESIGN • ELECTRICAL • SMART CITIES •
ENERGY REDUCTION • LIGHTING IMPACT

120 RHOSNESNI LANE, WREXHAM

BASELINE SURVEY

DFL-UK

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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.



Quality



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1. INTRODUCTION

1.1. Executive Summary

- 1.1.1. 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.
- 1.1.2. The report outlines the finding of a site survey to establish the baseline lighting conditions, which have been undertaken by suitably qualified and competent lighting professionals.
- 1.1.3. The purpose of this report is to summarise the findings of the survey lead by Alex Brown on the 09/04/2024. This survey was to confirm the installation of the fittings for the support of a retrospective planning application, to the existing development found to the rear of 120 Rhosnesni Lane, Wrexham which is to comply to the following condition with regards to lighting:

"2. The use hereby permitted shall permanently cease within 28 days of a failure to meet any one of the requirements set out in i) to iv) below:

- i) Within 12 weeks of the date of this decision, an external Lighting scheme shall have been submitted for the written approval of the Local Planning Authority.*
- ii) If within 20 weeks of the date of the decision the Local Planning Authority refuse to approve the details or fail to give a decision within the prescribed period, an appeal shall have been made to, and accepted as validly made, by the Welsh Ministers;*
- iii) If an appeal is made in the pursuance of ii) above, that appeal shall have been finally determined and the submitted details shall have been approved by the Welsh Minister;*
- iv) The Lighting Scheme shall be fully implemented within one month of the date of approval in writing by the Local Planning Authority or, in the event of ii) and iii) above, by the Welsh Ministers, and operated in accordance with the approved details. No other external lighting be placed on any part of the site.*

9. The outside of the building shall not be illuminated outside of the opening hours referred to in condition 5."

- 1.1.4. The survey was started at 21:59, readings were not taken until 22:16, further information on the Application Site and surrounding area at the time of the survey can be seen in **Appendix 2.**

2. DESKTOP STUDY

2.1. Site Description and Context

- 2.1.1. An indicative boundary of the site and proposed layout can be seen in **Figure 1**.
- 2.1.2. The Application Site sits under the jurisdiction of Wrexham County Borough Council.
- 2.1.3. The planning consent is for the demolition of structure and the construction of seven commercial developments (B1).

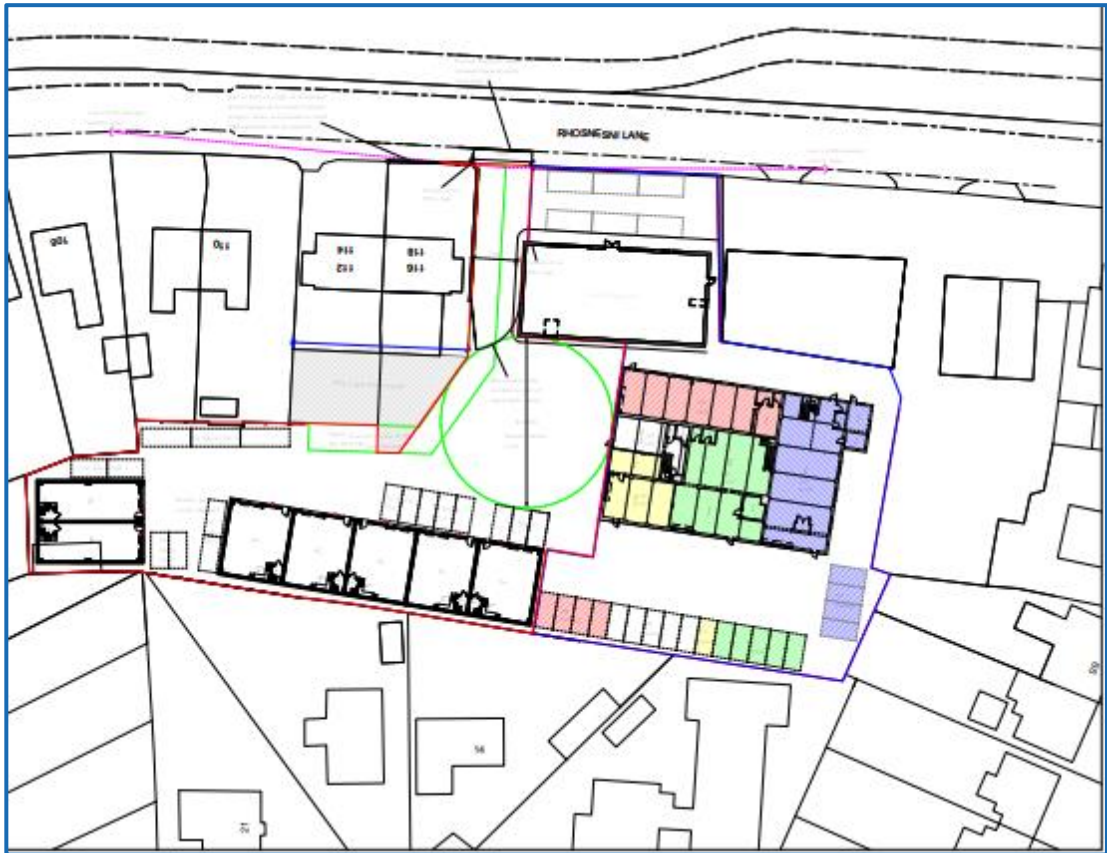


Figure 1: The Application Site location and boundary

2.2. Survey Area

- 2.2.1. The area surveyed is shown by the red line in **Figure 2**.
- 2.2.2. Photographs for visual references were taken in the locations outlined in **Figure 3**.
- 2.2.3. Details of the conditions of the baseline survey can be found in **Appendix 2**.



Figure 2: Survey Area



Figure 3: Survey Area photography locations (see Appendix 4 for further information)

3. METHODOLOGY

3.1. Relevant Guidance

- 3.1.1. This baseline survey has been undertaken in accordance with the Institution of Lighting Professional's (ILP) Professional Lighting Guide (PLG04) and with consideration of the limits on obtrusive light set out within the ILP "Guidance Notes for the Reduction of Obtrusive Light" (GN01:2021).
- 3.1.2. The baseline survey has been carried out by suitably qualified and competent lighting professionals, as detailed in **Section 1**.

3.2. Illuminance Readings

- 3.2.1. Illuminance measurements were taken in the horizontal plane with the illuminance meter being placed on the ground above the measurement point, and in the vertical plane at approximately 1.5m in height facing relative to north, east, south, and west, based on a common reference point.
- 3.2.2. Measurement positions taken during the baseline survey are presented in **Appendix 1**.
- 3.2.3. Measurements were taken using a Konica Minolta T-10A illuminance meter (serial number: 20012021) which has a current calibration certificate (certificate no: STD_150550) and is widely regarded as the standard instrument for providing a consistent level of accuracy at the low illuminance levels associated with site measurements in locations with typically low ambient luminance. A copy of the calibration certificate can be found in **Appendix 5**.

4. EXISTING LIGHTING

4.1. Overview

- 4.1.1. The surrounding environment is well lit by street lanterns to the main access road (Rhosnesni Lane), the surrounding residential properties are illuminated to the exterior by the lights typically seen within an E3 environmental zone.
- 4.1.2. The Application Site is currently a commercial property using low level floodlighting to the bay doors and movement sensor bollards to the ingress and egress points of the current development.
- 4.1.3. Light pollution mapping prepared by Campaign for the Protection of Rural England (CPRE) indicates high levels of sky glow in the vicinity of the Application Site. Results of this mapping are presented in **Figure 4**.

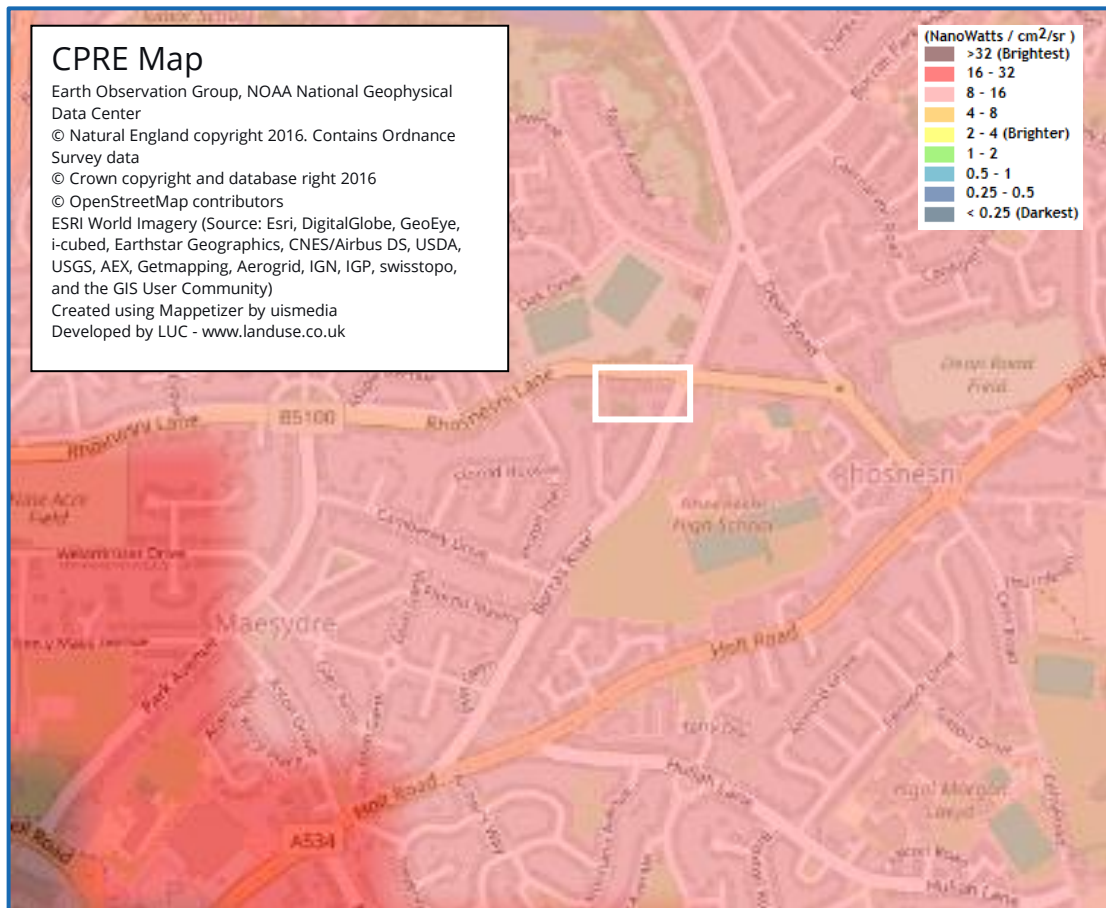


Figure 4: CPRE Mapping

5. SUMMARY OF RESULTS

5.1. Overview

- 5.1.1. The highest reading on the Application Site was recorded along facing to the south of the site within the Application Site (spot measurement location 4, 0.35 Lux) which emanates from the adjacent residential property.
- 5.1.2. The light levels seen in the spot measurement locations 1-3 are of the light levels coming out of the Application Site when lights are on, however these are manually turned off at close of play (17.30 hours) from within the development.
- 5.1.3. The intent of the spot measurements locations 1-3 are to prove that in the situation where a tenant leaves the lights switched on and movement is present, setting off the motion sensors on the light fixtures, light levels would still not exceed the limitations within GN01/2021.
- 5.1.4. The results of the illuminance measurements are presented in **Appendix 3**.

6. CONCLUSION

6.1. General

- 6.1.1. This report is to summarise the findings of the survey lead by Alex Brown on the 09/04/2024, this survey was to confirm the installation of the fittings for the support of retrospective planning to the existing development found to the rear of 120 Rhosnesni Lane, Wrexham which is to comply to the conditions outlined within the executive summary.
- 6.1.2. The results within this report further support the environmental zone selection for the surrounding area within the Lighting Strategy for the newly proposed development.
- 6.1.3. A desktop assessment and on-site survey were undertaken to determine the nature of the site and its surrounds, and to build a picture of lighting within the site and in the immediate vicinity.
- 6.1.4. The Application Site extent was intrinsically dark however the surrounding environment was as typically seen in an E3 environmental zone, this can be seen in the site photography presented in **Appendix 4**.
- 6.1.5. Luminaire datasheets in **Appendix 6** are confirmed to relate to the luminaires installed on site.
- 6.1.6. Lights are to be manually switched off at the end of the working day, during the hours of darkness through the winter months, the light fixtures will only be activated by a motion sensor.

- 6.1.7. When the luminaires are switched on, the light levels read at the time of the site survey would evidence that the light emanating from the site would not exceed the limitations for the post curfew light levels.
- 6.1.8. Position and anticipated light spill of existing luminaires are outlined within the light spill document 3401-DFL-ELG-XX-LD-EO-13001-S3. Existing floodlight luminaires installed as per the 30W floodlight datasheet in Appendix 6 are marked as luminaire type A in the light spill documentation, the bulkhead luminaires as shown in the same Appendix are marked as luminaire type B.
- 6.1.9. The information within this and accompanying documentation 3401-DFL-ELG-XX-LD-EO-13001-S3 satisfy the following sections of the outstanding conditions related to lighting.

“ i) Within 12 weeks of the date of this decision, an external Lighting scheme shall have been submitted for the written approval of the Local Planning Authority.[...]”

9. The outside of the building shall not be illuminated outside of the opening hours referred to in condition 5.”

APPENDIX 1 – MEASUREMENT POINTS

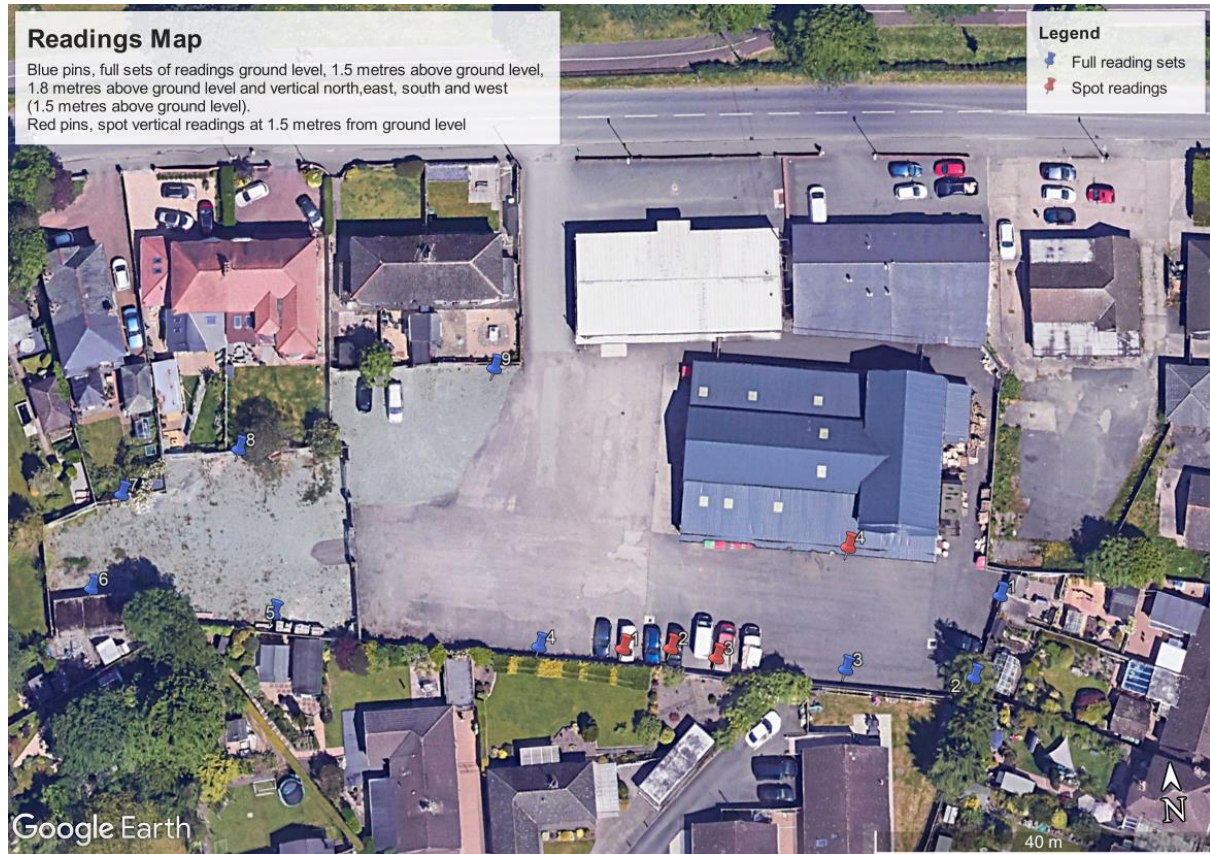


Figure 1.1: measurement locations.

APPENDIX 2 – SURVEY INFORMATION

Survey Information	
Site Address	120 Rhosnesni Lane, Wrexham LL12 7NB
Survey Start	21.59 hours
Survey Finish	23.10 hours
Astronomical Twilight	22:11 hours
Weather	Mild, clear sky (nighttime)
Moon Phase	New Moon 0%

Table 1: Survey Information

APPENDIX 3 – SURVEY RESULTS

Location	Ground level (GL)	1.5 metre above GL	1.8 metre above GL	Vertical			
				North	East	South	West
1	0	0.01	0.05	0.04	0.10	0.21	0.05
2	0	0	0.06	0	0	0.25	0.14
3	0	0	0.02	0.03	0.09	0	0
4	0	0	0	0.02	0.02	0	0
5	0	0	0	0.01	0	0	0
6	0	0	0	0.02	0	0	0
7	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0
9	0	0	0.01	0	0	0	0.02

Table 2: Survey Results (all results in lux)

Location	Vertical			
	North	East	South	West
1	0.72	This set of measurements have been done with the lights on temporarily to check compliance with limitations with GN01/2021 for an E3 environmental zone. Measurement 4 was completed with the Developments lights switched off to evaluate the light levels from the adjacent residential property.		
2	0.80			
3	0.65			
4			0.35	

Table 3: Additional spot readings for context (all results in lux)

APPENDIX 4 – SURVEY PHOTOS



Figure 4.1: Photo location map



Figure 4.2: Photo 1 daytime and nighttime perspective



Figure 4.3: Photo 2 daytime and nighttime perspective



Figure 4.4: Photo 3 daytime and nighttime perspective



Figure 4.5: Photo 4 daytime and nighttime perspective



Figure 4.6: Photo 5 daytime and nighttime perspective



Figure 4.7: Photo 6 daytime and nighttime perspective

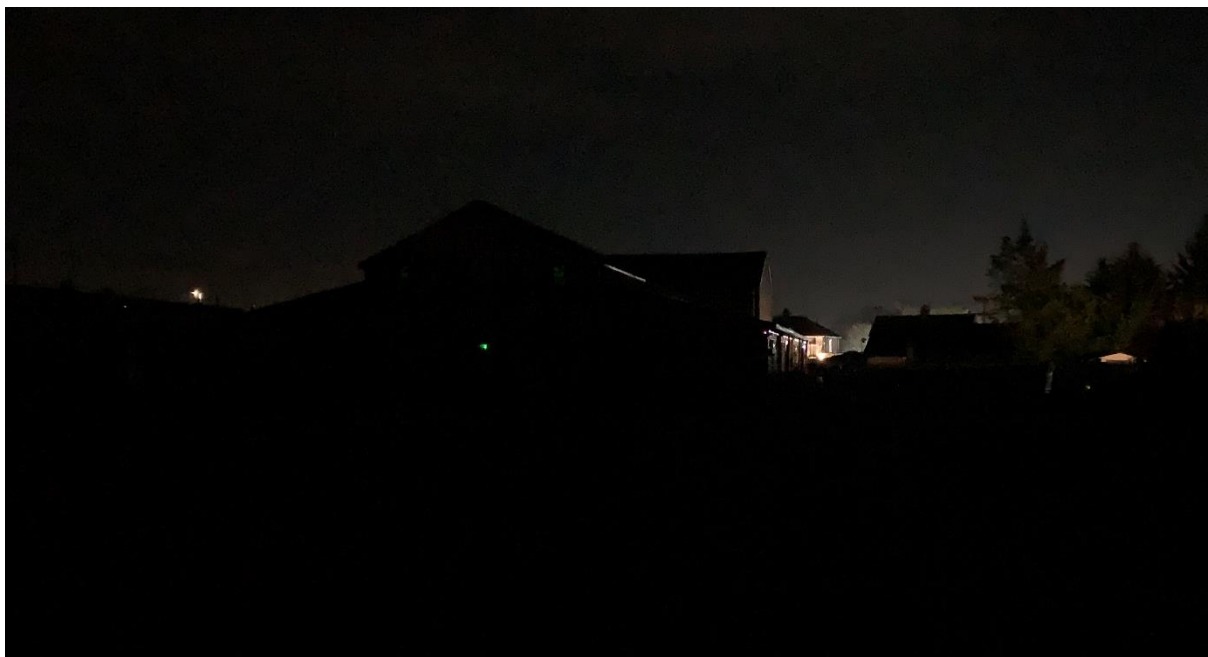


Figure 4.8: Photo 7 daytime and nighttime perspective



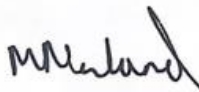
Figure 4.9: Photo 8 view of existing street lanterns from within the southern extent of the development looking out to the northeast.

APPENDIX 5 – CALIBRATION CERTIFICATE

Certificate of Calibration		Certificate number STD_150550
Issued by: BSRIA Instrument Solutions - A division of BSRIA Limited Date of issue: 26 February 2024		Page 1 of 3 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/



MATT NEWLAND
 Approved signatory

Customer: Instrument Solutions
Old Bracknell Lane West
Bracknell Berkshire RG12 7AH

Date received: 19 February 2024

Instrument:	BSRIA I.D.:	202489
	Description:	Light meter
	Manufacturer:	Konica Minolta
	Model:	T-10A
	Serial number:	20012021
	Procedure version:	U6F11V4

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.

Instrument was zeroed prior to the start of the calibration.

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: M. Rule



Date of calibration: 26 February 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.

Certificate of Calibration

As Found Results

Certificate number
STD_150550

Page 2 of 3 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 - 2023	02/03/2023	12 Months
Light Bench (ZZMLB03)	18425/1 & 18427/1	ZZMLB03 - 2023	02/03/2023	12 Months
Distance Measuring System (ZZMLB04)	4816	ZZMLB04 - Feb 2024	15/02/2024	12 Months

Calibration uncertainties:

The reported measurement uncertainty values shown have been calculated taking into account the device resolution and stability at the time of calibration.

Instrument contents:

Main unit	Yes
Detector head	Yes
Zero cap	Yes
Meter adapter head	Yes
Cat 5 cable	Yes
Receptor head	Yes
x2 batteries fitted	Yes
x2 batteries spare	Yes
Manual	Yes
Certificate	Yes
Soft case	Yes
Hard carry case	Yes

Inspection results:

Visual inspection	Pass
Integrity seals	Pass
Memory cleared	Pass
Mode set to lx	Pass

APPENDIX 6 – PRODUCT DATASHEETS

SPECIFICATION

Tatton Slimline 30W & 50W

LED Floodlight



Without PIR	TA1-30C	TA1-50C
With PIR	TA1-30CP	TA1-50CP
Wattage	30W	50W
Output Lumens	2500lm	4100lm
Switch Time	12500	12500
Instant Light	Yes	Yes
Dimensions without PIR (mm)	168 x 209 x 27	200 x 237 x 36
Dimensions with PIR (mm)	168 X 252 X 54	200 X 287 X 57

Key Features

- PIR with 4th wire override or slave function
- IP65 PIR
- Angled bracket for easy installation
- Supplied with 1m cable
- 2 year warranty

CRI >80 IP 65

Beam Angle 110°	Input 200-240V	Life Hours 25,000
Dimmable No	Colour Temperature 6500K	

Please Note: Product specifications are subject to change without notice. Product supplied may differ slightly in appearance from images shown on this website. Diamond LED Lighting reserve the right to update product specifications.

Tel: 01260 292 640 | Fax: 01260 279 116 | E-mail: sales@diamondledlighting.co.uk | Web: www.diamondledlighting.co.uk

SPECIFICATION

Athena Bulkhead



Standard	AT1-NB
PIR Version	AT1-NB-PIR
Watt	6W
Lumens	500
Dimensions (mm)	267 x 113 x 108

Key Features

- Suitable for external use
- 3 Year Warranty

CRI >80 IP 44



Beam Angle
120°



Input
180-240V



Life Hours
30,000



Dimmable
No



Colour Temperature
4000K

Please Note: Product specifications are subject to change without notice. Product supplied may differ slightly in appearance from images shown on this website. Diamond LED Lighting reserve the right to update product specifications.

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This isn't the end...

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- **Residential** teams that cover all aspects of new development and redevelopment spanning private, section 38 and section 278 design packages.
- **Public Realm** teams that are experts in enhancing night-time public spaces to create inviting spaces and opportunity for local economies to thrive during the hours of darkness.
- **Electrical** teams – we don't just put a light in the ground, we can help you get power to it as well! Additionally, we also offer design services for EV charging. As this market rapidly expands, make sure you have the experts managing the load, otherwise your EV charging solutions might not live up to expectations.
- **Strategic Infrastructure** teams that offer Lighting and Electrical expertise for complex transport networks and interchanges.
- **Consultancy Services** teams that help when you know what you want but you need someone to help you turn the idea into a project.

Finally, as innovators, you might be facing something bespoke or niche. Don't worry – we might have the answer you need. Feel free to get in touch!

THE POWER TO MAKE LIGHT WORK



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Senior Engineer



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